Prepared for:

Queens Botanical Garden

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The connections between water, culture, and the environment stretch across time and place. Water is essential to all life; its importance is universal. In Phase I of the master plan project, we identified water as a unifying element for the Queens Botanical Garden (QBG). This document presents Phase II which was kicked off in early 2001 with Engage with Water, a week of community design sessions about the character, beauty and value of water and its role at QBG. Founded on the principles of sustainability, this master plan sets the stage for cultural expression and has the potential to inspire a new way of thinking about botanical gardens in an urban context.

We are fortunate to be located in the most ethnically diverse county in the United States. QBG has always been community-oriented and the unique dynamics of our community inspired our cultural motto - to be the place where people, plants, and cultures meet. Results from QBG's yearlong visitor study reveal that 75 percent of Garden visitors speak a language other than English at home. Approximately 150 nations speaking over 130 languages and dialects are represented in the borough. The 2000 Census data shows how quickly demographics and communities change in Queens. For example, the number of Queens residents who identified themselves as South Asian increased 93 percent and the increase for Hispanics was 46 percent over the past 10 years. This community is thus not only diverse; it is also incredibly dynamic.

Queens Botanical Garden can serve this dynamic community while giving back to the environment. We can do this by creating a timeless place that draws inspiration from ancient world traditions that relied upon connections to nature. These design and building traditions first considered the natural elements such as sun, water, and wind when creating a place. This is an age-old approach to making a place comfortable and, in some cases, even sacred. Imagine an architectural detail from China, a country where garden and landscape traditions can be traced back 3000 years. The end tile of a roof is designed to define the way rain falls, turning rain into art. We reflect this idea in the design of our terrace roof, from which rain is collected and spilled to the terrace below, making a rain shower an "event." The secret of this Garden will be the relationship between people and the environment and how it evokes people's cultural memories.

The ecological story of QBG's site makes it an opportune place to demonstrate landscape rehabilitation in a way that connects people, plants, and culture. Mill Creek, a meandering tributary to the Flushing River, once ran through this site. Development of the area eradicated the natural balance and left us a legacy of landfill, inconsistent soils, and periodic flooding and drought. This master plan is a guide for restoring balance, healing the landscape, and treating water as a precious resource. Inspired by cultural traditions that value and celebrate water, we will harvest all rainwater, cleanse it with plants, and reuse it. Over time, we will rebuild soils and coax back native plant communities and wetland, woodland, savanna, and prairie species of the New York region will make a reappearance. These plant communities will be functioning systems, not exhibits frozen in time but changing living landscapes, a source of beauty and education. QBG will provide a place to wonder at the subtleties of nature - the chang-

Members of QBG's Master Plan team following a presentation of design sketches developed during workshops, February 2001. Photo courtesy of Atelier Dreiseitl.

ing seasons, a wave of prairie grasses, an old oak providing shade, a woodland wildflower in a patch of sunlight. A beautiful and healthy landscape will be the setting for programs and exhibits about plants enriching people's lives around the world.

The ideas in this plan present us with a challenge - to wrap a powerful message about people, plants, and culture together in one garden landscape in New York City. Our hope is that every moment spent at QBG will be transcendent and the Garden will be a place where the elements of nature are ubiquitous and the feeling of community is pervasive. The opportunities are endless and the potential for QBG to be a model of cultural expression and sustainable design is real. We are thrilled to share the work of QBG's community with you and hope you can envision the possibilities.

Jennifer Ward
Director of Planning, Collections, and Research

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1. *Photo courtesy of Teri Bloom.*
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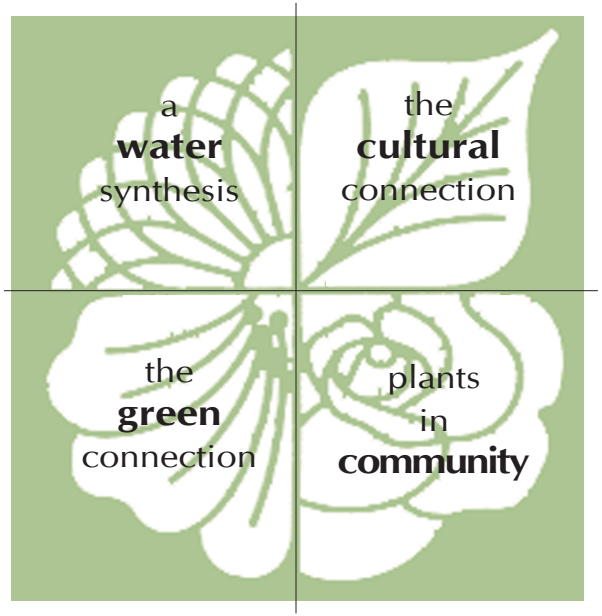
The Master Plan concept consists of four interrelated themes - *A Water Synthesis, The Cultural Connection, The Green Connection* (or sustainability), and *Plants in Community* (or plants in natural associations or ecosystems). Each of these themes is really a facet of the same underlying idea; together they form a cohesive vision.

This Master Plan must communicate to a vast and varied audience the vision of Queens Botanical Garden and the physical manifestations of that vision upon the site. It is meant to be a living document, to serve as a working tool to help all involved with the Garden implement and realize this vision over time.

Involvement and input from many people, including visitors, staff, board, contributors, and consultants, have been essential to *The Planning Process* that has led to this Master Plan.

The *Master Plan* section includes plan drawings, sketches, and written descriptions of most places within the Garden. Collectively, these words and graphics communicate the manifestation of the Master Plan vision as interpreted by the planning team. Each idea has been developed sufficiently to determine the arrangement of water elements, garden spaces, buildings and shelters, access, circulation, and parking. This plan now determines the specific arrangement and use of the spaces within the Garden. This arrangement is coupled with the principles described in other sections of this plan, and together they are meant to serve as a guide in the development of actual garden and feature installations. The organization and design of the overall site will allow each space to be developed without a negative impact on the daily operations of the Garden.



The Master Plan Concept

The Master Plan Concept as expressed on the QBG site.

The *Implementation and Phasing* is the beginning of a strategy to realize the Master Plan vision, and includes quantities and budgets for each of the components of the plan. The first phase of development includes a new Administration Building, Maintenance Facility, Parking Garden, and relocation of the Children's and Senior gardens. The detailed planning and design of this initial phase has been happening concurrently with this master planning process, to the benefit of both efforts.

English	The place where people, plants, and cultures meet
Arabic	والنّباتات والثّقافات مهمّتنا هي: إيجاد مكان تتلاقى فيه النّاس
Chinese	自然與人文薈萃之處
Slovak	Miesto, kde sa stretávajú ľudia, rastliny a kultúry.
Spanish	El lugar donde las personas, las plantas, y las culturas se encuentran
German	Der Treffpunkt für Menschen, Pflanzen und Kulturen
Hindi	जगह जहाँ लोग,पौधे एवं संस्कृतियां मिलती हैं।
French	Là où des gens, des plantes, des cultures se croisent et croissent ensemble
Greek	Το μέρος όπου συναντιούνται άνθρωποι, φυτά και πολιτισμοί
Maori	Te waahi tuutakitanga oo ngaa tangaata, ngaa raakau me ngaa tikanga
Italian	Il luogo in cui le persone, le piante e le culture si incontrano
Korean	인간, 설비, 문화가 만나는 장소
Portuguese	O lugar onde pessoas, plantas e culturas se encontram
Polish	Miejsce, gdzie się spotkawają ludzie, rośliny i kultury.
Finnish	Paikka, jossa ihmiset, kasvit ja kultuurit tapaavat.
Russian	Место встречи людей, культур и растений.
Czech	Místo, kde sa potkávají lidi, rostliny a kultury
Dutch	De plaats waar mensen, planten en culturen elkaar ontmoeten

Language Translations
Admerasia and aLanguageBank

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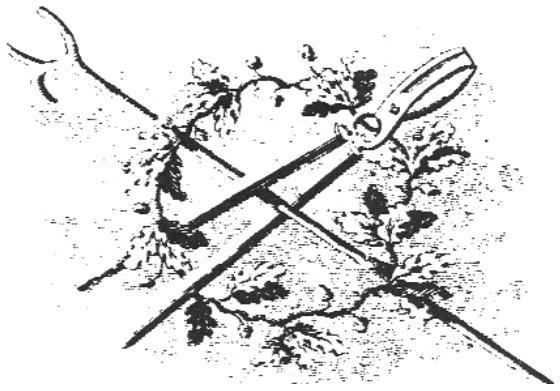
I. The Master Plan

Queens Botanical Garden



Water is everywhere in our cities. In fact, New York City is physically defined by water: The Atlantic Ocean, the Hudson River, the East and Harlem Rivers, along with numerous bays, sounds, creeks (*kills* in Dutch) and streams. This vast water network as a resource for commerce, transportation, and recreation shaped the historical development of the City,. Yet today in our cities, water is largely undervalued or seen as a liability. As such, it is shunted and confined to a labyrinth of pipes concealed below ground. Although we cannot survive day to day without it, we are usually aware of water only superficially. The reduction of water to simple functions like cleaning, washing, and waste disposal reduces the intricate interplay of water with our lives to merely simplified and imprecise images. The truth is, through conventional centralized storm and sanitary water management, we have put our water resources under tremendous pressure, and the result around the world is flooding, pollution, aquifer depletion, and degradation.

Water is beginning to be recognized as one of the key issues for the future of our world. It is clear that naturally available water supplies are finite, pollution is widespread, and water plays an essential and complex role in the stability of our ecosystems. Luckily, sustainable technologies have been developed that treat water more respectfully in our urban environments. Green roofs reduce runoff by up to 80% and provide green space in our cities. Integrated stormwater retention areas allow water to rest before infiltrating back into the soil. Plant systems can be used to remove the pollution that rain washes off our streets. All of these systems can be integrated within parks and public spaces and provide leisure and recreational uses when it is not raining. Sustainable water resource management combines aesthetic appeal and technological transparency with making a significant "green" space contribution to our urban environments.

To be the Botanical Garden noted for

A WATER SYNTHESIS

presentation of plants as unique expressions of cultural traditions.

QBG Vision adopted October 21, 1997

Water was identified as a unifying element for the Queens Botanical Garden in the first phase of the Master Plan. Phase II is based on the incorporation of numerous sustainable water technologies. However, water plays a still more fundamental and vital role. Water is the material basis of a person's relationship with his or her environment. It creates links and is in a state of almost constant exchange relative to warmth, climate, air, soil, and gravity. Growth, metabolic change, and life functions are inconceivable without water. Water- related projects are perhaps so topical because they express a profound longing for life in all of its vigor. Within the context of the cultural bounty of Queens, water symbolizes our shared core of humanity.

Anyone who has been to the Queens Botanical Garden knows that it is unlike all other botanical gardens. The wedding ceremonies, the Tai Chi practiced every day, the volunteers, the children all give it a special quality: relationships and people. This is a wonderful quality, a quality that many gardens lack and would be very pleased to have. Water is about relationships. Water connects us as individuals to the environment. It helps to connect us as groups of people with sometimes conflicting points of view to one another. Water is fundamental to explaining culture, understanding our behavior, and connecting ourselves to the environment, and to how we express that connection.

In urban environments, we have been largely separated from nature, and this has had many negative consequences. Most people only know that the food they eat comes from a market; they do not know of the people, resources, and natural processes involved in bringing that food to the market. Many children (and adults!) do not know how a specific fruit or vegetable grows. They are not aware that soil is the mother to many beings on earth.

THE CULTURAL CONNECTION

The vision for the QBG is that of a botanical garden - a living museum that grows with the people who care for it and love it. It is apparent that in order to reach out to the cultures of Queens, QBG cannot simply replicate sample gardens from different cultures. Rather, it must seek a synthesis, something that is itself creative and inclusive. Water will be used as the primary voice for this vision.

Within this Master Plan, there is also a new organization of some spaces and gardens. Interesting effects have been created by exploiting the polarities of urban and rural landscapes, different cultivation realities, and the positioning of buildings according to their context within the urban fabric and the activities they host. The interaction of various landscapes - plazas, walkways, gardens, prairies, wetlands, and woodlands - interprets the relationship all cultures have had with plants since the beginning of time.

The Master Plan also adapts the age-old idea of a garden to the functional requirements of our contemporary civilization. QBG will revel in the display of innovations of the 21st century while returning to a few revolutionary examples from the past. For example, automobile traffic is handled with a new "parking garden," which is part of the garden experience rather than the unpleasant expanse of asphalt one normally endures in the urban landscape. The plan also shows how green pavements, rooftop gardens, and rainwater collection, reuse, and evaporation techniques can be combined to eliminate the impact of surface water runoff. The forgotten culture of the stewardship of indigenous trees, flowers, and prairie grasses once practiced by some Native Americans will be showcased in some of the garden landscapes, and will enhance biodiversity and learning opportunities. Visitors to QBG will be able to learn about the critical role of human activity in sustaining a huge variety of both cultivated plants and plants that are part of an interrelated native ecosystem.

THE GREEN CONNECTION

Everywhere within the gardens are spaces for people, who remain the priority of QBG. Observation decks, lookouts, gathering spaces, and places for rest are woven throughout the gardens. Hands-on experiments, a variety of water playground areas (not only for children!), performance and festival spaces, and plazas are included, as QBG continues to be a place for cultural celebrations and ceremonies. Central to the plan are the Village Gardens, which include places for children, seniors, volunteers, community members, and staff to plant, grow, and harvest fruits, flowers, vegetables, and herbs. Education, therapy, and self-development are activities fundamental to the QBG. The Master Plan offers the Garden a range of experiences designed to reconnect the inner world of the individual with the outer environment. The Garden will provide space to observe, space to watch, space to listen, space to touch, space to feel and dream and to meditate. And it will also provide space to work and care for this fragile environment.

This Master Plan is more than a strategy for sustainable water management within an urban environment! It is a vision for a new type of dialogue between people and nature. It contains ideas for a neighborhood garden working on a global scale. It is a new model for botanical gardens across the world. And ultimately it is a place where the seeds of peace can be sown, nurtured, and harvested in our complex and rich world of many peoples.

PLANTS IN COMMUNITY

2. a water synthesis

Water is a fluid element and it weaves through the Master Plan, linking together the complex and ephemeral tapestry of people plants, and environment - a water synthesis of culture and sustainability.

The next few pages are a journey around the world. They give a glimpse of some of the commonalties and juxtapositions of peoples cultural relationship to water across time, place, and meaning. There are examples from how people value water, as an elemental, life-sustaining drink, or as a medium and expression of spirituality. During our research we noticed that as well as needing methods and tools for managing water, cultures across the world depend on community and discussion for the successful enjoyment of their water resources. We also noticed the strong connection between many traditional rainwater management practices and long-term sustainability. The water features of the Master Plan will communicate examples of the cultural relationships and the spirit of this global water heritage. Dip in and enjoy the imagination, innovation, and variety.

The next few pages give a short introduction to the cultural heritage of water.

water synthesis goals:

- Communication of Queens's cultural heritage
- Living, hands-on experiences
- 0% stormwater runoff

Motivation and Methods

In a world whose surface is 71% water, only 0.01% of this is available for consumption. The United States is the biggest water consumer in the world, with each person consuming an estimated 80 gallons per day (König, *The Rainwater Technology Handbook*, 2001). High water use combined with conventional management systems results in flooding, aquifer depletion, pollution, and general aquatic habitat collapse. Water depletion is a world crisis. Water is an international resource for which every country is globally accountable. Local action is an international imperative for the next century. The Queens Botanical Garden has embraced this responsibility, and is set to lead the way in implementing a sustainable water management strategy.

too little

too much

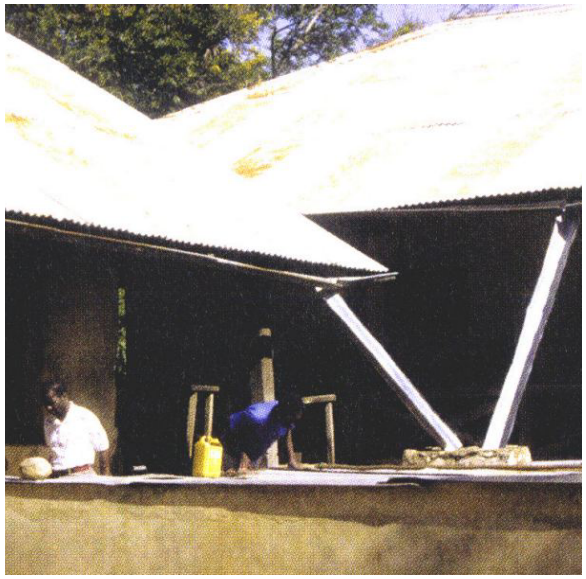
The sustainable water features of the Master Plan are an integral part in the overall stormwater management strategy for the Garden, helping to achieve the goal of 0% stormwater runoff. The sustainable water features are fed by rain collected from the roofs of the Garden's buildings. In a conventional system, as in the existing Garden, this rainwater would be piped into the sewer, where it would not be able to recharge the aquifer, and would contribute to the problems described above.

Achieving 0% site runoff is a laudable purpose for design elements, and will also contribute to the overall beauty and well-being of the site. There is, however, a possibly more important role that the sustainable water features will play - that of communication tool. The water features are like storytellers, from whom visitors to the Garden can experience firsthand the environmental history of the New York metropolitan area, the importance of water in sustaining our beautiful planet, and some of the cultural traditions, inventions, and ideas that enrich humanity.

Within this communications forum, it is also intended that there is community space for the residents of Queens. The educational messages of the Garden will not be overwhelming - people should feel at home, relaxed and receptive. In this way, as well as in fostering, discovering, remembering and experiencing, the sustainable water features aim at a creative environment, with space for nurture, peace, and celebration of the living culture of Queens.

Corrugated iron rooftops in Kenya have new value when they collect rainfall for use in the dry days, weeks, or months to follow.

1



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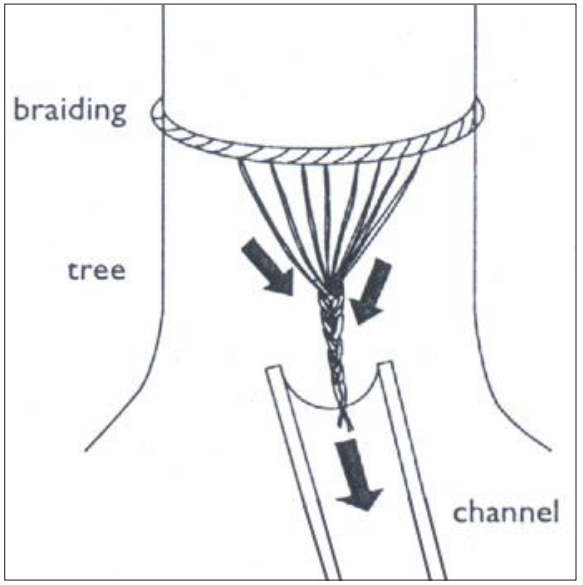
In a country famous for being wet, water inspires the reuse of roof water runoff for toilet flushing from England's Millennium Dome.



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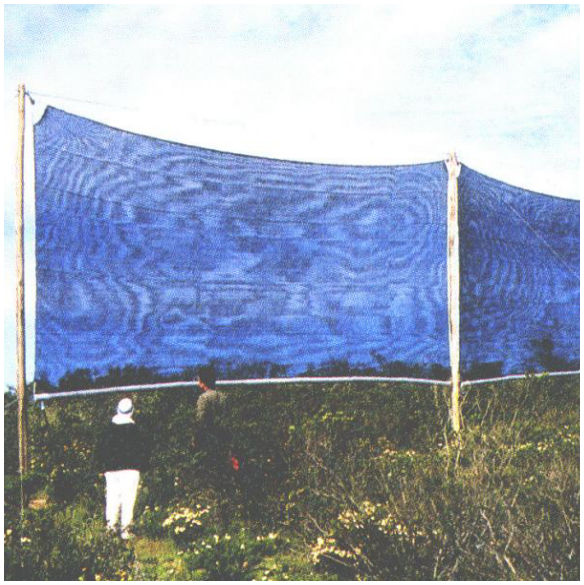
A taste preference motivates citizens of Miyake in Japan to make their tea from rainfall collected in an ingenious manner from their local trees.

A contemporary water shortage leads to an ancient solution in Chile, collecting water from fog condensation.

4



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The sedentary habits of the Zebra Finch reveal to Australian Aborigines the presence of fresh drinking water in deserts.

Terracing increases the surface area for rainwater collection on the steep mountainside in Machu Picchu, Peru.

6

Tax rebates and planning requirements encourage each house to have its own rainwater storage cistern in Barbados.

1

2

An open cistern in India collects surface runoff from the surrounding area.

3

High terraces in Sri Lanka hold water back until it is needed lower down in the valley.

A satellite photo of the east coast of India shows a landscape of "Eris" - community-maintained rainwater storage basins with a network of irrigation channels.

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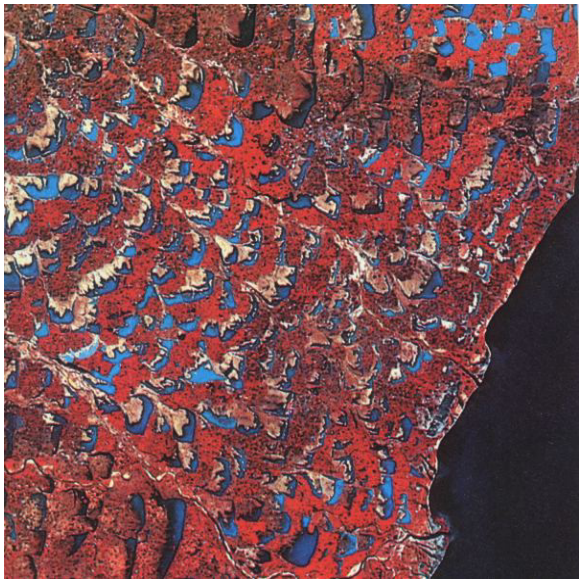

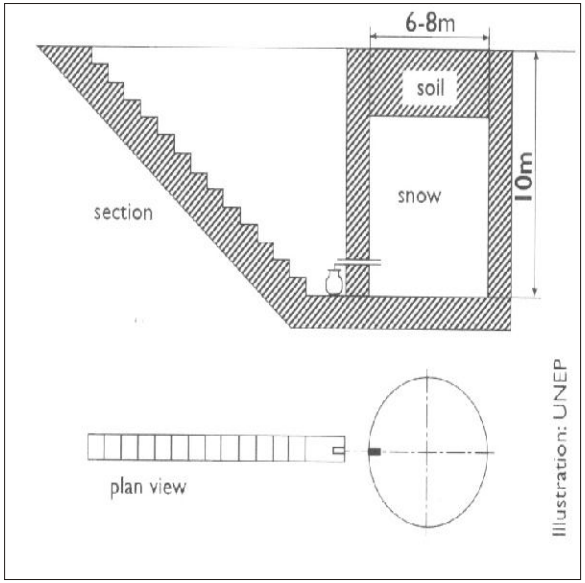

5

In the mountains of Afghanistan there is little precipitation and what there is is often snow. Waterproof underground cisterns are packed full with snow, with the melt providing water for up to two years.

Closed sluice gates in Sudan fill the irrigation channels and hold water back until it is needed.

6

Bamboo piping in Indonesia works like an aqueduct, ensuring the maximum horizontal distance covered for the available vertical drop.

1

2

Clay roof tiles are inverted to form a gutter and open pipe in Spain.

3

Stone irrigation channels built by the North American Anasazi diverted water from the mountains to the more fertile soils of the canyon bottom.

From a mountain stream, a wooden irrigation channel brings water to an orchard in Canada.

4

5

A quanat, an underground stream dug into bedrock, in Italy, slowly flows downhill and carries water across many miles.

Open canals transport water through an ancient Egyptian city.

6

Swinging water up a deep river bank in India.

1

2

An oxen-drawn cog draws water out of a well and spills it into an adjacent irrigation channel.

3

Drawing water up from the river to irrigation channels with a shadoof in Egypt.

Oxen-powered water drawer in China.

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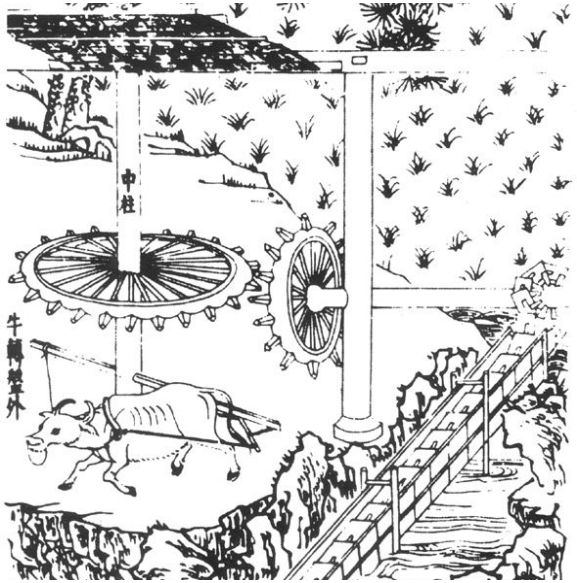

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Clay jugs scoop up water from an underground well before spilling it into an adjacent irrigation channel.

Pumping water from a lower to an upper terrace with an Archimedes screw in Egypt.

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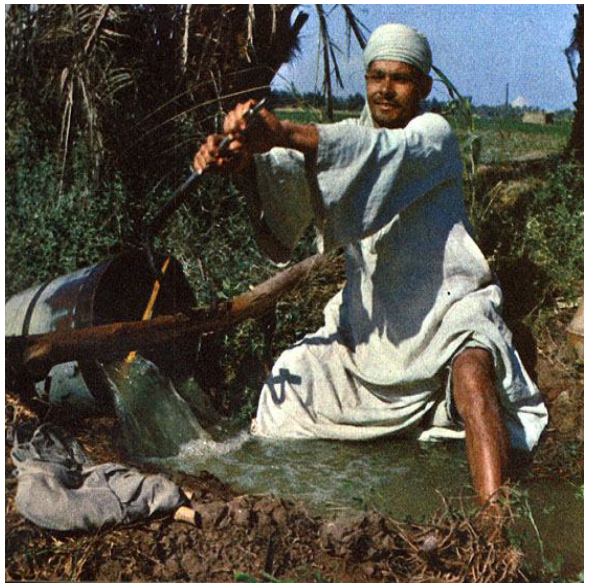

Fishing in a river in Panama.

1

2

Collecting water for cooking at a communal spring, Guatemala.

3

Using the cooling effect of evaporation and flowing water breeze to create an enjoyable living ambience in Spain.

Getting from point A to point B on Lake Nicaragua.

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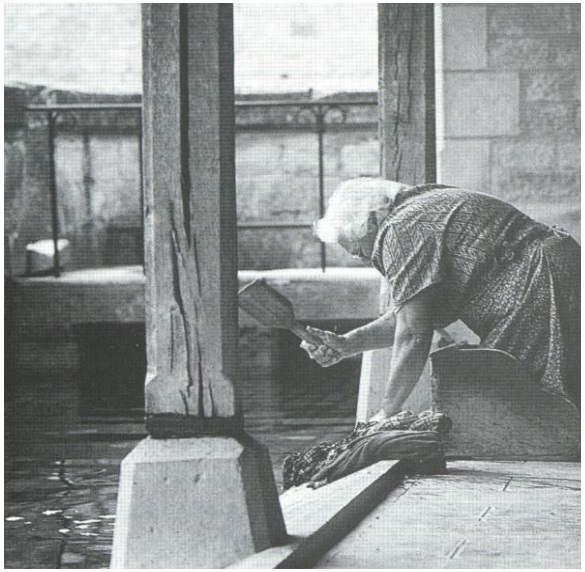


5

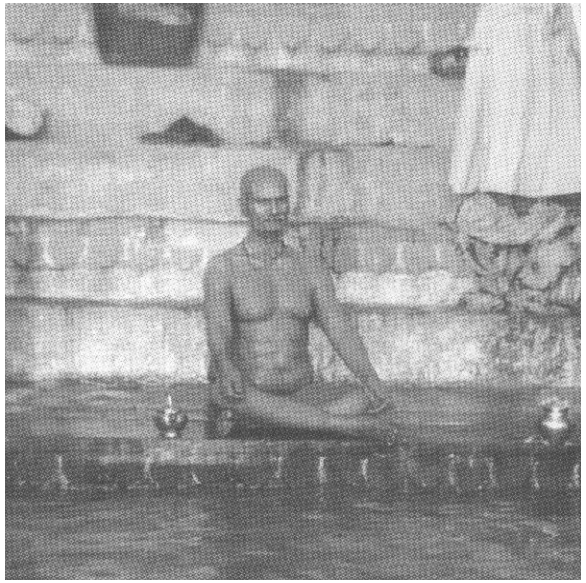
Washing clothes in France.

Creating a landscape perspective in a small garden in Korea.

6

A holy rebirth, praying at the River Ganges in India.

1



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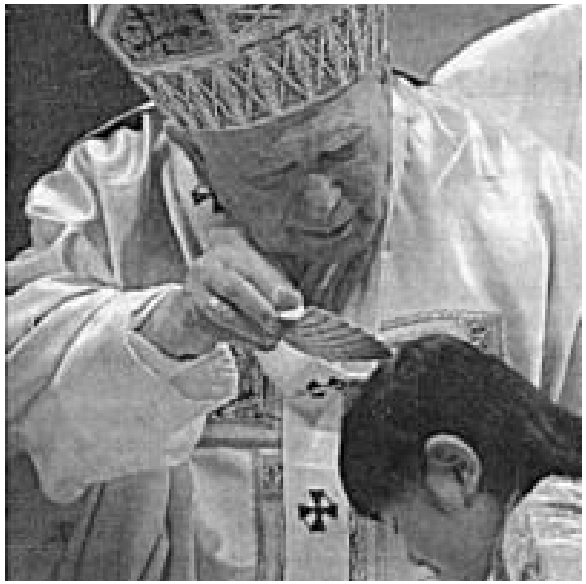
Drinking tea, a spiritual communion.



3

Reconnection to God, baptism by the Pope in Italy.

A spiritual journey, a Native American sweat lodge.

4

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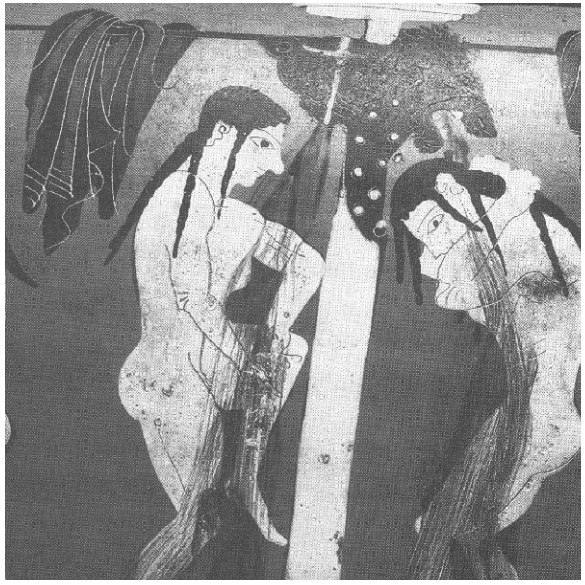
Worshiping the god of water in Kamakura, Japan.

Inner renewal, a shower in ancient Greece.

6



One of the most enduring qualities of QBG is how people from all cultures and backgrounds feel at home, happy, and alive when they are in the Garden. Through time, gardens have been places for healing, celebration, communion, solace, a chance for discovery, and a renewal of one's connection to nature. This is possible in a place where cultural connections are discovered, and things common to all people are the basis of that place. Water, earth, wind, the sun, the moon, the stars, and plants are all universal elements expressed in the landscape that people from diverse cultures relate to in similar ways. Water is perhaps the most universal of these elements. While water as a unifying element is the primary design theme for this Master Plan, other aspects of the plan reinforce cultural expressions within the Garden.

The very diversity of the cultures that have made Queens their home creates a type of unity in the community. Just as it is in a healthy plant community, the greater the diversity, the healthier and more whole is the landscape. As the Garden continues to grow and become healthier with a greater diversity of plants cared for by people who love them, they become a stronger metaphor for the community of Queens, the most ethnically diverse county in the United States.

Before the industrial age, people lived, for the most part, in harmony with natural systems. People learned through the ages how to build homes, neighborhoods, and towns in a way that took advantage of the blessings of the local climate, accommodating to the harshness of cold winters, hot summers, storms, droughts, and other naturally occurring phenomena. With the relatively recent prevalence of technology, people no longer need be so responsive to the realities of their local landscape. This can lead to a separation of people from their place, and from each other.

This Master Plan envisions the continuation and enhancement of cultural unity in the Garden through the employment of design principles, materials, and techniques that are in harmony with the place they occupy. When people see truth, honesty, and integrity expressed in stone, brick, iron, water, trees, flowers, and all of the

Early morning Tai Chi at Queens Botanical Garden. Photo courtesy of Conservation Design Forum.

The Senior Garden's weekly get-together. Photo courtesy of Lola McLinden.

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1. A garden celebration. Cultivating Sacred Spaces.
2. A celebration of music, dance, and abundance; a part of daily ritual and spirituality in Bali. Cultivating Sacred Spaces.
3. The Senior Garden at QBG. Photo courtesy of Lola McLinden.
4. Ethnic foods along Main Street in Flushing. Photo courtesy of Erin Moriarty.

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other components of the Garden, they will recognize a quality that is universal. This quality is described in Christopher Alexander's book *The Timeless Way of Building*:

> There is one timeless way of building. It is thousands of years old, and the same today as it has always been.
>
> The great traditional buildings of the past, the villages and tents and temples in which man feels at home, have always been made by people who were very close to the center of this way. It is not possible to make great buildings, or great towns, beautiful places, places where you feel yourself, places where you feel alive, except by following this way.
>
> It is a process through which the order of a building or a town grows out directly from the inner nature of the people, and the animals, and the plants, and matter which are in it.
>
> It is a process which allows the life inside a person, or a family, or a town, to flourish, openly, in freedom, so vividly that it gives birth, of its own accord, to the natural order which is needed to sustain this life.

Some ancient cultures have evolved an interpretation of this quality and how to achieve it through design. Feng Shui and Sthapatya Veda are ancient design idioms from China and India, respectively, that seek to bring the energy or life forces of nature to people through channeling that energy in purposeful ways.

18th-century Indian tapestry of the archetypal "Tree of Life." Cultivating Sacred Spaces.

These are the true expressions of culture at QBG. This Master Plan proposes that the gardens, paths, pavilions, signs, benches, and all other structures in QBG be designed and constructed with an eye to this timeless quality. It is this very quality that will serve as a most powerful unifying element. Many botanical gardens express culture through thematic gardens and plant collections based upon a particular culture, era, or type of plant. QBG will provide the community a virtually endless opportunity to seek cultural connections as communicated through ceremonies, activities, work, and play that occur in the Garden, and ultimately through the structures, plants, and landscapes.

An autumn ceremony - a time of harvest, feasting, celebration, and gratitude for abundance. Cultivating Sacred Spaces.

Cultural icons in the landscape offer glimpses of the ethnic diversity in and around Queens. The lotus (middle) is a symbol of fertility, resurrection, and the sun in many cultures. A small figurine (right) stands guard at the entrance to a garden. Cultivating Sacred Spaces.

An essential and integrated aspect of the Queens Botanical Garden's Master Plan is the use of sustainable practices in their design, construction, and daily operations. By showcasing innovative stormwater management, energy conservation, and environmental stewardship techniques such as cleansing biotopes, green roofs, gray water and rainwater recycling systems, permeable paving, photovoltaics, geothermal systems, and habitat restoration, Queens Botanical Garden will be able to demonstrate and promote a constant striving for coexistence with the planet, rather than the domination of it.

QBG has strengthened its ability to reach out to all cultures through the adoption of a mission that includes sustainability as a primary focus. There are ongoing efforts around the world to promote sustainability in ways ranging from elimination of waste in all forms to protection of water resources to promotion of social and economic justice. For example, Agenda 21 is a comprehensive plan of action to be taken globally, nationally, and locally by organizations of the United Nations, governments, and major groups in every area in which humans have an impact on the environment. Agenda 21 and the principles it represents were adopted by 178 governments at the United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil, in 1992.

The Hannover Principles authored by William McDonough for the Expo 2000 held in Hannover, Germany, include "Respect relationships between spirit and matter, Eliminate the concept of waste, Rely on natural energy flows, and Seek constant improvement by the sharing of knowledge...." (See Bibliography). These principles are closely aligned with those of the QBG.

A water system designed to cleanse and recirculate. Photo courtesy of Atelier Dreiseitl.

1. A highly visible community garden in Brooklyn, New York. The Natural Habitat Garden.
2. Getting close to water. A Child's Garden.
3. Children exploring nature. Photo courtesy of Atelier Dreiseitl.
4. A backyard water garden. Photo courtesy of Conservation Design Forum.

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The design process included a workshop focused on the application of the LEED (Leadership in Energy & Environmental Design) Green Building Rating System to direct every aspect of the planning efforts toward a “green” approach. The LEED system was considered as a way to establish a baseline consistent with a nationally recognized standard.

A more local sustainable reference is the City of New York Department of Design and Construction's High Performance Building Guidelines manual. The goals of the manual are consistent with those of QBG regarding being a highly visible green demonstration for the community and region.

These green ideas will be manifested in the gardens, structures, and facilities of QBG in a variety of ways. For example, rainwater will be collected and used for irrigation, natural systems, and water playgrounds, converting what has been a liability of flooding into an amenity, and virtually eliminating the negative impact of surface water runoff. Over time, the energy used at QBG will be generated from renewable sources such as wind and the sun, saving money and lessening dependence on diminishing conventional energy resources. The materials and techniques used in the establishment and care of the Garden will be selected for their "green" characteristics. QBG will continue to serve as a demonstration to the community in these areas.

A local resident, Yakub Khakhamov, tends the QBG bee garden. Photo courtesy of Audrey Gottlieb.

Gerould Wilhelm explains the importance of the native landscape at Bluff Springs Fen, IL. Photo courtesy of Conservation Design Forum.

1. A green roof in Germany. Photo courtesy of Conservation Design Forum.
2. A rainwater collection detail. Photo courtesy of Lady Bird Johnson Wildflower Center, Texas.
3. A parking garden pavement detail. Photo courtesy of Conservation Design Forum.
4. A rainwater cistern. Photo courtesy of Lady Bird Johnson Wildflower Center, Texas.
5. A parking garden in Germany. Photo courtesy of Conservation Design Forum.

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Restoration is the process by which human beings relearn the realities of a place, the importance of acquired wisdom and knowledge, and the relationship that the resident culture must develop with the place. Such wisdom and knowledge is relearned by attempting to recreate the habitats necessary to sustain all of the species of plants and animals native to the place where one lives.

But what do we mean when we say we want to create habitat or to restore the landscape, or restore the health of the earth? What is it that needs to be restored? How do we know when the land is healthy?

One way of approaching the answers to these questions is to regard a culture or a population healthy so long as it continues to renew itself with each passing cycle of the seasons or with each new generation of individuals and families. The health of a human culture is dependent upon the behavior of the individuals within it and the choices society makes with respect to its relationship with the earth and all other living things. Each individual in a culture is unlike any that has ever lived or will live again. Each is born with a unique combination of genes that the culture has never experienced before, and each is born into a time and circumstance that has never been before or will be again. The individual is reared in the ways of the people by the family within the culture, and draws strength and experience from the knowledge and wisdom of elders.

So it is with the ecosystems of the earth itself. The warp and weft of life on any given acre of the earth is unique. No other complex of genetic expressions has such an experience of the singular geological, historical, and climatic definition of a place as the living things native to it. With each passing season, there is a propagation of young with genes that are at once nearly identical to their parents, yet manifesting combinations of genes that have never been before. With the inborn experience of longtime residence in their habitat, they are at the same time equipped to accommodate subtle shifts in climate.

Schuelenburg Prairie at Morton Arboretum, IL. Photo courtesy of Conservation Design Forum.

The gardens developed with the landscape typology of "Plants in Community" will add to the plant collections at QBG a dimension simply unavailable to other garden institutions in the area (and unavailable to most such institutions throughout the world). The plants nurtured in a habitat to which they are genetically adapted will make children, and thus communicate the essence of a sustainable cultural relationship between plants and people.

1. Sky blue aster. Photo courtesy of Conservation Design Forum.
2. People in nature. Photo courtesy of Conservation Design Forum.
3. Thimbleweed. Photo courtesy of Conservation Design Forum.
4. A small stream winds its way through a water garden. Photo courtesy of Conservation Design Forum.

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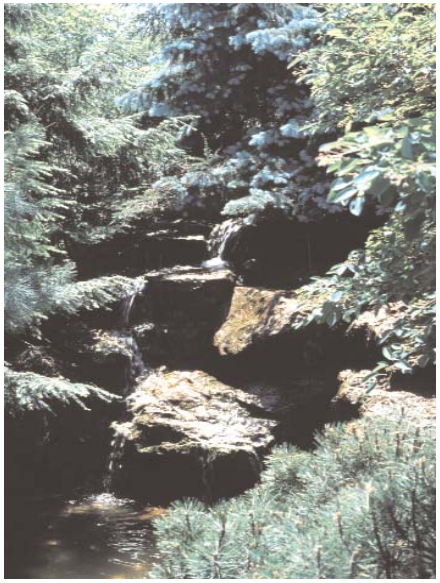
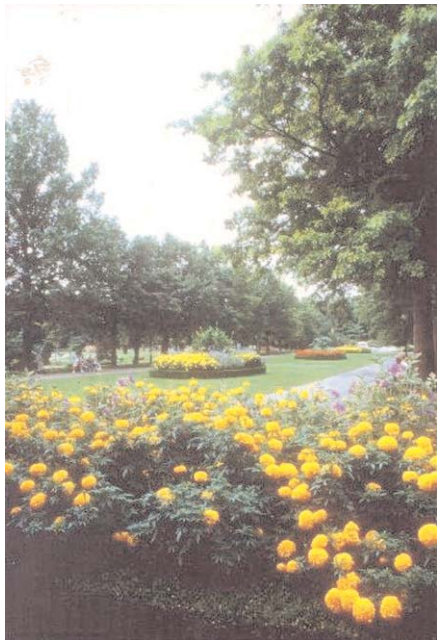


Queens Botanical Garden will honor the past, celebrate the present, and welcome the future cultural landscapes of Queens, an area that has changed significantly since William Prince established the first commercial plant nursery in Flushing in 1737 and one that has continued to change.

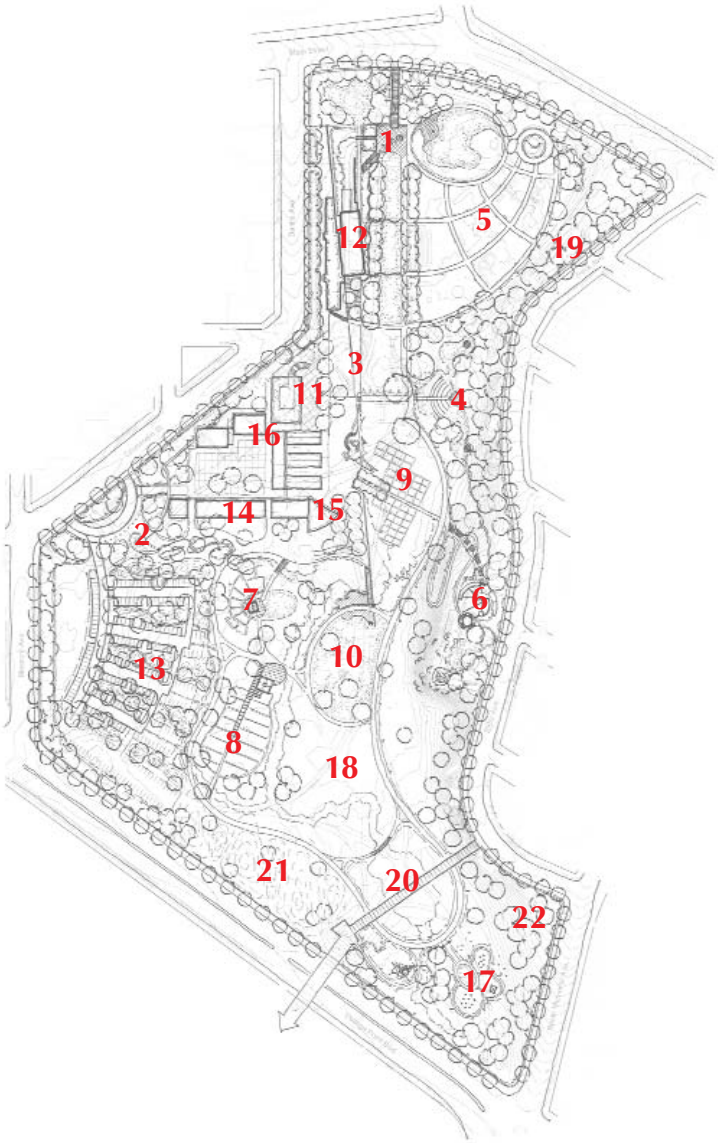
The diverse plant collections will be developed to highlight cultural traditions, inviting visitors to experience their culture outside of its immediate setting and explore the traditions of others. The Garden will do this by creating relationships with people who have knowledge of the uses of plants, and by collecting and exhibiting plants that are especially meaningful. The Garden will give primary attention to plants significant to the ever-changing population of Queens, and also promote sustainability through selection of plants appropriate to the site, through environmental landscape practices and through the wise use of natural resources as demonstrated by various cultures. Plant selection and care will be informed by the multiple uses of the collections - for beauty and interest, education and research - by people both on-site and off. The dual focus on cultural traditions and sustainability, combined with the "collecting" of the people who have the knowledge of the use of plants, will provide Queens Botanical Garden with the framework for an interesting and meaningful public garden for residents of Queens, a gateway to America, and people of the world. With these ideas serving as a framework the Garden will develop a specific collections policy to help realize all envisioned in the Master Plan.

The Pin Oak Alleé at Queens Botanical Garden. Photo copyright Christine M. Douglas.



The peeling bark of a river birch. Photo courtesy of Conservation Design Forum.

The delicate blooms of bleeding heart. Photo courtesy of Conservation Design Forum.



Garden Key

The 2001 Master Plan

The following is a list of the various gardens and program elements being implemented within the Master Plan. Each garden, building, plaza, or element will be developed to reflect the four interrelated themes -a water synthesis, the cultural connection, the green connection, and plants in community - in order to form a cohesive vision.

1. Main Street Entry Plaza and Pin Oak Alleé
2. Welcome Garden
3. Central Plaza/Water Play
4. Couples Garden
5. Gardens on Parade and Cherry Circle
6. Sun and Moon Garden

   The Village Gardens
7. ...Children's Garden
8. ...Senior Garden
9. Horticultural Heritage Garden
10. Celebration Green
11. The Events Center
12. The Administration Building
13. The Parking Garden
14. The Education Center
15. The Visitor Center and Café
16. The Maintenance Facility and Greenhouses

    Wildlife Gardens
17. ...Bee City/Bird Garden
18. ...Prairie
19. ...Woodland
20. ...Wetland
21. ...Ridge and Swale Garden
22. ...Savanna

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WATER SYNTHESIS

THE CULTURAL CONNECTION

THE GREEN CONNECTION

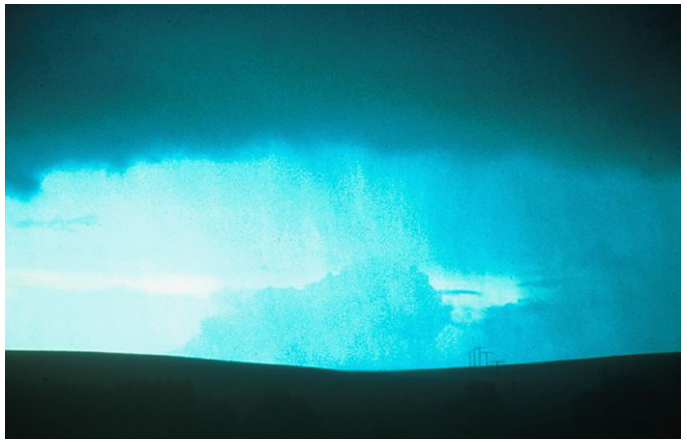
PLANTS IN COMMUNITY

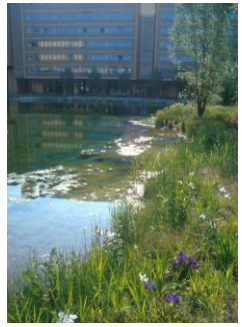
Rainwater Recycling

Every year 45 million gallons of precipitation fall within Queens Botanical Garden; the majority of this rain will be soaked up by the ground. However, there are three significant areas in the Master Plan proposed to have impermeable surfaces: 1) around the Central Plaza, Education Building, and Visitor Center; 2) around the Administration Building and Main Street entrance; and 3) the Parking Garden. The Master Plan proposes a rainwater recycling concept that collects and reuses this runoff as an integrated element of the overall stormwater management strategy.

In addition to sustainability goals, the recycling concept is particularly motivated by the special intent of using water to express the cultural heritage of Queens with water features. The resulting idea is very simple: collect rainwater runoff from impermeable surfaces, such as roofs or paved areas, and reuse it for cultural water features. The collected water is stored in cisterns, and treated with planted cleansing biotopes, with extra mechanical filters when necessary, as for vehicular-surface runoff.

This very simple concept of capture and reuse within the three impermeable areas of the Garden represents a total water savings of 12 million gallons of water per year. In each area the concept is applied differently according to its potential. In the parking area, the use of permeable surface and infiltration swales limits the initial amount of runoff. The remaining water is used for creating a wetland habitat. In the Administration Building area, green roofs are used to similarly limit the initial amount of runoff, as well as to provide the additional advantages of extended roof life span, evaporation, and creation of habitat and green open space. The remaining runoff is used for water features and irrigation. For the Central Plaza area, the concept focuses on collecting the maximum amount of rainwater for reuse in the cultural water features.





The process of rainwater recycling begins with a rain shower (top), continues with an underground rainwater storage cistern (middle), and is completed with various rainwater recycling systems (bottom). Photos courtesy of Atelier Dreiseitl.

45 million gallons of water falls on the Queens Botanical Garden annually.

irrigation

water features

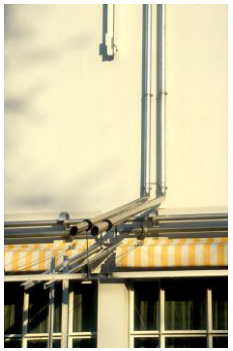
12 million gallons of water can be collected, cleansed, and reused on site.

Water Collection

Within the rainwater recyling system is a collection concept that differentiates between rainwater qualities. Paved ground surfaces often represent a large resource for rainwater collection. Sometimes, however, this water picks up dirt and particles from the ground, including oil and grease in areas where vehicles operate, as in the maintenace yard. In this case the runoff needs to be cleansed, and is not suitable for high-contact uses, such as water features. It represents, however, a valuable resource for low-contact uses, such as irrigation and machinery or tool washing. Rooftop-collected rainwater only comes into contact with the roof surfaces. With proper design and maintenance, this rainwater is suitable for high-contact use.

Roof runoff water is collected directly in downspouts and drains. This water is stored in a central cistern, and as it circulates through the water-features systems, it passes through a cleansing biotope. By removing algae and dirt particles, this system ensures good water quality.

Surface runoff is collected from the maintenance courtyard and hard paved areas around the Central Plaza, Events Center, Visitor Center, and other buildings. The collected water is treated with a mechanical filter to sort out any large debris before being treated in a natural-plant cleansing biotope. The cleaned water is stored in a cistern, from which it can be used for irrigation and cleaning tools and machinery.

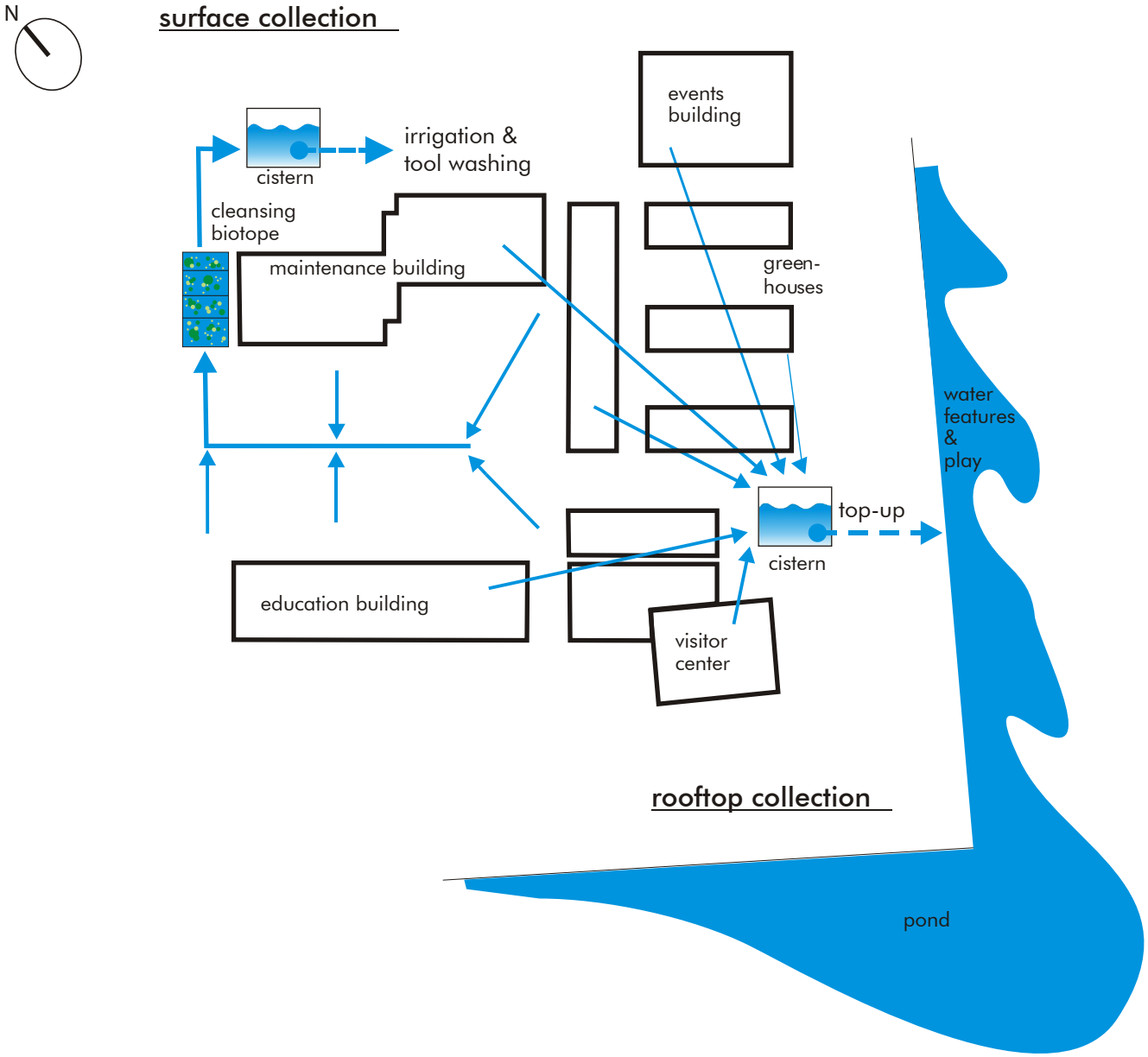


Roof surfaces for rainwater collection and a downspout detail. Photos courtesy of Atelier Dreiseitl.

Total annual collected runoff from Central Plaza and Visitor Center Complex = 3.5 million gallons

Annual Water Potential for Central Plaza and Visitor Center Complex

	area	impermeability	runoff	cistern capacity
roof surfaces	33,379 sq ft	100%	117,128 cu.ft	8,200 cu.ft.
surface areas	107,339 sq ft	90%	338,987 cu.ft	15,650 cu.ft.
total	140,718 sq ft		456,115 cu.ft	23,850 cu.ft.


N
surface collection
events building
irrigation & tool washing
cistern
cleansing biotope
maintenance building
green-houses
water features & play
top-up
cistern
education building
visitor center
rooftop collection
pond

Water Circulation

The Master Plan contains twenty-seven different water features. The water is a synergistic element. It binds the complex and subtle fabric of sustainability, culture, and botany. From the sustainable point of view, the water features are part of the overall stormwater management system, achieving 0% stormwater runoff, as well as evaporation and aquifer recharge. On the cultural side, the water elements provide a medium for expressing the heritage of Queens. Botanically, water helps create a diverse range of habitats.

Circulation is an important water management tool. As it aerates and cleanses, water quality is assured. It is also important in maximizing the effectiveness of the collection, storage, and distribution of the water. In this concept, systems I and V are independent systems whereas systems II, III, and IV are interlinked by the sharing of a storage cistern and the central pond as a storage reservoir.

System I - runoff is collected from the Administration Building roof and used to top up a series of water features in and around the building.

System II - "urban" water features as well as water play areas with cultural water elements are supplied by roof-collected rainwater.

System III - water is drawn to a cistern on the high ground of the Sun and Moon Garden where it reappears as a spring-fed stream that includes interactive areas with cultural water elements. The stream meanders toward the Couples Garden where it collects as a pond before continuing on to the water axis. Here water flows through the water play areas before returning to "Mill Creek Pond."

System IV - roof-collected rainwater bursts forth in a fountain at the Crommelin Street entrance to the Garden. From here it meanders through the plantings in runnels, drawing the visitors into the Garden before the water falls into the wetland area near the Children's Garden and then recycles back to the entrance.

System V - excess storm runoff, parking runoff, and the natural drainage of the land collects in a wetland depression. Sometimes wet, sometimes dry, this is an area characterized first by its vegetation. This is the only system that does not circulate water.

System I (copyright Robert Woodward)

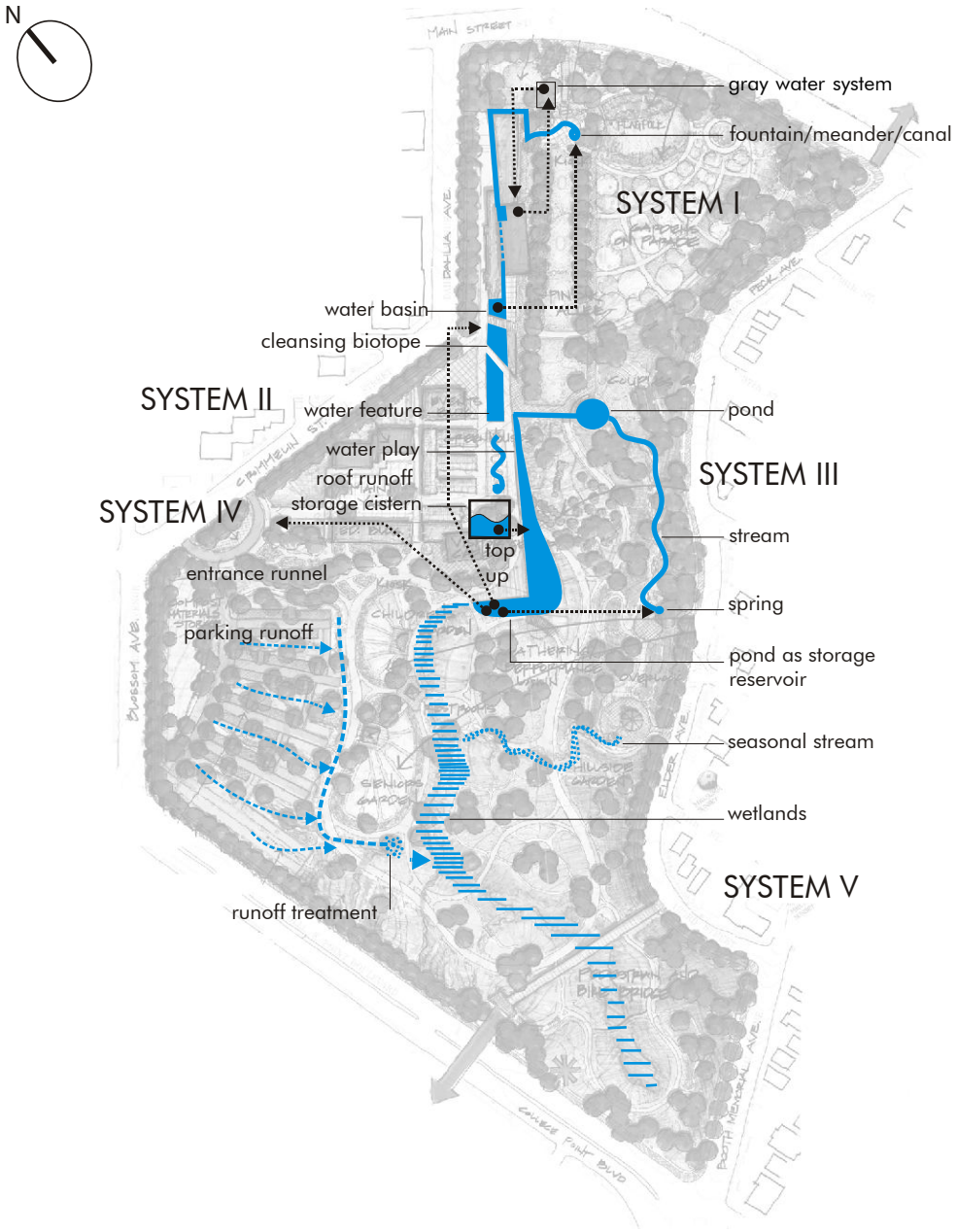
System II

System III

System V (below)

System IV

Images are representative of systems being designed for Queens Botanical Garden. Photos courtesy of Atelier Dreiseitl.



All systems are rainwater-fed!

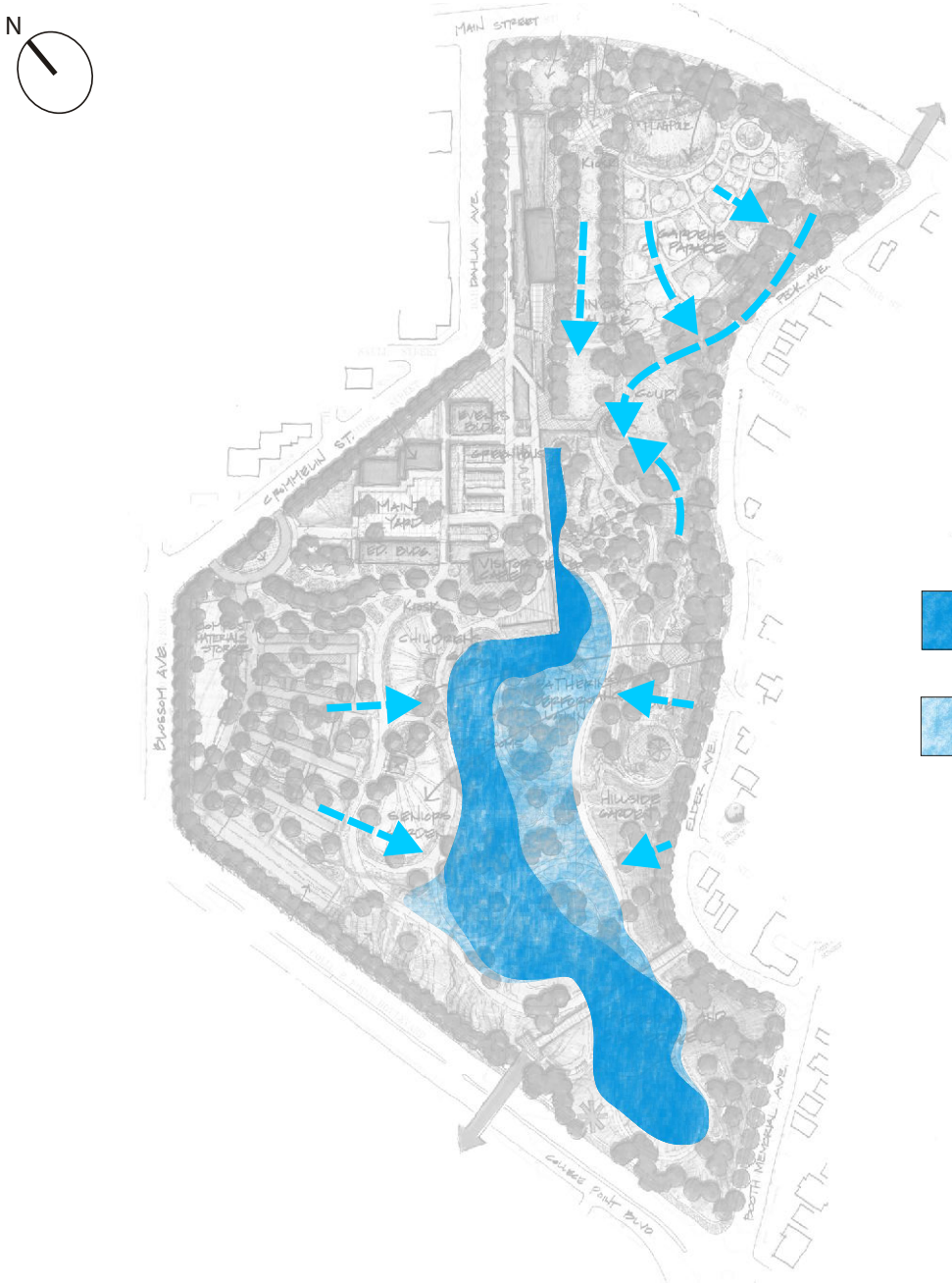
Water Retention

Asphalt, concrete, steel - up to 80% of our cities is surfaced with impermeable surfaces such as these. This means that when it rains, instead of being soaked up by the soil and into the ground, water runs off into gutters and drains and combined sewer systems, and eventually ends up in streams, rivers, and bays. This causes many problems, not the least of which is all the pollution that washes directly into streams and bays. Not so noticeable in the greater New York area but equally serious is the habitat depletion caused by this stormwater runoff. Because there is no time for rainwater to recharge the groundwater, the water level of rivers, streams, and marshland drops, causing plants to die and breaking the whole ecosystem chain.

The Queens Botanical Garden is leading the way toward a sustainable future with a 0% stormwater runoff goal. This is a major achievement for a public institution in a dense urban environment. The Master Plan proposes a stormwater retention concept that fufills this responsibility while viewing it as an opportunity for habitat creation and as a response to the unique seasonal attributes of Queens.

A core inner wetland area is characterized by wetland plants; this feature is intended to recall the heritage of Mill Creek, now hidden beneath the site. The water level of this area responds to the seasonal and annual quantities of rain - vagaries that encourage and support a diverse plant life. To the southeast of this zone is a buffer area that may flood up to 9 inches in very extreme and prolonged storm events. The planting character of this zone is less obviously "wetland" to the eye, but biologically it creates a rich transition zone between the wetland and non-wetland areas. This once-in-a-hundred year stormwater retention area means that even in extreme conditions the Garden will achieve its goal of 0% stormwater runoff. In this manner, the Garden significantly contributes to improvement of stormwater management in Queens.

Photos courtesy of Atelier Dreiseitl.

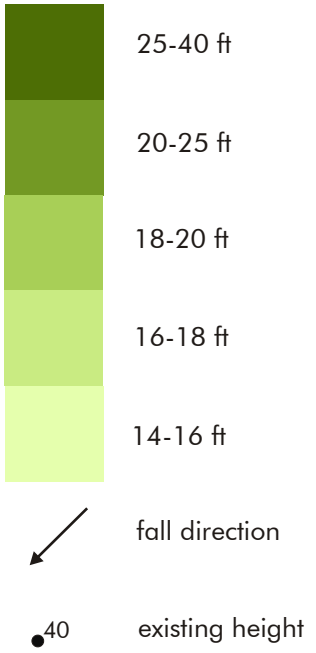


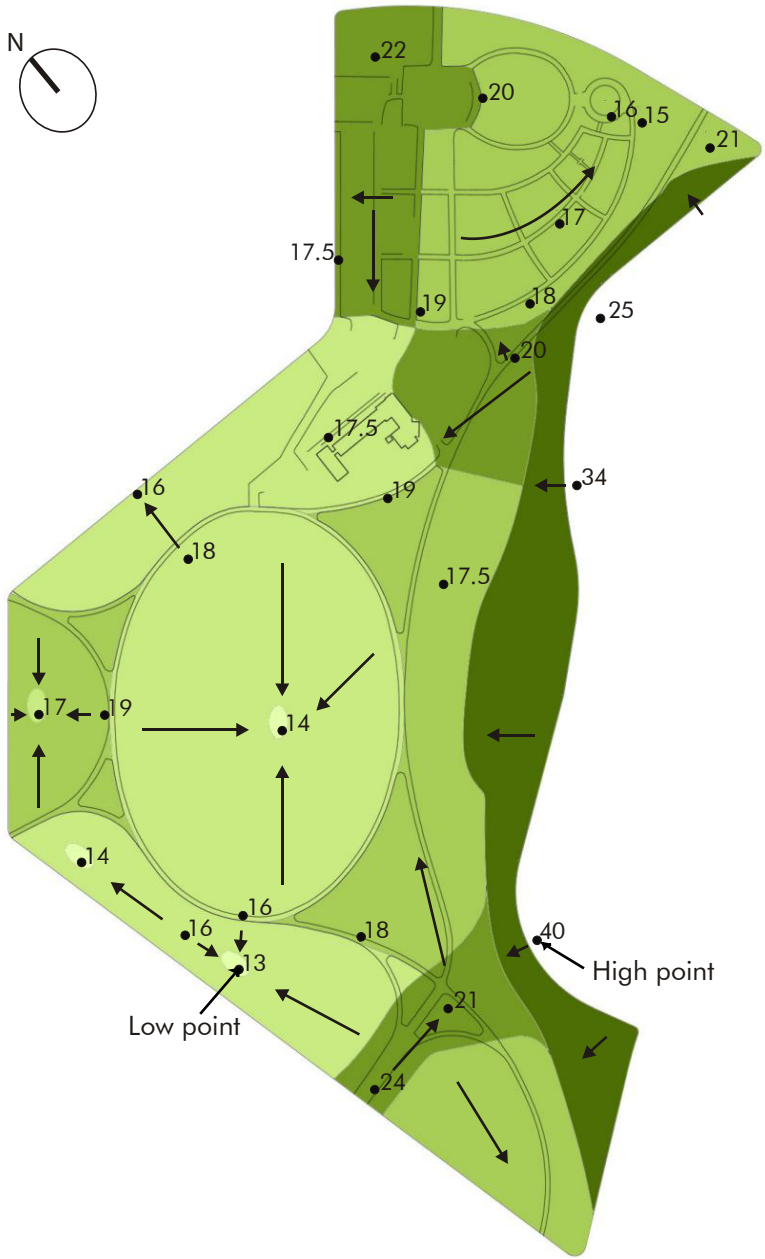
= 1-in-10 year stormwater retention area

= 1-in-100 year stormwater retention area

Existing Grading and Drainage

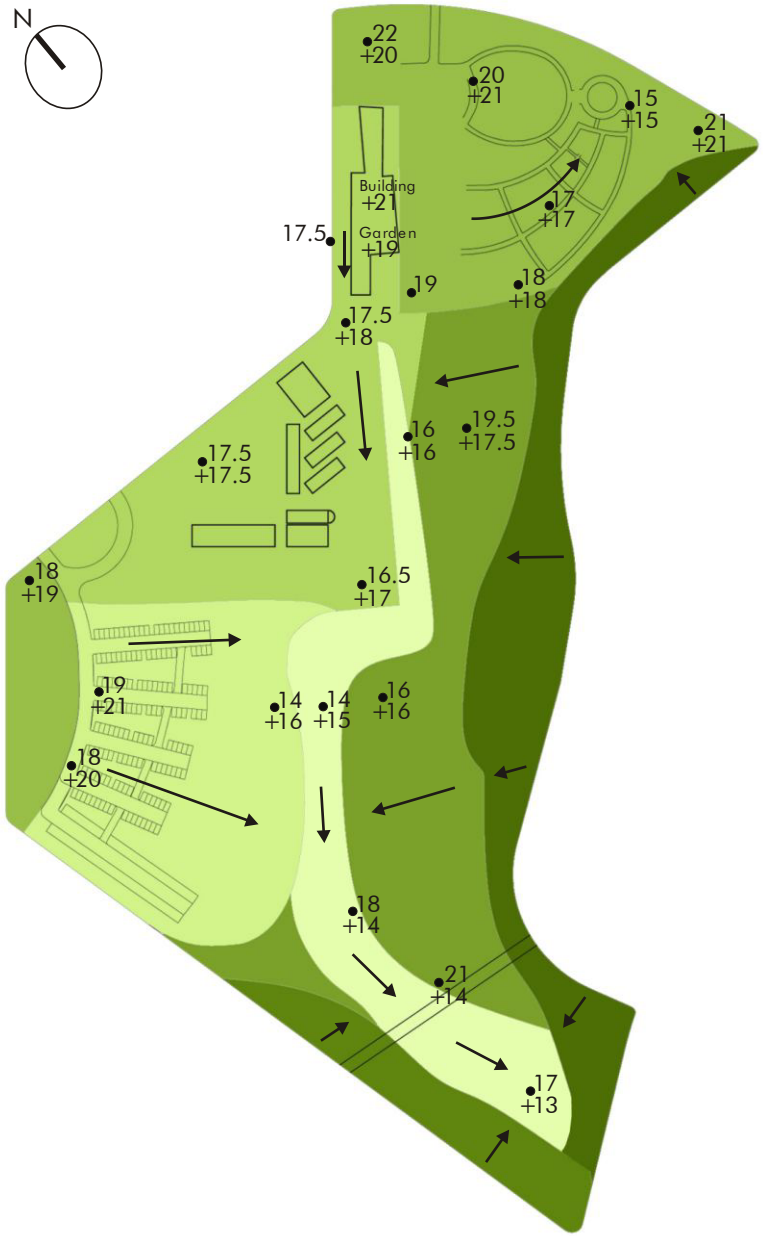
The existing site is characterized by a sloping hillside to the south and otherwise a flat and open character. The lowest portion of the Garden, contained within an oval pathway to the southwest, is somewhat bowl-shaped and sinks to 13 feet above sea level, the lowest point of the Garden. Because of the nature of the site soils, this open and flat character has led to irregular drainage and frequent waterlogging.

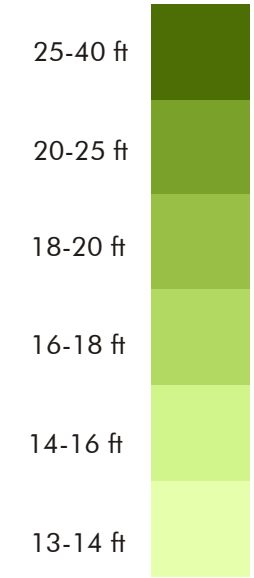




Proposed Grading and Drainage

The proposed grading and drainage looks to restore the legacy of Mill Creek through a low-lying wetland area that meanders through the center of the site, connecting to the water areas along the pedestrian plaza. The site drains to this area to reduce waterlogging of garden and path areas. The parking and Village Garden areas are raised to allow positive drainage to the central water feature. The distinctive and characteristic southern hillside remains.

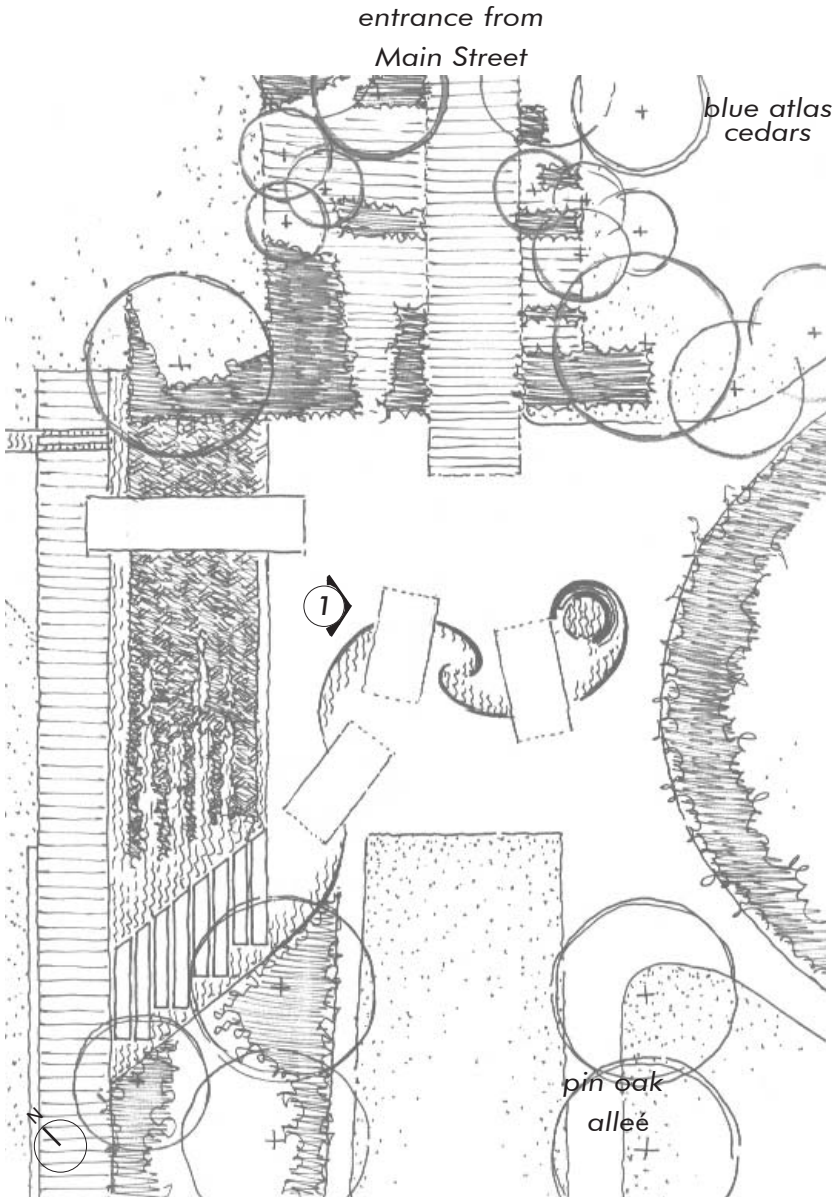




fall direction

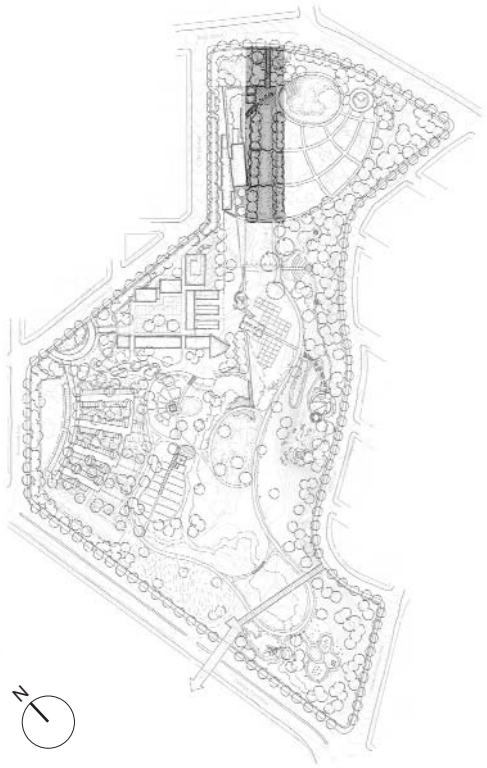
existing height 40

proposed height +18



1. View looking across Entry Plaza toward the Cherry Circle.

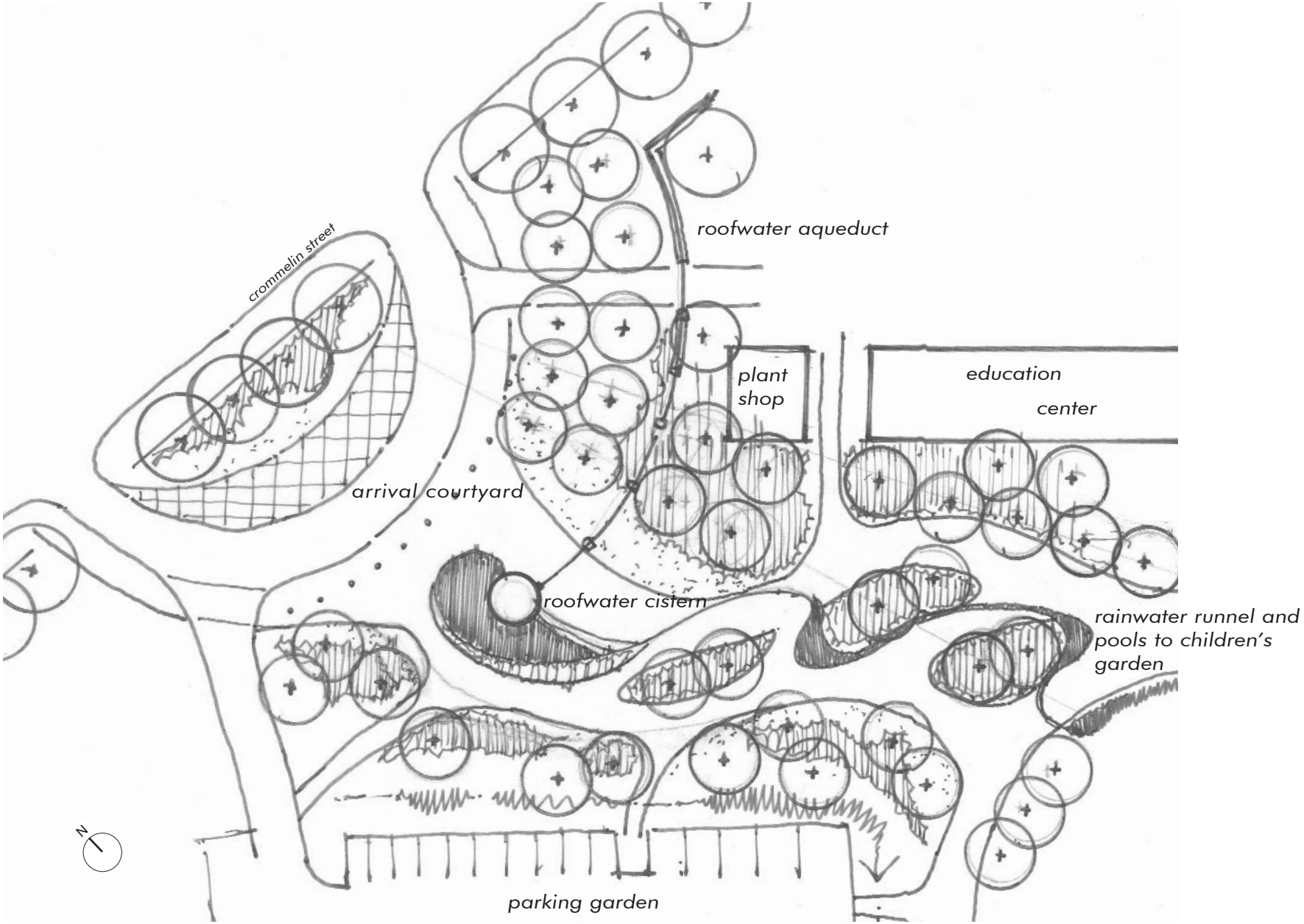
A community meets to discuss their water. Photos courtesy of Atelier Dreiseitl.



MAIN STREET ENTRY PLAZA AND PIN OAK ALLEÉ

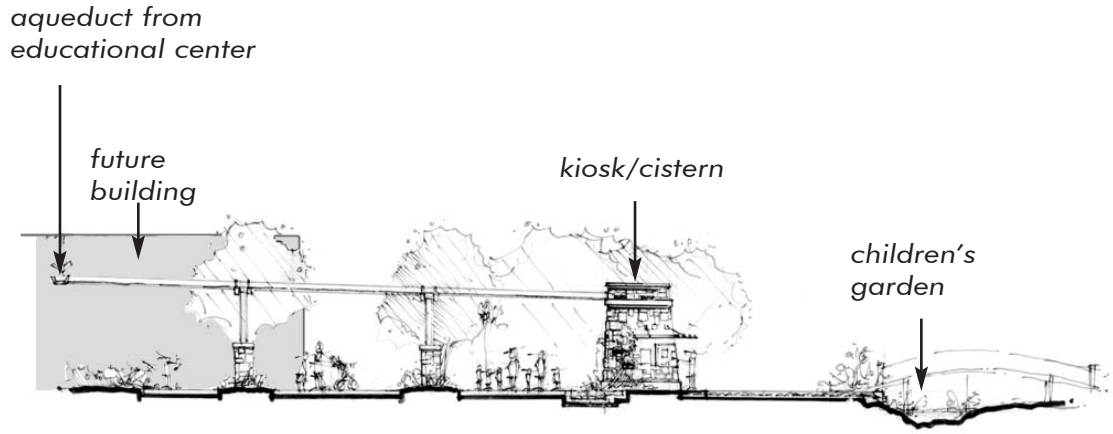
Coming along Main Street, visitors will enter Queens Botanical Garden through the new Main Street Tree Gate, a steel tree sculpture that heralds your arrival. Moving beneath the steel canopy, visitors will pass by the Blue Atlas Cedars, reminder of the 1939 World's Fair, and through a small grove of trees where the plaza will open up before them, offering magnificent views down the Pin Oak Alleé. Coming into the plaza, people will be treated to an artistic display of water that will tempt children and adults alike to follow its path toward the Administration Building. Here, the water moves seamlessly through the walkway, into a reflecting pool, and seems to disappear around the building, flowing past the green roof.

The plaza has a constructed wetland that will cleanse and recirculate gray water from the building (gray water is any water from sinks, showers, dishwashers, etc.), providing water for irrigation when needed. A small boardwalk across the constructed wetland leads visitors to a footpath that winds its way up the green roof, where visitors will get a glimpse of the Garden from the "terrace in the trees." From this vantage point, people will see where the water feature below recirculates between the Administration Building wings.

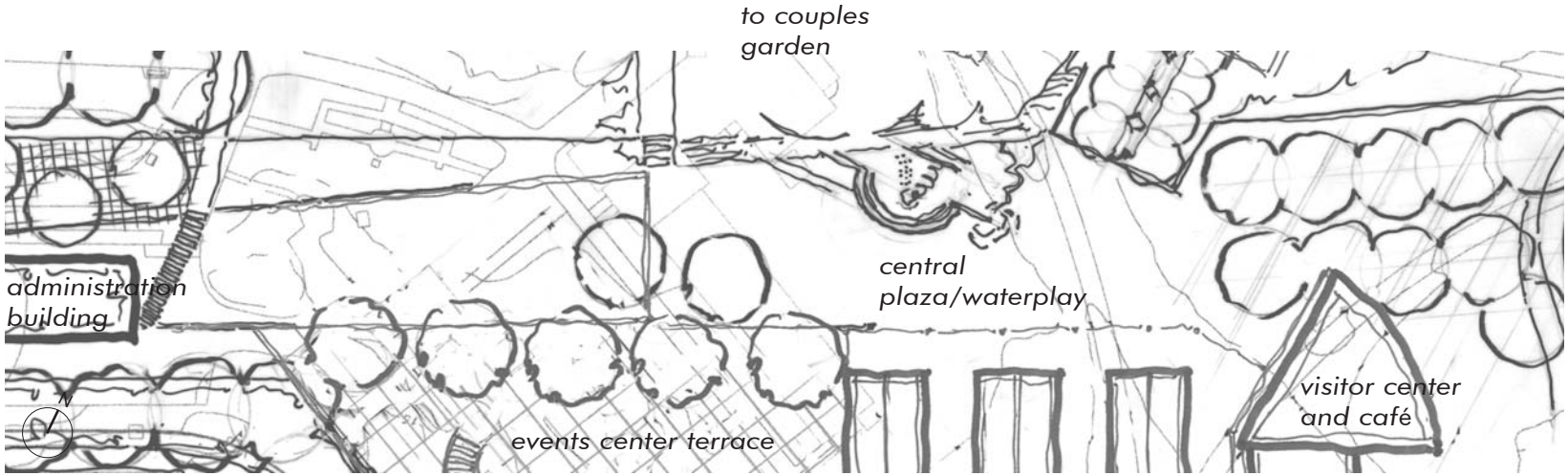

crommelin street
roofwater aqueduct
plant shop
education center
arrival courtyard
roofwater cistern
rainwater runnel and pools to children's garden
N
parking garden

WELCOME GARDEN

Every place within QBG will be a destination; the Central Plaza is no exception. As they exit their cars, visitors will enter the Garden through a number of "layers" or rooms. The first layer, an entry gate, also functions as an aqueduct, moving water from rooftops into a cistern where water will be brought to the walkway in various displays, allowing visitors to follow its course through vegetated islands, much as a river meanders through nature. Winding their way through the next layer, vegetated islands and tree canopies, guests will find themselves at the Visitor Center, where they will be afforded magnificent views across the Garden.



Welcome Garden elevation of cistern and aqueduct system.






Photos courtesy of Atelier Dreiseitl.

CENTRAL PLAZA

How do we bring beauty and fun into our living environment? Along the Central Plaza there is a space where children and adults will explore and learn more about the natural art of water. Water is the axis that joins the naturalism of landscape, environment, and habitats with urbanity, cultural practices, and social needs. This is an area for developing a new vision of how we interact with our environment - the tools for vision-making are drawn from across the world.

Children draw water from a well with the help of a pulley. Photo courtesy of Atelier Dreiseitl.

Children play with water transportation elements from different cultures and times within comfortable view of their parents enjoying some refreshment in the café.

Rotating wheels and cogs help dip clay jugs into an underground water source.

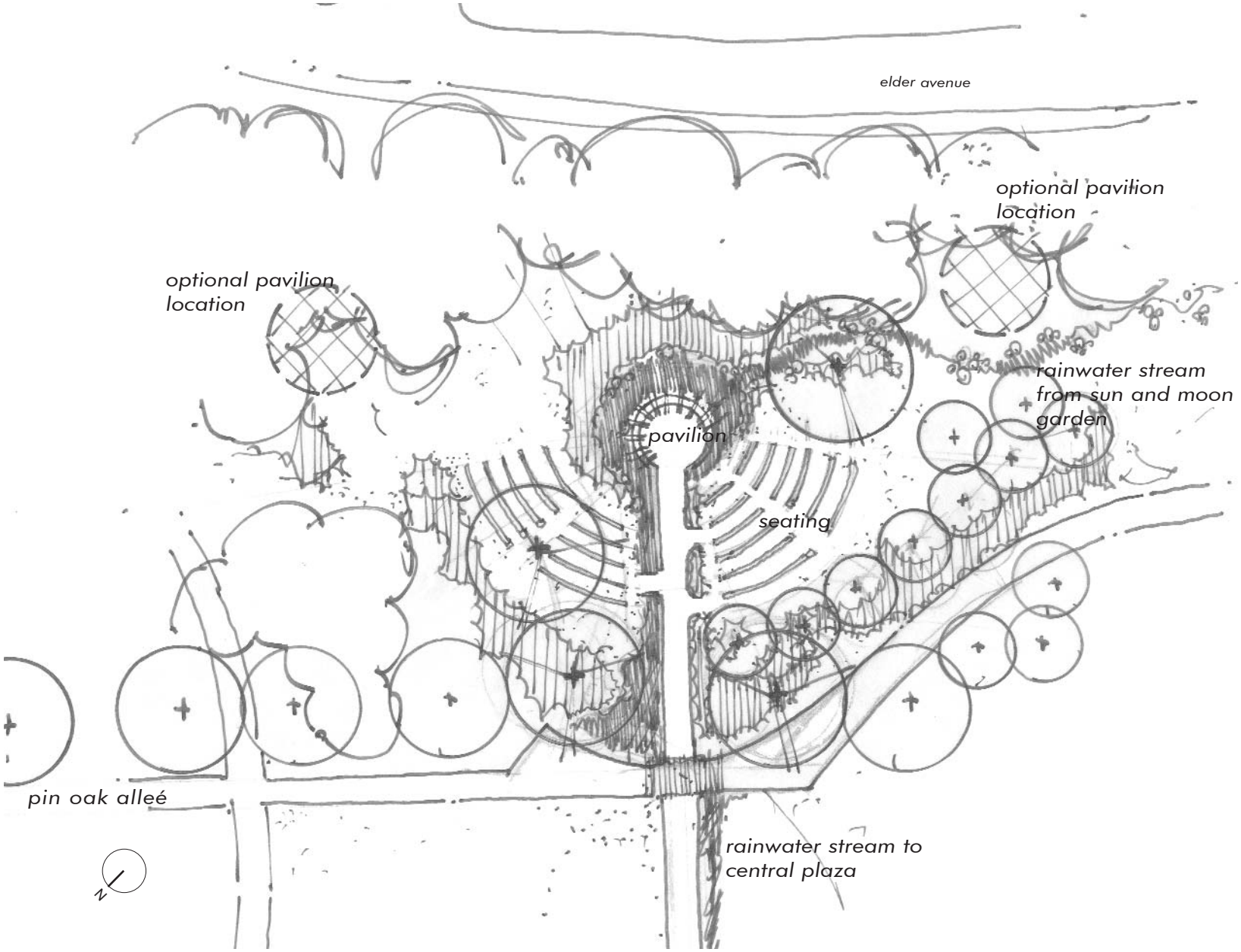
Pulleys and cattle help reduce the weight of lifting water in India. Photos courtesy of Atelier Dreiseitl.

Water Play

From Egypt to China, India to America, in fact all over the world, irrigation has been used to sustain hungry populations. Water is essentially heavy and, as we all know, difficult to hold. There is a wealth of innovation in how to overcome these physical challenges, which has resulted in "machines" that are fun and clever. These water play elements teach a lot about physics and nature.

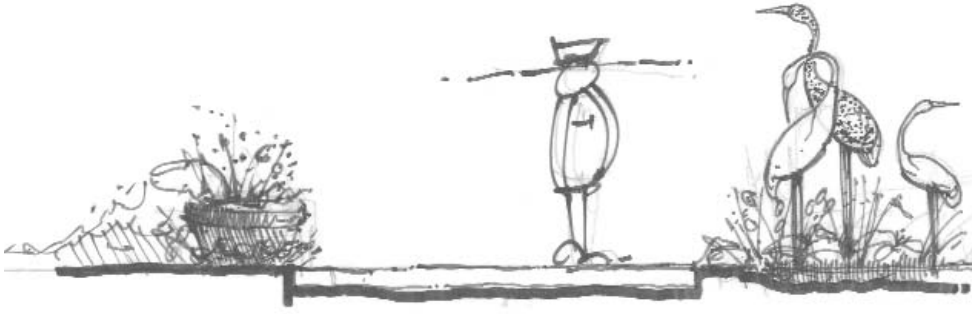
These cultural irrigation elements are envisioned as part of the water play area along the central plaza. One of many "spaces for exploration," it offers a dynamic space for free and spontaneous play and experimentation. Children will share the spirit of different cultures across the world and time, learning through their own experiences. Simple signage can relate some key information about where and how these cultural irrigation elements are used.

A Chinese painting from 1637 shows rotating wheels drawing water out of a river.


elder avenue
optional pavilion location
optional pavilion location
rainwater stream from sun and moon garden
pavilion
seating
pin oak alleé
rainwater stream to central plaza
N

THE COUPLES GARDEN

As one of several places within QBG where vows can be exchanged, the Couples Garden will be located along a quiet edge of the Garden that allows for passersby to see in but offers a quiet place for those within. Water will play a key role in defining and enclosing the space as will colors such as red, symbolizing love and joy in China and other parts of Asia, and considered lucky since the Ming dynasty in China; white, symbolizing purity; and yellow, symbolizing friendship. Plants will be used throughout to evoke cultural connections, such as holly and its berries, which are associated with John the Baptist and Christ His Passion in Christian symbolism. Various elements within the Couples Garden will evoke cultural traditions as well. The pavilion, where vows will be exchanged, is circular as is a ring, symbolizing engagement in Filipino customs. The pavilion will also be large enough for families to gather and share a *cha tao* or tea ceremony, used in Chinese traditions. Cultural icons may be incorporated as well, watching over each ceremony, a visual acknowledgment of the ceremony. Participants will be given a chance to organize the wedding party before being directed through the Central Plaza where the public can view the bride and groom before they enter the garden.



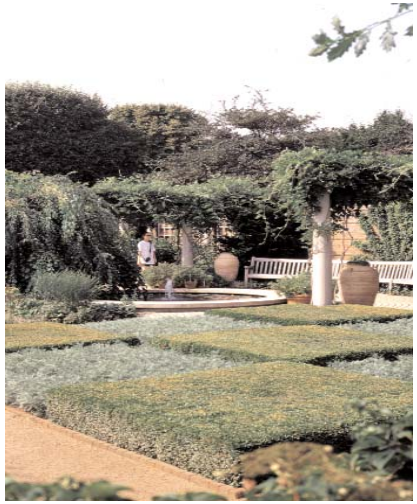
Crane sculptures represent loyality as well as faithfulness and immortality in various cultures.

GARDENS ON PARADE AND CHERRY CIRCLE

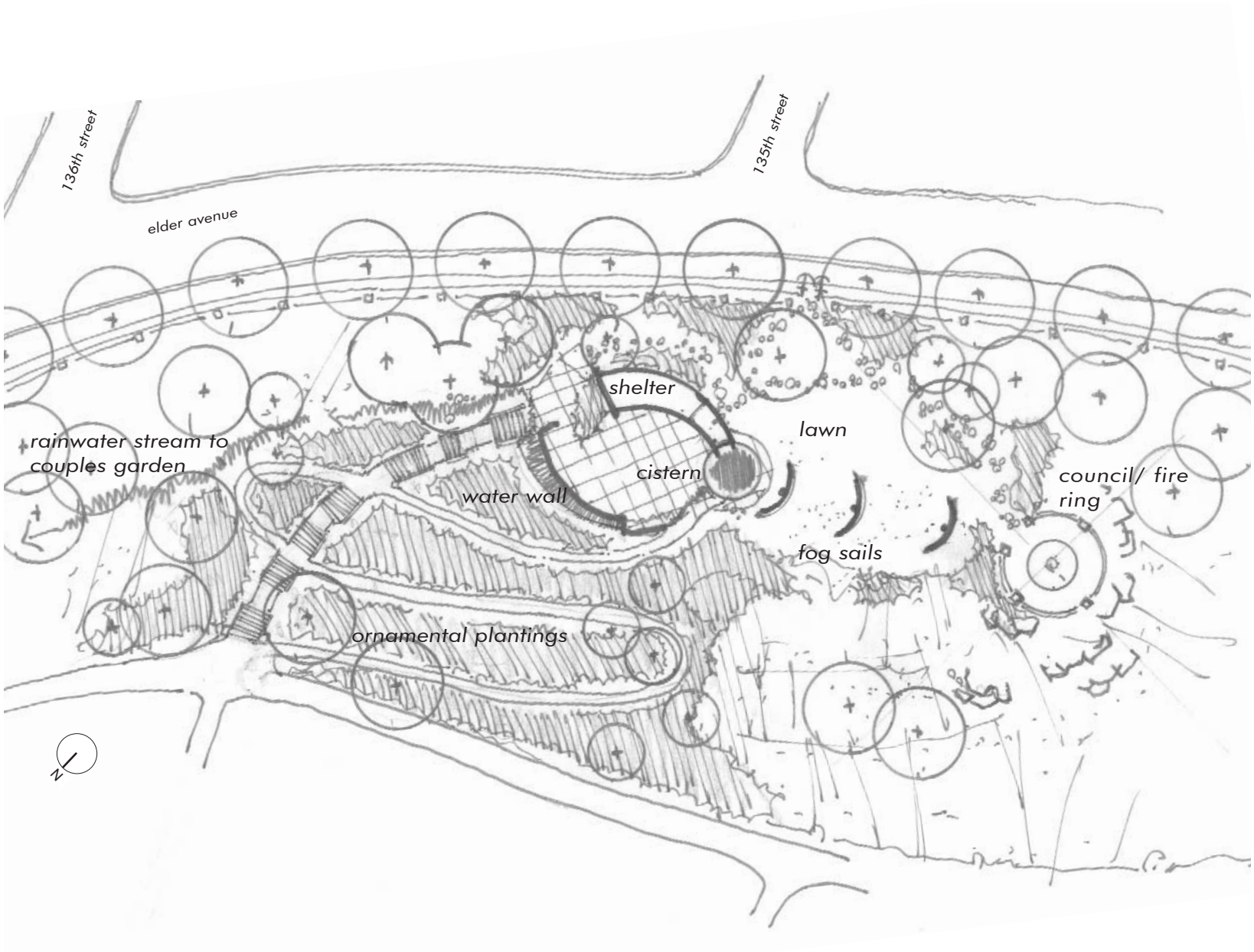
GARDENS ON PARADE AND CHERRY CIRCLE

Gardens on Parade, a feature of the 1939 New York World's Fair, was envisioned as a horticultural exhibition where many different expressions of gardening would be presented. At that time, an interest in the technique of gardening was surging across the country. It was seen in the growing membership of horticultural societies and the ever-increasing number of garden clubs.

The new Gardens on Parade will again provide gardening techniques, this time focusing on the 21st century. Gardens will showcase sustainability; water collection and reuse; utilization of native plants indigenous to the New York area; composting; organic farming; and many other design idioms that translate easily to local homeowners with small garden spaces.



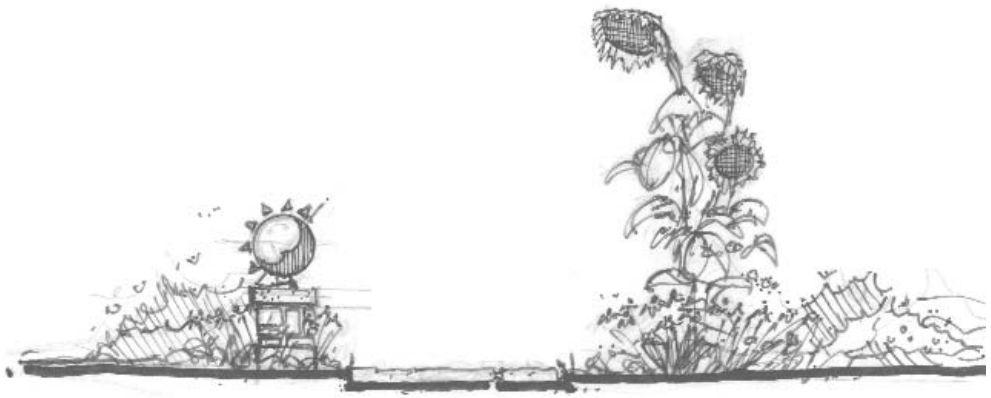
Water feature at the Chicago Botanical Garden. Photo courtesy of Conservation Design Forum.


136th street
135th street
elder avenue
shelter
lawn
rainwater stream to couples garden
cistern
water wall
council/ fire ring
fog sails
ornamental plantings
N

SUN AND MOON GARDEN

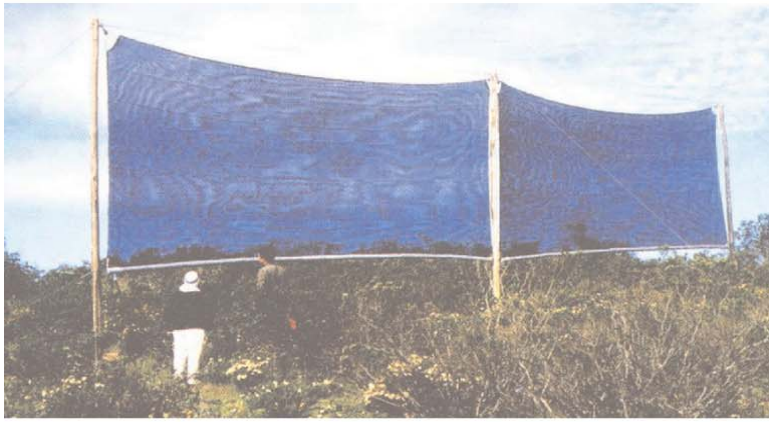
Located on the highest, most prominent point within QBG, the Sun and Moon Garden becomes a destination that beckons visitors to climb the grand staircase or ascend the trail, which leads you through a sequence of garden spaces. Once at the top, you enter a plaza where views are spectacular and the setting sun is celebrated. A small set of stairs winds around a large cistern that also serves as an observation tower, providing views even farther beyond those from below.

Back at the plaza level, a small garden path leads you past the moon viewing platform, where the stars may be contemplated in the evening, to a council ring where the perfect circle makes all people equal while within its boundary.



A sun sculpture along a small path.

Water collected on the fog sails feeds into the rainwater stream, which meanders down the hillside toward the Couples Garden.



Various water harvesting techniques. Photos courtesy of Atelier Dreiseitl.

Fog Sails

Fog sails are a tool for harvesting water from the Canary Islands to the Oman Desert. The ancient practice of capturing water from the air is being rediscovered today in Chile and South Africa.

Although fog is something ephemeral and abstract, anyone who has walked about on a foggy night will know just how wet it really is. The fog sails sit high on the hillside of the Sun and Moon Garden, attractively and sculpturally accentuating this high ground. The fog sails bring into reality how many different forms of water are a part of insight and our physical environment, and provides a spiritual link to cultures who depend on fog to capture this precious resource.


senior
garden
rainwater stream from
entrance cistern
cultivated
gardens
restrooms
shed and terrace
hillocks
play lawn
terrace and
bridge
weir pools
N
children's garden
water play

Photo courtesy of Teri Bloom.

VILLAGE GARDEN: The Children's Garden

Children are our future. Yet too often adults create spaces for children without the child in mind, resulting in places for neither child nor adult. In contrast, children need places where they can grow, learn, and explore outdoors with carefree abandon throughout the year.

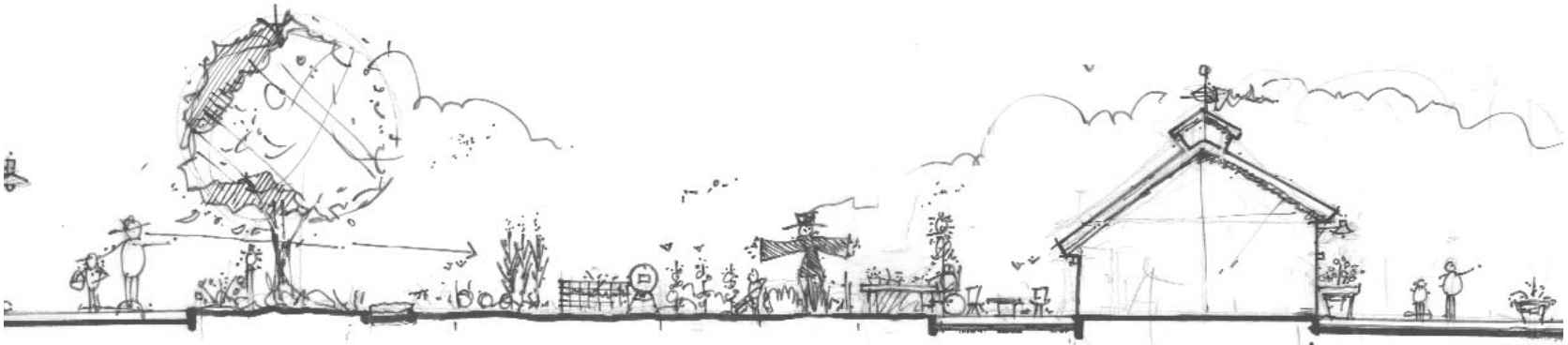
As envisioned, the Children's Garden is to be located at the heart of QBG. This highly visible location - adjacent to the Education Center, Visitor Center, and Parking Garden - emphasizes its significance within QBG. This "garden within a garden" is rich in both complexity and flexibility of spaces and materials to accommodate a child's inclinations for creative play and exploration. Children will be provided a range of experiences through the inclusion of areas where the process of life will be seen, hands will get dirty, and water will be splashed out of its boundaries.

To this end, the Children's Garden program will have five overarching principles: Imagination/Learning/Nurturing; Freedom of Movement; Refuge and Prospect; Range of Scale and Materials; and States of Water. Translated into physical form, the conceptual framework of the Children's Garden is to create three interlocking use areas (see diagram):

Space for Communal Play - As children enter this garden, they will arrive in the Communal Play area. This space consists of approximately 7,000 square feet of open lawn, meadow, hillocks, and paved terraces for group gathering.

Space for Cultivation - This utilitarian space will include approximately ninety 5'x15' individual gardens, including raised planting beds and compost bins. As the physical centerpiece of this garden, a child-scale garden shed will provide storage space for tools as well as shelter.

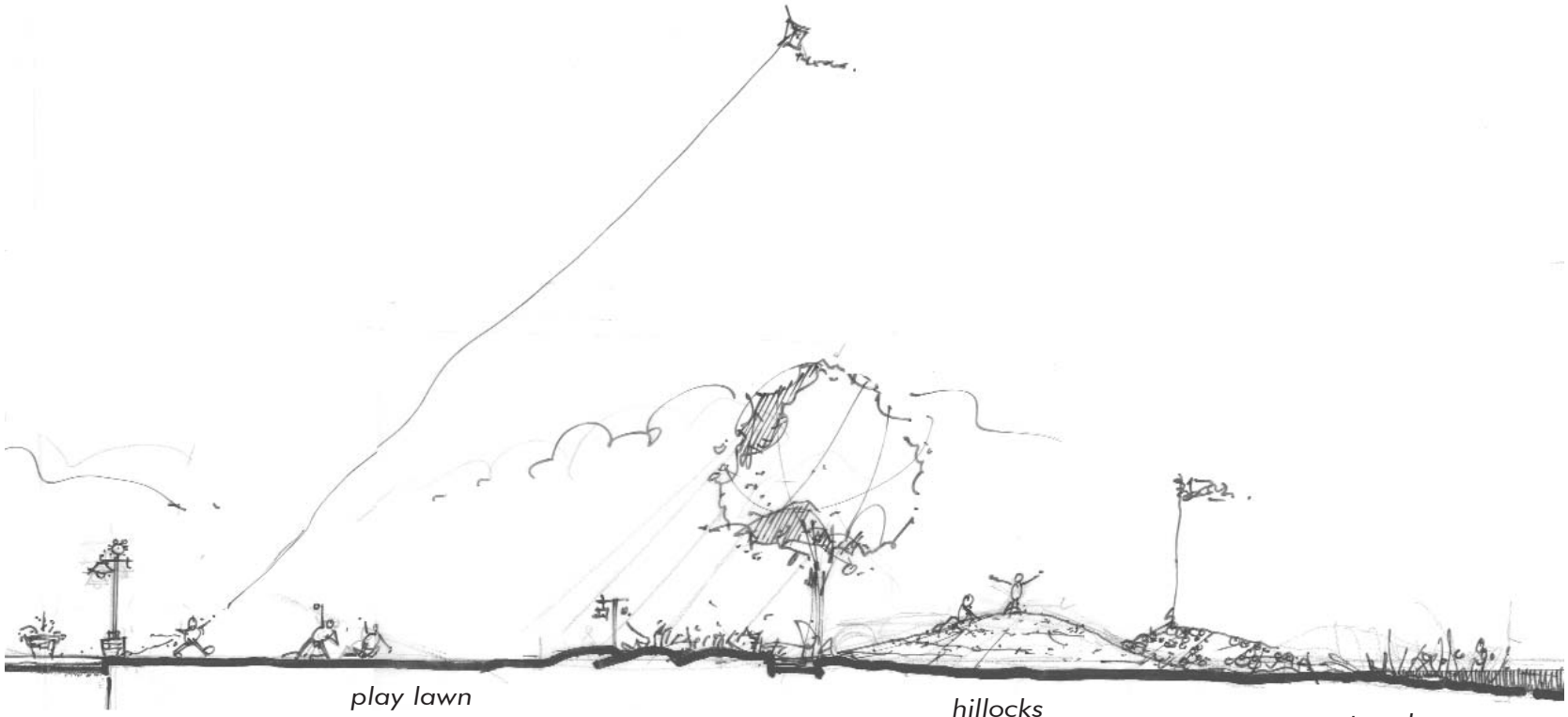
Space for Exploration - Interconnected with both the Cultivation and Communal Play spaces is an expanse of naturalized landscape comprising meadow, wet meadow, wetland water play areas, and weir pools, along with tunnels and hillocks. This dynamic space also serves as a diffuse edge between the Children's Garden and adjacent garden spaces.

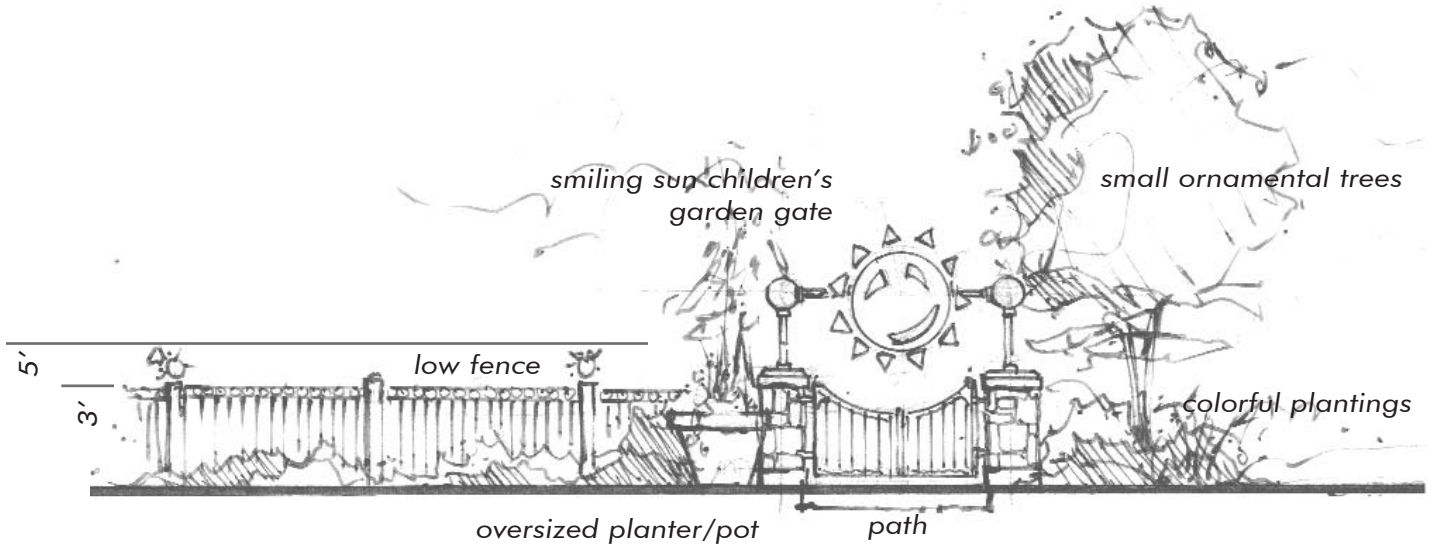


visual buffer cultivated gardens shed and terrace

continued on facing page

Photos courtesy of Teri Bloom.

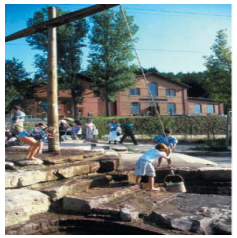

play lawn
hillocks
water play



CHILDREN'S GARDEN SUN GATE

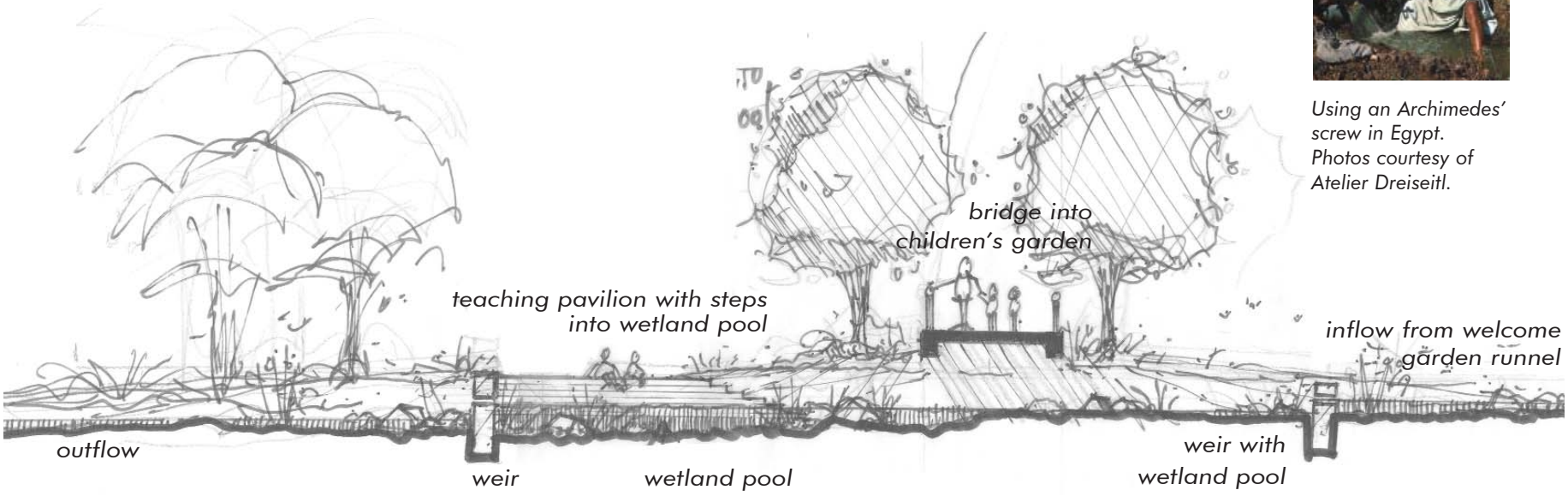
Cultural Irrigation in the Children's Garden

Which is easier: putting a heavy box on a shelf or pulling it down? Try and see - you will probably find that with only a fraction of the energy that you used to lug the box onto the shelf you were able to pull the box down. This is the idea behind the shadoof - pulling down is easier than lifting up. The shadoof is basically a counterweight where stones or weights are placed at one end of a seesaw arm, with a bucket at the end of a rope or pole at the other. Pull the bucket down, fill it with water, and the counterweight does most of the lifting for you.



Children lift water more than 4 feet!

Using an Archimedes' screw in Egypt. Photos courtesy of Atelier Dreiseitl.



CHILDREN'S GARDEN AT WEIR POOLS AND BRIDGE

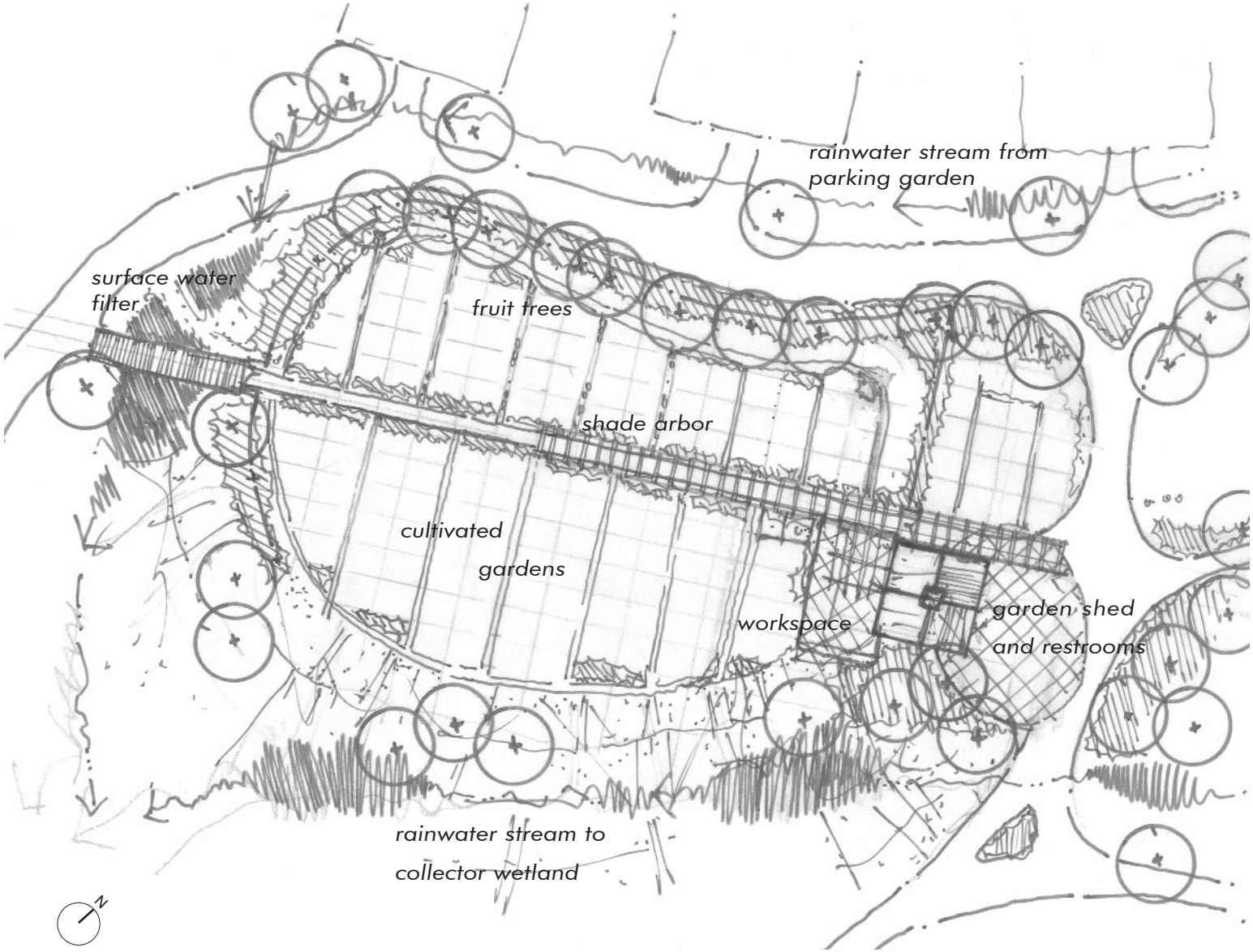

rainwater stream from
parking garden
surface water
filter
fruit trees
shade arbor
cultivated
gardens
workspace
garden shed
and restrooms
rainwater stream to
collector wetland
N

Photo courtesy of Lola McLinden.

VILLAGE GARDEN: The Senior Garden

Local residents create gardens of individual expression and cultural tradition, resulting in a dynamic patchwork of flowers, vegetables, and garden ornament. These activities also enliven the garden by providing social opportunities, whether through exchanging gardening "how-to's" or providing examples to children. The garden occupies a prime location within QBG. It is accessible from the Parking Garden and it sits in close proximity to the Children's Garden and restrooms. In contrast to the complex spaces and path networks found in the Children's Garden, the Senior Garden relies on a simple yet strong organizational pattern. This layout allows ease of wayfinding as well as visibility and social interaction with adjacent gardens.

The Senior Garden program has five overarching principles: Visibility with Security; Accessibility and Low-Impact Exercise; Individual Expression with Communal Participation; Respite and Relaxation; and Variety with Simplicity. Translated into physical form, the conceptual framework of the Senior Garden is to create three primary spaces (see diagrams):

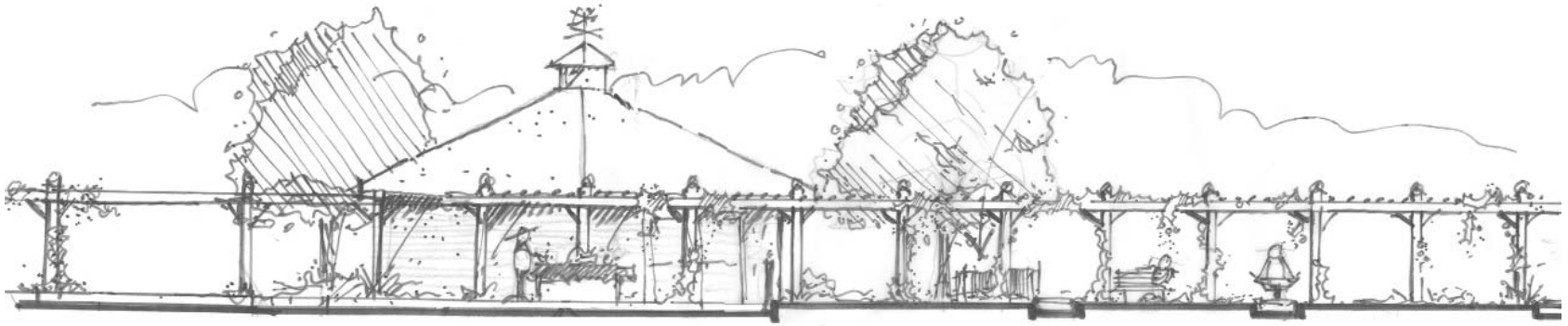
Individual Gardens - This utilitarian space includes approximately sixty-five 5'x20' individual gardens including fruit trees, raised planting beds, hanging basket gardens, and vertical gardens. These individual gardens will be physically accessible via paths and multiple gates to the larger network of QBG paths.

Communal Workspace - The workspace is envisioned as both a semipublic and semiprivate terrace that opens onto the primary QBG path. This approximately 3,300-square/foot area provides hard-surfaced, flexible display and workspace, along with cold storage, vermiculture, and compost bins. This space includes a 20'x20' shed for shelter as well as for the storage of tools.

Relaxation Spaces - Here, movable garden chairs and benches will line paths,as will simple compositions of communal plantings, basket gardens, and bird feeders. Along the periphery garden path will be resting areas in sunny and shady spaces, allowing for conversations throughout the garden.

extend arbor as "threshold" at senior garden terrace

storage shed and public restrooms

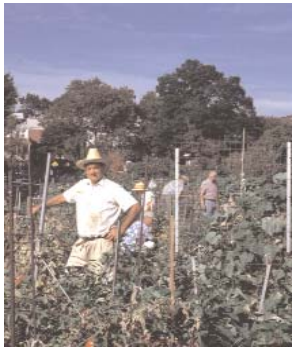


senior garden terrace opening onto path leading to celebration green

gate

compost/vermiculture beds

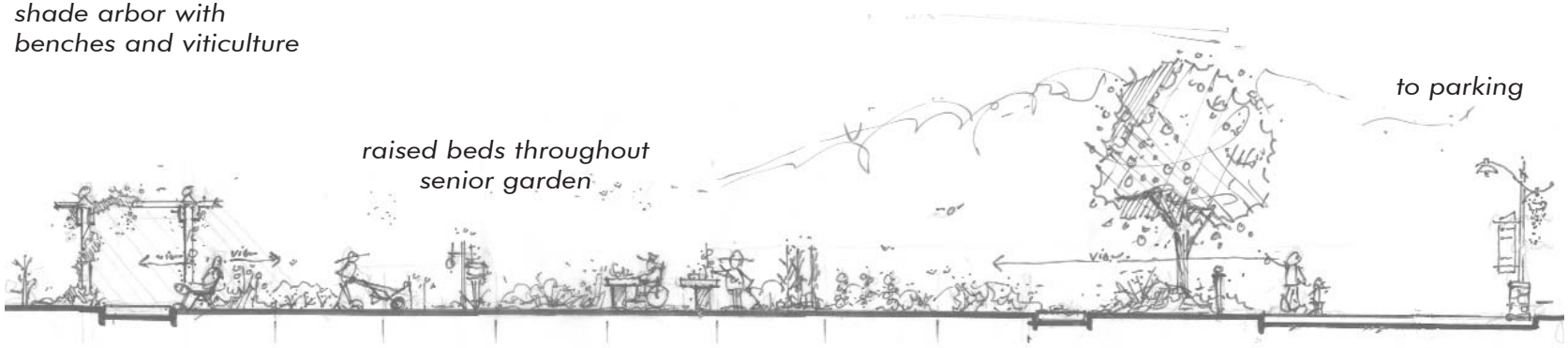
path



Photos courtesy of Conservation Design Forum.

fruit trees along north edge of senior garden with low ornamental fence and perennials, providing physical separation

shade arbor with benches and viticulture



to parking

raised beds throughout senior garden

5′ x 20′ gardens

primary QBG circulation path


central plaza/water play
nursery heritage plots
to sun and moon garden
N

VOL. II. NO. 87.

GARDEN AND FOREST

A JOURNAL OF HORTICULTURE LANDSCAPE ART AND FORESTRY

OCTOBER 23, 1889.

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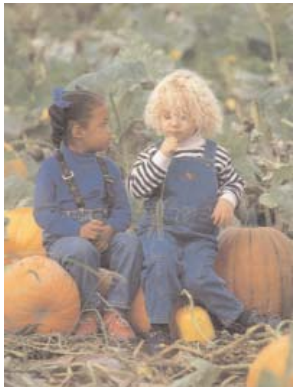
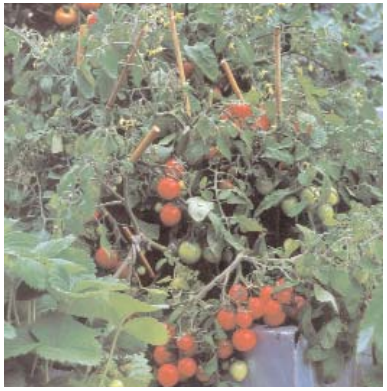
1889 Advertisement for Parsons and Sons Nursery, Flushing, NY from "Garden and Forest" Vol II. No. 87.

HORTICULTURAL HERITAGE GARDEN

Among the gifts of the garden is its ability to heal body and soul. Gardening engages all five of the human senses as few other activities do. We see, smell, feel, hear, and even taste as we garden, and, because all of our senses are involved, what we experience is vivid and specific. The Horticultural Heritage Garden will evoke such involvement and feeling since every portion of it will require hands-on maintenance and is intended to communicate the legacy of the original Prince Nursery, which was opened in 1737 in what is now downtown Flushing. Other nurseries, such as Parsons and Sons, became icons of the area, making Flushing the birthplace of American horticulture. The relevance of maintaining the diversity of plants cultivated for food, fragrance, beauty, and other uses is showcased daily along Main Street in Flushing and will be complemented by this garden.

The fall harvest. Photos courtesy of Conservation Design Forum.



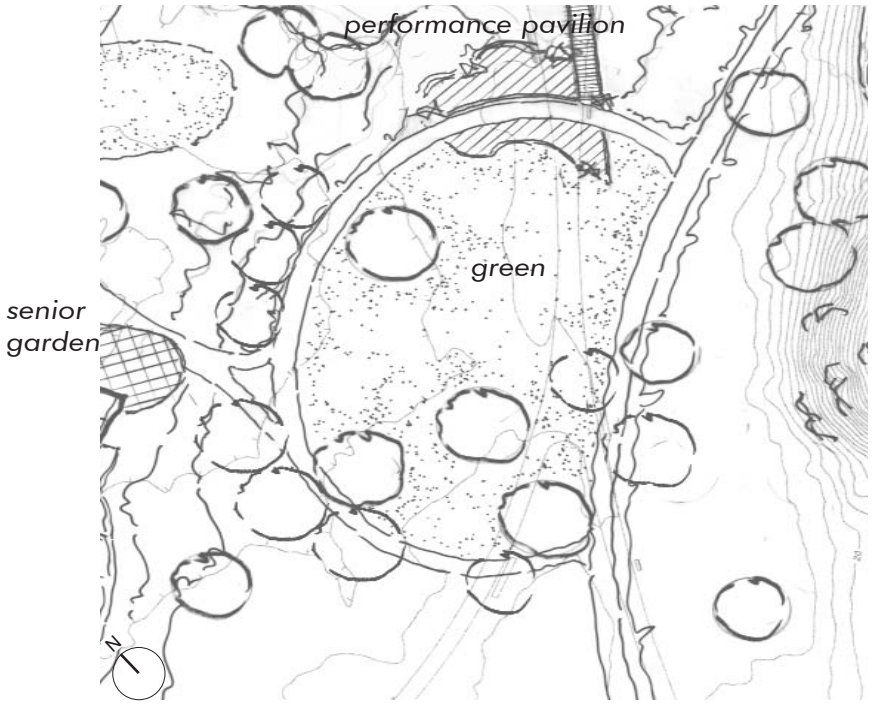


CELEBRATION GREEN

CELEBRATION GREEN

The Celebration Green is a place where outdoor drama takes center stage. This garden space is designed not as a traditional theater, with a developed stage and seats, but as a natural setting for plays, musicals, or informal gatherings. Outdoor drama provides people with an opportunity to celebrate the human presence in, and respect for, the pageantry of nature. It also serves to unite participants in a sharing of their cultural heritage. When not in use, the Celebration Green becomes a quiet retreat surrounded by nature, providing a tranquil setting for contemplative exercises.

Using nature as a backdrop, many venues will be enhanced by the ever-changing landscape. Situated in the heart of these native ecosystems, the amphitheater becomes a prominent location for outdoor concerts, or plays, or just a quiet place to reconnect with the natural world.



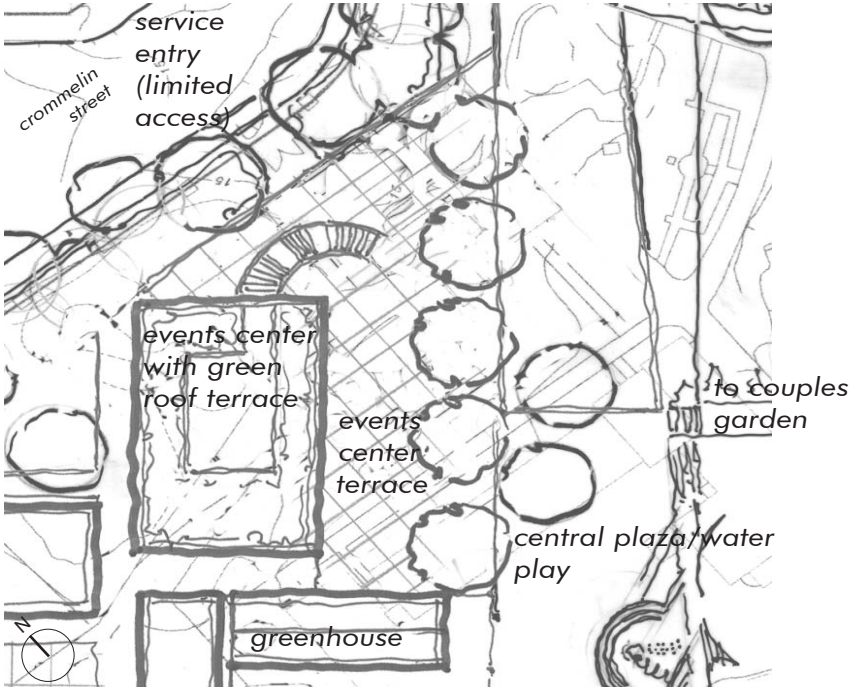
Rose Ball attendees 2001. Photo courtesy of the QBG

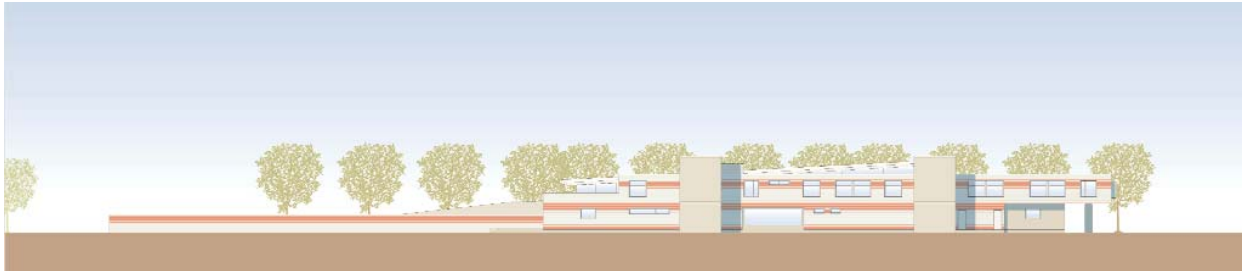
EVENTS CENTER AND PLAZA

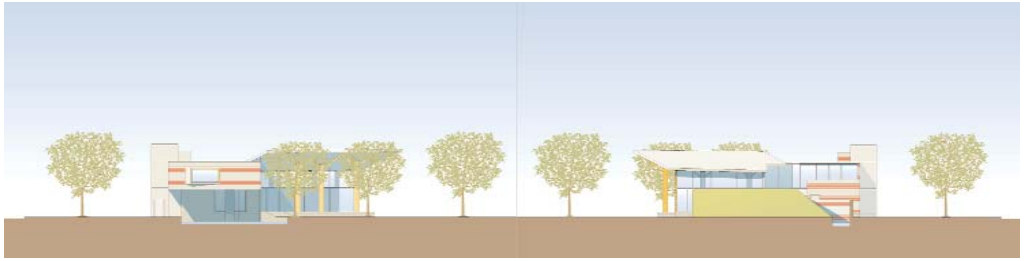
EVENTS CENTER

As the QBG becomes a destination, it will need an appropriate space to entertain its guests. The Events Center will be a room with transparent walls to allow views into it and the gardens beyond. A place where upwards of 350 people could fit comfortably for entertaining and gathering, allowing users to spill onto an outdoor plaza filled with trees, water, and sculpture, it will become a work of art unto itself when events are not scheduled. A rooftop garden will provide users with an elevated view of the grounds. Water collected from the roof will be cleansed and circulated through a series of artistic features, connecting the outdoor space with the rest of the Garden.

Located near the Administration Building, the Events Center will also serve as overflow for venues within the auditorium or after-hour gatherings.







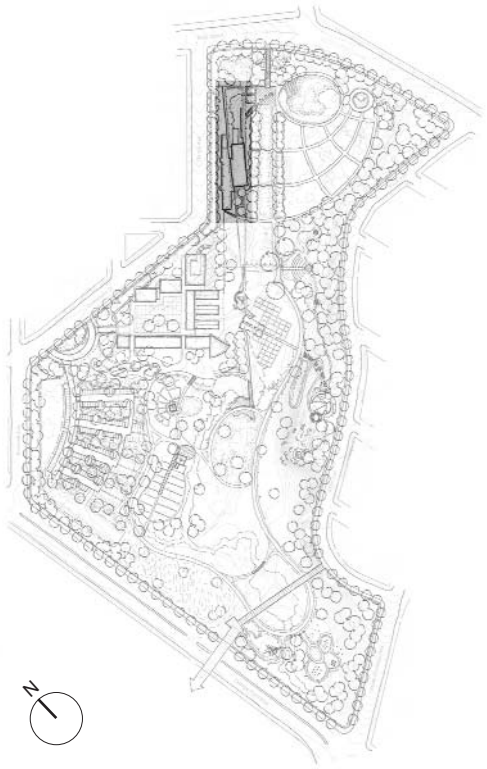
ADMINISTRATION BUILDING

Illustrations provided by BKSK Architects

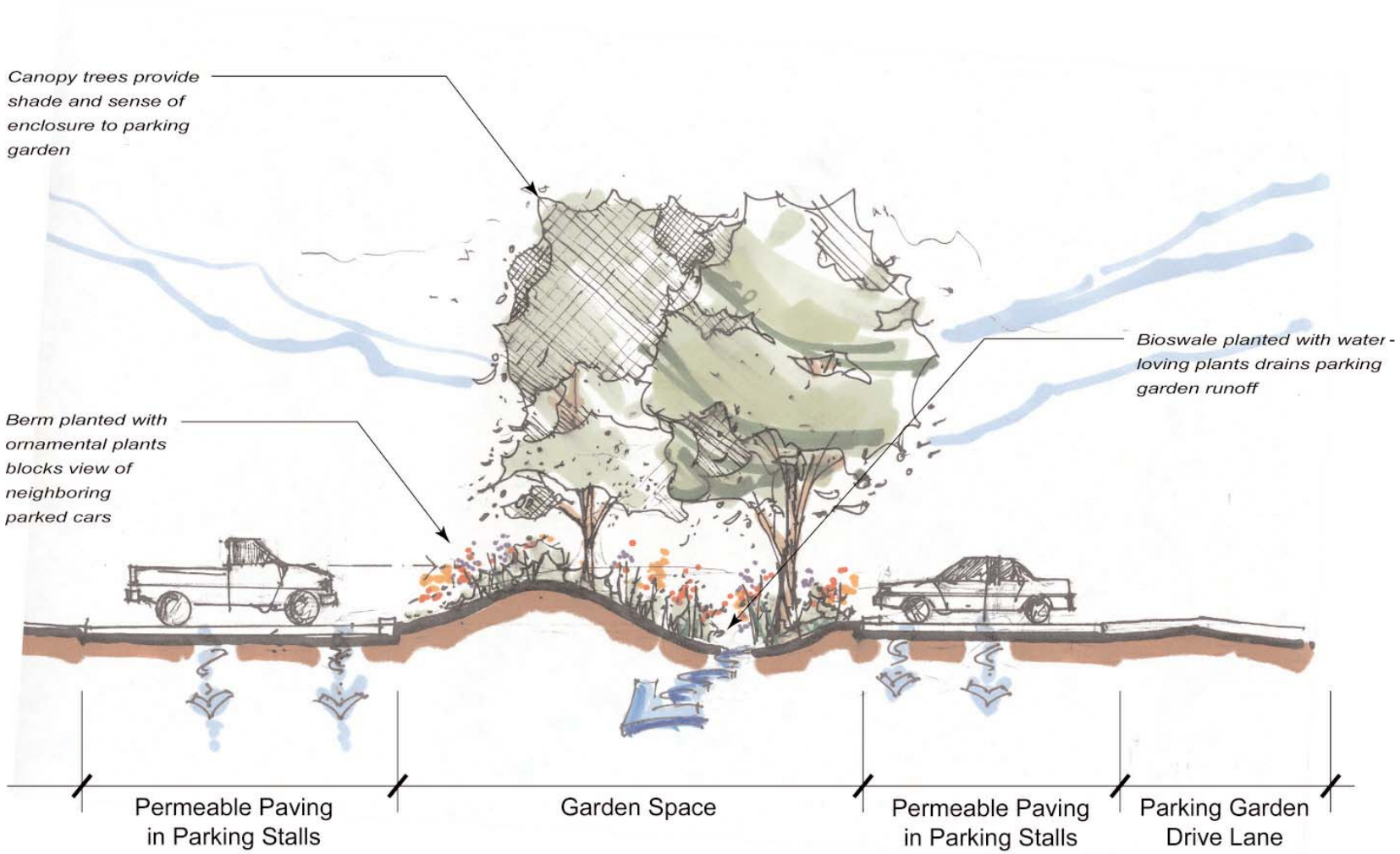
ADMINISTRATION BUILDING

The Administration Building will be one of the first new buildings developed at QBG. Design goals for all buildings will stem from the mission of QBG, as well as parallel the sustainability goals of the Master Plan, while trying to achieve a Platinum LEED (Leadership in Energy & Environmental Design) rating. This will be accomplished by viewing the building as a shelter in a garden or an extension of the landscape, where public spaces open into the landscape and weave their edges together seamlessly.

The building will employ materials found in nature, such as wood and stone. Rooms will be oriented to take full advantage of sun exposure, enhancing the quality of space through the changing seasons. Sustainable principles, such as a green roof, rainwater collection devices, cleansing biotopes, and water features that are completely rainwater derived will be highly visible and aesthetic.



Illustrations provided by BKSK Architects


Canopy trees provide shade and sense of enclosure to parking garden
Bioswale planted with water-loving plants drains parking garden runoff
Berm planted with ornamental plants blocks view of neighboring parked cars
Permeable Paving in Parking Stalls
Garden Space
Permeable Paving in Parking Stalls
Parking Garden Drive Lane

A parking garden. Photo courtesy of Conservation Design Forum.

PARKING GARDEN

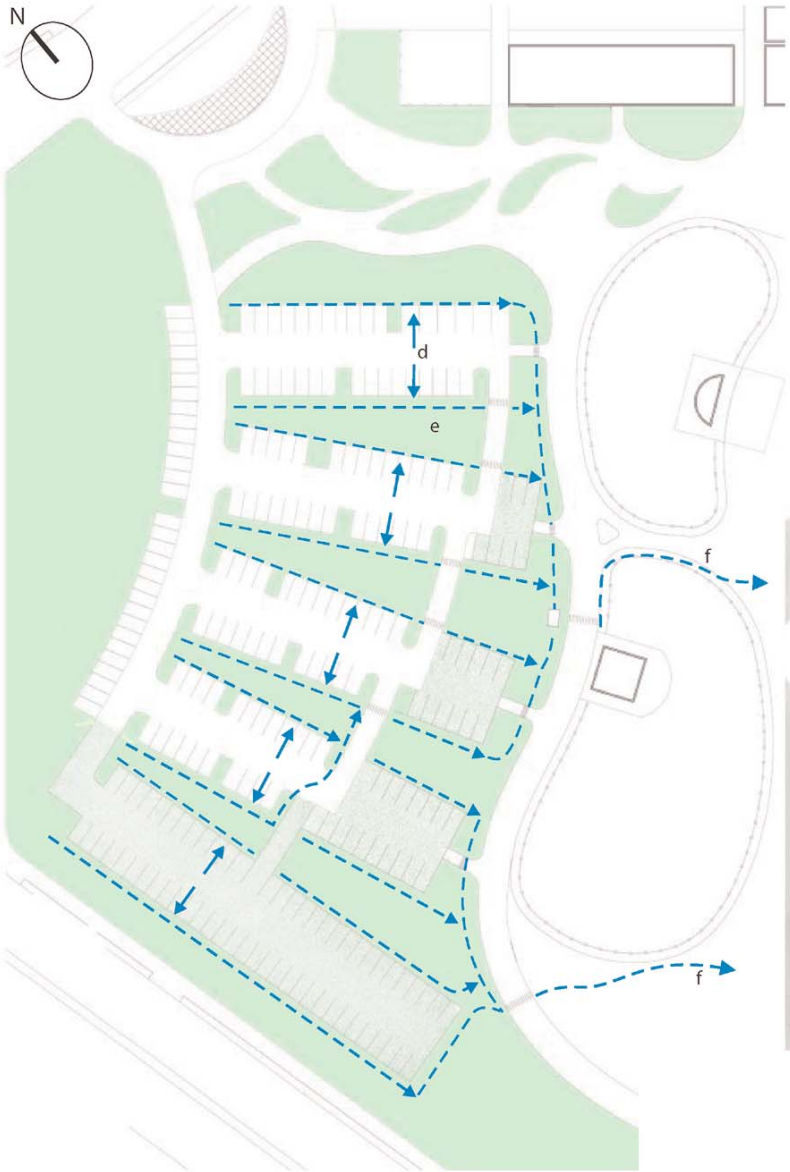
Parking at QBG will be a pleasant experience worthy of visitors' first impressions of the plazas or spaces within the Garden. No longer termed a parking lot, the Parking Garden will greet visitors with an array of rich textures and colors. Each parking bay will be a garden "room," hidden one from the other with undulating, planted berms that will lead the visitor to the main trail and into the Garden. In contrast to most parking lots, standard asphalt will be replaced with a range of porous and semiporous pavement types that will stimulate our tactile senses and begin to infiltrate stormwater.

Overflow parking is provided as well, but to the passerby this area will look like a picnic grove with a field of grass beneath the outstretched branches of native trees.

A parking garden pavement detail. Photo courtesy of Conservation Design Forum.

Parking Concept

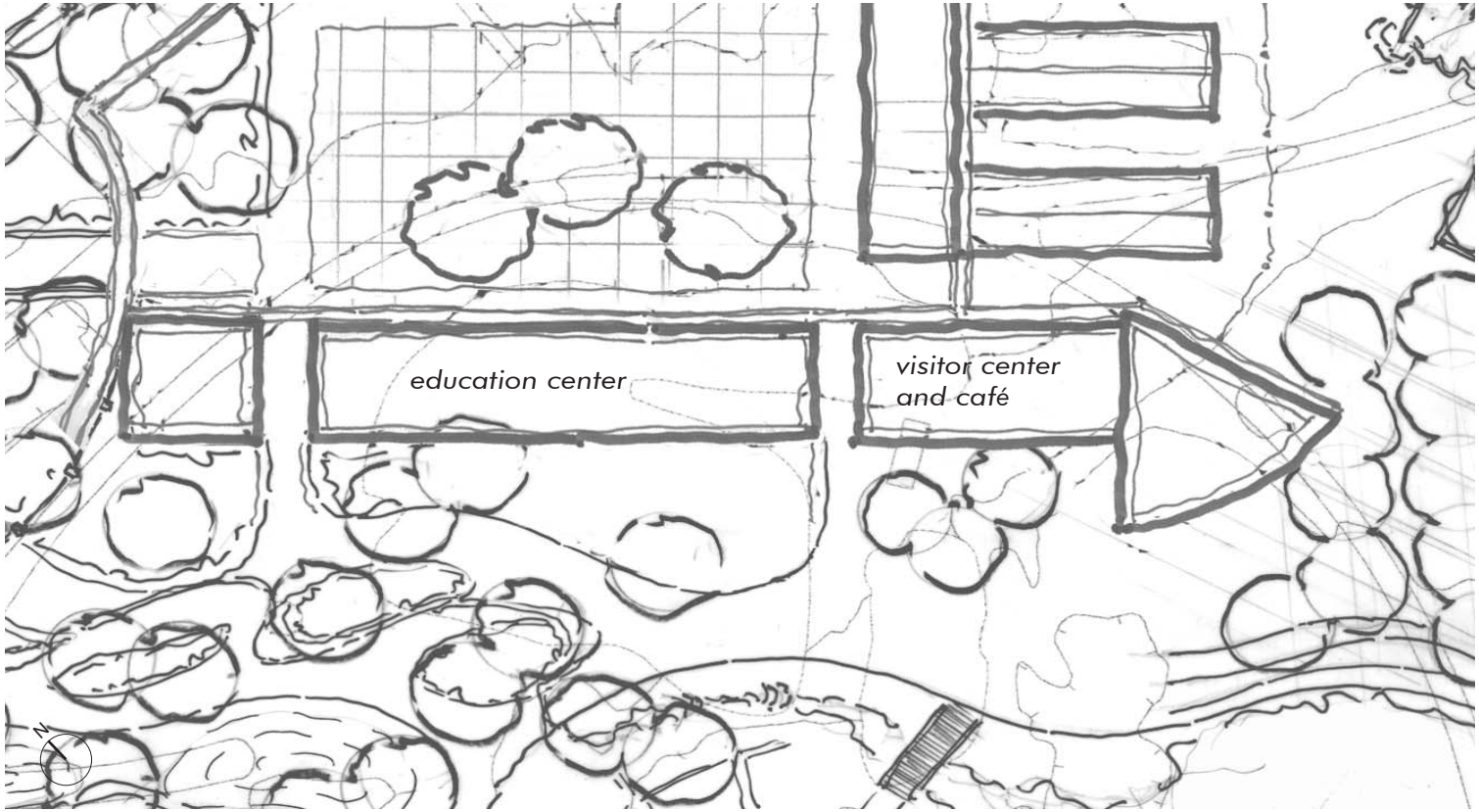
The parking area is envisioned as green fingers that extend into the Garden and are an integrated part of the landscape. Parking areas are shaped by broad areas of planting (a), which provide character and shade and are in themselves planting displays. Areas of overflow parking are surfaced with grass-gravel (b), which allows the parking spaces to seam with the adjacent landscape when not in use and to facilitate stormwater infiltration. Grass-gravel is a mixture of gravel and soil that provides a medium for grass to grow. Areas of high-use parking are surfaced with permeable paving (c). This surface is hard-wearing but without the monotony of asphalt, and also allows some infiltration. The paved areas are broken up by areas of planting into the parking bays, emphasizing the overall green character of the parking.



Parking Drainage

The whole parking surface is composed of permeable to semi-permeable surfaces, which allow direct infiltration of rainwater. In cases where there is too much rainfall to be able to fully infiltrate directly into the surface (d), it runs into swales (e) - vegetated depressions with high infiltration capacity - which run along the planting islands in the parking. These swales have a capacity to handle the majority of rainfall. In extreme storm events, the water in the swales overflows to the central wetland area (f), ensuring that the parking garden does not become waterlogged.

The planted surfaces of the grass-gravel and swales and the soil underneath the permeable paving play an important role in treating the surface runoff from the parking. Parked cars drop residues of oil, salt, and dirt. This is broken up by microbacteria living in the top soil layer.


education center
visitor center
and café
N

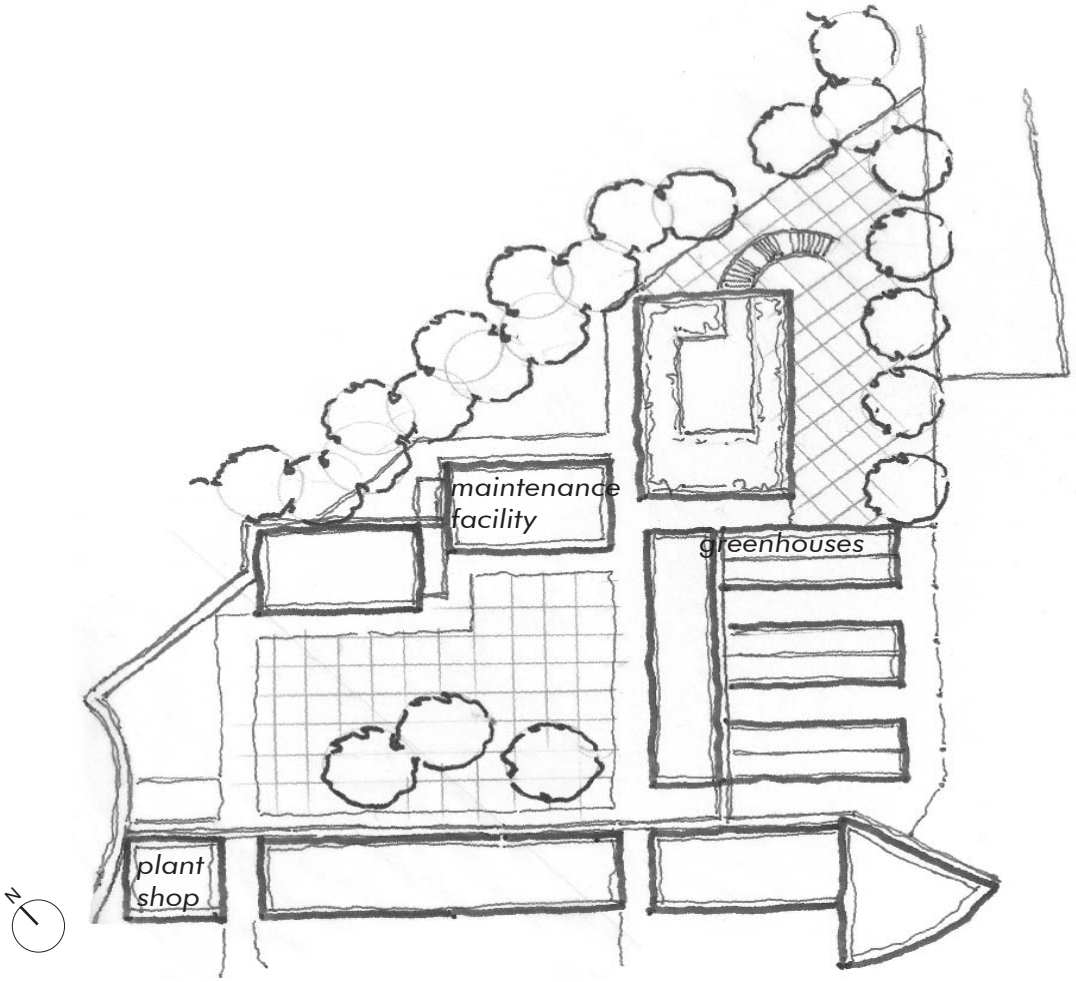
EDUCATION CENTER

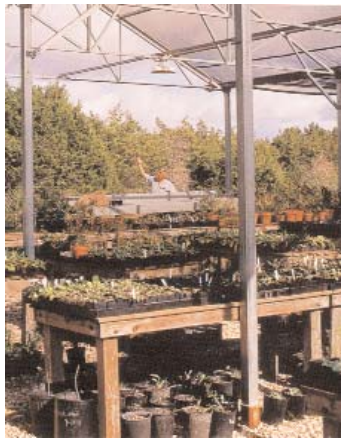
Located in the heart of the Garden to emphasize the Garden's primary mission, the Education Center will house the Plant Collections, Education, Research, Interpretation, and Planning departments. Situated with ample space for outdoor classrooms and in close proximity to the Program, Children's and Senior gardens, this arrangement will connect teaching and participatory learning. Each department within the complex will have its own specific space but will share resources to encourage interaction between team members. A central atrium has been envisioned for the building to allow users a window to the outside world from every work-area vantage point.

THE VISITOR CENTER AND CAFÉ

Located at the terminus of the Administration Building and the Central Plaza axis, the Visitor Center and Café becomes a place where visitors may orient themselves to the entire Garden. With outdoor seating casually distributed below a bosque of trees, the plaza allows visitors to meet others, watch the activities within the Garden, or just sit quietly and enjoy the day while sampling a menu that could feature the cuisines of Queens. The Café may also extend QBG's hours since it has become a destination point off of Main Street.

Photos courtesy of Conservation Design Forum.


maintenance facility
greenhouses
plant shop
N



THE MAINTENANCE FACILITY AND GREENHOUSES

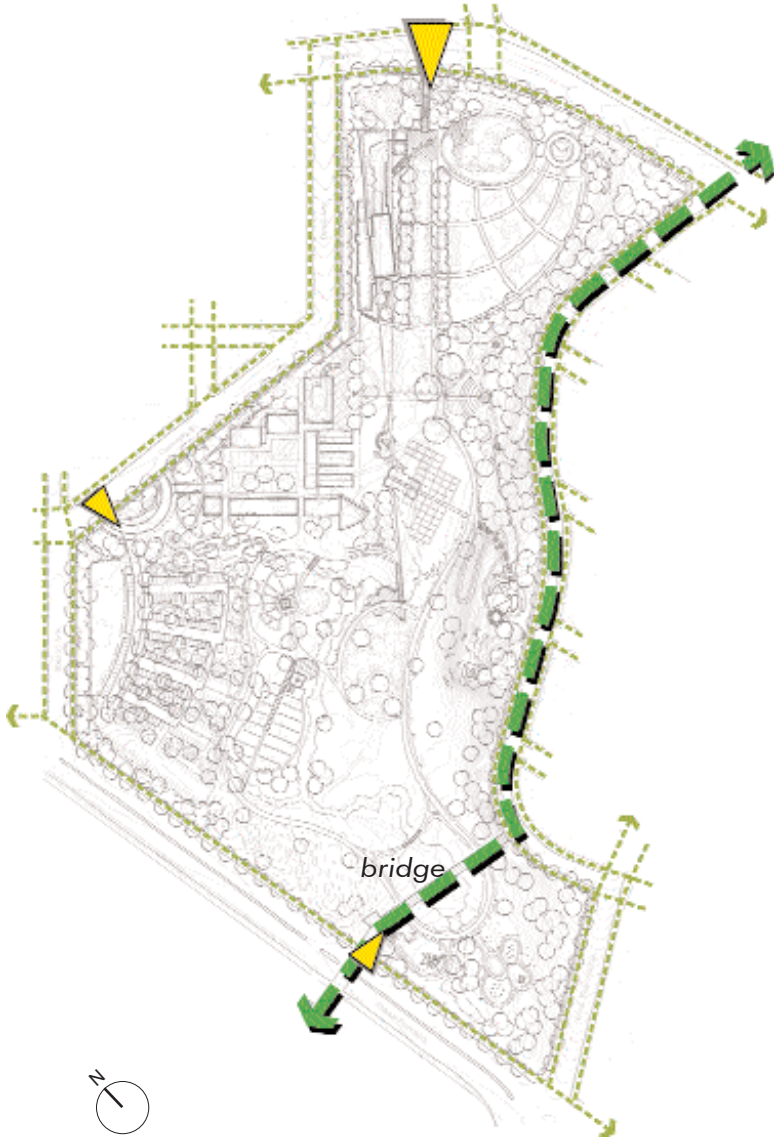
Integrated within the Education Complex, the Maintenance Facility will house the Maintenance and Grounds departments, and allow visitors to glimpse the everyday workings of the Garden and appreciate the many facets of the work performed by staff and volunteers who tend the grounds. Three new greenhouses will open onto the Central Plaza and provide space for research, collections, and education. They will also provide an opportunity for the public to see firsthand the workings of a greenhouse as well as providing a place where winter can be transformed into an oasis - even if for only a moment.

THE PLANT SHOP

With close proximity to the greenhouses, the Plant Shop will become a hub of activity during the growing season. Plants propagated within the Garden may be showcased to the community. Heirloom seed exchanges may be a common occurrence, keeping the Plant Shop open during the winter. Water collected from the roof will be cleansed and recycled for irrigation use.

Photos courtesy of Conservation Design Forum.

Primary and secondary pedestrian routes within QBG



Links to neighborhood & greenway

Different paving materials. Photos courtesy of Conservation Design Forum.

PEDESTRIAN CIRCULATION

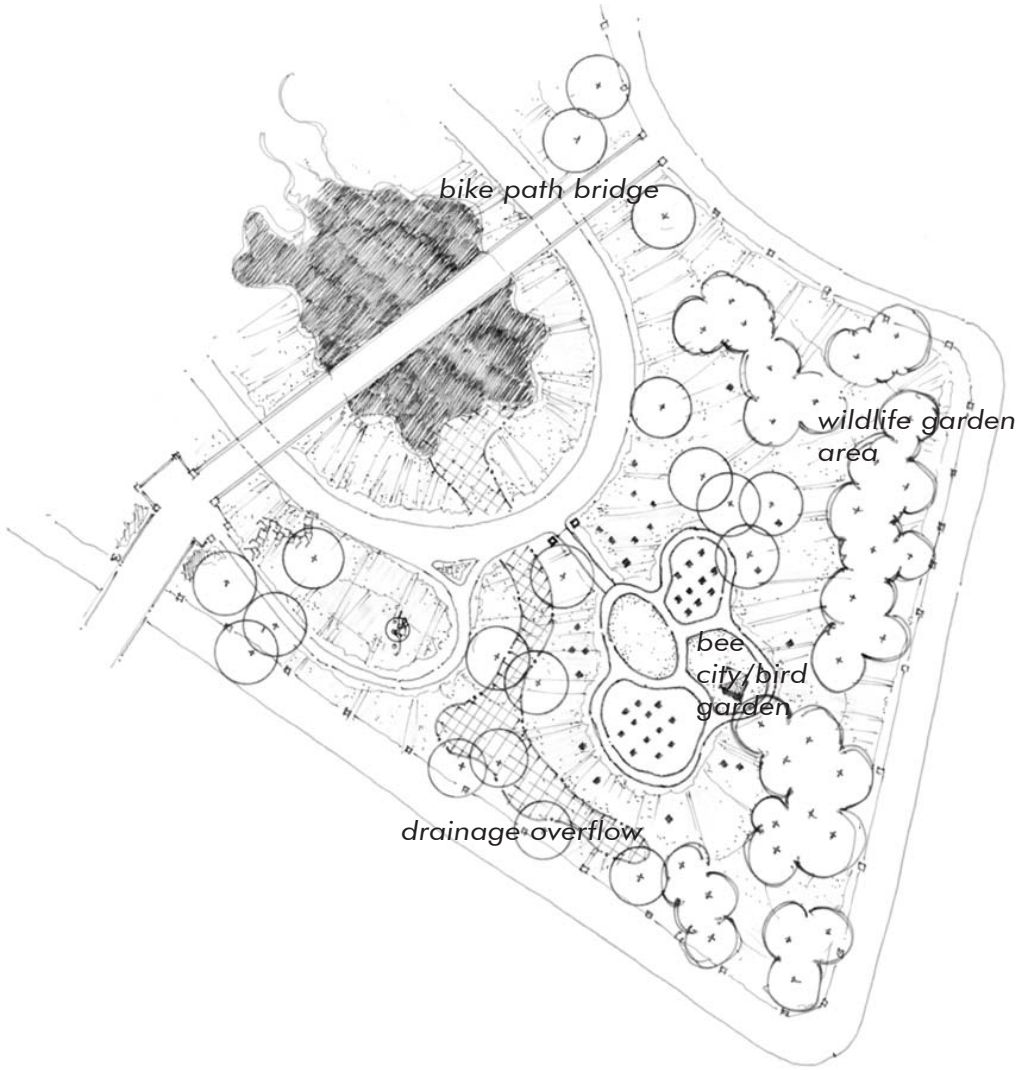
Circulation will accommodate visitors while providing visual and textural interest as one moves through spaces that are seamlessly intertwined. As the path winds back and forth, every turn will reveal a surprise that invites further inspection as well as pulls one deeper into the Garden to explore what may be around the next corner.

The boundaries of the QBG should not stop at the property line, especially when the foundation of its very existence is its neighbor - the community. The perimeter of the site will be enhanced and carried into the adjacent neighborhoods by opening and creating views into the Garden that provide significant visual connections.

BIKE TRAIL

With immediate links to the Kissena Park Corridor and Flushing Meadows Corona Park, the QBG is a gem within a continuous green space. The common thread that ties these spaces together is the bike trail. Whether the QBG is your destination or a brief stopover between places, bicycles will find a welcome home to park while their passengers take a break, enjoying a cool drink or the chance to stretch their legs.

At the southern end of the property a bridge will bring pedestrians and bicyclists safely across the site in order to avoid an at-grade crossing of the large intersection. The bridge will also become a symbol of recognition while framing views and creating a back-drop for the Garden.



Photos courtesy of Carol Freeman (top) and Conservation Design Forum.

WILDLIFE GARDENS

The Wildlife Gardens, which encompass Bee City and the Bird Garden, are an interconnected group of healthy ecosystems comprising wetlands, prairies, and woodlands that dominate the eastern edge and southern portion of the site. These landscapes will restore the native flora indigenous to this bioregion and come alive with wildlife never seen at the QBG. The entire landscape supports Bee City and the Bird Garden as well as becomes the dragonfly, beetle, and spider garden. Children will be able to experience nature firsthand - not through a book or television.

Tucked into small spaces on the hillside, hidden gardens with seating, sculpture, and water will create intimate places of sanctuary for quiet reflection and enjoyment of the Garden on a more personal basis.

Sculpture along trail in Bee City.

Silphium laciniatum

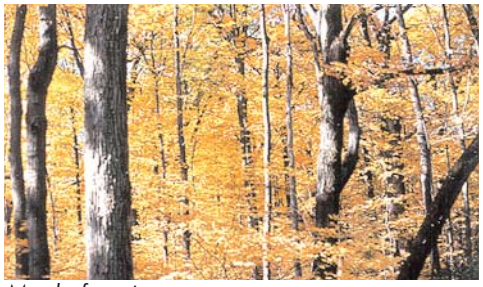
Aster macrophyllus

Asclepias tuberosa

Allium cernuum

Photos courtesy of Conservation Design Forum.

Oak woodland



Maple forest

Photos courtesy of Mike MacDonald (top) and Conservation Design Forum (bottom).

RESTORED NATIVE LANDSCAPES

Key to plant community restoration is that cultures make choices with respect to land management that are felicitous for all the other living things native there, and that their choices are informed by observation of these organisms. If we care for them, they will care for us.

Through the use of plants indigenous to this area, we can begin to heal the earth while providing sacred places for visitors, where nature is accessible and wildlife abounds. The Garden will be a place where the landscape is alive, plants will reproduce, and stewards will be taught to hear, understand, and care for each community.

The following community types represent a few of the ecosystems that will begin to be reestablished at the Queens Botanical Garden. Over many years and with proper stewardship practices, these landscapes will provide diverse habitats and seed sources for future landscapes within and around New York.

(See Appendix A for a list of plant species typical of the plant communities.)

Woodland

Oak woodland - With a somewhat more closed canopy than the savanna, the oak woodland will be a place where dappled shade will play across a host of ground flora, including ferns, grasses, sedges, spring ephemerals, and summer composites. Fire will play a key role in the annual management of this ecosystem.

Maple forest - Dominated by sugar maples, this forest ecotype is dependent almost entirely on the unique features and behavior of this tree. With its closed-canopy structure, the mesic forest is highly resistant to the passage of ground fires because of its high moisture content from winter through spring. This moisture level benefits spring ephemerals and shade-tolerant species not found in the savanna and oak woodland.

Anemone cylindrica

Baptisia leucantha

Carex pennsylvanica

Echinacea pallida

Photos courtesy of Conservation Design Forum.

Savanna

Wet prairie

Mesic prairie

Hill prairie

Wetland habitat

Ridge and swale

Photos courtesy of Jason Lindsey (top left) and Conservation Design Forum.

Savanna

Often viewed as a prairie with trees, the savanna will be a place where native trees such as oak, hickory, and walnut will reach their full potential over a suite of native herbaceous species. This will create an open habitat where ample sun will reach the ground floor, allowing grasses and other herbaceous vegetation to become the dominants of the community. Fire will play a key role in the annual management of this ecosystem.

Prairie

Wet prairie - An ecosystem derived from groundwater discharge, this prairie ecotype rarely sees standing water. With a constant moisture regime in the soil, plants here are adapted to varying moisture levels, lower soil temperatures, and higher organic matter.

Mesic prairie - This ecosystem may be the most diverse plant community of any of the prairie ecotypes. The word *prairie* is of French origin and means "meadow." It was first applied to the open, grass-covered, treeless landscapes discovered in America by the early French explorers.

Hill prairie - Often associated with nutrient-deficient soils, this ecosystem comprises plants with different adaptations, which enable them to survive under varied but rigorous conditions. Adaptations include short stature, drought tolerance, and leaves that are small, hard, and tough.

Wetland

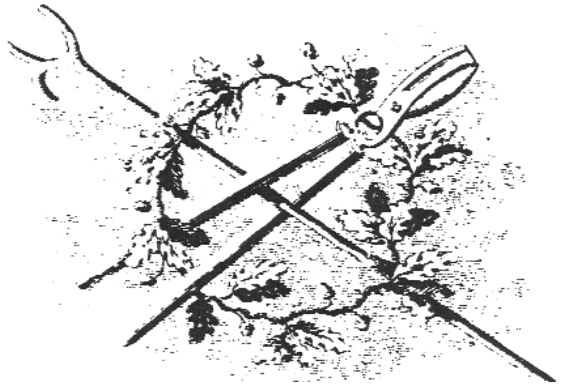
Wetlands are plant communities derived from groundwater seepage, not overland flow, and are quite often inundated throughout the growing season with small areas of open water due to a higher water table. Visitors will find a landscape that progresses from water lilies and lotus to bulrushes, reeds, and flowering plants that occur only in this ecosystem.

Ridge and Swale

A landscape reminiscent of dune areas, this ecosystem is a mosaic of species that traverse a moisture gradient from standing water to sand dune ridges in a matter of a few feet. This ecosystem supports plant species found only in this specific regime.

II. Background Information

Queens Botanical Garden



Geological History

Portions of the New York City landscape is underlain by hard metamorphic rock, formed during the Archeozoic Era. The dark stone that rests so easily above the earth's surface in Central Park, and which was so forcefully striated during the Ice Ages, dates virtually from the formation of the earth's crust. Lying beneath the surface of a shallow sea, the gradually subsiding landmass of North America experienced a warming climate (almost 350 million years ago) that eventually formed the swampy land around New York. The erosion of the late Mesozoic period (between 220 and 70 million years ago) left the area with most of the geological formations that persist today, most notably the Hudson River and its drainage system (Homberger, 1998).

An era of glaciation followed (20,000 years ago or so) that further shaped the landscape and provided Queens with the western end of Long Island's Harbor Hill moraine. It is approximately two miles wide and cuts across Queens County from northeast to southwest. This glacial deposit divides the borough into the North Shore plateau and the South Shore alluvial plane and comprises a clayey, reddish till defined by hillocks and minor depressions indicative of glaciated topography in low-lying coastal areas. Over time, Flushing Bay was created and through erosional processes alluvial silt was deposited where marsh grasses and other native vegetation took root and created meadow mats.

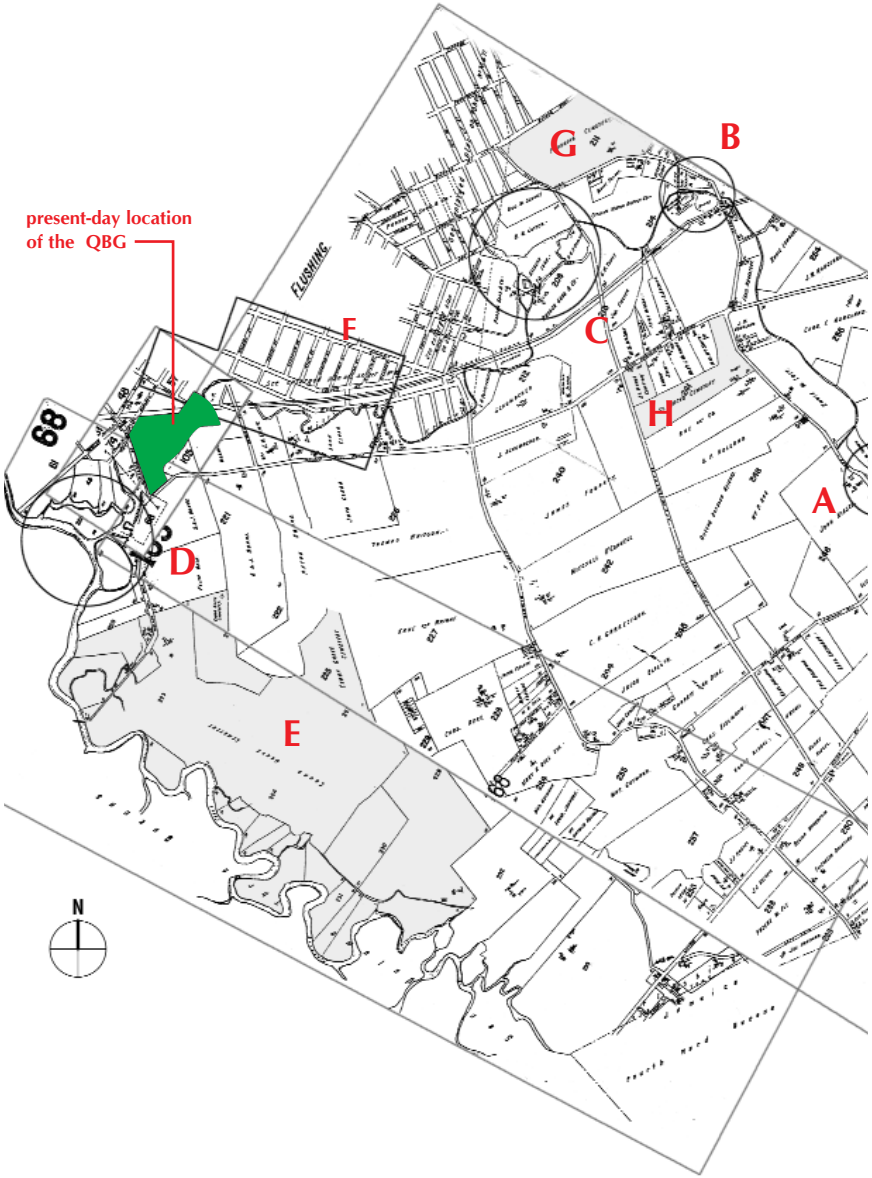
Early History

From settlement by Dutch and English in the 1630s through the 19th century, the area now known as Queens was primarily an agricultural landscape. This resulted in a European settlement pattern of rural estates and farms, connected by a dendritic pattern of farm-to-town roads. Highlighting this agrarian landscape were some of the first commercial nurseries in North America. Local ventures such as the William Prince Nursery (1737) and Parsons Nursery developed into internationally recognized growers and distributors of a wide range of plants. Local waterways such as Flushing River provided access to the world through water

1903 Map

A) Wetland source of Mill Creek
B) Marsh/ Swamp
C) Kissena Lake
D) Confluence of Mill Creek and Flushing River
E) Cedar Grove Cemetery
F) St Mary's Cemetery
G) Flushing Cemetery
H) Route of Long-Island Railroad

* Historic maps provided by BKSK Architects



1903 Map

borne shipping and transport. This resulted in the importation, cultivation, and sale of "exotic" plants from throughout the world.

Recent History

In the 20th century, significant infrastructure improvements led to the transformation of Queens from rural estates into dense commercial and residential areas with a grid network of streets overlapping existing transportation networks. Available land combined with new bridges, trolley lines, commuter railroads, and subways connecting Queens to Manhattan resulted in a population surge in Queens by the 1920s. These urban connections were later enhanced with global connections through the construction of LaGuardia and Idlewild (JFK) airports . In addition to these infrastructural improvements, Queens was the site of two World's Fairs in 1939 and 1964. Both the QBG and Flushing Meadows - Corona Park, along with Kissena Park Corridor, are open space legacies of the World's Fair events.

In 1965, changes in U.S. immigration policies resulted in another pulse of immigration into Queens. Neighborhoods once known for their European heritage were enriched through the rapid establishment of significant Asian and Latin populations. Today, the cultural communities of Queens continue to grow and diversify. By 1990 the Census showed Queens as the most culturally diverse county in the United States. In the past decade, the number of residents identifying themselves as South Asian has increased 93%, the number of those identifying themselves as Indian has increased 68.8%, and there has been a 471% increase in those who identify themselves as Bangladeshi. In addition, Latino neighborhoods of Queens, which have been a magnet for newcomers from Colombia and the Dominican Republic, are diversifying through a sharp rise in Mexican newcomers (QBG Research Department).

Today, QBG provides year-round educational, recreational, and community services that embrace and highlight the rich cultural context of the borough.

Historical Period Maps

The following Sanborn maps document the development patterns of the present-day neighborhood of Queens Botanical Garden. Of particular interest for the master planning process is the development of surrounding land ownership and circulation patterns and their current context. These changes reflect the transition from a neighborhood with rural density and land use to the increased density of current residential and commercial land uses. Reflecting this change in land use is a shift in circulation patterns. Former rural farm-to-town roads, which followed topography and market squares, have been converted to the overlapping grid network of residential streets and commuter highways. This combination of land uses and circulation routes has formed the distinct boundaries of QBG. Last, the period maps reflect changing attitudes toward the natural features of the area. In particular, Mill Creek gradually changes from a low-lying wetland with a sinuous alignment into a dissected water body that was finally obliterated through site-filling and grading in conjunction with the 1964 World's Fair.

1917 Map

A) Residential buildings (within current extent of QBG)
B) Flushing Rose Gardens Inc. Greenhouses

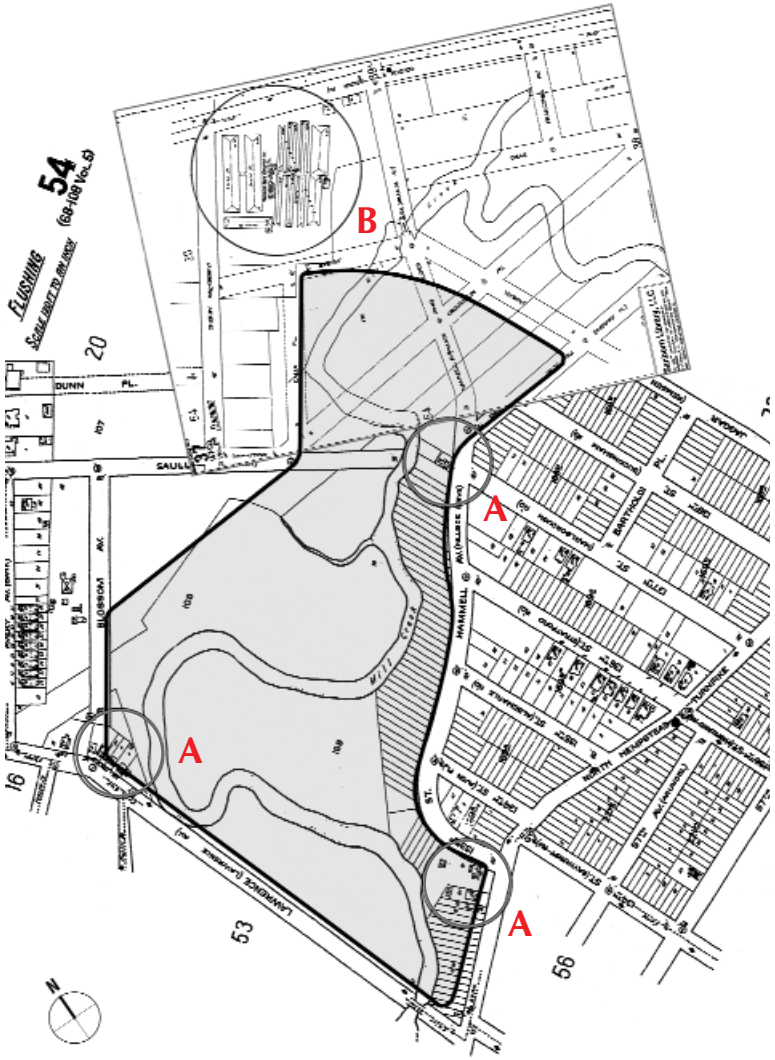
1934 Map

A) Additional residential buildings (within current extent of QBG)
B) Main Street widened and Mill Creek placed in culvert
C) North Shore Bus Company
D) Auto filling stations
E) Residential development within future Kissena Corridor

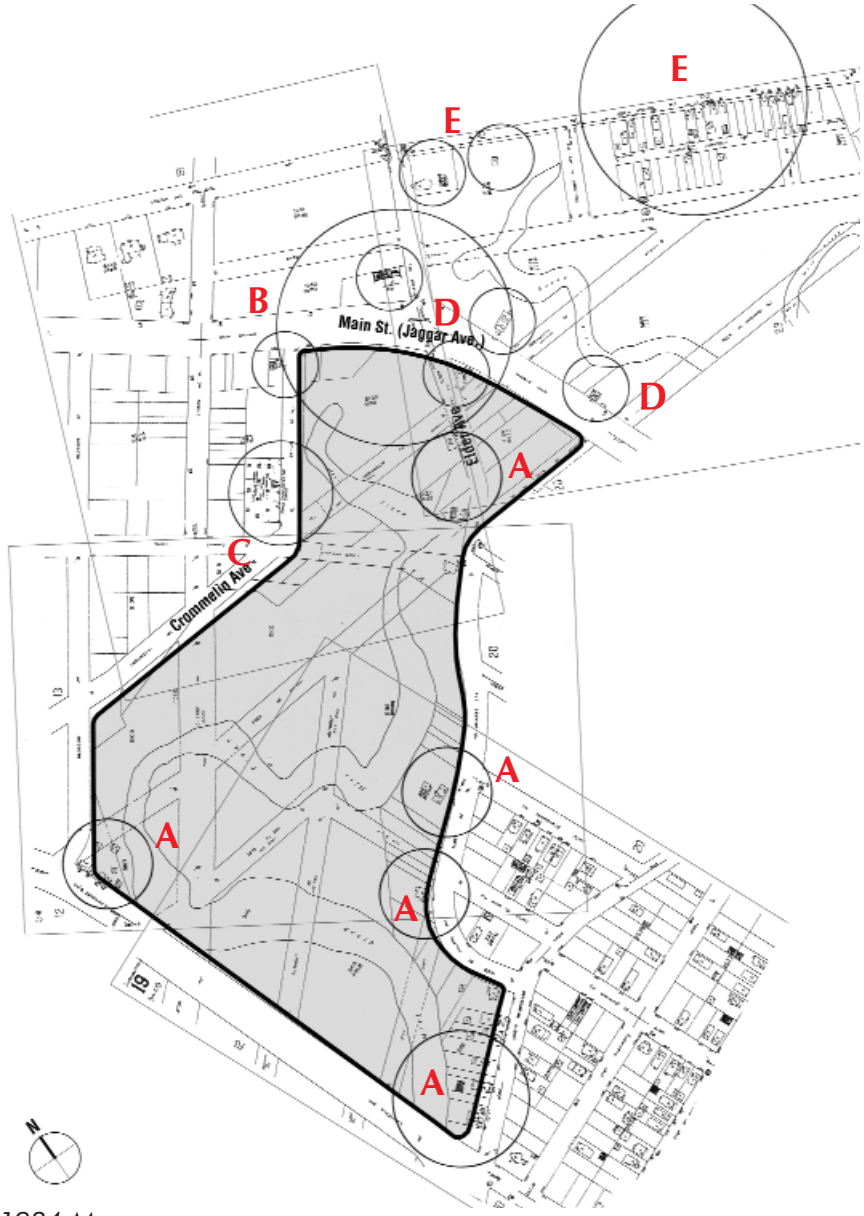
1951 Map

A) Elder Ave. removed
B) Peck Ave.
C) Residential buildings removed
D) Lawrence Ave. widened (College Pt. Blvd.)
E) Auto filling stations
F) Residential buildings removed

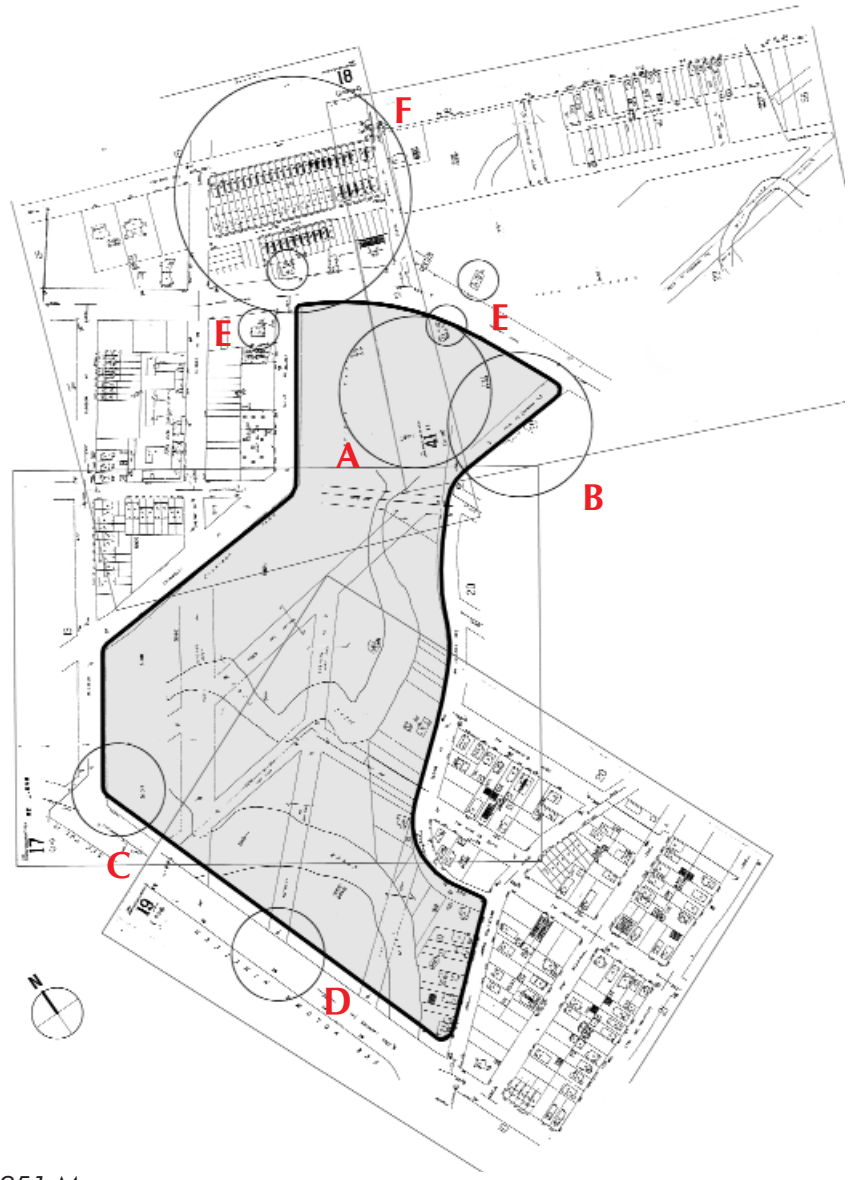
* Historic maps provided by BKSK Architects



1917 Map



1934 Map



1951 Map

1980 Map

A) QBG Administration Building
B) Lawrence Ave. since changed to College Pt. Blvd.
C) Residential buildings removed
E) Auto filling stations
F) Buildings east of Main St. removed

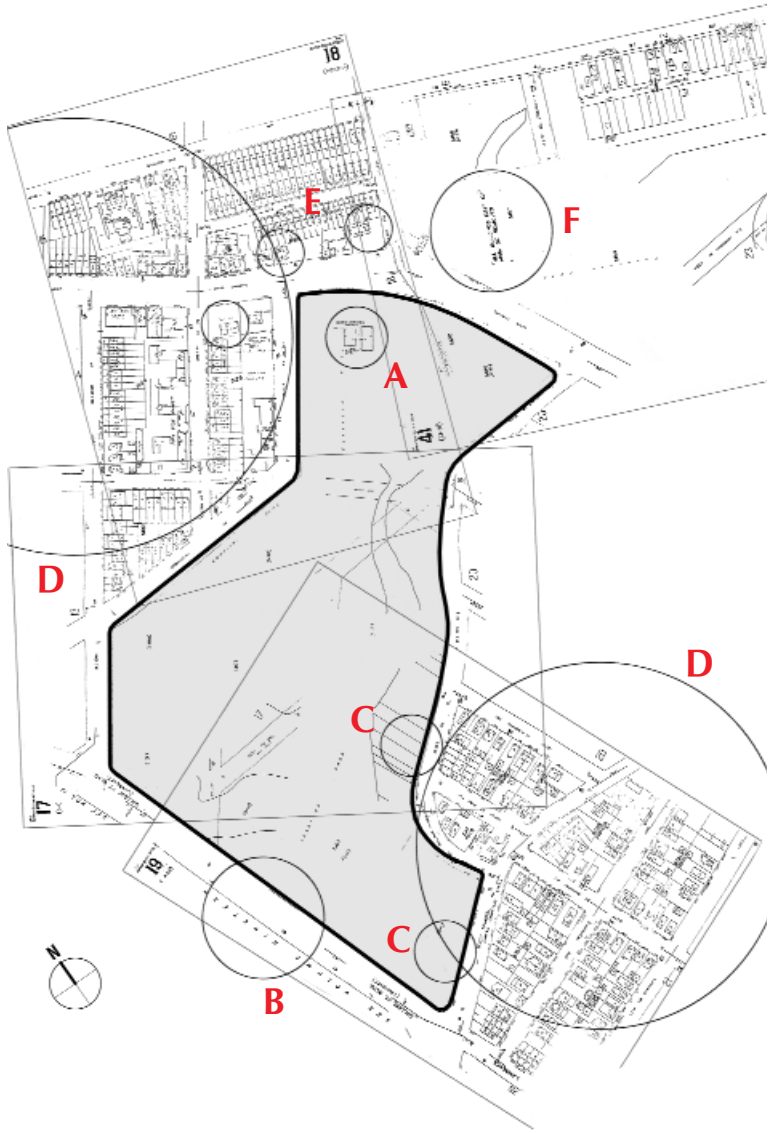
1990 Map

A) Existing temporary QBG buildings since added
B) Existing QBG Education and Maintenance buildings
C) Church
D) Buildings removed

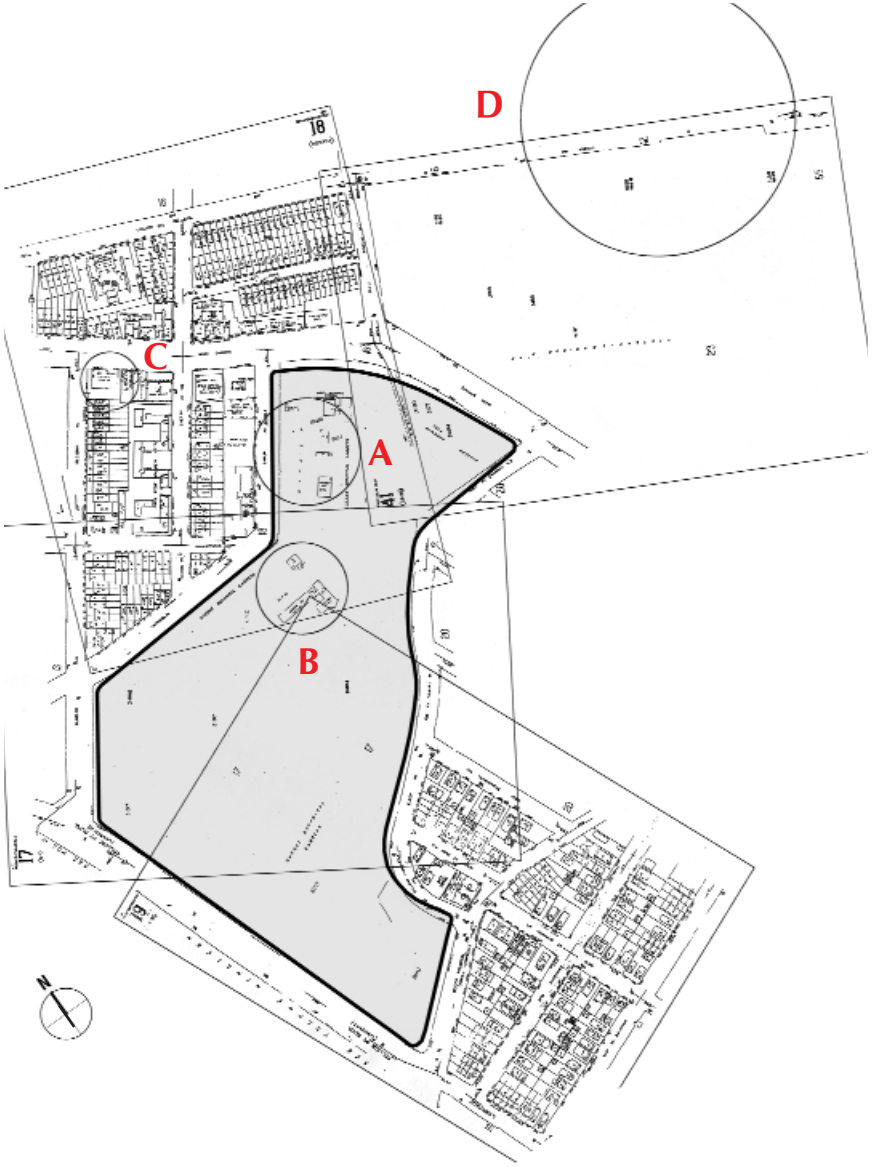
Existing Conditions Aerial with 1903 Mill Creek Alignment

A) Queens Botanical Garden *(purple line)*
B) Kissena Park Corridor
C) Flushing Meadows Corona Park
D) Flushing River
E) Mill Creek

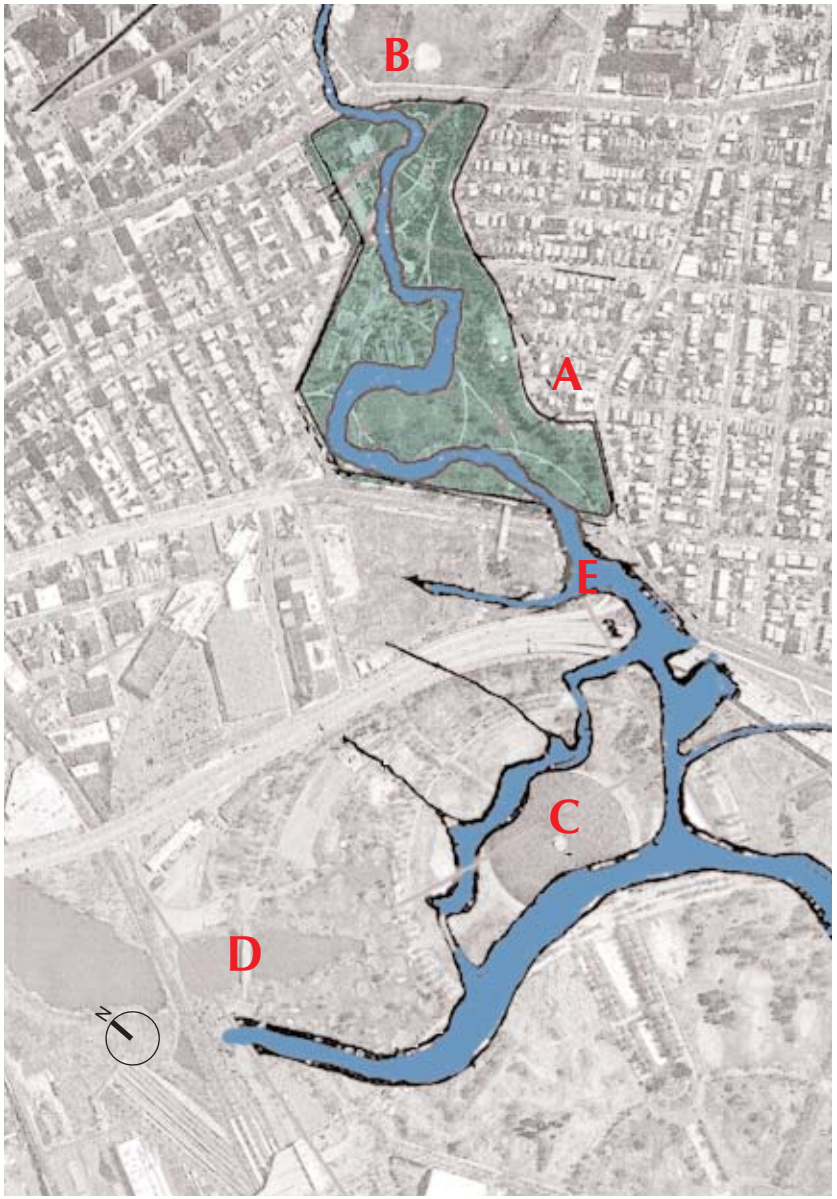
* Historic maps provided by BKSK Architects



1980 Map



1990 Map

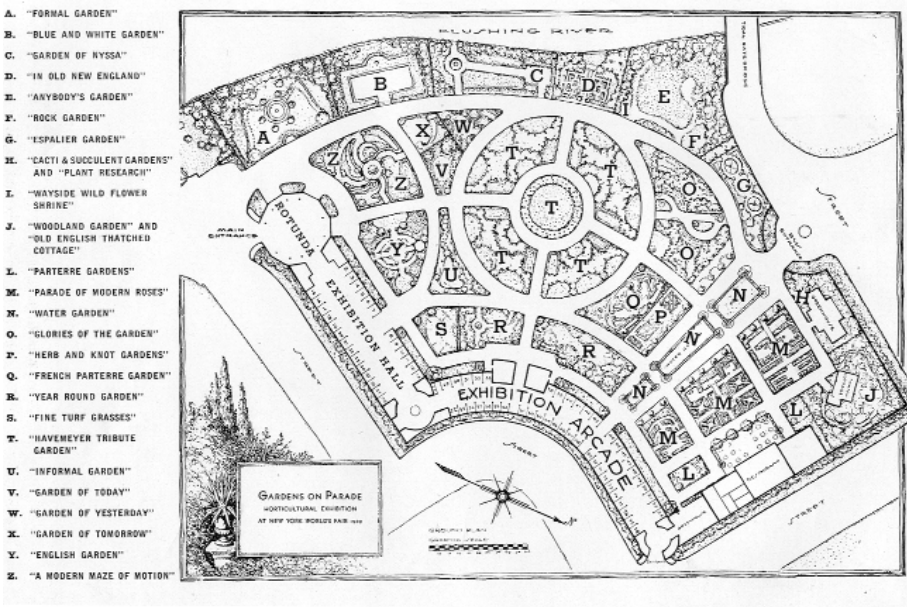


Existing Conditions Aerial with 1903 Mill Creek Alignment

1939 World's Fair

Queens Botanical Garden grew out of 'Gardens on Parade,' a horticultural exhibit at the 1939 World's Fair. It included a series of cultural and collection-based gardens. The Gardens included exhibits meant to inspire gardening enthusiasts, novice and expert alike. Operated by Hortus, Incorporated, a non-profit, membership group, its purpose was "to promote … the art and science of horticulture and the culture and care of trees, shrubs, plants, and flowers…." The exhibit comprised 50 outdoor gardens of many types: formal, informal, woodland, rock, water, naturalistic, perennial, and tropical gardens. Indoor garden displays included 78 educational and commercial exhibits with dioramas, seasonal flowers, and flower arrangements completed by various garden clubs.

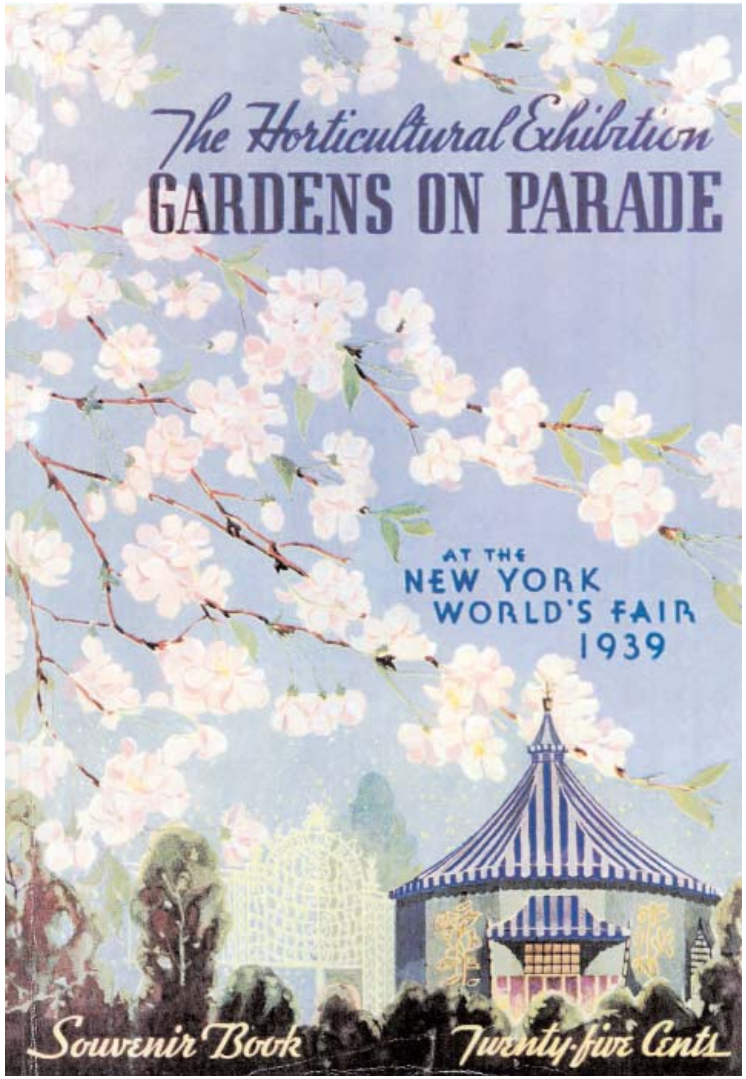
Attracting more than 2,500,000 visitors, 'Gardens on Parade' was touted for its "beauty, entertainment, and interest, a major exhibition at the New York World's Fair" and was located in the "International section of the fair, across the street from England and Italy and near the Netherlands" (QBG Archives, *Facts and Figures on "Gardens on Parade"*).



Original Gardens on Parade Layout, 1939 World's Fair. The Horticultural Exhibition: Gardens on Parade at the New York World's Fair. Souvenir Book Collection, Queens Botanical Garden.

Images of water feature displays at the 1939 World's Fair. The Horticultural Exhibition: Gardens on Parade at the New York World's Fair. Souvenir Book Collection, Queens Botanical Garden.

1939 World's Fair. Gardens on Parade Gate. Gardens on Parade Souvenir Book Collection, Queens Botanical Garden.

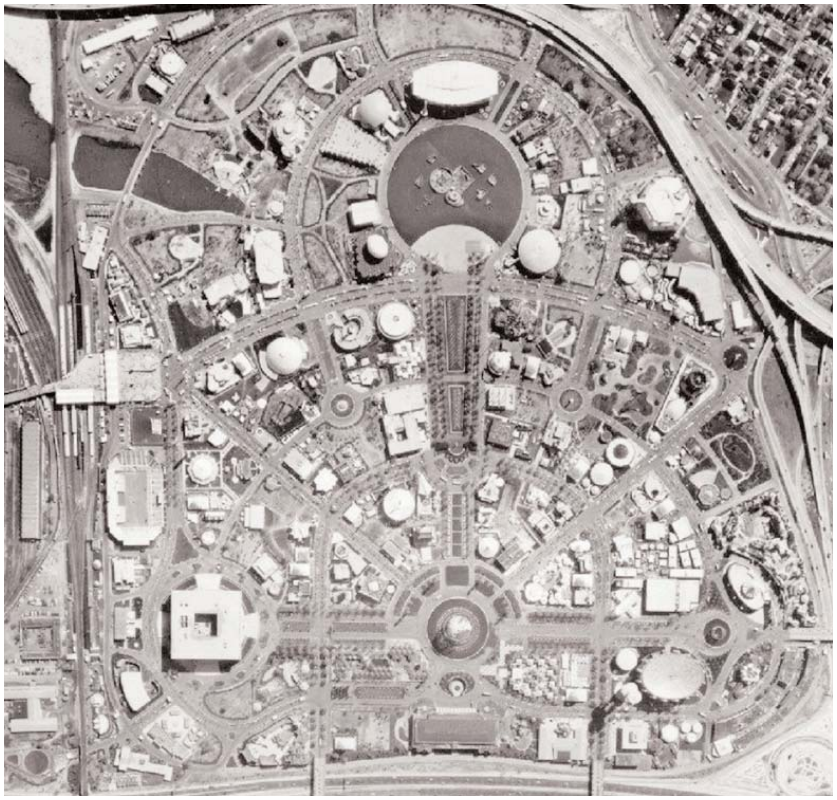


1939 World's Fair Souvenir Book. Gardens on Parade Souvenir Book Collection, Queens Botanical Garden.

1964 World's Fair *and the expansion of*

Queens Botanical Garden

A second World's Fair was held in New York City in 1964. In order to make room for the new fair, Queens Botanical Garden was redesigned and relocated to a 39-acre park site, north of College Point Boulevard within the Kissena Park Corridor. Three Blue Atlas Cedars that continue to grace the Main Street Entrance of QBG, as well as other plantings, were moved from the original site.



Aerial view of the 1964 World's Fair.

Documentation of the relocation of the Queens Botanical Garden to its current site. QBG Archive Collection.

Aerial perspectives of recently completed path system, Administration Building, and garden improvements from 1964. New York World's Fair 1964-1965 Corporation, Post Fair Plan Queens Zoological and Botanical Gardens.

Existing Botanical Garden
and
Proposed Zoological Garden

1964 Master Plan proposing a Zoo as endorsed by Robert Moses. Post Fair plan, Queens Zoological and Botanical gardens. New York World's Fair 1964-1965 Corporation, Post Fair Plan Queens Zoological and Botanical Gardens.

Initial Master Planning Efforts

With an eye to the future, Queens Botanical Garden began a planning process that will honor the past, celebrate the present, and welcome the future. The initial master planning effort began in 1964 when Robert Moses endorsed the *Post Fair Plan - Queens Zoological and Botanical Gardens*, which proposed a zoo in the Arboretum's present location. The second step in the process was a master planning study done by Peter Gisolfi Associates, commissioned by the City of New York Department of General Services, and approved by the Art Commission on July 31, 1991. This was the first effort that included a plan for the entire 39 acres of QBG.

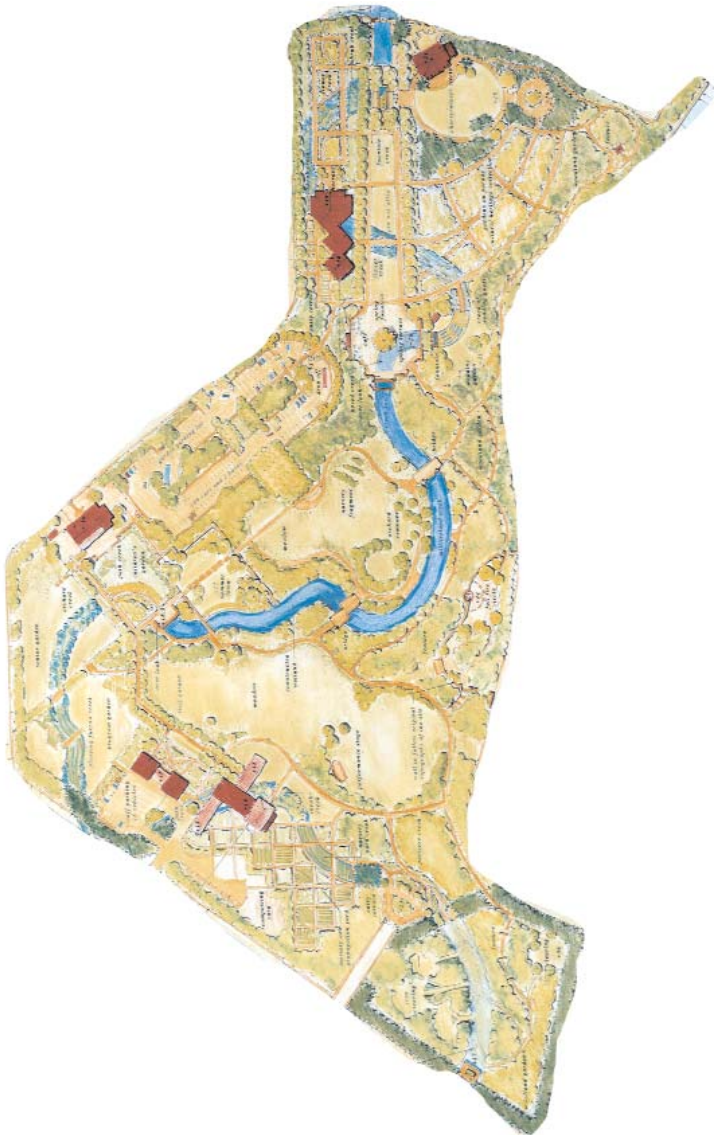
The adoption of a new vision in 1997 sought to make QBG "the botanical garden noted for presentation of plants as unique expressions of cultural traditions." In 1999, the landscape architectural team of Susan Wisniewski and Jamie Crelly Purinton was retained by QBG to help develop a Phase I Master Plan in line with this vision that would also express QBG's commitment to environmental stewardship. This effort produced Phase I of the Queens Botanical Garden Master Plan.

With a focus on community participation, workshops were conducted that engaged the community and staff. The result is a strong design framework that allows flexibility in order for QBG to continue to meet the needs of a changing community.

The Phase I Master Plan articulated six working design concepts for expressing cultural diversity and sustainable principles:

1. Celebrate Local Identity
Celebrate diversity. Encourage original expressions as found in staff creations or participatory gardens. Take cues from the local domestic architecture and liveliness found throughout Main Street.

2. Reveal Layers



Conceptual Master Plan - Phase I (Purinton and Wisniewski 2000)

Photos courtesy of Purinton and Wisniewski 2000.

Reveal the complexity of the site's history in layers. The existing landscape is rich with opportunities for interpretation. Remember the cultural and ecological history of this specific place and the cultural origins of its visitors.

3. Develop "Take Home Lessons" about Sustainability
Emphasize the important educational and environmental mission of changing how people live. Take cues from neighborhood landscapes and build into them sustainable practices.

4. Foster Participation and Experience
Expand and bring to the foreground participatory areas of the Garden. Make more visible the Children's, Senior, and Staff/Volunteer gardens. Every garden space and facility at QBG should enhance public participation.

5. Create Gathering Places
Create places where many cultures may come together around festivities and rituals. Emphasize the distinctions between cultures, not by creating separate gardens, but by revealing commonalties among cultures.

6. Encourage Dialogue and Evoke Curiosity
Ask questions and give alternate versions instead of giving one history or one cultural story. Expose diverse approaches to gardening and experiences with plants.

After a thorough review of each existing garden space that incorporated comments and recommendations from QBG staff and the community, it was apparent that water is important to people all over the world. And because a buried branch of the Flushing River runs below the site, it was decided that water, which unifies this site and all people, would be a peaceful metaphor for Queens Botanical Garden.

The Planning Workshop

The continuation of the process led QBG to retain the design team of Conservation Design Forum and Atelier Dreiseitl to prepare Phase II of the master plan. Conservation Design Forum, based in Chicago, is a nationally recognized multidisciplinary consulting firm of landscape architects, planners, botanists, environmental scientists, and water resource engineers focused on the creative integration of ecologically and culturally sustainable community planning, design, and development techniques. Atelier Dreiseitl, located in Uberlingen, Germany, specializes in the use of water as living systems, and has designed and installed many breathtakingly beautiful and functional water elements in public spaces worldwide.

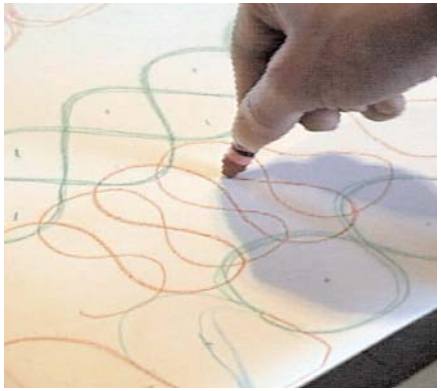
Building upon the research, community involvement, and idea testing developed in Phase I, the design team began this phase of the planning process in February 2001. The team began by conducting a workshop that involved QBG staff, local community members, members of the Board of Trustees, BKSK Architects, and other consultants working on parallel capital projects within the Garden.

With the theme of water, this workshop started with a series of events that involved hands-on participation with the community, staff, and designers. Interactive water displays helped create a communication forum where experiences, knowledge, and memories of water were shared.

Community workshop at Queens Botanical Garden, 2001. Photos courtesy of Audrey Gottlieb.

Following a day of design charrettes, the community and staff were introduced to the first design ideas for the Phase II Master Plan. This forum allowed for immediate feedback and comment to ensure a partnership of the design team with the community. Initial design concepts developed during the workshop proposed to define QBG as two distinct landscape typologies. The first of these involves horticultural or cultivated garden spaces. In contrast, the other features a more naturalistic landscape where plants native to the area will be displayed in communities. Interweaving water and sustainable ideas throughout both landscapes, the garden spaces will, above all, evoke relationships with the land and cultural commonalties.

Community workshop at Queens Botanical Garden, 2001. Photos courtesy of Audrey Gottlieb.

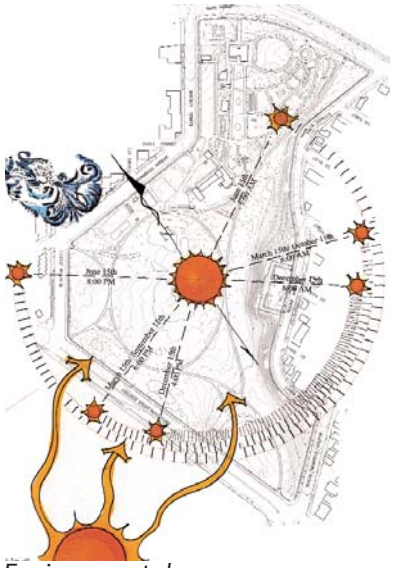


Sharing design concepts with QBG visitors. Photo courtesy of Conservation Design Forum.

Existing Features Diagrams

A thorough understanding of the natural and cultural features of Queens Botanical Garden site was developed through observation, research, and dialogue. A series of maps and diagrams meant to summarize that information was developed in order to communicate the relationship between the arrangement of program elements in the Master Plan and these existing features. For example, an understanding of environmental influences such as solar aspect and prevailing wind is key to developing sustainable structures and landscapes.

1998 Aerial photograph of QBG site

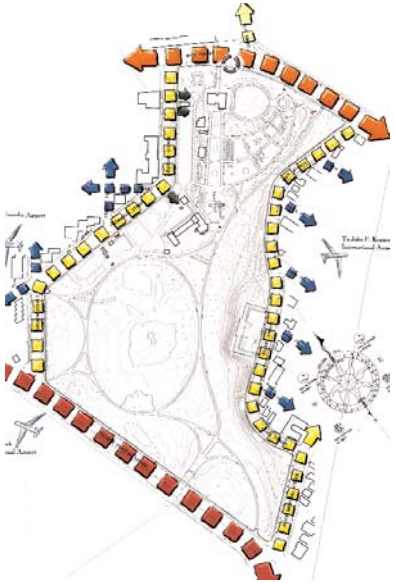


Environmental

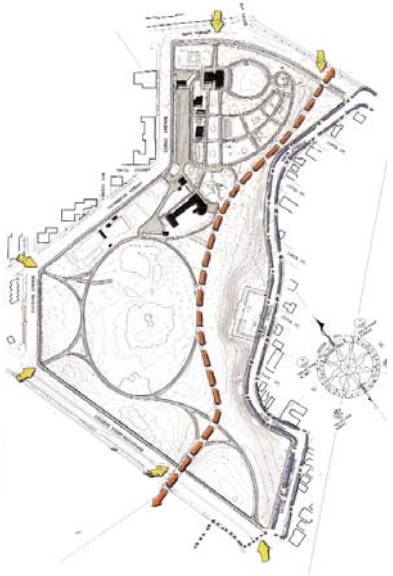
Trees

Surface Drainage

Adjacent Land Uses and Views



Vehicular Circulation

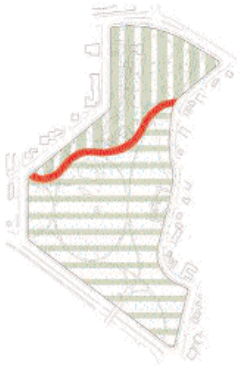


Pedestrian Circulation

Site Planning Diagrams

The initial workshop resulted in the identification of several important planning issues based upon the observations of the design team and comments from participants. The following diagrams summarize the key points, which are the basis of the Master Plan site concept.

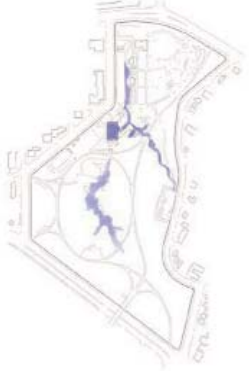
1. Current Mill Creek Legacy



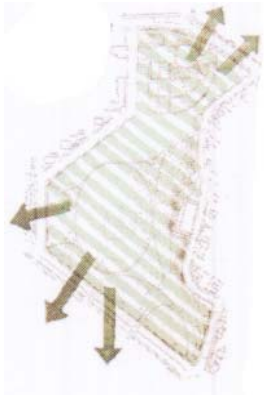
2. Current Separation of Land Uses

3. Current Buildings as Barriers

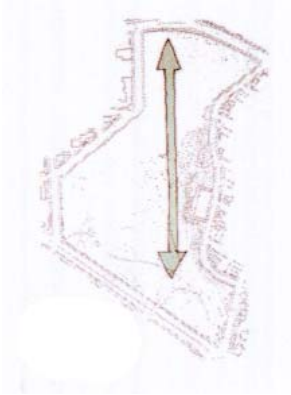
4. Create an Environmental Bridge



5. Integrate and Interconnect Water as a Feature and System



6. Promote Greenway Connections



7. Reconnect the Garden unto Itself

8. Site Buildings as Thresholds into the Garden

9. Reduce Noise and Increase Views

10. Enhance a Cultivated and Natural Landscape Dialectic

Conceptual Landscape Master Plan
(Feb 2001 - initial study)

Conceptual Landscape Master Plan
(May 2001 - initial draft)

Conceptual Landscape Master Plan
(August 2001 draft)

A comprehensive list of program elements derived from community workshops and QBG input was developed in the Phase I Master Plan. This program list has been refined and expanded based upon further discussions, staff dialogue, and the application of different ideas to the plan. A complete detailed program list for all of the components of the Master Plan appears in Appendix A. Each of the physical elements of Queens Botanical Garden is planned to demonstrate a harmonious blending of cultural expressions with sustainable, practical approaches. Some highlights include:

Water System and Components

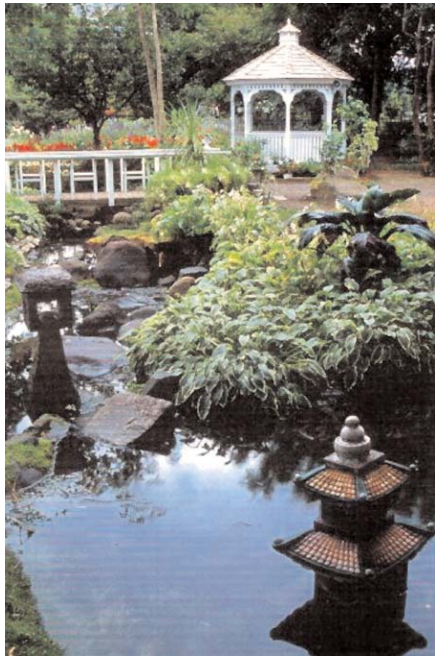
Water systems and other basic infrastructure elements will be constructed or expanded to accommodate the new facilities and arrangements of the Master Plan.

Rainwater will be collected and deployed in a variety of ways for plant irrigation and water garden elements in order to avoid surface water discharge and eliminate the need for municipal water supplies for garden maintenance.

Wastewater will be collected, recycled, and reused on-site as part of a sustainable approach to water resource management.

Drinking fountains, public telephones, informational signage, seating, waste recycling and collection facilities, and other site furnishings will be conveniently located, and produced with the most sustainable materials and products available.

The Wedding Garden at Queens Botanical Garden. Photo copyright Betsy Pinover Schiff.



Garden Areas

The most important component of the program is, of course, the gardens themselves. This Master Plan includes plans both for new garden spaces and for the updating or reorganization of existing gardens based upon the overall vision. A combination of functional and aesthetic considerations has directed the arrangement and design of the various spaces.

In creating and enhancing gardens, construction will minimize or eliminate the removal of waste materials from the site. Materials will be recycled or reused whenever possible. Green materials - including those locally obtained, highly durable, with minimal or no toxicity and/or recycled - will be used throughout.

Soils will be enhanced through the addition of organic compounds locally obtained. Composting areas will be conveniently located throughout the Garden for ease of use and to demonstrate sustainable gardening practices. Gardens that require supplemental irrigation will be watered with collected rainwater.

Some of the gardens will have small shelters or pavilions to provide storage, outdoor classrooms, and places for rest and enjoyment.

The Children's Garden at Queens Botanical Garden. Photo courtesy of Conservation Design Forum.

Buildings and Shelters

As support facilities to the gardens, all of the built elements will be designed as enhancements to the space they occupy. New buildings will fit "seamlessly" into the landscape, providing connections between indoor and outdoor space. At QBG, the landscape and how people interact with it are the most important attributes. The structures simply provide a level of shelter and protection for certain activities and uses within the Garden. The orientation and arrangement of structures are meant to enrich their functioning through propinquity with each other and with garden elements. Every place within the Garden, including every place inside of and adjacent to structures, should be stunningly beautiful and full of living things.

The buildings have been clustered on the northwest edge of the site to minimize the footprint of non-garden elements within QBG, and to reinforce the urban edge on the opposite side of the street.

A new "green" Administration Building will house QBG staff and serve as a model for sustainability by incorporating a green roof, rainwater collection and recycling systems, photovoltaics, and energy-efficient devices.

A new Education Center will include the main visitor reception and information area, education space for children and adults, offices for education and research staff, and learning resources such as a library, herbarium, and computer lab. The Education Center is also the location for a café, maintenance building, and greenhouses. This facility is centrally located and visible to improve the interaction between garden care and stewardship, education, and garden use. Rainwater will be collected from the roofs of these structures and brought to a cistern welcoming visitors at the secondary entrance.

An Events Center will provide sheltered space within the Garden for receptions, gatherings, and lectures for larger groups. A rooftop garden will provide outdoor gathering space while demonstrating "green" building principles.

A green roof on a garden shed. Photo courtesy of Conservation Design Forum.

Access and Circulation

It is important that everyone's perception of the Garden from any vantage point is one of beauty, a tranquil oasis in the middle of a bustling community. The perimeter has recently been secured with a decorative steel picket fence with plant medallions, a signature tree gate sculpture, and stone columns, providing a consistent, attractive visible edge. As part of being an aesthetic enhancement to the community, the parkway space between the fence and the curb will be enhanced and maintained as a pleasant pedestrian environment with improved paving, consistent shade trees, and ornamental plantings that express the essence of the Garden. This will be done in collaboration with the City of New York's Parks Department.

The multi-use bike trail that has been relocated to the outside eastern edge of the Garden is an important link between the Kissena Park Corridor and Flushing Meadows Corona Park. These connections will be planned to provide safe, pleasant, convenient access to pedestrians and cyclists.

The Garden is accessible to pedestrians through the front gate, and through the gated Parking Garden/drop-off site on Crommelin Street. Circulation through the Garden and to various facilities will be safe, accessible, intuitive, and beautiful. The scale, hierarchy, and materials of paths will enhance wayfinding in a subtle but perceivable way.

Lighting of the Garden will provide safety and security, create an attractive nightscape, and minimize energy usage.

Access for cars, buses, and other vehicles will be through the gated Parking Garden along Crommelin Street. The areas for car parking are designed to be pleasant, green, gardenlike spaces that will enhance the initial impressions of the Garden for those arriving by car.

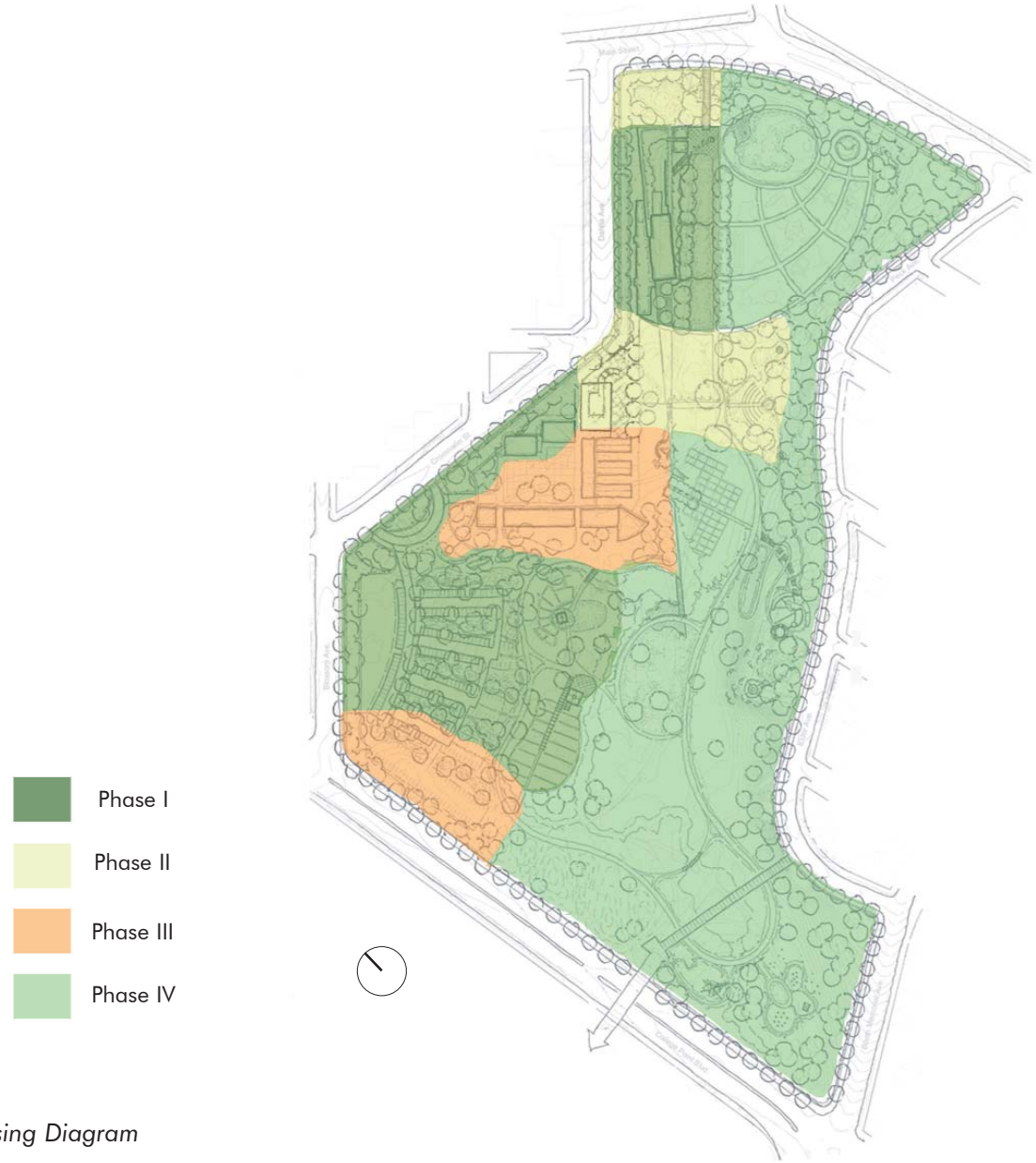
Naturalized plantings along a walking trail. Photo courtesy of Conservation Design Forum.

Implementation and Phasing

The implementation of Phase I is the beginning of a strategy to realize the Master Plan vision. The first phase of development includes a new Administration Building and Maintenance Facility, both being designed by BKSK Architects; the gardens and water features associated with the new buildings; a Parking Garden with approximately 125 spaces that includes permanent and overflow parking; an automobile drop-off court; and relocation of the Village Gardens to a more central location within QBG, giving them more prominence and importance.

The detailed planning and design of this initial phase has been happening concurrently with this master planning process, to the benefit of both efforts. Additional phases have been outlined on the accompanying graphic with the understanding that phase lines may change based on the availability of funds. Phase II is anticipated to include the Main Street Entry Plaza, Couples Garden, the Events Center, the extension of the Central Plaza from the Administration Building and the Main Street Corner Garden. Phase III is anticipated to include the Visitor Center and Café, the Education Building, the Greenhouses and Plant Shop, an extension to the maintenance yard, the Welcome Garden, and expansion of the Parking Garden. Phase IV is anticipated to include the Gardens on Parade, the Sun and Moon Garden, the Wildlife Gardens, the Horticultural Heritage Garden, the Celebration Green, additional garden spaces, and the bridge.

One element of the Master Plan that will be ongoing through all phases of work will be the creation of the stormwater management system and restoration of the various ecotypes discussed in the Wildlife Gardens. These two processes work hand-in-hand and rely on one another to be successful as a stormwater management tool. The wetlands will help cleanse and distribute water while the upland restoration landscapes will infiltrate rainwater, recharging the wetland system naturally as water did in pre-settlement times.



Phasing Diagram

Queens Botanical Garden

Construction Cost Summary

	Total Cost
Main Street Entry Plaza	*$542,000*
Main Street Corner Garden	*$192,000*
Administration Building and Garden Strip	*$6,093,000*
Administration Building Cleansing Biotope/Water Feature	*$263,500*
Administration Building Terrace	*$49,000*
Street Gardens at Administration Building	*$131,000*
Gardens on Parade	*$637,000*
Central Gardens/Pin Oak Alleé	*$178,000*
Cherry Circle	*$193,500*
Couples Garden	*$455, 500*
Horticultural Heritage Garden	*$366,000*
Events Center and Outdoor Space	*$3,402,000*
Greenhouses, Plant Shop, and Outdoor Space	*$6,000,000*
Visitor Center, Café, and Outdoor Space	*$3,420,000*
Education Center and Outdoor Space	*$8,943,000*
Maintenance Yard	*$1,331,000*
Street Gardens and Maintenance Building	*$76,500*
Welcome Garden	*$1,217,000*
Vehicular Drop-off Court	*$272,000*
Parking Garden	*$1,221,500*
The Village Gardens	
Children's Garden	*$525,000*
Senior Garden	*$302,500*
Celebration Green	*$445,000*
Sun and Moon Garden	*$2,262,000*
Wildlife Gardens	*$1,061,500*
Additional Garden Spaces	*$930,000*
Pedestrian Trails	*$445,000*
Bicycle/Pedestrian Bridge	*$1,325,000*
Art Allowance	*$1,000,000*

Preliminary opinion of Cost Subtotal* **	*$42,984,000*
10% Design Contingency	*$4,298,000*
15% Construction Contingency	*$6,448,000*
Preliminary Opinion of Cost Total	*$53,730,000*

* All figures rounded to the nearest $500
** All figures calculated in 2001 dollars

These numbers do not include costs associated with New York City's capital construction management.

Queens Botanical Garden

Construction Cost Estimate

Description	Quantity	Unit	Unit Cost	Total Cost
Main Street Entry Plaza				
Demolition			Allowance	$50,000
Grading			Allowance	$10,000
Soil Backfill	250	CY	$40.00	$10,000
Paving	8,000	SF	$8.00	$64,000
Water Feature			Allowance	$150,000
Constructed Wetland/Gray Water System			Allowance	$140,000
Lighting			Allowance	$50,000
Kiosk/Signage			Allowance	$15,000
Landscape				
Trees	10	Each	$300.00	$3,000
Planting Beds	8,000	SF	$5.00	$40,000
Site Furnishings			Allowance	$10,000
			Main Street Entry Plaza subtotal	*$542,000*
Main Street Corner Garden				
Demolition			Allowance	$7,500
Grading			Allowance	$7,500
Soil Backfill	100	CY	$40.00	$4,000
Paving	5,000	SF	$8.00	$40,000
Water Feature			Allowance	$25,000
Lighting			Allowance	$15,000
Landscape				
Trees	10	Each	$300.00	$3,000
Planting Beds	16,000	SF	$5.00	$80,000
Site Furnishings			Allowance	$10,000
			Main Street Corner Garden subtotal	*$192,000*
Administration Building and Garden Strip				
Administration Building			per BKSK Architects	$6,000,000
Demolition			Allowance	$2,500
Grading			Allowance	$5,000
Soil Backfill	100	CY	$40.00	$4,000
Paving	1,500	SF	$6.00	$9,000

Description	Quantity	Unit	Unit Cost	Total Cost
Water Collection/Irrigation			Allowance	$10,000
Lighting			Allowance	$10,000
Plant Rescue			Allowance	$10,000
Landscape				
Planting Beds	8,500	SF	$5.00	$42,500
			Administration Building subtotal	*$6,093,000*
Administration Building Cleansing Biotope/Water Feature				
Demolition			Allowance	$5,000
Grading			Allowance	$7,500
Paving	500	SF	$12.00	$6,000
Cleansing Biotope	1	Each		$100,000
Water Feature	1	Each		$125,000
Lighting			Allowance	$10,000
Plant Rescue			Allowance	$10,000
			Administration Building Biotope subtotal	*$263,500*
Administration Building Terrace				
Demolition			Allowance	$4,000
Grading			Allowance	$2,500
Paving	4,200	SF	$8.00	$33,500
Trees	4	Each	$500.00	$2,000
Tree Grates	4	Each	$500.00	$2,000
Plant Rescue			Allowance	$5,000
			Administration Building Terrace subtotal	*$49,000*
Street Gardens at Administration Building				
Demolition			Allowance	$15,000
Grading			Allowance	$5,000
Soil Backfill	200	CY	$40.00	$8,000
Paving	10,000	SF	$5.00	$50,000
Landscape				
Trees	6	Each	$300.00	$2,000
Planting Beds	10,000	SF	$5.00	$50,000
Street Repair			Allowance	$1,000
			Street Gardens at Admin. Bldg. subtotal	*$131,000*

Description	Quantity	Unit	Unit Cost	Total Cost
Gardens on Parade				
Demolition			Allowance	$30,000
Grading			Allowance	$15,000
Soil Backfill			Allowance	$50,000
Paving	24,000	SF	$8.00	$192,000
Water Feature			Allowance	$50,000
Lighting			Allowance	$75,000
Plant Rescue			Allowance	$25,000
Landscape			Allowance	$100,000
Site Furnishings			Allowance	$50,000
Signage			Allowance	$50,000
			Gardens on Parade subtotal	*$637,000*
Central Gardens/Pin Oak Alleé				
Demolition			Allowance	$5,000
Grading			Allowance	$5,000
Soil Backfill	250	CY	$40.00	$10,000
Paving	6,000	SF	$8.00	$48,000
Landscape				
Planting Beds	15,000	SF	$5.00	$75,000
Water Collector/Irrigation			Allowance	$10,000
Lighting			Allowance	$25,000
			Central Gardens/Pin Oak Alleé subtotal	*$178,000*
Cherry Circle				
Demolition			Allowance	$7,500
Grading			Allowance	$15,000
Soil Backfill	200	CY	$40.00	$8,000
Paving	8,500	SF	$8.00	$68,000
Water Feature			Allowance	$75,000
Landscape				
Planting Beds			Allowance	$10,000
Lighting			Allowance	$10,000
			Cherry Circle subtotal	*$193,500*
Couples Garden				
Demolition			Allowance	$25,000
Grading			Allowance	$50,000

Description	Quantity	Unit	Unit Cost	Total Cost
Soil Backfill	1,000	CY	$40.00	$40,000
Main Pavilion Area		1	Allowance	$35,000
Secondary Pavilion Areas		2	Allowance	$20,000
Seating Area			Allowance	$5,000
Paving	2,500	SF	$8.00	$20,000
Entrance Feature			Allowance	$10,000
Water Feature			Allowance	$75,000
Lighting			Allowance	$15,000
Landscape				
Trees	10	Each	$300.00	$3,000
Planting Beds	30,000	SF	$5.00	$150,000
Site Furnishings			Allowance	$7,500
			Couples Garden subtotal	*$455,500*
Horticultural Heritage Garden				
Demolition			Allowance	$25,000
Grading			Allowance	$25,000
Soil Backfill	2,500	CY	$40.00	$100,000
Garden Structure	1		Allowance	$25,000
Paving			Allowance	$25,000
Water Feature			Allowance	$75,000
Lighting			Allowance	$20,000
Landscape				
Trees	20	Each	$300	$6,000
Planting Beds			Allowance	$25,000
Compost Area			Allowance	$20,000
Site Furnishings			Allowance	$10,000
Signage			Allowance	$10,000
			Horticultural Heritage Garden subtotal	*$366,000*
Events Center and Outdoor Space				
Demolition			Allowance	$25,000
Grading			Allowance	$25,000
Soil Backfill	1,000	CY	$40.00	$40,000
Events Building	6,000	SF	$500.00	$3,000,000
Paving	10,000	SF	$12.00	$120,000
Ornamental Wrought Iron Gate			Allowance	$30,000
Water Feature			Allowance	$50,000
Lighting			Allowance	$35,000

Description	Quantity	Unit	Unit Cost	Total Cost
Landscape				
Trees	10	Each	$500.00	$5,000
Planting Beds	5,000	SF	$5.00	$25,000
Compost Area			Allowance	$20,000
Street Gardens	3,500	SF	$5.00	$17,500
Site Furnishings			Allowance	$10,000
Signage			Allowance	$10,000
			Events Center and Outdoor Space subtotal	*$3,412,000*
Greenhouses, Plant Shop, and Outdoor Space				
Demolition			Allowance	$25,000
Grading			Allowance	$25,000
Soil Backfill	1,000	CY	$40.00	$40,000
Working Greenhouses	4,800	SF	$350.00	$1,680,000
Public Greenhouses	3,500	SF	$500.00	$1,750,000
Education Greenhouse	1,200	SF	$500.00	$600,000
Potting Room	3,500	SF	$350.00	$1,225,000
Plant Shop	1,200	SF	$400.00	$480,000
Paving	5,000	SF	$8.00	$40,000
Water Collection/Irrigation			Allowance	$20,000
Fence	200	LF	$60.00	$12,000
Lighting			Allowance	$20,000
Landscape				
Trees	10	Each	$300.00	$3,000
Planting Beds	2,000	SF	$5.00	$10,000
Compost Area			Allowance	$50,000
Site Furnishings			Allowance	$10,000
Signage			Allowance	$10,000
			Greenhouses, Plant Shop, and Outdoor subtotal	*$6,000,000*
Visitor Center, Café, and Outdoor Space				
Demolition			Allowance	$25,000
Grading			Allowance	$25,000
Soil Backfill	1,500	CY	$40.00	$60,000
Visitor Center	3,840	SF	$500.00	$1,920,000
Café	1,000	SF	$500.00	$500,000
Security Station	200	SF	$350.00	$70,000
Paving	10,000	SF	$12.00	$120,000
Stairs at Pond			Allowance	$50,000
Water Feature			Allowance	$50,000
Pond			Allowance	$450,000
Lighting			Allowance	$35,000

Description	Quantity	Unit	Unit Cost	Total Cost
Landscape				
Trees	15	Each	$500.00	$7,500
Planting Beds	7,500	SF	$5.00	$37,500
Compost Area			Allowance	$30,000
Site Furnishings			Allowance	$15,000
Signage			Allowance	$25,000
			Visitor Center, Café, and Outdoor Space subtotal	*$3,420,000*
Education Center and Outdoor Space				
Demolition			Allowance	$25,000
Grading			Allowance	$25,000
Soil Backfill	1,000	CY	$40.00	$40,000
Education Building	17,300	SF	$500.00	$8,650,000
Paving	7,500	SF	$8.00	$60,000
Water Feature			Allowance	$35,000
Lighting			Allowance	$25,000
Landscape				
Trees	10	Each	$300.00	$3,000
Planting Beds	2,000	SF	$5.00	$10,000
Compost Area			Allowance	$50,000
Site Furnishings			Allowance	$10,000
Signage			Allowance	$10,000
			Education Center and Outdoor Space subtotal	*$8,943,000*
Maintenance Yard				
Maintenance Building			per BKSK Architects	$1,000,000
Demolition			Allowance	$17,000
Grading			Allowance	$7,500
Soil Backfill	200	CY	$40.00	$8,000
Utilities			Allowance	$25,000
Paving, Maintenance Yard	17,000	SF	$4.00	$68,000
Paving, Driveway	2,400	SF	$8.00	$19,000
Paving, Perimeter Walkway	6,000	SF	$6.00	$36,000
Staff/Volunteer Patio			Allowance	$20,000
Lighting			Allowance	$20,000
Landscape				
Trees	10	Each	$300.00	$3,000
Planting Beds	7,500	SF	$5.00	$37,500
Compost Area			Allowance	$50,000
Site Furnishings			Allowance	$10,000
Signage			Allowance	$10,000
			Maintenance Yard sub-total	*$1,331,000*

Description	Quantity	Unit	Unit Cost	Total Cost
Street Gardens and Maintenance Building				
Demolition			Allowance	$10,000
Grading			Allowance	$5,000
Soil Backfill	300	CY	$40.00	$12,000
Landscape				
Trees	6	Each	$300.00	$2,000
Planting Beds	7,500	SF	$5.00	$37,500
Water Collection/Irrigation System			Allowance	$10,000
			Street Gardens and Maintenance Bldg. subtotal	*$76,500*
Welcome Garden				
Demolition			Allowance	$20,000
Grading			Allowance	$7,500
Soil Backfill	1,500	CY	$40.00	$60,000
Aqueduct System with Cistern			Allowance	$750,000
Water Feature			Allowance	$100,000
Paving	10,000	SF	$8.00	$80,000
Paving	6,000	SF	$5.00	$30,000
Kiosk/Signage			Allowance	$10,000
Plant Rescue			Allowance	$10,000
Landscape				
Trees	15	Each	$300.00	$4,500
Planting Beds	12,000	SF	$5.00	$60,000
Lighting			Allowance	$75,000
Site Furnishings			Allowance	$10,000
			Welcome Garden subtotal	*$1,217,000*
Vehicular Drop-off Court				
Demolition			Allowance	$16,000
Grading			Allowance	$10,000
Soil Backfill	300	CY	$40.00	$12,000
Paving (Daily Use)	6,000	SF	$8.00	$48,000
Paving (Overflow)	2,000	SF	$5.00	$10,000
Sidewalk	3,600	SF	$8.00	$29,000
Curb Cuts			Allowance	$2,000
Reconstruct Street Sidewalk	1,500	SF	$7.00	$10,500
Street Curbs	150	LF	$9.00	$1,500
Street Repairs			Allowance	$4,000
Relocation of Ornamental Fence	160	LF	$250.00	$40,000
Ornamental Wrought Iron Gate			Allowance	$30,000
Ornamental Bollards			Allowance	$10,000
Landscape				

Description	Quantity	Unit	Unit Cost	Total Cost
Trees	6	Each	$300.00	$2,000
Planting Beds	3,500	SF	$5.00	$17,500
Lighting			Allowance	$30,000
			Vehicular Drop-off Court subtotal	*$272,000*
Parking Garden				
Demolition			Allowance	$20,000
Grading			Allowance	$30,000
Soil Backfill	5,000	CY	$40.00	$200,000
Paving (Daily Use)	50,000	SF	$8.00	$400,000
Paving (Overflow)	35,000	SF	$6.00	$210,000
Parking Edge Restraint	2,600	LF	$30.00	$78,000
Trail Connections	1,500	SF	$6.00	$9,000
Water Collector/Irrigation	1,300	LF	$40.00	$52,000
Landscape				
Trees	75	Each	$300.00	$22,500
Planting Beds			Allowance	$100,000
Lighting			Allowance	$100,000
			Parking Garden subtotal	*$1,221,500*
Children's Garden				
Demolition			Allowance	$10,000
Grading			Allowance	$30,000
Soil Backfill	5,000	CY	$40.00	$200,000
Paving	3,500	SF	$8.00	$28,000
Shed/Garden Structure			Allowance	$55,000
Bridge Feature			Allowance	$55,000
Fence	400	LF	$40.00	$16,000
Landscape				
Trees	10	Each	$300.00	$3,000
Planting Beds	12,000	SF	$4.00	$48,000
Compost Area			Allowance	$15,000
Water Collector/Irrigation			Allowance	$50,000
Lighting			Allowance	$7,500
Site Furnishings			Allowance	$7,500
			Children's Garden subtotal	*$525,000*
Senior Garden				
Demolition			Allowance	$10,000
Grading			Allowance	$20,000

Description	Quantity	Unit	Unit Cost	Total Cost
Soil Backfill	1,200	CY	$40.00	$48,000
Paving	1,500	SF	$8.00	$12,000
Shed/Garden Structure			Allowance	$55,000
Trellis Structure	170	LF	$60.00	$10,000
Bridge Feature			Allowance	$40,000
Fence	500	LF	$40.00	$20,000
Landscape				
Trees	10	Each	$300.00	$3,000
Planting Beds	8,000	SF	$4.00	$32,000
Compost Area			Allowance	$15,000
Water Collector/Irrigation			Allowance	$20,000
Lighting			Allowance	$7,500
Site Furnishings			Allowance	$10,000
			Senior Garden subtotal	*$302,500*
Celebration Green				
Demolition			Allowance	$10,000
Grading			Allowance	$10,000
Soil Backfill	3,000	CY	$40.00	$120,000
Amphitheater stage			Allowance	$75,000
Sculpture			Allowance	$150,000
Paving	5,000	SF	$8.00	$40,000
Landscape			Allowance	$15,000
Lighting			Allowance	$25,000
			Celebration Green subtotal	*$445,000*
Sun and Moon Garden				
Demolition			Allowance	$50,000
Grading			Allowance	$100,000
Soil Backfill	10,000	CY	$40.00	$400,000
Garden Structure			Allowance	$500,000
Cistern			Allowance	$250,000
Fog Sails			Allowance	$80,000
Water Play Elements			Allowance	$100,000
Paving	10,000	SF	$8.00	$80,000
Staircase			Allowance	$75,000
Handicapped Accessible Walkway	5,000	SF	$15.00	$75,000
Fire Circle/Council Ring			Allowance	$50,000
Rock Outcroppings			Allowance	$100,000
Water Feature to Couples Garden			Allowance	$50,000
Landscape				

Description	Quantity	Unit	Unit Cost	Total Cost
Trees	40	Each	$300.00	$12,000
Planting Beds			Allowance	$250,000
Lighting			Allowance	$50,000
Site Furnishings			Allowance	$20,000
Signage			Allowance	$20,000
			Sun and Moon Garden subtotal	*$2,262,000*
Wildlife Gardens				
Bee City/Bird Garden				
Demolition			Allowance	$10,000
Grading			Allowance	$20,000
Soil Backfill	1,000	CY	$40.00	$40,000
Paving	6,000	SF	$8.00	$48,000
Shed/Garden Structure			Allowance	$15,000
Water Feature			Allowance	$30,000
Landscape				
Trees	40	Each	$300	$12,000
Planting Beds			Allowance	$75,000
Compost Area			Allowance	$40,000
Lighting			Allowance	$20,000
Site Furnishings			Allowance	$10,000
Signage			Allowance	$7,500
Woodland Garden				
Demolition			Allowance	$7,500
Grading			Allowance	$7,500
Soil Backfill			Allowance	$10,000
Paving			Allowance	$25,000
Garden Structure			Allowance	$10,000
Water Feature			Allowance	$35,000
Lighting			Allowance	$25,000
Landscape			Allowance	$20,000
Site Furnishings			Allowance	$5,000
Signage			Allowance	$5,000
Ridge and Swale Landscape				
Demolition			Allowance	$7,500
Grading			Allowance	$10,000
Soil Backfill	3,000	CY	$40.00	$120,000
Landscape				
Trees	15	Each	$300.00	$4,500
Planting Beds	50,000	SF	$3.00	$150,000

Description	Quantity	Unit	Unit Cost	Total Cost
Wetland System				
Demolition			Allowance	$7,500
Grading			Allowance	$10,000
Soil Backfill	3,000	CY	$40.00	$120,000
Landscape				
Trees	15	Each	$300.00	$4,500
Planting Beds	50,000	SF	$3.00	$150,000
			Wildlife Gardens subtotal	*$1,061,500*
Additional Garden Spaces				
Demolition			Allowance	$50,000
Grading			Allowance	$75,000
Soil Backfill			Allowance	$100,000
Paving			Allowance	$100,000
Garden Structures			Allowance	$75,000
Landscape				
Trees			Allowance	$20,000
Planting Beds			Allowance	$200,000
Rainwater Overflow System			Allowance	$100,000
Water Collector/Irrigation			Allowance	$50,000
Lighting			Allowance	$75,000
Site Furnishings			Allowance	$35,000
Signage			Allowance	$50,000
			Additional Garden Spaces subtotal	*$930,000*
Pedestrian Trails				
Demolition			Allowance	$30,000
Grading			Allowance	$50,000
Soil Backfill			Allowance	$20,000
Paving	40,000	SF	$8.00	$320,000
Landscape			Allowance	$25,000
			Pedestrian Trails subtotal	*$445,000*
Bicycle/Pedestrian Bridge				
Demolition			Allowance	$50,000
Grading			Allowance	$50,000
Bridge Feature/Overlook			Allowance	$1,000,000
Staircase			Allowance	$25,000
Handicapped Accessible Walkway			Allowance	$25,000
Ornamental Wrought Iron Fence			Allowance	$100,000
Ornamental Wrought Iron Gate			Allowance	$25,000

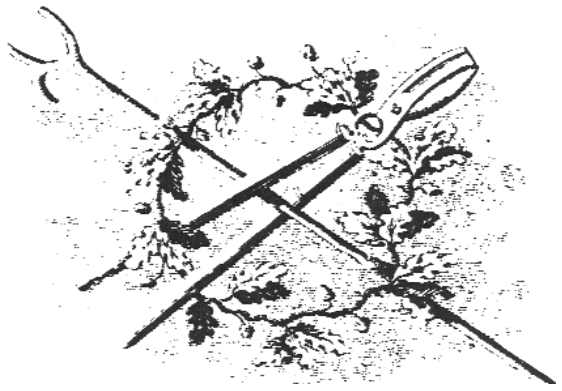
Description	Quantity	Unit	Unit Cost	Total Cost
Landscape			Allowance	$50,000
			Bicycle/Pedestrian Bridge subtotal	*$1,325,000*
Art Allowance				
Artwork			Allowance	$1,000,000
			Art Allowance subtotal	***$1,000,000***
			Preliminary Opinion of Cost Subtotal ***	*$42,984,000*
			10% Design Contingency	*$4,298,000*
			15% Construction Contingency	*$6,448,000*
			Preliminary Opinion of Cost Total	*$53,730,000*

*All figures rounded to the nearest $500
** All figures calculated in 2001 dollars

These numbers do not include costs associated with New York City's capital construction management.

Appendices

Queens Botanical Garden



The programming elements in this agenda have been derived from community workshops and QBG input begun in the Phase I Master Plan. Additional comments from QBG have been incorporated accordingly and serve as the ongoing dialogue for Phase II of the Master Plan.

1. Perimeter
- *A. Entry gates and booths for tickets and information*
- *B. Site map, orientation, and announcements*
- *C. Security*
- *D. Clearly defined entries for pedestrians, vehicles, and bicycles*
- *E. Separate public and service entries*

2. Pedestrian Circulation
- *A. Access to facilities and displays*
- *B. Circuitous routes*
- *C. Hierarchy of paths*
- *D. Handicapped accessibility*
- *E. Separation from vehicular traffic*
- *F. Qualities of surprise and discovery*

3. Bike Trail

Facilities for bikers and easy access into the Garden will promote bike usage.
- *A. Bike racks*
- *B. Proximity to drinking fountains*

4. Parking Facilities and Vehicular Access

The Parking Garden has been located so that visitors are encouraged to explore the Garden and not be sent immediately from the Parking Garden to a building. The gardens are about experiences.
- *A. Provide convenience and safety*
- *B. Relationships to public areas, staff use, event spaces*
  - *1. Handicapped accessibility*
- *C. Suitable ingress and egress from adjacent streets*
- *D. Separation from pedestrian routes*

E. Drop-off for limousines and buses
F. Income generating

5. Administration Building
Adjacent to the Education Center and Maintenance Facilities, the Administration Building becomes a strong urban element that ties the street to the gardens, becoming a transitional zone between the built and natural environment. Its location allows easy access to Main Street and public transportation.

- *A. Lobby*
  - *1. Main foyer/exhibition hall*
  - *2. Interior plant display of botanical collection*
    - *a. extends season of garden*
    - *b. used as an educational tool*
- *B. Lounge area*
- *C. Public use spaces*
  - *1. Conference room*
  - *2. Outdoor terrace*
  - *3. Small kitchen*
  - *4. Volunteer services office*
  - *5. Volunteer manager's office*
  - *6. Rest rooms*
- *D. Administration offices*
  - *1. Executive director*
  - *2. Executive secretary*
  - *3. Rest room*
  - *4. File space and storage*
- *E. Support staff*
  - *1. Marketing and development*
    - *a. Marketing director*
    - *b. Development staff*
    - *c. Marketing staff*
    - *d. Development director*
  - *2. Finance*
    - *a. Finance staff*
    - *b. Finance director*
  - *3. Membership director*
  - *4. Couples Garden director*
  - *5. Volunteers*
  - *6. Copy room*
  - *7. File space*
  - *8. Staff kitchen and lounge*
  - *9. Restrooms*
- *F. Mechanical room and general storage*

6. Education Center (Education Facility/Visitor Center/Plant Collections/Research/Interpretation/Planning/Security Station/Greenhouses)
Located in the heart of the Garden to emphasize the Garden's primary mission, the Education Center will house the Plant Collections, Education, Research, Interpretation, and Planning Departments. Situated with ample space for outdoor classrooms and in close proximity to the Program, Children's, and Senior gardens, this arrangement will connect teaching and participatory learning. Each department will have its own specific needs but will share resources to encourage collaboration between staff.

- *A. Visitor Center*
  - *1. Lobby/Reception/Entry*
  - *2. Interior plant display of botanical collection*
    - *a. Extends season of garden*
    - *b. Used as an educational tool*
  - *3. Exhibit space (included in number 1 above)*
  - *4. Meeting rooms/multipurpose education rooms*
  - *5. Volunteer orientation/hospitality room*
  - *6. Storage/crafts supply*
  - *7. Two custodial rooms*
- *B. Learning Facilities*
  - *1. Children's education space - shared with other departments and functions*
    - *a. Four classrooms - each should provide for multimedia presentions.*
  - *2. Library*
    - *a. Shared office*
      - *- Director/head librarian*
      - *- Resource room librarian*

b. Book display
c. Private reading rooms
d. Attached outdoor reading garden (rooftop)
e. General equipment and storage
f. Resource room
g. Computer work stations
h. Computer lab (shared by all departments)
i. Stacks
- Open stack storage
- Closed stacks
- Archive room

3. Herbarium
a. Office
- Herbarium curator
b. Prep room
c. Storage room

4. Auditorium/community lecture hall
a. Audio visual equipment room - shared with other departments

5. Restrooms
a. Staff only
- Showers
- Lockers
b. Public

6. Mechanical room and general storage

C. Learning Resources

1. Education Department
a. Office space as needed for 3-5 staff
b. Storage

2. Plant Collections Department
a. Office space as needed for 2-3 staff
b. Plant records room
c. Storage

3. Research Department
a. Office space as needed for 2-3 staff
b. Storage

4. Interpretation Department
a. Office space as needed for staff
b. Exhibit preparation/storage space

5. Planning Department
a. Office space as needed for 2-3 staff
b. Map room
c. Storage

6. Two in-house meeting rooms

D. Greenhouses

1. Education greenhouse

2. Plant collections greenhouse
a. 2 working greenhouses
b. 2 public greenhouses

3. Potting room
a. Equipment, soil, materials storage area
b. Refrigerated units
c. Cleanup area for staff
d. Secured chemical storage

4. Outdoor horticulture space

E. Plant Shop

F. Security Station

1. Security office (shared lockers with staff restrooms)

2. Security station

G. Additional Shared Spaces

1. Lunch room

2. Kitchen (code-compliant for public food preparation)

3. Recycling/waste area - indoor/outdoor space needed

4. Outdoor composting/waste area

H. Outdoor Spaces

1. Plazas, terraces, etc.

7. Building Maintenance Facilities

Integrated with the Education Complex, the Maintenance Facility will allow visitors to glimpse the workings of the gardens while experiencing the many facets of the work of volunteers who tend the grounds. Offices and staff lounge

A. Recycling distribution center

B. Storage and equipment

8. Shops (plants, books, and gifts)

- *A. Indoor and outdoor space*
- *B. Suitable indoor climate for plant sales*
- *C. Products that pertain to the vision statement*
- *D. Mechanical room and general storage*

9. Event Space

An interior reception hall available for rental and large QBG events and presentations. A large outdoor terrace provides additional garden space for visitors and can be reserved for private gatherings.

- *A. Stage and hall*
- *B. Assembly reception vestibule*
    - *1. Audiovisual equipment*
- *C. Kitchen*
- *D. Restrooms*
- *E. Proximity to Wedding Garden*
- *F. Mechanical room and general storage*
- *G. Income generating*

10. Café

Located at the Visitor Center, the Café becomes an inviting space to sit casually and enjoy the day.

- *A. Menu could emphasize local produce and reflect ethnic diversity of the neighborhood*
- *B. Serve food that is produced from the filtration of water in the living machine*
- *C. Menu could provide energy analysis of food production*
- *D. Could extend hours of the Garden*
- *E. Income generating*

11. Program Garden

This garden will be used in conjunction with educational gardening programs that emphasize sustainable design.

- *A. Near educational facilities*
    - *1. Integrated as a display garden*
    - *2. Visual access to the neighborhood*
    - *3. Near water and compost facilities*

12. Children's Garden

Located at the heart of the QBG, the Children's Garden becomes a space designed solely for children, where adventure and learning will go hand in hand.

- *A. Near educational facilities*
    - *1. Integrated as a display garden*
    - *2. Covered seating area for outdoor teaching*
    - *3. Near water and compost facilities*
    - *4. Adjacent to play area*
    - *5. Incorporate rest rooms*

13. Senior Garden

This garden will be a place where seniors can gather to enjoy the day, plant their favorite flowers and vegetables, or simply sit and watch the activity of others.

- *A. Near educational facilities*
    - *1. Integrated as a display garden*
    - *2. Visual access to the neighborhood*
    - *3. Near water and compost facilities*

14. Couples Garden

Although located along a quiet edge of the Garden, the participants will be directed through the central plaza where the public can view the wedding parties before they enter the preparation area.

- *A. Need private area for wedding parties to prepare*
- *B. Entrance and processions open to visitors*
    - *1. Photo opportunity space*
- *C. Flexible ceremony space*
- *D. Income generating*

15. Outside Gathering Spaces

Located throughout the Garden and in the midst of various ecotypes. Focal points and a place for all.

- *A. Private and public*
    - *1. Varying sizes*
    - *2. Sunny and shady*
- *3. Consider noise from planes and traffic*

4. Consider neighbors - noise and lighting generated by QBG events

B. Stage (possibly covered)

1. Events sponsored by the QBG

a. Concerts

b. Events - Arbor Day, Market Place Mosaic

c. Art shows

d. Holiday events - winter solstice, haunted greenhouse

e. Farmer's market

f. Celebration of earth - solstice, full moon events, dances at sunset

2. Community-sponsored events/community rental

3. Dance events

4. Plays and poetry readings

5. Tai Chi

16. Water Treatment Facilities

A. Provides water cleansing and filtration

B. Restores plant communities indigenous to area

1. Plant diversity will expand tremendously

2. Provides wildlife habitat

C. Provides symbolic representation of Mill/Ireland Creek

D. Create water features

17. Site Furnishings

A. Benches

B. Tables and chairs

C. Kiosks

D. Garbage cans

E. Drinking fountains

F. Light fixtures

G. Signage - multilingual and cross-generational

18. Utilities

A. Lighting - security and decorative effect (solar-powered)

B. Sound system at event stage

C. Public address system

D. Public telephones

E. On-site gray and black water recycling and reuse systems

F. Irrigation - gray water - connect to water treatment facilities

G. Water - drinking fountains

1. trees and shrubs native to new york city
2. summary of the prince nursery catalogue
3. camp followers at queens botanical garden
4. plants for food, medicine, and ornamentation
5. queens botanical garden plant list

trees and shrubs native to new york city

The following plants are trees and shrubs native to within 200 miles of New York City. There are 203 species of woody plants in all, of which 46 are on the grounds of the Garden as of February, 2001. This list is only a starting point from which to select native species indigenous to the area and should become one of many tools to help with QBG's Collection Policy.

Acer negundo, Boxelder, Aceraceae {ON THE GROUNDS}
Acer nigrum, Black Maple, Aceraceae
Acer pensylvanicum, Moosewood, Aceraceae
Acer rubrum, Red Maple, Aceraceae {ON THE GROUNDS}
Acer saccharinum, Silver Maple, Aceraceae {ON THE GROUNDS}
Acer saccharum, Sugar Maple, Aceraceae {ON THE GROUNDS}
Acer spicatum, Mountain Maple, Aceraceae
Alnus serrulata, Smooth Alder, Betulaceae
Amelanchier arborea, Common Juneberry, Rosaceae
Amelanchier canadensis, Canadian Juneberry, Rosaceae {ON THE GROUNDS}
Amelanchier laevis, Allegheny Serviceberry, Rosaceae {ON THE GROUNDS}
Amelanchier spicata, Northern Juneberry, Rosaceae
Amorpha fruticosa, False Indigo, Leguminosae
Andromeda glaucophylla, Bog Rosemary, Ericaceae
Arctostaphylos uva-ursi, Bearberry, Ericaceae
Betula nigra, River Birch, Betulaceae
Betula lenta, Black Birch, Betulaceae
Betula lutea, Yellow Birch, Betulaceae
Betula populifolia, Gray Birch, Betulaceae {ON THE GROUNDS}
Campsis radicans, Trumpet Creeper, Bignoniaceae {ON THE GROUNDS}
Carpinus caroliniana, Blue Beech, Betulaceae {ON THE GROUNDS}
Carya cordiformis, Bitternut Hickory, Juglandaceae
Carya glabra, Five-leaflet Pignut Hickory, Juglandaceae
Carya ovalis, Seven-leaflet Pignut Hickory, Juglandaceae
Carya ovata, Shagbark Hickory, Juglandaceae
Carya tomentosa, Mockernut Hickory, Juglandaceae
Castanea dentata, American Chestnut, Fagaceae
Ceanothus americanus, New Jersey Tea, Rhamnaceae
Celastrus scandens, Climbing Bittersweet, Celastraceae
Celtis occidentalis, Common Hackberry, Ulmaceae {ON THE GROUNDS}
Cephalanthus occidentalis, Buttonbush, Rubiaceae {ON THE GROUNDS}
Cercis canadensis, Redbud, Leguminosae {ON THE GROUNDS}
Chamaecyparis thyoides, Eastern White Cedar, Pinaceae
Chamaedaphne calyculata, Leatherleaf, Ericaceae
Clethra alnifolia, Summersweet, Clethraceae {ON THE GROUNDS}
Comptonia peregrina, Sweet Fern, Myricaceae
Corema conradii, Broom Crowberry, Empetraceae
Cornus alternifolia, Pagoda Dogwood, Cornaceae
Cornus florida, Flowering Dogwood, Cornaceae {ON THE GROUNDS}
Cornus obliqua, Blue-Fruited Dogwood, Cornaceae
Cornus racemosa, Gray Dogwood, Cornaceae
Cornus rugosa, Round-leaved Dogwood, Cornaceae
Cornus stolonifera, Red-osier Dogwood, Cornaceae
Corylus americana, American Hazel, Betulaceae
Corylus cornuta, Beaked Hazel, Betulaceae
Crataegus crus-galli, Cockspur Thorn, Rosaceae {ON THE GROUNDS}
Crataegus mollis, Downy Hawthorn, Rosaceae {ON THE GROUNDS}
Crataegus punctata, Thicket Hawthorn, Rosaceae {ON THE GROUNDS}
Decodon verticillatus, Swamp Loosestrife, Lythraceae
Diervilla lonicera, Low Bush Honeysuckle, Caprifoliaceae
Diospyros virginiana, Persimmon, Ebenaceae
Dirca palustris, Leatherwood, Thymelaeaceae
Epigaea repens, Trailing Arbutus, Ericaceae
Erica tetralix, Heath, Ericaceae
Eubotrys racemosa, Fetterbush, Ericaceae
Euonymus americanus, Strawberry Bush, Celastraceae
Euonymus atropurpureus, Burning Bush, Celastraceae
Fagus grandifolia, American Beech, Fagaceae
Fraxinus americana, White Ash, Oleaceae {ON THE GROUNDS}
Fraxinus nigra, Black Ash, Oleaceae
Fraxinus pennsylvanica, Green Ash, Oleaceae
Gaultheria hispidula, Creeping Snowberry, Ericaceae
Gaultheria procumbens, Wintergreen, Ericaceae {ON THE GROUNDS}
Gaylussacia baccata, Dotted Huckleberry, Ericaceae
Gaylussacia dumosa, Shining Huckleberry, Ericaceae
Gaylussacia frondosa, Dangleberry, Ericaceae
Gleditsia triacanthos, Honey Locust, Leguminosae {ON THE GROUNDS}
Hamamelis virginiana, Witch Hazel, Hamamelidaceae {ON THE GROUNDS}
Ilex glabra 'Compacta', Compact Inkberry Holly, Aquifoliaceae {ON THE GROUNDS}
Ilex laevigata, Winterberry, Aquifoliaceae
Ilex opaca, American Holly, Aquifoliaceae {ON THE GROUNDS}
Ilex verticillata, Winterberry, Aquifoliaceae {ON THE GROUNDS}
Itea virginica, Virginia Willow, Saxifragaceae
Juglans cinerea, Butternut, Juglandaceae
Juglans nigra, Black Walnut, Juglandaceae
Juniperus communis, Common Juniper, Cupressaceae
Juniperus communis depressa, Low Common Juniper, Cupressaceae
Kalmia angustifolia, Sheep Laurel, Ericaceae {ON THE GROUNDS}
Kalmia polifolia, Swamp Laurel, Ericaceae
Larix laricina, American Larch, Pinaceae
Leiophyllum buxifolium, Sand Myrtle, Ericaceae
Lindera benzoin, Spicebush, Lauraceae {ON THE GROUNDS}
Liriodendron tulipifera, Tulip Tree, Magnoliaceae {ON THE GROUNDS}
Liquidambar styraciflua, Sweetgum, Hamamelidaceae
Lonicera caprifolium, Large-flowered Low Honeysuckle, Caprifoliaceae
Lonicera dioica, Small-flowered Low Honeysuckle, Caprifoliaceae
Lonicera sempervirens, Trumpet Honeysuckle, Caprifoliaceae
Lyonia ligustrina, Maleberry, Ericaceae
Lyonia mariana, Staggerbush, Ericaceae
Magnolia virginiana, Bay Magnolia, Magnoliaceae
Myrica gale, Sweet Gale, Myricaceae
Myrica pensylvanica, Bayberry, Myricaceae {ON THE GROUNDS}
Nemopanthus mucronata, Mountain Holly, Aquifoliaceae
Nyssa sylvatica, Black Gum, Nyssaceae {ON THE GROUNDS}
Opuntia humifusa, Eastern Prickly Pear Cactus, Cactaceae {ON THE GROUNDS}
Ostrya virginiana, Hop Hornbeam, Betulaceae
Parthenocissus quinquefolia, Virginia Creeper, Vitaceae

Paulownia tomentosa, Empress Tree, Scrophulariaceae {ON THE GROUNDS}
Physocarpus opulifolius, Ninebark, Rosaceae
Picea rubens, Red Spruce, Pinaceae
Pinus echinata, Short-leaf Pine, Pinaceae
Pinus rigida, Pitch Pine, Pinaceae {ON THE GROUNDS}
Pinus strobus, White Pine, Pinaceae {ON THE GROUNDS}
Pinus virginiana, Scrub Pine, Pinaceae
Platanus occidentalis, Sycamore, Platanaceae
Populus deltoides, Eastern Cottonwood, Salicaceae {ON THE GROUNDS}
Populus grandidentata, Big-toothed Aspen, Salicaceae
Populus heterophylla, Swamp Poplar, Salicaceae
Populus tremuloides, Trembling Aspen, Salicaceae
Potentilla fruticosa, Shrubby Cinquefoil, Rosaceae {ON THE GROUNDS}
Prunus americana, American Plum, Rosaceae
Prunus gravesii, Graves' Beach Plum, Rosaceae
Prunus maritima, Beach Plum, Rosaceae
Prunus pensylvanica, Pin Cherry, Rosaceae
Prunus pumila, Sand Cherry, Rosaceae
Prunus serotina, Wild Black Cherry, Rosaceae {ON THE GROUNDS}
Prunus virginiana, Chokecherry, Rosaceae
Ptelea trifoliata, Wafer Ash, Rutaceae
Quercus alba, White Oak, Fagaceae
Quercus coccinea, Scarlet Oak, Fagaceae
Quercus falcata, Spanish Oak, Fagaceae
Quercus ilicifolia, Scrub Oak, Fagaceae
Quercus marilandica, Black Jack Oak, Fagaceae
Quercus muhlenbergii, Yellow Oak, Fagaceae {ON THE GROUNDS}
Quercus palustris, Pin Oak, Fagaceae {ON THE GROUNDS}
Quercus prinoides, Chinquapin Oak, Fagaceae
Quercus prinus, Chestnut Oak, Fagaceae
Quercus rubra, Red Oak, Fagaceae {ON THE GROUNDS}
Quercus stellata, Post Oak, Fagaceae
Quercus velutina, Black Oak, Fagaceae
Rhamnus alnifolius, Alder-leaved Buckthorn, Rhamnaceae
Rhododendron canescens, Piedmont Azalea, Ericaceae {ON THE GROUNDS}
Rhododendron maximum, Rose Bay, Ericaceae {ON THE GROUNDS}
Rhododendron nudiflorum, Early Eastern Azalea, Ericaceae
Rhododendron viscosum, Later Eastern Azalea, Ericaceae
Rhus copallina, Winged Sumac, Anacardiaceae
Rhus glabra, Smooth Sumac, Anacardiaceae
Rhus radicans, Poison Ivy, Anacardiaceae
Rhus typhina, Staghorn Sumac, Anacardiaceae
Rhus vernix, Poison Sumac, Anacardiaceae
Ribes americanum, Wild Black Currant, Saxifragaceae
Ribes cynosbati, Prickly Gooseberry, Saxifragaceae
Ribes hirtellum, Hirtellous Gooseberry, Saxifragaceae
Ribes triste, Red Currant, Saxifragaceae
Rosa carolina, Carolina Rose, Rosaceae
Rosa micrantha, Small-flowered Rose, Rosaceae
Rosa palustris, Swamp Rose, Rosaceae
Rosa virginiana, Virginia Rose, Rosaceae
Rubus allegheniensis, Allegheny Blackberry, Rosaceae
Rubus canadensis, Canadian Blackberry, Rosaceae
Rubus cuneifolius, Wedge-leaved Blackberry, Rosaceae
Rubus flagellaris, Dewberry, Rosaceae
Rubus occidentalis, Black Raspberry, Rosaceae
Rubus odoratus, Flowering Raspberry, Rosaceae
Rubus ostryifolius, Hornbeam-leaved Blackberry, Rosaceae
Rubus pensilvanicus, Pennsylvania Blackberry, Rosaceae
Rubus setosus, Setose Blackberry, Rosaceae
Salix bebbiana, Bebb's Willow, Salicaceae
Salix candida, Bog Willow, Salicaceae
Salix discolor, Pussy Willow, Salicaceae {ON THE GROUNDS}
Salix eriocephala, Heart-leaved Willow, Salicaceae
Salix humilis, Dwarf Willow, Salicaceae
Salix lucida, Shining Willow, Salicaceae
Salix nigra, Black Willow, Salicaceae
Salix petiolaris, Stalk-leaved Willow, Salicaceae
Salix sericea, Silky Willow, Salicaceae
Sambucus canadensis, Elderberry, Caprifoliaceae
Sambucus pubens, Red Elder, Caprifoliaceae
Sassafras albidum, Sassafras, Lauraceae
Sorbus americana, Mountain Ash, Rosaceae
Spiraea alba, Narrow-leaved Meadow Sweet, Rosaceae
Spiraea latifolia, Broad-leaved Meadow Sweet, Rosaceae
Spiraea tomentosa, Hardhack, Rosaceae
Staphylea trifolia, Bladdernut, Staphyleaceae
Symphoricarpos albus, Snowberry, Caprifoliaceae
Symphoricarpos orbiculatus, Coralberry, Caprifoliaceae
Taxus canadensis, Ground Hemlock, Taxaceae
Thuja occidentalis, Eastern White Cedar, Cupressaceae {ON THE GROUNDS}
Tilia americana, American Linden, Tiliaceae
Tsuga canadensis, Canadian Hemlock, Pinaceae
Ulmus americana, American Elm, Ulmaceae
Ulmus rubra, Slippery Elm, Ulmaceae
Vaccinium angustifolium, Narrow-leaved Lowbush Blueberry, Ericaceae
Vaccinium brittonii, Britton's Blueberry, Ericaceae
Vaccinium corymbosum, Highbush Blueberry, Ericaceae {ON THE GROUNDS}
Vaccinium lamarkii, Large-fruited Pale Lowbush Blueberry, Ericaceae
Vaccinium oxycoccos, Small-fruited Cranberry, Ericaceae
Vaccinium pallidum, Pale Lowbush Blueberry, Ericaceae
Vaccinium stamineum, Deerberry, Ericaceae
Viburnum acerifolium, Maple-leaved Viburnum, Caprifoliaceae
Viburnum alnifolium, Hobble Bush, Caprifoliaceae
Viburnum cassinoides, Withe Rod, Caprifoliaceae
Viburnum dentatum, Arrow-wood, Caprifoliaceae {ON THE GROUNDS}
Viburnum lentago, Nannyberry, Caprifoliaceae {ON THE GROUNDS}
Viburnum nudum, Shining Withe Rod, Caprifoliaceae
Viburnum prunifolium, Black Haw, Caprifoliaceae
Viburnum rafinesquianum, Arrowwood, Caprifoliaceae
Vitis aestivalis, Summer Grape, Vitaceae
Vitis labrusca, Fox Grape, Vitaceae
Vitis novae-angliae, New England Grape, Vitaceae
Vitis riparia, Riverbank Grape, Vitaceae
Vitis vulpina, Frost Grape, Vitaceae
Zanthoxylum americanum, Prickly Ash, Rutaceae

plant communities

The following plant communities list identifies woody plant species that are most commonly found in said community. The list is again a starting point for restoration and should provide the QBG with an understanding of how to locate new plants by habitat. Obviously many plants occur in a wide range of limits and future uses of this list should not assume that the habitat given here for any plant is complete - it is merely a starting point for an ecology-based Collections Policy.

HABITATS

BOGS
Andromeda glaucophylla, Chamaedaphne calyculata, Chamaecyparis thyoides, Cornus stolonifera, Decodon verticillatus, Ilex verticillata, Larix laricina, Myrica pensylvanica, M. gale, Nemopanthus mucronata, Rhus vernix, Ribes americanum, Rosa palustris, Salix candida, S. lucida, S. sericea, Sorbus americana, Thuja occidentalis, Vaccinium oxycoccos.

BOTTOMLAND SWAMPS
Acer negundo, A. rubrum, A. saccharinum, Amorpha fruticosa, Betula nigra, Celtis occidentalis, Clethra alnifolia, Fraxinus pensylvanica, Gleditsia triacanthos, Lindera benzoin, Nyssa sylvatica, Platanus occidentalis, Populus heterophylla, Prunus serotina, Salix nigra, Sambucus canadensis, Ulmus americana, Vitis riparia, V. vulpina.

DUNES
Prunus gravesii, P. maritima, P. pumila, Quercus ilicifolia.

MESIC FOREST
Acer pensylvanicum, A. rubrum, A. saccharum, A. spicatum, Amelanchier arborea, A. canadensis, A. laevis, A. spicata, Betula lenta, B. lutea, B. populifolia, Carpinus caroliniana, Cornus rugosa, Corylus cornuta, Dirca palustris, Euonymus americana, E. atropurpureus, Fagus grandifolia, Ilex opaca, Liriodendron tulipifera, Prunus serotina, Quercus rubra, Rhododendron maximum, Rubus odoratus, Sambucus pubens, Staphylea trifolia, Taxus canadensis, Tilia americana, Tsuga canadensis, Viburnum acerifolium, V. cassinoides, V. nudum.

MESIC SAVANNA
Acer nigrum, Carya cordiformis, C. glabra, C. ovalis, C. ovata, C. tomentosa, Castanea dentata, Celastrus scandens, Cercis canadensis, Cornus florida, C. racemosa, Corylus americana, Crataegus crus-galli, C. punctata, Diospyros virginiana, Fraxinus americana, Hamamelis virginiana, Juglans nigra, Liquidambar styraciflua, Magnolia grandiflora, Ostrya virginiana, Parthenocissus quinquefolia, Paulownia tomentosa, Populus grandidentata, Prunus americana, P. serotina, Ptelea trifoliata, Quercus alba, Q. coccinea, Q. falcata, Q. marilandica, Q. muhlenbergii, Q. prinoides, Q. prinus, Q. stellata, Q. velutina, Rhus radicans, Ribes cynosbati, Rosa micrantha, Rubus allegheniensis, R. cuneifolius, R. occidentalis, Symphoricarpos albus, S. orbiculatus, Tilia americana, Ulmus rubra, Viburnum dentatum, V. prunifolium, V. rafinesquianum, Zanthoxylum americanum.

SAND SAVANNA
Arctostaphylos uva-ursi, Ceanothus americanus, Celastrus scandens, Comptonia peregrina, Corema conradii, Diervilla lonicera, Epigaea repens, Erica tetralix, Gaultheria hispidula, G. procumbens, Gaylussacia baccata, G. dumosa, G. frondosa, Juniperus communis, J. communis var. depressa, Kalmia angustifolia, K. polifolia, Lonicera dioica, L. sempervirens, Opuntia humifusa, Pinus echinata, P. rigida, P. strobus, P. virginiana, Populus tremuloides, Prunus pensylvanica, P. virginiana, Rhododendron canescens, Rhus copallina, R. glabra, R. typhina, Rosa carolina, R. virginiana, Rubus flagellaris, R. pensilvanicus, R. ostryifolius, R. setosus, Salix humilis, Sassafras albidum, Vaccinium angustifolium, V. brittonii, V. lamarkii, V. pallidum, V. stamineum, Vitis aestivalis, V. labrusca, V. novae-angliae.

SEEPS
Alnus serrulata, Cephalanthus occidentalis, Chamaecyparis thyoides, Clethra alnifolia, Cornus alternifolia, C. obliqua, C. stolonifera, Eubotrys racemosa, Ilex glabra, I. laevigata, Itea virginica, Juglans cinerea, Lyonia ligustrina, L. mariana, Magnolia virginiana, Physocarpus opulifolius, Potentilla fruticosa, Rhamnus alnifolius, Rhododendron nudiflorum, R. viscosum, Ribes americanum, R. hirtellum, R. triste, Rosa palustris, Salix bebbiana, S. discolor, S. eriocephala, S. petiolaris, Sambucus canadensis, Spiraea alba, S. latifolia, Viburnum lentago.

WET ACID SAVANNA
Comptonia peregrina, Gaultheria procumbens, Quercus palustris, Ribes americanum, Salix lucida, Spiraea tomentosa.

summary of the prince nursery catalogue

Notes from the Prince Nursery Catalogue, a pamphlet periodical published in 1844. This is only one of many catalogues from which people could select plants in the early years of settlement, in Flushing, New York. Not only did the colonists have tremendous diversity in their choices, such as over 300 cultivars of one species of apple (Malus), but there were people who knew the cultivars, their uses, preparations, storage, and care. Such diversity served the people so long as the people served the diversity.

FRUIT TREES

Apples: (Malus pumila)
315 cultivars of apple were offered, each described in terms of fruit color (brown, dark, green, pale, red, russet, scarlet, striped, yellow); form (oblate, roundish, conical, round, oblong, flat, pearmain shaped or truncated cone; calville shaped, having prominent ribs); size (very large, medium, small); use (table, kitchen or cooking, cider, preserves, ornamental, quality (first or second rate, juicy, mealy, or very productive); season of maturity; and with remarks on flavor, comeliness, and some origin. 104 cultivars were listed as miscellaneous, and 59 cultivars were "rejected" for various reasons.

Pears: (Pyrus communis)
254 cultivars of pear were offered, each described in terms of fruit color (brown, green, pale, orange, red, russet, yellow); form (pyriform, obtuse, obovate, turbinate); size (large, medium, small); texture (buttery, crisp, juicy, tender, between crisp and buttery); season of maturity; and with remarks on flavor, comeliness, and sometimes origin. About 120 cultivars were listed as miscellaneous, and 150 cultivars were "rejected" for various reasons.

Cherries: (Prunus)
104 cultivars of cherry were offered, each described in terms of fruit color (blackish, dark, pale, red, white, yellow); form (heart-shaped, obtuse, oblong or oval-heart-shaped, size (very large, medium, small); quality (first or second rate); texture (tender, firm, between firm and tender); season of maturity; and with remarks on flavor, comeliness, and sometimes origin. About 20 cultivars were "rejected" for various reasons.

Plums: (Prunus domestica)
134 cultivars of plum were offered, each described in terms of fruit color (blue, dark, green, purple, red, scarlet, white, yellow); size (large, medium, small); stone (clinging or adhering to the flesh or free); quality (first or second rate); use (table, kitchen, preserving); season of maturity; and with remarks on flavor, comeliness, and sometimes origin. About 45 cultivars were listed as miscellaneous, and about 30 cultivars were "rejected" for various reasons.

Peaches: (Prunus persica)
141 cultivars of peach were offered, each described in terms of fruit color (brownish, crimson, dark, pale, purple, greenish, orange, red, whitish, yellow, or scarlet); flesh (clingstone or plum peaches, adhering to the flesh; freestone, clearstone, or melting, the flesh separating from the stone); size (large, medium, small); quality (first or second rate); season of maturity; and with remarks on flavor, comeliness, and sometimes origin. Over 40 cultivars were listed as miscellaneous, and about 25 cultivars were "rejected" for various reasons.

Nectarines: (Prunus nectarina)
22 cultivars of nectarine were offered, each described in terms of fruit color (yellow, red, purple, green, orange, dark); flesh (clingstone or plum peaches, adhering to the flesh; freestone, clearstone, or melting, the flesh separating from the stone); size (large, medium, small); quality (first or second rate); season of maturity; and with remarks on flavor, comeliness, and sometimes origin. Six cultivars were "rejected" for various reasons.

Apricots: (Prunus armeniaca)
19 cultivars of apricot were offered, each described in terms of fruit color (yellow, red, purple, orange, dark); form (roundish, round, compressed oval, spherical, oblong, oval); size (large,

medium, small); quality (first or second rate); season of maturity; and with remarks on flavor, comeliness, and sometimes origin.

Quinces: (Cydonia vulgaris)
14 varieties of quince were available, with comments on their seasonality and not on the quality of their flavor.

Mulberries: (Morus)
2 species and 10 varieties and cultivars, sold mostly for silk culture.

Paper Mulberries: (Broussonetia papyrifera)
4 varieties, sold as ornamentals.

Walnuts: (Juglans)
5 species with 9 varieties.

Chestnuts: (Castanea)
2 species with 6 varieties.

Filberts: (Corylus)
3 species, with about 15 varieties.

Medlars: (Mespilus, Eriobotrya)
4 species.

Persimmons: (Diospyros)
4 species.

Papaws: (Porcelia glabra)
1 species.

Grapes: (Vitis)
91 cultivars of grape were offered, each described in terms of fruit color (white, blue, dark, red, rose, gray, amber, brown, black); shape of the bunch (loose, compact, large, long small, medium, very large); shape of the grape (roundish, round, oval, ovate); size (large or small); use (wine, table or dessert); and with remarks on flavor, comeliness, and sometimes origin.

Currants: (Ribes)
30 varieties, with annotations as to quality and appearance.

Gooseberries: (Ribes)
104 varieties, plus 46 rejected.

Raspberries: (Rubus)
35 varieties, with annotations as to quality and appearance.

Blackberries: (Rubus)
8 varieties.

Whortleberries, Cranberries: (Vaccinium)
4 varieties.

Barberries: (Berberis)
7 varieties.

Figs: (Ficus)
43 cultivars, with few annotations.

Strawberries: (Fragaria)
56 cultivars, with comments on fruit form (roundish, conical, ovate, long-conical, oblate, flat), size (large or small), season, and quality, particularly with respect to taste; about 20 forms were "rejected".

Sweet, Pot, and Medicinal Herbs (83)
Grass, Clover, and other Field Seeds (23); Bird Seeds (7)
Annuals (250+); Biennials and Perennials (240+).

GARDEN VEGETABLES

Artichokes (1)
Asparagus (4)
Beans, English Dwarf (10)
Beans, Kidney, Bush, or Snap (32)
Beans, Pole or Climbing (14)
Beets (11)
Borecole or Kale (8)
Broccoli (9)
Brussels Sprouts (1)
Cabbage (47)
Cardoon (2)
Carrots (12)
Cauliflower (4)
Celery (9)
Chervil (4)
Colewort or Collards (1)
Corn Salad (3)
Cress (6)
Cucumber (16)
Egg Plant (3)
Endive (7)
Indian Corn (9)
Kale (2)
Leek (2)
Lettuce, Head (40)
Lettuce, Roman Coss (16)
Melon (20)
Nasturtium (2)
Okra (2)
Onion (9)
Orache (2)
Parsley (6)
Parsnip (4)
Peas (50)
Pepper (8)
Pumpkin (7)
Purslane (1)
Radish, long-rooted (8)
Radish, round-rooted (9)
Rampion (1)
Rhubarb (3)
Roquette (1)
Salsify (1)
Scallions (1)
Scorzonera (1)
Scurvey Grass (1)
Shallot (1)
Skirret (1)
Sorrel (1)
Spinach (6)
Squash (20)
Tomato (5)
Turnip (2)

camp followers at queens botanical garden

Revised May 23, 2001

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Conservation Design Forum
Elmhurst, Illinois 60126

One of the cultural "collections" at Queens Botanical Garden that deserves to be understood and interpreted is that cohort or guild of species that has followed the European agrarian culture around the fertile portions of temperate Eurasia from time beyond mind. These species are particularly adapted to the kinds of land use that are associated with that culture: heavy grazing, concentrations of macronutrients, soil compaction, the regular tillage of soil, and the depositions of dust and debris that go with urban landscapes. It is this group of plants that forms the lawns and "weeds" with which all of us are familiar and that occupy more that 99% of all vegetated soil in the northeastern United States. Without the plants that compose this group, there would be no vegetational appurtenances in our culture other than those that are grown for food or ornament.

Of the 300,000 species of plants that are known on our earth, there are about 120 in this guild. Just during my brief sojourn at the Garden in the spring of 2001, I noted about 63 common weeds, of which only 15% or so are believed to be native to the New York area. About half of the common North Temperate cosmopolitan weeds are easily detected as spontaneous elements on the grounds of the Queens Botanical Garden.

The Western approach to naming plants is to give each recognizable entity two names. The first name is the genus, or generic name, which identifies the general kind of plant to which the entity is perceived to be most closely related. Maple (Acer), for example, is a general kind of tree. The genus is always rendered with a capital initial. The second name, rendered with a lower-case initial, identifies the specific kind of plant, or species, that is a member of a genus. Sugar Maple (Acer saccharum) and Red Maple (Acer rubrum) are specific kinds of Maple. Often attached to the plant's name is the indication of the person who first named the plant, as in Acer rubrum L. The "L." is an abbreviation for Carl von Linné, or Linnaeus, who published the first work on the naming of plants with this "binomial" nomenclature; *Species Planatarium* or "Species of Plants," in 1753. When a botanist places an already named plant in another genus, the original author of the plant goes into parentheses and the contemporary organizer of the specific alignment is appended outside of the parentheses.

Three-fourths of the weeds at the Garden were named originally by Linnaeus, who was familiar with most of them in the meadows, fields, and dooryards of his home in Northern Europe. Many of these species have specific epithets that evoke the agrarian culture of 18th-century Europe, such as *arvense*, *officinalis*, *pratense*, *vulgaris*. I have provided a translation of the Latin names, which when read plant by plant leave a clear impression in the mind of the reader about the cultural legacy of the Garden grounds outside the gardens and kept areas. Appended to each annotation is the nativity of each species. It is interesting to note that scarcely 1% of the species native to the Queens area have a habitat that remains there.

Ailanthus altissima (Miller) Swingle. Tree of Heaven. Ailanthus is a Moluccan allusion to its heavenly reach; altissima = tallest. Tree, native of Asia.

Alliaria petiolata (Bieb.) Cavara & Grande. Garlic Mustard. Alliaria is evocative of Allium, from its supposed resemblance to the taste of garlic; petiolata = with notably stalked leaf blades. Biennial forb, native of Europe.

Allium canadense L. Wild Garlic. Allium is the ancient Latin name for garlic; canadense = of Canada. Bulbous perennial, native of eastern North America.

Allium vineale L. Field Garlic. Allium is the ancient Latin name for garlic; vineale = of vineyards. Bulbous perennial, native of Europe.

Ambrosia artemisiifolia L. Common Ragweed. Ambrosia is the classical name for A food of the gods; artemisiifolia = with leaves of Artemisia, which see. Annual, cosmopolitan in north temperate zones.

Anthoxanthum odoratum L. Sweet Vernal Grass. Anthoxanthum = yellow flowers; odoratum = fragrant. Perennial grass, native of Europe.

Arabidopsis thaliana (L.) Heynh. Mouse-ear Cress. Arabidopsis = looks like Arabis, which was named for the country of Arabia; thaliana = after Johann Thal, who first described it in the 16th century. Annual, native of Europe.

Arctium minus (Hill) Bernh. Common Burdock. Arctium is an allusion to bears, evoked by the rough and bristly involucre; minus = smaller, in reference to the involucres, which are smaller than those of a rarer relative. Biennial forb, native of Europe.

Artemisia vulgaris L. Mugwort. Artemisia was the wife of the mythic figure, Mausolus; vulgaris = common. Perennial forb, native of Europe.

Aster pilosus Willd. Hairy Aster. Aster = star; pilosus = with long hairs. Perennial forb, native to eastern North America.

Barbarea vulgaris R. Br. Yellow Rocket. Barbarea was named in honor of St. Barbara; the seeds of a close relative (B. verna) were sown in mid-December on St. Barbara's Day; vulgaris = common. Biennial forb, native of Europe.

Bromus sterilis L. Poverty Brome. Broma was the Greek word for food, or oats (Avena), which resembles Brome; sterilis = infertile, from the empty-looking oat-like flowers. Annual grass, native of Europe.

Bromus tectorum L. Downy Brome. Tectorum = roof, from the fact that it grew in thatched roofs. Annual grass, native of Europe.

Capsella bursa-pastoris (L.) Medicus. Shepherds Purse. Capsella = little box; bursa = purse; pastor = shepherd. Annual forb, native of Europe.

Cerastium vulgatum L. Common Mouse-ear Chickweed. Cerastus derives from Greek for horned, which probably alludes to the shape of the slender and often curved capsules; vulgatum = common. Perennial forb, native of Eurasia.

Chenopodium album L. Lamb's Quarters. Chen is Greek for goose; album = white, from the white powdery indument that invests the leaves. Annual forb, native of Europe.

Cirsium arvense (L) Scop. Field Thistle. Cirsos is Greek for a swollen vein, for which affliction the plant was believed to be a remedy; arvense = of fields. Perennial forb, native of Europe. Some call this plant the Canadian Thistle, but was not known in the New World prior to settlement.

Convolvulus arvensis L. Field Bindweed. Convolvulare = to entwine; arvensis = of fields. Perennial forb, native of Eurasia.

Dactylis glomerata L. Orchard Grass. Dactylos = fingers, from the digitately disposed panicle branches; glomerata = bunched, from the compacted aggregated spikelets. Perennial grass, native of Europe.

Draba verna L. Whitlow Cress. Drabe is Greek for acrid, which applies to many of the cresses; verna = of the spring. Ephemeral annual forb, native of Europe.

Duchesnea indica (Andr.) Focke. Indian Strawberry. Named for

Antoine Nicolas Duchesne, 1747-1827; indica = of India. Perennial forb, native of Asia.

Epipactis helleborine (L.) Crantz Helleborine Orchid. Epipactis is an ancient word for Hellebore; helleborine is the Greek word for Hellebore. Perennial forb, native of Europe.

Erigeron annuus (L.) Pers. Annual Fleabane. Eri = early, geron = old man, from the white, beardlike ligules; annuus = annual. Biennial forb of cosmopolitan distribution.

Euonymus fortunei (Turcz.) Hand.-Maz. Wintercreeper. Eu = good, onoma = name, ironically associated with plants that poison cattle; named for Robert Fortune, 1817-1880. Creeping shrub, native of Asia.

Lamium amplexicaule L. Henbit. Lamium is an old Roman word for a nettlelike plant; amplexicaule = clasping the stem, from the sessile, cordate, clasping, upper leaves. Annual forb, native of Europe.

Lamium purpureum L. Purple Dead Nettle. Purpureum = purple. Annual forb, native of Europe.

Lunaria annua L. Honesty. Luna = moon, probably from the moon-like fruits; annua = annual. Annual forb, native of Europe.

Malva neglecta Wallr. Common Mallow. From malache, the Greek word for emollient, probably in reference to the leaves; neglecta = overlooked. Biennial forb, native of native of Europe.

Matricaria maritima L. var. agrestis (Knaf) Wilmott. Scentless Chamomile. Matrix = womb, for maladies of which the herb is said to be therapeutic; maritima = of the seashore; agrestis = of cultivated fields. Annual forb, native of Europe.

Matricaria matricarioides (Less.) Porter. Pineapple Weed. Matrix = womb; oides = resembling. Annual forb, native of the western coast of North America.

Medicago lupulina L. Black Medic. Medice = alfalfa, a prominent member of the genus said to have originated in ancient Media; lupulina = hoplike, from the small bunches of round fruits. Annual forb, native of Europe.

Morus alba L. White Mulberry. Morus is the Roman name for a mulberry; alba = white. Tree, native of Asia.

Ornithogalum umbellatum L. Star of Bethlehem. Ornis = bird, in Greek; gala = milk; umbellatum = umbelled, from the umbrellalike inflorescence. Bulbous perennial, native of Europe.

Oxalis stricta L. Common Wood Sorrel. Oxys = sour, evocative of oxalic acid; stricta = erect, probably from the erect posture of the pedicels. Perennial forb, native throughout much of North America.

Phragmites australis (Cav.) Steud. Common Reed. Phragmites was a Greek word for "growing in hedges"; australis = of the south. Perennial grass of cosmopolitan distribution.

Plantago lanceolata L. English Plantain. Planta = footprint, agere = to set in motion, probably from the observation that the broadleaved weedy plantains appear concomitantly with the development of footpaths; lanceolata = lance-shaped, from the shape of the leaves. Perennial forb, native of Europe.

Plantago major L. Common Plantain. Major = larger, from its size relative to many other species. Perennial forb, native of Europe.

Plantago rugelii Dcne. White Man's Foot. Named for Ferdinand Rugel, 1806-1879. Perennial forb, native of North America.

Poa annua L. Annual Blue Grass. Poa was Greek for fodder; annua = annual, from its growth form. Annual grass, native of

Europe.

Poa pratensis L. Kentucky Blue Grass. Pratensis = of the meadows. Perennial grass, native of Eurasia (not Kentucky).

Polygonum aviculare L. Common Knotweed. Poly = many, gonu = knee (angle) or joint; aviculare, probably from the observation that small birds enjoy the seeds and young leaves. Annual forb, native of Europe.

Polygonum persicaria L. Lady's Thumb. Persicaria, after Persica, the peach, from the peachlike leaves. Annual forb, native of Europe.

Potentilla norvegica L. Norway Cinquefoil. Potens = powerful, probably from alleged medicinal properties; norvegica = of Norway. Annual forb of cosmopolitan distribution.

Potentilla recta L. Upright Cinquefoil. Recta = upright. Perennial forb, native of Europe.

Prunus serotina Ehrh. Wild Black Cherry. Prunus = plum; serotina = late, from the inflorescence appearance which is later in the season than its relatives. Native tree.

Ranunculus abortivus L. Small-Flowered Buttercup. Ranunculus = little frogs, from the pond habitat where several species grow; abortivus = abortive, from the scarcely developed petals. Native annual forb.

Ranunculus ficaria L. Lesser Celandine. Ficaria = figlike, from the tuberous roots as in some of the figworts. Perennial forb, native of Europe.

Rosa multiflora Thunb. Multiflora Rose. Rosa is an ancient Roman name; multiflora = many flowered, from the several flowered panicles that are somewhat unusual among the Roses. Shrub, native of Asia.

Rumex crispus L. Curly Dock. Rumex is an ancient name for a docklike plant; crispus = curled, from the crisped leaf margins. Perennial forb, native of Europe.

Rumex obtusifolius L. Bitter Dock. Obtusifolius = blunt-leaved, from the shape of the leaf apex. Prennial forb, native of Europe.

Senecio vulgaris L. Common Groundsel. Senex = old man, probably from the hoary white pappus evocative of an old man's pate; vulgaris = common. Annual forb, native of Europe.

Solanum dulcamara L. Bittersweet Nightshade. Solanum is a classical Latin name; dulcamara is an old generic name for the bittersweets, from the observation that the roots, when chewed, taste at first bitter, then sweet then the chewer can slip into serious physiological trauma. Woody vine, native of Europe.

Sonchus asper (L.) Hill. Spiny Sow Thistle. Sonchus is an ancient Greek name; asper = rough, perhaps from the generally rough appearance of the leaf margins. Annual forb, native Europe.

Sonchus uliginosus L. Bieb. Common Sow Thistle. Uliginosus = of the marshes. Perennial forb, native of Europe.

Stellaria media (L.) Cyrillo. Common Chickweed. Stellaria is an allusion to the starlike flowers; media = intermediate, from a supposed similarity to two other species. Annual forb, native of Europe.

Taraxacum officinale Weber. Dandelion. Taraxacum is a Latinized version of the Arabic Tharakhchakon, a name for a similar kind of plant; officinalis = of the shops. Perennial forb, native of Europe.

Trifolium pratense L. Red Clover. Trifolium = three-leaved, from the trifoliolate leaves; pratensis = of the meadows. Perennial forb, native of Europe.

Trifolium repens L. White Clover. Repens = creeping, from its creeping prostrate stems. Perennial forb, native of Europe.

Ulmus pumila L. Siberian Elm. Ulmus is the classical Latin name; pumila = dwarf, from the relatively small leaves. Tree, native of Asia.

Veronica arvensis L. Corn Speedwell. Vera = true; icon = image, from an early Christian legend that pictures St. Veronica pitying Christ on the way to Calvary, wiping his face with her handkerchief; arvensis = of fields. Annual forb, native of Europe.

Veronica peregrina L. Purslane Speedwell. Peregrina = wandering, probably from its tendency to appear in all manner of places where rough lawnlike circumstances arise. Annual native forb.

Veronica polita Fries. Dwarf Bird's Eye. Polita = smooth, from its relatively glabrous aspect with respect to similar species. Annual forb, native of Europe.

Viola sororia Willd. Common Blue Violet. Viola is a classical Latin name; sororia = sisterly, perhaps from resemblance to several other species. There is also a white form of this species on the QBG ground, known as the Confederate Violet. Native perennial forb.

plants for food, medicine, and ornamentation

The following species are listed in Erin Moriarty's research paper, "A Garden of Diversity, the Plants and People of Queens." Many of the plants listed here should one day become part of the QBG's Collection Policy and may be located within the Horticultural Heritage Garden as well as throughout the Garden. Moriarty was QBG's gardener-in-residence when the work was completed.

Achillea ageratum, Ageratum Milfoil, Compositae
Achillea millefolium, Common Yarrow, Compositae
Achillea ptarmica, Sneezewort, Compositae
Ajuga reptans, Bugleweed, Labiatae
Alchemilla vulgaris, Common Lady's Mantle, Rosaceae
Allium fistulosum, Scallions, Lilliaceae
Allium sativum, Garlic, Liliaceae
Allium schoenoprasum, Chives, Liliaceae
Allium tuberosum, Garlic Chives, Liliaceae
Allium cepa, Onion, Liliaceae
Aloe perryi, Violet Blue Aloe, Asphodelaceae
Aloe vera, Aloe, Asphodelaceae
Anethum graveolens, Dill, Umbelliferae
Anethum sowa, Indian Dill, Umbelliferae
Apium graveolens, Celery, Umbelliferae
Armoracia rusticana, Horse Radish, Cruciferae
Artemisia abrotanum, Southernwood, Compositae
Artemisia absinthium, Common Wormwood, Compositae
Artemisia dracunculus, False Tarragon, Compositae
Artemisia vulgaris, Mugwort, Compositae
Artocarpus heterophyllus, Jackfruit, Moraceae
Baptisia australis, Blue Wild Indigo, Leguminosae
Benincasa hispida, Fuzzy Gourd, Winter Melon, Cucurbitaceae
Beta vulgaris, Beet, Chenopodiaceae
Borago officinalis, Borage, Boraginaceae
Brassica oleracea, Chinese Broccoli, Cruciferae
Brassica rapa, Bok Choy, Chinese Cabbage, Seed Rape, Mizuna, Cruciferae
Brassica parachinensis, Flowering Cabbage, Cruciferae
Brassica rosularis, Flat Cabbage, Crucifera
Calendula officinalis, Calendula, Compositae
Capparis spinosa, Capers, Capparidaceae
Capsicum annuum., Red Chilies, Solanaceae
Carica papaya, Papaya, Caricaceae
Carum ajowan, Seed Caraway, Umbelliferae
Carum carvi, Caraway, Umbelliferae
Chamaemelum mixta, Moroccan Chamomile, Compositae
Chamaemelum nobile, Roman Chamomile, Compositae
Chionanthus virginicus, Fringe Tree, Oleaceae
Cicer arietinum, Chickpeas, Leguminosae
Cinnamomum verum, Cinnamon,
Citrus sp., Orange, Rutaceae
Cocos nucifera, Coconut, Arecaceae
Coffea arabica, Turkish Coffee, Rubiaceae
Colocasia esculenta, Taro, Araceae
Convallaria majalis, Lily-of-the-Valley, Liliaceae
Coriandrum sativum, Coriander, Cilantro, Umbelliferae
Crocus sativus, Saffron Crocus, Iridaceae
Cucurbita pepo, Pumpkin, Cucurbitaceae
Cuminum cyminum, Cumin, Umbelliferae
Curcuma longa, Turmeric, Zingiberaceae
Cymbopogon citratus, Lemon Grass, Gramineae
Cymbopogon flexuosus, Vervaines des Indes, Gramineae
Cymbopogon martini, Palmarosa Oil Grass, Gramineae
Cymbopogon nardus, Oil Grass, Gramineae
Dendrocalamus asper, Bamboo, Gramineae
Dianthus caryophyllus, Clove Pink, Caryophyllaceae
Digitalis lutea, Straw Foxglove, Scrophulariaceae
Digitalis purpurea, Foxglove, Scrophulariaceae
Durio zibethinus, Spiky Durian, Bombacaceae
Echinacea angustifolia, Narrow-leaved Coneflower, Compositae
Echinacea purpurea Purple Coneflower, Compositae
Elettaria cardamomum, Cardamom, Zingiberaceae
Eucalyptus citriodora, Lemon-scented Gum, Myrtaceae
Eucalyptus coccifera, Peppermint Gum, Myrtaceae
Eucalyptus deglupta, Mindanao Gum, Myrtaceae
Eucalyptus globulosus, Tasmanian Blue Gum, Myrtaceae
Eucalyptus gunnii, Cider Gum, Myrtaceae
Ficus carica, Common Fig, Moraceae - Specimen of Note
Foeniculum vulgare, Fennel, Umbelliferae
Fragaria moschata, Wild Strawberry, Rosaceae
Fragaria vesca, Sow Teat Strawberry, Rosaceae
Fragaria virginiana, Virginia Strawberry, Rosaceae
Galium aparine, Goose Grass, Rubiaceae
Galium odoratum, Sweet Woodruff, Rubiaceae
Galium verum, Lady's Bedstraw, Rubiaceae
Glycine max, Soybean, Leguminosae
Hamamelis virginiana, Witch Hazel, Hamamelidaceae NATIVE
Helianthus annuus, Annual Sunflower, Compositae
Heliotropium arborescens, Cherry Pie, Boraginaceae
Hibiscus rosa-sinensis, Chinese Red Hibiscus, Malvaceae
Humulus lupulus, Hops, Cannabinaceae
Hypericum perforatum, Common St. John's Wort, Guttiferae
Hyssopus officinalis, Hyssop, Labiatae
Illicium verum, Star Anise, Illiciaceae
Ipomoea batatas, Sweet Potato, Convolvulaceae
Iris germanica var. florentina, Orris Root, Iridaceae
Iris lactae var. chinensis, Chinese Iris, Iridaceae
Iris pseudacorus, Yellow Flag Iris, Iridaceae
Iris versicolor, Blue Flag Iris, Iridaceae
Jasminum grandiflorum, Yellow Jasmine, Oleaceae
Jasminum officinalis, Common Jasmine, Oleaceae
Jasminum sambac, Arabian Jasmine, Oleaceae
Laurus nobilis, Bay, Lauraceae
Lavandula angustifolia 'Vera', Green English Lavender, Labiatae
Lavandula latifolia, English Lavender, Labiatae
Lavandula spica = L. angustifolia

Lavandula stoechas, French Lavender, Labiatae
Levisticum officinale, Lovage, Umbelliferae
Lilium candidum, Madonna Lily, Liliaceae
Lindera benzoin, Spicebush, Lauraceae NATIVE
Lindera strychnifolia, Chinese Spicebush, Lauraceae
Luffa actuangula, Luffa Squash, Cucurbitaceae
Lycopersicon esculentum, Tomato, Solanaceae
Mangifera indica, Mango, Anacardiaceae
Marrubium vulgare, Horehound, Labiatae
Matricaria recutita, German Chamomile, Compositae
Melissa officinalis, Common Balm, Labiatae
Mentha X piperita, Peppermint, Labiatae
Mentha pulegium, Pennyroyal, Labiatae
Mentha pulegium var. erecta, Upright Pennyroyal, Labiatae
Mentha spicata, Spearmint, Labiatae
Mentha suaveolens, Sweet Apple Mint, Labiatae
Momordica charantia, Bitter Melon, Cucurbitaceae
Monarda bergamia, Bergamot Orange, Labiatae
Monarda citriodora, Lemon Bergamot, Labiatae
Monarda didyma, Oswego Tea, Labiatae
Monarda fistulosa, Bee Balm, Labiatae
Monarda menthifolia, Mint Bergamot, Labiatae
Monarda punctata, Horsemint, Labiatae
Murraya koenigii, Curry, Rutaceae
Myrrhis odorata, Sweet Cicely, Umbelliferae
Nelumbo nucifera, Lotus Root, Nelumbonaceae
Nepeta cataria, Catnip, Labiatae
Nepeta racimosa, Catmint, Labiatae
Nicotiana rustica, Aztec Tobacco, Solanaceae
Nicotiana tabacum, Tobacco, Solanaceae
Ocimum basilicum, Sweet Basil, Labiatae
Ocimum basilicum 'Cinnamon', Cinnamon Basil, Labiatae
Ocimum basilicum var. citriodora, Lemon Basil, Labiatae
Ocimum basilicum var. crispum, Lettuce-leaf Basil, Labiatae
Ocimum basilicum var. minimum, Bush Basil, Labiatae
Ocimum basilicum 'Morpha', Malaysian Basil, Labiatae
Ocimum basilicum 'Purple Ruffles', Labiatae
Ocimum basilicum 'Purpureum', Dark Opal Basil, Labiatae
Ocimum sanctum, Holy Basil, Labiatae
Olea europaea, Olive, Oleaceae
Origanum majorana, Sweet Marjoram, Labiatae
Origanum vulgare, Oregano, Labiatae
Origanum vulgare 'Aureum Crispum', Labiatae
Origanum vulgare 'Compactum', Labiatae
Origanum vulgare 'Gold Tip', Labiatae
Oryza sativa, Rice, Gramineae
Osmorhiza longistylis, Smooth Sweet Cicely, Umbelliferae
Panax quinquefolius, American Ginseng, Araliaceae
Pelargonium capitatum, Rose Geranium, Geraniaceae
Pelargonium crispum 'Prince of Orange', Orange-scented Geranium, Geraniaceae
Pelargonium X fragrans, Pine-scented Geranium, Geraniaceae
Pelargonium graveolens X P. tomentosum, Rose & Peppermint-scented Geranium, Geraniaceae
Pelargonium odoratissimum, Apple-scented Geranium, Geraniaceae
Pelargonium quercifolium, Oak-leaf Geranium, Geraniaceae
Pelargonium radens, Rose-lemon-scented Geranium, Geraniaceae
Petroselinium crispum, Parsley, Umbelliferae
Phaseolus lunatus, Lima Beans, Leguminosae
Pistacia vera, Pistachio, Anacardiaceae
Pisum sativum var. macrocarpon, Pea, Leguminosae
Rorippa nasturtium-aquaticum, Water Cress, Cruciferae
Rosmarinus officinalis, Rosemary, Labiatae
Rubia cordifolia, Indian Madder, Labiatae
Rubia tinctorum, Climbing Madder, Rubiaceae
Rumex crispus, Curly Dock, Polygonaceae
Rumex acetosa, Broad-leaved Sorrel, Polygonaceae
Rumex scutatus, French Sorrel, Polygonaceae
Ruta graveolens, Rue, Rutaceae
Saccharum officinarum, Sugar Cane, Gramineae
Salvia officinalis 'Tricolor', Tricolor Sage, Labiatae
Sanguisorba canadensis, Canadian Burnet, Rosaceae
Sanguisorba minor, Salad Burnet, Rosaceae
Santolina chamaecyparissus, Lavender Cotton, Compositae
Sechium edule, Chayote, Cucurbitaceae
Sesamum indicum, Sesame Seeds, Pedaliaceae
Solanum melongena, Egg Plant, Solanaceae
Solidago canadensis, Tall Goldenrod, Compositae
Solidago californica, California Goldenrod, Compositae
Solidago odora, Dotted Goldenrod, Compositae
Stachys officinalis, Wood Betony, Labiatae
Symphytum officinale, Comfrey, Boraginaceae
Syringa vulgaris, Lilac, Oleaceae
Syzygium aromaticum, Cloves, Myrtaceae
Tanacetum vulgare, Tansy, Compositae
Teucrium chamaedrys, Wall Germander, Labiatae
Teucrium marum, Cat Thyme, Labiatae
Teucrium viscidum, Viscid Germander, Labiatae
Thymus X citriodorus, Lemon Thyme, Labiatae
Thymus serpyllum, Thyme, Labiatae
Thymus vulgaris, Common Thyme, Labiatae
Tropaeolum majus, Nasturtium, Tropaeolaceae
Tropaeolum tuberosum, Mashua, Tropaeolaceae
Trigonella foenum-graecum, Fenugreek, Leguminosae
Triticum aestivum, Wheat, Gramineae
Valeriana jatamansi, Spikenard, Valerianaceae
Valeriana officinalis, Valerian, Valerianaceae
Vanilla planifolia, Vanilla, Orchidaceae
Viola odorata, Sweet Violet, Violaceae
Viola tricolor, Heartsease, Violaceae
Viola yedoensis, Zi Hua Di Ding, Violaceae
Zingiber mioga, Ginger, Zingiberaceae
Zingiber zerumbet, Ginger, Zingiberaceae
Zingiber officinale, Ginger, Zingiberaceae

queens botanical garden plant list

The following is a list of 753 plants that are being cultivated in at least one of the various gardens at Queens Botanical Garden. It has been compiled from lists provided to Conservation Design Forum by QBG, and field verified in February, 2001. Species noted with "NATIVE" are native to the New York City area. Species noted with "MORIARTY" are plants compiled by Erin Moriarty through her research of the plants and people along Main Street, Flushing, New York.

Abelia X grandiflora, Glossy Abelia, Caprifoliaceae
Abeliophyllum distichum, White Forsythia, Oleaceae
Abies concolor, White Fir, Pinaceae
Acer griseum, Paperbark Maple, Aceraceae
Acer japonicum 'Aconitifolium', Fern-leaf Full-moon Maple, Aceraceae
Acer negundo, Box Elder, Aceraceae NATIVE
Acer palmatum, Japanese Maple, Aceraceae
Acer palmatum 'Ornatum', Ornate Japanese Maple, Aceraceae
Acer platanoides, Norway Maple, Aceraceae
Acer pseudoplatanus, Sycamore Maple, Aceraceae
Acer rubrum, Red Maple, Aceraceae NATIVE
Acer rubrum 'Autumn Flame', Autumn Flame Maple, Aceraceae
Acer saccharinum, Silver Maple, Aceraceae
Acer saccharum, Sugar Maple, Aceraceae
Acer tataricum ssp. ginnala, Amur Maple, Aceraceae
Achillea millefolium, Common Yarrow, Compositae MORIARTY
Achillea tomentosa 'King Edward', King Edward Yarrow, Compositae
Aconitum X bicolor 'Bressingham Spire, Bressingham Spire Aconite, Ranunculaceae
Acorus calamus 'Variegated, Striped Sweet Flag, Araceae
Actaea pachypoda, Doll's Eyes, Ranunculaceae
Actaea rubra, Red Baneberry, Ranunculaceae
Actinidia deliciosa, Kiwi Fruit, Actinidiaceae - Specimen of Note
Adenophora liliifolia, Lily-leaf Ladybell, Campanulaceae
Adiantum pedatum, Maidenhair Fern, Polypodiaceae
Aesculus X carnea, Red Horse Chestnut, Hippocastanaceae - Specimen of Note
Aesculus X carnea "Briotii', Briot's Red Horse Chestnut, Hippocastanaceae
Aesculus X neglecta, Hybrid Horse Chestnut, Hippocastanaceae - Specimen of Note
Ailanthus altissima, Tree of Heaven, Simaroubaceae
Ajuga X 'Mini Crispa Red', Mini Crispa Red Bugleweed, Labiatae
Ajuga reptans 'Burgundy Glow', Burgundy Glow Bugleweed, Labiatae (MORIARTY, for the type)
Ajuga reptans 'Chocolate Chip', Chocolate Chip Bugleweed, Labiatae
Ajuga reptans 'Jungle Beauty,' Jungle Beauty Bugleweed, Labiatae
Ajuga reptans 'Silver Queen', Silver Queen Bugleweed, Labiatae
Alcea rosea, Hollyhock, Malvaceae
Alchemilla ellenbeckii, Miniature Lady's Mantle, Rosaceae
Alchemilla mollis, Lady's Mantle, Rosaceae
Alchemilla mollis 'Auslese', Ausles Lady's Mantle, Rosaceae
Alchemilla vulgaris, Common Lady's Mantle, Rosaceae MORIARTY
Allium schoenoprasum, Chives, Liliaceae MORIARTY
Allium tuberosum, Garlic Chives, Liliaceae MORIARTY
Alnus betulaceae, Alder betulaceae
Aloe vera, Aloe vera, Asphodelaceae MORIARTY
Aloysia triphylla, Lemon Verbena, Verbenaceae
Alstroemeria 'Sweet Laura', Sweet Laura Peruvian Lily, Alstroemeriaceae
Amelanchier canadensis, Canadian Serviceberry, Rosaceae NATIVE
Amelanchier laevis, Allegheny Shadblow, Rosaceae NATIVE
Amelanchier sanguinea, Round-leaved Serviceberry, Rosaceae
Andromeda polifolia 'Blue Ice', Blue Ice Andromeda, Ericaceae
Anemone X hybrida 'Honorine Jobert', Honorine Jobert Japanese Anemone, Ranunculaceae
Anemone sylvestris 'Elise Fellman', Elise Fellman Sundrop Windflower, Ranunculaceae
Anemone tomentosa 'Robustissima', Grape-leaf Windflower, Ranunculaceae
Anethum graveolens, Dill, Umbelliferae MORIARTY
Apium graveolens, Celery, Umbelliferae MORIARTY
Aquilegia 'McKana', McKana's Giant Columbine, Ranunculaceae
Aquilegia thalictrifolia, Rue Columbine, Ranunculaceae
Armoracia rusticana, Horse Radish, Cruciferae MORIARTY
Aronia arbutifolia, Chokeberry, Rosaceae
Artemisia abrotanum, Southernwood, Compositae MORIARTY
Artemisia absinthium, Common Wormwood, Compositae MORIARTY
Artemisia dracunculus, False Tarragon, Compositae MORIARTY
Artemisia ludoviciana, 'Valerie Finnis', Valerie Finnis White Sage, Compositae
Artemisia pontica, Roman Wormwood, Compositae
Artemisia schmidtiana 'Nana', Silver Mound Wormwood, Compositae
Artemisia stelleriana 'Silver Brocade', Silver Brocade Sage, Compositae
Artemisia vulgaris, Mugwort, Compositae MORIARTY
Aruncus aethusifolius, Dwarf Goat's Beard, Rosaceae
Aster divaricatus, White Wood Aster, Compositae
Aster X frikartii 'Monch', Monch Aster, Compositae
Aster lateriflorus 'Prince', Prince Side-flowering Aster, Compositae
Astilbe X arendsii 'Bridal Veil', Bridal Veil Astilbe, Saxifragaceae
Astilbe X arendsii 'Fana', Fanal Astilbe, Saxifragaceae
Astilbe chinensis 'Pumila', Dwarf Chinese Astilbe, Saxifragaceae
Astilbe chinensis taquetii 'Superba', Superba Chinese Astilbe, Saxifragaceae
Astilbe X crispa 'Perkeo', Perkeo Astilbe, Saxifragaceae
Astilbe simplicifolia 'Darwin's Snow Sprite', Darwin's Snow Sprite, Saxifragaceae
Astrantia major, Masterwort, Umbelliferae
Aucuba japonica, Japanese Aucuba, Cornaceae
Aucuba japonica 'Gold Dust', Dwarf Green Japanese Aucuba, Cornaceae
Aucuba japonica 'Picturata', Pictured Japanese Aucuba, Cornaceae
Aucuba japonica 'Variegata', Variegated Japanese Aucuba, Cornaceae
Baptisia australis, Blue False Indigo, Leguminosae MORIARTY
Begonia grandis, Hardy Begonia, Begoniaceae
Berberis julianae, Wintergreen Barberry, Berberidaceae
Berberis thunbergii, Japanese Barberry, Berberidaceae
Berberis thunbergii 'Aurea', Golden Japanese Barberry, Berberidaceae
Berberis thunbergii 'Crimson Pygmy', Crimson Pygmy Barberry, Berberidaceae
Berberis thunbergii 'Golden Nugget', Golden Nugget Barberry, Berberidaceae
Bergenia cordifolia, Elephant's Ears, Saxifragaceae
Betula papyrifera, Paper Birch, Betulaceae
Betula populifolia, Gray Birch, Betulaceae NATIVE
Boltonia asteroides 'Snowbank', Snowbank False Aster, Compositae
Borago officinalis, Borage, Boraginaceae MORIARTY
Brunnera macrophylla 'Variegata', Dawson's White Siberian Bugloss, Boraginaceae

Buddleia davidii, Butterfly Bush, Buddleiaceae
Buddleia davidii 'Harlequin', Harlequin Butterfly Bush, Buddleiaceae
Buxus microphylla, Boxwood, Buxaceae
Buxus sempervirens, Common Boxwood, Buxaceae
Buxus sempervirens 'Elegantissima', Most Elegant Boxwood, Buxaceae
Buxus sempervirens 'Green Mountain', Green Mountain Boxwood, Buxaceae
Buxus sempervirens 'Hardwickensis', Hardwick Boxwood, Buxaceae
Buxus sempervirens 'Rosmarinifolia', Rosemary-leaved Boxwood, Buxaceae
Buxus sempervirens 'Suffruticosa', Dwarf English Boxwood, Buxaceae
Calamintha nepeta 'White Cloud', White Cloud Calamint, Labiatae
Callicarpa bodinieri, Bodinier Beautyberry, Verbenaceae - Specimen of Note
Callicarpa dichotoma 'Issai', Purple Beautyberry, Verbenaceae - Specimen of Note
Callicarpa japonica, Japanese Beautyberry, Verbenaceae - Specimen of Note
Calluna vulgaris 'Alison Yates', Alison Yates Heather, Ericaceae
Calluna vulgaris 'Finale', Finale Heather, Ericaceae
Calluna vulgaris 'Gold Hamilton', Gold Hamilton Heather, Ericaceae
Calluna vulgaris 'Silver Queen', Silver Queen Heather, Ericaceae
Calluna vulgaris 'Wickwar Flame', Wickwar Flame Heather, Ericaceae
Camellia japonica 'Jury's Yellow', Jury's Yellow Japanese Camellia, Theaceae
Campanula carpatica 'Blue Clips', Blue Clips Bell Flower, Campanulaceae
Campanula persicifolia 'Chettle Charm', Chettle Charm Bell Flower, Campanulaceae
Campanula punctata 'Rubiflora', Spotted Bellflower, Campanulaceae
Campsis radicans, Trumpet Creeper, Bignoniaceae NATIVE
Carex caryophylla 'The Beatles', The Beatles Sedge, Cyperaceae
Carex oshimensis 'Evergold', Evergold Sedge, Cyperaceae
Carex siderosticha "Island Brocade', Island Brocade Creeping Sedge, Cyperaceae
Carpinus betulus 'Fastigiata', Erect European Hornbeam, Betulaceae
Carpinus betulus 'Globosa', Globe European Hornbeam, Betulaceae
Carpinus caroliniana, Blue Beech, Betulaceae
Carum carvi, Caraway, Umbellifera MORIARTY
Caryopteris X clandonensis, Bluebeard, Verbenaceae
Caryopteris X clandonensis 'Longwood Blue', Longwood Blue Bluebeard, Verbenaceae
Catalpa speciosa, Showy Cigar Tree, Scrophulariaceae
Cedrus deodara, Himalayan Cedar, Pinaceae - Specimen of Note
Cedrus deodara 'Viridis', Green Deodar Cedar, Pinaceae - Specimen of Note
Cedrus libani ssp. atlantica, Atlas Cedar, Pinaceae
Cedrus libani ssp. atlantica 'Glauca', Blue Atlas Cedar, Pinaceae
Cedrus libani ssp. atlantica 'Pendula', Weeping Blue Atlas Cedar, Pinaceae
Celtis occidentalis, Common Hackberry, Ulmaceae - Specimen of Note NATIVE
Centranthus ruber, Red Valerian, Valerianaceae
Cephalanthus occidentalis, Buttonbush, Rubiaceae NATIVE
Ceratostigma plumbaginoides, Leadwort, Plumbaginaceae
Cercidiphyllum japonicum, Katsura Tree, Cercidiphyllaceae
Cercis canadensis, Redbud, Leguminosae NATIIVE
Cercis canadensis 'Forest Pansy', Forest Pansy Redbud, Leguminosae
Chaenomeles japonica, Flowering Quince, Rosaceae
Chaenomeles speciosa, Showy Quince, Rosaceae
Chamaecyparis lawsoniana, Port Orford Cedar, Cupressaceae
Chamaecyparis nootkatensis 'Lutea', Yellow Alaska Cedar Cypress, Cupressaceae
Chamaecyparis nootkatensis 'Pendula', Weeping Alaska Cedar Cypress, Cupressaceae
Chamaecyparis nootkatensis 'Variegata', Variegated Alaska Cedar cypress, Cupressaceae
Chamaecyparis obtusa, Hinoki Cypress, Cupressaceae
Chamaecyparis obtusa 'Aurea', Golden Hinoki Cypress, Cupressaceae
Chamaecyparis obtusa 'Crippsii', Cripp's Hinoki Cypress, Cupressaceae
Chamaecyparis obtusa 'Kosteri', Koster's Hinoki Cypress, Cupressaceae
Chamaecyparis obtusa 'Lycopodioides', Clubmoss Cypress, Cupressaceae
Chamaecyparis obtusa 'Meroke', Meroke False Cypress, Cupressaceae
Chamaecyparis obtusa 'Nana', Dwarf Hinoki Cypress, Cupressaceae
Chamaecyparis obtusa 'Nana Aurea', Golden Dwarf Hinoki Cypress, Cupressaceae
Chamaecyparis obtusa 'Nana Gracilis', Slender Dwarf Hinoki Cypress, Cupressaceae
Chamaecyparis obtusa 'Rigid Dwarf', Stiff Dwarf Hinoki Cypress, Cupressaceae
Chamaecyparis pisifera 'Albo Pictus', Pale Sawara Cypress, Cupressaceae
Chamaecyparis pisifera 'Boulevard', Boulevard False Cypress, Cupressaceae
Chamaecyparis pisifera 'Filifera', Thread Cypress, Cupressaceae
Chamaecyparis pisifera 'Filifera Aurea', Golden Thread Cypress, Cupressaceae
Chamaecyparis pisifera 'Filifera Nana', Dwarf Thread Cypress, Cupressaceae
Chamaecyparis pisifera 'Plumosa Albopicta', White-spotted Thread Cypress, Cupressaceae
Chamaecyparis pisifera 'Plumosa Aurea Compacta', Dwarf Golden Thread Cypress, Cupressaceae
Chamaecyparis pisifera 'Plumosa Rogersii', Feather Cypress, Cupressaceae
Chamaecyparis pisifera, Sawara Cypress, Cupressaceae
Chamaecyparis pisifera 'Squarrosa', Feather Cypress, Cupressaceae
Chamaecyparis pisifera 'Squarrosa Aurea', Golden Feather Cypress, Cupressaceae
Chamaecyparis pisifera 'Squarrosa Intermedia', Blue Feather Cypress, Cupressaceae
Chamaemelum nobile, Roman Chamomile, Compositae MORIARTY
Chelone lyonii 'Hot Lips', Hot Lips Turtlehead, Scrophulariaceae
Chionanthus retusus, Chinese Fringe Tree, Oleaceae - Specimen of Note
Chionanthus virginicus, Grand Sir's Gray Beard, Fringe Tree, Oleaceae MORIARTY
Chrysanthemum balsamita, Costmary, Compositae
Chrysanthemum pacificum, Pacific Daisy, Compositae
Chrysanthemum parthenium, Feverfew, Compositae
Cimicifuga ramosa 'Atropurpurea', Purple-leaved Bugbane, Ranunculaceae
Cimicifuga simplex 'White Pearl', White Pearl Kamchatka Bugbane, Ranunculaceae
Cladrastis lutea, Yellowwood, Leguminosae - Specimen of Note
Clematis 'Nelly Moser', Nelly Moser Clematis, Ranunculaceae
Clematis terniflora, Sweet Autumn Clematis, Ranunculaceae
Clethra alnifolia, Summersweet, Clethraceae NATIVE
Clethra alnifolia 'Humingbird', Hummingbird Summersweet, Clethraceae
Clethra alnifolia 'Rosea', Rose Summersweet, Clethraceae
Clethra alnifolia 'Ruby Spice', Ruby Spice Swummersweet, Clethraceae
Clethra barbinervis, Japanese Clethra, Clethraceae - Specimen of Note
Conoclinium coelestinum, Mist Flower, Compositae
Convallaria majalis, Lily-of-the-Valley, Liliaceae MORIARTY
Coriandrum sativum, Coriander, Umbelliferae MORIARTY
Cornus canadensis, Bunchberry, Cornaceae
Cornus florida, Flowering Dogwood, Cornaceae NATIVE
Cornus florida f. rubra, Red Flowering Dogwood, Cornaceae
Cornus kousa, Kousa Dogwood, Cornaceae
Cornus mas, Cornelian Cherry, Cornaceae
Cornus officinalis, Chinese Cornel Dogwood, Cornaceae - Specimen of Note
Cornus stolonifera 'Silver and Gold', Silver and Gold Osier, Cornaceae
Corydalis flexuosa 'China Blue', China Blue Corydalis, Fumariaceae
Corydalis lutea, Pale Corydalis, Fumariaceae
Corylopsis glabrescens, Fragrant Winter Hazel, Hamamelidaceae - Specimen of Note
Corylopsis pauciflora, Buttercup Witch Hazel, Hamamelidaceae
Corylopsis spicata, Spike Winter Hazel, Hamamelidaceae - Specimen of Note
Corylus avellana 'Contorta', Twisted Hazel, Betulaceae
Corylus avellana, European Filbert, Betulaceae - Specimen of Note
Corylus avellana 'Contorta', Twisted European Filbert, Betulaceae
Cosmos atrosanguineus, Dark Red Cosmos, Compositae

Cotinus coggygria, Smoke Tree, Anacardiaceae
Cotinus coggygria 'Royal Purple', Royal Purple Smoke Tree, Anacardiaceae
Cotoneaster apiculatus, Cranberry Cotoneaster, Rosaceae
Cotoneaster dammeri, Bearberry Cotoneaster, Rosaceae
Cotoneaster divaricatus, Red-Fruited Cotoneaster, Rosaceae
Cotoneaster 'Hessei', Hesse's Cotoneaster, Rosaceae
Cotoneaster horizontalis, Rock Cotoneaster, Rosaceae
Cotoneaster horizontalis 'Variegatus', Variegated Rock Cotoneaster, Rosaceae
Cotoneaster salicifolius, Willow-leaved Cotoneaster, Rosaceae
Cotoneaster salicifolius 'Repandens', Creeping Willow-leaved Cotoneaster, Rosaceae
Crataegus apiifolia = Crataegus marshallii, which see.
Crataegus crus-galli, Cockspur Thorn, Rosaceae NATIVE
Crataegus X lavallei, Lavalle Hawthorn, Rosaceae - Specimen of Note
Crataegus marshallii, Parsley Hawthorn, Rosaceae - Specimen of Note
Crataegus mollis, Downy Hawthorn, Rosaceae
Crataegus monogyna, English Hawthorn, Rosaceae
Crataegus monogyna 'Laciniata', Cut-leaved English Hawthorn, Rosaceae
Crataegus opaca, Holly-leaved Hawthorn, Rosaceae - Specimen of Note
Crataegus phaenopyrum, Washington Hawthorn, Rosaceae
Crataegus punctata, Thicket Hawthorn, Rosaceae - Specimen of Note NATIVE
Cryptomeria japonica, Japanese Cedar, Taxodiaceae
Cryptomeria japonica 'Cristata', Crested Japanese Cedar, Taxodiaceae - Specimen of Note
Cryptomeria japonica 'Globosa Nana', Dwarf Globe Japanese Cedar, Taxodiaceae - Specimen of Note
Cryptomeria japonica 'Jindai-sugi', Jindai-sugi Cedar, Taxodiaceae - Specimen of Note
Cryptomeria japonica 'Lobbii', Lobb's Japanese Cedar, Taxodiaceae - Specimen of Note
Cryptomeria japonica 'Sekkan-sugi', Sekkan-sugi Cedar, Taxodiaceae - Specimen of Note
Cunninghamia lanceolata, China Fir, Taxodiaceae
Cunninghamia lanceolata 'Glauca', Pale China Fir, Taxodiaceae
Cupressocyparis leylandii, Chamaecyparis X Cupressus, Cupressaceae
Cupressocyparis leylandii 'Silver Dust', Silver Dust Cypress, Cupressaceae
Cupressus arizonica, Arizona Cypress, Cupressaceae - Specimen of Note
Cymbopogon citratus, Lemon Grass, Gramineae MORIARTY
Cytisus X praecox, Warminster, Leguminosae
Cytisus X praecox 'All Gold', All Gold Warminster, Leguminosae
Cytisus scoparius, Scotch Broom, Leguminosae
Daphne X burkwoodii 'Carol Mackie', Carol Mackie Daphne, Thymelaeaceae
Daphne caucasica, Caucasian Daphne, Thymelaeaceae
Daphne cneorum 'Exima', Exima Rose Daphne, Thymelaeaceae
Daphne cneorum 'Variegata', Striped Rose Daphne, Thymelaeaceae
Daphne mezereum, February Daphne, Thymelaeaceae
Daphne odora 'Aureomarginata', Gold-rimmed Winter Daphne, Thymelaeaceae
Darmera peltata, Umbrella Plant, Saxifragaceae
Delosperma cooperi, Trailing Ice Plant, Aizoaceae
Dendranthema pacificum, Pacific Daisy, Compositae
Deutzia crenata 'Nikko', Nikko Deutzia, Saxifragaceae
Deutzia gracilis, Slender Deutzia, Saxifragaceae
Dianthus plumarius 'Desmond', Desmond Cottage Pink, Caryophyllaceae
Dianthus plumarius 'Essex Witch', Essex Witch Cottage Pink, Caryophyllaceae
Digitalis purpurea, Digitalis, Scrophulariaceae MORIARTY
Diospyros khaki, Japanese Persimmon, Ebenaceae - Specimen of Note
Echinacea angustifolia, Narrow-leaved Coneflower, Compositae MORIARTY
Echinacea purpurea 'White Swan', White Swan Purple Coneflower, Compositae MORIARTY
Enkianthus campanulatus, Red Vein Enkianthus, Ericaceae
Enkianthus campanulatus 'Red Bells', Red Bells Enkianthus, Ericaceae
Epimedium grandiflorum 'Lilafee', Lilafee Long-spur Epimedium, Berberidaceae
Epimedium grandiflorum 'Roseum', Rose Long-spur Epimedium, Berberidaceae
Epimedium X youngianum 'Niveum', Snow Epimedium, Berberidaceae
Epipactis helleborine, Helleborine Orchid, Orchidaceae
Erica carnea 'Challenger', Challenger Snow Heather, Ericaceae
Erica carnea 'Springwood Pink', Springwood Pink Spring Heather, Ericaceae
Erica X darleyensis 'Arthur Johnson', Arthur Johnson Spring Heather, Ericaceae
Erysimum cheiri, English Wallflower, Cruciferae
Eucalyptus cinerea, Silver Dollar Tree, Myrtaceae
Eucalyptus citriodora, Lemon-scented Gum, Myrtaceae MORIARTY
Euonymus alatus, Burning Bush, Celastraceae
Euonymus alatus 'Compactus', Dwarf Burning Bush, Celastraceae
Euonymus fortunei, Wintercreeper, Celastraceae
Euonymus fortunei 'Moon Glow', Moon Glow Wintercreeper, Celastraceae
Euonymus fortunei var. radicans 'Harlequin', Harlequin Wintercreeper, Celastraceae
Euonymus japonicus, Japanese Euonymus, Celastraceae
Euonymus japonicus 'Aureo-Marginatus', Rim-leaved Japanese Euonymus, Celastraceae
Euonymus japonicus 'Medio Pictus', Painted Japanese Euonymus, Celastraceae
Euonymus japonicus 'Microphyllus', Small-leaved Japanese Euonymus, Celastraceae
Euonymus japonicus 'Ovatus Aureus' Golden Japanese Euonymus, Celastraceae
Euonymus kiautschovicus, Loesener's Euonymus, Celastraceae
Euonymus kiautshovicus 'Manhattan', Manhattan Euonymus, Celastraceae
Exochorda giraldii, Red Pearl Bush, Rosaceae
Fagus sylvatica 'Pendula', Weeping European Beech, Fagaceae
Festuca glauca 'Elijah Blue', Elijah Blue Fescue, Gramineae,
Ficus carica, Common Fig, Moraceae - Specimen of Note MORIARTY
Filipendula rubra 'Venusta Magnifica', Great Beauty Queen of the Prairie, Rosaceae
Forsythia X intermedia, Forsythia, Oleaceae
Forsythia suspensa, Forsythia, Oleaceae
Fothergilla gardenii, Dwarf Fothergilla, Hamamelidaceae
Fothergilla major, Large Fothergilla, Hamamelidaceae
Fragaria 'Lipstick', Lipstick Strawberry, Rosaceae
Fraxinus americana, White Ash, Oleaceae NATIVE
Fuchsia magellanica 'Riccartonii', Riccartoni's Fuchsia, Onagraceae
Gaillardia X grandiflora 'Kobold', Kobold Gaillardia, Compositae
Galium odoratum, Sweet Woodruff, Rubiaceae MORIARTY
Gardenia jasminoides "Kleim's Hardy', Kleim's Hardy Cape Jasmine, Rubiaceae
Gaultheria procumbens, Wintergreen, Ericaceae NATIVE
Gaura lindheimeri 'Whirling Butterflies', Whirling Butterflies Gaura, Onagraceae
Gaylussacia brachycera, Box Huckleberry, Ericaceae
Geranium X cantabrigiense 'Biokovo', Biokovo Cranesbill, Geraniaceae
Geranium 'Johnson's Blue', Johnson's Blue Geranium, Geraniaceae
Geranium macrorrhizum 'Bevan's Variety', Bevan's Big-root Geranium, Geraniaceae
Ginkgo biloba, Ginkgo, Ginkgoaceae
Gleditsia triacanthos var. inermis, Unarmed Honey Locust, Leguminosae NATIVE
Gleditsia triacanthos var. inermis 'Bujotii', Weeping Honey Locust, Leguminosae - Specimen of Note NATIVE
Glyceria maxima 'Variegata', Striped Great Manna Grass, Gramineae
Hakonechloa macra 'Aureola', Japanese Dwarf Bamboo, Gramineae
Halesia tetraptera, Carolina Silverbell, Styracaceae
Hamamelis X intermedia 'Diane', Diane Witch Hazel, Hamamelidaceae
Hamamelis mollis, Chinese Witch Hazel, Hamamelidaceae
Hamamelis vernalis, Ozark Witch Hazel, Hamamelidaceae
Hamamelis virginiana, Witch Hazel, Hamamelidaceae NATIVE; MORIARTY
Hedera helix, English Ivy, Araliaceae

Hedera helix 'Golden Heart', Golden Heart Ivy, Araliaceae
Helianthus tuberosus, Jerusalem Artichoke, Compositae
Heliopsis 'Loraine Sunshine', Loraine Sunshine False Sunflower, Compositae
Heliotropium arborescens, Cherry Pie, Boraginaceae MORIARTY
Helleborus argutifolius, Corsican Hellebore, Ranunculaceae
Helleborus orientalis, Lenten Rose, Ranunculaceae
Helleborus niger, Christmas Rose, Ranunculaceae
Helleborus purpurascens 'Red Power', Red Power Hellebore, Ranunculaceae
Hemerocallis 'Luscious Honey Dew', Luscious Honey Dew Daylily, Liliaceae
Hemerocallis 'Snowy Apparition', Snowy Apparition Daylily, Liliaceae
Hemerocallis 'Stella de Oro', Star of Gold Daylily, Liliaceae
Helonias bullata, Swamp Pink, Liliaceae
Heptacodium miconioides, Seven-son Flower, Caprifoliaceae - Specimen of Note
Heuchera americana, American Alum Root, Saxifragaceae
Heuchera americana 'Pewter Veil', Pewter Veil Alum Root, Saxifragaceae
Heuchera micrantha 'Palace Purple', Coral Bells, Saxifragaceae
Heuchera 'Mt. St. Helen', Mt. St. Helen Alum Root, Saxifragaceae
X Heucherella alba 'Bridget Bloom', Bridget Bloom Dwarf Alum Root, Saxifragaceae
Hibiscus moscheutos, Swamp Rose Mallow, Malvaceae
Hibiscus syriacus 'Aphrodite', Aphrodite Althaea, Malvaceae
Hibiscus syriacus 'Diana', Diana Althaea, Malvaceae
Hibiscus syriacus 'Helene', Helene Althaea, Malvaceae
Hosta fortunei 'Patriot', Patriot Plantain Lily, Liliaceae
Hosta 'Paul's Glory', Paul's Glory Plantain Lily, Liliaceae
Hosta plantaginea, Plantain Lily, Liliaceae
Houttuynia cordata 'Chameleon', Chameleon Plant, Saururaceae
Humulus lupulus, Hops, Cannabinaceae MORIARTY
Humulus lupulus 'Williamette', Williamette Hops, Cannabinaceae
Hyacinthus orientalis, Common Hyacinth, Liliaceae
Hydrangea macrophylla 'Madam Emile Mouillere', Madam Emile Mouillere Hydrangea, Saxifragaceae
Hydrangea macrophylla 'Nikko Blue', Nikko Blue Hydrangea, Saxifragaceae
Hydrangea mariesii 'Variegata', Maries' Lace Cap, Saxifragaceae
Hydrangea paniculata 'Grandiflora', Pee Gee Hydrangea, Saxifragaceae
Hydrangea paniculata 'Tardiva', Tardiva Panicle Hydrangea, Saxifragaceae
Hydrangea quercifolia, Oak-leaved Hydrangea, Saxifragaceae
Hydrangea serrata 'Blue Bird', Blue Bird Hydrangea, Saxifragaceae
Hypericum perforatum, Common St. John's Wort, Guttiferae MORIARTY
Hypericum prolificum, Shrubby St. John's Wort, Hypericaceae
Hyssopus officinalis, Hyssop, Labiatae MORIARTY
Iberis sempervirens 'Little Gem', Little Gem Candytuft, Cruciferae
Iberis sempervirens 'October Glory, October Glory Candytuft, Cruciferae
Idesia polycarpa, Igiri Tree, Flacourtiaceae - Specimen of Note
Ilex X altaclerensis, Highclere Holley, Aquifoliaceae
Ilex X altaclerensis 'Camelliifolia', Camellia-leaved Highclere Holly, Aquifoliaceae - Specimen of Note
Ilex aquifolium, English Holly, Aquifoliaceae
Ilex aquifolium 'Argentea Marginata', Variegated English Holly, Aquifoliaceae
Ilex cornuta, Chinese Holly, Aquifoliaceae - Specimen of Note
Ilex crenata, Japanese Holly, Aquifoliaceae
Ilex crenata 'Convexa', Convex Japanese Holly, Aquifoliaceae
Ilex crenata 'Helleri', Heller's Japanese Holly, Aquifoliaceae
Ilex glabra, Inkberry Holly, Aquifoliaceae
Ilex glabra 'Compacta', Compact Inkberry Holly, Aquifoliaceae NATIVE
Ilex X meserveae, China Girl, Aquifoliaceae
Ilex X meserveae 'Blue Maid', Blue Maid Holly, Aquifoliaceae
Ilex opaca, American Holly, Aquifoliaceae NATIVE
Ilex verticillata, Winterberry, Aquifoliaceae NATIVE
Ilex 'Whipple Blue', Whipple Blue Holly, Aquifoliaceae
Impatiens balfourii, Himalayan Balsam, Balsaminaceae
Iris germanica, German Iris, Iridaceae
Iris siberica 'Borbellata', Borbellate Siberian Iris, Iridaceae
Iris siberica 'Dreaming Spires', Dreaming Spires Siberian Iris, Iridaceae
Itea virginica 'Henry's Garnet', Henry's Garnet Sweetspire, Saxifragaceae
Jasminum nudiflorum, Winter Jasmine, Oleaceae
Juglans regia, English Walnut, Juglandaceae - Specimen of Note
Juniperus chinensis, Hollywood Juniper, Cupressaceae
Juniperus chinensis 'Kaizuka', Kaizuka Hollywood Juniper, Cupressaceae
Juniperus communis 'Gimborn', Gimborn Common Juniper, Cupressaceae
Juniperus horizontalis, Creeping Juniper, Cupressaceae
Juniperus horizontalis 'Bar Harbor', Blue Rug Juniper, Cupressaceae
Juniperus morrisonicola, Ping Juniper, Pinaceae - Specimen of Note
Juniperus rigida, Temple Juniper, Cupressaceae - Specimen of Note
Juniperus sabina, Savin-tops, Cupressaceae
Juniperus sabina 'Erecta', Upright Savin-tops, Cupressaceae
Juniperus scopulorum 'Moonglow', Moonglow Juniper, Cupressaceae
Juniperus squamata, Blue Juniper, Cupressaceae
Juniperus virginiana, Common Juniper, Cupressaceae
Juniperus virginiana 'Columnaris', Columnar Juniper, Cupressaceae
Kalmia angustifolia, Sheep Laurel, Ericaceae NATIVE
Kalmia latifolia, Mountain Laurel, Ericaceae
Kalmia latifolia 'Pink Charm', Pink Charm Mountain Laurel, Ericaceae
Kalopanax septemlobus, Castor Aralia, Araliaceae
Kirengeshoma palmata, Yellow Wax Bells, Saxifragaceae
Knautia macedonica, Knautia, Dipsacaceae
Koelreuteria paniculata, Golden Rain Tree, Leguminosae
Lablab purpureus, Hyacinth Bean, Leguminosae
Laburnum alpinum, Scotch Bean Tree, Leguminosae
Laburnum anagyroides, Golden Chain Tree, Leguminosae
Laburnum X watereri, Golden Chain Tree, Leguminosae
Lagerstroemia indica, Crape Myrtle, Lythraceae - Specimen of Note
Lagerstroemia indica 'Miami', Miami Crape Myrtle, Lythraceae
Lamium maculatum 'Beacon Silver', Beacon Silver Henbit, Labiatae
Lamium maculatum 'Pink Nancy', Pink Nancy, Labiatae
Lamium maculatum 'Red Nancy', Red Nancy, Labiatae
Lamium maculatum 'Rolling Rock', Rolling Rock Henbit, Labiatae
Lamium maculatum 'Shell Pink', Shell Pink Henbit, Labiatae
Lamium maculatum 'White Nancy', White Nancy, Labiatae
Larix decidua 'Pendula', Weeping European Larch, Pinaceae - Specimen of Note
Laurus nobilis, Bay, Lauraceae MORIARTY
Lavandula angustifolia, English Lavender, Labiatae MORIARTY
Lavandula angustifolia 'Vera', Green English Lavender, Labiatae
Leucothoe fontanesiana, Drooping Fetterbush, Ericaceae
Levisticum officinale, Lovage, Umbelliferae MORIARTY
Liatris spicata, Smooth Blazing Star, Compositae
Ligularia dentata "Othello', Othello Senecio, Compositae
Ligularia stenocephala 'The Rocket', The Rocket Senecio, Compositae
Ligustrum obtusifolium, Border Privet, Oleaceae
Ligustrum ovalifolium, California Privet, Oleaceae
Lilium auratum var. platyphyllum, Golden-rayed Lily, Liliaceae

Lilium candidum, Madonna Lily, Liliaceae MORIARTY
Lilium formosum, Formosa Lily, Liliaceae
Lilium longiflorum, Easter Lily, Liliaceae
Lilium orientale, Oriental Lily, Liliaceae
Lilium orientale 'Kyoto', Kyoto Oriental Lily, Liliaceae
Lilium 'Stargazer Lily', Stargazer Lily, Liliaceae
Lilium superbum 'Turk's Cap Lily', Turk's Cap Lily, Liliaceae
Lindera benzoin, Spicebush, Lauraceae NATIVE; MORIARTY
Liriodendron tulipifera, Tulip Tree, Magnoliaceae
Liriope muscari "Monroe White', Monroe White Lilyturf, Liliaceae
Liriope muscari "Variegata', Variegated Lilyturf, Liliaceae
Liriope spicata, Lilyturf, Liliaceae
Liriope spicata 'Silver Dragon', Silver Dragon Lilyturf, Liliaceae
Lonicera fragrantissima, Fragrant Honeysuckle, Caprifoliaceae
Lonicera periclymenum 'Munster', Munster Honeysuckle, Caprifoliaceae
Lupinus X russell, Russell Hybrid Lupine, Leguminosae
Luzula multiflora, Heath Wood Rush, Juncaceae
Lysimachia nummularia, Moneywort, Primulaceae
Macleaya cordata, Plume Poppy, Papaveraceae
Maclura pomifera, Osage Orange, Moraceae - Specimen of Note
Magnolia acuminata, Cucumber Tree, Magnoliaceae - Specimen of Note
Magnolia 'Elizabeth', Elizabeth Magnolia, Magnoliaceae - Specimen of Note
Magnolia grandiflora, Southern Magnolia, Magnoliaceae - Specimen of Note
Magnolia kobus, Cucumber Magnolia, Magnoliaceae
Magnolia kobus X stellata, Star Cucumber Magnolia, Magnoliaceae
Magnolia 'Kosar Hybrid', Kosar Magnolia, Magnoliaceae
Magnolia macrophylla, Big-leaf Magnolia, Magnoliaceae - Specimen of Note
Magnolia sieboldii, Oyama Magnolia, Magnoliaceae - Specimen of Note
Magnolia tripetala, Umbrella Magnolia, Magnoliaceae - Specimen of Note
Malus floribunda, Showy Crab, Rosaceae
Malus 'Red Jade', Red Jade Crabapple, Rosaceae
Mahonia aquifolium, Oregon Grape Holly, Berberidaceae
Malus floribunda, Japanese Flowering Crabapple, Rosaceae
Malus sargentii, Sargent's Crabapple, Rosaceae
Malus sylvestris var. domestica, Apple, Rosaceae
Marrubium vulgare, Horehound, Labiatae MORIARTY
Matricaria recutita, German Chamomile, Compositae MORIARTY
Melissa officinalis, Common Balm, Labiatae MORIARTY
Mentha X piperita, Peppermint, Labiatae MORIARTY
Mentha pulegium, Pennyroyal, Labiatae MORIARTY
Mentha spicata, Spearmint, Labiatae MORIARTY
Mentha suaveolens, Sweet Apple Mint, Labiatae MORIARTY
Mentha suaveolens 'Variegata', Variegated Sweet Apple Mint, Labiatae
Metasequoia glyptostroboides, Dawn Redwood, Taxodiaceae
Microbiota decussata, Siberian Cypress, Cupressaceae
Miscanthus sinensis 'Variegatus', Striped Eulalia, Gramineae
Mitchella repens, Partridgeberry, Rubiaceae
Monarda didyma, Oswego Tea, Labiatae MORIARTY
Morus alba, Weeping Mulberry, Moraceae
Morus alba 'Pendula', Weeping White Mulberry, Moraceae - Specimen of Note
Myosotis sylvatica, Woodland Forget-me-not, Boraginaceae
Myrica pensylvanica, Bayberry, Myricaceae NATIVE
Myrrhis odorata, Sweet Cicely, Umbelliferae MORIARTY
Nandina domestica, Heavenly Bamboo, Berberidaceae - Specimen of Note
Nepeta cataria, Catnip, Labiatae MORIARTY
Nepeta faassenii, Catmint, Labiatae
Nepeta X faassenii 'Dropmore Purple, Dropmore Purple Catmint, Labiatae
Nepeta X faassenii 'Six Hills Giant', Six Hills Giant Catmint, Labiatae
Nyssa sylvatica, Black Gum, Nyssaceae NATIVE
Ocimum basilicum, Sweet Basil, Labiatae MORIARTY
Ocimum basilicum 'African Blue', African Blue Basil, Labiatae
Ocimum basilicum 'Spicy Globe', Spicy Glove Basil, Labiatae
Oenothera 'Cold Crick', Cold Crick Sundrops, Onagraceae
Onoclea sensibilis, Sensitive Fern, Polypodiaceae
Opuntia humifusa, Eastern Prickly Pear Cactus, Cactaceae NATIVE
Origanum majorana, Sweet Marjoram, Labiatae MORIARTY
Osmanthus fragrans, Sweet Olive, Oleaceae
Osmanthus heterophyllus, False Holly, Oleaceae - Specimen of Note
Oxydendrum arboreum, Sourwood, Ericaceae
Pachysandra procumbens, Allegheny Spurge, Buxaceae
Pachysandra terminalis, Japanese Pachysandra, Buxaceae
Paeonia lactiflora, Chinese Peony, Paeoniaceae
Paeonia officinalis, Herb Peony, Paeoniaceae
Paeonia 'Pink Hawaiian Coral', Pink Hawaiian Coral Peony, Paeoniaceae
Panicum virgatum 'Heavy Metal', Heavy Metal Switch Grass, Gramineae
Patrinia scabiosifolia, Yellow Valerian, Valerianaceae
Paulownia tomentosa, Empress Tree, Scrophulariaceae
Pennisetum alopecuroides 'Hameln', Dwarf Fountain Grass, Gramineae
Perovskia atriplicifolia, Russian Sage, Labiatae
Phalaris arundinaceae 'Picta', Striped Reed Canary Grass, Gramineae
Phellodendron japonicum, Japanese Cork Tree, Rutaceae
Philadelphus coronaria, Mock Orange, Saxifragaceae
Phlox paniculata 'Robert Bruce', Robert Bruce Phlox, Polemoniaceae
Phuopsis stylosa, Crosswort, Rubiaceae
Physostegia virginiana 'Variegata', Variegated Obedient Plant, Labiatae
Picea abies, Norway Spruce, Pinaceae
Picea abies 'Nidiformis', Bird's Nest Spruce, Pinaceae
Picea abies 'Pendula', Weeping Norway Spruce, Pinaceae
Picea engelmannii, Engelmann's Spruce, Pinaceae - Specimen of Note
Picea glauca var. albertiana 'Conica', Dwarf Alberta Spruce, Pinaceae
Picea likiangensis, Likiang Spruce, Pinaceae - Specimen of Note
Picea orientalis, Oriental Spruce, Pinaceae
Picea orientalis 'Skylands', Skylands Oriental Spruce, Pinaceae - Specimen of Note
Picea pungens, Colorado Blue Spruce, Pinaceae
Picea pungens 'Glauca Hunnewelliana', Hunnewellian Spruce, Pinaceae
Picea pungens 'Thomsen', Thomsen Blue Spruce, Pinaceae
Picea pungens 'Viridis', Green Colorado Spruce, Pinaceae
Pieris japonica, Japanese Pieris, Ericaceae
Pieris japonica 'Compacta', Compact Japanese Pieris, Ericaceae
Pieris japonica 'Debutante', Debutant Heath, Ericaceae
Pieris japonica 'Mountain Fire', Mountain Fire Japanese Andromeda, Ericaceae
Pieris japonica 'Prelude', Prelude Pieris, Ericaceae
Pinus bungeana, Lacebark Pine, Pinaceae - Specimen of Note
Pinus densiflora 'Oculus-draconis', Dragon-eye Pine, Pinaceae - Specimen of Note
Pinus mugo, Mugo Pine, Pinaceae
Pinus mugo var. pumilio, Dwarf Mugo Pine, Pinaceae
Pinus nigra, Austrian Pine, Pinaceae
Pinus nigra 'Pendula', Weeping Austrian Pine, Pinaceae
Pinus parviflora, Japanese White Pine, Pinaceae
Pinus rigida, Pitch Pine, Pinaceae - Specimen of Note NATIVE

Pinus strobus, White Pine, Pinaceae NATIVE
Pinus strobus 'Fastigiata', Upright White Pine, Pinaceae
Pinus strobus 'Nana', Dwarf White Pine, Pinaceae
Pinus strobus 'Pendula', Weeping White Pine, Pinaceae
Pinus sylvestris, Scotch Pine, Pinaceae
Pinus sylvestris 'Fastigiata', Upright Scotch Pine, Pinaceae
Pinus sylvestris 'Globosa', Globe Scotch Pine, Pinaceae
Pinus sylvestris 'Nana Compacta", Dwarf Scotch Pine, Pinaceae
Pinus thunbergii, Japanese Black Pine, Pinaceae
Pinus wallichiana, Himalayan Pine, Pinaceae
Platanus X acerifolia, London Plane Tree, Platanaceae
Platycladus orientalis, Oriental Arbor Vitae, Cupressaceae
Platycodon grandiflorus 'Maries White', Maries White Balloon Flower, Campanulaceae
Platycodon grandiflorus 'Sentimental Blue', Sentimental Blue Balloon Flower, Campanulaceae
Polemonium caeruleum, Jacob's Ladder, Polemoniaceae
Polygonum japonicum 'Spectabile', Showy Japanese Knotweed, Polygonaceae
Polystichum polyblepharum, Tassel Fern, Polypodiaceae
Poncirus trifoliata, Trifoliate Orange, Rutaceae - Specimen of Note
Pontederia cordata, Pickerelweed, Pontederiaceae
Populus deltoides, Eastern Cottonwood, Salicaceae
Potentilla fruticosa, Shrubby Cinquefoil, Rosaceae NATIVE
Primula japonica 'Carmina', Carmina Primrose, Primulaceae
Primula vulgaris, Common Primrose, Primulaceae
Prunus cerasifera 'Atropurpurea', Purple-leaved Plum, Rosaceae
Prunus cerasifera 'Thundercloud', Thundercloud Plum, Rosaceae
Prunus domestica, Plum, Rosaceae
Prunus glandulosa 'Sinensis', Dwarf Flowering Almond, Rosaceae
Prunus 'Hally Jolivette', Jolivette Cherry, Rosaceae
Prunus incisa 'Snow Cloud', Snow Cloud Fuji Cherry, Rosaceae
Prunus laurocerasus, Cherry Laurel, Rosaceae
Prunus maackii, Amur Chokecherry, Rosaceae
Prunus mandshurica, Manchurian Almond, Rosaceae - Specimen of Note
Prunus persica, Peach, Rosaceae
Prunus serotina, Wild Black Cherry, Rosaceae NATIVE
Prunus serrulata, Oriental Cherry, Rosaceae
Prunus serrulata 'Sekiyama', Kwanzan Flowering Cherry, Rosaceae
Prunus subhirtella, Higan Cherry, Rosaceae
Prunus subhirtella 'Pendula', Weeping Higan Cherry, Rosaceae
Prunus subhirtella 'Pendula Plena Rosea', Double Pink Weeping Cherry, Rosaceae
Prunus X yedoensis 'Akebono', Akebono Yoshino Cherry, Rosaceae
Pseudocydonia sinensis, Chinese Quince, Rosaceae - Specimen of Note
Pulmonaria angustifolia 'Azurea', Azure Lungwort, Boraginaceae
Pulmonaria longifolia 'E. B. Anderson', Anderson's Lungwort, Boraginaceae
Pulmonaria 'Majesty', Majesty Lungwort, Boraginaceae
Pulmonaria saccharata 'Mrs. Moon', Mrs. Moon Lungwort, Boraginaceae
Pterocarya fraxinifolia, Caucasian Wingnut, Juglandaceae - Specimen of Note
Pulsatilla vulgaris, Common Pasque Flower, Ranunculaceae
Pyracantha angustifolia 'Yukon Belle', Yukon Belle Gnome Firethorn, Rosaceae
Pyracantha coccinea, Firethorn, Rosaceae
Pyrus calleryana, Flowering Pear, Rosaceae
Pyrus calleryana 'Cleveland Select', Cleveland Flowering Pear, Rosaceae
Pyrus communis, Pear, Rosaceae
Quercus imbricaria, Shingle Oak, Fagaceae - Specimen of Note
Quercus lyrata, Overcup Oak, Fagaceae - Specimen of Note
Quercus mongolica, Mongolian Oak, Fagaceae - Specimen of Note
Quercus muhlenbergii, Chinkapin Oak, Fagaceae - Specimen of Note NATIVE
Quercus nigra, Water Oak, Fagaceae - Specimen of Note
Quercus palustris, Pin Oak, Fagaceae
Quercus phellos, Willow Oak, Fagaceae
Quercus robur, English Oak, Fagaceae
Quercus robur 'Fastigiata', Erect English Oak, Fagaceae
Quercus rubra, Red Oak, Fagaceae NATIVE
Rhododendron "Bruce Hancock', Bruce Hancock Rhododendron, Ericaceae
Rhododendron canescens, Piedmont Azalea, Ericaceae NATIVE
Rhododendron 'Choptank River', Choptank Rhododendron, Ericaceae
Rhododendron degronianum ssp. yakushimanum 'F. C. C. Selfred', Selfred Rhododendron, Ericaceae
Rhododendron degronianum ssp. yakushimanum 'Ken Janeck', Janeck Rhododendron, Ericaceae
Rhododendron 'Exbury White', White Exbury Azalea, Ericaceae
Rhododendron 'Gumpo White', Gumpo White Azalea, Ericaceae
Rhododendron 'Harold Epstein', Harold Epstein Rhododendron, Ericaceae
Rhododendron 'Hilda Niblett', Hilda Niblett Azalea, Ericaceae
Rhododendron 'Hino-crimson', Hino Crimson Rhododendron, Ericaceae
Rhododendron 'Marian Lee', Marian Lee Azalea, Ericaceae
Rhododendron 'Mary Fleming', Mary Fleming Rhododendron, Ericaceae
Rhododendron maximum, Rose Bay, Ericaceae NATIVE
Rhododendron 'Mezitt/Weston Hybrid, Ericaceae
Rhododendron mucronatum 'Deleware Valley White', Delaware Valley White Azalea, Ericaceae
Rhododendron mucronulatum, Pink Azalea, Ericaceae
Rhododendron 'Nacoochee', Nacoochee Rhododendron, Ericaceae
Rhododendron 'Nuccio's Pink Champagne', Nuccio's Pink Champagne Rhododendron, Ericaceae
Rhododendron 'Parade', Parade Rhododendron, Ericaceae
Rhododendron periclymenoides, Pink Azalea, Ericaceae
Rhododendron 'Pink Gumpo', Gumpo Pink Azalea, Ericaceae
Rhododendron 'P. J. M.", P. J. M. Rhododendron, Ericaceae
Rhododendron 'Rosebud', Rosebud Gable Azalea, Ericaceae
Rhodendron viscosum 'Lemon Drop', Lemon Drop Azalea, Ericaceae
Rhodendron 'Weston's Innocence', Weston's Innocence, Ericaceae
Rhododendron yedoense var. poukhanense, Korean Azalea, Ericaceae
Rhus chinensis, Chinese Sumac, Anacardiaceae - Specimen of Note
Ribes spicatum, Nordic Currant, Saxifragaceae
Robinia pseudoacacia, Black Locust, Leguminosae
Rodgersia aesculifolia, Finger-leaf Rodgersia, Saxifragaceae
Rosa 'Abraham Darby', Abraham Darby Rose, Rosaceae
Rosa 'Alister Stella Gray', Alister Stella Gray Rose, Rosaceae
Rosa 'Aloha', Aloha Rose, Rosaceae
Rosa 'Ambridge Rose, Ambridge Rose, Rosaceae
Rosa 'Cecile Brunner', Cecile Brunner Rose, Rosaceae
Rosa 'Celine Forestier', Celine Forestier Rose, Rosaceae
Rosa 'Etoile de Hollande', Holland Rose, Rosaceae
Rosa 'Flower Carpet', Flower Carpet Rose, Rosaceae
Rosa 'Gertrude Jekyll', Gertrude Jekyll Rose, Rosaceae
Rosa 'Gloire de Dijon', Glory of Dijon Rose, Rosaceae
Rosa 'Graham Thomas', Graham Thomas Rose, Rosaceae
Rosa 'Handel', Handel Rose, Rosaceae
Rosa 'Heritage', Heritage Rose, Rosaceae
Rosa 'Kathryn Morley', Kathryn Morley Rose, Rosaceae
Rosa 'Lavender Dream', Lavender Dream Rose, Rosaceae
Rosa 'Louise Odier', Louise Odier Rose, Rosaceae
Rosa 'Melody Parfumee', Melody Parfumee Rose, Rosaceae
Rosa 'Mme. Isaac Pereire', Madamoiselle Isaac Pereire Rose, Rosaceae

Rose 'New Dawn', New Dawn Rose, Rosaceae
Rosa 'Peace', Peace Rose, Rosaceae
Rosa 'Reine Des Violettes', River of Violets Rose, Rosaceae
Rosa 'Souvenir de la Malmaison', Souvenir of Malmaison Rose, Rosaceae
Rosa 'The Fairy', The Fairy Rose, Rosaceae
Rosa 'The Prince', The Prince Rose, Rosaceae
Rosa 'Wenlock', Wenlock Rose, Rosaceae
Rosa 'White Flower Carpet', White Flower Carpet Rose, Rosaceae
Rosa 'Zepherine Drouhin', Zepherine Drouhin Rose, Rosaceae
Sagittaria lancifolia, Lance-leaved Arrowhead, Alismataceae
Salix X chrysocoma, Gold Bark Weeping Willow, Salicaceae
Salix discolor, Pussy Willow, Salicaceae
Salvia argentea, Silver Sage, Labiatae
Salvia officinalis 'Tricolor', Tricolor Sage, Labiatae MORIARTY
Sanguisorba canadensis, Canadian Burnet, Rosaceae MORIARTY
Sarcococca hookerana var. humilis, Himalayan Boxwood, Buxaceae
Sarracenia flava, Yellow Pitcher Plant, Sarraceniaceae
Sarracenia rubra ssp. jonesii, Jones's Pitcher Plant, Sarraceniaceae
Saxifraga fortunei 'Beni Fuji', Red Rockfoil, Saxifragaceae
Scabiosa columbaria 'Butterfly Blue,' Butterfly Blue Pincushion Flower, Dipsacaceae
Sciadopitys verticillata, Japanese Umbrella Pine, Sciadopitaceae
Scilla siberica, Siberian Squill, Liliaceae, Liliaceae
Sedum 'Matrona', Matrona Stonecrop, Crassulaceae
Sedum 'Vera Jameson', Vera Jameson Stonecrop, Crassulaceae
Sedum spurium, False Wild Stonecrop, Crassulaceae
Skimmia japonica, Japanese Skimmia, Rutaceae
Solidago rugosa 'Fireworks', Fireworks Rough Goldenrod, Compositae
Spigelia marilandica, Pinkroot, Loganiaceae
Spiraea japonica, Japanese Spiraea, Rosaceae
Spiraea japonica 'Anthony Waterer', Anthony Waterer Spiraea, Rosaceae
Spiraea japonica 'Goldflame', Goldflame Spiraea, Rosaceae
Spiraea japonica 'Little Princess', Little Princess Spiraea, Rosaceae
Spiraea nipponica 'Snowmound', Snowmound Spiraea, Rosaceae
Spiraea X vanhoutteii, Bridal Wreath Spiraea, Rosaceae
Stachys byzantina, Lamb's Ears, Labiatae
Stephanandra incisa 'Crispa', Cut-leaved Stephanandra, Rosaceae
Stewartia pteropetiolata var. koreana, Korean Stewartia, Theaceae - Specimen of Note
Stokesia laevis 'Alba', White Stoke's Aster, Compositae
Stokesia laevis 'Klaus Jelitto', Klaus Jelitto Stoke's Aster, Compositae
Stokesia laevis 'Silver Moon', Silver Moon Stoke's Aster, Compositae
Stranvaesia davidiana var. undulata 'Prostrata', Wavy-leaved Stranvaesia, Rosaceae
Styphnolobium japonicum 'Pendula', Weeping Pagoda Tree, Leguminosae - Specimen of Note
Styrax japonicum, Japanese Snowbell, Styracaceae
Styrax obassia, Fragrant Snowbell, Styracaceae
Symplocarpus foetidus, Skunk Cabbage, Araceae
Syringa josikaea, Hungarian Lilac, Oleaceae
Syringa meyeri 'Palibin', Dwarf Korean Lilac, Oleaceae
Syringa patula 'Miss Kim', Miss Kim Lilac, Oleaceae
Syringa prestoniae 'Donald Wyman', Donald Wyman Lilac, Oleaceae
Syinga prestoniae 'Miss Canada', Miss Canada Lilac, Oleaceae
Syringa reticulata, Japanese Tree Lilac, Oleaceae
Syringa vulgaris, Lilac, Oleaceae MORIARTY
Syringa vulgaris 'Madamoiselle Lemoine', Madameiselle Lemoine Lilac, Oleaceae
Taxus X media, Anglojap Taxus, Taxaceae
Taxus baccata 'Hessei', Hesse's Yew, Taxaceae
Taxus baccata 'Repandens', Spreading English Yew, Taxaceae
Thalictrum rochebrunianum, Meadow Rue, Ranunculaceae
Thuja occidentalis, Eastern White Cedar, Cupressaceae NATIVE
Thuja occidentalis 'Globosa', Globe White Cedar, Cupressaceae
Thuja occidentalis 'Rheingold', Rheingold Arborvitae, Cupressaceae
Thujopsis dolobrata 'Nana', Dwarf False Thuja, Cupressaceae
Thujopsis dolobrata 'Variegata', Variegated Deer Horn Cedar, Cupressaceae
Thymus serpyllum, Thyme, Labiatae MORIARTY
Tiarella 'Iron Butterfly', Iron Butterfly Foamflower, Saxifragaceae
Tilia cordata, Small-leaved European Linden, Tiliaceae
Tilia 'Euchlora' Crimean Linden, Tiliaceae
Tilia tomentosa, Silver Linden, Tiliaceae
Tricyrtis formosana, Formosan Toad Lily, Liliaceae
Tricyrtis 'Hatatogisa', Hatatogisa Toad Lily, Liliaceae
Tricyrtis hirta 'Miyazaki', Miyazaki Toad Lily, Liliaceae
Trillium sessile, Toad Trillium, Liliaceae
Tsuga canadensis 'Pendula', Weeping Canadian Hemlock, Pinaceae
Typha minima, Dwarf Cattail, Typhaceae
Ulmus glabra 'Camperdownii', Camperdown's Elm, Ulmaceae
Ulmus parvifolia, Chinese Elm, Ulmaceae
Vaccinium corymbosum, Highbush Blueberry, Ericaceae NATIVE
Vaccinium macrocarpon, Large-fruited Cranberry, Ericaceae
Vancouveria hexandra, Wood Epimedium, Berberidaceae
Verbena canadensis 'Taylortown Red', Taylortown Red Verbena, Verbenaceae
Veronica longifolia 'Sunny Border Blue', Sunny Border Blue Veronica, Scrophulariaceae
Veronica spicata 'Icicle', Icicle Veronica, Scrophulariaceae
Viburnum X burkwoodii, Burkwood Viburnum, Caprifoliaceae
Viburnum carlesii, Korean Spice, Caprifoliaceae
Viburnum carlesii 'Compactum', Dwarf Korean Spice, Caprifoliaceae
Viburnum dentatum, Arrowwood, Caprifoliaceae NATIVE
Viburnum dilatatum, Linden Viburnum, Caprifoliaceae
Viburnum lantana, Wayfaring Tree, Caprifoliaceae
Viburnum lantana 'Rugosum', Wrinkle-leaved Wayfaring Tree, Caprifoliaceae
Viburnum lentago, Nannyberry, Caprifoliaceae NATIVE
Viburnum 'Mohawk', Mohawk Viburnum, Caprifoliaceae
Viburnum opulus, European Highbush Cranberry, Caprifoliaceae
Viburnum plicatum f. tomentosum, Doublefile Viburnum, Caprifoliaceae
Viburnum plicatum f. tomentosum 'Summer Snowflake', Summer Snowflake Viburnum, Caprifoliaceae
Viburnum plicatum f. tomentosum 'Watanabe' Watanabe Doublefile Viburnum, Caprifoliaceae
Viburnum rhytidophylloides, False Leather-leaved Viburnum, Caprifoliaceae
Viburnum rhytidophyllum, Leather-leaved Viburnum, Caprifoliaceae
Viburnum rufidulum, Southern Black Haw, Caprifoliaceae - Specimen of Note
Viburnum setigerum, Tea Viburnum, Caprifoliaceae
Viburnum trilobum, Highbush Cranberry, Caprifoliaceae
Viburnum wrightii, Wright's Viburnum, Caprifoliaceae
Vinca minor, Periwinkle, Apocynaceae
Vitex agnus-castus, Chaste Tree, Verbenaceae - Specimen of Note
Waldsteinia ternata, Siberian Barren Strawberry, Rosaceae
Weigela florida 'Java Red', Java Red Weigela, Caprifoliaceae
Yucca filamentosa, Adam's Needle, Liliaceae
Yucca filamentosa 'Bright Edge', Bright Edge Adam's Needle, Liliaceae
Zelkova serrata, Japanese Zelkova, Ulmaceae
Zenobia pulverulenta, Dusty Zenobia, Ericaceae
Ziziphus jujuba, Jujube, Rhamnaceae - Specimen of Note

Native seed installation.

Children integrated with plant installation.

Photos courtesy of Conservation Design Forum.

implementation and stewardship - naturalized areas

A de novo (from scratch) restoration is proposed for a portion of Queens Botanical Garden. At present, mowed turf comprises a majority of the existing vegetation cover. The de novo restoration process involves three phases, namely: (1) Installation and post-planting care; (2) Establishment-period stewardship; and (3) Long-term stewardship.

Phase 1: Installation and post-planting care (Year 1)

Phase 1 includes site preparation, seed and plant installation, and post-planting care.

Site preparation activities are dependent on the existing conditions of a place. In the case of QBG, it may initially include herbiciding of the existing turf within the project area (this may have to be repeated a second time), and burning off the dead grass via a controlled burn conducted just prior to seed installation.

Seed installation includes seeding the permanent matrix. Quite often, a temporary seed matrix will be installed in conjunction with the permanent matrix in order to facilitate a fast-germinating stand of vegetation. Seed can be drilled into the ground or broadcast across the surface and rolled after all site preparation is completed.

Native plug installation may occur prior to or after the seed matrix has been installed, depending on the time of year. Because native seed may take three to five years to establish itself, plugs will give the restoration area a jump start toward establishment. Quite often, certain plants from seed may take up to five years or more to be seen in a restoration.

Post-planting care activities include site evaluations, restoration monitoring, weed control, erosion remediation, and watering. Regular site evaluations by a restoration ecologist should determine the need and timing of these requirements. In the later part

of the summer, the restoration is monitored via vegetation sampling along permanent transect lines. The results are documented in a report that includes photographs, floristic quality assessment data, lists of species actually installed, general observations, etc.

Phase 2: Establishment-period stewardship (Years 2-5)

Phase 2 includes necessary restoration activities in Years 2 through 5, a crucial time for the establishment of the native landscapes. Since the seeded species are intended to reproduce and fend for themselves in a habitat designed to suit them, there are several early considerations. The battle for sunlight and available water with spontaneously occurring weeds is an important one; the introduction of a suitable diversity of native species is another; and the fitting of a suite of species to the landscape's vagaries is yet another. All the while the landscape must look planned and cared for. Responding properly to these concerns requires close monitoring and attention to early developments so that suitable management is prescribed and administered.

Phase 2 restoration activities include site evaluations, restoration monitoring, controlled burning, and weed control.

Site evaluations by a restoration ecologist are necessary on an as-needed basis through the end of the third growing season in order to assess the growing conditions and schedule routine maintenance.

Restoration monitoring should be repeated every year. Sampling protocol should follow that which was established in Year 1. The results should be summarized in a report that includes floristic quality assessment data, photographs, and recommendations for land management.

Controlled burning is a fundamental management tool that should be employed every year. Typically, the first burn will occur after the second full growing season, when there is sufficient fuel to carry a fire.

A necessary restoration activity - the reduction of invasive species.

Vegetation monitoring of the restoration.

Photos courtesy of Conservation Design Forum.

A controlled prairie burn at Tellab's Office Campus.

A prescribed burn in a woodland.

Photos courtesy of Conservation Design Forum.

Weed control includes mowing, herbicide applications, and hand weeding. Mowing to control weeds will be necessary through the third growing season. Spot herbicide applications and hand weeding will be necessary through the end of the Phase 2 establishment period.

Phase 3: Long-term stewardship (Years 6-10 and beyond)

Phase 3 includes necessary restoration activities in Years 6 through 10. If recommended management activities have been conducted in the first five years of the restoration, then the development of the native landscape should be well under way.

Restoration activities in Phase 3 include restoration monitoring, controlled burning, and general site maintenance/stewardship.

Restoration monitoring and controlled burning should be continued every year as described above under Phase 2. By the later years in a well-established prairie, however, restoration monitoring could be performed on an every-other-year basis.

General site maintenance/stewardship includes continued weed control, periodic site cleanup, and species enrichment. Weed control in Years 6 through 10 and beyond will be necessary on an as-needed basis, and will include hand pulling and spot herbicide applications at selected times and in selected areas. Periodic trash and litter removal will be necessary. Species enrichment includes adding species diversity via overseeding and plugging. In a mature landscape, seed can be collected and dispersed in order to improve native vegetation cover. Additional native plant species not present in the landscape can be added if appropriate to the habitat. If plants are added to the landscape as plugs, they should be planted in a manner that allows for relative ease of watering until they are acclimated to the site.

The following bibliography is a compilation of books and references that have been consulted in the use of establishing all elements for the Queens Botanical Garden Master Plan. The books listed begin to give us an understanding of cultural icons and their meanings, green connections, and sustainable approaches to design. The list is meant to be a resource tool that will be updated regularly with additional books. To better inform the user, each reference is followed by a small synopsis.

A Publication of Queens Botanical Garden.
1998. Harvesting Our History: A Botanical and Cultural Guide to Queens's Chinese, Korean, and Latin American Communities.
Summary: This book focuses on "plants as unique expressions of cultural traditions" as it explores three communities within Queens.

Agarwal, Anil & Narain, Sunita & Khurana, Indira ed.
2001. Dying Wisdom. Centre for Science and Environment.
Summary: An exceptional book reviewing traditional rainwater harvesting systems in India, the reasons for their decline, and their potential to contribute to successful water management.

Agarwal, Anil & Narain, Sunita & Khurana, Indira ed.
2001. Making Water Everybody's Business. Centre for Science and Environment.
Summary: This outstanding book provides a comprehensive review of India's attempts to preserve traditional knowledge in urban and rural water harvesting, conservation, and demand management. Ancient wisdom is used in support of contemporary tech niques that thus can be adapted to individual geographic and climatic situations.

Aqua Butzke-Werke AG ed.
1988. Die vergessenen Tempel. Blaue Hörner Verlag.
Summary: The development of sanitary facilities throughout human history is described in this book.

Bistritzki, Otto-Josef.
1980. Brunnen in München. Verlag Georg D. W. Callway.
Summary: Munich's fountains of the past three centuries are described with regard to their exemplary meaning in social integration within urban and rural contexts.

Böhme, Hartmut, ed.
1988. Kulturgeschichte des Wassers. Suhrkamp Verlag.
Summary: This book focuses on the religious, philosophical and theoretical approach of ancient cultures towards water.

Borja, Erik.
1999. Zen gardens. Les Editions du Chene - Hachette Livre.
Summary: This book is an exploration of the history and philosophy of Zen gardens as well as a practical guide to developing one.

Bouffard, Pierre & Creux, René.
1973. Brunnen-Spiegel der Schweiz. Édition Bonvent & Fontainmore.
Summary: A survey of Swiss fountain culture from a poetic rather than technical standpoint.

Corr, Elfriede & Richter, Wolfgang.
Aachener Brunnen und Denkmäler. Editor J.A. Mayer; Aachen.
Summary: Rooted in Celtic and Roman history, the town of Aachen has always had a very close relationship to water, the topic of this book.

Dannenmaier, Molly.
1998. A Child's Garden - Enchanting Outdoor Spaces for Children and Parents. Simon and Shuster Editions.
Summary: This book shows adults how they can create gardens for kids to play in, dream in, and learn from without trampling the peonies or crushing the squash plants.

Thame, Rachel.
2001. Small Town Gardens. BBC, London.
Summary: Wonderfully illustrated book showcasing contemporary garden detail and ornament.

Donck, Adriaen Van Der.
1646. A Description of the New Netherlands. Syracuse University Press.
Summary: A description of the native landscape of New York and the use of burning to manage the native landscape.

Faurot, Jeannette.
1995. Asian - Pacific Folktales and Legends. Simon and Shuster.
Summary: Originating in far corners of the globe - China, Korea, Japan, Thailand, the Philippines, Vietnam, Indonesia, and Malaysia - these tales teach us about morality and mysticism in enchanting ways. Each shaped by the geographical and cultural influences of a people, these stories offer an introduction to the complex oral traditions of the varied civilizations of one of the world's most fascinating regions.

Francis, Mark and Randolph T. Hester, Jr.
1991. The Meaning of Gardens. The MIT Press.
Summary: This book shows us the relationship between culture and nature, focusing on what

the garden means - on the ecology of the garden as idea, place, and action. The book shows how the garden is perceived, designed, used, and valued.

Frontinus-Gesellschaft.
1994. Die Wasserversorgung antiker Städte. Verlag Philipp von Zabern.
Summary: A detailed description of hydro-technical installations in antiquity and their effects on the evolution of certain communities and the Roman society in general.

Gabrecht, Günther.
1995. Meisterwerke antiker Hydrotechnik. B.G. Teuber Verlagsgesellschaft.
Summary: This book shows that ancient hydrotechnical inventions were an indispensable basis for the development of cultures and as sophisticated as the outstanding architectural creations of their time.

Gallagher, Winifred.
1993. The Power of Place - How Our Surroundings Shape Our Thoughts, Emotions, and Actions. Harper Perennial.
Summary: The book explores the complex relationships between people and the places in which they live, love, and work. Drawing on the latest research in behavioral and environmental science, The Power of Place examines people's reactions to light, temperature, the sea sons, and other natural phenomena and explores the interactions between our external and internal worlds.

Garino, Claude.
1996. Lavoirs de l'Yonne. Éditions de l'Armacon.
Summary: A history of traditional French washiing houses.

Gleason, H. A., Ph.D.
1962. Revised Edition. Plants of the Vicinity of New York. Hafner Press.
Summary: Published for The New York Botanical Garden, this book is a guide to the nomenclature of the wild plants that grow in the vicinity of New York. It is not intended for the trained botanist; rather for the casual user and nature lover who likes wildflowers.

Hale, Gill.
1998. The Feng Shui Garden - Design Your Garden for Health, Wealth, and Happiness. Storey Books.
Summary: This book shows us how to observe the natural patterns and energies around us, and make use of them for our own benefit. We are shown how to sense the flow of chi - the universal life force - in and around the garden. Learn how to determine the balance of yin and yang, and how to interpret the shapes and colors of the five Chinese elements.

Hamblin, Dora Jane.
1973. Die ersten Städte. Time Life International.
Summary: A glance at the roots of urbanization in the very beginning of human societies.

Homberger, Eric.
1998. The Historical Atlas of New York City - a Visual Celebration of Nearly 400 Years of New York City's History. Henry Holt and Company, Inc.
Summary: This book provides a rich selection of maps, drawings, and charts that offer a full perspective on the growth and history of New York.

König, Klaus.
2001. The Rainwater Technology Handbook. Wilo GmbH.
Summary: This book provides a comprehensive review of contemporary rainwater technology with worldwide references.

Kretzschmer, Fritz.
Bilddokumente Römischer Technik. Panorama Verlag.
Summary: A description of the technical installations in Roman architecture during the Pax Romana.

Krizek, Vladimir.
1990. Kulturgeschichte des Heilbades. Kohlhammer GmbH.
Summary: The author combines medicinal and historical interest, giving a survey of ancient "cures" based on the power of water.

Kunst- und Austtellungshalle der Bundesrepublik Deutschlanded.
2000. Wasser Publisher Wienand.
Summary: An overview of water dealing with the chemical basics, cultural meaning, and contemporary uses of water.

Moynihan, Elizabeth.
2000. The Moonlight Garden - New Discoveries at the Taj Mahal. Arthur M. Sackler Gallery, Smithsonian Institution, Washington, D.C., and the University of Washington Press, Seattle and London.
Summary: This book provides plans and details of how the Moonlight Garden is an integral part of the design of the gardens at the Taj Mahal, presenting an expansive new interpretation of one of the most famous buildings in the world.

McDonough, William.
1992. The Hannover Principles Design for Sustainability. William McDonough Architects.
Summary: Prepared for EXPO 2000, the World's Fair Hannover, Germany. Seen as a living document committed to the transformation and growth in the understanding of our independence with nature, so that we may adapt as our knowledge of the world evolves.

Moriarty, Erin.
2001. A Garden of Diversity, the Plants and People of Queens.
Summary: A compilation of research focusing on the plants and people of Queens along Main Street in Flushing, New York.

Murray, Elizabeth.
1997. Cultivating Sacred Space: Gardening for the Soul. Pomegranate Europe Ltd., California.
Summary: This book is an exploration of the power and holiness of the life force. Murray invites the reader to discover the wisdom to trust and cultivate the life in ourselves by learning to l isten to the life in everything.

Prentice, Helaine Kaplan.
1998. Suzhou - Shaping an Ancient City for the New China. An EDAW/Pei Workshop. Spacemaker Press.
Summary: This book looks at Suzhou, China's fabled garden city, home to the greatest collection of classical Chinese gardens in the world. Suzhou has been compared to Kyoto for its landscape art, and to Venice for its canals. This book is the lively account of a landmark cross-cultural exchange - the process, the plan, and the personalities that came forth from a design charrette held there in 1996 with EDAW and the Pei Group.

Schlombs, Adele & Ströber, Eva, eds.
1992. Quellen. Museum für Kunst und Gewerbe Hamburg.

Summary: Water as a part of East Asian art. A wide range of aspects from everyday life to philosophy are focused on.

Seike, Kiyoshi & Kudo, Masanobu & Schmidt, Walter.
1983. Japanische Gärten und Gartenteile. Ulmer Verlag.
Summary: Principles of Japanese garden design are explained, and their main ingredients mentioned. The book also hints at the spiritual effects gardens have on humans.

Streep, Peg.
1999. Spiritual Gardening, Creating Sacred Space Outdoors. Time Life Books.
Summary: This book looks at numerous gardens that provide a spiritual sanctuary - a calm refuge from the stresses of everyday life. With text and photos, this book gives a good description of many cultural icons and what they mean.

Strong, Maurice and Mikhail Gorbachev.
. 2000. Earth Charter Preamble. The Earth Charter Commission.
Summary: The mission of the Initiative is to establish a sound ethical foundation for the emerging global society and to help build a sustainable world based on respect for nature, universal human rights, economic justice, and a culture of peace.

Swink, Floyd and Gerould Wilhelm.
1994. Plants of the Chicago Region. Indiana Academy of Science, 4th ed.
Summary: An annotated checklist of the vascular flora of the Chicago region, with keys, notes on local distribution, ecology, and taxonomy, a system for qualitative evaluation of plant communities, a natural divisions map, and a description of natural plant communities.

Tölle-Kastenbein, Renate.
1994. Das Archaische Wasserleitungsnetz für Athen. Verlag Phillip von Zabern.
Summary: A detailed description of the Athens water supply system from the archaic period onwards.

Tomiyama, Kazuko.
1998. Land of Water and Forest, Japan. Kodansha Ltd.
Summary: A review of the cultural landscape of Japan and the landscape traditions that maintain it.

Wasserversorgung, Zurich.
1975. Brunnen - Les Fontaines - Fountains. Kommissionsverlog Berichthous.
Summary: On a walk through Zurich the reader is introduced to fountain designs ranging from the Baroque period to the present.

Wölfel, Wilhelm.
1990. Wasserbau in den Alten Reichen. Verlag für Bauwesen.
Summary: A review of historic water technologies.

WWF Deutschland ed.
Die Augen der Erde. Publisher Pro Futura GmbH.
Summary: A philosophic review of the great lakes of the earth, focusing on the meaning water acquires from interaction with human societies as one of the key resources in the future.

Author Unknown.
1939. The Horticultural Exhibition: Gardens on Parade at the 1939 New York World's Fair (Souvenir Book). Hortus, Inc.

Author Unknown.
1993. Jiuzhaigou. Sichuan Fine Arts Publishing.
Summary: Photo-documentary of Shuzeng water scenes.

Author Unknown.
1964. Post Fair Plan, Queens Zoological and Botanical Gardens, New York World's Fair 1964 -1965 Corporation.

Author Unknown.
2001. Regenwassernutzung und -bewirtschaftung im internationalen Kontext. Fachvereinigung Betriebs-und Regenwassernutzung e.V.
Summary: Different authors give a survey of contemporary possibilities in rainwater use, infiltration and ecological sanitary installation.