Council Meeting Date: 9/13/10 **Agenda Item:** 8(a)

CITY COUNCIL AGENDA ITEM

CITY OF SHORELINE, WASHINGTON

AGENDA TITLE:	Kruckeberg Botanic Garden Master Plan – Council Adoption
DEPARTMENT:	Parks, Recreation and Cultural Services
PRESENTED BY:	Dick Deal, Dave Buchan

PROBLEM/ISSUE STATEMENT:
This Staff Report provides Council with a status report and recommendation regarding the Master Plan for the Kruckeberg Botanic Garden in Shoreline.

Background:
In May of 2006, voters in the City of Shoreline approved Park and Open Space Proposition #1, which authorized the City to acquire certain named park and Open Space parcels in the City. Acquisition of the Kruckeberg Botanic Garden was one of the named sites in the Bond language for City acquisition.

In January, 2008, the City of Shoreline finalized the acquisition of the Kruckeberg Botanic Garden from the Kruckeberg family. The intent of this acquisition was to place in public ownership the Kruckeberg Botanic Garden (KBG) so that future generations of Shoreline residents could experience this outstanding collection of plant materials and if so inclined, learn about planting techniques and care of native Pacific Northwest lowland forest plant materials for their own gardens.

The general premise for ongoing operation at the Kruckeberg Botanic Garden was that the City of Shoreline owned the Garden and provided selected resources for Garden operation, but that the Garden was managed and operated by the Kruckeberg Botanic Garden Foundation. It soon became clear that a master plan was needed for the KBG to guide the planning, design and operational elements into the future.

In May, 2009, following a formal RFQ process, the John Swanson Design Studio, LLC, was selected to lead the planning and design effort to create a master plan for the Kruckeberg Botanic Garden.

The Design Process:
The planning and design effort for the KBG Master Plan began with a series of site evaluations to fully understand the Garden operation. This included a study of the condition of the plant collection and the layout of the Garden with respect to ideas for interpretive themes for site tours and Garden programs. Other evaluations involved a review of all existing buildings and structures on site, and a detailed look at Garden revenues, expenses, staffing patterns and visitation history.

An important emphasis in the development of the Garden master plan has been the public involvement process. A series of nine separate public workshops were held in the development of the plan, with each workshop focusing on a particular design issue or operational focus. This included such topics as defining the Garden Mission Statement, looking at "Sustainability" as an operations focus and the future of Garden education program, classes and tours. These workshops occurred at roughly monthly intervals during the design effort.

Gradually, master plan options began to emerge. These options included such design proposals for on-site parking, alternatives for buildings and support structures for Garden operations and a review of classroom facilities, greenhouse facilities, staff offices, modest library, gift shop and accessible pathways and site maintenance facilities.

These options were evaluated by both the Board of the Kruckeberg Botanic Garden Foundation and by Shoreline residents at public workshops. These sessions were instrumental in making sure the Foundation was on board with early directions and options for the master plan.

Another focus of the planning effort related to evaluating a future operations plan for the Garden. To gain a better understanding of what has worked well and not so well at other regional botanic facilities a "comparables analysis" of eleven different botanic gardens was undertaken. This analysis compared staffing levels, budgets, acreage, parking, governance and myriad other comparisons that give us an opportunity to test operating assumptions in the development of a Kruckeberg Botanic Garden business plan

At periodic intervals through the design process, progress briefings were held with both the Park Board and Shoreline City Council to keep them abreast of planning issues and the emerging plan options. The last briefing to Council occurred on Monday, April 5, 2010.

The Recommended Master Site Plan

Over the past two months a recommended Master Plan for the Kruckeberg Botanic Garden has emerged and has been thoroughly evaluated by the following groups:

1. Dunn Garden Executive Committee: The Conservation Easement for the Kruckeberg Botanic Garden is overseen by the Board of Directors of the Dunn Garden in Seattle. In mid-April Staff presented the proposed Master Plan to the Executive Committee of the Dunn Garden Board. The Committee found that "the plan complies with the conditions of the Conservation Easement, which includes conservation values, construction limits as well as permitted and prohibited uses."

2. Board of Directors of the Kruckeberg Botanic Garden Foundation: This Board unanimously endorsed the proposed Master Plan and enthusiastically support its phased implementation in the years ahead.

3. Shoreline Park Board: At its regular meeting of May 27, 2010 the Park Board unanimously adopted both the Kruckeberg Botanic Garden Mission Statement and the proposed Master Plan for the KBG Garden.

4. SEPA Checklist: The SEPA Checklist covering the Kruckeberg Botanic Garden Master Plan was issued by the City's Department of Planning and Development Services on June 11, 2010 and sent to appropriate local, State and Federal regulatory agencies. A Determination of Non-Significance (DNS) was issued for the master plan project. The 14-day appeal period for the DNS decision expired on June 28, 2010. No appeals were received by the City.

The SEPA Checklist for the Kruckeberg Botanic Garden Master Plan was issued as a Program level document since the Checklist covered the Garden's master plan, but no specific development project. Going forward, amendments to the Checklist will be required at the Project level for each specific project undertaken at the Garden.

Staff is asking Council to approve the Kruckeberg Botanic Garden Master Site Plan at this time. The final report for the project, attached, includes the Master Site Plan drawing as well as backup information describing the planning process, the Gardens operations plan with revenue/expense projections, staffing levels and recommendations regarding hours/days of operation and other pertinent information. The report also includes elements of the plan, proposed phasing schedule for capital improvements and estimates of total project costs per phase.

The John Swanson Design Studio, LLC may be asked to continue design services for specific design phases for the KBG Garden in the months ahead. The first phase project recommended in the plan is design and construction of the on-site parking lot at the Garden. Current plans would call for design of the parking facility this fall with construction in the spring of 2011. The current project fund balance will be used for these first phase improvements.

FINANCIAL IMPACT:
Funds for the preparation of the Master Site Plan for the Kruckeberg Botanic Garden are included in the overall Kruckeberg Botanic Garden fund. The current remaining balance of the fund is $482,439 and the fund source is the 2006 Open Space, Parks and Trails Bond.

RECOMMENDATION

Staff recommends that Council adopt the Master Site Plan for the Kruckeberg Botanic Garden to guide the future development of this facility in the City of Shoreline.

Approved By: City Manager ___ City Attorney ___

KRUCKEBERG BOTANIC GARDEN

MASTER SITE PLAN

Prepared by:

JOHN SWANSON DESIGN STUDIO, llc.

• Landscape Architects • Horticulturists • Exhibit Designers • Interpretive-Planners

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- Sue Nicol *Horticulturist*
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PHOTO CREDITS

All photos by John Swanson Design Studio unless otherwise noted.

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EXECUTIVE SUMMARY

MISSION STATEMENT

The Kruckeberg Botanic Garden promotes an interest in horticulture through educational, cultural, and aesthetic experiences; fosters sustainability; and builds upon the botanic legacy of the Kruckeberg family.

EXECUTIVE SUMMARY

Over the last 50 years, Dr. Arthur R. Kruckeberg and his wife, Mareen, amassed a rich botanical collection on their 3.79 acre property in the City of Shoreline. This was the genesis of the Kruckeberg Botanic Garden (KBG). The City of Shoreline purchased this property in 2008 with the intention of preserving it as a public educational resource for the people of Shoreline.

Preparation of the KBG Master Site Plan has been a year in development. The plan has evolved through a detailed evaluation of the existing garden, its plant collection, programs, and activities. The Garden's operations plan was evaluated, and options for site development were explored. The process included a search for the right scale and "fit" of the Garden and its programs into the Shoreline community.

This Master Site Plan is intended to serve as a guide to the development of the Garden over the next few decades. Necessarily, development will occur through a series of phases as funds become available. Sustainability is intrinsic to the philosophy behind this Plan. Its source and inspiration is the City's "Environmental Sustainability Strategy," approved in 2008 by the City Council.

Much has been learned over the past year. The Shoreline City Council's initial direction to make the Garden as self-supporting as possible has evolved into an understanding that botanic gardens, by nature, cannot be fully self-supporting. The best botanic gardens may generate no more than 50% of their annual budgets in "earned income," such as admissions fees, classes, and program fees. The balance of revenues must come through membership programs, grants, fundraising campaigns, and other contributions.

For the Garden to be as financially solvent as possible, its operating entity, the Kruckeberg Botanic Garden Foundation, should focus on developing strong fundraising and solicitation capabilities to supplement the earned income from Garden operations. The good news is that the Foundation, operating through its Board of Directors, has already begun to do just that. Over the past year, the Board hired a "board development" professional and set goals for fundraising and a new organizational structure, to be implemented as financial resources become available. In April of this year, the Board held its first major community fundraiser, GardenParty 2010. The event raised $20,000 and it is hoped that it and similar efforts will be held annually.

The public and all shareholders were extensively involved in creating this site plan. Over 30 design workshops, planning sessions with the Foundation Board, and presentations to the Parks, Recreation and Cultural Services Board and City Council were held between March 27, 2009 and May 18, 2010.

Much of the evaluation regarding the Garden has involved perceptions about the scale and operational size of the "new" Kruckeberg Botanic Garden and the potential impact of that operation on the Shoreline community. A number of Shoreline residents living near the Garden have expressed concern that the City's initial desire to make the Garden self-supporting would lead to overly commercial programs designed to attract sufficient visitors to create the revenue base to fund Garden operations. This is an understandable concern and one from which we have learned.

The consensus of the Foundation and the City is that the Garden should remain a small botanic facility. The improvements suggested in this Master Site Plan focus on the creation of a small, high-quality garden with well-designed support facilities. The goal is to inspire pride and confidence that the Garden will be a treasured resource in Shoreline. One way to make this a community treasure is to extend Garden-related programs into the community. Certain programs can be scheduled at the Shoreline Civic Center or other nearby facilities. Some activities, such as plant propagation and major garden sales, could take place at off-site locations.

As the City of Shoreline and the KBG Foundation work together to carry out incremental improvements, an important focus will be maintaining good communication with neighbors to ensure that proposed improvements do not adversely affect their properties. As has been said many times during our master planning process, the City and the Foundation aim for the Kruckeberg Botanic Garden to be a good neighbor. This effort will continue in the future.

During the first phase of the capital program for the KBG, the City proposes to construct a new entry and parking lot within the Garden's west perimeter. This small parking lot is sized to accommodate anticipated parking needs for visitors on a typical day.

At its core, the success of the Kruckeberg Botanic Garden will rest on the trust and partnership created between the KBG Foundation Board and the City of Shoreline. The City will continue to support the Board, both financially and with a range of activities. The Board will continue to operate the Garden and work to provide the best possible programs and educational opportunities for Garden visitors and Shoreline residents. The mutual trust and shared commitment to the Garden is essential to sustaining the Garden into the future.

It is hoped that by implementing the KBG Master Site Plan, the Garden will grow into a fitting tribute to the to the vision, energy, and commitment of its founders, Dr. Arthur Kruckeberg and his wife, Mareen.

INTRODUCTION

KRUCKEBERG LEGACY AND GARDEN HISTORY

In 1958, Art and Mareen Kruckeberg purchased 3.79 acres of property in unincorporated King County and moved their family from the Capitol Hill neighborhood in Seattle. Native Douglas firs were growing on the site at the property's edge and along a slope that runs north/south, dividing the property into an upper and lower parcel. An open meadow on the lower parcel, formerly a strawberry farm, would eventually become a horse pasture. The Kruckebergs brought with them a few special plants, including a young giant sequoia, which they planted and nurtured. These plants formed the beginning of their garden and the legacy they would leave to the City of Shoreline.

Over the next 50+ years, the Kruckebergs raised a family and amassed a rich botanical collection of rare and exotic plants from around the world within a matrix of Pacific Northwest natives. They grew almost every plant from seeds or cuttings, many gathered during collection trips along the West Coast.

Art and Mareen Kruckeberg are recognized individually for their significant contributions to the field of botany, horticulture, and conservation in the Pacific Northwest. They met at the UW when Art was a Botany professor and Mareen was a student. Soon they married, and divided responsibilities for work and raising a family, for which Mareen had primary responsibility. In the Garden, she managed plant placement, propagation, and care. As the Garden grew, she began propagating more plants and in 1971 received a business license for MsK Rare Plant Nursery. Over the years, the Nursery supplied rare plants unavailable through other nurseries to home gardeners and horticultural institutions around the country. At the same time, Mareen's influence in the world of gardening grew as she became a consultant

to *Sunset* magazine and to professional and home gardeners. Mareen helped found the Northwest Horticultural Society and the Hardy Fern Foundation and was an active member of the North American Rock Garden Society.

Dr. Arthur R. Kruckeberg served as Professor of Botany at the University of Washington from 1950 until retiring as Emeritus Professor in 1989. His fields of interest included regional floras and plants growing in unusual soils. He is recognized as an expert on the ecology of serpentine soils and other unusual plant habitats and regional flora. Over the course of his long career, he researched, wrote, and taught about plant ecology and evolution. He helped the state of Washington create a Natural Area Program. Through his writing and teaching he introduced thousands of people to native plants and their connections with climate, soils, and regional gardening. Dr. Kruckeberg (co-)founded the Washington Native Plant Society, the Nature Conservancy of Washington, and the Northwest Horticultural Society. He has written six books, among which are such notable references as *Gardening with Native Plants of the Pacific Northwest, The Natural History of Puget Sound Country,* and *Geology and Plant Life*.

Tree Canopy Change from 1953 to 2007

1953 Aerial Photo Image: City of Shoreline

1993 Aerial Photo Image: City of Shoreline

2007 Aerial Photo Image: City of Shoreline

The Kruckeberg Garden was not designed by professional landscape designers. Instead, this diverse garden grew out of the Kruckebergs' interest in temperate plants from other continents that could be grown locally. As Dr. Kruckeberg wrote in his Guiding Principles for the Garden: "Plant diversity is one of the wonders of the natural world. There is both scientific and educational value to presenting that diversity in a natural setting. The setting of the Garden is that of a remnant Puget Sound lowland ecosystem, with a matrix of native conifers and understory vegetation among which plants from this and other biomes are grown that complement the beauty and diversity of the native flora."

City of Shoreline

In 2008, the City of Shoreline purchased the Kruckeberg Botanic Garden property from Dr. Kruckeberg for the purpose of "developing a public botanical attraction to serve the interests of the region's citizens." As the Garden moves from private to public ownership, it is imperative that a guiding framework be developed to meet the Garden's changing economic, operational, legal, and environmental needs.

In March of 2009 the City of Shoreline hired John Swanson Design Studio, llc to develop a collaborative public planning approach that would:

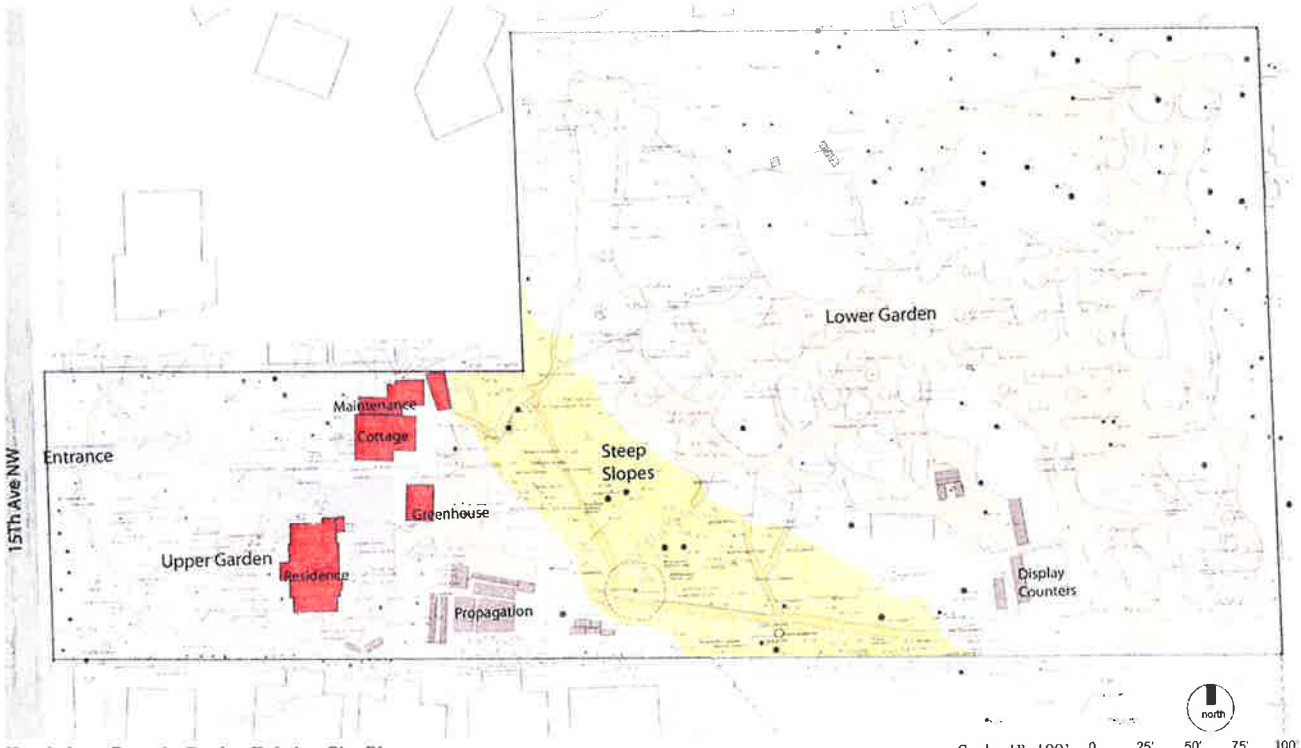
- create a Master Site Plan for the Garden to guide its future,
- develop an operations plan to define revenue-generating activities and programs that are consistent with the Garden's mission and provide value to the visiting public,
- prepare concept level plans and sketches to communicate design concepts and intent.

Kruckeberg Botanic Garden Map
20312 15th Ave NW, Shoreline, WA 98177
Image: www.kruckeberg.org

Working with the Kruckeberg Botanic Garden Foundation Board of Directors, City of Shoreline staff, Shoreline Parks, Recreation and Cultural Services Board, and with public input throughout the process, the consultants have created this Master Site Plan to guide the long-term development of the Garden, its program initiatives, and possible new uses of the facility. This development program will be phased over the next few decades as funds become available.

SITE DESCRIPTION AND CHARACTER

Kruckeberg Botanic Garden is located in the City of Shoreline's Richmond Beach residential neighborhood at 20312 15th Avenue NW. It



Kruckeberg Botanic Garden Existing Site Plan

is 3.79 acres in size with an entrance along the east edge of 15th Avenue NW. It consists of two parcels of land on two levels. Both are flat but are separated by a slope with an elevation change of approximately 25 feet. The upper parcel measures .86 acre; the lower parcel is 2.93 acres. Dr. Kruckeberg and Rowland Adeniyi, caretaker, currently live on the property, which is now part of the City of Shoreline's park system. Operations and maintenance are the responsibility of the Kruckeberg Botanic Garden Foundation under an agreement with the City of Shoreline.

KBG Existing Garden

PUBLIC PROCESS

GUIDELINES GOVERNING THE MASTER PLANNING PROCESS

As a public garden, the Kruckeberg Garden and its Master Site Plan must adhere to a number of legal restrictions, regulations, commercial building codes, and guiding documents that affect its development. ADA accessibility, public restrooms, off-street parking, and sustainability must all be addressed. It is desirable that the Master Site Plan fit within the sustainability principles adopted by the City of Shoreline in 2008 for operations and improvements. The document, City of Shoreline's Environmental Sustainability Program Strategy, can be found online at http://www. cityofshoreline.com/index.aspx?=179 and serves as the basis for a number of strategies identified in this Master Site Plan. One of the Plan's guiding principles is that the Garden will serve as a leader in sustainability practices and educate the public accordingly.

In 2003, Dr. Kruckeberg and the Board of Directors of the Dunn Gardens signed a Grant Deed of Conservation Easement. It can be found online at http://www.cityofshoreline.com/index. aspx?page=152. This document established conservation values for the botanical collection and guides decisions about building locations and activities that may affect those values, the land, and garden. It lists and describes allowed uses, which include the ongoing propagation, care, and maintenance of the Garden as a whole. Specifically, it was written to:

- preserve the land as open space for the scenic enjoyment of the public,

- protect the land as a natural habitat for wildlife and the botanical collection,
- educate the general public.

The Grant Deed of Conservation Easement bases its conservation values upon a document, written by Dr. Kruckeberg, called the Guiding Principles for the Kruckeberg Botanic Garden. This document lays out guidelines for management of the plant collection and education programs created to interpret that collection. It is included in the Appendices.

The Foundation

The Kruckeberg Botanic Garden Foundation Board offered vital input into the master planning process through a series of meetings, reviews, and discussions. The Foundation became a non-profit corporation in 1998 with the objective of conserving the Kruckeberg land and plant collection in perpetuity— as a garden, open space, and horticultural learning center for the public good. Upon sale of the Garden to the City of Shoreline in 2008, the KBGF and the City formed a partnership charging the Foundation with running the Garden and MsK Rare Plant Nursery, guided by a written service agreement. The Foundation Board is divided into committees to oversee various aspects of Garden operations. Committees include education, development, volunteers, and marketing and communications.

KBG Foundation Mission

The Kruckeberg Botanic Garden Foundation is dedicated to the maintenance, curation, and enhancement of the Kruckeberg Botanic Garden and the MsK Rare and Native Plant Nursery. In partnership with the City of Shoreline, the Foundation manages the Garden and provides botanical expertise for the educational, cultural, and aesthetic enrichment of the community.

Public Process

The process of developing the Master Site Plan included over 30 presentations to the public, Shoreline Parks, Recreation and Cultural Services Board, City Council, Kruckeberg Foundation Board, Dr. Kruckeberg himself, the Dunn Gardens Board of Directors, and City staff members. Meetings were held at various locations, including the Richmond Beach Library, Shoreline Historical Museum, Shoreline Fire Station, and the new Shoreline City Hall. Two public meetings were held in the Garden, primarily to review parking concepts. Consultants and City staff also met with Dr. Kruckeberg and his family throughout the process.

KBG Existing Garden Plants

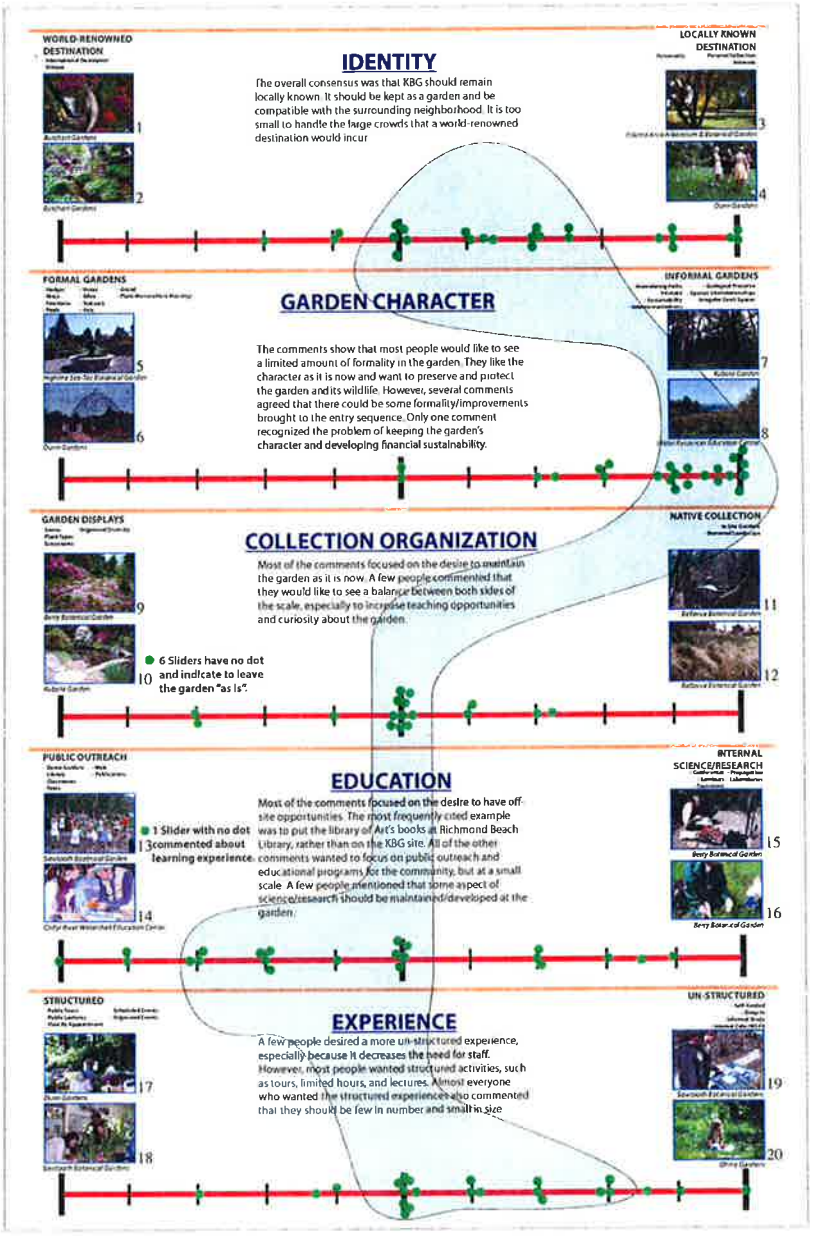
Oral and written comments by the public were welcomed during the course of the project. The following is a summary of concerns and issues raised by neighbors at an August 6, 2009 meeting:

- Preserve the quality of the neighborhood by providing secure fencing, limiting hours of operation, controlling noise and light pollution, with a preference for no service access or restrooms in the lower garden.
- Provide for safe traffic, parking, and walking by offering on-site parking, improving street signage, creating a pedestrian walkway on the east side of 15th Avenue NW, and reviewing the conditions at the top of the hill north of the Garden.
- Strictly enforce the Conservation Easement.
- Assess the health of the trees near the property line.

- Involve the neighbors in the master planning process by naming two neighbor representatives to the Steering Committee.

An example of public process was the Slider Exercise from Workshop #2, held October 21, 2009. Consultants asked participants to provide input regarding what the future Garden might be. Discussion topics included Garden identity (world-renowned or locally known), character (formal or informal), collection organization (display or naturalistic), types of education programming (public outreach or internal science/research), and the kinds of experience (structured or unstructured) visitors should be offered. Each participant placed a dot on a sliding scale representing their emphasis for each topic. The consultants created graphic illustrations based on these ratings.

City staff and project consultants responded to public comments immediately and in subsequent meetings. Minutes, drawings, and presentations were uploaded to the project website and remain available for review and comment. This year-long public process resulted in a Master Site Plan that maintains and enhances the existing garden, reuses the Kruckeberg residence, and minimizes impacts to the neighborhood.



Example of Slider Results Public Workshop #2 October 21, 2009

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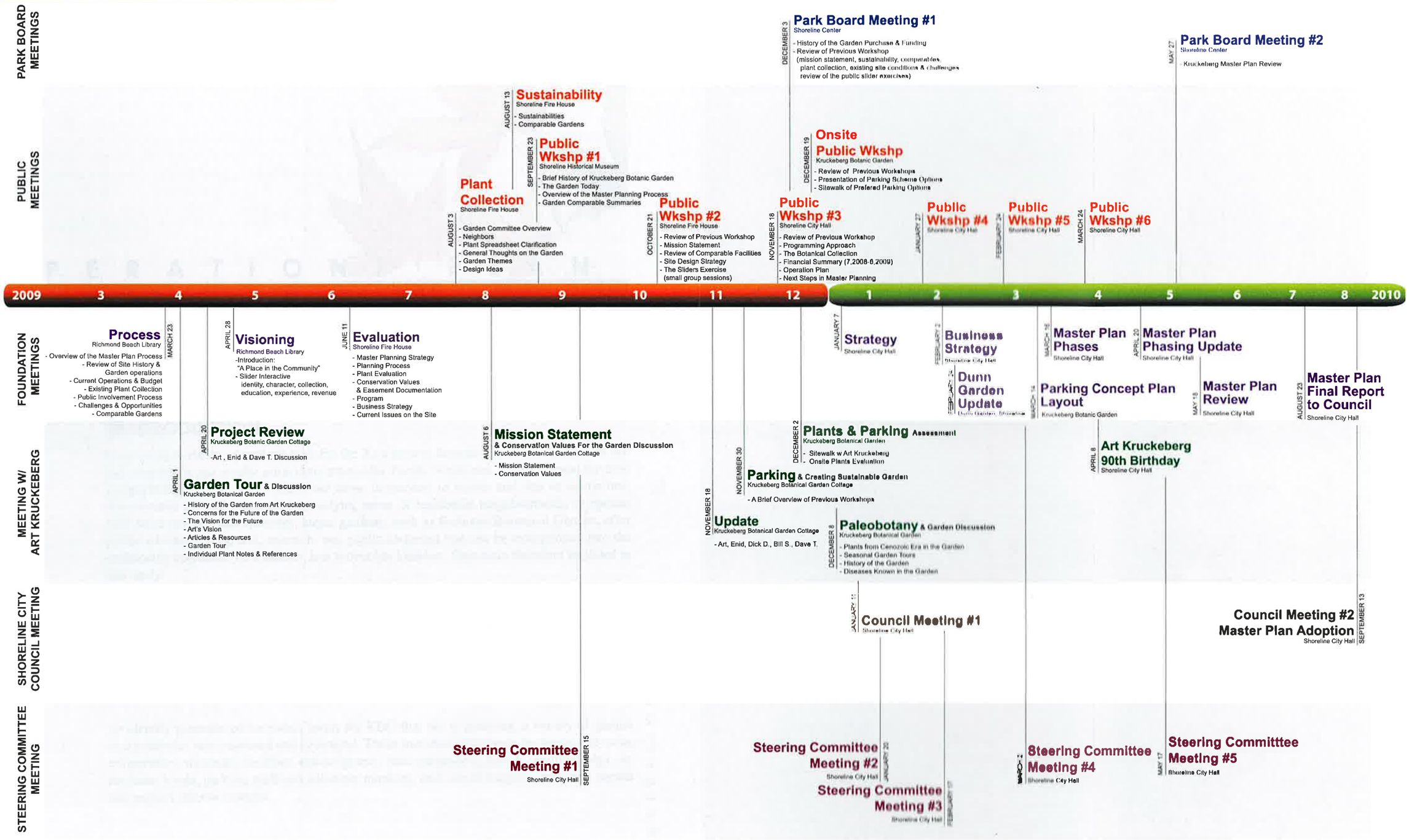
MEETING AND WORKSHOP TIMELINE



OPERATIONS PLAN

INTRODUCTION

To develop a viable operations plan for the Kruckeberg Botanic Garden, a number of botanical gardens and similar attractions around the Pacific Northwest were reviewed for their compatibility for this study. Most had some limitations in access and size of operations; were located in rural communities, outlying areas, or residential neighborhoods; or operate with some restrictions. However, larger gardens, such as Bellevue Botanical Garden, offer public education programs, research, and public amenities that can be incorporated into the sustainable operations of a smaller, less accessible location. They were therefore included in this study.

The gardens reviewed include Bellevue Botanical Garden, Berry Botanical Garden (Portland), Cedar River Watershed Interpretive Center, The Dunn Gardens, Kubota Gardens (Seattle), Highline SeaTac Botanical Garden, Lakewold Gardens (Lakewood), Sawtooth Botanical Gardens (Ketchum, ID), Water Resources Education Center (Vancouver, WA), and Yakima Area Arboretum and Botanical Garden. While this list of gardens is not exhaustive, it offers a cross-section of facilities for evaluation.

To identify potential performance levels for KBG that aid in planning, a variety of garden characteristics were assessed and compared. These included identifying the respective owner/operators, missions, facilities and programs, fees (admission, rentals, membership), attendance levels, parking, staff and volunteer numbers, and annual budgets, including earned and support income sources.

From this study, it was clear that it is not just the number of visitors that quantifies success in operations; rather, it is a matter of educational and cultural value added to the community, the quality of the experience for the user, and fulfilling a community need. A small botanical garden, even one with access and use limitations, can be a precious cultural addition to a community and a source of pride to its residents. Public service is not just about numbers of visitors but also about the educational experience of the visit. Operational viability is not just about the amount of gate income or subsidy to budget, but also about how well organized the garden is to acquire revenue from a variety of sources.

Studying similar gardens led to establishing a profile of best practices that form the basis of the KBG plan and are discussed below. The Kruckeberg Garden is similar to other successful small gardens and represents a valuable opportunity for the City of Shoreline. Though small and with limited access, this botanical garden can be an important cultural and educational center, one that is viable and sustainable.

GARDEN OPERATIONS AND DEVELOPMENT

Organizational Structure

The best model for KBG is a city-owned, non-profit foundation-operated attraction. This is the structure in place now and one that should work well over time. There are opportunities and challenges for such a joint endeavor. The expectations, as well as authority and responsibility are enumerated in the Agreement between the City of Shoreline and the Foundation and include periodic reviews of progress and accomplishments.

The City: In the current arrangement, the City, as owner of the land, will be responsible for defining the purpose of the Garden within municipal objectives. The City can offer both capital improvements and operational support. It will be a partner and lessee to the KBG Foundation, providing the authority to operate the garden to a specific set of expectations in exchange for a nominal fee.

Lakewold Garden's Garden Shop
Image: www.lakewoldgardens.org

The Foundation: In turn, the Foundation, under contract with the City, will be tasked with preserving, maintaining, and enhancing the Garden and with offering educational programming. Historically, the Foundation has depended primarily on its working Board of Directors and volunteers for this mission. More recently, the Board has hired a part-time Garden Director and Program Director to complement the three part-time staff people. Looking to the future, with expanding services, educational programming, increased hours open to the public, together with the need for fundraising and a consistent staff person for outreach and community/City communication, the addition of a part-time Executive Director (along with other staff) will be necessary. As the first phase of the Master Plan progresses to reality, there should be an optimal initial window for both fundraising and grant writing, another function of the Executive Director. Looking toward the future, it is hoped that steps can be taken toward creating an endowment to partially supplement operating expenses and educational programming.

Bellevue Botanical Garden
Image: www.seattle.metblogs.com

The Dunn Gardens: The E. B. Dunn Historic Garden Trust is the non-profit with authority to administer conditions of the conservation easement at KBG. This Trust has experience in operations, and KBG can learn in a partnership agreement during early operations. This kind of informal operating guidance is being explored with the Trust.

Mission

The KBG mission to preserve the Garden, with strong public education and potential research, is pertinent for sustainable operations. As the Garden is preserved and enhanced, it will offer more interpretive benefits and educational programs to users. This mission fits well within the regional garden environment with its special collection.

Viability of Operations

The larger municipal gardens and interpretive centers have regular funding from government budgets. Smaller private gardens with little or no government support have a range of economic viability; some are stable, some vary yearly, and some are challenged in annual funding.

The most stable examples seem to have similar profiles. They start with a substantial operating reserve, often more than $1 million, to offset any annual deficit. They have a broad mix of revenue sources, usually substantial earned income from admissions, membership, and retail sales. They also have evolved successful annual fund-raising capability, reaching out to the community for contributions and partnerships. This profile of operations is one for KBG to consider.

Operating Income Sources

The larger gardens are supported directly by government funds, even when also supported by a non-profit "friends" organization. They have established a combination of sources to fund annual budgets. Most have begun with a support endowment or reserve fund, sometimes included in the initial capital campaign. In years when there is an unexpected shortfall in revenue, which has occurred for most gardens, this reserve can make the difference. A reserve fund should be considered as part of the initial capital efforts.

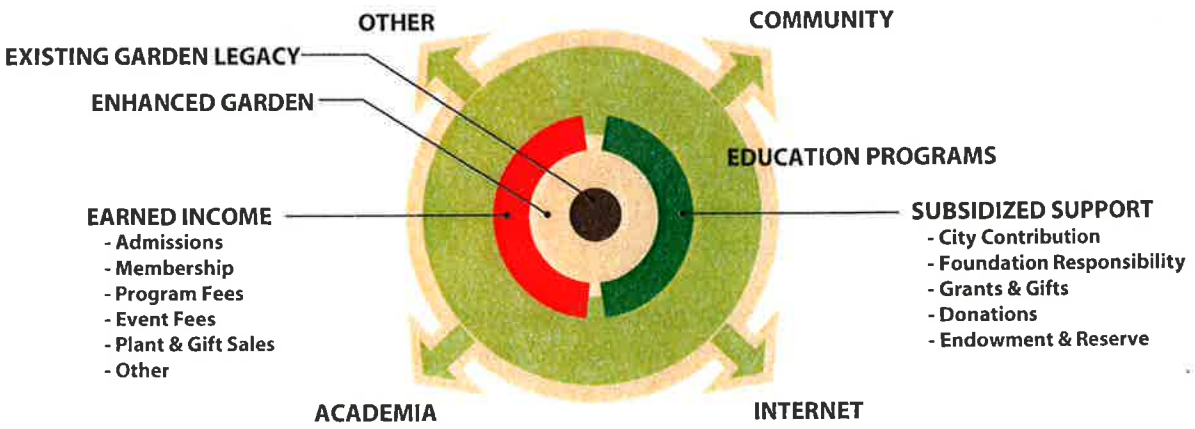
Several of the smaller gardens have support from a governmental source, a municipality or special district. Most often these funds are for maintenance and utilities, which can be 20% of expenses; sometimes they are in-kind support. Annual grants and gifts typically make up a large proportion of operating revenues, especially for education and research programs. Gardens, particularly those with good standing in the community and growing memberships, can be successful with annual giving requests to support operations.

This evaluation of income considered earned income sources, such as fees for admission, membership, and programs, interest on investments, and special grants. The selected smaller gardens produced from 29% to 82% of budget from earned sources. Most were in the range of 50%, which is a very good proportion for non-profit cultural attractions. For any new garden, it is a worthy goal to find at least 50% of budget from earned income.

Gardens that maximize user fees have an advantage in operating sustainability. Even modest fees generated by limited visits add up to a solid source of revenue to support the garden. In a way, this is the best endowment a garden can have. User fees can be justified for their support to the specific cultural attraction and are well established as important to operations by a non-profit organization. User fees begin with member and admission fees as a base, with additional program fees that more than cover the direct expenses. Planning for earned income is essential to the early organization of KBG.

All of the successful gardens had modest professional staff payrolls supported by trained, experienced volunteers and appropriate cost controls. Strong volunteer support is essential to success and the best way to restrain staff size and annual costs. It is the committed, trained volunteers that drive sustainability at the successful gardens.

Summary of Sources of Operating Income



Branding

The contributions of the Kruckebergs to this Garden are known and respected internationally. This level of credibility is an essential element in creating a brand for the Garden. The brand is more than a public relations ploy for national and international products; it is a perception of the special meaning and value of an entity. This can be very important to a small, specialty attraction such as KBG. Now is a good time to ask the Kruckeberg family about continued use of their respected name and to discuss the special attributes of this Garden that need to be folded into a brand package that connotes scholarship, botanical accomplishment, high quality, and educational value. Branding will then evolve with the enhancement of the Garden, its marketing, public programs, and products. In fact, the design features, signage, wayfinding, name, graphics, logo, and labels should all incorporate the Garden's brand.

Public Programs

Botanic gardens offer a broad variety of programs serving the public, ranging far beyond basic courses on gardening or scholarly workshops. Youth programs can introduce young people to gardening and environmental concerns. The arts are readily integrated into the garden, providing for a host of attractive multi-generational activities. Garden crafts workshops are popular during holiday seasons. Notably, some gardens have taken the responsibility to educate their constituents on environmental issues, especially sustainability. Raising consciousness and imparting practical skills can be of great service to the community.

Several of the established gardens have compiled very large menus of public programs, hundreds of special offerings on Northwest gardening issues, lifestyle interests, and serious botanical matters, each presented by individuals or groups with special expertise. Although not all of these are offered at any one time, the broad reach can be used to keep public programs relevant and always changing.

Annual Attendance

Several gardens have visitation restricted to pre-scheduling, allowing for total control of traffic. In fact, nearly all of the gardens have a built-in metering function by virtue of the fact that approximately 30% to 50% of visitors come for scheduled programs. In this way, the garden staff knows when much of its visitation will occur and can plan accordingly.

The smaller gardens, motivated by quality of experience rather than headcount, attract from 2,000 to 20,000 visits annually. The KBGF board agrees that 7,000 visitors and users annually is a good level for high-quality public service and represents the peak level for the Garden. KBG currently hosts nearly 3,000 visitors and users annually. As it grows over time to accommodate another 4,000 visitors, the Garden could increase days of operation to five per week. Metered over a six-hour to eight-hour period, this figure is very modest. Yet, assum-

ing a high-quality experience for visitors through tours and programs, this is a considerable community cultural service. It is also possible for a botanical garden to be viable and sustainable within this relatively modest level of use.

Peak Attendance

All gardens experience peak loads during annual special events and open houses. For these events, there will need to be a special off-site parking and access scheme to handle an increased number of visitors. In some cases, such events have become proportionately large and congested. Additionally, it might be good to consider three or four smaller seasonal events per year that are more manageable. This policy also has the advantage of providing a mix of activities, multiple promotions annually, and a better visitor experience.

Attendance and Parking Requirement

KBG, currently open only three days a week, is accommodating a comparatively low number of 3,000 annual visitors and relies on neighborhood opportunity parking as well as three or four unimproved right-of-way parking spaces along KBG's 15th Avenue NW frontage. Historically, congestion has been significant when the annual plant sale or an open house is held. These peaks are controlled, to the extent possible, by an overflow parking scheme that relies on shuttling visitors from remote lots, such as the neighboring church and local businesses. Plans for the future may include off-site events for major plant sales and arranging shuttles for on-site events. Other means of control include downsizing events and holding several open houses rather than one annual gathering. The parking requirements, access scheme, and bus drop-off plans, including implementation of multi-modal transportation, are an important design and operational element to be discussed further, along with estimates for attendance.

As attendance increases, dedicated parking needs to adequately handle peak attendance levels as well as visitors on an average day. As mentioned, at the annual level of 7,000 visits over a five-day week, the average day has 27 visitors, with 81 expected on peak days in the busy season. Over a six-hour day, there would be 14 visitors per hour, perhaps 28 at any one time. With two people in each car, 14 spaces can handle peaks, other than the larger numbers coming for seasonal special events. The master plan accounts for eight on-site parking spaces plus two right-of-way spaces. In addition seven to eight spaces are being planned directly north of KBG, connected by sidewalk to its entry. This provides 17 to 18 total spaces and should accommodate normal peak days.

Multiple Modes of Access

Kruckeberg Botanic Garden should support multiple means of transportation access and work with the local community to reduce neighborhood impacts. Methods could include hours/days of operation, program and group scheduling, and support for staff and volunteer carpooling or use of public transit. To encourage bicycle use, the Master Plan incorporates bike racks at the entry and suggests working with the City of Shoreline to include KBG as a destination in its trail system. It is entirely possible for the Garden to decrease parking requirements by at least 15% by employing these alternatives.

Fees

Admission Fees

The admission charge to comparable gardens ranges from free to a fee of $10 for adults. Gardens operated by non-profit foundations most often have an admission fee. There is usually a reduced fee for students, sometimes for seniors. Unless the garden has a designated budget for operations within the municipality, there will be strong motivation for a user fee. KBG will need to confront this issue during future planning phases in consultation with the City of Shoreline.

There are a number of advantages to charging admission, and the Foundation/City must evaluate them. It is known from many studies of the cultural industry that an admission fee imputes value to the experience. Even a modest charge clarifies the value of the Garden. Clearly, admission fees represent one of the largest sources of operating income for these attractions. In turn, annual memberships motivate those who see additional value to pre-paid admission coupled with other benefits. Certainly, an admission fee would help to establish a base value for other programs at the Garden. In fact, an admission fee is a cornerstone for earned income, the best form of endowment for a public attraction. It is important not to lose sight of the fact that even with an admission fee, the Garden visit is largely subsidized by the City of Shoreline, donors, and supporters and by the volunteers who help maintain the Garden and educate the visiting public.

Program and Event Fees

Of the facilities studied, fees ranged from $25 an hour for a meeting room to as much as $1,150 for use of the garden and community center for a meeting and break-out session. Fees are typically based upon the level of facilities the garden offers. Some gardens, even those with limited annual attendance, do a good job with space rental, generating income that helps to preserve the garden.

Membership Fees

Membership in the Foundation has been for several years in the mid-200s and in 2009 peaked at around 300. The Dunn Gardens, in existence for many more years, has about the same number of paying members. While it is recognized that membership is an excellent and steady source of income, building membership will be an important but potentially slow process.

Dues-paying members of garden foundations range from 100 to 1,000 in those we studied. A conservative target would be 300 members, with the potential for twice that number. It seems that there might be more capacity for creating support members, even among those who cannot visit on a regular basis, but this is best done as the Garden proves its value to the community.

Staffing

The number of staff at selected gardens ranges from three to 7.5 full-time equivalent employees. It is typical to have a director, garden supervisor, and additional part-time help. It is clear that most gardens have evolved from hands-on involvement from supporters and limited staff. This arrangement keeps the operating budget low, but there must be adequate full-time professional staff to assure high-quality maintenance and programming. In addition, some gardens have found it useful to hire a fundraising and membership coordinator to support the continuing need for varied income sources. The typical garden payroll is at least 50% of total annual operating budget, sometimes as much as 70%. Clearly, the use of skilled volunteers is important to control the size of payroll.

Number of Volunteers

All gardens depend upon motivated volunteers, from a minimum of 100 to as many as 500. These volunteers are often skilled gardeners and botanists attracted to horticulture and public education. Others appreciate the environment and want to learn, supporting a variety of tasks in the garden and office. Several established gardens have robust volunteer recruitment and training programs that are good examples for KBG. The best recruit for horticultural, conservation, education, and administrative assistance, detailing specific assignments within these categories and providing training. Gardens can offer a relaxing and fulfilling experience to the volunteer.

KBG Mother's Day Sales

Often the board is a working board, doing duty as docents and interpreters in the garden. Over time, the board also has to take on the responsibility to raise capital and annual operating support and build a membership base. The value of volunteers cannot be over-emphasized.

OPERATING PROJECTIONS

Following are visitor and user estimates plus staff, budget, and income projections. All are estimated in current dollars, although there will be future inflation to factor in. The assumption is that as costs are increased, income also increases.

Operations and Maintenance(O&M)

The annual O&M expenses in these projections are 45% of total operations, with 55% budgeted for payroll. This is a common proportion in comparables we have studied. These O&M expenses are broken down further in the following categories for reference. If the actual O&M expenses experience significant changes to this general profile, budget corrections can be easily made within the first year.

Expense for supplies, materials, professional services, interest, travel, and entertainment are calculated at 37% of total payroll. Postage, printing, publications, promotions, membership fulfillment, and advertising are calculated to cost 18% of payroll. The expense for utilities, telephone, insurance, equipment, repairs, and maintenance are calculated at 27% payroll. This totals 45% of the operating budget.

Contingency

A contingency of 10% of operating expense is included as a backup. For annual budgeting, it is a good idea to include such a contingency against higher expenses or lower income than expected.

Admission Fees

The Foundation Board, in conjunction with the City, will need to determine the wisdom of and potential fee structure for Garden admission. Until Phase 1 of the Master Plan is complete, it is neither feasible nor likely that admission will be charged. Afterward, as facilities are built, some plan for a phased admission program should be considered. Whether local Shoreline school groups and/or senior citizens residing within the City of Shoreline should be charged are among the issues to be discussed. Similar gardens have admission pricing ranging from $3.00 to $10.00 per adult.

Recommendation for KBG: Initiate an admission charge. The following percentages generate an overall estimated admission fee of $5.70:

- 60% adults at $7
- 30% students at $5
- 10% free

At the completion of Phase 1 (parking and entry improvements) initiate the first step, which will be 50% of the recommended fee level. The second step should be initiated at the completion of Phase 2 or 3, as determined by the Board and City.

Program and Event Fees

These fees are moderately estimated at a net of $10 per user. This particular category has much greater potential for producing revenue, but it will take some time to find the most popular

programs and to develop a reputation for education. The KBGF Board will review potential opportunities and fees.

Annual Membership Fees

These fees range from $30 to $50 for an individual and from $40 to $60 for a family. KBG currently offers an annual Garden membership for $45.00, $25.00 for seniors. We recommend that a family membership of $60.00 be initiated within the next 12 months. Membership fees should be reviewed at least biennially.

Staffing

For staff levels, see Operations Financial Summary on page 22.

Volunteers

KBG has done a commendable job in the use of volunteers in ongoing operations. In the first half of 2010 alone, nearly 100 individuals contributed over 2,300 hours of volunteer effort in support of KBG. Activities range from garden maintenance, transplanting, guiding tours, and working as docents for Garden activity.

Gift and Plant Sales

The estimated sales income is relatively modest. Currently, subtracting the cost of plants, supplies, and taxes, the annual net is $20,000, which helps pay for some of the staff and administrative costs to the Foundation. With an enhanced Garden experience, there is considerable potential to increase plant sales, complemented by garden tools and related products, all with a respected Kruckeberg brand. Even with limited attendance, sales can be significant to budget. There are other ways to reach out for sales as the Garden and brand are established. On-line sales, off-site special event plant sales, and even a partnership with a garden supply outlet are all possibilities. Again, the sales function is both an educational component and a revenue source for the Garden. Several comparable gardens should be studied for their expertise in building a retail function.

Naming Rights

In conjunction with the City, the Foundation Board should explore different levels for visible "naming rights" as a potentially significant source of income. Name recognition on major trees/specimens, pathway bricks, benches, picnic areas, and structures as the Master Plan proceeds through its phases are among the possibilities.

City of Shoreline Maintenance

It must always be remembered and considered that the Garden is owned by the City of Shoreline and not the Foundation. It must also be recognized that the Garden is not simply "another park." Financial resources to maintain a botanic garden are significantly greater than resources to maintain a similar-sized park. As such, the City is responsible for appropriate levels of funding to maintain the Garden at a level commensurate with citizen expectations. To this point, during the first three years of operations, the combination of City/Kruckeberg support was $66,000 per year. And, retrospectively, it is recognized that this level of support was barely adequate to maintain the current level of operations. As such, it is apparent that the City and the Foundation Board will need to cooperatively ascertain an appropriate level of financial support to enable the Garden to become a showcase for environmental sustainability, a focus for horticultural education for residents of all ages, and a respected destination focus for the City of Shoreline.

Grants and Gifts

Grants and gifts comprise the remaining major source to produce revenue for balancing the annual budget. Comparable institutions produce at least $100,000 annually from these sources, some twice that much.

Recognizing that the Foundation, as currently constituted, is less than three years old, it will take both time and staff resources to begin to generate sufficient funds in this category. Within the non-profit industry, it is accepted that it takes two to five years to cultivate a source of significant private giving. Grants, however, should be sought in a timely fashion, in possible conjunction with the City.

Grants can come from a variety of sources, including government programs for education and research, charitable foundations interested in horticultural and environmental issues, and business sponsorships in support of education. Several gardens have built reputations for research on horticultural issues, and this should be pursued as part of the Kruckeberg heritage.

Gifts come from individuals and businesses, starting with an annual solicitation of the member base. Over time, planned giving will evolve as a major contributor to both operations and capital expansion.

OPERATING INCOME AND EXPENSE MODEL

The model on page 22 is based on the following operating sustainability assumptions and recommendations:

- There is no dedicated single source of income.
- Current baseline operations are not sustainable.
- The master planning process needs to consider various sources of income.
- Municipality as owner and non-profit as operator on nominal lease is a common, workable model.
- Municipality and non-profit will work together on capital improvements to KBG.
- With improvements for education, the annual budget is estimated to increase to $250-$300K.
- The City is expected to support garden operations to the level of park system responsibility.
- Sustainability is attained accessing a variety of income sources and maximizing earned sources.

This break-even model is a flexible tool for budget and business planning. Assumptions for numbers are based upon evaluation of comparable gardens. Payroll is typically the largest cost, estimated here at 55% of total expenses. Non-payroll costs are 45% of expenses. Earned income is based upon an admission fee. It serves as the basis for other program and membership fees. What is not earned must be acquired from various sources to meet budget. All variables can be modified in the budget planning process.

The model used in the table on the following page is to optimize earned income, acquire a mix of revenue sources, and establish a reserve fund for contingencies.

The projections are based upon conservative estimates.

Operations Financial Summary

	Historic Record 2008	Historic Record 2009	City Approved 2010	KBGF Board Proposed 2011-2013	Projected 2013-2017	Projected 2017-2020	Projected 2020 - Future
Annual Attendance (Annual Visits/Event Visits)	2000/1000	2000/1000	2000/1000	3000/1000	4000/1000	5000/2000	7000/3000
Open Days of Week	3	3	3	3+ 1 Summer	5	5	5
Parking (See Attendance/Parking Tabulation next page)							
A FALLI/WINTER Average Weekend Day	3			3 to 4	4.5	6	8
B SPRING Average Weekend Day	8			8 to 10	12	15	21
C SPRING-SUMMER Average Weekend Day	7			7 to 9	11	14	19
D SUMMER Average Weekend Day	6			6 to 8	9	11	16
Number of Staff FTE	2.8	2.8	2.8	3.8	4	5	5
Executive Director				*0.5*	*0.5*	*0.5*	*0.5*
Garden Director			*0.8*	*0.8*	*1*	*1*	*1*
Program Director			*0.5*	*0.5*	*0.5*	*1*	*1*
Development Support/Bookkeeper				*0.5*	*0.5*	*0.5*	*0.5*
Garden Staff			*1.5*	*1.5*	*1.5*	*2*	*2*
INCOME							
Admission	NA				$23,000	$28,000	$40,000
Program/Event Fees	$2,000	$1,500	$2,233	$24,000 to $28,950	$20,000	$30,000	$35,000
Membership Fees	$14,000	$19,900	$16,950	$26,550 to $32,450	$30,000	$35,000	$40,000
Transfer from KBGF Savings				$28,122 to $28,122			
Gift/Plant Sales	$42,000	$23,000	$39,202	$36,000 to $44,000	$17,000 *	$25,000 *	$33,000
Art Kruckeberg Contribution	$30,000	$33,000	$29,988				
City of Shoreline Contribution	$30,000	$33,000	$29,988	$60,000 to $75,000	$60,000	$60,000	$60,000
Income & Dividends		$2,800	$1,056	$360 to $440	$15,000	$15,000	$15,000
Grants & Gifts	$4,000	$5,000	$1,750	$15,750 to $19,250	$99,000	$81,000	$80,000
Total Income	$122,000	$118,200	$121,167	$190,782 to $228,212	$264,000	$274,000	$303,000
EXPENSE							
Staff	$95,000	$80,244	$83,814	$145,000 to $176,710	$150,000	$160,000	$170,000
General & Administrative		$18,575	$5,103	$50,760 to $61,980	$46,000	$46,000	$54,000
Promotion & Communication	$7,300	$13,080	$10,308	$0 to $0	$23,000	$23,000	$26,000
Facilities	$19,000	$12,155	$9,364	$0 $0	$34,000	$34,000	$40,000
Contingency					$11,000	$11,000	$13,000
Total Expense	$121,300	$124,054	$108,589	$195,760 to $238,690	$264,000	$274,000	$303,000

The parking data shown on the following page is summarized above in the Operations Financial Summary. This summary identifies parking requirements for the Kruckeberg Botanic Garden over a 12-month period for a variety of attendance projections. It is based on records of actual Garden visits (including staff and volunteers) from August 14, 2008 through August 13, 2009. Data on peak and average visits was extrapolated week by week. Parking projections were based on the peak months of April and May (Spring), lesser-visitation months of June to mid-August (Summer), and least-visitation months of mid-August through March (Winter).

This data can be used to determine the best times to hold events, classes, and tours with the goal of spreading visits into the least-visitation months. It will also assist Garden management if shuttle vans are ever used to reduce neighborhood parking impacts on busy spring weekends.

Attendance/Parking Tabulations and Projections

Visitations, Staff and Volunteers August 14, 2008 - August 13, 2009

Dates	General Visitors	Special Events	VISITOR SUBTOTAL	Staff Thurs/ Fri/ Sat/ Sun	Friday Volunteers	Staff/Vol Subtotal	TOTAL PEOPLE	Visits: 20% Fri, + Staff & Vol.	Visits: 40% Sat, + Staff & Vol.	Visits: 40% Sun, + Staff & Vol.	Saturday Summary	Saturday Summary	Parking Need for 2000 Annual Visits	4000 Visits (Assume growth at 2 times existing)	5000 Visits (Assume growth at 2.5 times existing)	7000 Visits (Assume growth at 3.5 times existing)
Thursday				*4.0*								0-10				
Friday				*4.5*								10+-15				
Saturday				*3.0*								15+-20				
Sunday				*2.0*								20+-25				
												25+-30				
												30+				
2008																
Aug 15-17 *	25		25	*10.5*	2	*12.5*	37.5	11.5	13.0	12.0						
Aug 22-24 *	25		25	*10.5*	2	*12.5*	37.5	11.5	13.0	20.5						
Aug 29-31	25		25	*10.5*	2	*12.5*	37.5	11.5	20.5	12.0						
Sept 5-7	25		25	*10.5*	2	*12.5*	37.5	11.5	20.5	12.0						
Sept 12-14	26		26	*10.5*	2	*12.5*	38.5	10.2	20.9	12.4						
Sept 19-21	68		68	*10.5*	2	*12.5*	80.5	20.1	37.7	29.2						
Sept 26-28	19		19	*10.5*	2	*12.5*	31.5	10.3	18.1	9.6						
Oct 3-5	24		24	*10.5*	2	*12.5*	36.5	17.3	20.1	11.6						
Oct 10-12	44		44	*10.5*	2	*12.5*	56.5	15.3	20.6	19.6						
Oct 17-19	20		20	*10.5*	2	*12.5*	32.5	10.5	11.0	10.0						
Oct 24-26 *	15		15	*10.5*	2	*12.5*	27.5	9.5	9.0	8.0						
Oct 31-Nov 2 *	15		15	*10.5*	2	*12.5*	27.5	9.5	9.0	8.0						
Nov 7-9	10		10	*10.5*	2	*12.5*	22.5	8.5	7.0	6.0						
Nov 14-16	9		9	*10.5*	2	*12.5*	21.5	8.3	6.6	5.6						
Nov 21-23	32		32	*10.5*	2	*12.5*	44.5	18.9	15.8	14.8						
Nov 28-30	18		18	*10.5*	2	*12.5*	30.5	10.1	10.2	9.2						
Dec 5-7	67		67	*10.5*	2	*12.5*	79.5	19.9	29.8	28.8						
Dec 12-14	3		3	*10.5*	2	*12.5*	15.5	7.1	4.2	3.2						
Dec 19-21	3		3	*10.5*	2	*12.5*	15.5	7.1	4.2	3.2						
Dec 26-28 (closed)	0		0	*10.5*	2	*12.5*	12.5	6.5	3.0	2.0						
2009																
Jan 2-4	6		6	*10.5*	2	*12.5*	18.5	13.7	5.4	4.4						
Jan 9-11	58		58	*10.5*	2	*12.5*	70.5	18.1	26.2	25.2						
Jan 16-18	35		35	*10.5*	2	*12.5*	47.5	13.5	17.0	16.0						
Jan 23-25	27		27	*10.5*	2	*12.5*	39.5	11.9	13.8	12.8						
Jan 30-Feb 1	30		30	*10.5*	2	*12.5*	42.5	12.5	15.0	14.0						
Feb 6-8	23		23	*10.5*	2	*12.5*	35.5	11.1	12.2	11.2						
Feb 13-14 *	28		28	*10.5*	2	*12.5*	40.5	12.1	14.2	13.2						
Feb 20-22	34		34	*10.5*	2	*12.5*	46.5	13.3	16.6	15.6						
Feb27-March 1	20		20	*10.5*	2	*12.5*	32.5	10.5	11.0	10.0						
March 6-8	23		23	*10.5*	2	*12.5*	35.5	11.1	12.2	11.2						
March 13-15	11		11	*10.5*	2	*12.5*	23.5	8.7	7.4	6.4						
March 20-22	29		29	*10.5*	2	*12.5*	41.5	12.3	14.6	13.6						
March 27-29	23		23	*10.5*	2	*12.5*	35.5	11.1	12.2	11.2						
April 3-5	92		92	*10.5*	2	*12.5*	104.5	24.9	39.8	38.8						
April 10-12	39		39	*10.5*	2	*12.5*	51.5	14.3	18.6	17.6						
April 17-19	71		71	*10.5*	2	*12.5*	83.5	20.7	31.4	30.4						
April 24-26	86		86	*10.5*	2	*12.5*	98.5	23.7	37.4	36.4						
May 1-3	78		78	*10.5*	2	*12.5*	90.5	22.1	34.2	33.2						
May 7-10 **		950	950	*10.5*	2	*12.5*	962.5	196.5	383.0	382.0						
May 15-17	86		86	*10.5*	2	*12.5*	98.5	23.7	37.4	36.4						
May 22-24	68		68	*10.5*	2	*12.5*	80.5	20.1	30.2	29.2						
May 29-31 *	73		73	*10.5*	2	*12.5*	85.5	21.1	32.2	31.2						
June 5-7	77		77	*10.5*	2	*12.5*	89.5	21.9	33.8	32.8						
June 12-14	55		55	*10.5*	2	*12.5*	67.5	17.5	25.0	24.0						
June 19-21	35		35	*10.5*	2	*12.5*	47.5	13.5	17.0	16.0						
June 26-28	64		64	*10.5*	2	*12.5*	76.5	19.3	28.6	27.6						
July 3-5	25		25	*10.5*	2	*12.5*	37.5	11.5	13.0	12.0						
July 10-12	46		46	*10.5*	2	*12.5*	58.5	15.7	21.4	20.4						
July 17-19	83		83	*10.5*	2	*12.5*	95.5	23.1	36.2	35.2						
July 24-26	37		37	*10.5*	2	*12.5*	49.5	13.9	17.8	16.8						
July 31-Aug 2	49		49	*10.5*	2	*12.5*	61.5	16.3	22.6	21.6						
Aug 7-9, 2009	55		55	*10.5*	2	*12.5*	67.5	17.5	25.0	24.0						
TOTAL	1939	950	2889					932.3	1356.6	1268.1						
Deduct Special Events			1939					735.8	973.6	886.1						
								14.4	19.1	17.4	Average/Day					

A — Fall Winter Average Weekend Day 12.20 *Exceeded 39.39% of time*

B — Spring Ave. Weekend **31.78** Excludes Mothers Day *Exceeded 66.67% of time*

Summer Average Weekend **22.0** *Exceeded 44.44% of time*

C — Spring Summer Average Weekend Day Excluding Mothers Day **26.9** *Exceeded 55.56% of time*

% Total Attendance Spring Summer Including Mothers Day **68.3%** in 4 months **37% of year**

D

at 50% PAOT & 2 people/car equals 3.1 cars ****	3 Cars	6 Cars	8 Cars	11 Cars
If 5 Days/ Week, reduce Saturday day growth by 25% →		4.5 Cars	6 Cars	8Cars
at 50% PAOT & 2 people/car equals 8 cars****	8 Cars	16 Cars	20 Cars	28 Cars
If 5 Days/ Week, reduce Saturday day growth by 25% →		12 Cars	15 Cars	21 Cars
at 50% PAOT & 2 people/car equals 7 cars ****	7 Cars	14 Cars	18 Cars	25 Cars
If 5 Days/ Week, reduce Saturday day growth by 25% →		11Cars	14 Cars	19 Cars
at 50% PAOT & 2 people/car equals6 cars ****	6 Cars	12 Cars	15 Cars	21 Cars
If 5 Days/ Week, reduce Saturday day growth by 25% →		9 Cars	11 Cars	16 Cars

PAOT = People At One Time

*No data kept for these dates. Visitation data averaged from nearby weekends

** Mothers Day Plant Sale

*** Art & Rowland daily + 4 staff members on Thursday, 4.5 on Friday , 3 on Saturday, 2 on Sunday

**** Assumes Staff and Volunteer Carpooling

All numbers exclude tours and Friday family events

MASTER SITE PLAN

OVERVIEW

This Master Site Plan is a long-term guiding document to assist the development of the Kruckeberg Botanic Garden. It provides broad concepts and recommendations and provides a baseline for decision-making as the Garden transitions from private to public ownership. It can serve as a management tool and provides focus to various perspectives and constituencies. Though nothing can replace the vision and intentions of the founders, this document will be a valuable tool as the Foundation and the City of Shoreline work together to manage the Garden into the future.

Master site plans do not remain static. They necessarily change as gardens, programs, plant collections, and the interests and talents of its stakeholders all change. Funding opportunities may also reorganize priorities and thereby alter the course currently anticipated. Therefore, the principles and recommendations written into this document are intended to be tested, reaffirmed, and updated as phases of work are constructed, operating income and expenses analyzed, and management practices observed. It is recommended that this Master Site Plan be revisited and updated every five to 10 years.

EXPERIENCING THE GARDEN

Approaching from the south along 15th Avenue NW, the Garden is shielded from direct view by the retained stand of towering Douglas firs. Safe egress from school buses stopped along the off-loading lane and a five foot sidewalk will provide access to the entry. Those arriving by car will enter a one-way semi-circular drive that leads to a modest number of parking spaces. A raised entry court will preserve tree roots under the decking and allows roots to remain undisturbed at its perimeter. A small gatehouse at the north end of the deck will pro-

vide information and ticketing and serve as a small office. The intimate but ample deck space will allow groups to assemble for tours, provide storage for bikes and plant sale wagons, and offer orientation and interpretive graphics.

The entry walk will feel similar to the existing entry path as one passes the cornelian cherry and overarching stewartia. These important trees will be saved from potential damage as the current vehicle drive will be removed. The shade garden will retain its understory beauty. Previous staff parking spaces will be turned back into garden and occupied by a discovery cart. The ironwood tree, once pressed by the cabin, will now have more space and the cabin is replaced with a two-story Environmental Learning Center. As a multi-use space, it can serve school groups, fundraising events, or offer rental opportunities. The second floor will provide accessible staff offices, meeting space, and supply storage.

On the south side of the entry path, the residence will remain standing as a legacy to Art and Mareen Kruckeberg. Updated with new siding and porch and freshened with needed repairs, it will welcome arriving visitors. Inside, the dining room and study will become the Kruckeberg Legacy Library. The living room will house exhibits showcasing this legacy and the history of the Garden.

Attached to the converted residence will be The Commons. This greenhouse-type structure is the hub of the Garden's active areas and will be oriented to the central court. Here staff or other groups can hold meetings, visitors can ask questions, plants or gifts can be purchased, and a cup of coffee or light snack enjoyed. It will be a place of conversation, relaxation, or simply a refuge from the cold on a rainy winter day.

The central court will be formed around a large walnut tree, recently exposed by relocating the greenhouse. This court will be contained by a short wall that edges the steep slope to the east, allowing a view into the lower garden. The unit-paved court will form the ground plane for groupings of Mareen Krukeberg's container plants, plant sale tables, and benches. On the southern border, a new greenhouse will house plant propagation tables and a headhouse for potting, plant record keeping, pest and disease diagnosis, and storage.

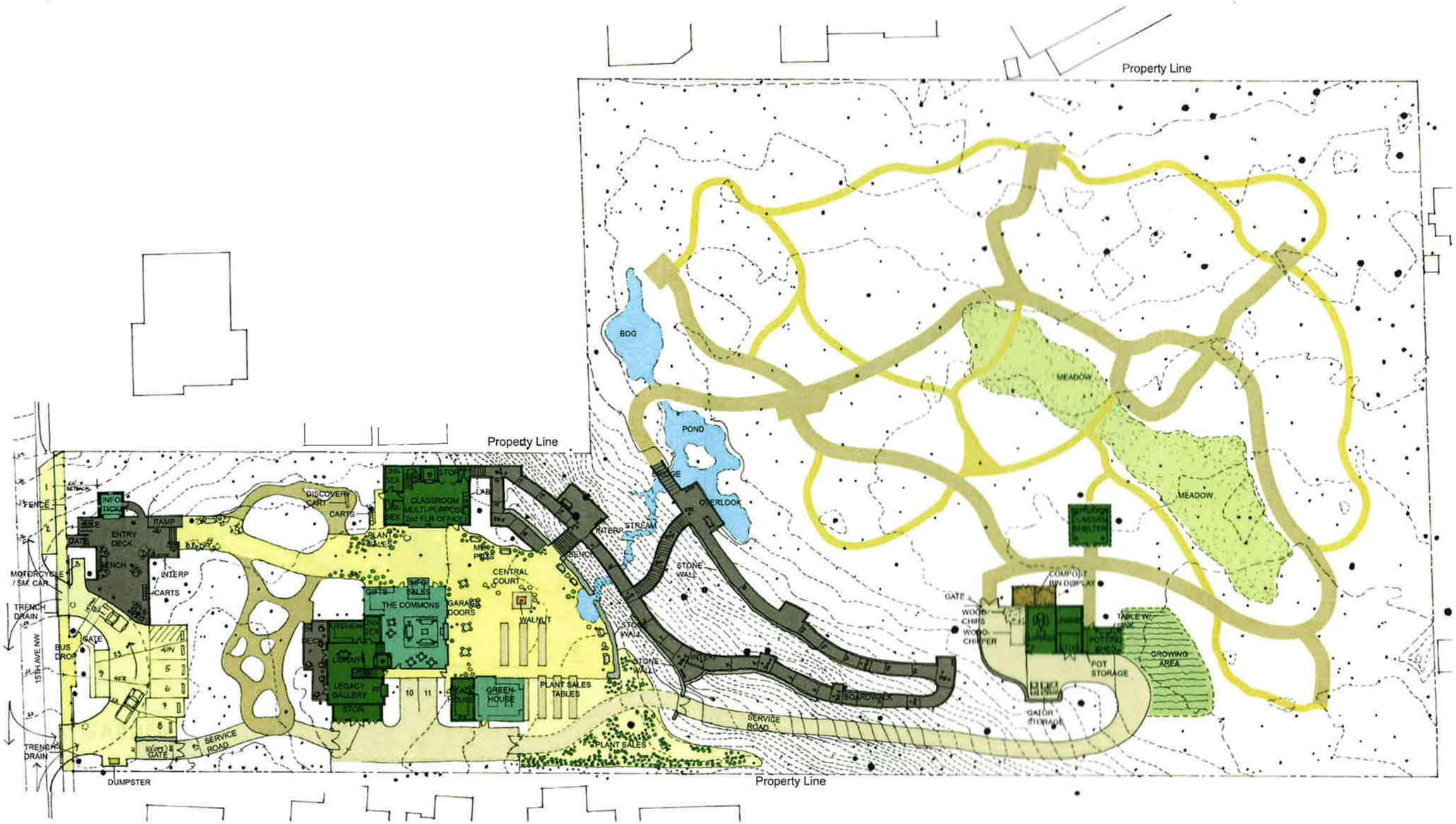
A feature of the court will be a small pond and stream that descends the slope to the rain garden and bog below. Though it will offer a visual quality and an ambiance that only running water can provide, it is also functional, collecting storm water runoff from the court and roofs.

The lower garden will be reached through an opening in the wall leading to an ADA-accessible boardwalk. The switchback boardwalk trail will be carefully sited to focus on prominent trees and enhance interpretation of plants growing on the slope. This is a unique opportunity to bring visitors close to trees with views into the canopy. Along the route, pull-out decks will provide seating and interpretive nodes. At the bottom will sit a deck at the edge of the pond and bog where visitors can watch for birds, insects, and other wildlife. This will add a completely new habitat to the Garden.

Visitors will continue to experience the lower garden as they do today. It will remain quiet, contemplative, and explorative. But unlike today, ADA-accessible paths will direct people through the garden and ensure that significant garden zones and interpretive opportunities are afforded to all visitors. Other more intimate trails, surfaced in soft materials, will encourage visitors to wander among the trees, sculptures, and meadows. New areas of the garden can be opened up, adding to the diversity of experiences. A small shelter will provide small groups the chance to step out of the rain or engage in a volunteer-led plant discussion. Outdoor art installations placed in the lower garden will enhance the visitor's experience.

As visitors return to the central court, their experience will be directed specifically to the season, focused on a particular plant community, or oriented to a particular garden habitat or plant type. They will now be able to apply this new knowledge to their own garden or to share it with others. Visitors look forward to returning to learn more!

MASTER SITE PLAN



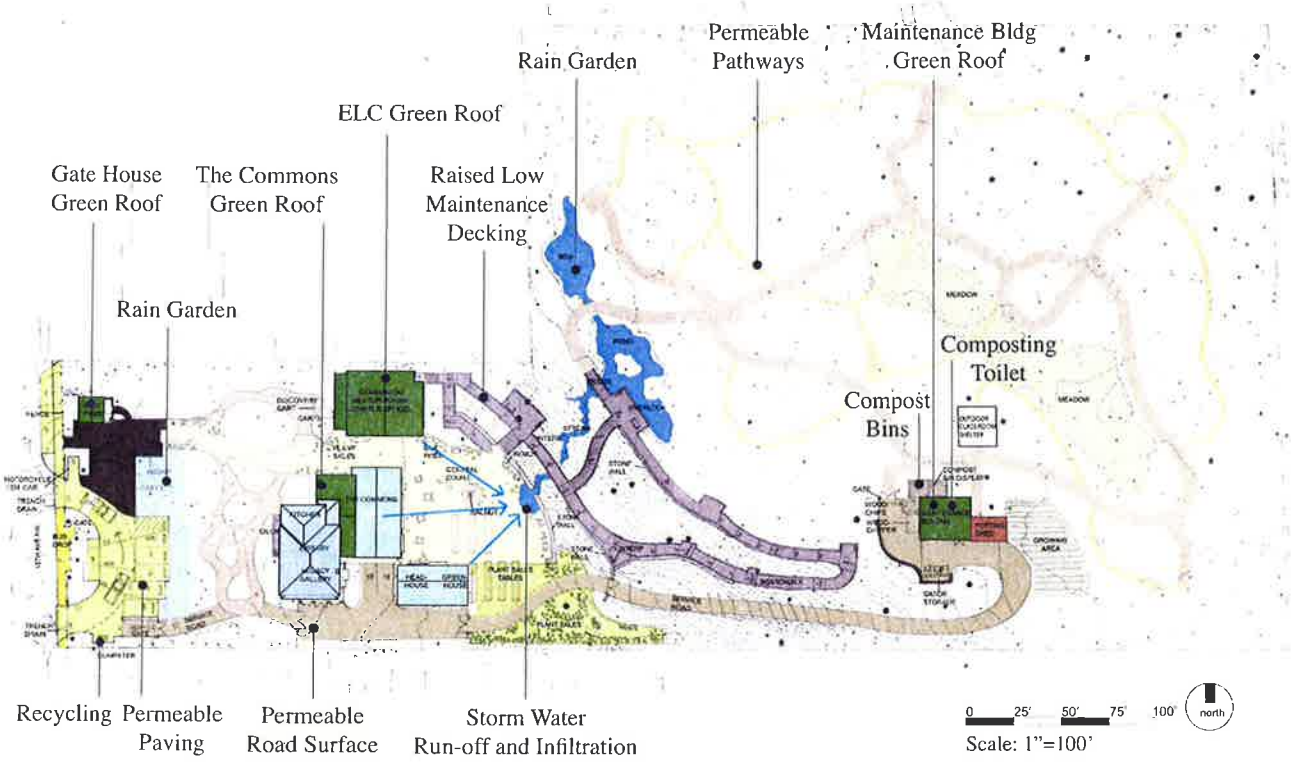
Art in the Garden

Thanks to its 1% for public Art Program, Shoreline has installed permanent public art at several parks in the past year. Temporary public art is another means of increasing opportunities for observers and artists and the City sees the inclusion of artwork at the Kruckeberg Botanic Garden as an exciting beginning.

Unique installations at the Garden have a relationship with and enhance the natural environment. The intent of artwork in the Garden is to draw the viewer in, to encourage reflection and conversation, as well as lead visitors to observe more closely what the Garden expanse has to offer. A few pieces may be installed at the top of the Garden as hints of what is to come but the majority of the structures will be in the lower meadow portion of the park with an eye for balance but with a hint of mystery to encourage exploration.

Along with the sales of plants, the Garden also offers a unique setting for plein-air artists to work and for the sale of paintings and other garden-related artwork. Mareen Kruckeberg envisioned the property as an art-filled garden and these initial goals honor that wish.

Kruckeberg Botanic Garden Sustainability Plan



SUSTAINING THE GARDEN

Sustainability is intrinsic to the philosophy behind this plan. In addition to its primary role and mission as a botanic garden with a strong focus on education, the Kruckeberg Botanic Garden is in a unique position to lead Shoreline's sustainability effort and educate its citizens on the topic. Its small size, its role as a provider of environmental education, its sustainable site development opportunities, and its being a unique wildlife habitat within the City's boundaries all point to the Garden as a teaching tool for sustainability education. Its source and inspiration is the City of Shoreline's "Environmental Sustainability Strategy" approved by the City Council in 2008. Ten guiding principles were recognized by the City. These same principles are embodied in the operations of KBG:

- Sustainability will be a key factor in policy development.
- The Garden will lead by example and learn from others.
- Environment, economics, human health, and social benefits are interrelated systems.
- Community education, participation and responsibility are key elements.
- The Garden will commit to continuous improvement.
- The Garden will manage expected growth in a sustainable way.
- Impacts of past practices will be addressed.
- Ecosystems will be proactively managed and protected.
- The Garden will improve and expand waste reduction and resource conservation programs.
- Energy solutions are key to reducing our carbon footprint.

The City of Shoreline has chosen to focus "sustainability" decisions and actions on the following areas:

- City operations, practices, and outreach
- Energy conservation and carbon reduction
- Sustainable development and green infrastructure
- Waste reduction and resource conservation
- Ecosystem management and stewardship

Sustainable strategies are divided into two categories. Site planning strategies include land use, excavation, tree preservation, building siting, and stormwater runoff. Structure and energy-related strategies will be addressed more concretely during actual construction phases. These are primarily items from the LEED checklist for New Construction. This Checklist can serve as a guide for sustainability whether or not the project pursues LEED certification. The strategies are discussed further on Page 45.

Sustainable Strategies

Public buildings and intensive site activities will be concentrated in the upper portion of the site to leave the remainder for passive Garden enjoyment. Building areas will be compact, dense, and as small as the modest program allows. Building footprints will be minimized in order to maximize open space and protect existing trees. Designed into the site are opportunities for visitors to arrive by ways other than automobile. These include motorcycle parking and bike racks placed in the northwest corner of the site near the gatehouse. In addition, street improvements along the east side of 15th Avenue NW will include a sidewalk for safe access to the Garden.

Biodiversity in the Garden is of utmost concern. Existing plantings will be given priority in the Master Site Plan and will be protected and preserved as much as possible by designing around important plants and transplanting plants small enough to survive. Platform and boardwalk decking systems will be on pier supports so they span roots and minimize excavation and root cutting. Materials for parking and pedestrian surfaces will minimize excavation and compaction. They will be pervious in order to protect tree roots and allow air and water to reach roots.

Stormwater strategies include reducing impervious surfaces; using on-site infiltration through pervious paving; and capturing rainwater to be reused for irrigation, water features, and rain gardens.

Waste disposal is another opportunity to educate visitors about protecting natural habitat. Waste management starts with reducing how much is produced. The Garden will wash and reuse plastic pots, compost yard waste onsite, analyze purchasing decisions, recycle office paper, and provide recycle bins in public spaces. Recycling, composting, and waste management will comply with local laws and contracts.

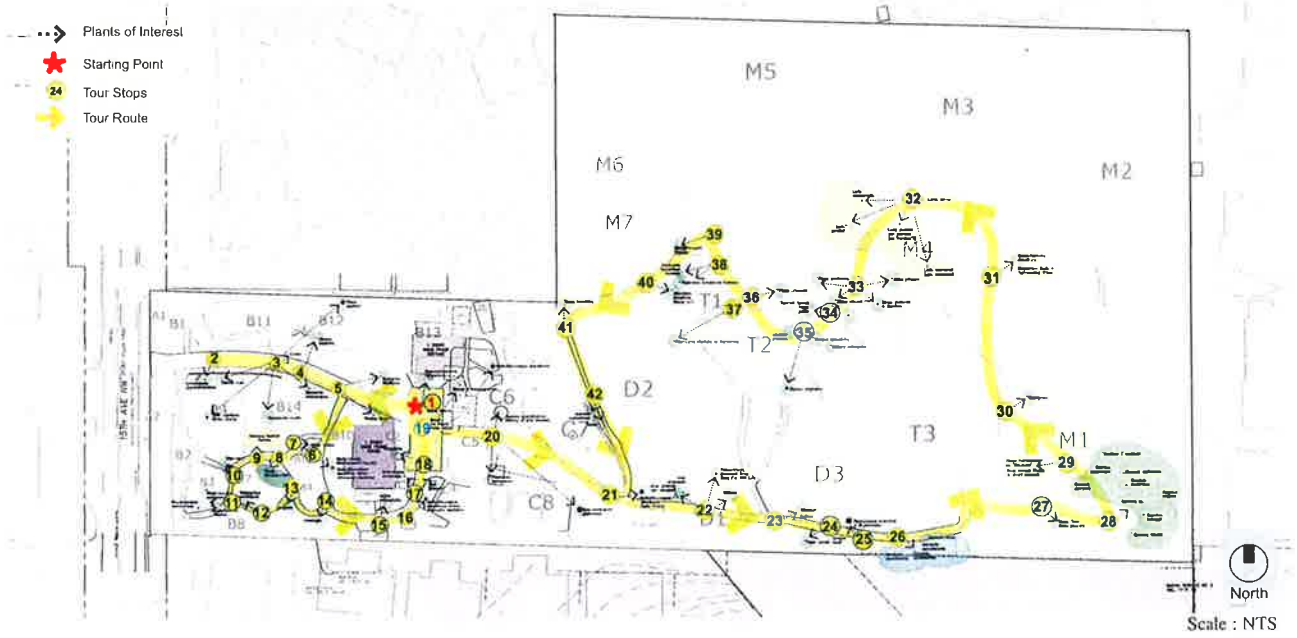
The Garden will reuse the existing Kruckeberg residence but remodel it to accommodate new uses and energy efficiency. The existing structural frame will be maintained as will non-structural elements such as doors. New Garden buildings will be designed to take advantage of daylight and views. Green roofs will reduce runoff, heat gain, and visual presence of structures while increasing plant diversity and wildlife habitat.

Where existing trees cannot be preserved in place or transplanted, they will be salvaged, milled offsite, and used during construction or donated/sold to be used elsewhere. It is the intent that no trees be removed and remain unused. Any wood products to be purchased will be FSC (Forest Stewardship Council) certified.

EDUCATION AND INTERPRETIVE SITE PLAN

The interpretive site plan shown on the follow page originated from the Garden's docent training program and standard tour given to most groups. Orientation starts at the existing courtyard, where the docent leader introduces the garden to the group. The tour backtracks to the entry gate and proceeds into the shade garden, loops around the house and returns to the court. A single loop through the lower garden follows the slope into the meadow, past the rockery, oaks, serpentine beds, and conifers and traverses the slope back to the central court. The plan below depicts a summarized current garden tour. Tour guides lead a maximum of 15 people through the Garden, and tours feature 40 to 50 plants. Tour stops relate to individual plants and a variety of overarching topics. Shown below are the interpretive themes covered.

Kruckeberg Botanic Garden Current Tour

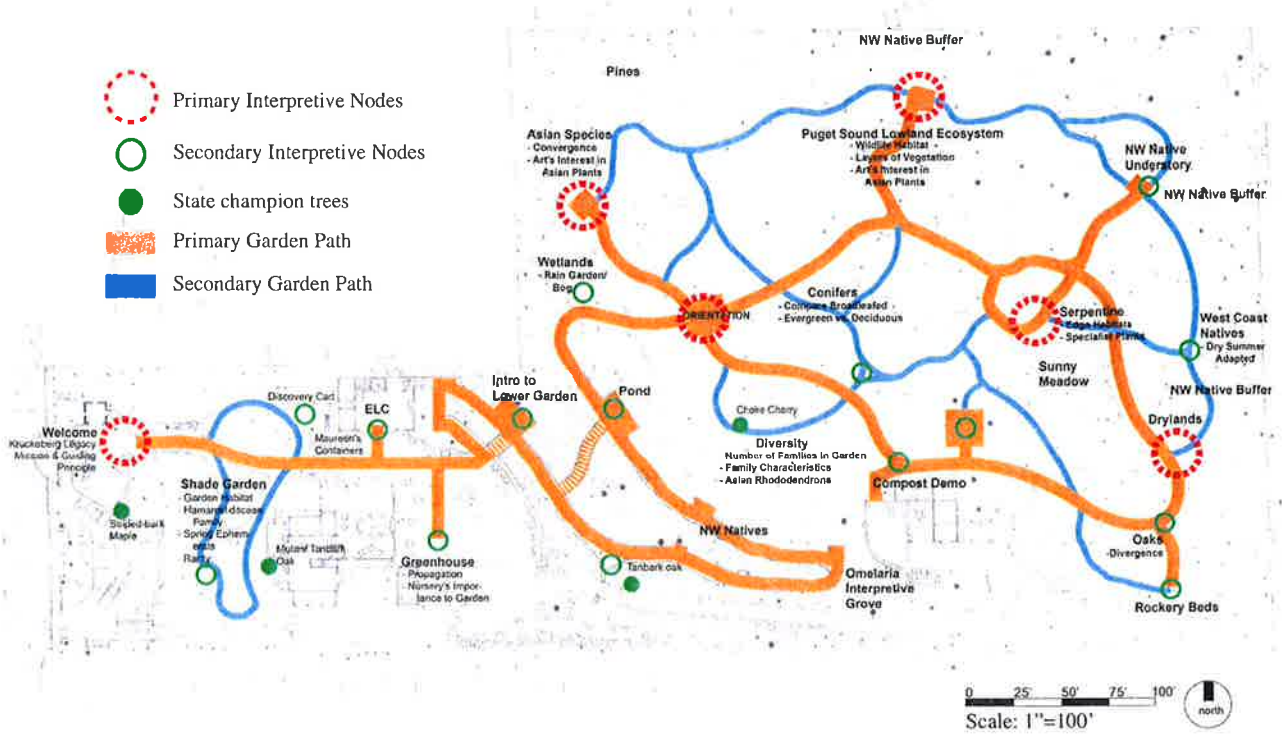


Kruckeberg Botanic Garden Standard Tour Themes

Theme	Stop #1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Botany - The Plants																																										
History / Kruckeberg Legacy																																										
Seasonal Interest																																									
Shade affecting the plant																																									
Habitat																																									
Plants & Human Culture																																									
NW Natives																																									
Champions / Big Plants																																									
Home Garden Use																																									

The chart above categorizes the 42 stops along the standard Kruckeberg Garden tour. Many of these themes are appropriate for additional specialized tours. The goal is to include more of the plant collection in an overall education program. It is important to allow the interpretive and education staff to work with the Garden Committee and horticultural staff in plant collection decisions. Two examples of specialized tours using the current collections of oaks and conifers are shown on page 33.

Interpretive Plan



2010 Education Programs

Children's education in 2010 involves outreach to Shoreline schools. Programs include a classroom visit by Garden staff and volunteers to teach a plant-related topic, followed by a field trip to the Garden. A drop-in Garden Tots program during the summer targets families on Friday mornings; camp, school, and child-care groups visit on Thursdays. Adult hands-on workshops are scheduled monthly in 2010 with outreach through the Shoreline and Edmonds Parks Departments.

Existing interpretive themes and pathways emerged over time as the Garden was developed. The Interpretive Plan above builds upon the Kruckeberg's original plant layout and shows the ADA-accessible main trails and non-accessible minor ones. Main trails will link up with interpretive nodes that describe the major plant types and interpretive themes. The Garden's four champion trees are along the main trail system. Minor trails will lead from these nodes to the rest of the Garden and will be more intimate. They will be surfaced in wood chips, grass, or decomposed granite and are two to three feet wide with plants growing close by.

The boardwalk, leading from the upper to the lower Garden, will be laid out along the slope and connect with both native plants on the slope and non-natives near a new wetlands area. In the lower Garden, diversity will be an important theme and feature the serpentine bed, rockery beds, and the oak collection developed from Art Kruckeberg's research interests. The great mass of native Douglas firs in the northeast are an ideal location to expand the native plant collection and associated interpretive themes. A compost demonstration area is planned for the north side of the small maintenance/restroom compound in the lower garden.

Beyond the Garden

Kruckeberg Botanic Garden is in an ideal position to partner with the City to develop demonstration or display gardens elsewhere in Shoreline that will feature plants and design elements of the KBG. This will serve to extend the reach of the Garden into the community in ways that are not possible onsite. Further development of the website will also allow the Garden to reach out beyond its boundaries.

Suggested Interpretive Themes

Additional interpretive themes are suggested here to facilitate both guided and self-guided tours, to present an ever-changing interpretation of the Garden, to foster return visits, to assist information retention, to organize educational resources, and to strengthen the plant collection. These themes can help add depth to the Talking Trees cell phone system, provide topics for Garden fact sheets and interpretive brochures, enhance the Garden's website, and create special themed events or themed days.

- Garden History and the Kruckeberg Legacy
- Plants with Seasonal Interest
- Plants and Human Culture (Ethnobotany)
- Pacific Northwest Natives
- Why Some Plants are Rare and Some Plants are Weeds
- Champions in the Garden (big trees)
- Great Plants for Home Gardens
- Unusual Rhododendrons for Home Gardens
- Kruckeberg's Oak Collection
- Birds in the Garden
- Gardening for Wildlife
- Plants of Asia (Europe, Chile, Australasia, etc.)
- Shade Gardening
- Rock Gardening
- The Story of Conifers
- Geology and Plants

Possible Tour Routes

Tour of Oaks

Scale : NTS

Tour of Conifers

Scale : NTS

PLANT COLLECTION

The Kruckebergs intended their garden to be natural in character, not driven by design but by the plants they chose to collect, grow, and study. Their focus was on using natives, along with appropriate exotic plants, and to test plants' abilities to grow in Puget Sound's climate.

The principle guiding documents for current and future collections management are the Guiding Principles for the Kruckeberg Botanic Garden (see Appendices), the Grant Deed of Conservation Easement and the KBGF/ City of Shoreline Botanic Garden Service Agreement.

John Swanson Design Studio worked with the Garden Committee, Garden Director Sarah Baker, and Dr. Kruckeberg to assess the existing plant collection for this Master Site Plan. The 3.79 acre Garden includes more than 1620 plants, an astounding 400+ plants per acre. Most are trees and shrubs. The City hired a survey firm to locate all plants over three inches in diameter and place them onto a plan. Over 50% of the collection plants (800+) were excluded from the plan due to size, but as they mature they will certainly impact the Garden's design, management, and educational value.

The current plant list, as shown in the Appendices, identifies 1619 plants in the plant collection. Of those, half are on the survey. Of the half not on the survey, 165 have accession numbers. It is assumed that the rest are trees or shrubs too small to be surveyed, herbaceous plants, or dead or duplicate plants. Roughly one third are Northwest natives with an additional 18 percent native to states along the West Coast of North America, totaling 51% of the plant collection. 27% of the collection is Asian. All of these plants are on the survey and are assumed to be the oldest plants in the Garden, aside from the natives.

The most numerous species on the property is the Douglas fir, with 106 individual trees. Approximately 110 rhododendrons are on the property, many of which remain unidentified. The Garden has 26 of the world's total of 68 conifer genera. It also has 84 oaks, representing 40 species or cultivars; 39 pines, representing 21 species; and 32 native madrones. The Ericaceae, or heath, family has 13 genera and 166 individuals, of which rhododendrons are the most numerous. The Fagaceae, or beech, family is represented by five genera, with oaks predominating.

Collection Management Priorities

At the time this Master Site Plan was written, Dr. Kruckeberg was still actively contributing to the management and operation of the Garden. As time goes on, the principles outlined in the documents cited above shall govern future management and development of the Garden. The following priorities for collections management are suggested:

Update Plant Records. Because of the importance of the plant collection to this Garden, ensure the completeness and accuracy of the existing plant list. Where plant identification is incomplete or tentative, bring in outside experts to assist. Once the plant list is accurate, make sure plants are located accurately on all maps and update the list regularly. The plant list's usefulness as a tool for planning cannot be emphasized enough.

Plan for the Future. Develop short, mid, and long-term plans for collections development. Allow flexibility as plant, climate, community, and interpretive goals change over time.

Manage for Education. Future changes in garden design and plant locations should consider interpretive themes and the founders' original intent while respecting species' needs for optimal light, space, soil, and water.

Expand Native Collection. Develop the northeast portion of the Garden as a native plant garden, emphasizing understory plants compatible with a conifer forest. Develop ex situ propagation of, and programs to promote

and educate about, rare and endangered species from the Pacific Northwest region.


KBG Camassia quamash

Emphasize Diversity. The Garden's high species density emphasizes the importance of biodiversity as a theme. This should be continued as a priority when selecting species to add to the collection.

Select and Cull Plants Carefully. The density of plants in the Garden at 400+ per acre will require hard choices over the years. The upper garden is an acknowledged shade garden, but the lower garden was a source of disagreement between the Kruckebergs regarding plant placement. A January 2009 article in the *Seattle Times* quotes Art Krukeberg as saying " that he and Mareen agreed to disagree on some points, creating what he calls 'his-and-hers' gardens. If I had done it all, it would be overgrown by now," he says. "See how open this is here?" She said, 'Leave space.'" In a 1993 article in the NHS publication, *Garden Notes*, Mareen is quoted as saying, "It is very important to keep the plants open, with good air circulation not only within each plant but also between all the plants. If I see that a plant is creating a problem of any kind, whether it's a crowded look or certainly any kind of disease, out it goes!"

It is highly recommended that judicious culling of plants, whether by pruning, relocation, or removal, be done gradually and with the goal of respecting the legacy and intentions of both the founders of this Garden. The meadow in the lower garden is recognized in the Guiding Principles as an important habitat for sun-loving plants in the serpentine display and rock garden. Trees planted in the last 20 years have grown to the point where they have almost entirely eliminated the meadow and blocked the sunlight. It is recommended that plans be made to re-establish, if not expand, the important sun-requiring plant collections in the lower garden.

Expand Container Garden Program. Feature and expand upon Mareen Kruckeberg's style of container gardening in a central location where sales and garden orientation are conducted.

Tree Protection and Preservation during Development

Preservation and protection of the plant collection is a high priority in this Master Site Plan. Future development of the Garden will take existing plants into account as structures, parking lots, boardwalk, pathways, and service roads are located. The reality is that some plants will have to be moved, but this will be minimized. Future decks, the boardwalk, and parking lot will be built to sit lightly over preserved tree roots (see illustration on page 39). Where appropriate, structures may utilize a pin foundation to minimize trenching near tree roots. Unfortunately, some trees are simply in the way, are too big to be moved, and should be propagated in advance in order to preserve them. Priority for preservation are trees that are:

- important to the story of the Kruckebergs,
- large and prominent in the Garden,
- deemed healthy and able to survive construction impacts,
- rare, either in terms of species or in terms of number of individuals in the Garden,
- unable to be transplanted or propagated.

MsK Nursery Banner Image: www.msknursery.com


KBG Lewis

Current methods of tree protection include providing ample space between trees and protection fencing. Ideally, protection fencing is placed at least one foot per inch of trunk diameter away from the trunk. Trees in groves should be preserved as a grove. An air spade could be used to learn where roots are located so that parking lot posts can be placed between

roots. An assessment of tree health should be undertaken before construction since healthy trees have a better chance of surviving construction than diseased trees.

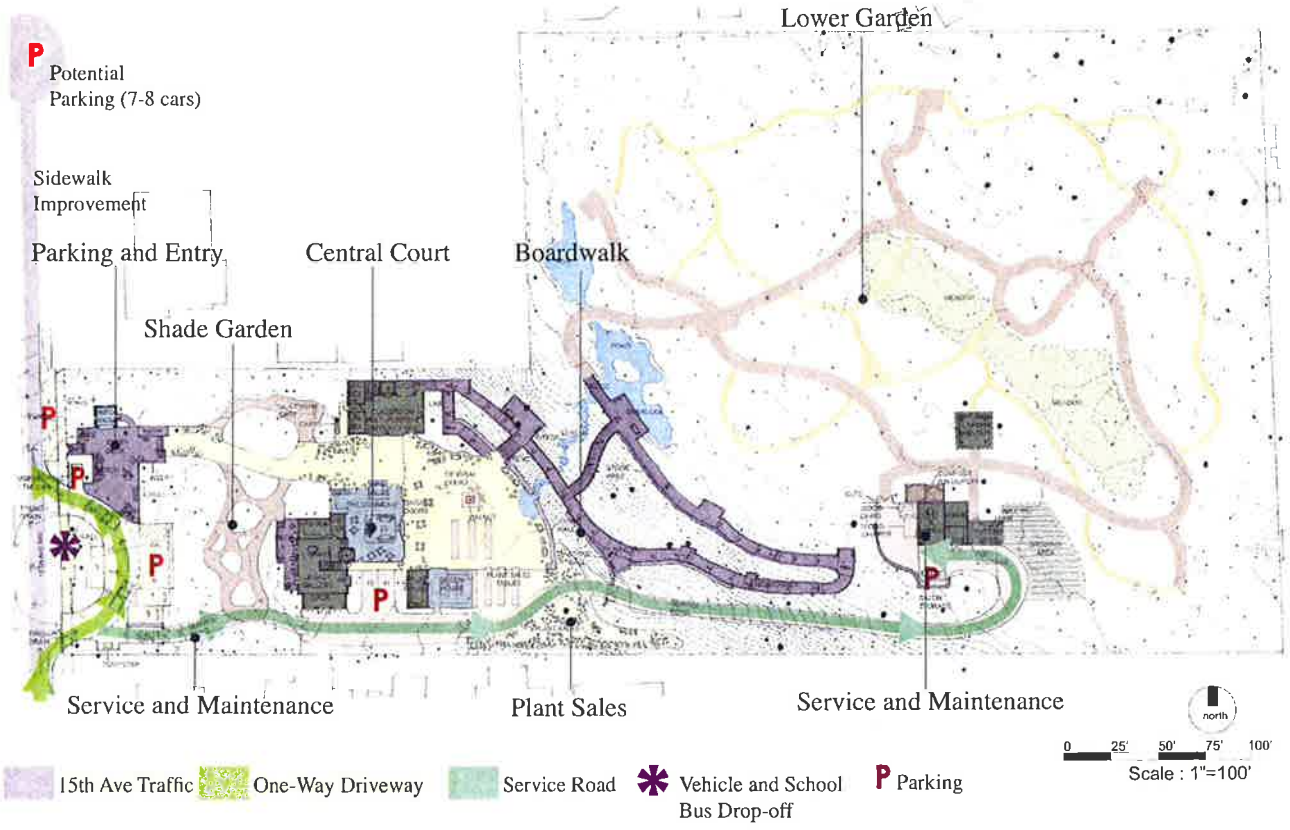
Nursery and Plant Propagation Priorities

This Master Site Plan recognizes the importance of the MsK Rare and Native Plant Nursery to the Kruckeberg Garden. It is unique among botanical gardens in that the Nursery is integral to the Garden's education focus. To that end, space, funding, and consideration to Nursery operations is vital as the Garden develops as a public resource. It is a priority for the Nursery and its plant propagation facilities to establish an offsite facility to propagate and grow plants for sale. This will reduce the amount of garden space occupied by the Nursery and help make up for space lost to new or larger buildings.

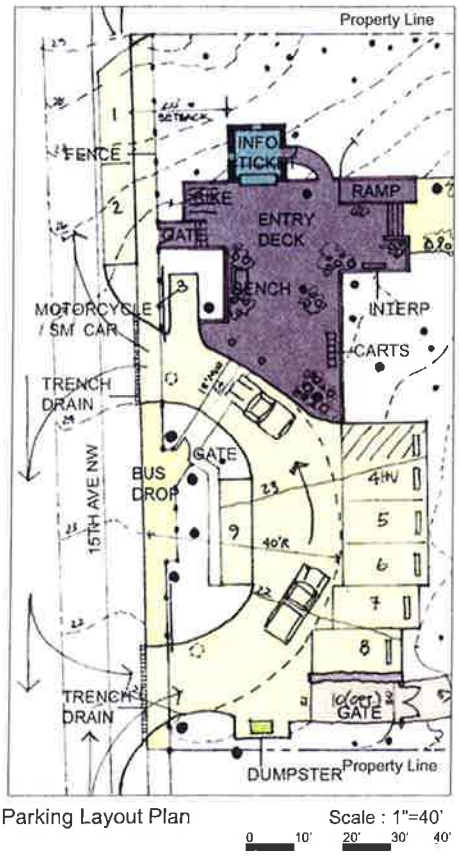
ELEMENTS OF THE PLAN

Master Site Plan concepts are presented in the order they are experienced as one visits the Garden. They are presented in the following seven sections:

Parking and entry
Shade garden
Central court
Boardwalk
Plant sales
Lower garden
Service and maintenance



PARKING AND ENTRY



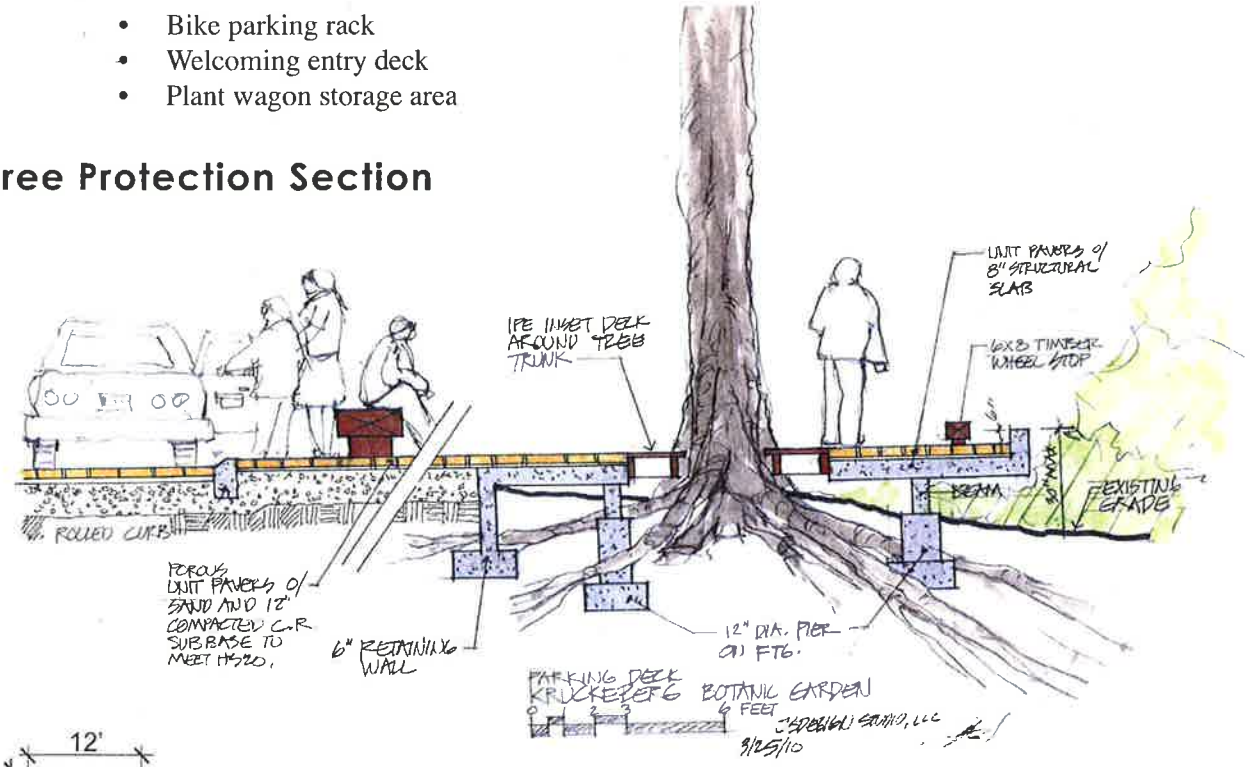
The Garden entrance is currently on 15th Avenue NW and will remain on the same street. A new sidewalk will be built along the east side of the street to enhance pedestrian safety and link to a future parking area at the top of the hill. An extra lane will be added at the Garden to provide for vehicle and bus drop-off. A new parking lot, entry deck, and gatehouse to accommodate information, admission, and office space will be located just inside the west boundary. They will be carefully sited to preserve existing trees while decreasing the number of visitor cars parked in the neighborhood. Plans are under way to purchase a portion of property at the top of the hill along the east side of 15th so that seven or eight back-in angled parking spaces can be added. These strategies, along with three additional parking spaces in the Garden near the house, will accommodate parking for 19 to 21 cars at one time.

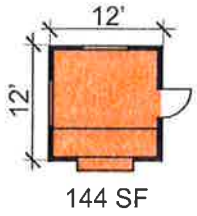
Features

- 10 parking stalls
- One-way driveway
- Gatehouse (info and ticketing)
- ADA access to upper garden
- School bus drop off area

- Bike parking rack
- Welcoming entry deck
- Plant wagon storage area

Tree Protection Section





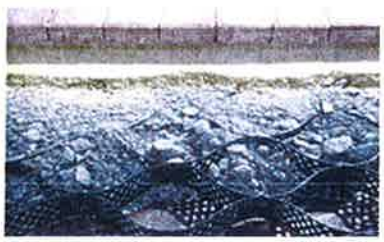
144 SF

Proposed Gatehouse

The gatehouse will accommodate workspace for one to two desks, ticketing, and an information counter.

Material Examples

The drawing and photos on this page show how valuable trees in parking and hard surface areas can be protected from root damage caused by excavation and compaction. The right side of the drawing above shows a cantilevered structural slab built on piers spaced to align between roots and not disturb existing soil. The photos below and the left side of the sketch above represent a Cell-Tek Geosynthetic system that rests on existing soil, forming a honeycomb grid filled with porous aggregate and topped with unit pavers. This system allows air and water to reach the roots. Other systems will be explored during design and construction development.



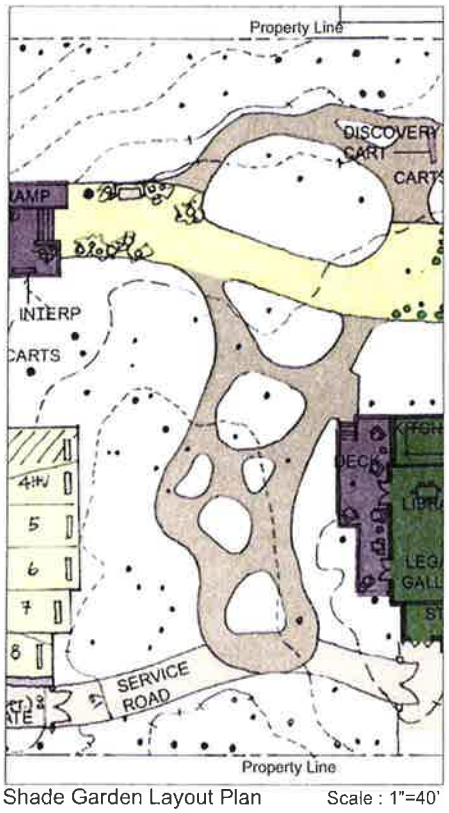
Benefits

- Reduction of runoff
- Recharging of groundwater
- Roof water management
- Management of oil contaminants
- Filtering and treatment of pollutants
- LEED® Green Building Rating System
- Slip and skid resistance

Garden Entry at School Bus Drop-off Area

Entry Deck and Drop-off

SHADE GARDEN



Shade Garden Layout Plan Scale : 1"=40'

0 10' 20' 30' 40'

West of the house is the Shade Garden. Existing trees are dense and tall, requiring judicious management so that appropriate understory species survive over the long term.

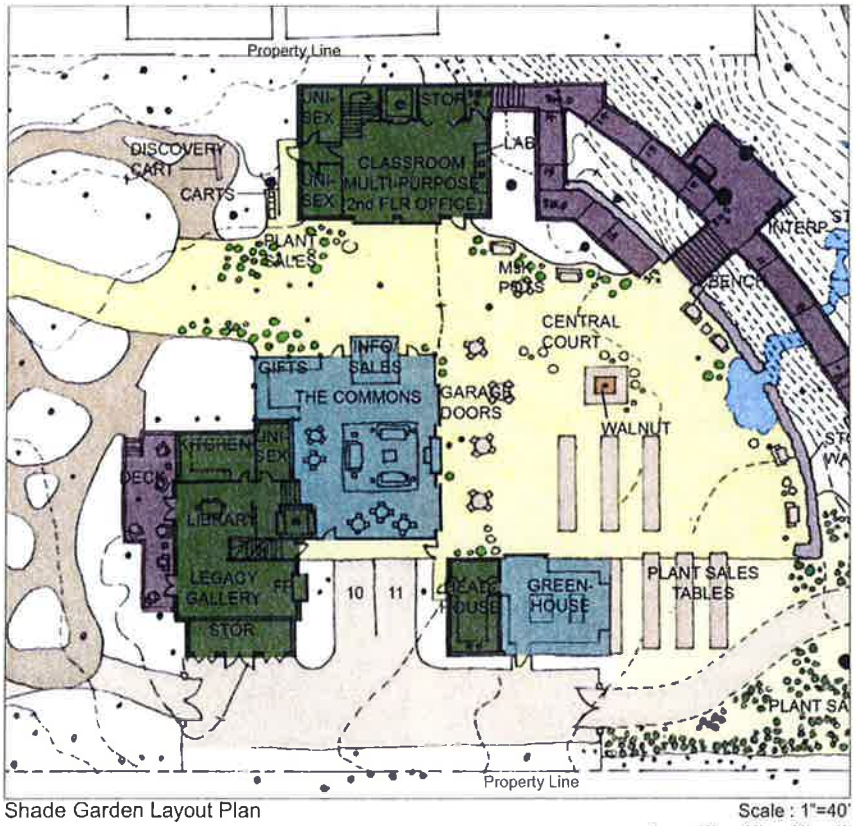
A new entry path will separate visitors from vehicles. Signage will show the way toward the Central Court and services. Plant labels and interpretative signs will teach about shade-adapted plants and other topics. Valuable collection trees, such as the stewartia shown in the photo to the right, will be preserved. And access to this part of the Garden will be enhanced by resurfacing existing pathways with new ADA-compliant porous surfaces.

Reference Plan

KBG Existing Garden

Garden Main Path

CENTRAL COURT



Shade Garden Layout Plan

Scale : 1"=40'

Reference Plan

Features

- Central Court
- Environmental Learning Center (ELC)
- The Commons
- Legacy Center
- Headhouse
- Greenhouse
- Stone wall
- Parking for two staff vehicles
- Nursery sales

The Commons

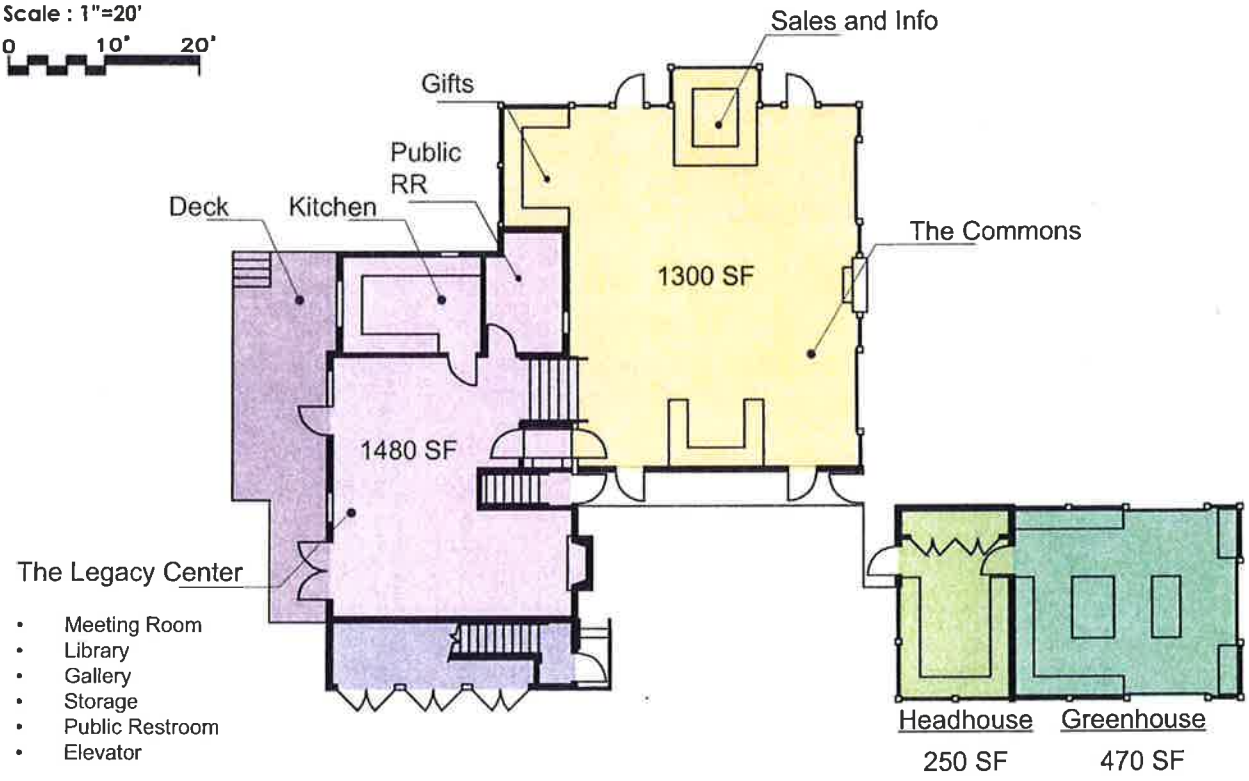
Most of the buildings on the property will be clustered around the Central Courtyard within the boundary allowed by the Conservation Easement. It is intended that the existing residence be remodeled into a Legacy Center with library and display room, a public restroom, kitchen, storage in the basement, and a caretaker's apartment on the second floor. A Commons will be added to the east side of the residence to provide an indoor place for an information and ticketing desk, gift sales, refreshments, and wi-fi hookups. The existing cottage will be demolished and a two-story environmental learning center, with first-floor classroom for 30 students and public restrooms, plus second-floor staff offices, built in its place. The existing greenhouse will be replaced with a 750 square foot greenhouse including headhouse. It will move closer to the south boundary for access to more sunlight and the service road.

Floor Plans

Floor Plans

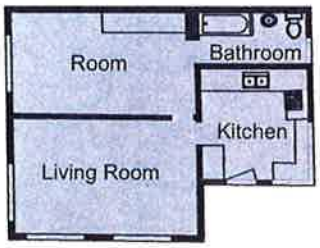
Scale : 1"=20'

0 10' 20'



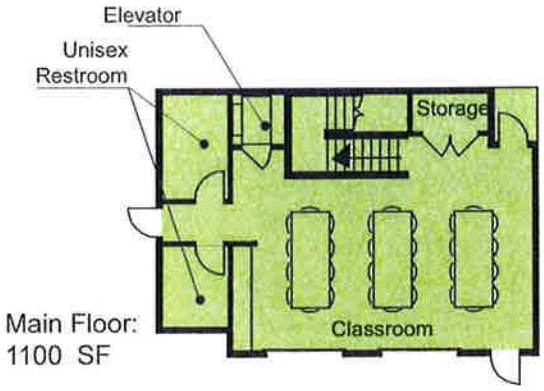
Existing Cottage

715 SF

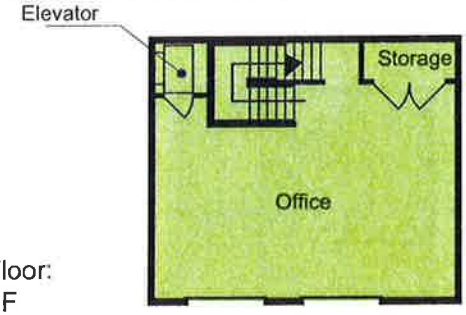


Replace

ELC Concept Plan



Main Floor:
1100 SF



2ND Floor:
920 SF

Sustainable Building Strategies

Minimize Construction Impacts. Minimize airborne and noise pollution from on-site machinery. Prevent soil erosion and control sedimentation during construction.

Reduce Heat Gain. Use trees and shading devices to shade hard surfaces and reduce heat gain. Specify hardscape materials and roofs with a solar reflectance index (SRI) of at least 29. Design pavement to be open-grid. Shade parking spaces and either plant building roofs or cover them with photo-voltaics or solar water heating systems.

Smart Night Lighting. Design exterior lights to promote safety but reduce impact to neighbors and wildlife.

Conserve Water. Specify low-flow plumbing fixtures such as dual-flush toilets, one-pint urinals, front-loading washing machines, and low-flow faucets and shower heads. All plumbing fixtures should meet EPA Water Sense requirements. Use motion sensors at sinks and lavatories. Capture rain and shower and sink water to flush toilets. Consider composting toilets. Irrigate with stormwater runoff, harvested rainwater, recycled wastewater, or other non-potable water sources.

Use Renewable Energy. Install onsite renewable energy systems such as photo-voltaics (PV), solar water heating, wind turbines, and/or geothermal sources. Locate PV and solar water systems where solar orientation and existing trees allow. Tie these systems into the electrical grid for net metering. Purchase at least 35% of the Garden's electricity from renewable sources as identified by the Center for Resource Solutions' Green-e-Energy.

Employ Passive House Strategies. Insulate walls, floors, roofs, and foundations over and above Washington State Energy Code requirements to make buildings as airtight as possible. Then install high efficiency HVAC systems.

Commission Building Systems. Building commissioning ensures that systems are installed correctly and calibrated to the owner's requirements, basis of design, and construction documents. Begin the commissioning process early in design to identify problems early and find solutions.

Develop a Measurement and Verification Plan. Track energy consumption over time so waste can be eliminated. Create an action plan if energy savings are not being achieved.

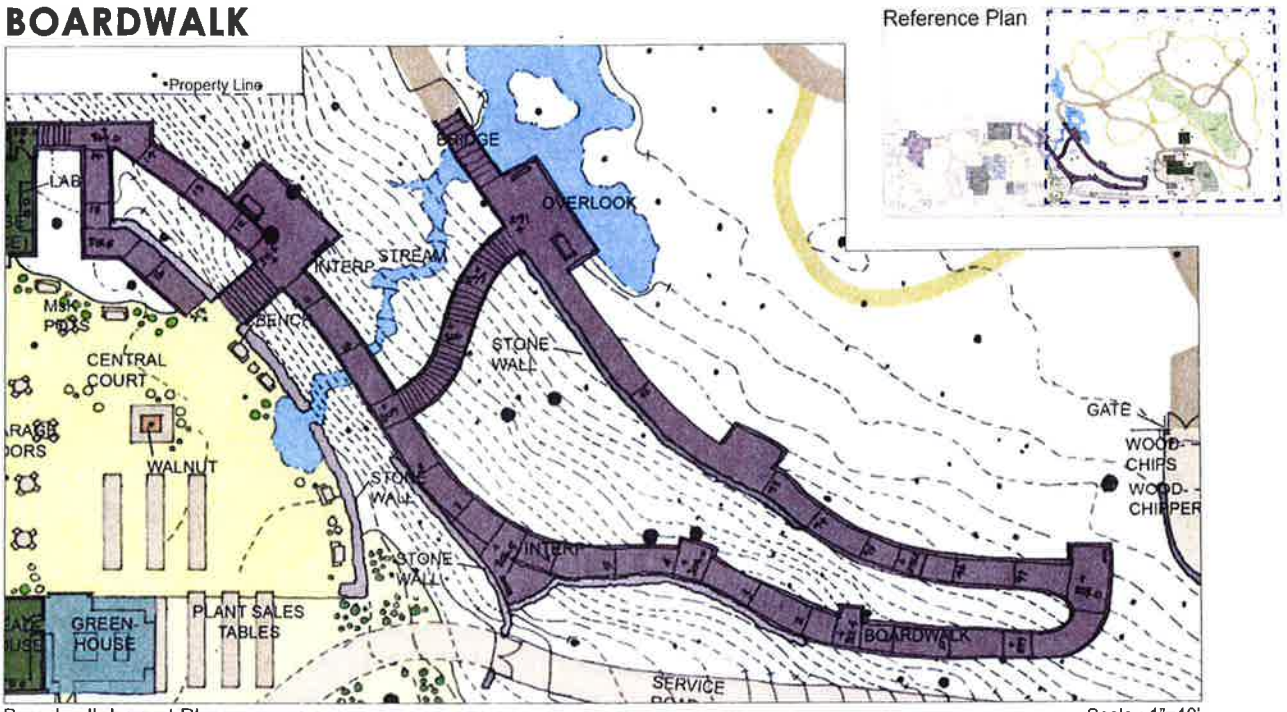
Smart Materials Use. When demolishing an existing building, reuse materials on-site or sell to a salvaged building materials store. Break up concrete and asphalt and use as aggregate in new concrete. Use materials with postconsumer recycled content. Purchase new materials from within 500 miles of the project site. Use rapidly renewable raw materials, such as strawboard or wheatboard.

Maintain High Indoor Environmental Quality. Establish minimum indoor air quality (IAQ) performance standards for both mechanically and naturally-ventilated spaces. Adhere to state law relative to tobacco smoke in and near buildings. Use outdoor air to enhance ventilation indoors. If possible, pre-condition incoming air using a heat exchanger. Develop a plan to reduce IAQ problems during construction. Do not use materials inside the building envelope that have off-gassing volatile organic compounds. These include adhesives, sealants, finishes, paints, coatings, flooring systems, composite wood, and agrifiber products.

Provide Individual Lighting Controls. Allow building occupants to adjust lighting to suit individual needs.

Provide Individual HVAC Controls. Allow building occupants to control their work space. Doors and operable windows may be provided in lieu of HVAC controls. Design HVAC systems to provide thermal comfort based on activity and occupancy. Monitor HVAC performance. Where possible, incorporate passive solar techniques to provide heat.

BOARDWALK



Boardwalk Layout Plan

Features

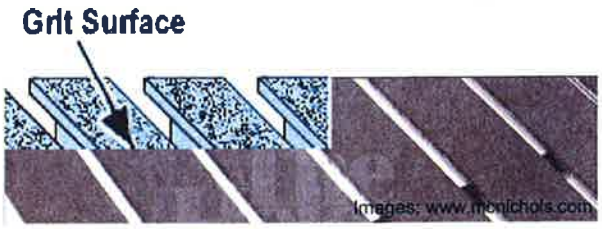
- ADA (1:12) Switchback Trail to Lower Garden
- Direct Stair Route
- Overview Platforms
- Interpretive Stations

An ADA-accessible boardwalk will traverse the existing slope in order to provide access to the lower garden for everyone. This boardwalk will expand the number of plants that visitors can view up close by crossing a slope that has been too steep for most visitors to access. It will also help separate visitors from service vehicles and maintenance areas.

Material Example: Boardwalk and Platform

The material system shown at the right is being considered for the boardwalk surfacing. Other materials will be investigated as design and construction phases proceed. The material shown is a Pultruded Fiberglass T Bar grating that has:

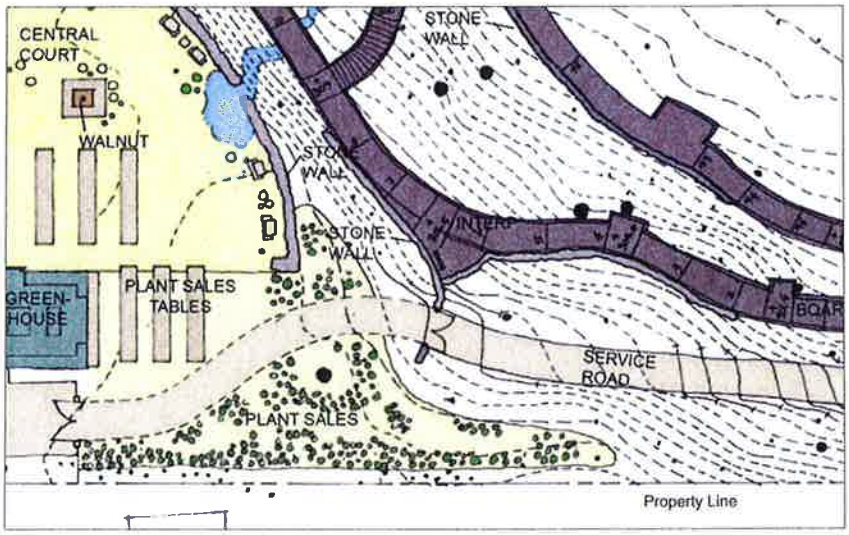
- Skid and corrosion resistance,
- Fire retardance,
- High impact strength,
- Low maintenance,
- Low thermal conductivity.



KBG Garden Slope

Boardwalk Overlook Section

PLANT SALES



Plant Sales Area Layout Plan

Scale : 1"=40'

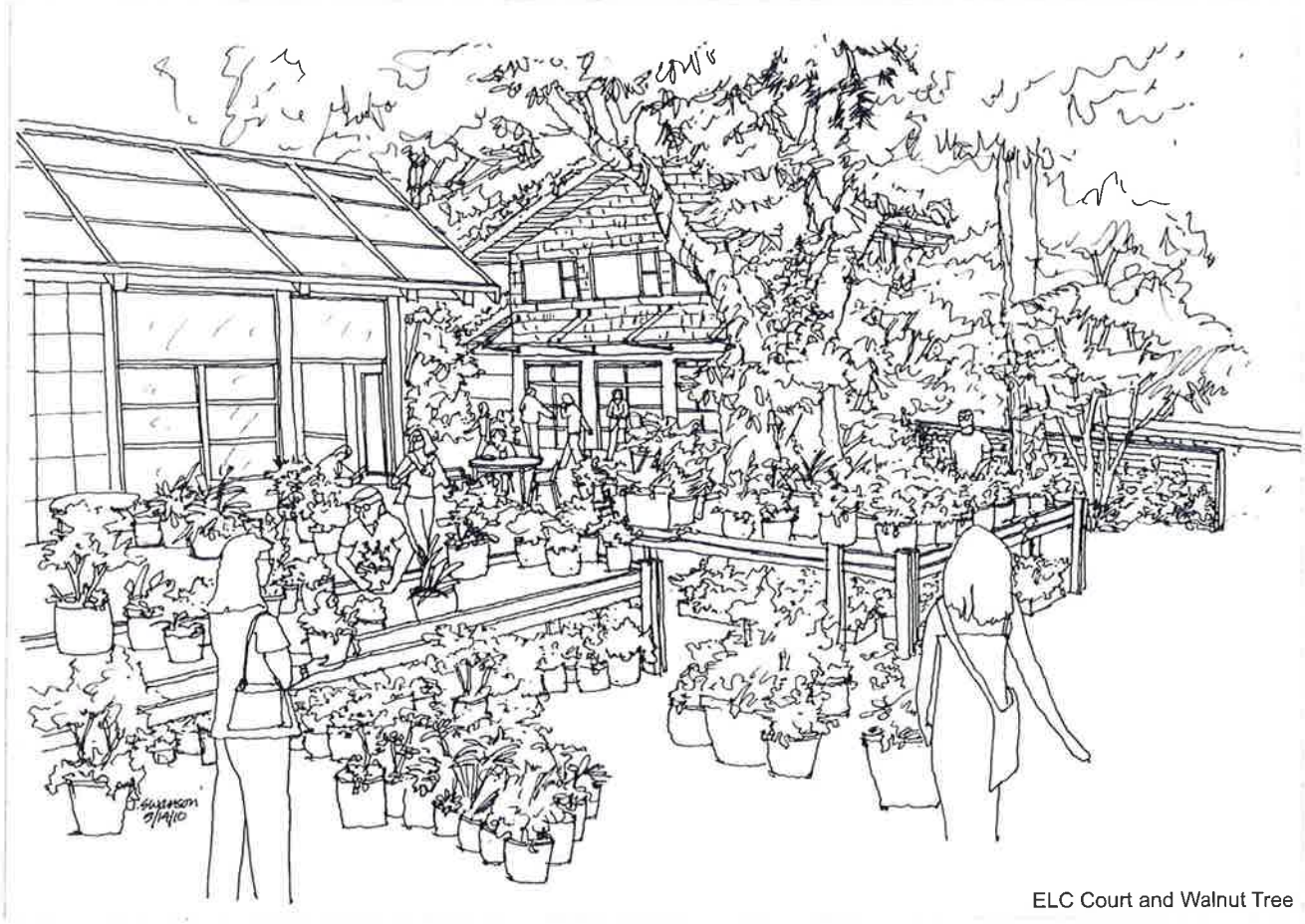
0 10' 20' 30' 40'

Reference Plan

The MsK Rare and Native Plant Nursery is critical to the history and legacy of the Kruckebergs and the Garden. Having a nursery as a prominent feature of a botanical garden is unique in the world of public gardens. For these reasons, the plant sales area will continue to occupy a prominent part of the upper garden and central court. This part of the Garden has provided unusual plants to the regional gardening community for decades. MsK Nursery has helped to increase the diversity of available plants and fosters return visits by gardeners looking for unique additions to their own gardens.

Numerous tables will be placed in the central court area to showcase flats of smaller plants and starts. Room will also be set aside for larger containers on the ground near the giant sequoia.

Classes on propagation, container gardening, and general plant care will require use of the classroom, the nursery, and the greenhouse. Clustering these facilities is recommended. To facilitate transferring purchased plants to buyers' cars, plant carts will be stored near the sales area and the parking lot.

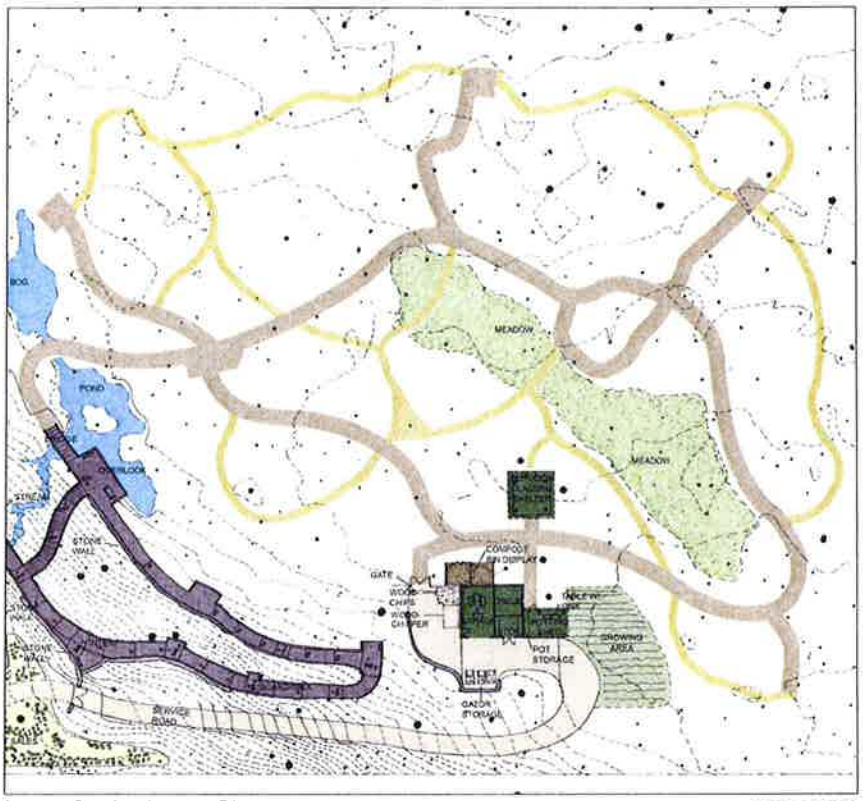


ELC Court and Walnut Tree

Existing KBG Plant Sales

LOWER GARDEN

Reference Plan



Lower Garden Layout Plan

Scale : 1"=40'

0 10' 20' 30' 40'

Features

- Garden sculpture
- Pond, rain garden
- Meadow
- Major plant zones

Floor Plan : Outdoor Shelter

Scale : 1"=20'

0 10' 20'

The lower garden will retain its current character and ambience, along with ADA-compliant pathway improvements, a rain garden and pond, a small outdoor shelter, compost demonstration area, maintenance shed, and plant nursery near the Garden's south boundary. The large number of potted plants scattered throughout the lower garden will be consolidated, opening up space to expand the Garden's understory.

Formerly a sunny horse pasture, the lower garden is rapidly filling up with trees. This was a source of conflict between the Kruckebergs and remains unresolved today. Effort should be made to restore the sunlight to this area and expand the plant collection accordingly. This will require moving or removing several of the numerous trees now overtaking the meadow. Because the Serpentine Garden represents Dr. Kruckeberg's primary contribution to science, it is written into the Guiding Principles as a priority and requires sunlight.

The lower garden will remain a tranquil space. It will feature an ADA-compliant main loop pathway system, with interpretive nodes to direct visitors further into the plant collections. Plants in the lower garden include oaks, rock garden plants, plants found on serpentine soils, conifers, Pacific Northwest natives, Asian plants, and many more. The northeast corner features a cathedral-like grove of native Douglas firs. This is an ideal place to expand the Garden's native plant collection.

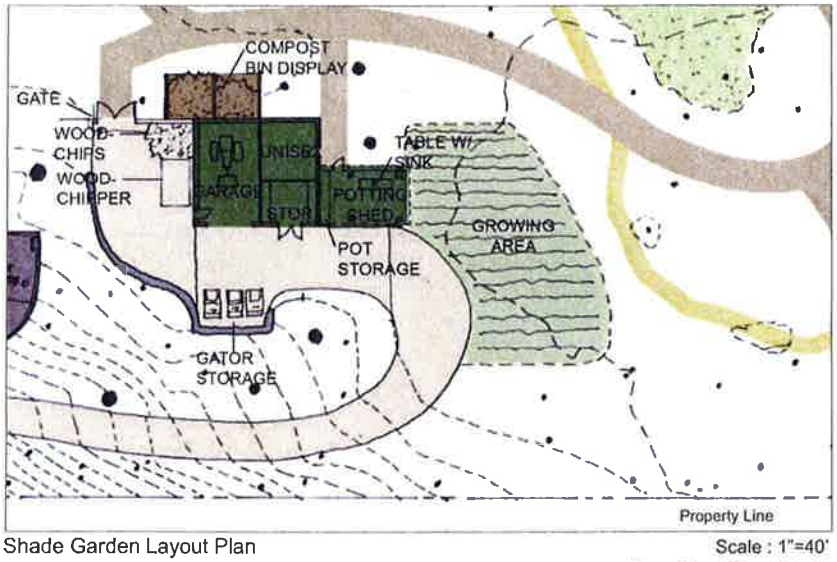

Existing KBG Juglans mandshuricae


Existing KBG Lower Garden Temporary Public Art

A small shelter near a Douglas fir grove will allow groups to get out of the rain while touring the lower garden. The shelter will be located near a compost demonstration area and a small public restroom, part of the maintenance compound.

The idea for a water feature originated with Mareen Kruckeberg. At the bottom of the boardwalk will be a pond, visible from and linked to the central court by a stream channel. A viewing deck on its west side will allow visitors to pause on a bench or to gather while on tour for an introduction to the lower garden. Just to its north will be a rain garden, designed to enhance the Garden's stormwater management system and to introduce home gardeners to ecological stormwater management. The Garden's ecological value as wildlife habitat is enhanced by both of these water features. Their exact locations and sizes will be determined in future phases and partly depend on the location of existing trees and amount of runoff generated from roofs and impervious surfaces in the upper garden.

SERVICE AND MAINTENANCE



Shade Garden Layout Plan

Scale : 1"=40'

0 10' 20' 30' 40'

Reference Plan

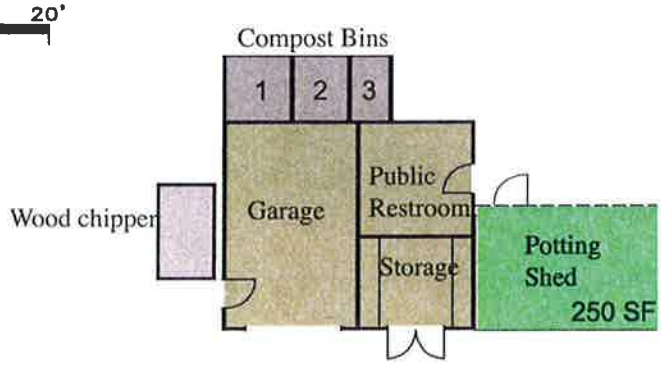
Features

- Garage
- Public restroom
- Potting shed
- Compost bins
- Outdoor shelter
- Propagation area
- Service road connecting upper and lower garden
- Lath house
- Green roof

Floor Plan : Maintenance Bldg.

Scale : 1"=20'

0 10' 20'



580 SF

A new gravel service road along the south edge of the upper garden will connect to the existing service road leading to the lower garden, keeping service vehicles separate from visitor trails. Existing south boundary trees will be preserved in order to screen the road from the south. The new road will join the existing service road near the plant sales area and connect with a small maintenance compound. This compound will include a public restroom, potting shed, garage and storage, and nursery growing space. The wood chipper will be located near the back of this building in order to muffle engine noise. On the north side of the building will be three compost bins plus interpretive graphics to teach about composting. Main paths leading from this area will be five feet wide, designed to accommodate small service vehicle access to the lower garden.

PHASING AND IMPLEMENTATION

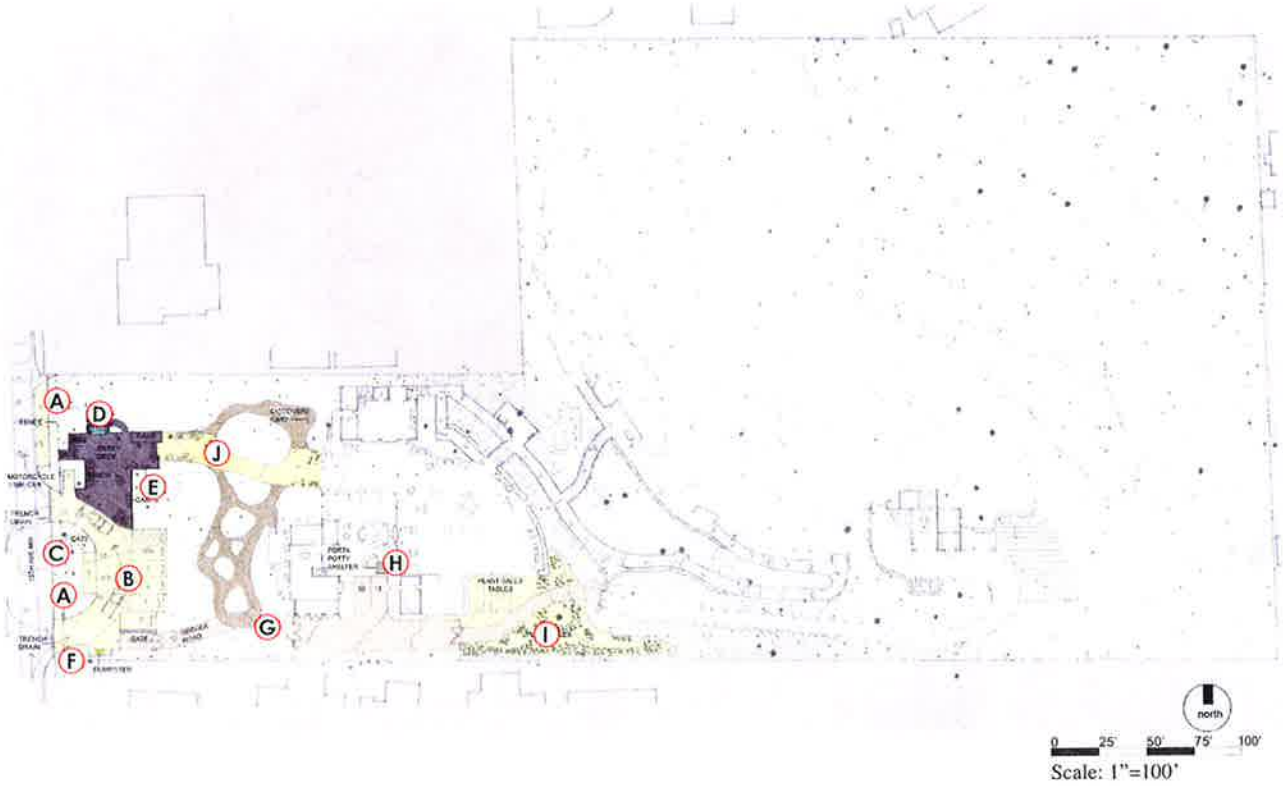
The following pages outline phasing recommendations for the Kruckeberg Botanic Garden that seem desirable to address the needs, vision, and requirements of a private garden's evolution into the public domain. With the transfer of this property from a private residence to a commercial public entity, new sets of codes, restrictions, and opportunities come into play. These deal with public safety, health, and well-being and ensure that equal opportunities are afforded to all. Within a limited budget, Phase 1 responds to these immediate needs by providing on-site public parking to reduce impacts to the surrounding residential community, adding much needed public restrooms, and creating a permanent and separate service access road and staff parking area.

Phase 2 focuses on siting an interpretive switchback boardwalk trail that connects the upper and lower gardens in an aesthetic ADA-compliant manner. It is also envisioned that an ADA-compliant loop path would be routed through the lower garden. While it would be optimal to build the environmental learning center in Phase 2, it is recognized that lack of funding may require deferment to a later phase.

Further development of future phases depends on many factors, most importantly securing funding and the commitment of the City, Foundation, and public to support and encourage new work to proceed. In the end, this alone will determine how quickly Garden projects are completed and the Garden vision, as outlined in this report, is realized.

This is a modest plan as represented by the development costs associated with each phase in 2010 dollars. It retains the legacy garden of the Kruckebergs in a manner that invites and accommodates public exploration and enhances the public education and enjoyment of one of the treasures of Shoreline.

PHASE 1



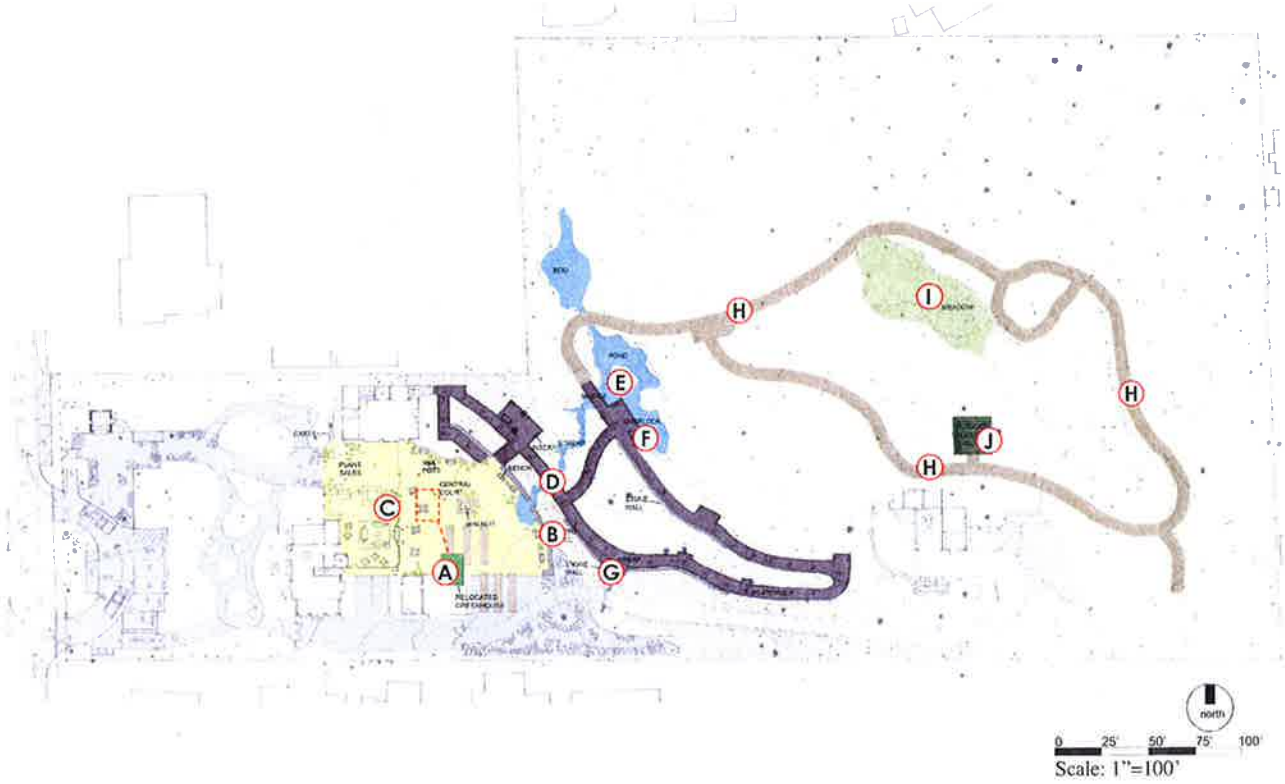
A. Security fence and gates
B. Parking for up to 10 cars
C. Arrival drop-off deck
D. Information/ticketing gatehouse
E. Interpretive panel(s) and wayfinding orientation map
F. Entry sign
G. Service road and staff parking for two cars
H. Porta-potty shelter
I. Plant sales area
J. Entry garden and path improvements

Estimate of Probable Construction Costs

Parking and Service Road	$410,000-$625,000*
Interpretive Graphics	$ 25,000-$50,000
Total	$435,000-$675,000

* Final cost pending detailed design

PHASE 2



A. Relocate/replace greenhouse
B. Stone overlook wall
C. Courtyard improvements
D. Switchback boardwalk trail
E. Recirculation pond and stream
F. Lower wetland pond, overlook and bridge
G. Interpretive graphics
H. Lower garden/pathway improvements
I. Central meadow
J. Lower garden shelter

Estimate of Probable Construction Costs

ADA Access Trail and Stairs	$550,000-$690,000
Water Feature	$60,000-$75,000
Gathering Space and Overlook	$200,000-$250,000
Interpretive Graphics	$80,000-$100,000
Total	$890,000-$1,115,000

FUTURE PHASES

Scale: 1"=100'

A. Headhouse and new and enlarged greenhouse
B. Lower garden interpretive kiosk
C. Widen/improve service road upper garden to lower
D. Maintenance-garage, storage shed and equipment
E. Lower garden public restroom
F. Lower garden meadow
G. Lower garden path improvements
H. Plant growing field
I. Environmental learning center and offices
J. Public restrooms
K. House remodel/caretaker residence
L. The Commons

Estimate of Probable Construction Costs

Maintenance, Propagation and Service Road	$150,000-$190,000
Environmental Learning Center, the Commons and House Renovation	$1,900,000-$2,400,000
Interpretive Graphics	$110,000-$130,000
Lower Garden Improvements	$50,000-$60,000
Total	$2,210,000-$2,780,000

APPENDICES

Dunn Gardens Letter
Guiding Principles for the Kruckeberg Botanic Garden
Current Plant Collection Maps
Kruckeberg Botanic Garden Plant List

DUNN GARDENS

April 29, 2010

Dick Deal, Director, Department of Parks, Recreation and Cultural Services
City of Shoreline
17500 Midvale Avenue N.
Shoreline, WA 98133

Bill Schnall, President
Kruckeberg Botanic Garden Foundation Board
18385 17th Place NW
Shoreline WA 98177

Mssrs. Deal and Schnall,

After a detailed presentation and review, on April 15, 2010, of the Master Plan for the Kruckeberg Botanic Garden, the E.B. Dunn Garden Trust board, holder of the conservation easement, enthusiastically endorses the proposed plan as presented. Making the presentation for the City of Shoreline were its representative, David Buchan and their consultants John Swanson, Landscape Architect, and Sue Nicol, Arborist. Trust members present included Iain Robertson, Beth Dodrill and Robert Findlay from our Conservation Committee, and Chris Smith Towne, board president.

Our committee found that the plan complies with the conditions of the conservation easement, which include conservation values, construction limits, as well as permitted and prohibited uses. They found that the small variations from these guidelines shown on the plans were understandable and acceptable adjustments made within the purposes and goals of a conservation easement. They were necessary as the planners considered functional needs of a more public facility, cultural needs of the horticultural collection, Dr. Kruckeberg's concerns and community inputs and codes. Overall, we found the authors of the proposal to be commendably concerned with preparing a feasible plan in its modesty and flexibility, one that accomplishes the goals of the original owners, the Kruckebergs; the current grantor of the easement, the City of Shoreline; the Kruckeberg Botanic Garden board of directors; and the neighborhood.

The E.B. Dunn Garden Trust, consistent with its mission, continues to enjoy its relationship with the Kruckeberg Botanic Garden board and the City of Shoreline in the conservation of this extraordinary public asset in this region.

Sincerely yours,

Chris Smith Towne, President E.B. Dunn Garden Trust

Sue Nevler, Exec Dir. E.B. Dunn Garden Trust

Robert Findlay, VicePresident/Chair Dunn Gardens Conservation Cmt.

Cc: John Swanson
John Swanson Design Studio

Cc. Dr. Arthur Kruckeberg
Kruckeberg Botanic Garden

The E.B. Dunn Historic Garden Trust • P.O. Box 77126 • Seattle, Washington 98177
206-362-0933 • www.dunngardens.org • info@dunngardens.org

APPENDICES

GUIDING PRINCIPLES FOR THE KRUCKEBERG BOTANIC GARDEN BY ARTHUR R. KRUCKEBERG

The founding principle of the Kruckeberg Botanic Garden was that plant diversity is one of the wonders of the natural world and that there is both scientific and educational value to presenting that diversity in a natural setting. The setting of the Garden is that of a remnant Puget Sound lowland ecosystem, with a matrix of native conifers and understory vegetation, among which plants from this and other biomes are grown that complement the beauty and diversity of the native flora. Throughout the development of the Garden, plants, whether native or exotic, have been selected for their beauty and uniqueness, thus providing the added amenity of horticultural value for the plants in the collection.

In order to preserve this vision for the future of the Kruckeberg Botanic Garden, the following principles can serve as a guide to the future management of the Garden.

• The native flora of the Pacific Northwest (PNW) should always be a primary theme in the Garden and should be defined by the broad climatic zone that is shared by a contiguous region ranging from Northern California to parts of the northern Rockies west to Montana and north to British Columbia.

• The Garden should maintain a preference (though this need not be exclusive) for plants in naturally occurring form, including natural hybrids and varieties, over garden hybrids and cultivars. However, the overriding principle of diversity and the goal of having plants that complement naturally occurring forms permits the judicious selection of garden varieties.

• For plants not native to the PNW, plants from similar climatic zones and plants taxonomically related to our native flora should have preference. Due to the climatic similarity and biogeographic connection, East Asian plants are a strong preference. Secondarily, other cool, temperate, Mediterranean climates (e. g. Chile), will provide valuable components to the Garden.

• Represented in the Garden are several taxonomic groups and one specialized ecological habitat that are of particular interest to the founders and or particular value due to the diversity of these collections. These include the oaks (Quercus spp.), conifers (especially the diversity of unusual conifer families and genera), and the serpentine garden, which represent the founder's primary contributions to science. Other taxonomic groups that would fit well with the principles on which the Garden has been developed and might merit augmenting include maples (Acer spp.), witch hazels (Hamamelidaceae), and the hydrangea family (Hydrangeaceae). In addition, continued expansion of native woodland herbaceous perennials would be desirable and would permit increased biodiversity in a space-limited setting.

• While the woodland garden is a prominent theme in the Garden, the "meadows" provide an important habitat to display sun-loving plants and special collections in rockeries, including the serpentine collection. An effort should be made to prevent over-planting the meadows with trees in order to maintain the highlight environment necessary for these collections and to preserve the vision of expansiveness of the open meadow.

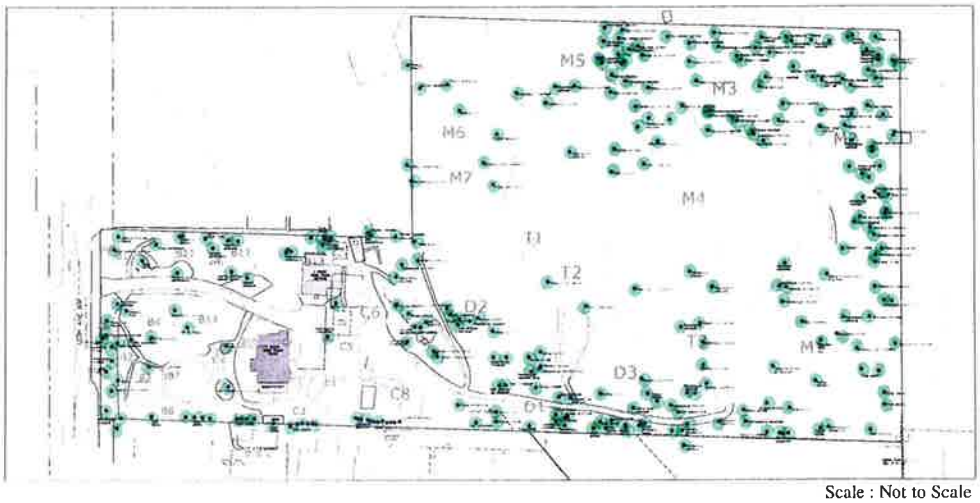
• The Garden should continue to serve as a reserve for germplasm of rare and unusual plants from the PNW and elsewhere. The Garden should participate in native plant seed collection and support collaborations that bring appropriate new plants into the Garden from foreign locations. Propagation of the Garden's diversity by the MsK Nursery shall be perpetuated.

• The Garden should continue to be managed as the primary source material for the MsK Nursery. Where feasible, existing plants should be perpetuated from Garden collections.

• The Garden should take care to avoid the use of showy displays of cultivated plants for aesthetic purposes only.

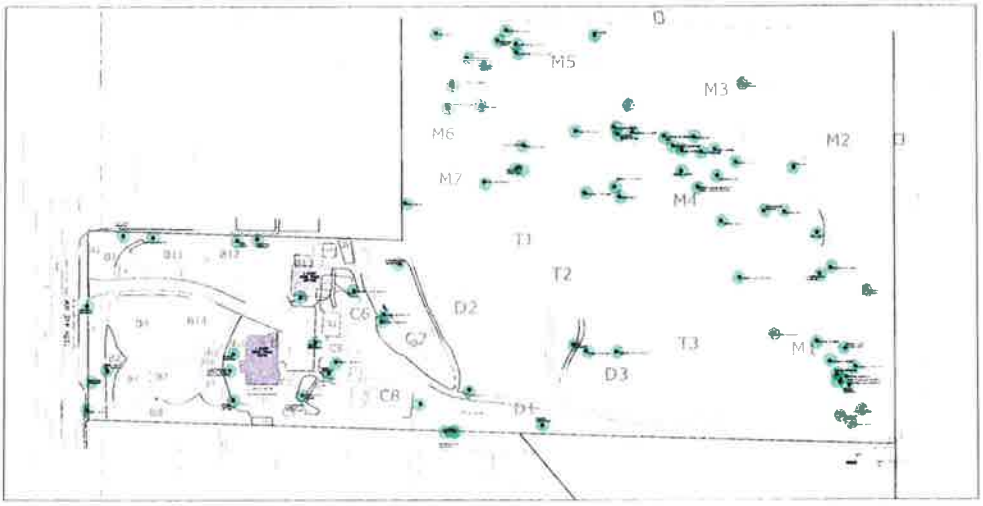
CURRENT PLANT COLLECTION MAPS

Northwest Native Plants



Scale : Not to Scale

West Coast Plants



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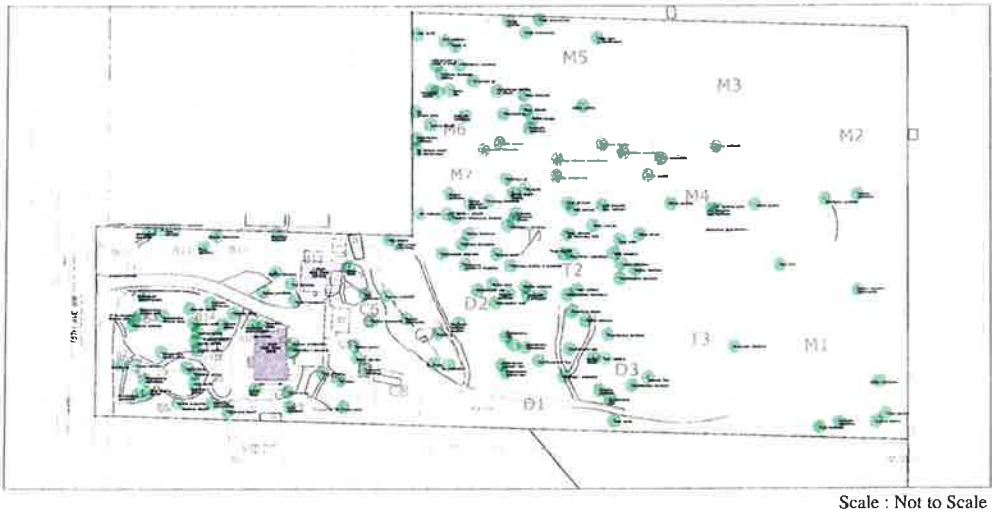
Asian Plants



Scale : Not to Scale

KBG PLANT LIST : TREES

Existing Plant List Provided by KBG June 10. 2010

Botanical Name	Common Name
Abelia chinensis	Chinese abelia
Abies bracteata	Santa Lucia fir
Abies concolor	White fir
Abies firma	Momi fir
Abies grandis	Grand fir
Abies koreana	Korean fir
Abies lasiocarpa	Subalpine fir
Abies magnifica var. shastensis	Shasta red fir
Abies pinsapo	Spanish fir
Abies procera	Noble fir
Acer bifidum	
Acer buergerianum	Trident maple
Acer capillipes	Stripe bark maple
Acer carpinifolium	Hornbeam maple
Acer circinatum	Vine maple
Acer davidii	Stripe bark maple
Acer distylum	Linden leaved maple
Acer ginnala	Amur maple
Acer glabrum	Sierra maple
Acer griseum	Paper bark maple
Acer grosseri v. hersii, or davidii	Stripe bark maple
Acer henryi	Henry's maple
Acer japonicum	Japanese maple
Acer macrophyllum	Big leaf maple
Acer mono	Usugumo maple
Acer palmatum	Japanese maple
Acer rubrum	Red maple
Aesculus californica	California buckeye
Albizia julibrissin	Silk tree
Alnus cordata	Italian alder
Alnus firma	
Alnus glutinosa	Black alder
Alnus rubra	Red alder
Alnus sieboldii	Oba Yashibushi
Alnus sinuata	Native slide alder
Alnus viridis	Green alder
Amelanchier alnifolia	Service berry
Amelanchier laevis	Allegeheny serviceberry
Amelanchier ovalis	Snowy mespilus
Aralia californica	California ginseng
Aralia spinosa	Devil's walking stick
Arbutus menziesii	Madrone
Athrotaxis cupressoides	Tasmanian cypress
Betula albosinensis	Chinese red birch
Betula davurica	Manchurian birch
Betula fontinalis	Water birch
Betula gmelinii	
Betula jacquemontii	Himalayan birch
Betula lenta	Sweet birch
Betula maximowiczii	Monarch Birch
Betula pendula	European weeping birch
Betula platyphylla	White birch
Betula schmidtii	Smith's birch
Betula utilis	Himalayan birch
Buxus balearica	Spanish box tree
Calocedrus decurrens	Incense cedar
Carpinus laxiflorus	Hornbeam
Castanea sativa	European chestnut
Cedrus deodara	Deodar cedar
Cedrus libani	Cedar of Lebanon
Celastrus scandens	American bittersweet
Celtis reticulata	Western hackberry
Cephalotaxus harringtonia	Japanese Plum yew
Cercidiphyllum japonicum	Katsura tree
Cercis chinensis	Chinese redbud

Botanical Name	Common Name
Cercis siliquastrum	Judas tree
Chamaecyparis lawsoniana	Port Orford Cedar
Chamaecyparis nootkatensis	Alaska cedar
Chamaecyparis nootkatensis 'Fastigiata'	Fastigiate Alaska cedar
Chamaecyparis obtusa	Hinoki cypress
Chamaecyparis pisifera	Sawara cypress
Chionanthus virginicus	Fringe tree
Cladrastis lutea	Yellowwood
Cornus alternifolia	Pagoda dogwood
Cornus capitata	Evergreen dogwood
Cornus kousa	Japanese dogwood
Cornus kousa	Kousa dogwood
Cornus macrophylla	Large leaved dogwood
Cornus mas	Cornelian cherry
Cornus nuttallii	Pacific flowering dogwood
Corylus avellana or maxima 'purpurea'	Red hazelnut
Corylus cornuta	Hazelnut
Crataegus douglasii	Hawthorn
Cryptomeria japonica	Japanese cedar
Cunninghamia lanceolata	China fir
Cupressus bakeri	Modoc cypress
Cupressus goveniana	Gowen cypress
Cupressus pygmaea	Pygmy cypress
Cupressus sargentii	Sargent's cypress
Davidia involucrata	Dove tree
Diospyros lotus	Japanese persimmon
Diospyros virginiana	American persimmon
Elaeocarpus sylvestris	
Eleagnus angustifolia	Russian olive
Embothrium coccineum	Chilian fire-tree
Erica arborea	Tree heath
Eucalyptus gunnii	Snow-gum
Eucommia ulmoides	China rubber tree
Eucryphia glutinosa	Eucryphia
Euonymus latifolius	Spindle tree
Euonymus occidentalis	Spindle tree
Euptelea polyandra	Euptelea
Fagus sylvatica	European beech
Fraxinus bungeana	Hardy Chinese ash
Fraxinus dipetala	California ash
Fraxinus latifolia	Oregon ash
Fraxinus ornus	Mana ash
Fraxinus oxycarpa	Narrow leaved ash
Fraxinus sikkimensis	
Gleditsia japonica	Japanese honey locust
Halesia carolina	Carolina silver bell
Hoheria lyallii	Mountain ribbonwood
Ilex aquifolium	English holly
Juglans mandshurica	Manchurian walnut
Juglans sieboldii	Japanese walnut
Koelreuteria paniculata	Golden rain tree
Laburnum alpinum	Golden chain tree
Lagerstroemia subcostata	Crepe myrtle
Larix decidua	European larch
Larix gmelinii	Dahurian larch
Larix kaempferi	Japanese larch
Larix occidentalis	Western larch
Larix occidentalis x lyallii	Western larch hybrid
Leucosidea sericea	
Liquidambar formosana	Formosan sweetgum
Liriodendron tulipifera	American tulip tree
Lithocarpus henryi	Henry tanbark oak
Lyonothamnus floribundus	Santa Cruz Ironwood
Maackia amurensis	Amur maakia
Maackia chinensis	Chinese maackia
Magnolia campbelii	Campbell's magnolia

Trees

Botanical Name	Common Name
Magnolia denudata	Yulan magnolia
Magnolia kobus	Kobus magnolila
Magnolia macrophylla	Big leaf magnolia
Magnolia tripetala	Umbrella magnolia
Malus floribunda	Japanese crabapple
Malus sargentii?	Sargent crabapple
Malus sieboldii	Japanese crabapple
Malus 'Spartan'	Spartan apple
Maytenus boaria	Mayten tree
Metasequoia glyptostroboides	Dawn redwood
Michelia doltsopa	Chinese magnolia
Michelia yunnanense	Michelia
Nothofagus antarctica	Antarctic beech
Nothofagus dombeyi	Southern beech
Notholithocarpus densiflorus	Tan bark oak
Notholithocarpus densiflorus forma attenuato dentatus	Mutant tan bark oak
Nyssa sylvatica	Tupelo
Ostrya japonica	Japanese hop hornbeam
Ostrya knowltonii	Knowltons hop-hornbeam
Oxydendrum arboreum	Sourwood
Parrotia persica	Persian ironwood
Paulownia koreana	Empress tree
Paulownia tomentosa	Empress tree
Picea abies	Dwarf Norway spruce
Picea asperata	Dragon spruce
Picea breweriana	Brewer's spruce
Picea jezoensis	Jezo spruce
Picea orientalis	Armenian spruce
Picea polita	Tigertail spruce
Picea smithiana	Morinda spruce
Picea wilsonii	Wilson's spruce
Pieris formosana	Himalayan pieris
Pieris japonica	Japanese pieris
Pieris polita	Japanese pieris
Pinus bungeana	Lacebark pine
Pinus cembra	Swiss stone pine
Pinus contorta	Lodgepole pine
Pinus coulteri	Big cone pine
Pinus flexilis	Limber pine
Pinus heldrichii	Macedonian pine
Pinus monticola	Western white pine
Pinus morrisonicola	Taiwan pine
Pinus muricata	Bishop pine
Pinus nigra	Austrian pine
Pinus parviflora	Japanese white pine
Pinus pinaster	Maritime pine
Pinus pinea	Italian stone pine
Pinus ponderosa	Ponderosa pine
Pinus pumila	Siberian dwarf pine
Pinus radiata	Monterey Pine
Pinus strobus	Eastern white pine
Pinus sylvestris	Scots pine
Pinus thunbergii	Japanese black pine
Pinus wallichiana	Himalayan pine
Pinus yunnanensis	Yunnan Pine
Populus tremuloides	Quaking aspen
Populus trichocarpa	Cottonwood
Prunus armeniaca?	Apricot
Prunus besseyi	Sand Cherry
Prunus cerasifera	Thundercloud plum
Prunus cerasus	Pie cherry
Prunus emarginata	Bitter cherry
Prunus pisardii	Cherry plum
Prunus serrulata	Japanese flowering cherry
Prunus virginiana	Chokecherry

Botanical Name	Common Name
Prunus x blireiana	Blireiana plum
Pseudolarix amabilis	Golden larch
Pseudotsuga japonica	Japanese douglas fir
Pseudotsuga menziesii	Douglas Fir
Pterocarya fraxinifolia	Caucasian wingnut
Pterostyrax hispida	Epaulette tree
Pyrus ussuriensis	Siberian pear
Quercus acutissima	Sawtooth oak
Quercus agrifolia	California live oak
Quercus alba	Eastern white oak
Quercus calliprinos	Israel oak
Quercus castanaefolia	Chestnut-leaved oak
Quercus cerris	Turkey oak
Quercus chrysolepis	Canyon Live Oak
Quercus douglasii	Blue oak
Quercus gambellii	Utah white oak
Quercus garryana	Garry oak
Quercus glauca	Japanese Blue Oak
Quercus hypoleucoides	Silverleaf oak
Quercus ilex	Holly or holm oak
Quercus kelloggii	California black oak
Quercus lobata	Valley oak
Quercus lobata x dunnii	Valley oak
Quercus macranthera	Caucasian oak
Quercus macrocarpa	Burr Oak
Quercus mongolica	Mongolian oak
Quercus mongolica-grosseserrata	
Quercus myrsinifolia	Chinese evergreen oak
Quercus petraea	Sessile oak
Quercus phellos	Willow oak
Quercus phillyraeoides	Ubame oak
Quercus pontica	Armenian oak
Quercus pubescens or volcanica	Downy oak
Quercus remota	Channel Islands oak
Quercus rubra	Northern red oak
Quercus serrata	Konara oak
Quercus suber	Cork oak
Quercus trojana	Macedonian oak
Quercus virginia	Southern live oak
Quercus x morehus	Oracle oak
Quercus x towneii	
Rhamnus purshiana	Cascara
Robinia hispida	Bristly locust
Salix magnifica	Maginificent willow
Salix scouleriana	Scouler's willow
Sciadopitys verticillata	Japanese umbrella pine
Sequoia sempervirens	Coast redwood
Sequoia sempervirens 'Adpressa'	Adpressa redwood
Sequoiadendron giganteum	Giant sequoia
Sophora japonica	Japanese pagoda tree
Sorbus aria	White Beam
Sorbus aucuparia	European mountain ash
Sorbus caloneura	Small leaved whitebeam
Sorbus hupehensis	Hubei rowan
Sorbus lanata	Hairy rowan
Sorbus megalocarpa	Mountain ash
Sorbus prattii	White-Berried sorbus
Sorbus reducta	Dwarf rowan
Sorbus sitchensis	Mountain ash
Sorbus vilmorinii	Mountain Ash
Stewartia monodelpha	Stewartia
Stewartia pseudocamellia	Japanese stewartia
Styrax japonica	Japanese snowbell
Styrax obassia	Fragrant snowbell
Taxodium distichum	Bald cypress
Taxus baccata	English yew

Trees

Botanical Name	Common Name
Taxus baccata fastigiata	Columnar English yew
Taxus brevifolia	Western yew
Thuja koraiensis	Korean cedar
Thuja plicata	Western red cedar
Thujopsis dolobrata	Hiba arborvitae
Tillia cordata	Linden
Torreya californica	California nutmeg tree
Tsuga canadensis	Eastern hemlock
Tsuga canadensis 'Hussei'	Hussei' Eastern hemlock
Tsuga caroliniana	Carolina hemlock
Tsuga heterophylla	Western hemlock
Tsuga heterophylla 'Iron Springs'	Iron Springs' western hemlock
Tsuga mertensiana	Mountain hemlock
Tsuga 'Sargent's Weeping'	Sargent's weeping hemlock
Tsuga sieboldii	Japanese hemlock
Ulmus parvifolia	Chinese elm
Umbellularia californica	California bay laurel
x Cupressocyparis leylandii	Leyland cypress
Xanthocyparis nootkatensis	Alaskan yellow cedar
Zanthoxylum piperitum	Japanese pepper tree
Zelkova serrata	Japanese zelkova

Shrubs

Botanical Name	Common Name
Adenocarpus decorticans	Silver broom
Alangium platanifolium	
Arctostaphylos columbiana	hairy manzanita
Arctostaphylos densiflora	Manzanita
Arctostaphylos hookeri	Hookers manzanita
Arctostaphylos patula	Greenleaf manzanita
Arctostaphylos x media	Media manzanita
Azara dentata	Toothed azara
Azara microphylla	Box leaf azara
Berberis aggregata	Salmon barberry
Berberis callianthа	Black berried barberry
Berberis canadensis	American barberry
Berberis gagnepainii	
Berberis 'hybridogagne-painii'	Barberry
Berberis stapfiana? (wilsoniae v. stapfiana?)	
Berberis triacanthophora	Threespine barberry
Berberis wilsonii	Wilson barberry
Buddleia colvilei or lindleyana	
Bupleurum fruticosum	Shrubby hare's ears
Buxus wallichiana	Himalayan box
Callicarpa bodinieri or japonica	Beautyberry
Callicarpa hirasawana	Beautyberry
Calycanthus floridus	Allspice
Calycanthus occidentalis	Western bush allspice
Camellia oleifera	Oil seed camellia
Camellia sasanqua	Sasanqua camellia
Camellia williamsii	
Caragana arborescens	Siberian peashrub
Carmichaelia australis	Common broom
Cassinia x ozothamnus	
Ceanothus arboreus	California lilac
Ceanothus gloriosus	Pt. Reyes ceanothus
Ceanothus griseus	Carmel ceanothus
Ceanothus hybrid	California lilac
Ceanothus impressus	Santa Barbara ceanothus
Ceanothus integerrimus	Deer brush
Ceanothus masonii	Masons ceanothus
Ceanothus prostratus	Prostrate ceanothus
Ceanothus thyrsiflorus	California lilac
Ceanothus thyrsiflorus hybrid	Deerbrush
Ceanothus thyrsiflorus repens	California lilac
Ceanothus thyrsiflorus type	California lilac
Ceanothus thyrsiflorus x iimpressus	California lilac
Ceanothus velutinus	Snowbrush Ceanothus
Cercocarpus betuloides	Mountain mahogany
Chimonanthus praecox	Wintersweet
Chimonanthus salicifolius	Wintersweet
Chimonanthus zhedjianensis	Wintersweet
Cistus laurifolius	Rock rose
Cistus sp. (ladanifer?)	Rock rose
Clethra barbinervis	Summer-sweet

KBG Existing Plants

Shrubs

Botanical Name	Common Name
Coprosma petriei	
Coprosma rugosa	
Cornus sericea	Red osier dogwood
Corylopsis chinensis	Winter hazel
Corylopsis glabrescens	Winter hazel
Corylopsis pauciflora	Buttercup wintern hazel
Corylopsis sinensis	Winter hazel
Corylopsis spicata	Winter hazel
Corylopsis wilmottiae	Winter hazel
Cotinus coggyria	Smokebush
Cotoneaster hebephylla	Cotoneaster
Cotoneaster horizontalis	Rockspray cotoneaster
Cotoneaster perpusillus	
Cotoneaster salicifolius	Willow leaf cotoneaster
Cotoneaster wardii	
Cytisus battandieri	Atlas broom
Daboecia cantabrica	Irish heath
Danae racemosa	Poet's laurel
Daphne bholua	Paper daphne
Daphne caucasica	Caucasian daphne
Daphne collina	
Daphne laureola	Spurge laural
Daphne odora	Winter daphne
Daphne tangutica	
Daphniphyllum macropodum	False daphne
Decaisnea fargesii	Blue bean
Dendromecon rigidum	California bush poppy
Deutzia glauca	Deutzia
Deutzia gracilis	Slender deutzia
Deutzia scabra	Fuzzy deutzia
Disanthus cercidifolius	Disanthus
Elaeagnus macrophyllus	Silverberry
Enkianthus campanulatus	Redvein enkianthus
Euonymus japonicus	Japanese euonymus
Euonymus japonicus 'microphyllus'	Japanese euonymus
Exochorda racemosa	Common pearlbush
Forsythia geraldiana	Forsythia
Fremontodendron californicum	Flannel bush
Fuchsia magellanica	Hardy fuschia
Garrya elliptica	Silk tassel bush
Garrya x issaquaensis	Silk-tassel bush
Gaultheria shallon	Salal
Gaultheria x wisleyensis	Wisley Pearl
Hamamelis japonica?	Witch hazel
Hamamelis mollis	Witch hazel
Hamamelis x intermedia	Witch hazel
Hebe buxifolia	Hebe
Hebe hulkeana	New Zealand lilac
Heptacodium jasminoidea	Chinese seven-son flower
Hippophae rhamnoides	Sea buckthorn
Holodiscus discolor	Oceanspray
Hypericum forrestii	Shrubby St. Johns wort
Ilex crenata	Japanese holly
Ilex latifolia	Lusterleaf holly
Ilex macropoda	
Ilex perado	Madeira holly
Ilex pernyi	Perny holly
Itea ilicifolia	Holly leaf sweetspire
Jamesia americana	Five petal cliffbush
Jasminum sp.	
Juniperus chinensis	Chinese juniper
Juniperus communis	
Juniperus horizontalis	Creeping juniper
Juniperus occidentalis	Western Juniper
Juniperus scopularum	Rocky Mountain juniper
Juniperus squamata 'Blue Star'	Blue star juniper
Juniperus squamata 'Meyeri'	Meyer juniper
Kerria japonica	Japanese kerria
Kolkwitzia amabilis	Beauty bush
Ledum glandulosum	Trapper tea
Leucothoe fontanesiana	Fetterbush
Lindera (Parabenzoin) praecox	Spicebush
Lindera erythrocarpa	Spicebush
Lindera obtusiloba	Japanese spicebush
Lonicera frangrantissima	Winter honeysuckle
Lonicera involucrata	Twin-berry
Lonicera morrowii	Morrows honeysuckle
Lonicera standishii	Winter honeysuckle
Lonicera tatarica	Tatarican honeysuckle
Mahonia aquifolium	Tall Oregon grape
Mahonia japonica	Japanese mahonia
Mahonia nervosa	Low Oregon grape
Mahonia piperiana	Piper's Oregon grape
Mahonia repens	mahonia
Mahonia x media 'Arthur Menzies'	Arthur Menzies mahonia
Menziesia ciliicalyx	False azalea
Menziesia ferruginea	Rusty-leaf, fool's Huckleberry
Microbiota decussata	Siberian carpet cypress
Microcachrys tetragona	
Myrica californica	Wax myrtle
Myrtus communis	Roman myrtle
Nandina domestica	Sacred bamboo
Neviusia alabamensis	Alabama snowreath
Neviusia cliftonii	Shasta snowwreath
Oemleria cerasiformis	Indian plum
Oplopanax horridus	Devil's club
Osmanthus delavayi	Delavay osmanthus
Osmanthus heterophyllus	Tea olive, holly olive
Osmanthus x burkwoodii	hybrid tea olive
Osmanthus x fortunei	Holly leaf osmanthus
Osteospermum jucundum	African daisy
Pachystima myrsinites	Oregon box
Paeonia lutea	Tree peony
Parrotiopsis jacquemontiana	
Petrophyton hendersonii	Olympic Mt Rockmat
Philadelphus caucasicus	Caucus mock orange
Philadelphus delavayi	Delavay's mock orange
Philadelphus lewisii	Lewis' mock orange
Philadelphus mexicanus	Mexican mock orange
Philadelphus microphyllus	Little leaf mock orange
Philadelphus tomentosus	Fuzzy mock orange
Phillyrea angustifolia	Mock olive
Phillyrea latifolia	Mock olive
Photinia davidiana	Chinese photinia
Photinia parvifolia	Photinia
Physocarpus capitatus	Pacific ninebark
Physocarpus opulifolius	Eastern ninebark
Podocarpus macrophyllus	Kusamaki
Podocarpus nivalis	Alpine totara
Potentilla fructicosa	Bush cinquefoil
Prunus laurocerasus	Cherry laurel
Prunus lusitanica	Portuguese laurel
Pyracantha angustifolia	Fire thorn
Pyracantha fortuneana	Chinese firethorn
Quercus berberidifolia	California scrub oak
Quercus durata	Leather oak
Quercus sadleriana	Sadler's oak
Quercus turbinella	Sonoran scrub oak
Quercus vaccinifolia	Huckleberry oak
Raphiolepis rosea	Yedo hawthorn
Rhamnus californica	Coffee berry

Shrubs

Botanical Name	Common Name
Rhamnus davurica	Dahurian buckthorn
Rhamnus frangula	Glossy buckthorn
Rhododendron (Thompsonii series)	
Rhododendron aff. Vaseyi	Pinkshell azalea
Rhododendron anthocodon	
Rhododendron arboreum type	
Rhododendron augustinii	
Rhododendron augustinii or rubiginosum; triflorum type	
Rhododendron aureum	
Rhododendron auriculatum	
Rhododendron davidsonianum	
Rhododendron davidsonianum or triflorum series	
Rhododendron ferrugineum	Alpenrose
Rhododendron fortunei series	
Rhododendron grande	
Rhododendron hemsleyanum	
Rhododendron loderi	
Rhododendron lutescens	
Rhododendron luteum	Yellow azalea
Rhododendron macrophyllum	Pacific rhododendron
Rhododendron makinoi	
Rhododendron micranthum	
Rhododendron mucronulatum	
Rhododendron nitidulum	
Rhododendron occidentale	Western azalea
Rhododendron oreotrephes	
Rhododendron periclymenoides (nudiflorum)	Pinxterbloom
Rhododendron ponticum?	Pontic rhododendron
Rhododendron racemosum	
Rhododendron rubiginosum	
Rhododendron rupicolum	
Rhododendron russatum	
Rhododendron schlippenbachii	Butterfly azalea
Rhododendron serotinum	
Rhododendron sinogrande section	
Rhododendron 'Sir Charles Lemon'	
Rhododendron smirnowii	
Rhododendron spiciferum	
Rhododendron sutchuenense	
Rhododendron trailianum	
Rhododendron vaseyi	Pinkshell azalea
Rhododendron williamsianum	
Rhododendron yakushimanum	Yak rhododendron
Rhododendron yedoensis	Korean azalea
Rhodotypos scandens	Black jet bead
Rhus aromatica	Fragrant sumac
Rhus cotinus	Smoke bush
Rhus glabra	Native staghorn sumac
Rhus trilobata	Three leaf sumac
Ribes cereum	Wax currant
Ribes lobbii or marshallii	Gummy gooseberry
Ribes marshallii	Hupa gooseberry
Ribes sanguineum	Red flowering currant
Ribes sanguineum 'White Icicle'	'White Icicle' flowering current
Rosa canina	Dog rose
Rosa gymnocarpa	Bald hip rose
Rosa moyesii	
Rosa rel: omeiensis	Omei rose
Rosa rubrifolia	Red leaf rose
Rubus neomexicanus	New Mexico raspberry
Rubus parviflora	Thimble berry
Rubus spectabilis	Salmon berry
Salix gracilis?	Meadow willow
Sambucus nigra?	Elderberry
Sambucus racemosa	Red elderberry
Sarcococca confusa	Winter box

Botanical Name	Common Name
Shepherdia argentea	Silver buffaloberry
Skimmia japonica	Japanese skimmia
Sorbaria kirilovii	Giant false spirea
Sorbaria sorbifolia	Ural false spirea
Spartium junceum	Spanish broom
Spiraea bella	Pretty flowered spirea
Spiraea betulifolia lucida	Birch leaf spirea
Spiraea japonica	Japanese spirea
Spiraea nipponica	Snowmound Japanese spirea
Spiraea x pyramidata	Pyramid spirea
Stachyurus chinensis	Chinese stachyurus
Stachyurus praecox	Early Spiketail
Staphylea colchica	Cochis bladdernut
Stephanandra tanakae	Japanese Stephanandra
Stranvaesia (now Photinia)	Chinese stranvaesia
Symphoricarpos albus	Snowberry
Symphoricarpos mollis	Snowberry
Syringa laciniata	Cutleaf lilac
Syringa meyeri	Korean lilac
Syringa pinnatifolia	Lilac
Syringa reticulata	Japanese tree lilac
Taxus chinensis	Chinese yew
Thujopsis dolobrata nana	Dwarf Hiba Arborvitae
Trochodendron aralioides	Wheel tree
Vaccinium padifolilum	Whortleberry
Vaccinium parvifolium	Red huckleberry
Viburnum cinnamomifolium	Cinnamon viburnum
Viburnum davidii	David's viburnum
Viburnum ellipticum	Common viburnum
Viburnum odoratissimum	Sweet viburnum
Viburnum propinquum	Chinese viburnum
Viburnum rhytidophyllum	Leather leaf viburnum
Viburnum sieboldii	Siebold viburnum
Viburnum x praguense	Prague viburnum
Vitex agnus-castus	Chaste-tree
Weigela floribunda	Weigela
Weigela praecox	Variegated weigela
Xanthorhiza apiifolia (simplicifolia)	Yellow root
Xanthoxylum americanum	Prickly ash
Yucca filamentosa	

Pinus sylvestris

Perennials and Groundcovers

Botanical Name	Common Name
Adiantum aleuticum (pedatum)	Maidenhair fern
Adiantum capillis-veneris	Common maidenhair fern
Adiantum venustum	Maidenhair fern
Allium flavum	Small yellow onion
Anemone hupehensis	Japanese anemone/Sept. anemone
Aquilegia eximia	Serpentine columbine
Arum italicum	Lords and Ladies
Aruncus aethusifolius	Miniature goats beard
Asarum caudatum	Wild ginger
Asplenium ceterach	Scale fern
Asplenium scolopendium	Harts tongue
Baptisia	Wild indigo
Bergenia strachyi	Chinese bergenia
Blechnum spicant	Deer fern
Bletilla striata?	Hardy orchid
Camassia quamash	Camas
Campanula carpatica	Carpathian bellflower
Campanula sp.	Campanula
Carex grayii	Gray's sedge
Carex matthewsii?	
Carpenteria californica	Bush anemone
Chionodoxa luciliae	Glory of the Snow
Comptonia peregrina	Sweet fern
Coptis occidentalis	Goldthread
Cortaderia richardii?	Toe toe grass
Corydalis scouleri	Western corydalis
Crocosmia masoniorum	Montbretia
Cyclamen hederifolium	Hardy cyclamen
Cystopteris fragilis	Fragile Fern
Dianthus superbus	Large pink
Dierama pulcherrima	Fairy wand
Epimedium perralderianum	Bishop's hat
Erythronium revolutum	Pink fawnlily
Festuca californica	California fescue
Gaultheria procumbens	Wintergreen
Geranium x cantabrigense	Bloody cranesbill
Helleborus sp.	Lenten rose
Heuchera chlorantha	Tall alum root
Hosta sp.	Hosta
Iliamna rivularis	Streambank hollyhock
Iris delavayi	Long scape iris
Iris douglasiana	Douglas iris
Lewisia columbiana	Columbia bitteroot
Lewisia cotyledon	Siskiyou lewisia
Leycesteria formosa	Himalayan honeysuckle
Ligularia przewalskii	Shavalki's ligularia
Ligularia sp.	
Linaria triornithophora	Three bird toadflax
Lithodora diffusa	Lithodora
Matteuccia struthiopteris	Ostrich fern
Mimulus (Diplacus) aurantiacus	Orange bush money flower
Miscanthus sinensis	Chinese silvergrass
Molinia caerulea	Purple moor grass
Oxalis adenophylla	Chilean oxalis
Oxalis oregana	Wood sorrel
Penstemon cardwelli	Beardtongue
Petasites frigidus	Coltsfoot
Phacelia bolanderi	Bolander's scorpionweed
Phuopsis stylosa	Caucasian crosswort
Polygonatum sp.	Solomon's seal
Polypodium scouleri	Scouler's polypody, coast licorice fern
Polystichum andersonii	Anderson's swordfern
Pulmonaria angustifolia	Blue lungwort
Rodgersia podophylla	Rodgersia
Romneya coulteri	Matilija poppy
Rubus tricolor	Creeping bramble
Scilla peruviana	Giant scilla
Sedum spathifolium	Yellow stonecrop
Smilacina stellata	Starry false lilly of the valley
Stipa capillata?	Needle grass
Suksdorfia?	Suksdorfia
Tellima grandiflora	Fringe cup
Vancouveria hexandra	Inside-out flower
Vancouveria planipetala	Evergreen inside-out flower
Vaccinium vitis-idaea	Lingonberry

Bamboo

Phyllostachys nigra	Black bamboo

Vines

Botanical Name	Common Name
Actinidia chinensis	Chinese gooseberry 'Kiwi'
Actinidia kolomicta	Arctic beauty kiwi
Akebia quinata	Chocolate vine
Akebia trifoliata	Chocolate vine
Aristolochia sp.	Dutchman's pipe
Aristotelia chilensis	Chilean wineberry
Billardiera longiflora	Climbing blueberry
Clematis alpine (or C. montana)	
Hydrangea anomala subsp. petiolaris	Climbing hydrangea
Lonicera ciliosa	Honeysuckle
Smilax sp.	
Wisteria	Wisteria