



MONTGOMERY COUNTY DEPARTMENT OF PARKS
THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

MCPB 7/17/08

Item: 9

July 10, 2008

MEMORANDUM

TO: Montgomery County Planning Board

VIA: Michael F. Riley, Deputy Director *MR*
Douglas Alexander, Acting Chief, Park Development Division *DA*
Patricia McManus, Design Section Supervisor *PM*

FROM: Heidi Sussmann, Landscape Architect, Park Development Division (301-495-2547) *HS*
Stephanie Oberle, Director of Brookside Gardens

SUBJECT: Facility Plan for Brookside Gardens Entrance Renovation

I. STAFF RECOMMENDATION

- Approve the facility plan for the Brookside Gardens entrance renovation, including cost estimate.
- Determine the funding for detailed design and construction during review of the FY11-16 Capital Improvements Program (CIP) to include private donations, grants (such as Program Open Space), and matching CIP funds as potential sources. The CIP project description form will be modified to reflect updated project costs and proposed funding sources.
- Forest conservation plan approval is not required, because a revision to a previous plan was approved for this project on November 13, 2007.

II. PROJECT DESCRIPTION

A. Introduction

The purpose of this project is to develop an innovative, attractive, and functional plan for the renovation of the entrance to Brookside Gardens, located at 1800 Glenallan Avenue, so that the entrance area to the visitors center becomes a prominent focal point and sets the tone for the visitation experience throughout the Gardens. Improvements are intended to reinforce this entrance as the primary entrance to Brookside Gardens and to provide facilities for Brookside staff and volunteers during ticketed events. Refer to Attachment 1 for a map of the study area.

Brookside Gardens (The Gardens) is located within the 500-acre Wheaton Regional Park in the Kensington-Wheaton planning area. The facility is a jewel in the park system, providing a popular cultural destination known for plant collections, scenic landscapes, and horticulture education services. As such, The Gardens have benefited from the support of both the public and policymakers in the county. The Gardens encompass 50 acres of which 35 are open to the public and 15 are service and natural areas. On three surrounding sides of the property, the Gardens share a borrowed landscape of mature woodlands. Footpaths link the Gardens to the Brookside Nature Center and other parts of Wheaton Regional Park at two access points. The fourth side

is bounded by the residential street, Glenallan Avenue, which provides access to both public and service areas.

Brookside Gardens is dedicated to fostering an appreciation for the art of gardening and the science of horticulture, welcoming over 400,000 visitors of all ages each year. It includes a connected sequence of individual garden areas, open spaces, a conservatory, and visitors center. Regionally unique plant collections are showcased throughout the grounds, designed to excite the imagination and create a scenic oasis within the busy suburbs of Montgomery County. Programming is achieved through interpretation of various horticultural displays and the experience of formal and informal educational opportunities. The visitors center is a hub of activity, used extensively for classes, larger gatherings, and community functions. In addition to providing a regional garden attraction, over 95,000 visitors annually attend special events held at The Gardens such as the Wings of Fancy butterfly exhibit and the Garden of Light Show.

B. Project Funding and Initiation

The approved master plan for Brookside Gardens establishes the groundwork for all future projects. The master plan identified fifteen phases of development for implementation, and the renovation of the main entrance was identified as the first phase. The original funding strategy for implementing the master plan had been to fund facility planning for each project in the Capital Improvements Program in the Brookside Gardens Master Plan Implementation PDF, and to fund final design and construction of each project primarily from donations.

The facility planning study for the Brookside Gardens entrance renovation was funded in FY06 with \$50,000 in private donations, \$10,000 from the Capital Improvements Program's Small Grants and Donations PDF, and \$10,000 from The Arts and Humanities Council of Montgomery County to include an artist on the design team. M-NCPPC hired a consultant team led by EDAW, Inc. in September 2006 to prepare the facility plan. So far, Brookside Gardens has raised approximately \$103,000 in private donations for completion of the project, and detailed design will begin when adequate funds are raised.

The original strategy for funding detailed design and construction entirely through private donations was ambitious and aggressive. As the master plan projects move forward and Brookside staff assesses the results of fund-raising efforts, staff would like to reconsider the funding strategy with a different mix of funding sources. A more attainable model for the future might be one-third public funding through the Capital Improvements Program, with the remaining funding through private donations and state supported grants, such as Program Open Space.

C. The Facility Plan Process

During the facility planning process several steps were completed as follows: environmental conditions and project impacts were analyzed; a program of requirements (POR) was defined; site conditions were analyzed; various design scenarios were evaluated; artwork was developed and integrated into the design; necessary permits were obtained; and detailed construction costs were developed. The staff team, reviewing agencies, and stakeholders of The Gardens provided recommendations for this project beginning with development of the master plan. A smaller team reviewed the project during facility planning.

III. PLANNING DOCUMENT RECOMMENDATIONS

The Brookside Gardens Master Plan was completed and approved by the Montgomery County Planning Board in March of 2005, providing a long-term vision for the renewal of Brookside Gardens. The master plan identifies fundamental principles to guide future renovations and also provides an implementation plan

for all future project areas within The Gardens, defined as fifteen phases to be undertaken over a period of 25 years. This entrance renovation project is Phase I of the master plan.

The master plan suggests a re-design for this area in order to further establish the access to the visitors center as the main entrance to The Gardens, by creating a welcoming and beautiful setting that serves as the functional entrance for both pedestrians and vehicles. The master plan reinforces this entrance and the visitors center area as the "heart" of The Gardens, and this project is considered high profile for two reasons:

- The project setting encompasses the primary entrance to The Gardens for visitors and should create an arrival atmosphere of welcome and the sequential anticipation of a beautiful and unique garden experience.
- As the first phase of the master plan, this project will set a standard for site and garden design innovation and excellence to be carried through the remaining master plan phases.

IV. PROGRAM OF REQUIREMENTS

The M-NCPPC staff team and Consultant collaboratively defined the project elements, or program of requirements, to be included in the re-design of the entrance area as follows:

- A unique arrival setting that is welcoming, beautiful, prominent, and well defined;
- Incorporation of the Glenallan Avenue intersection within the road right-of-way into the entrance design with consideration for safety and site distances;
- Landscaped spaces designed to provide a sequential arrival experience from Glenallan Avenue to the visitors center parking area;
- High quality display plantings based on aesthetic landscape design composition, with consideration for the existing gardens, proposed gardens and land uses, year-round interest, garden/horticultural display possibilities, maintenance, and deer browse management;
- Vehicular circulation and improvements including location of a gate house, emergency access, service access, and accommodation for special events and associated stacking distances;
- Pedestrian circulation and access including a safe, inviting, and easy-to-access entrance to The Gardens with a redesigned stream crossing;
- General design, details, and materials to be in harmony with existing features;
- Overlook possibilities with detailed consideration of views and vistas;
- A gate house structure that is designed with green building concepts;
- Artwork and/or place-making elements such as sculpture or other forms of art, water features, hard-scape features, unique structures, and interpretive elements;
- Improvement of adjoining stream banks, protection of existing trees, and careful integration of the overall entrance area with adjacent features and natural areas;
- Signage for events, identification, and welcome/rules, that is attractive, visible, and uniform;
- Lighting that is attractive and functional;
- Irrigation if required;
- Deer control and consolidation of deer barriers;
- Design in accordance with sustainable and green design principles;
- Design in accordance with Crime Prevention Through Environmental Design (CPTED) principles;
- Amenities and other visitor services as appropriate, such as bicycle racks.

V. THE FACILITY PLAN STUDY

A. Current Park Conditions

Glenallan Avenue is a narrow two lane roadway that extends along the frontage of Brookside Gardens, with single family homes along the opposite side. Two public entrances to the Gardens are located along this road in close proximity to each other: one entrance for the Brookside Gardens conservatory and one for the Brookside Gardens visitors center. Another nearby park entrance exists for the Brookside Nature Center which is not part of the Gardens. A stone bridge with low walls and signage currently marks the entrance area and beginning of the driveway to the visitors center, at the intersection of Glenallan and Heurich Road. Visitors in vehicles pass through a vehicle-activated gate, designed as a deer barrier, and pedestrians are encouraged to enter through a separate entrance over a small bridge.

Safe and accessible pedestrian passage along Glenallan Avenue is difficult due to the minimal or absent shoulder. The asphalt pavement at the main entrance drive over the stream is oversized at 50 feet wide, and the entrance gate is set back 160 feet inside the property. The gateway includes massive stone columns that support the vehicle-activated metal gate with tall fence extending in both directions for deer control; the combination giving an impression of a closed private facility. Interior views are made less attractive by the tall deer fence and also commercial lights, guardrail, posts and chains, and clutter of different signage. The landscape on both sides of the entrance is simple with lawn and trees. The right side slopes steeply upward toward a wooded edge, providing an opportunity to showcase plants. The left side extends gradually downward toward a large pond that provides a garden amenity and treats stormwater from adjacent facilities. There are no wetlands however the 100-year floodplain is in the upper banks of the Glenallan tributary, extending into the project area within lower elevations to the left of the entrance bridge. This low lying area presents a challenge for providing a pedestrian connector to the visitors center.

B. Preliminary Plans

Two design alternatives, titled Design Alternative 1 and Design Alternative 2, were prepared by the Consultant and reviewed by the staff team. These alternatives included several options associated with each plan. Team reviews and refinements to various elements of the entrance were recommended in collaboration with the Consultant, leading to preparation of the final plan. The preferred alternative was developed by combining elements of the two plans and providing detailed design solutions for various elements of the renovation. Artwork was also introduced and combined with site elements of the preferred plan.

C. Agency Reviews and Approvals

Reviews by necessary regulatory agencies and staff occurred during the project, and comments from these reviews are summarized below and detailed further in Attachment 4 – The Facility Plan Report.

M-NCPPC Reviews - The project was reviewed at several key progress points and for review of the final plan and cost estimates. Four team meetings and a final review meeting were held to review all work in progress and the final products. In addition, design team reviews were held to select, develop, and integrate artwork into the final plan.

M-NCPPC Environmental Planning/Countywide Planning Division - The Natural Resources Inventory/Forest Stand Delineation Plan (NRI/FSD) for the entrance area was prepared by M-NCPPC and approved on May 4, 2007. A forest conservation plan for Brookside Gardens was approved on May 10, 1996. The consultant team prepared a revision to the forest conservation plan for this project, and the revised forest conservation plan was approved on November 13, 2007. Existing trees will be retained, with the exception of two that are to be removed and replaced with new plantings within the project area. The

approval letter for the forest conservation plan is included in Attachment 2, and the plan is included within the facility plan report in Attachment 4.

Wetlands Committee - The project was presented to the Interagency Wetlands Coordinating Committee on December 11, 2006. The Committee felt that the project would have minimal impact on wetland areas. They supported the reduction of roadway surface and collection of storm water in the proposed rain garden medians. They also noted that the existing stream channel was relatively stable, and therefore they would not be inclined to approve structural changes to it. However landscape enhancements and improving some of the boulders would be acceptable.

Department of Permitting Services (DPS) - A stormwater management concept plan was approved on September 18, 2007. The proposed plan retains the existing drainage pattern with very minimal (0.01ac) increase in impervious surfaces. During the construction documents phase, application to MCDPS will be necessary for a final sediment and erosion control permit and for work in the right-of-way.

D. Recommended Plan

The recommended facility plan brings the vision of the master plan into reality. The plan offers an artful and functional scenario for re-development by combining hardscaping, artwork, structures, landscaping, details, and high quality materials into one inviting arrival experience. It considers practical aspects of accessibility, operability, general surveillance visibility, comfort and spatial needs, safety, and maintenance access. The plan also incorporates green design principles wherever possible including: areas of permeable paving and reduction of paved surfaces; use of recycled materials for decking and boardwalk; a green-roof for the new gatehouse; and rain-gardens within the median for bio-retention. The recommended facility plan with illustrations is included in Attachment 3, and it includes the following improvements.

Vehicular and Pedestrian Access and Circulation - The vehicular entrance is marked by display gardens, artwork, and signage on both sides. It includes a divided roadway with narrowed travel lanes and edge bands of granite cobble, decorative threshold pavement areas, a deer grate section, and a median planted in display rain-gardens. The proposed gatehouse is a vehicular control point located at the widest portion of the median and set back to blend in with the landscape and allow for some stacking distance of vehicles.

The new pedestrian access has been relocated to the left side of the vehicular access bridge, as a cantilevered deck structure and overlook. It is situated in line with the intersection crossing and is visible, welcoming, and offers pleasing views of the stream and interior features of the pond and gardens. The entry deck area leads to a boardwalk route that passes through low lying areas and then through mature trees to the pond path, at which point the Ginkgo garden gazebo is proposed. This rest area is at a scenic vantage point in the landscape, closer to the pond. The path then continues either to the right, connecting to the existing sidewalk along the parking lot toward the visitors center, or continues to the left of the pond toward other garden areas.

Artwork - The Montgomery County Arts and Humanities Council's Public Arts Trust funded an artist to be included on the design team. Several artists were interviewed and an artist from Baltimore, Linda DePalma, was selected. Her proposed metal sculpture will bring an entirely new dimension to the landscapes of Brookside and define a standard for other potential artwork. The entrance feature and signage depicts the Magnolia tree and provides bold sculptural elements that add color and play of light and shadow to the landscape. The nearby garden gazebo includes a Ginkgo plant motif sculpture as the roof piece, and the feature provides opportunities for recognition of individual contributors.

Entrance Gatehouse - The proposed gatehouse is provided in the entrance median to control access into the Gardens during evenings and special events. It is positioned on a stone platform with low stone walls extending on both sides as a framework for landscape displays. The gatehouse is a small, metal-framed, insulated glass structure resembling a greenhouse. The butterfly shaped green roof is angled to capture and

store rain water and is planted with drought tolerant plants. The combined emphasis of the structure and surrounding median design is appropriately on plants and sustainable design.

Signage - The identity signage for Brookside is symmetrically located on either side of the vehicular stone entrance bridge. Each sign is placed on top of curved stone walls that frame landscape display beds and are angled toward the entrance intersection for optimum visibility. The two signs are oval shaped, referencing the idea of plant tags, and integrated with a dramatic Magnolia leaf and flower metalwork sculpture. This landmark feature evokes a unique identity for the gateway into Brookside Gardens. Event signage will be in the form of eye-catching graphic informational banners that are interchangeable. They will be attached to several light poles located along a stone wall that follows the right side of the entrance drive. The colorful signage will capture interest for events and add a touch of whimsy. ‘Welcome and Rules of Entry’ signs are logically located at a seating node on the pedestrian boardwalk, where it meets the path to the aquatic garden.

Plantings - Planting displays are added throughout the entrance area and informal plantings are combined with low stone walls along the entrance drive, adding to the space and enhancing views. The facility plan includes a planting scheme that is based on different landscape types and plant themes as follows: entrance display gardens, entrance road gardens, rain gardens, year-round bulb lawn, mesic woodland garden, riparian waterway garden, and lower and upper woodland hill gardens. Trees are mostly flowering under-story to provide for variety of color and scale, complimenting the existing tall shade trees. Shrubs, groundcovers, grasses, perennials, and annuals include native and non-native selections for variety and seasonal interest. While the majority of new plantings will be sustainable, irrigation is proposed for the display garden areas. Construction is about to begin for the main irrigation system serving most of The Gardens and the entrance irrigation would tie in to this system.

Deer Control - A wide pre-cast concrete deer grate is proposed in the roadway at the location of the existing gate, which is to remain open during daytime garden hours. A new pedestrian gate will be added in the tall deer fence where the boardwalk enters the gardens. The twelve foot tall deer fence is retained, but relocated slightly in the most visible areas for an improved appearance.

Stream Bank Restoration - The current Glenallan tributary is stable, therefore structural changes are not recommended. Some surface level restoration and improvements to the stream banks are proposed such as boulder replacements and extensive additions of native grasses, rushes, and sedges along stream edges, for a more natural appearance.

VI. COST ESTIMATES

A. Construction Cost Estimate

The total project budget recommended for implementation of the entrance renovation to Brookside Gardens is \$2,020,000. The following table summarizes projected costs for design and construction of the proposed park. Refer to Attachment 4 - The Facility Plan Report, for a detailed cost estimate.

ITEM NO.	ITEM	TOTAL COST
1	Site Preparation & Erosion/Sediment Control	\$41,900
2	Demolition & Clearing	\$58,800
3	Earthwork	\$9,050
4	Utilities	\$29,060
5	Paving: Vehicular and Pedestrian	\$131,500
6	Structures, Walls, and Boardwalk	\$224,200
7	Lighting, Amenities, and Furnishings	\$47,100
8	Artwork	\$250,000
9	Landscaping and Irrigation	\$590,435

*	PARK CONSTRUCTION SUBTOTAL	\$1,382,000
10	Construction Contingency (15% x Construction Subtotal)	\$207,300
**	PARK CONSTRUCTION TOTAL	\$1,590,000
11	Design Contract w/contingency (20% x Construction Total)	\$318,000
12	Staff Charge Backs (20% x Design w/Contingency)	\$64,000
13	Construction Management & Inspection (3% x Construction Total)	\$48,000
***	TOTAL PROJECT COST	\$2,020,000

If necessary, the project cost may be reduced and phased by deferring 25% to 30% of the costs into a second implementation phase that could include the garden artwork gazebo, some of the stone walls, and landscaping for the woodland, hill areas, bulb-lawn, and some stream areas. This would result in an approximate cost of \$1,434,000 for Phase 1 and \$586,000 for Phase 2.

Annual operating budget costs required to maintain the renovated entrance area are expected to increase only slightly. All maintenance activities within the Gardens are currently accomplished by staff from Brookside Gardens. Central Maintenance completes maintenance for the gates as well as life-cycle improvements throughout Brookside, which would be increased slightly with new structures such as the gatehouse, Ginkgo gazebo, and walls.

VII. CONCLUSION

The recommended facility plan is designed in harmony with the site and its surroundings and is in keeping with the desired goals for the park entrance to become a welcoming focal point that will foster anticipation of the gardens inside. The design is environmentally sensitive and includes a balance of striking elements that define the entrance along with features that enhance the existing landscape. As a gateway into a public facility, this project provides for the enjoyment and appreciation of artwork and display-gardens and will make the main entrance an area landmark, identifying one of the most unique and popular facilities in the M-NCPPC park system. In summary, staff recommends approval of the facility plan for renovating the entrance to Brookside Gardens and the associated cost estimate, in order for M-NCPPC to proceed with obtaining donation funds and other sources to complete the project implementation.

VIII. ATTACHMENTS:

- Attachment 1: Map of Project Study Area
- Attachment 2: Forest Conservation Plan Approval
- Attachment 3: The Facility Plan: plan and illustrations
- Attachment 4: The Facility Plan Report



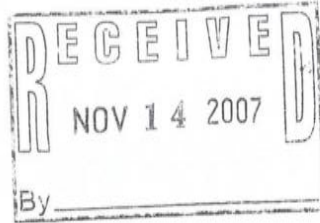
PROJECT STUDY AREA

ATTACHMENT 1



MONTGOMERY COUNTY PLANNING DEPARTMENT
THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

Heidi Sussmann
Parks Department
M-NCPPC
9500 Brunets Avenue
Wheaton, MD 20902



November 13, 2007

Re: Revision to FCP P95001
Brookside Gardens Visitor Center

The Environmental Planning section of the Montgomery County Planning Department has reviewed the preliminary forest conservation plan for the Brookside Gardens Visitor Center, submitted on September 12, 2007. Environmental Planning staff approves the preliminary forest conservation plan subject to the following conditions.

1. Submission and approval of a final forest conservation plan prior to any clearing or grading.
2. A sediment and erosion control plan must be submitted with the revised final forest conservation plan. This is to ensure consistency between the LODs on the two plans.
3. Final forest conservation plan to show specific tree protection measures to be used to protect existing trees.

If you have any questions regarding these actions, please feel free to contact me at 301-495-4730.

Sincerely,

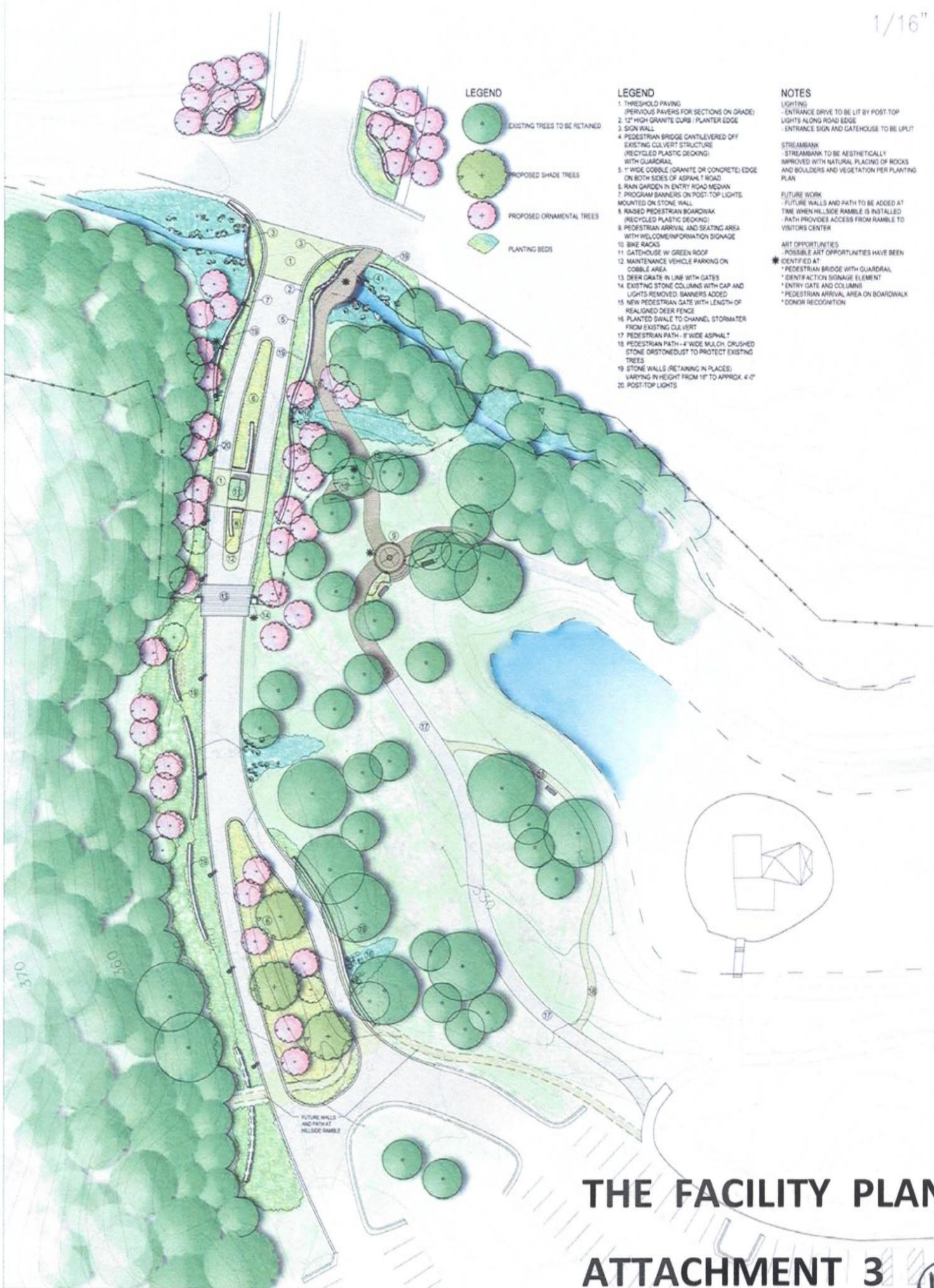
Mark Pfefferle
Forest Conservation Program Manager
Environmental Planning, Countywide Planning

Cc: FCP File P95001





9

PRE-FCP REVIEW

ATTACHMENT 2



LEGEND

-  EXISTING TREES TO BE RETAINED
-  PROPOSED SHADE TREES
-  PROPOSED ORNAMENTAL TREES
-  PLANTING BEDS

LEGEND

1. THRESHOLD PAVING (PERVIOUS PAVERS FOR SECTIONS ON GRADE)
2. 12" HIGH GRANITE CURB / PLANTER EDGE
3. SIGN WALL
4. PEDESTRIAN BRIDGE CANTILEVERED OFF EXISTING CULVERT STRUCTURE (RECYCLED PLASTIC DECKING) WITH GUARDRAIL
5. 1" WIDE COBBLE (GRANITE OR CONCRETE) EDGE ON BOTH SIDES OF ASPHALT ROAD
6. RAIN GARDEN IN ENTRY ROAD MEDIAN
7. PROGRAM BANNERS ON POST-TOP LIGHTS MOUNTED ON STONE WALL
8. RAISED PEDESTRIAN BOARDWALK (RECYCLED PLASTIC DECKING)
9. PEDESTRIAN ARRIVAL AND SEATING AREA WITH WELCOME/INFORMATION SIGNAGE
10. BIKE RACKS
11. GATEHOUSE W/ GREEN ROOF
12. MAINTENANCE VEHICLE PARKING ON COBBLE AREA
13. DEER GRATE IN LINE WITH GATES
14. EXISTING STONE COLUMNS WITH CAP AND LIGHTS REMOVED. BANNERS ADDED
15. NEW PEDESTRIAN GATE WITH LENGTH OF REALIGNED DEER FENCE
16. PLANTED SWALE TO CHANNEL STORMWATER FROM EXISTING CULVERT
17. PEDESTRIAN PATH - 8' WIDE ASPHALT
18. PEDESTRIAN PATH - 4' WIDE MULCH CRUSHED STONE OR STONEDUST TO PROTECT EXISTING TREES
19. STONE WALLS (RETAINING IN PLACES) VARYING IN HEIGHT FROM 18" TO APPROX. 4' 0"
20. POST-TOP LIGHTS

NOTES

- LIGHTING**
- ENTRANCE DRIVE TO BE LIT BY POST-TOP LIGHTS ALONG ROAD EDGE
 - ENTRANCE SIGN AND GATEHOUSE TO BE UPLIT
- STREAMBANK**
- STREAMBANK TO BE AESTHETICALLY IMPROVED WITH NATURAL PLACING OF ROCKS AND BOULDERS AND VEGETATION PER PLANTING PLAN
- FUTURE WORK**
- FUTURE WALLS AND PATH TO BE ADDED AT TIME WHEN HILLSIDE RAMBLE IS INSTALLED
 - PATH PROVIDES ACCESS FROM RAMBLE TO VISITORS CENTER
- ART OPPORTUNITIES**
- POSSIBLE ART OPPORTUNITIES HAVE BEEN IDENTIFIED AT:
 - * PEDESTRIAN BRIDGE WITH GUARDRAIL
 - * IDENTIFICATION SIGNAGE ELEMENT
 - * ENTRY GATE AND COLUMNS
 - * PEDESTRIAN ARRIVAL AREA ON BOARDWALK
 - * DONOR RECOGNITION

THE FACILITY PLAN

ATTACHMENT 3









THE FACILITY PLAN REPORT
ATTACHMENT 4



Brookside Gardens Main Entrance Facility Plan Report

Prepared for:
The Maryland-National Capital Park and Planning Commission

Prepared by:
EDAW, Inc
w/
Quinn Evans, Architects
A. Morton Thomas & Associates Inc.

June 2008

Table of Contents

1.0 Project Description	
1.1 Introduction	1-1
1.2 Project History	1-1
1.3 Facility Plan Process	1-2
1.4 Program of Requirements	1-2
1.4.1 Circulation- Vehicular and Pedestrian	1-2
1.4.2 Gatehouse	1-2
1.4.3 Signage	1-3
1.4.4 Artwork	1-3
1.4.5 Lighting	1-3
1.4.6 Planting	1-3
1.4.7 Deer Control	1-3
1.4.8 Stream Bank Restoration	1-3
1.4.9 Existing Tree Preservation	1-3
1.4.10 Maintenance Vehicle Parking	1-3
2.0 Existing Conditions	
2.1 General Site Conditions	2-1
2.2 Stormwater and Wetlands	2-2
2.3 NRI / FSD and FCP.....	2-2
2.4 Geotechnical Results	2-2
2.5 Site Analysis	2-3
2.5.1 Constraints	2-3
2.5.2 Opportunities	2-3
3.0 The Facility Plan	
3.1 Preferred Concept.....	3-1
3.2 Elements of the Preferred Concept.....	3-1
3.2.1 Circulation.....	3-1
3.2.2 Gazebo Artwork.....	3-2
3.2.3 Gatehouse.....	3-3
3.2.4 Signage and Lighting.....	3-4
3.2.5 Planting.....	3-5
3.2.6 Deer Control.....	3-5
3.2.7 Stream Bank Restoration.....	3-5
3.3 Conclusion.....	3-5
3.4 Recommended Facility Site Plan, Planting Palette & Illustratives.....	3-6
Appendices.....	A
A. Recommended Facility Plan Technical Documents.....	A-1
B. Facility Plan Cost Estimate.....	A-4
C. Agency Approval Documents.....	A-5
D. Preliminary Site Alternatives.....	A-6
E. Team Review Meeting Minutes.....	A-18

1.0



1.0 Project Description

1.1 Introduction

The purpose of this project is to prepare facility plan improvements for the Visitors Center entrance to Brookside Gardens, a 50-acre public display garden. The entrance to the Gardens is located at 1800 Glenallan Avenue in Wheaton Maryland, and is one of two existing Visitors entrances to Brookside.

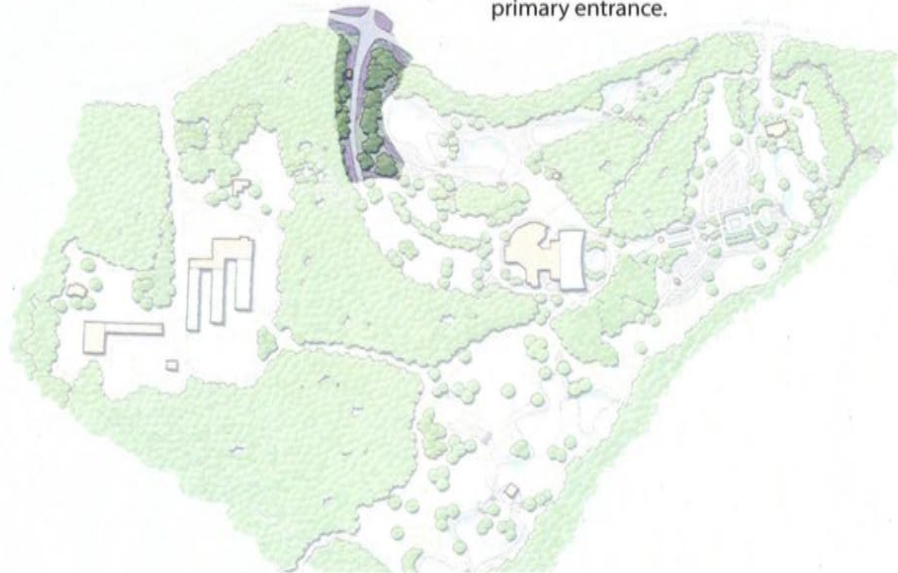
The facility plan will be presented to the Montgomery County Planning Board for approval of this plan. Brookside Gardens intends to raise funds for the further design and preparation of construction documents and, finally the implementation of this renovation of the main entrance to the Gardens.

The goal of the project is to create an innovative, attractive, artistic and functional design for the main entrance to Brookside. The new entrance will help further the mission of the Gardens; 'to foster appreciation for the art of gardening and the science of horticulture through plant collections and displays, learning opportunities and special events'. Further, the entrance renovations are intended to correct existing deficiencies at the entrance.

1.2 Project History

In March 2005 the Montgomery County Planning Board approved the Brookside Gardens Master Plan. The Master Plan provides a vision for guiding the renewal of Brookside to meet the needs of the present and the challenges of the future. It contains an Implementation Plan which identifies fifteen phases of work to be undertaken over a period of twenty-five years. The first phase of the Master Plan is the 1800 Glenallan Entry to the Garden. As such, this project plays an important role in setting the tone for future improvements at Brookside. The master plan recommends strengthening this entrance into Brookside Gardens to more clearly direct visitors to the Visitor Center and the heart of the garden. The current, near equal treatment of the two Garden entrances results in visitor confusion. The master plan also recommends the addition of a gate house to accommodate Garden staff during ticketed and/or other heavily attended events.

In April 2006 a Request for Proposal (RFP) was issued by the Maryland-National Capital Park and Planning Commission for the Facility Plan, Design and Construction Documentation for the entrance area to the Visitors Center. Improvements to this facility plan represents the Project Phase A. The improvements are intended to reinforce this Garden entrance as the primary entrance.



Context Plan - Brookside Gardens Master Plan showing Visitors Center Entry Area

1.3 Facility Plan Process

The facility plan phase of this project began in September 2006 with a kick-off meeting with the staff team. The staff team consisted of representatives of the Park & Planning Development Division (project manager, engineering), the Natural Resources Division, Central Maintenance Division, Park Police and Horticultural Services management at Brookside Gardens. The consultant team consisted of the prime consultant EDAW / AECOM (landscape architect), and sub-consultants A. Morton Thomas (civil engineer) and Quinn Evans Architects. Given the extensive public outreach which occurred during the preparation of the Master Plan, also prepared by EDAW, it was decided that the local community's interests and users needs were well-understood by the team, and additional meetings were not required for this first phase of the Master Plan implementation.

The first staff team review meeting was held in November, at which time the consultant presented site analysis information and design character photos, and the team reviewed program requirements. At the second staff team review meeting the consultant presented two design alternatives with several sub alternatives associated with each. The preliminary design alternatives were presented to the Interagency Wetlands Coordinating Committee for their early input on possible impacts to the wetland areas and stream in the project area. The third review meeting was held in December 2006 and concentrated on developing a preferred concept plan, and developed, in more detail various elements of the entry feature. The fourth and final review meeting consisted of a review of the facility plan document and attachments. The preliminary Forest Conservation Plan (FCP), was approved November 13, 2007, the NRI/FSD Plans were approved May 4, 2007 and the Stormwater Management Plan was approved September 18, 2007.

Through a competition process, artist Linda DePalma was selected by the Garden Design Committee to develop aspects of the proposed artwork and further the design, in collaboration with the Garden Design Committee and project team. The design intention is meant to be 'artful' in its treatment of the Garden entry, and incorporate complimentary artwork into the entry experience and the pedestrian node, making the entrance area a prominent focal point for vehicles and pedestrians. The result of the public art process was the creation of two custom artwork pieces in which the medium is metal and is to be integrated into stone walls, fencing, and railings.

1.4 Program Requirements

The following paragraphs summarize the specific program requirements for the entrance.

1.4.1 Circulation - Vehicular and Pedestrian

In addition to automobile traffic the entrance to the Garden must allow for the movement in and out of semi-trailers for deliveries, school buses and tour buses for group visits, and stretch limousines for special events.

The Garden experiences automobile queuing at the entrances during its busiest times, such as the Garden of Lights Show during the holiday period, when cars queue along Glenallan Avenue. The four-way stop at the intersection of the west entrance and Glenallan Avenue provides adequate traffic control during normal hours of operation and during peak visitation periods.

The existing pedestrian bridge and exterior sidewalk does not meet American's with Disability Act (ADA) requirements and provides for a 'back-door' experience for those visitors arriving at the Gardens on foot. A pedestrian link is needed from the entrance point up to the Visitors Center. Currently the only path into the Garden leads around the north side of the aquatic garden. Pedestrians use a mulched path and boggy lawn area, or the roadway, to reach the Visitors Center.

Bicycle parking is also desirable to accommodate those arriving at the Garden on bicycles.

1.4.2 Gatehouse Program

A gatehouse structure is needed at the entrance to provide shelter for employees who direct guests and collect tickets during special events. In response to safety and neighborhood parking concerns, walk-in visitation is not allowed during these special ticketed events. The gatehouse will organize the arrival sequence and welcome visitors during these busy times.

The gatehouse will be the beginning of the Brookside experience. The design of the gatehouse should complement the garden aesthetic, while also displaying sustainable design features to the public. It should also be a welcoming structure even when unoccupied.

The gatehouse will be designed to provide occupants with a conditioned space and must be securable when unoccupied.

Equipment to be mounted within the gatehouse includes a cash register, telephone, countertop, computer terminal and security camera(s). Storage space for map booklets and attendants' personal belongings is also needed.

The gatehouse will generally be staffed with a single attendant except at peak times when 2 to 3 people will be taking tickets. Not all of these staff attendants will be located inside the Gatehouse.



Gardens at Brookside





Gardens at Brookside

1.4.3 Signage Program

The entrance should announce Brookside Gardens clearly to the public, with visible and legible identification signage.

Signage for special events, such as the Butterfly Show, the Light Show, and visiting exhibits, must also be incorporated into the design.

The rules of the Gardens need to be displayed at the points where pedestrians enter the property.

1.4.4 Artwork Program

An Art component incorporating permanent art pieces should be designed as part of the entrance, including but not limited to signage.

1.4.5 Lighting

Drive and gate house lighting should be provided to create a safe and attractive entrance experience.

1.4.6 Planting Program

The planting at the entry should reflect the highest horticultural quality of Brookside Gardens. Planting adjacent to the roadway should be structured to be legible from the speed of a moving car, while planting next to the pedestrian path may be more finely detailed.

The planting design incorporates planting on the north side of Glenallan Avenue to enhance the intersection and to further emphasize the Garden entrance.

The planting palette should include a mix of native species and introduced non-native species that thrive in the region and provide a rich and varied experience as visitors enter the Gardens. The planting on the outside of the fence must be deer-resistant.

1.4.7 Deer Control

It is necessary to retain deer control at this entrance point. The existing 12' high deer fence along the Gardens perimeter is effective. However, the electronic gate which opens and closes for every visitor causes ongoing maintenance problems. The closed gate, opening when a car approaches, also gives many first time visitors the sense that the Garden is closed. Alternative deer control measures which allow the gates to remain open during visitor hours should be considered.

1.4.8 Stream Bank Restoration

The section of stream tributary running under the entrance bridge is generally structurally sound but could be aesthetically improved by treatment of the bank edges and planting. The stream should be incorporated into the design to enhance the amenity it lends to Brookside.

1.4.9 Existing Tree Protection

Proposed changes to pedestrian circulation and the entrance design should strive to preserve existing, healthy trees.

1.4.10 Maintenance Vehicle Parking

Current maintenance vehicle parking occurs along the entrance road edges. The planting program suggests planting and low retaining walls adjacent to the roadway leading to the main gate.

It is necessary not to detract from the artful aesthetic character of the entrance with parked vehicles. A small space, south of the gatehouse rain garden, has been proposed to fulfill occasional maintenance vehicle parking needs.

The proposed pedestrian paths are intended to match Brookside Garden walkway widths of 8'. The 8' width will allow occasional parking along the walkway edges during routine work.

Program Requirements

- Vehicular circulation
- Pedestrian path
- Bicycle racks
- Gatehouse
- Identification signage
- Event signage
- Welcome signage/Rules
- Incorporation of artwork
- Lighting
- High quality display planting
- Deer control
- Improved stream bank
- Existing tree protection
- Maintenance vehicle parking

2.0



Existing Conditions, entry to Brookside Gardens

2.0 Existing Conditions

2.1 General Site Conditions

The entrance to Brookside Gardens is located off of Glenallan Avenue, a narrow two lane road without curb and gutter. The approach along Glenallan Avenue from the west is down a steep slope, and from the east is up a gentle incline. The Glenallan Tributary runs along the side of the road. In areas where the stream bank is steep and close to the road, the edge of the road contains a guardrail.

The pavement at the entrance over the stream is excessively wide, creating an expanse of asphalt approximately 50' wide. The low walls on either side of the bridge support identification signage which is not adequately visible or legible.

The existing entrance gate is located approximately 160 feet beyond the bridge, and the associated deer fence to the east of the gate is highly visible from the road.

The existing asphalt entrance road is approximately 24' wide without curb or gutter.

The main planting on either side of the road is lawn, with the slope rising up quickly to the west of the road and falling away somewhat less steeply to the east. The edge of the western slope is sparsely planted, but heavily wooded further to the north. The low, eastern area contains some large mature deciduous trees. The road rises slightly as it moves south towards the existing parking lot and the view along the road is predominantly of forest backdrop.

The existing lighting at the entry consists of tall commercial shoe-box light fixtures, which are mounted on 3' high exposed concrete footings which mar the view along the road.



Existing entry signs and gate

2.2 Stormwater and Wetlands

The existing pond treats stormwater from the entrance road, parking lots and Visitors Center. This pond also draws from and circulates back to the Glenallan Tributary.

There are three points on the west side of the road where stormwater is collected and transported through culverts under the road to grass swales on the east side. The low-lying area on the east side of the road is often wet. This water ultimately drains to the existing pond or Glenallan Tributary.

The 100-year flood plain in the study area is generally limited to the upper banks of Glenallan Tributary. It does extend into the low-lying corner to the south-east of the vehicular bridge, but does not extend over the existing road. There are no wetlands in the study area.

The Storm Water Management Concept plan was submitted to the Montgomery County Department of Permitting Services for review in April 2007, with approval in September 2007, and generally retains the existing drainage patterns, with a minimal (0.01ac) increase in impervious surfaces.

2.3 NRI/FSD and FCP

The Natural Resource Inventory / Forest Stand Delineation (NRI/FSD) for the entrance area was prepared by the Park Development Division and approved on May 4, 2007.

The Preliminary Forest Conservation Plan (FCP) was prepared by the consultant team and submitted to the MNCPPC Environmental Planning Division and was approved on November 13, 2007. The majority of existing trees are proposed to be retained with minimal disruption, and two trees are proposed to be removed, with the replacement planting to occur within the project area.

2.4 Geotechnical Results

A geotechnical report was prepared in August 2004 to support design of the visitors center and associated parking and stormwater facilities. Additional soil boring data will be undertaken to support design decision making during the next phase of design.



Existing Conditions, entry to Brookside Gardens



Glenallan Tributary, looking west towards bridge



Existing Conditions, entry to Brookside Gardens

2.5 Site Analysis

2.5.1 Constraints

The narrow shoulder between the road and stream does not allow for safe and accessible pedestrian connection to the existing bridge.

The wide vehicle bridge surface creates an uncontrolled expanse of impervious paving.

The low-lying boggy area of lawn provides a challenge for the pedestrian path connector to the Visitor Center.

The deer fence creates unattractive views from the entrance drive. The closed gate and associated stone columns give the entrance the feeling of a closed/private estate.

The open lawn at the road edge encourages parking on the side of the road.

2.5.2 Opportunities

The pedestrian entry could be relocated to be adjacent to the vehicular entrance, providing it greater prominence and easier access at the intersection.

Better traffic control could be achieved through narrowing of the road at the intersection (while continuing to provide a sufficient radius for truck, bus and

limousine movements) and re-claiming some impervious area for planting display at the entry.

Planting and entry features could also extend across Glenallan Avenue to embrace the intersection and create an identity visible from all directions.

The pedestrian path, as it connects to the Visitor Center could take the form of a raised boardwalk in order to minimize disruption to existing trees and to bridge the low-lying area. The drainage swales in this area could also be enhanced to create ephemeral 'stream' landscapes that the boardwalk would pass over.

Relocation of a portion of the deer fence would provide better screening of the fence. The introduction of a deer grate at the fence threshold could mean the gates could stay open during Garden hours, lessening gate maintenance issues and providing a more welcoming experience for visitors.

A more detailed road edge treatment (such as a pervious cobble edge) and display planting at the road edge for improved aesthetics of the entrance will discourage people from parking on the side of the entry road and showcase the Garden. The highly visible slope to the west side also provides an opportunity for display planting.

Pedestrian connections to the Visitors Center could be strengthened by adding more direct path connectivity.



Existing entry road at bridge

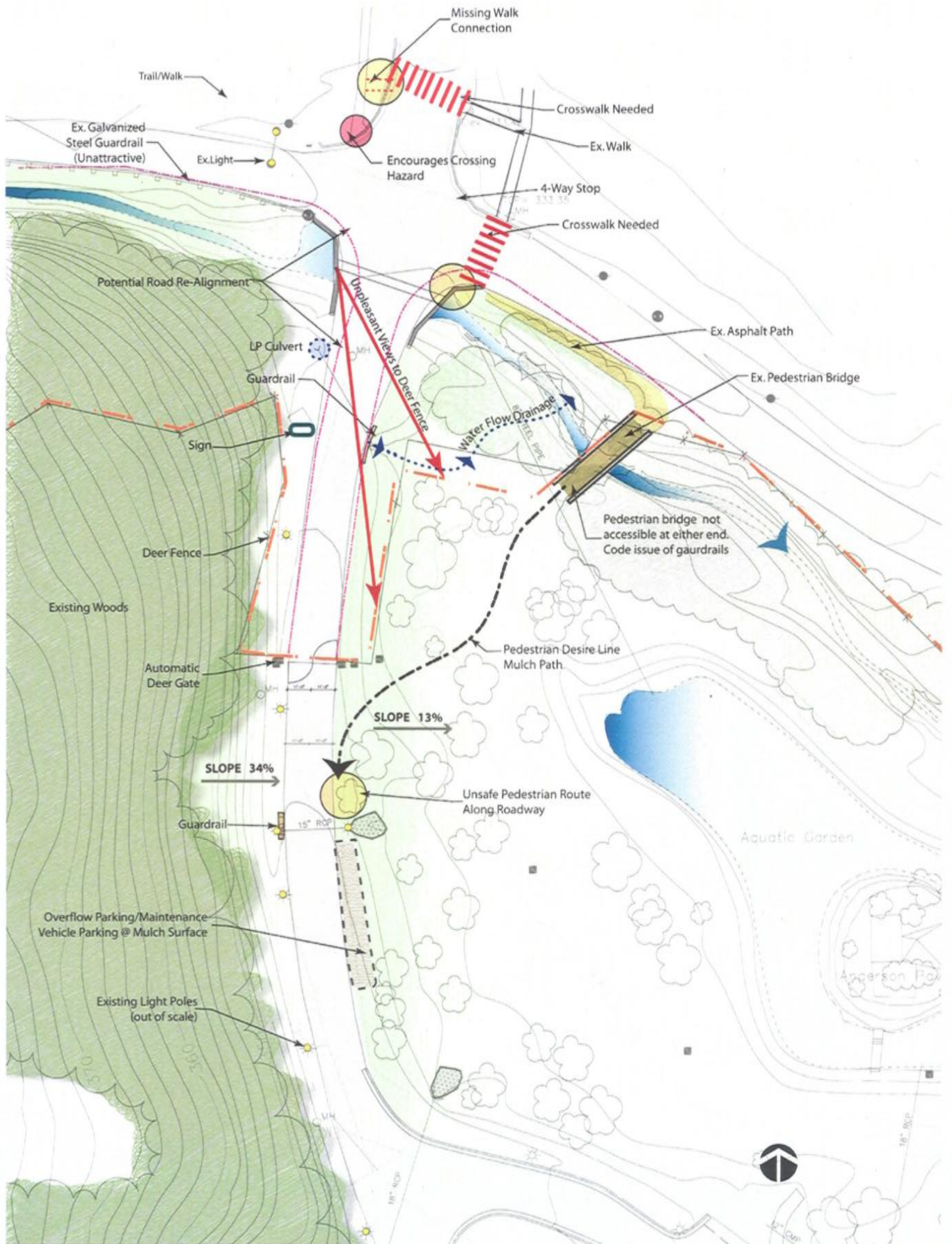


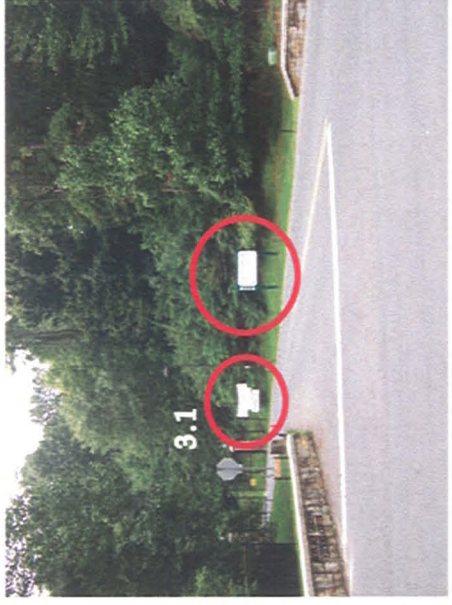
Figure 2.1 Site Analysis Plan



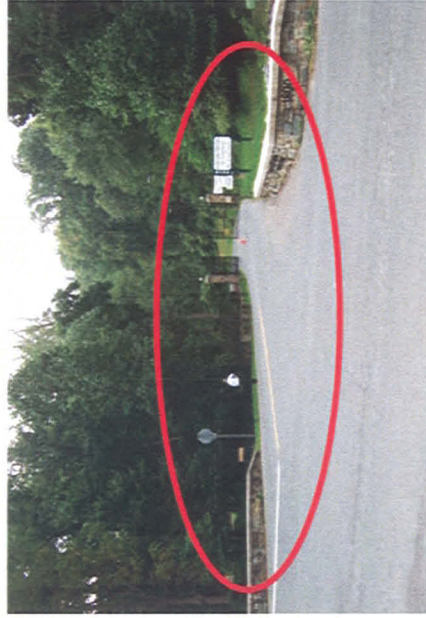
1. Boulders are haphazard and unattractive



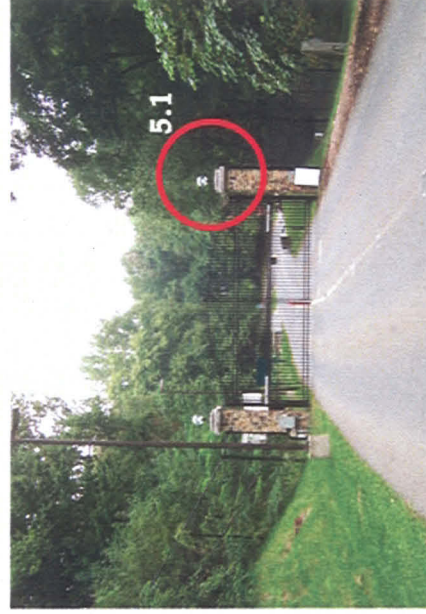
2. Existing sign difficult to read



3. Signage needs to be integrated into entrance
3.1 Event banners need permanent location



4. Scale/height of bridge walls not sufficient to address the length and width of entryway



5. Gate implies private estate and is imposing.
5.1 Style/scale of light fixture and column is not in keeping with garden aesthetic.



6. Opportunity to showcase garden mission on highly visible entry slope



7. Need to accommodate maintenance vehicles and overflow parking.
7.1 Unattractive wood railings
7.2 Unattractive exposed footings - light fixture is commercial in appearance/out of scale with roadway



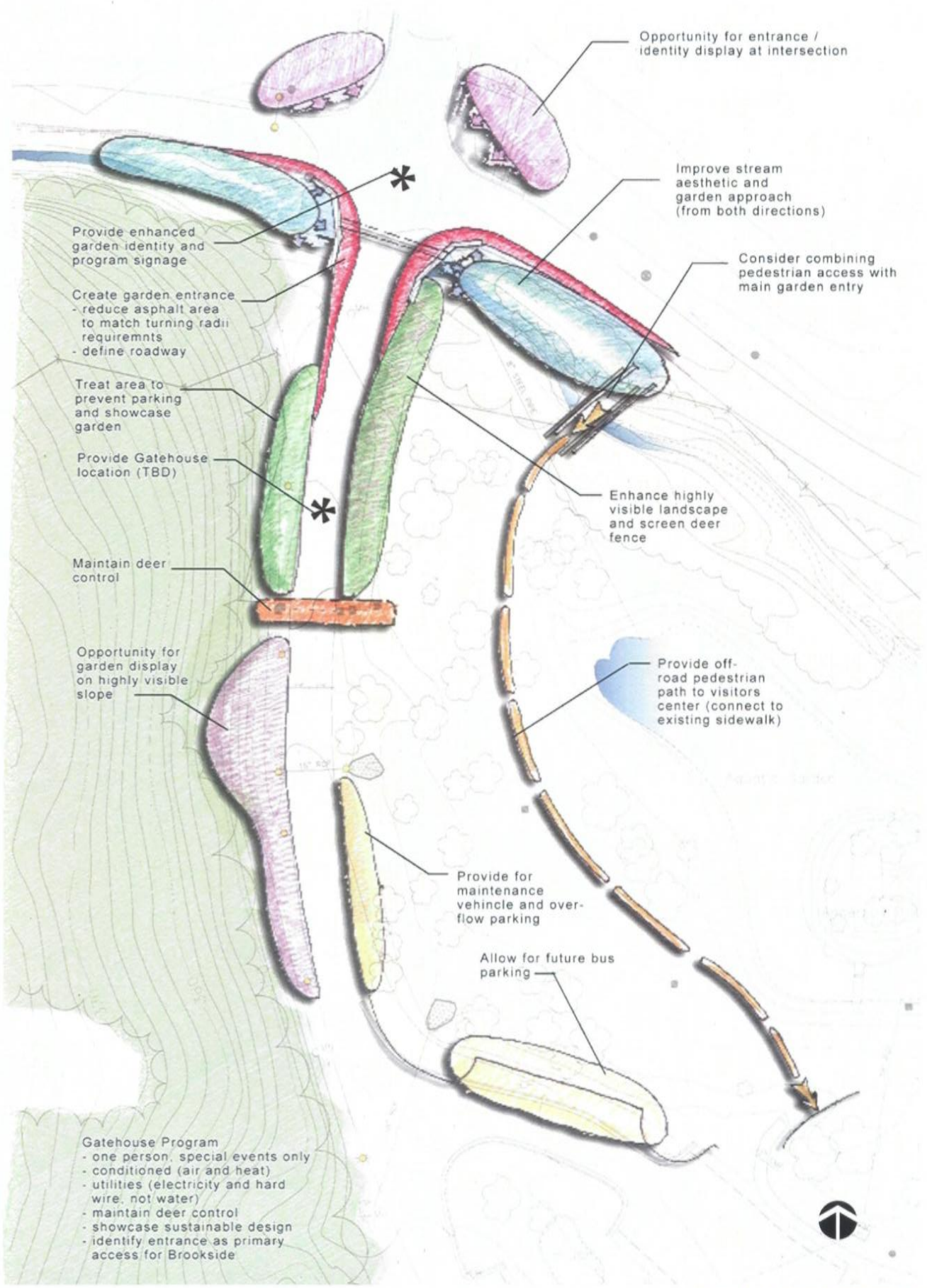
8. Closed gates are not welcoming at entry
8.1 Prominent view of deer fence along drive



9. Desire line for pedestrians to Visitor's Center



Figure 2.2 Site Analysis Images



Provide enhanced garden identity and program signage

Create garden entrance
- reduce asphalt area to match turning radii requirements
- define roadway

Treat area to prevent parking and showcase garden

Provide Gatehouse location (TBD)

Maintain deer control

Opportunity for garden display on highly visible slope

Gatehouse Program
- one person, special events only
- conditioned (air and heat)
- utilities (electricity and hard wire, not water)
- maintain deer control
- showcase sustainable design
- identify entrance as primary access for Brookside

Opportunity for entrance / identity display at intersection

Improve stream aesthetic and garden approach (from both directions)

Consider combining pedestrian access with main garden entry

Enhance highly visible landscape and screen deer fence

Provide off-road pedestrian path to visitors center (connect to existing sidewalk)

Provide for maintenance vehicle and overflow parking

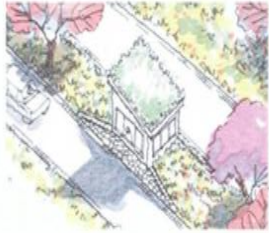
Allow for future bus parking



Figure 2.3 Opportunities and Constraints Plan
BROOKSIDE GARDENS / 2-6

3.0

3.0 The Facility Plan



3.1 Preferred Concept

The project design team developed several alternative approaches for the entrance renovation for presentation to the Garden Design Committee.

Each of the design alternatives sought to build on the rural road character of Glenallan Avenue, drawing on the informal, meandering and wooded experience visitor's encounter as they approach the Garden. The design of the new entrance also seeks to announce the garden boldly while respecting the rural road character and residential neighborhood.

The entrance design alternatives offered several options for the location of the gatehouse, treatment and location of pedestrian access and character of the landscape. Several conceptual designs for the gatehouse were developed too, all of them focused on creating a welcoming structure with references to the Visitor Center, while also setting a new standard for design. Showcasing sustainable design practices was also an important component of the design options.

Each alternative incorporated garden signage in an artful way and additional opportunities for incorporating art into the entrance were studied and included options for arbors and railings. Finally, an approach to the planting design was addressed for each alternative.

Through discussions with the committee, a preferred approach was selected which incorporated favored elements of several of the alternatives.

3.2 Elements of the Preferred Concept

The preferred design concept creates an inviting and welcoming experience for visitors to Brookside. While the design meets the functional requirements of the Garden it also provides an artistic and attractive identity for Brookside at its primary entrance.

The entrance design pulls the rural road character of a narrow, wooded road, lined with fences or stone walls into the Garden. The entrance is narrowed, plantings are added and stone walls are rebuilt and extended further along the entrance drive. The gatehouse simulates a greenhouse with a green roof, nestled into

the landscape of stone walls and rain garden plantings. Signage, created by an artist, celebrates the mission of Brookside by using leaves, flowers and seed pods to create the entrance signage. Plantings are introduced immediately opposite the entrance, along both sides of the entrance drive and introduced into planted medians in the roadway itself. The following paragraphs describe key elements of the entrance design.

3.2.1 Circulation

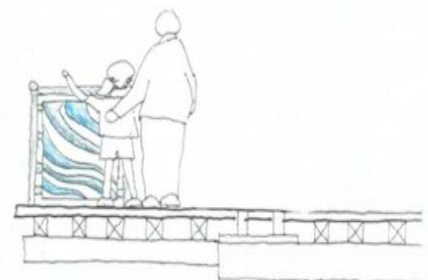
The preferred design concept introduces a planted median containing a narrow rain garden north of the gate and a wider garden in the middle of the road to the south of the gate. The divided roadway has the added benefits of showcasing plantings at the Garden's entrance and provides clearer vehicular circulation into and out of the one-way parking lot.

The asphalt width of the travel lanes has been narrowed from an 11' wide lane to 8' wide with a 1' wide cobble edge on either side, providing a full 10' width for the travel lanes.

Threshold paving in the form of porous pavers occurs at key points along the entry road; at the stream crossing, at the gatehouse, and at the wider median. The proposed deer grate, at the gate, acts as another threshold element in the roadway.

The preferred design concept relocates the pedestrian bridge to the east side of the vehicular bridge providing a more obvious, direct and pleasant route into the garden for pedestrians. This wood boardwalk is to be attached to the existing culvert structure and contains a modest stream overlook.

The pedestrian bridge leads to a boardwalk which travels through the low-lying area until it meets existing grade among the existing trees being preserved.



Cross section of entrance boardwalk overlook and roadway entrance



Pedestrian overlook at stream crossing

The pedestrian path will then transition to an asphalt path leading to the existing sidewalk at the edge of the parking lot and towards the Visitor Center and gardens beyond.

The gazebo will contain seating, a donor recognition element and Garden wayfinding information. A bicycle rack and garden rules are located near a new pedestrian gate through the deer fence.

3.2.2 Gazebo Art Work

The gazebo design was developed by the artist, Linda DePalma, and done in conjunction with the design of the entrance feature and signage and is envisioned as a metal sculptural piece, using a plant motif.

Where the new entrance path meets the existing pond path, a garden gazebo is proposed.



Ginkgo garden gazebo model

3.2.3 Gatehouse

As a small greenhouse with a vegetated butterfly-shaped roof, the proposed gatehouse design strives to blend with and celebrate the best of Brookside Gardens. The green roof places the emphasis at the gatehouse on plants, and will also capture and slowly reuse rainwater.

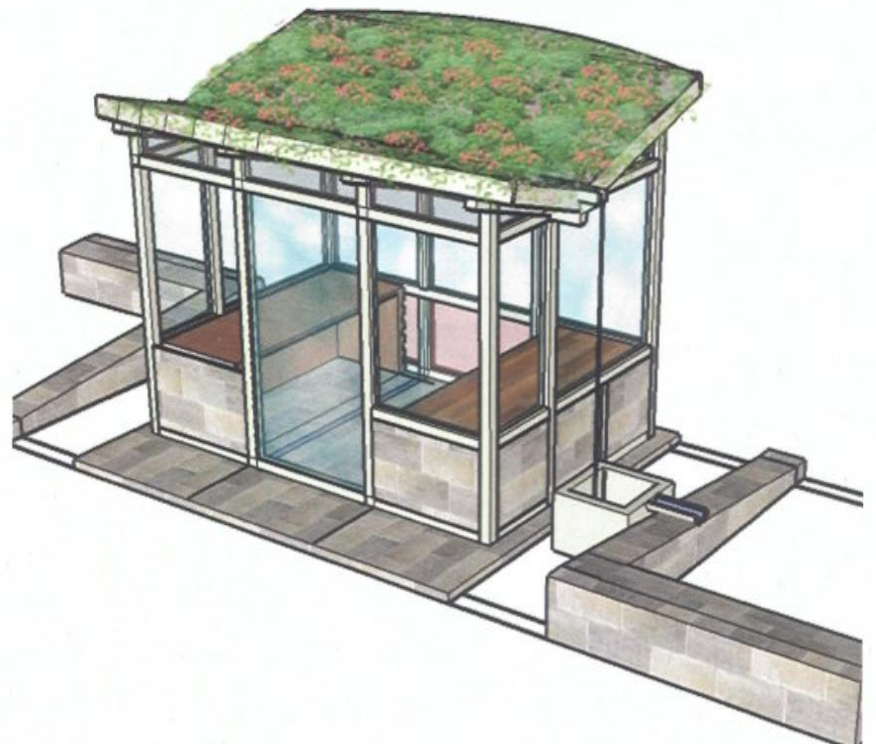
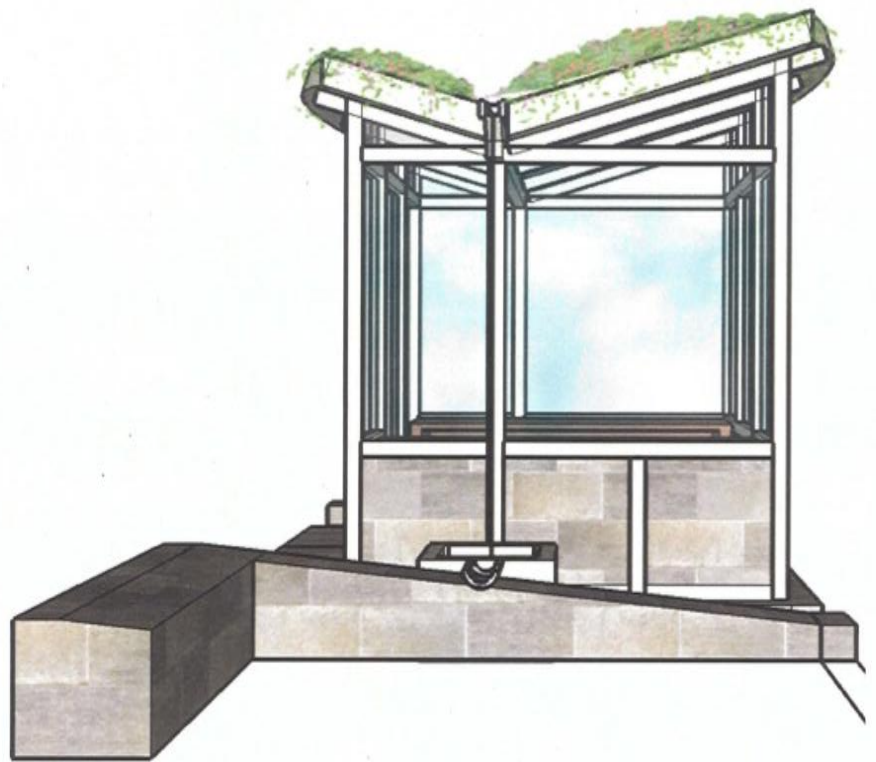
The Gatehouse will be roughly 7 feet wide by 11 feet long by 10 feet high, sited within a 10-foot wide median. It will sit on a stone platform that relates to special road paving at the gatehouse. Low stone walls in the median on either side of the gatehouse create a building forecourt and provide a landscaped base to the building.

The structure will be metal, either aluminum or steel, with as narrow a profile as possible to recall the frame of a glass house. A champagne bronze finish provides a gentle color that will complement the adjacent wooded landscape. The green roof will be planted with drought tolerant perennials.

The glass walls will be double insulated units or better, to keep heat in or out. Different fret patterns, colors, textures, and films will be used to control daylight, glare, and heat gain. A sliding window will facilitate interactions with vehicles on the incoming (west) side. A sliding door will provide access on the outgoing (east) side.

The interior will house the cash register, telephone, and storage. Plants can be hung from the roof structure. A wall-mounted heat pump unit will be located on the back (north) side of the Building. The unit will be integrated into the casework. Additional louvered vents could be added at the north and south sides, within the roof profile, to augment natural ventilation. Daytime operations should not need any artificial lighting, however task lighting for night time use will be provided. Maintenance vehicle parking is provided at one end of the island containing the gatehouse.

Sustainable features include the green roof which will capture and store stormwater, day-lighting, natural ventilation and an efficient heat-pump based heating and cooling system.



View of gatehouse side and green roof

3.2.4 Signage and Lighting

Identity signage for Brookside has been incorporated into the new walls at the vehicular bridge. Curved stone walls which support low planters over the bridge create a welcoming and symmetrical arc on both sides of the entry drive. Magnolia leaves and flowers, cut from metal and painted in soft green tones will be mounted on the top of the wall. This sculptural element will surround an oval sign, reminiscent of the garden plant tags used to identify plants in the garden.

Existing columns will be retrofitted by removing existing veneer, caps and light fixtures. The addition of new stone materials for stone walls with event banners and planters will also be added to the existing face of the entrance columns.

Event signage has been incorporated into banners on the light poles located on the low stone wall running

along the west side of the entry. This low stone wall terminates and restarts in the median, where a mounded landscape serves as a base for the gatehouse.

Welcome and rules of entry signage have been located at the seating node along the pedestrian boardwalk, where it meets the path which runs along the north side of the aquatic garden. Bicycle racks are located at smaller pedestrian entrance and entrance gate at the entrance north of the bulb lawn.

Roadway lighting is accomplished through pole lights mounted on the wall as noted above. This lighting will also light banner signs.

The gatehouse will have internal illumination for task lighting and will include building mounted lights to illuminate the roadway when in use.



Entrance art signage model - Magnolia leaves, flowers, and seed pod



View of entrance signage model

Recommended Facility Site Plan



Figure 3.1 Recommended Facility Site Plan / 3-6



Event signage mounted on banner poles

3.2.5 Planting

A preliminary planting scheme has been developed for the preferred design concept. A number of different landscape types and plant themes have been identified, applied to locations on the plan and a list of species has been provided for each. This information is listed in the planting diagram and plant palette included in Section 3.4.

The tree planting in the design generally emphasizes flowering understory trees which will add human scale and color the existing mature shade tree canopy.

The shrub, groundcover, grass, perennial and annual lists demonstrate a predominantly native selection, with some additional species to provide the required variation in color, form and texture.

The conceptual plant list can be found in Section 3.4.

3.2.6 Deer Control

The 12' high deer fence has been retained and relocated slightly in some key locations to minimize views of it. A deer grate is proposed at the gate, which will remain open during garden hours. The grate will be a pre-cast concrete product and will be wide enough to prevent deer from jumping over it. A new pedestrian gate will be added in the deer fence, where the proposed boardwalk enters the garden.

3.2.7 Stream bank Restoration

Given that structural changes to the Glenallan Tributary channel were deemed to be inappropriate, some surface level restoration is proposed to the stream banks. This includes some boulder replacement on the banks to improve upon the existing engineered appearance of the channel, and extensive riparian planting along the stream edges using native grasses, rushes and sedges.

This enhancement of the stream aesthetic connects directly to the image of Brookside and its close connection to water, its ponds and the stream that defines its boundaries.

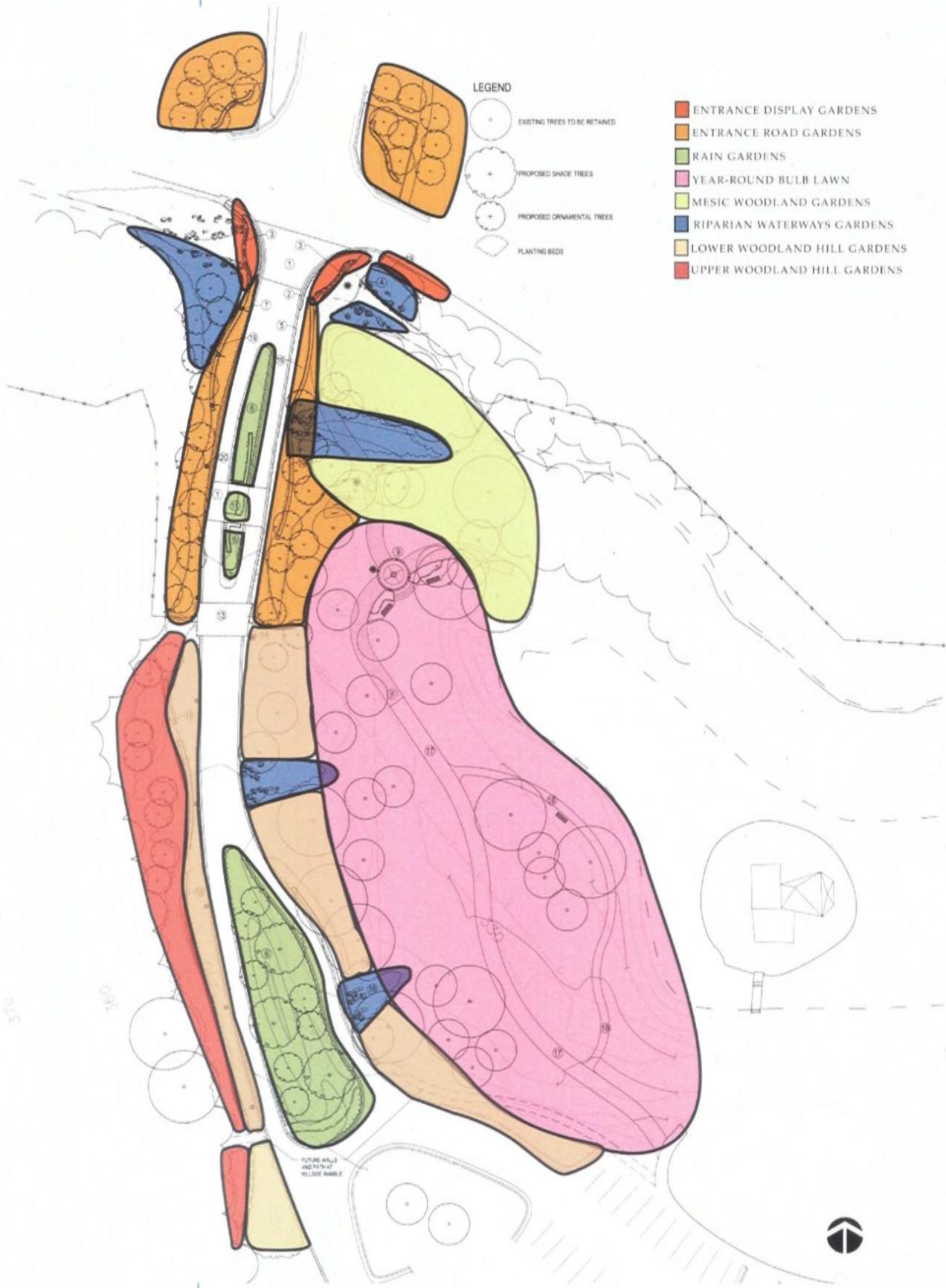
3.3 Conclusion

The entry to the Visitors Center represents the realization of the first phase of the Brookside Gardens Master Plan. Its high quality design and environmental sensitivity demonstrate the Garden's commitment to excellence in these fields. The entry achieves a balance between fitting into the wooded landscape of the Gardens and its surrounds, and creates a bold entry feature to announce the Garden's presence, making the main point of entry a welcoming one.

Materials and furnishings used for the gatehouse, walls, boardwalk and gazebo and the general character of the art will become the standards for future improvements in the garden.

Upon funding, the project will move into Phase B construction documentation, bidding and construction. At completion, Brookside Gardens will have a unique and exemplary entrance experience for all visitors to enjoy.

Planting Area Diagram



Planting Area Descriptions

Entrance Display Gardens

Located at the intersection with Glenallan Avenue, these corner planting areas will be colorful, finely textured display gardens, creating an impact for visitors upon arrival. Plants are selected for their year-round interest. In some case they must also thrive in shallow soil depths. Plants with limited height to 12" or less will be used in front of entrance signs and stone walls. Species in these areas should be deer resistant, and have some salt-tolerance and occasional drought tolerance. Full-sun location.

Perennials & Groundcovers

Arctostaphylos uva-ursi (Bearberry)
Armeria maritima (Sea Thrift)
Carex sp. (Sedges)
Cerastium tomentosum (Snow-in-summer)
Ceratostigma plumbaginoides (Plumbago/Leadwort)
Erica carnea (Spring Heather)
Euphorbia sp. (Euphorbia/Spurge)
Helleborus sp. *orientalis/foetidus* (Oriental & Stinking Hellebores)
Iberis sempervirens
Phlox subulata (Carpet Phlox)
Rosa rugosa (Carpet Rose)
Veronica spicata (Speedwell)

Bulbs

Allium christophii (Persian Onion)
Allium neapolitanum (Daffodil Garlic)
Galanthus sp. (Snowdrop)
Narcissus sp. (Daffodils)
Puschkinia scilloides (Squill)
Scilla sp. (Siberian Squills)

Entrance Road Gardens

Located along both edges of the entry road before passing through the gate, these gardens will provide a naturalistic feel with year-long interest along the entry way. Consisting of small shrubs, perennials and groundcovers, and the occasional understory tree, plant heights will vary from low to medium, with a maximum height of 2-3'. Species in these areas should be deer resistant, and have some salt-tolerance and drought tolerance. Plant bed design should address the primarily vehicular vantage point of the Entrance Road Gardens with larger masses of shrubs and herbaceous perennial species. Full-sun to part-sun location.

Trees & Shrubs

Amelanchier arborea/canadensis (Shadbush)
Calycanthus floridus (Carolina Allspice)
Caryopteris x clandonensis (Bluebeard)
Cercis canadensis (Redbud)
Chionanthus virginicus (Fringe Tree)
Cotinus coggygria (Smoketree)
Hamamelis virginiana (Witchhazel)
Ilex glabra (Inkberry)
Ilex opaca (American Holly)
Lindera benzoin (Spicebush)
Magnolia virginiana (Sweetbay Magnolia)
Viburnum trilobum (Cranberry Viburnum)

Perennials & Groundcovers

Agastache rupestris (Hyssop)
Amsonia hubrechtii (Blue Star Flower)
Baptisia sp. (False Indigo)
Eupatorium sp. (Joe Pye Weed)
Solidago rugosa (Goldenrod)
Hemerocallis sp. (Daylilies)
Monarda didyma (Bee Balm)

Bulbs

Allium neapolitanum (Daffodil Garlic)
Fritillaria sp. (Snakehead Lily)
Galanthus sp. (Snowdrop)
Puschkinia scilloides (Squill)
Scilla sp. (Siberian Squills)

Rain Gardens

The rain gardens located in the entry road medians will collect and filter the stormwater which will drain from the surrounding area. These species will be moisture and salt tolerant as they will often have 'wet feet', and the median located on the outside of the gate should contain species that are deer resistant. The small rain garden median outside the gate will generally have low perennials and groundcovers to leave views open at the entry, while the larger island inside the gate will also contain a variety of shrubs and trees. Full-sun to part-shade locations.

Trees & Shrubs

Azalea arborescens (Sweet Azalea)
Azalea periclymenoides (Pinxter Azalea)
Betula nigra (River Birch)
Calycanthus floridus (Carolina Allspice)
Cephalanthus occidentalis (Buttonbush)
Clethra alnifolia (Summersweet Clethra)
Cornus stolonifera cvs. (Twig Dogwood)
Ilex glabra (Inkberry)
Ilex verticillata (Winterberry)
Itea virginica (Virginia Sweetspire)
Leucothoe sp. (Drooping Leucothoe)
Lindera benzoin (Spicebush)
Liquidambar styraciflua (Sweetgum Tree)
Magnolia virginiana (Sweetbay Magnolia)
Nyssa sylvatica/aquatica (Black Gum)
Rosa palustris (Swamp Rose)
Taxodium distichum (Bald Cypress)

Perennials & Groundcovers

Asclepias tuberosa/incarnata (Milkweed)
Athyrium filix-femina (Lady Fern)
Calamagrostis x acutifolia (Feather Reed Grass)
Chelone glabra (Turtlehead)
Erythronium americanum (Trout Lily)
Filipendula rubra (Queen of the Prairie)
Iris sp. (Iris)
Liatris spicata (Blazing Star)
Panicum virgatum (Switch Grass)
Platycodon grandiflorus (Ballon Plant)
Tiarella cordifolia (Foamflower)

Bulb Lawn

A naturalized bulb lawn creates year-long sea of color and interest on the lower east side of the road between the garden entry and the visitors' center. It captures the great lawn view from the road and provides a wonderful experience for pedestrians arriving at the garden. Bulbs should have some tolerance to dappled shade and moist conditions within woodland zones. Mowing of lawn should occur at breaks in the season when flowering has subsided, especially within the summer months.

Chionodoxa sp. (Glory-of-the-Snow)
Colchicum sp. (Fall Crocus)
Crocus tommasianus/crocus sp. (Crocus)
Eranthis hyemalis (Winter aconite)
Galanthus nivalis (Snowdrop)
Hyacinthoides luispanica (Bluebell)
Ipheion uniflorum (Ipheion)
Lycoris (Spider Lily)
Muscari spp. (Grape Hyacinth)
Narcissus sp. (Daffodil)

Riparian Waterways Gardens

The riparian plantings such as sedges and grasses will support the slopes along the exposed Glenal-Tributary in the area of the entrance bridge, introduce vegetation to encourage erosion control, increase vegetative interest along the edges of the entrance to the garden, and encourage wildlife. In particular they will enhance the view from the pedestrian bridge, to overlook a naturalized stream edge. Riparian planting will also be located along swales where stormwater is directed in culverts under the roadways. Species located outside the fence should be deer resistant, and all plants will be tolerant of moist mesic soils.

Asarum sp. (Ginger)
Caltha palustris (Marsh Marigold)
Chelone glabra (Turtlehead)
Carex sp. (Sedge)
Hibiscus moscheutos (Swamp Mallow)
Iris sp.
Ligularia dentata (Orange Ligularia)
Mertensia virginica (Virginia Bluebells)
Peltandra virginica (Arrow Arum)
Physostegia virginica (Obediant Plant)
Polemonium sp. (Jacob's Ladder)
Symplocarpus foetidus (Skunk Cabbage)
Trollius ledebourii/sp (Globe Flower)

Lower Woodland Hill Gardens

Located along both edges of the entry drive after passing through the gate, this garden is planted on the gentle slopes between the road edge and the stone walls. Small to medium shrubs and perennials should be 2-4' in height and provide a variety of color and texture to create interest as views pass by in vehicles. Part-sun to part-shade locations.

Trees & Shrubs

Aronia sp. (Chokeberry)
Azalea arborescens (Sweet Azalea)
Azalea periclymenoides (Pinxter Azalea)
Chionathus virginicus (White Fringe Tree)
Cladrastis kentuckea (Yellowwood)
Cornus stoloniferous (Twig Dogwoods)
Corylus avellana (Hazel)
Cytissus scoparius (Scotch Broom)
Fothergilla sp. (Fothergilla)
Hamamelis sp. (Witchhazel)
Winterberry)
Kalmia latifolia (Mt. Laurel)
Ostrya virginica (Hornbeam)
Quercus rubra (Red Oak)
Rhus typhina (Sumac)
Sambucus nigra (Elderberry)
Sassafras albidum (Sassafras)
Viburnum sp. (Viburnums)

Perennials & Groundcovers

Achillea sp. (Yarrow)
Amsonia hubrechtii (Blue Star Flower)
Anemone sp. (Anemone)
Corydalis sp. (Corydalis)
Echinacea sp. (Coneflower)
Phlox paniculata (Garden Phlox)
Rudbeckia sp. (Black-Eyed Susan)
Filipendula rubra (Queen of the Prairie)
Veronicastrum virginianum (Culver's Root)

Upper Woodland Gardens

This garden is located on the upper western slope behind the curving stone walls. It is an extension of the lower woodland garden, but will display some taller plants on the steep slope that can be seen from the road. This display is intended to create a cascading effect down the slope and over the stone walls. Medium to large shrubs and perennials should provide a variety of color and texture to create interest as visitors pass by in vehicles. Part-sun to part-shade locations.

Trees & Shrubs

Forsythia sp. (Forsythia)
Fothergilla sp. (Fothergilla)
Hamamelis sp. (Witchhazel)
Hydrangea quercifolia/sp. (Oakleaf Hydrangea)
Ilex glabra/verticillata (Inkberry & Winterberry)
Jasminum nudiflorum (Winter Jasmine)
Kalmia latifolia (Mt. Laurel)
Liquidambar styraciflua (Sweetgum Tree)
Liriodendron tulipifera (Tulip Poplar)
Loropetalum sp. (Chinese Witchhazel)
Ostrya virginica (Ironwood)
Oxydendron arboreum (Sourwood)
Quercus sp. (Oak)
Sambucus sp. (Elderberry)
Sassafras albidum (Sassafras)
Rhododendron periclymenoides (Native Azalea)
Rhus typhina (Sumac)

Perennials & Groundcovers

Amsonia hubrechtii (Blue Star Flower)
Astible sp. (False Spirea)
Digitalis sp. (Foxglove)
Echinacea sp. (Coneflower)
Eupatorium sp. (Joe Pye Weed)
Leucanthemum sp. (Shasta Daisy)
Panicum virgatum (Switch Grass)
Rudbeckia sp. (Black-Eyed Susan)
Solidago sp. (Goldenrod)
Verbascum sp. (Verbascum)
Veronicastrum virginianum (Culver's Root)

Mesic Woodland Gardens

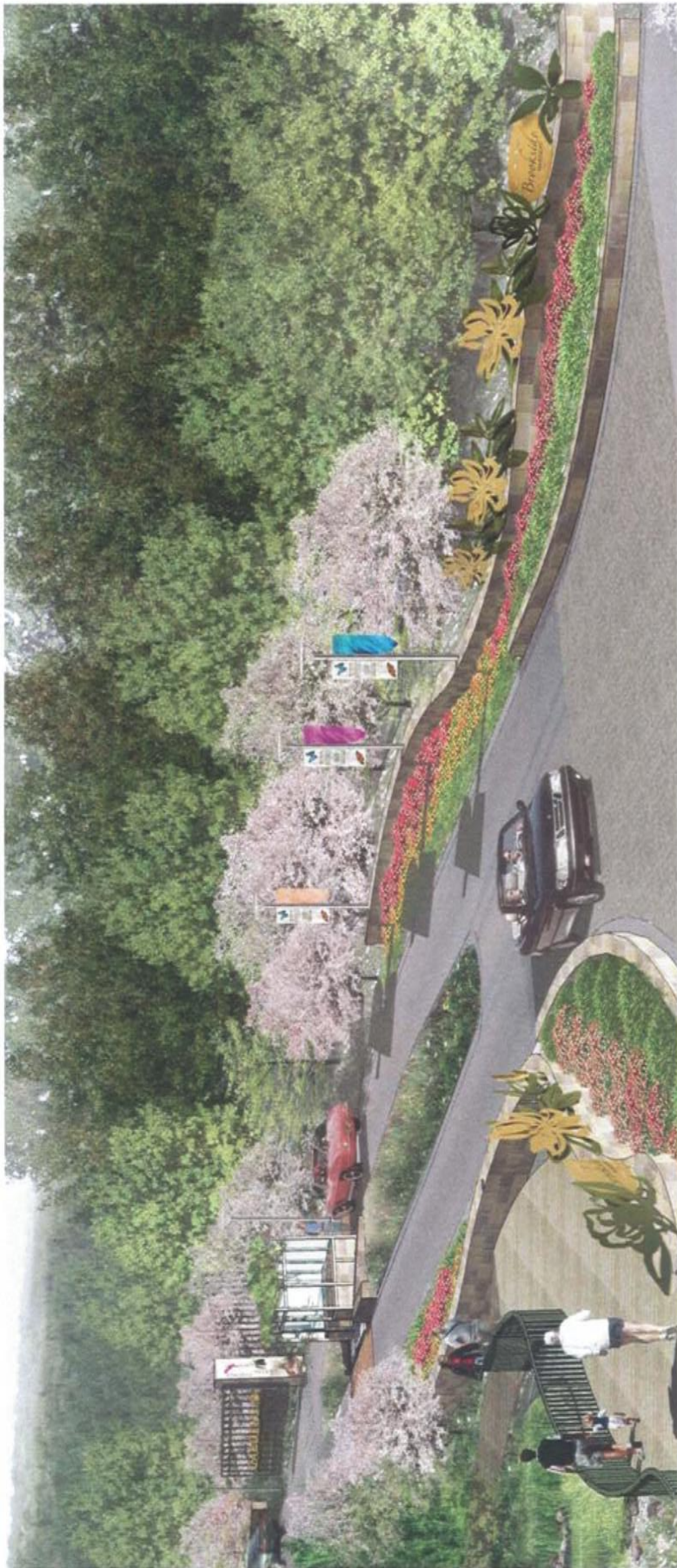
The plantings in these woodland pockets range in their adaptability to varying levels of soil moisture retention; from the moist stream entrance (wet-mesic soil), beyond the pedestrian boardwalk, towards the Entrance Road Gardens (upland dry-mesic soil). The woodland plants contain large shade trees that are best adapted for upland, mid-land and low-land slopes, where water levels constantly are in flux. Complimentary shrubs, perennials and groundcovers fill an understory of planting, creating a palette of plant interest from the road entrance view and from the Bulb Lawn towards the entrance. Full-sun to partial-shade, variable soil moisture.

Trees & Shrubs

Carya ovata (Shagbark Hickory)
Celtis occidentalis (Common Hackberry)
Cornus florida (Flowering Dogwood)
Hamamelis sp. (Witchhazel)
Liquidambar styraciflua (Sweetgum Tree)
Liriodendron tulipifera (Tulip Poplar)
Quercus alba (White Oak)
Quercus shumardii (Shumard Oak)
Viburnum sp. (Viburnums)

Perennials & Groundcovers

Adiantum pedatum (Maidenhair Fern)
Caltha palustris (Marsh Marigold)
Carex pennsylvanica (Pennsylvania Sedge)
Chelone glabra (Turtlehead)
Iris sp. (Iris)
Mertensia virginica (Virginia Bluebells)
Panicum virgatum (Switch Grass)
Phlox divaricata (Woodland Phlox)
Podophyllum peltatum (Mayapple)
Sanguinaria canadensis (Bloodroot)
Symlocarpus foetidus (Skunk Cabbage)



Entrance view from road into garden



Gatehouse view with rain gardens at entrance



View of the Ginko Gazebo and Bulb Lawn from pond