Ladd Arboretum Master Plan

July 2007

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Executive Summary

The Edward R. Ladd Arboretum is a unique piece of property within the Evanston park system. The frequent users of the arboretum and the community recognize it as an oasis in a growing metropolitan area.

The arboretum has been described as a nature facility full of educational opportunity and as a place for solace. These two dynamics coupled with the City's desire to better manage the property require that a long term master plan be developed and adopted as the vision for the Ladd Arboretum.

The Ladd Arboretum Master Plan is a process separated into two phases:

PHASE 1:
Site and Policy Inventory and Analysis completed in November 2006 reviewed the existing management, policies, and physical condition of the arboretum. This process included site visits, research into historical documents, interviews with staff members and City personnel, and a visioning session with the community.

The results of this work indicated that the arboretum is a well loved and utilized facility with great sentimental value. People value the property for its rustic character and natural setting. The property is home to many mammals and birds and people enjoy getting glimpses of the wildlife. It was determined that maintaining that character was the top priority. Physical improvements were also noted as a priority and include better tree signage, improving the quality of the path system, increasing plant bio-diversity, implementing "green" design principles, and expanding educational opportunities.

As part of the Phase 1 work a comprehensive tree inventory and analysis was conducted by the Davey Resource Group. The resultant document entitled, "Tree and Shrub Inventory and Management Plan" is provided as part of this master plan project under separate cover.

PHASE 2:
Phase 2 consisted of developing the master plan design and report and was regarded as an opportunity to implement the goals developed in Phase 1. The vision for the master plan balances the heritage and significance of the Edward R. Ladd Arboretum within the Evanston community by providing an educational experience with nature within a sustainable, bio-diverse environment. As part of the second phase, a series of design initiatives and policy recommendations were developed to ensure that long term goals and management of the property were consistent with the overall vision.

Two separate community meetings were held during this phase of the work to gain input on the design process and design initiatives being proposed. The feedback was positive and incorporated into the final design plan.

The design concepts developed are focused on a "return to nature" ideal and are wide-ranging, affecting all parts of the arboretum grounds. New, more prominent entrance gateways, updated ornamental landscaping, and improved entrance signage invite visitors to explore the property. Improved signage and additional ecosystem exhibits educate and engage. Improved site circulation, including improved Shared-Use paths and additional secondary paths throughout the arboretum allow visitors more opportunity to experience nature.

The final master plan design and report addresses policy issues dealing with the Memorial Tree Program, construction activities within the arboretum, and the use of non-natural materials within the arboretum. The draft policies can be found in Appendix 6.

Appendix 3 provides recommendations for implementation of the plan. Parts of the plan were categorized as PRIORITY 1 and 2.

PRIORITY 1 addresses high profile projects and issues related to accessibility and safety. PRIORITY 2 provides direction for individual projects that can be implemented easily without much disruption to the arboretum as a whole.

Funding the implementation of the plan was also reviewed and options related to the various parts of the plan that may qualify for grants or outside funding are listed in Appendix 4.

The Ladd Arboretum Master Plan is the result of a 10-month design process that included the efforts of the City of Evanston staff members, Evanston Ecology Center staff, the Ladd Arboretum Committee, and community members as participants in the plan visioning session and other public meetings.

Introduction

The Ladd Arboretum, located along the North Shore Channel, is an invaluable resource within Evanston's richly diverse community. The arboretum property is owned by the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) and is leased to the City of Evanston in a long-term lease agreement. The property is managed and maintained by the City of Evanston's Department of Parks/Forestry and Recreation (P/F&R) and its development is guided by a seven-member Ladd Arboretum Committee (LAC) which meets on a bi-monthly basis. The arboretum is a highly utilized educational and recreational resource, hosting summer camps and canoe excursions through the Evanston Ecology Center, located on the grounds of the arboretum. It also provides a much-needed venue for cyclists, walkers, and joggers on a daily basis.

Figure 01: Lawn Mall of International Friendship Garden

The arboretum is a 17-acre parcel of land contiguous with other developed park lands along the length of the channel. It lies along a northeast-southwest direction and is bordered by Green Bay Rd. to the east, Emerson St. to the west, McCormick Blvd. to the north, and the North Shore Channel to the south. Bridge St. bisects the site, marking a clear division in the arboretum. Ladd's eastern half is more natural in character and passive in comparison to the western half, which is more structured and mostly dedicated to arboretum exhibits.

The absence of funding for capital improvements, arboretum-specific maintenance policies, and conservation have resulted in deteriorated infrastructure, poor collection records, and inadequate facility maintenance. Current conditions, coupled with changing horticultural and environmental focus, have led the LAC and P/F&R to embark on an effort to re-energize and re-envision the arboretum through a comprehensive master planning effort, which is detailed in this document.

The Ladd Arboretum Master Plan is a comprehensive planning tool for the future development and management of this cherished community asset. Its focus is prioritizing the development and vision of the arboretum. This will be accomplished with a detailed site inventory and analysis of the existing features and uses while providing management policy and program recommendations, phasing and implementation plans, and funding options that will guide development to ensure the arboretum's existence for future generations to enjoy.

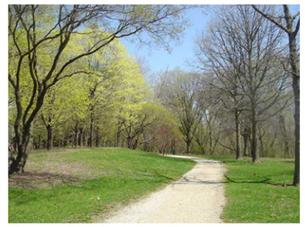


Figure 02: Existing Tree Knolls

History

The land occupied by the Ladd Arboretum was created in the early 1900s to relieve the overburdened combined storm and sanitary sewer system of Evanston. The Metropolitan Sanitary District of Greater Chicago, currently known as the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC), constructed a canal system that extended from Wilmette Harbor into the Chicago River just south of Foster Avenue in the City of Chicago. The canal system was intended to keep waste overflow from entering Lake Michigan and created an opportunity for open space along its banks in an otherwise urban environment.

The concept of an arboretum on this newly available open space was proposed in the mid 1950s. The idea became official when the city council authorized $10,000 for the development of the vacant land along the canal bank between Emerson St. and Green Bay Rd. This expenditure funded the grading and contouring of the land but the actual design and planting of the arboretum needed to be funded through volunteer efforts.

The first tree was planted on April 27, 1960. It was a *Ginkgo biloba* tree and is located just east of the Ecology Center. The arboretum was officially dedicated on June 10, 1960.

Through the efforts of local organizations, the new arboretum became a living memorial to the late Edward R. Ladd. Ladd was the founder and first publisher of the local newspaper, *The Evanston Review*.

The portion of the 17-acre site first developed was located between Green Bay Rd. and Bridge St. According to Ralph Melin, the Landscape Architect charged with the task of designing the arboretum, this first portion was dedicated to trees native to Illinois. Such trees included birch, maple, legume, nut, and varieties of pine. Thus, the species-specific groves and knolls distinguished by rolling landforms were developed and continue to lend a woodland character to the arboretum.

Work on the second half of the arboretum, stretching from Bridge St. to Emerson St., began in 1961 with initial land contouring, installation of walks, and lawn seeding. According to a newspaper article from *The Evanston Review* dated May 1960, this second phase of the arboretum development was intended to satisfy community desires to experience more "exotic" flora such as flowering plum and almond.

Figure 03: International Friendship Garden

Although the arboretum was developed from the beginning as a living memorial to the late Edward R. Ladd, equally important was the goal of educating the community on the workings of nature. An early vision for the arboretum included a strong educational component, apparent in the establishment of the original Ladd Arboretum Committee (LAC) in 1967. The original fifteen-member committee included one member from each school district serving the City of Evanston. The conscious decision to include members of the school districts ensured that educational matters would take priority when planning for the future of the arboretum.

Educational leaders on the LAC had a vision of an integrated scientific program implemented within the arboretum: Ladd would be an outdoor laboratory providing a fertile subject for studying the "workings of nature." From this vision evolved the concept of the Ecology Center where learning within the arboretum would be focused and organized.

The Ecology Center came to fruition through diligent volunteer efforts and was almost entirely funded by private donations accepted through the Evanston Environmental Association (EEA). The EEA, established specifically to endow the Ladd Arboretum, successfully raised the funds and the original building was dedicated on Arbor Day in 1974. This coincided with the final construction of the second half of the arboretum, which added the Women's Terrace, Independence Knoll, and the Washington National Heritage Walk.

From 1973 to the present, routine maintenance and occasional tree planting have occurred as part of City funded capital improvements. Several major improvements and additions have taken place through volunteer efforts and private donations. One of the most noticeable efforts included the EEA's successful fund raising campaigns to build an 1800 square foot addition to the Ecology Center. The new addition was dedicated in 2004. Other significant improvements include the development of the Prairie Patch and the wind generator in the late 1970s and the renovation and re-planting of the Washington National Heritage Walk in 1987. Improvements that are more recent include the installation of the stone terrace at the western end of the International Friendship Garden in 2005, the addition of a sculpture in 2006, and the refurbishment of the Bird Sanctuary in 2006. The City of Evanston upgraded McCormick Blvd in 2006 and with that project eliminated Grant St. at the far eastern end of the arboretum. This newly acquired land for the arboretum extends its boundaries to Green Bay Rd. The project also included rebuilding the circle entrance drive at the Ecology Center and incorporating permeable pavement and upgraded sidewalks.

Inventory &

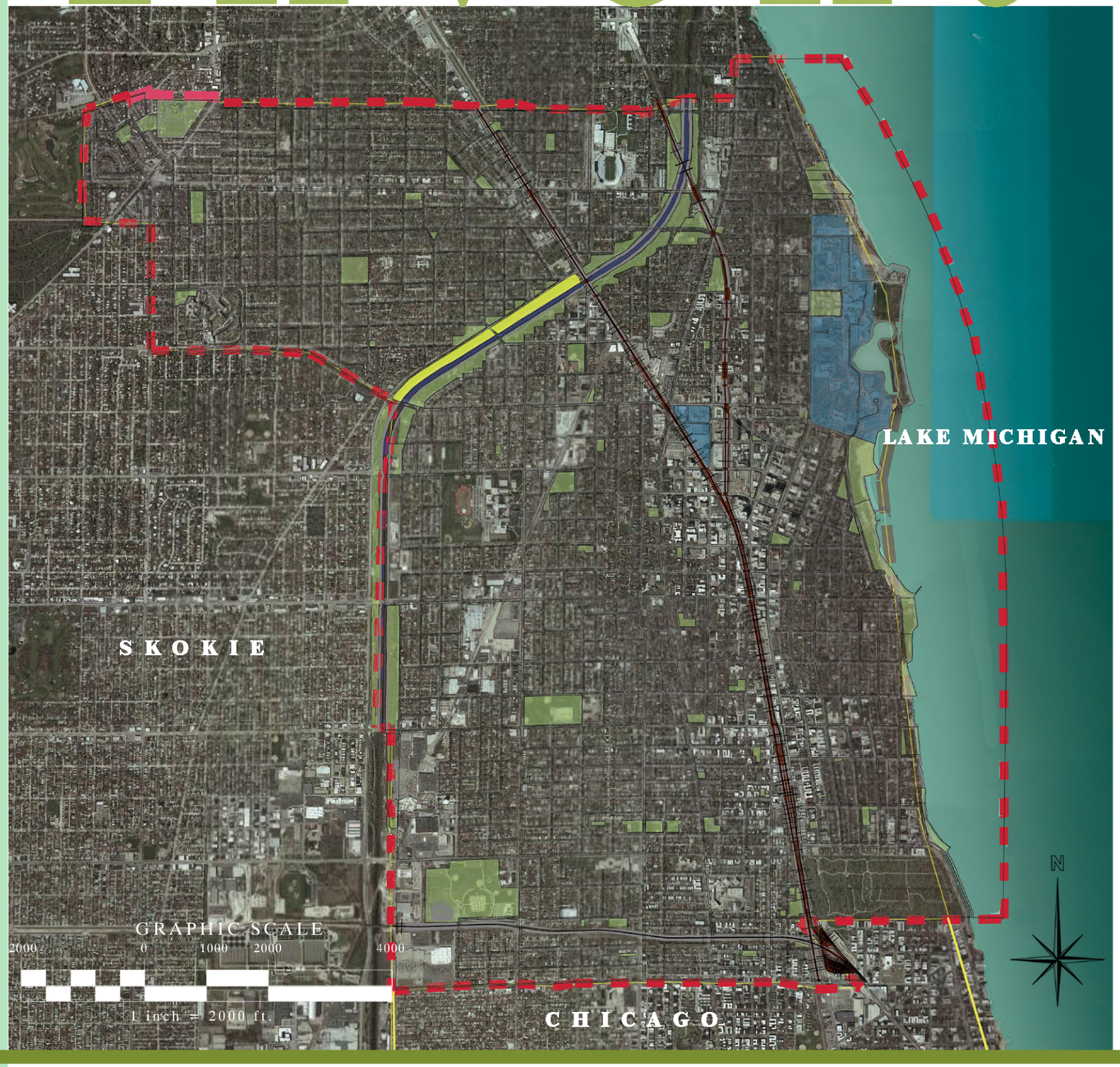


Figure 04: Regional Location map: Not To Scale

REGIONAL LEGEND

- **Evanston City Boundary**
- **Surrounding City Boundaries**
- **Parks & Open Space**
- **Ladd Arboretum**
- **Railroad**
- **Northwestern University**

Figure 05: Evanston Context Map- Scale: 1" = 2000'

Analysis

Context Maps

Ladd Arboreturm

The Ladd Arboretum is located along the northern side of the North Shore Channel just west of downtown Evanston, Illinois. The 17.3 acre arboretum is bordered by McCormick Blvd. on the north, the North Shore Channel to the south, Emerson St. to the west, and Green Bay Rd. to the east. Bridge St. bisects the arboretum in a north/south direction.

The arboretum is approximately 1.5 miles west of the Lake Michigan shoreline, 2.5 miles north of the City of Chicago, and is within walking distance from residential neighborhoods, commercial areas, Kingsley Elementary School, and the Hill Arboretum Apartment Complex, a facility dedicated to providing residences for people with disabilities.

Figure 06: View of Emerson St. and McCormick Blvd.

The arboretum is part of a larger park and open space network along the North Shore Channel within the City of Evanston. Twiggs Park and Butler Park are located on the opposite bank of the North Shore Channel from the arboretum while Eggleston Park is north along McCormick Blvd. The Skokie city limits start west of Emerson St., bordering the arboretum. Skokie maintains several linear parks along the North Shore Channel, including a sculpture park.

The City of Evanston is part of a larger metropolitan region with a population of over 8 million people; Evanston's population topped 75,000 according to July 2005 figures. The area is largely urban in character and, therefore, natural areas and open space are at a premium. Evanston is 7.7 square miles in area and contains 87 public park spaces within its city limits, including The Dwight Perkins Woods, a county forest preserve.


Figure 07: Residential neighborhood north of arboretum

Major transporation nodes include O'Hare International Airport, approximately 16 miles to the west. Midway Airport is approximately 18 miles to the south. Both the Purple CTA train line and a METRA suburban train line are within close proximity to the arboretum. The METRA line parallels Green Bay Rd. east of the arboretum and the CTA line is about 1 mile to the east of the arboretum.

LEGEND

Ladd Arboretum Boundary | **Residential** | **Parks & Open Space** | **Retail** | **Institutional/ Schools** | **Railroad**

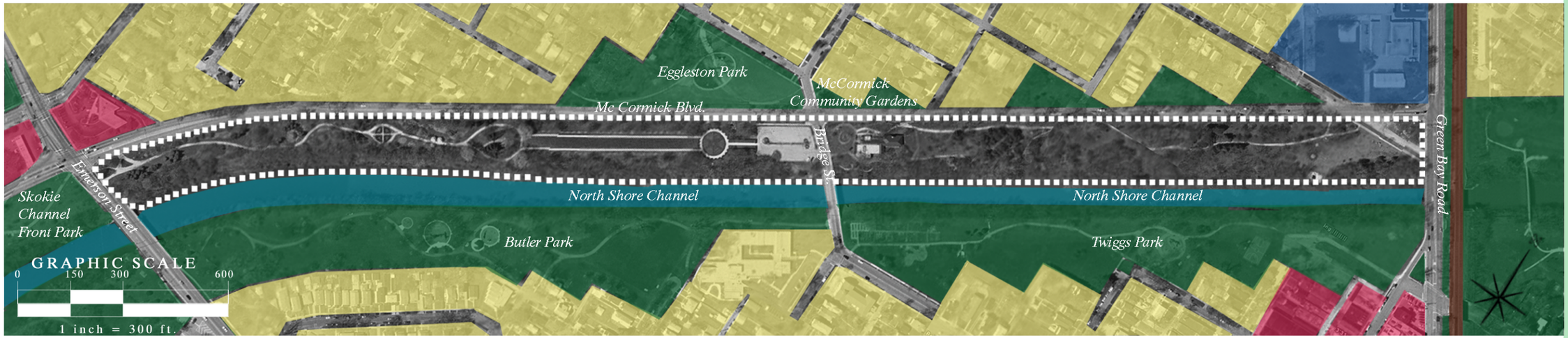


Figure 08: Ladd Arboretum Context Map

Inventory & Existing Conditions

Circulation _ Vehicular

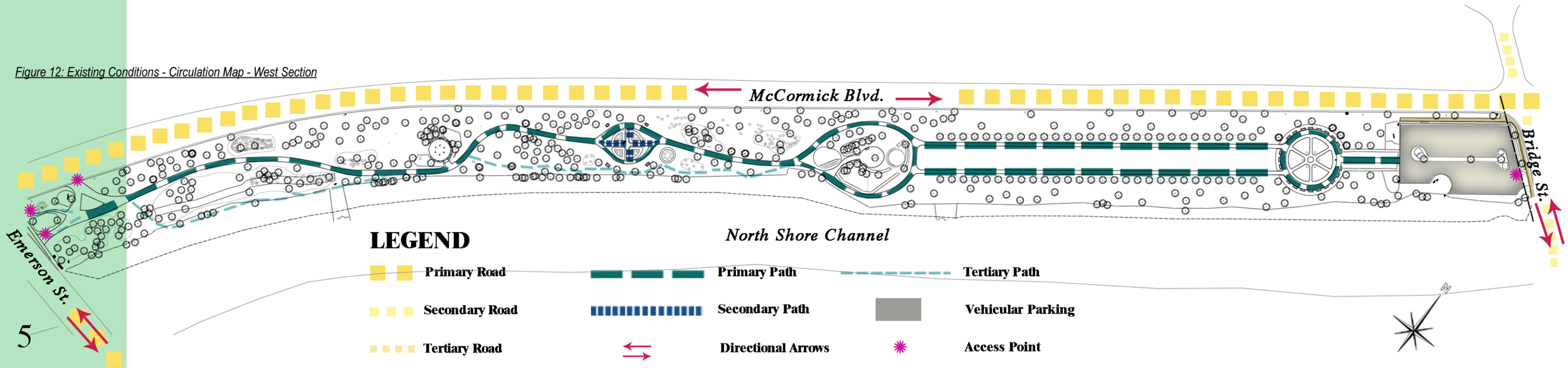
Vehicular access through the arboretum is prohibited. A 35 car parking lot is accessible off of Bridge St. and is located across from the Ecology Center. A new circular turn-around/drop-off was constructed by the City of Evanston in front of the Ecology Center on the east side of Bridge Street in 2006. Three accessible parking spaces are available at this location. Maintenance vehicle access is possible off of McCormick Blvd. through the use of two curb cuts, one on the east section of the arboretum and another on the west section.

Figure 09: Bridge St. between the existing parking lot and the Ecology Center entrance. There is currently no crosswalk for pedestrians traveling between the west side and the east side of the arboretum.

Figure 10: View of Green Bay Rd. and McCormick Blvd. looking southeast toward the arboretum.

Figure 11: The Evanston Ecology Center entrance has been recently reconstructed. The existing gravel drive was replaced with permeable pavers and concrete curbs.

Figure 12: Existing Conditions - Circulation Map - West Section



BauerLatoza STUDIO

Analysis

Circulation

Circulation _ Pedestrian

The Ladd Arboretum is a free public space and is not gated or fenced. Pedestrian access onto the arboretum property can occur at any point along McCormick Blvd., at Bridge St., and at either end of the arboretum (at Emerson St. or Green Bay Rd.). Pathways inside the arboretum reach from Emerson St. to Bridge St. and from Bridge St. to Green Bay Rd. There is no marked crosswalk or signage alerting traffic to pedestrian crossing at Bridge Street.

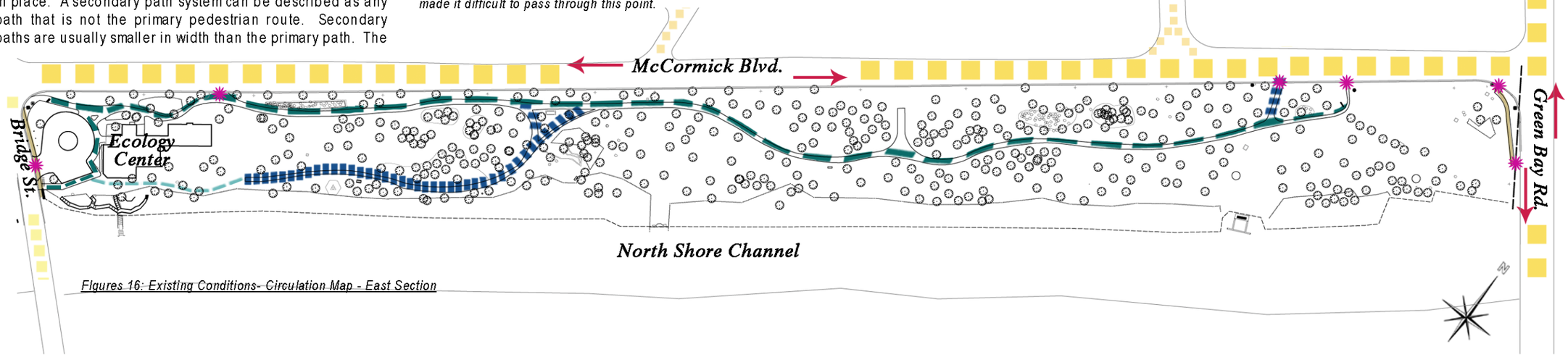
Currently one basic route through the arboretum exists and the paths delineating that route are comprised of crushed aggregate and are approximately five to eight feet in width. Time and a lack of maintenance have allowed the loss of most of the aggregate through run-off or wind erosion. The material left in place of the fines is mostly larger diameter gravel. A majority of the paths are rutted and hold a substantial amount of water during wet weather, making passage difficult.

There are a few instances were a secondary path system is in place. A secondary path system can be described as any path that is not the primary pedestrian route. Secondary paths are usually smaller in width than the primary path. The secondary paths are not typically considered ADA accessible. Tertiary paths can be described as desire paths. Routes through lawn areas and mulched paths typically fall into this category. These paths are not ADA accessible or formalized within the arboretum.

Figure 13: Typical gravel path through the arboretum after a period of rainfall. The amount of water that has collected on the pathway has made it difficult to pass through this point.

Figure 14: Primary aggregate path leading to the Rotary International Friendship Garden

Figure 15: The secondary trail system, to the left in this photo, is composed mainly of mulch paths and is not frequently used.



Figures 16: Existing Conditions- Circulation Map - East Section

150 0 75 150

1 inch = 150 ft.

Inventory & Existing Conditions

Signage

Existing signage for the Ladd Arboretum can be broken down into two categories: Identification signage and Educational/ Interpretive signage. Identification signage is any sign or marker that labels an exhibit or the arboretum itself. Educational/Interpretive signage tells a story or explains a certain concept. Some signs within the arboretum fall into both categories. Currently, the arboretum does not have a third, very important type of signage known as Directional signage. This category provides direction and usually contains directional symbols.

The arboretum's main identification signs are located on the southwest corner of Green Bay Rd. and McCormick Blvd., on the southeast corner of Emerson St. and McCormick Blvd., and at the southeast corner of Bridge St. and McCormick Blvd. All of the entrance signs are similar to one another and are constructed of wood slats, stained brown, and attached to wood posts. The letters are routed into the wood slats and painted yellow.

The Rotary International sign, identifying the International Friendship Garden, is constructed of a single wood panel- stained brown with the letters and Rotary International logo painted in mostly white, yellow, and blue. The panel is mounted on wood posts. The sign is located on the western edge of the parking lot and faces northwest.

Figure 17: Ecology Center Sign

Identification signs for other exhibits, including the Washington Heritage Walk and the formal perennial garden in the International Friendship Garden, also serve as Educational/Interpretive signage. Signs are mounted at railing height (approximately 42 inches in height), are smaller in scale than the identification signage, and contain in-depth information about the history or background of the exhibit. They are constructed of etched or engraved metal and serve to visually engage visitors.

An additional interpretive sign, located on the north side of the Ecology Center, provides visitors with an overview of the arboretum grounds and allows visitors to orient themselves within the 17-acre stretch of land. This sign is constructed of etched metal.

There are various plaques, markers, and memorials located throughout the arboretum. These types of signs can be classified as Identification signage as they identify a certain object, tree dedication, or honoree. Various forms of memorials and dedications include tree labels, bronze plaques affixed to boulders, and engraved metal plaques set in concrete.

Tree identification signs are found at the base of specific trees and used to educate the public or memorialize the tree in honor of a person. The tree identification signs are brown plastic engraved with white letters denoting the botanical name, common name, and in the event that the tree is memorialized, a person's name. The sign is mounted on a wooden post approximately 8 inches off the ground.

Figure 18: Existing Interpretive Signage


Figure 19: Tree Identification Sign

Not all exhibits or memorials are enhanced with signage. The wind generator, the tree knolls and groves and the trees in the Rotary Garden are all without identification or explanation. Without a proper commentary, the importance of these elements is lost to the typical visitor.


Figure 20: Entry Sign at Green Bay Rd. & McCormick Blvd.

Figure 21: International Friendship Garden Sign

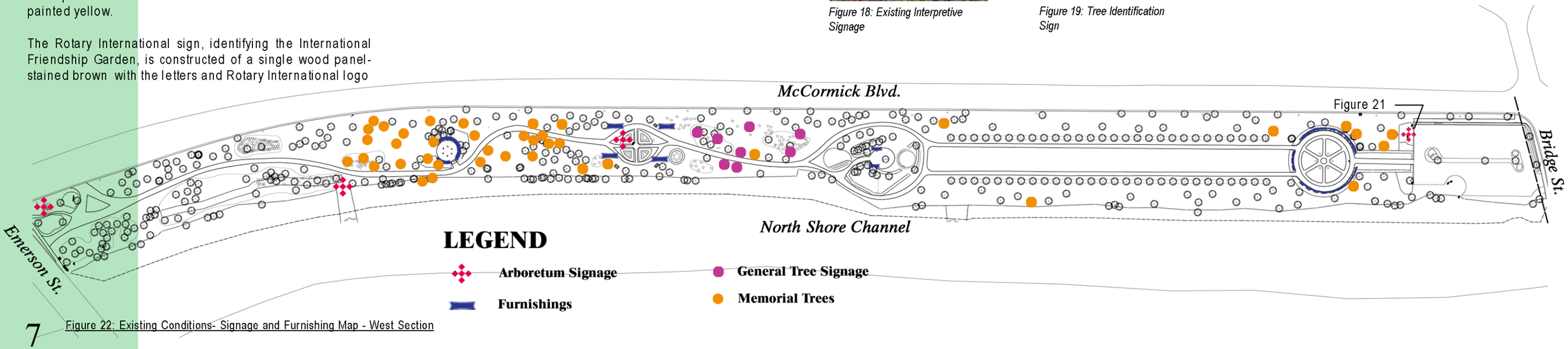


Figure 22: Existing Conditions- Signage and Furnishing Map - West Section

Analysis

Signage & Furnishings

Site Furnishings

Site furnishings found throughout the Ladd Arboretum include benches, trash receptacles, a drinking fountain, a bicycle rack, and a "Mutt-Mitt" dispenser. The styles of the furnishings are particular to each exhibit.

The Ladd Arboretum contains one drinking fountain, located north of the Ecology Center, which receives its water supply from the Ecology Center building. The only bicycle rack for the arboretum is located on the north side of the Ecology Center and can hold five to six bicycles at a time.

The "Mutt-Mitt" dispenser is a box mounted on a post that stores plastic bags for disposing of dog waste. The dispenser is located just east of the Ecology Center along the mulched secondary path that is just north of the channel embankment.

Figure 23: Stone Bench

Benches found throughout the arboretum are made of various materials including concrete, stone and wood. The condition of the benches range from poor to excellent.

The arboretum's stone benches are located at Independence Knoll and are in excellent condition. The benches serve as memorials and are engraved as such.

The condition of the concrete benches varies greatly. The majority of the concrete benches have remained intact but a few require removal as a safety precaution. These benches are mostly located in the International Friendship Garden exhibit and the Aspegren Gazebo.

The arboretum's wood-slat benches are suitable but appear worn and neglected. Some of these benches have shifted over the years and are not level, making use difficult. The wood-slat benches are installed over grass, along pathways, and around exhibits, or are set over paved areas.

Figure 24: Wood Slat Bench

Trash receptacles are blue and green painted 55-gallon drums designated for either recycling or trash debris. They are located throughout the arboretum along the pathways. Although satisfying their intended use, the drums do not perpetuate the sense that the arboretum is well-cared-for or a significant place to visit.

Fence

Currently, a 4 foot high chain link fence is located half way down the sloped channel embankment. The fence is severely damaged in many areas. It is believed that the purpose of the fence is to prevent access to the water of the North Shore Channel. In some places the fence is missing or so severly damaged that access is possible.

MWRDGC will allow access to the channel if the embankment slope is properly stabilized.

Memorial Trees

A significant number of trees in the Ladd Arboretum are dedicated "In Memory" of an individual, a family, or a group. Currently, the City of Evanston Parks/Forestry Division administers the Memorial Tree Program.

The monetary amount of the donation is determined by the size of the tree. Donors can request a specific species of tree and location within the arboretum and requests are then approved by Parks/Forestry. The money from the donations is placed in a fund that pays for the purchase and maintenance of the tree. A plaque is mounted at the base of the tree, denoting the tree species and the name of the memorialized party.

Plans are underway to transfer the Memorial Tree Program from Parks/Forestry to the Ecology Center (EC) staff. It is believed that having the Memorial Tree Program facilitated by the EC staff will streamline the process.

Figure 25: Existing Tree Signage

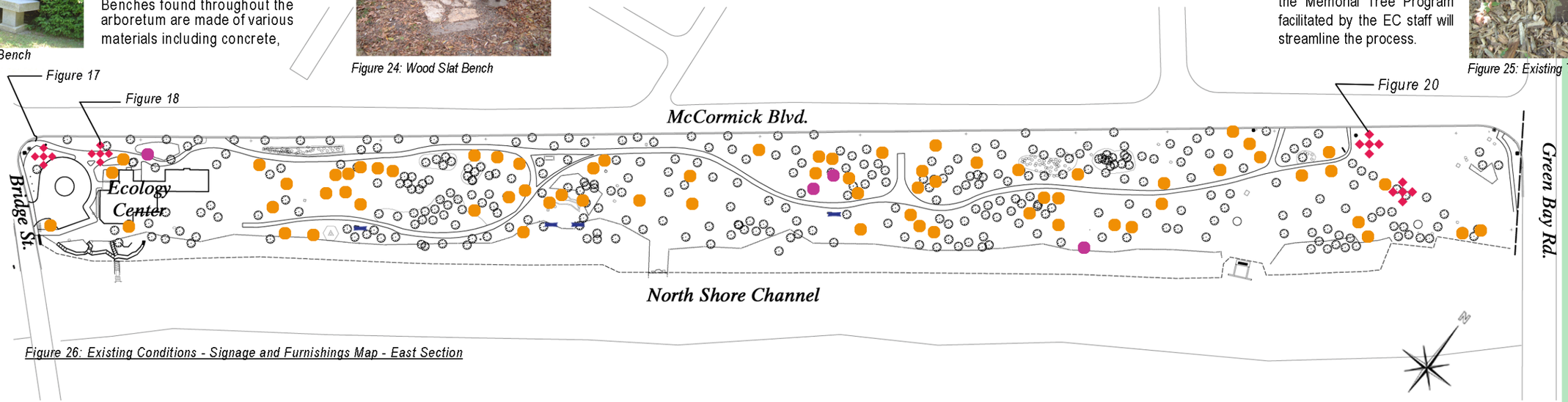


Figure 26: Existing Conditions - Signage and Furnishings Map - East Section

150 0 75 150

1 inch = 150 ft.

Inventory & Existing Conditions

Trees & Shrubs

As part of the Master Plan project an inventory of the trees and shrubs located within the Ladd Arboretum property was completed. Data concerning the trees and shrubs was collected and analyzed, providing information on the species composition, condition, and maintenance actions -- among others -- of the Ladd flora. The report also recommends best management practices and provides long-term planning strategies that will improve maintenance efficiency and tree and shrub health. The report, in its entirety, is presented under separate cover.

The major findings of the Ladd Arboretum *Tree and Shrub Inventory and Management Plan* include the following:

Figure 27: Rolling topography typical within the arboretum

- 1,189 trees, shrubs, planting sites, and stumps on the Ladd Arboretum property were inventoried. Note: Whenever possible, shrubs were grouped together and collected as a mass planting with the number of shrubs being indicated.

The total value of Ladd Arboretum tree and shrub population is estimated to be $1,167,716.46 and the average value per tree is $997.20. These numbers are based on the tree valuation

- formulas found in the Council of Tree and Landscape Appraisers' publication, *Guide for Plant Appraisal (9th Edition)*.

Ladd Arboretum tree and shrub population is comprised of 134 species and cultivars representing 68 genera.

- The genus *Acer* (maple) comprises 10.58% of the overall population, followed by *Malus* (apple/crabapple) 10.09%, *Cornus* (dogwood) 7.06%, *Juniperus* (juniper) 6.56%, *Crataegus*
- (hawthorn) 6.48%, *Pinus* (pine) 5.21%, *Picea* (spruce) 4.79%, *Ulmus* (elm) 4.04%, *Viburnum* (viburnum) 3.28%, and *Cotoneaster* (cotoneaster) contributing 2.52%.

Figure 28: Mixture of shrubs and trees within the Bird Sanctuary

- The inventoried tree and shrub population has high percentages of small- and medium-sized trees: 53.89% and 43.13%, respectively. Small trees and shrubs, which are six inches or less in diameter at breast height dbh), represent 53.89% of the total population, (while 43.13% of the trees are medium-sized (7-24 inches dbh) and 2.99% of the trees are large-sized (25 and greater dbh).

- There are zero trees (0.00%) rated in Excellent condition, 74 (6.32%) in Very Good condition, 370 (31.60%) in Good condition, 632 (53.20%) in Fair condition, 67 (5.72%) in Poor condition, and 15 (1.28%) in Critical condition. There are 22 (1.88%) trees rated as Dead.

- 53 trees (4.53%) are recommended for removal. Of these, 13 (1.11%) are recommended for Priority 1 Removal, 14 (1.20%) for Priority 2 Removal, and 26 (2.22%) are recommended for Priority 3 Removal. There are 17 (1.45%) trees recommended for Priority 1 Prune and 70 (48.98%) trees recommended for Priority 2 Prune.

Figure 29: Perennial bed within Rotary International Friendship Garden

Large Routine Prune is recommended for 364 (31.08%) trees. Small Routine Prune is recommended for 570 (48.68%) trees and shrubs and Training Prune is recommended for 97 (8.28%) trees and shrubs.

Topography

The arboretum grounds are sculpted to detract from the monotony of the urban landscape. Throughout the arboretum's 17 acres there are mounds and knolls intended to create a feeling of seclusion and enhance the site's naturalized character. The mounds, when planted with shrubs and trees, are effective in buffering vehicular noise and filtering views through the arboretum.

The arboretum is bordered on the south side by the North Shore Channel embankment. The embankment is approxiamtely 20 feet from top of the bank to the water elevation and has slopes measuring between two and three horizontal feet for every one vertical foot. The existing embankment prohibits safe access to the water of the North Shore Channel. Pedestrian use of the sloped embankment is discouraged as the bank is unstable.

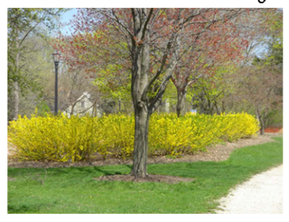


Figure 30: Flowering shrubs with shade canopy

As the land is owned by MWRDGC, it is imperative to gain approval from the agency prior to modification of the existing conditions. Acces to the water of the channel is possible with the proper slope stabilization. MWRDGC must have clear access to their facilities at all times.

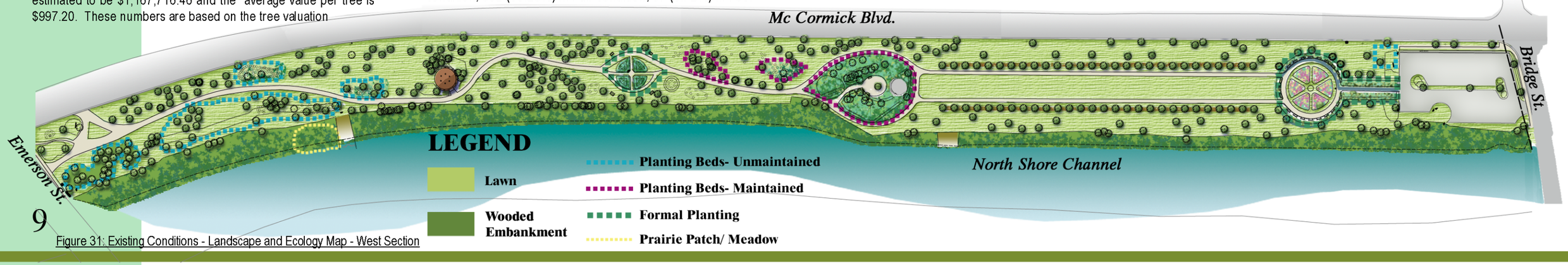


Figure 31: Existing Conditions - Landscape and Ecology Map - West Section

Analysis

Landscape & Ecology

Forested Embankment

The BauerLatoza Studio design team visited the Ladd Arboretum in April, June, August, and September 2006 to observe the condition of the plant communities located along the North Shore Channel embankment. With a focus on the herbaceous and understory layers, the team observed communities dominated by degraded forest species. Several small grassy areas cleared of trees and shrubs located near recently constructed stormwater outfalls and one patch of planted and managed mesic prairie were also observed.

The shrub layer was dominated by common buckthorn (*Rhamnus*) and the herbaceous layer was dominated by garlic mustard (*Alliaria petiolata*). A few additional herbaceous species were observed, including two species of Aster, white snakeroot (*Eupatorium rugosum*), Virginia Bluebells (*Mertensia virginica*), and Falsesolomon's Seal (*Smilacina racemosa*), although the latter two species were only observed on the upper portions of the bank.

Figure 32: Edge condition of forested embankment

The understory was well shaded and, therefore, not densely vegetated. Common tree species found along the streambanks included box elder (*Acer negundo*), silver maple (*Acer saccharinum*), and eastern cottonwood (*Populus deltoides*), though very few juveniles or saplings of these species were observed. The bottom of the embankment slope has eroded along much of the Ladd Arboretum and was observed to be largely unvegetated.

Prairie Patch/Outfall Areas

Several gaps in the forested channel bank community were observed in areas where stormwater outfall structures have been constructed.These gaps were less than 100 feet wide and the vegetation was dominated by grasses and herbaceous weeds. Areas immediately adjacent to the stormwater outfalls were covered with riprap. A small planted prairie was observed adjacent to one of these gaps; dominant species included prairie dock (*Silphium terebinthinaeum*), sweetclover (*Melilotus spp.*) and goldenrods (*Solidago spp.*).

Lawn

The ground plane of the arboretum consists mostly of cultivated lawn. The lawns are maintained by the City of Evanston Park/Forestry Division, a responsibility that consists of weekly mowing. Herbicides and pesticides are not used in maintaining the lawn.

The lawn suffers from compaction, rutting from mowers and vehicles, and a lack of proper drainage. The topography of the arboretum, with its mounds and knolls, contributes to the problem by trapping water without access to drainage structures or the channel. There are many areas, due to the dense tree canopy, where the lawn is thin and bare.

Wildlife/Habitat

Currently the channel slopes, the Bird Sanctuary, and the groupings of shrub plantings provide habitat for typical urban mammal species such as white-tailed deer, raccoons, rabbits, squirrels, rats, and mice. Other mammal species present may include beavers and coyotes. The shore of Lake Michigan is part of a major flyway for migratory birds. The embankment and channel likely provide stopover habitat for a wide variety of bird species, ranging from waterfowl to birds of prey to songbirds. Species tolerant of nearby urban conditions may find year round habitat along the North Shore Channel. Dead standing trees (snags) within the forested bank area may provide habitat for owls and bats.

MWRDGC and the Illinois Department of Natural Resources (IDNR) have performed several studies of fish and aquatic habitat within the North Shore Channel during the last few decades.

Figure 33: Forested embankment- typical habitat condition

From 1974 through 1996, 44 fish species were captured by MWRDGC and in a single sampling event in 2001, IDNR found ten species. Based upon some of these sampling events, the stream quality of the North Shore Channel has been characterized as *fair, poor,* and *very poor.* Aquatic areas near the banks may also be used by waterfowl, shorebirds, and aquatic mammals.

Street Treatment

The arboretum is bordered on three sides by well-traveled public streets and is bisected by a fourth street. The view from the street into the Arboretum is greatly affected by the landscape treatment along those borders. Currently, there is no specific treatment for the street that differs from the landscape character that is prevalent throughout the arboretum as a whole. There are isolated segments of sidewalks adjacent to the street along McCormick Blvd. This is thought to be intentional to bring visitors through the arboretum rather than keeping them to the perimeter. There are sidewalks along Emerson St., Bridge St., and Green Bay Rd.

Figure 34: Street treatment- typical condition

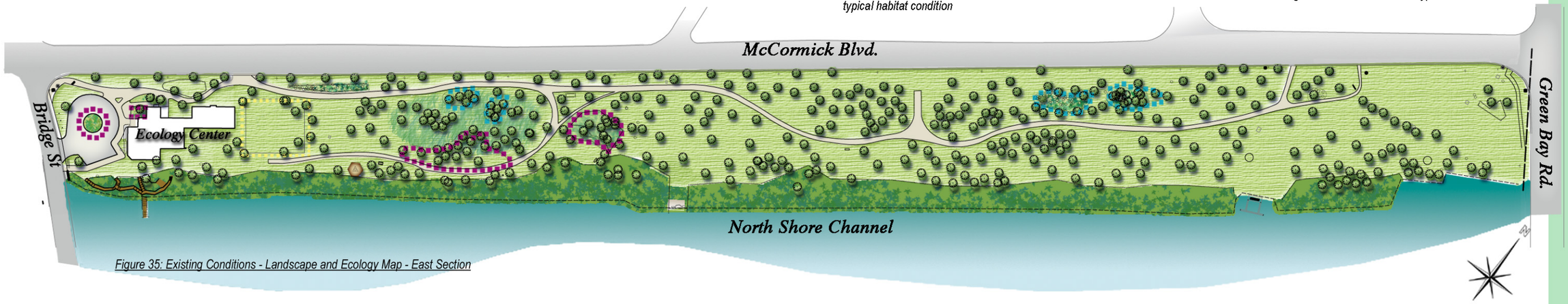


Figure 35: Existing Conditions - Landscape and Ecology Map - East Section

Inventory & Existing Conditions

(1) Prairie Restoration

The Prairie Patch is one of the few exhibits in the arboretum dedicated to showcasing a specific ecosystem. The prairie plantings, located along the embankment of the North Shore Channel in the western half of the arboretum, was designed and installed by volunteer efforts in the 1970s and 1980s. Recent construction by the City of Evanston to install new storm water outfalls drastically affected the Prairie Patch and the plantings have been re-established through volunteer efforts.

A large sign announcing the intent of the Prairie Patch is located on the edge of the plantings. The exhibit is accessed by a tertiary path affording visitors the opportunity to happen upon the natural gem.

Figure 36: Prairie Patch Sign

The prairie ecosystem and ecological impacts are discussed in the section "Landscape and Ecology."

(2) Aspegren Gazebo

The Gazebo is a hexagonal structure which is comprised of six masonry columns supporting a wood framed canopy with a pitched roof. The individual columns are octagonal and built of red brick in a stacked bond pattern. They are approximately eight feet tall and together create a circular rotunda beneath the gazebo canopy. One column exhibits a horizontal crack along the mortar joint at the center of the column. Also, some of the ground level mortar joints are deteriorated. The remaining masonry joints appear to be in good condition.

Figure 37: Lilian Aspegren Gazebo

There is some minor graffiti on the masonry and one column has a 3"x5" void at the location of an abandoned electrical junction box.

The canopy of the gazebo is 6-sided and overhangs the columns by approximately two feet. The underside of the canopy (ceiling of the gazebo) is finished with painted plywood. The paint is very weathered, leaving the wood exposed to the elements. The fascia is detailed with continuous dentils and a crown molding. Many of the dentils and portions of the crown are damaged or deteriorated and the finish paint is also very weathered. The roof is sheathed in rusticated wood shakes which are worn and deteriorated in many places. In addition, the roof exhibits a significant amount of biological growth, indicating high water retention.

The structure of the canopy is completely concealed and was unable to be evaluated. The condition of the canopy framing should be evaluated when access is possible.

It appears that the gazebo may have had a light fixture at the center of the ceiling which has since been removed. The fixture most likely worked in conjunction with a controller (light sensor, timer or switch) which was mounted on the column where the junction box void is located.

The ground treatment of the gazebo is poured concrete with an embedded dedication plaque in the center.

The concrete floor extends out past the edge of the canopy about 6 foot and concrete benches encircle the gazebo. The benches are backless and some require repair or replacement. The floor of the gazebo is raised and a step is required to access the area.

The plantings surrounding the structure consist of evergreen yews and red barberry shrubs. The plantings surround the gazebo, providing a feeling of isolation.

(3) Women's Terrace

A two-acre parcel of the western half of the arboretum was set aside in 1972 to honor Evanston women, living or dead, who had, "...added to the quality of life in Evanston through cultural, educational, religious, or governmental activities, or through their own family life." The trees are designated with a plaque, similar to the memorial tree placards, denoting the woman of honor and the species of tree.

There is no signage announcing the Women's Terrace and the boundaries for the exhibit are undefined. The Aspegren Gazebo is centrally located in the Women's Terrace.

The ground plane is lawn with some shrubs grouped together in defined planting areas. The terrain is rolling and the pathway meanders through the area and is constructed of the same crushed aggregate as the rest of the pathway system.

Figure 38: Women's Terrace

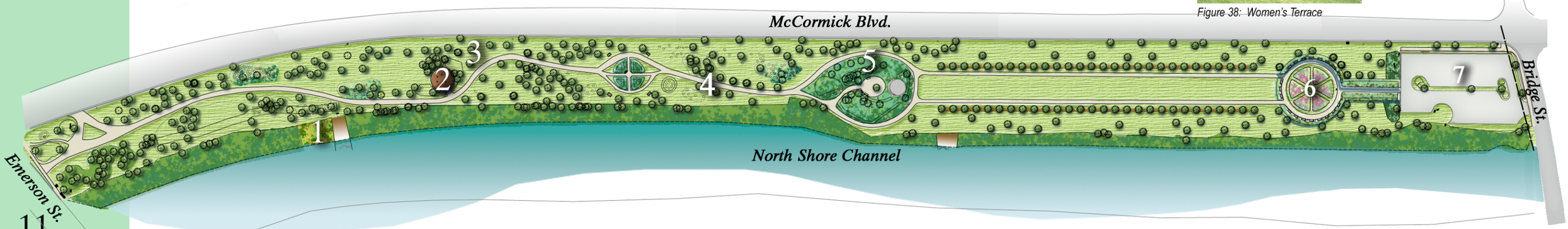


Figure 39: Existing Conditions - Exhibit Locations - West Section

Analysis

Exhibits/Arboretum Components

(4) Washington Heritage Walk

In 1967, the Washington Insurance Co., located in Evanston at the time, sponsored the installation of an extensive exhibit showcasing trees and shrubs found at Mount Vernon during the colonial time period. In 1987, at the urging of the city, the Washington Insurance Co. refurbished the garden. The original cherry trees had died and the new plantings offered a hardier, regionally appropriate landscape. Also included in the new landscape was a dedication plaque and benches.

The original cherry walk winds partly around Independence Knoll and concludes at a formalized circular garden. Paths throughout the circle are aggregate, lined with steel edging that is now buckling out of the ground.

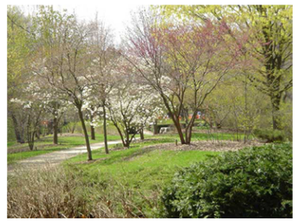


Figure 40: Washington Heritage Walk

The paths are weedy and encroached upon by surrounding lawns. Plantings in the circle have been neglected and offer little color or interest.

The dedication plaque at the circular part of the garden provides background on the exhibit and explains the intent of the dedication. A large boulder with a bronze plaque once graced the entrance at the eastern end of the exhibit but has since been lost to vandalism.

When Washington Insurance relocated out of Evanston, the company abandoned its commitment to the exhibit. Maintenance has since been provided by the City of Evanston.

(5) Independence Knoll

To celebrate the City of Evanston's centennial, the 4th of July Association of Evanston dedicated the Independence Knoll in 1963. The area is southwest of the Rotary Club's International Friendship Garden and extends for 300 feet further to the west.

Adjacent to the Rotary Club's circular paved terrace, the Independence Knoll consists of a lawn area bordered by memorial stone benches. At the center of the circular lawn space is a lighted flag pole set within a raised stone planter. The planter is currently not maintained with regular plantings. The two terraces are separated by a flagstone retaining wall. Access between the two terraces is only through the plantings and adjacent lawn. The Rotary Club's paved terrace is not ADA accessible, whereas the Independence Knoll terrace has a sloped aggregate path that allows access from the west. However, the degraded condition of the path is not fully compliant with ADA standards.

Figure 41: Independence Knoll

West of the Independence Knoll interior lawn space is an abundance of evergreen shrubs and trees. The plantings are mature and are maintained with regular pruning.

(6) International Friendship Garden

The International Friendship Garden, established in 1962 by the Rotary Club of Evanston, was founded to signify the friendships that Rotary builds around the world.

The Garden extends from the parking lot located off of Bridge St. west to Independence Knoll. A formal perennial garden, a tree-lined grass mall, and a circular stone terrace comprise the International Friendship Garden.

The circular shape of the perennial garden represents a wheel, which is the Rotary International symbol. Surrounding the garden are 22 concrete benches placed in honor of past Rotary Club members. The mall space is flanked by two crushed limestone paths that are a part of the primary trail system within the arboretum. Lining the paths are two rows of crabapples, each tree dedicated to a different country in which a Rotary Club is established. There are no signs or plaques that indicate the dedication. The shade trees surrounding the garden are also a part of the dedication program. An aluminum globe sculpture is the most recent addition to the garden. Centrally located in the lawn area, the sculpture was placed in memory of a past Rotary Club member.

The paths lining the mall are primarily used for walking, jogging, and bicycling. The garden itself is used to host weddings and receptions and also acts as a space to honor Rotary Club members.

Figure 42: International Friendship Garden

Currently, the maintenance of the garden is handled by the Rotary Club. The Rotary Club Garden Committee is responsible for the plant selection and the installation and care of the plants in the perennial garden.

Irrigation is installed in the perennial beds and along the tree lines. Metal edging is used around the perennial beds and along the shrub hedge. The placing of the mulch and the maintenance of the walkways and hedges is a paid contract to an independent landscaping company funded by the Rotary Club. The City of Evanston is responsible for mowing the lawn areas.

(7) Parking Lot

The parking lot is constructed of asphalt pavement with a concrete barrier curbing around the perimeter. There is a curbed, landscaped median down the center of the lot that is planted with low growing evergreens and deciduous shade trees. The lot is not striped but currently holds approximately 49 cars. There is a 6'-0" wide landscaped buffer between the lot and Bridge St. and a similar lawn space and 5 foot wide sidewalk between the lot and McCormick Blvd. The sidewalk extends west to the edge of the parking lot only.

The route of outgoing vehicular traffic crosses incoming vehicular traffic and is typically unsafe and counter intuitive.

The presence of the MWRDGC Deep Tunnel structure, located in the southwest corner of the lot, is a fixed item that cannot be moved. The boundary for the International Friendship Garden is directly west of the parking lot. Visitors must cross through the parking lot since there are no pedestrian paths connecting to the sidewalk north of the lot.

Figure 43: Parking Lot

Inventory & Existing Conditions

(8) Canoe Launch

The existing canoe launch facility is a combination of gravel paths and wooden steps. The condition of the steps is severely degraded. It is not suitable for wheelchair access and does not meet current ADA standards. The facility is not open to the public and is utilized for Ecology Center (EC) programs. A chain link fence and gate prohibit access to the dock. The canoe dock is located within the thick wooded embankment area and is almost entirely hidden from view by the underbrush.

The current launch site hosts 1000+ canoeists yearly. Participants in the canoeing program with disabilities or special needs are launched from the Dammrich Rowing Center at Oakton and McCormick Blvd. The Dammrich Rowing Center is operated and maintained by the Village of Skokie.

Figure 44: Canoe Launch

(9) Ecology Center

The original building that houses the Ecology Center (EC) was opened in1974 and consists of offices, restrooms, a classroom, and lobby space. In 2004, an 1800 square foot addition to the Ecology Center was completed, adding a large multi-purpose room and outdoor patio space.

The building is constructed of masonry block exterior with a standing seam metal roof and wood trellis structures provide shade and protection at the building entrances.

The landscaping for the Ecology Center appears minimally maintained and lacking a specific design intent.

The Ecology Center currently utilizes the arboretum as an outdoor classroom and "living laboratory." Its many nature programs, summer camps, and canoeing adventures take place either in the arboretum or on the waters of the North Shore Channel.

The area directly surrounding the Ecology Center is used by staff for environmental education. The large open meadow east of the building, known as the Aspegren Meadow, is reserved for large gatherings and is the only area of its size that can accommodate such groups.

The EC staff is unable to use more "wild" areas of the arboretum located along the embankment of the North Shore Channel because of steep slopes, inaccessible paths, and a chain link fence that prohibits access to the water's edge.

Figure 45: Ecology Center

(10) Aspegren Meadow

The wide open lawn space directly east of the Ecology Center is dedicated in memory of Richard Aspegren, a young Evanston boy who lost his life in an automobile accident soon after attending the dedication of the Ladd Arboretum in 1960.

After his death, Richard's family took the money he had been saving for the purpose of planting a tree and dedicated a single Oak tree in his memory. An additional contribution from the family funded the completion of the exhibit.

Because of its proximity to the Ecology Center, the meadow is used as a large group gathering space for Ecology Center programs. The space is one of the only large open areas in the arboretum, offering visitors naturalistic and inspiring views across the arboretum.

A large boulder located east of the exhibit once contained a bronze dedication plaque but has since been lost to vandalism. No other signage marking the meadow exists.

Figure 46: Aspegren Meadow

(11) Wind Generator

Figure 47: Wind Generator

The wind generator is comprised of a tapered, triangular steel tower with wind turbine blades on top. The mechanics of the wind generator are no longer active. The steel framing of the tower is painted and this coating appears to be in good condition. The structure of the steel tower was not reviewed.

A wood framed structure surrounds the base of the tower. This hexagonal structure provides shelter and protects the base of the tower from access and climbing. The shelter is raised from the ground 1 to 2 feet on six concrete piers. It has a wood plank platform floor that surrounds a three-sided enclosure around the tower. The roof of the shelter is clad in asphalt shingles and is steeply pitched. It is also open at the center where the tower penetrates the shelter. The wood framing of the structure is exposed and most of the exposed wood is painted.

Overall the structure is in fair condition and is in need of maintenance. Some of the roofing shingles are damaged or lifting, the paint is worn in most places and no longer providing protection to the wood, the bolted frame connections are showing signs of rust, and some floor boards have been replaced and are showing signs of deterioration.

Analysis

Exhibits/Arboretum Components

(12) Bird Sanctuary

The Grady Memorial Bird Sanctuary was renovated and dedicated in 2006 and consists of a mechanical water fall and pond cascading down a rock stream bed. The area is planted with a variety of shrubs and trees that provide good habitat and food sources for many types of birds.

The entire planting area is oriented on a knoll to facilitate the waterfall and provides increased isolation.The height of the the knoll is approximately 8'-0" at its crest.

Figure 48: Bird Sanctuary

Wood benches off to the side of the exhibit provide for quiet reflection and act as a viewing station for visitors. The benches are positioned over a block paver pad.

(13) Knolls & Groves

The eastern half of the Ladd Arboretum was developed shortly after the dedication of the first tree, a Ginkgo, in honor of Edward R. Ladd. This section of the arboretum stretched from Green Bay R.d to Bridge St. and was intended to highlight Illinois native plants and trees.

Figure 49: Pine Knoll

Figure 50: Oak Grove

Several groupings of large, mature trees are located in the eastern section of the arboretum as part of an educational program to inform visitors about Illinois native trees. The trees provide a thick forest-like character, enhancing the vistor's experience with nature. The groupings are divided by species: the Pine Knoll, Oak Grove, Maple Knoll, Legume trees, Birch Family, and Nut trees. The areas are further defined by a rolling landscape designed to create enclosure and relieve the monotony of the otherwise flat topography.

Figure 51: Maple Knoll

Figure 52: Birch Family

Figure 53: Legume Trees

Figure 54: Nut Trees

(14) Silver Wings Sculpture

A large public art sculpture is located at the far east end of the arboretum. In 2006, Grant St. was removed and the arboretum absorbed the land and the sculpture.

Figure 55: Silver Wings Sculpture

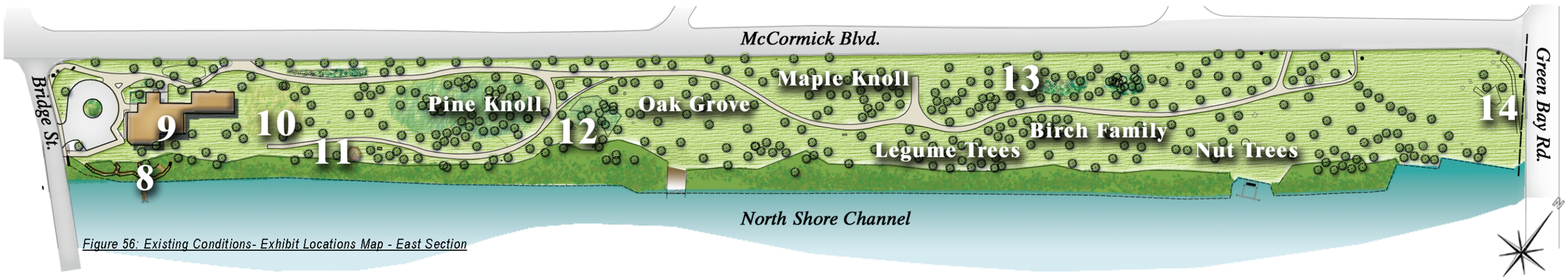


Figure 56: Existing Conditions- Exhibit Locations Map - East Section

Inventory &

Nodes & Entrances:
The arboretum lacks significant entry signage and delineation that would draw visitors into the space. The three existing entry locations, Emerson St. and McCormick Blvd., Bridge St., and Green Bay Rd. and McCormick Blvd. present an opportunity to make the arboretum more distinct and inviting.

Overlooks:
Along the edge of the North Shore Channel there are opportunities to create overlooks and engage visitors in not only the arboretum's landscape but the channel as well. Opening these areas can create additional amenities within the arboretum and enhance the user's overall experience.

Connections:
Creating connections into and out of the arboretum can make the area more accessible to the public.

Secondary Path System:
The arboretum's primary path system takes the user almost directly through the site. Along the edge of the arboretum and the wooded embankment lie opportunities to incorporate a secondary path system.

Park Land Connections:
The arboretum is part of a larger network of parks throughout Evanston. Creating connections to adjacent park lands will help to enhance the interconnectedness of Evanston's park system and also make the arboretum more accessible to the public.

ADA Accessible Canoe Launch Location:
The existing canoe launch, located on the east side of Bridge St., is a non-engineered combination of paths and steps. Across Bridge St. just south of the existing parking lot is a favorable location for a new launch. Placing the launch on this side creates opportunities to open the launch to the public and make it ADA accessible.

Storm Water Management System:
Storm water management techniques can be incorporated into the existing parking lots on either side of Bridge St. to handle run-off water on site, naturally regenerating the water table. Elements such as bioswales and permeable pavers are ways to handle storm water on site in an environmentally effective way.

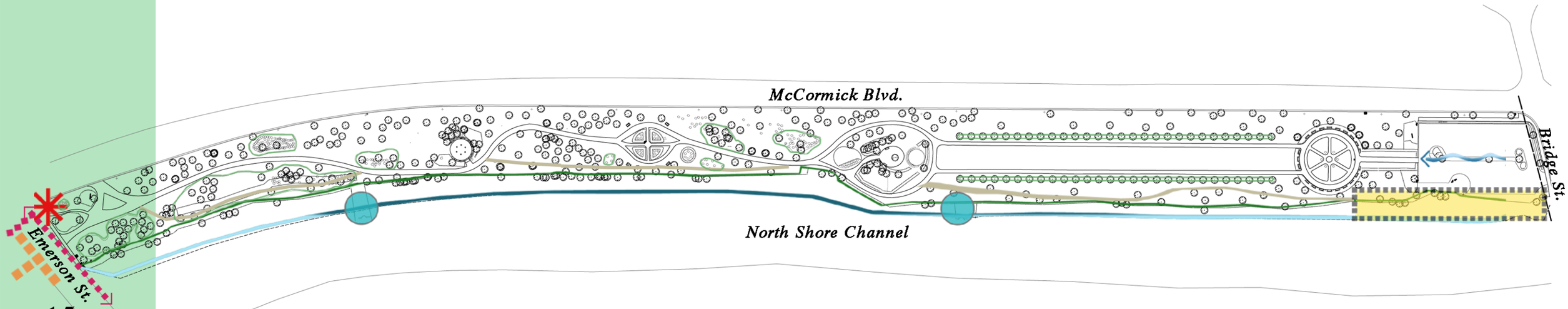


Figure 57: Opportunities & Constraints Map - West Section

Analysis

Opportunities & Constraints

Outdoor Classroom:

The area just south of the Ecology Center multi-purpose room is secluded and buffered from noise by the building on two sides and by the forested embankment on a third side. This space is a logical choice to introduce a programmed use such as an outdoor classroom.

Channel Edge:

Allowing access to the water is a way to enhance the user's experience but the channel edge can not be modified per MWRDGC. The slope down to the water requires engineered stabilization in order to allow access to the water. The vegetation should not be removed without review by an engineer and prior approval from MWRDGC.

Successional Woods:

The vegetation along the channel embankment helps to stabilize the slope, provides wildlife habitats, and enhances the isolated character of the arboretum. Visitors will have more direct contact with nature and wildlife if vegetation is brought into and enhanced inside the arboretum.

Increase Biodiversity:

The current tree and shrub community along the channel bank is not diverse. Increased biodiversity can be achieved by removing invasive plant species and replanting with a more diverse mix of trees and shrubs native to the region.

Increase Habitats:

Migratory Birds:
The arboretum and North Shore Channel act as a stop-over habitat for migratory birds. To enhance this temporary habitat and increase wildlife viewing opportunities for visitors, a target list of bird species should be created and the area planted accordingly.

Fish & Aquatic Life:
By improving water quality, creating wetlands, and building structural habitat features, fish and other aquatic life habitats can be enhanced, leading to a more diverse population.

Overall water quality improvement will require systematic changes. The communities affected by the channel will need to work closely with MWRDGC as a whole to affect change.

Mammals:
The arboretum likely provides a corridor for several mammal species. To attract mammals from a target list, understory habitats should be created as extensions of the existing embankment vegetation. Also, a more wildlife-friendly fence should be placed along the arboretum's edge in lieu of the current chain link fences or the chain link fence should be removed completely.

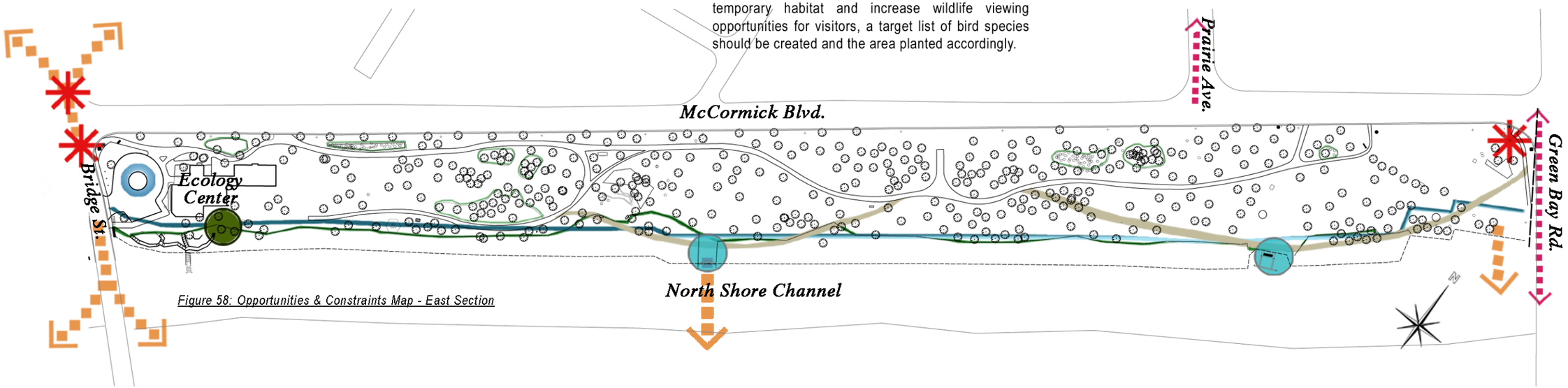


Figure 58: Opportunities & Constraints Map - East Section

150 0 75 150

1 inch = 150 ft.

Master Overall

The Ladd Arboretum Master Plan provides a structure that enables the City of Evanston and the community to work together to create a new future for the Ladd Arboretum. Drawing from the public visioning sessions, the plan provides a series of mutually reinforcing objectives that support the plan recommendations. The recommendations are outlined in detail in this section. The principle objectives can be summarized as follows:

-Increase the arboretum's visibility and presence within the Evanston community with the introduction of "Gateways" and improved signage.
-Create a connection between the arboretum visitor and nature through access points such as deck overlooks, a secondary path system, and wildlife viewing stations.
-Incorporate "Green" design options wherever possible. Recycled materials, native plant material, and environmentally sensitive design practices are all ways to further this principle.
-Improve the sustainability of the Ladd Arboretum ecosystems and environment through the implementation of less formalized landscaping, allowing land to transition to a more naturalized aesthetic. Implement administrative policies that address the use of non-natural materials.
-Increase biodiversity within the arboretum by removing invasive and non-native plant species and revegetating areas with native plant material whenver possible.
-Extend the educational reach of the Ecology Center to all parts of the arboretum with improved signage, more educational exhibits, and a new outdoor classroom space.
-Tend to the health and condition of the arboretum's tree and plant collection by implementing the recommendations of the *Tree and Shrub Inventory and Management Plan*.
-Improve the safety and appearance of the arboretum by upgrading the path system and incorporating additional access trails.
-Consider allowing increased outreach to persons with disabilities by upgrading the canoe launch facility to the current ADA standards.
-Integrate the Ladd Arboretum into the larger Evanston park network with direct pedestrian access, consistent signage, and through implementing planned bike paths.

1. **ENTRANCE GATEWAY at Emerson:** See Page 19

2. **HABITAT CORRIDOR:** See Page 19

3. **WILDLIFE VIEWING STATIONS:** See Page 19

4. **PRAIRIE PATCH:** See Page 19

5. **DECK OVERLOOKS:** See Page 19

6. **WOMEN'S TERRACE:** See Page 20

7. **ASPEGREN GAZEBO:** See Page 20

8. **WETLANDS:** See Page 20

9. **INDEPENDENCE KNOLL:** See Page 20

10. **ROTARY GARDEN:** See Page 21

11. **CANOE LAUNCH:** See Page 21

12. **PARKING LOT:** See Page 21

Figure 59: Master Plan - West Section

Plan
Site Plan

13. MAIN ENTRY GATEWAY: See Page 21

14. ECOLOGY CENTER: See Page 22

15. OUTDOOR CLASSROOM: See Page 22

16. ASPEGREN MEADOW: See Page 22

17. BIRD SANCTUARY: See Page 22

18. PEDESTRIAN BRIDGE: See Page 22

19. SHARED-USE PATH: See Page 23

20. SECONDARY PATH SYSTEM: See Page 23

21. THE KNOLLS: See Page 23

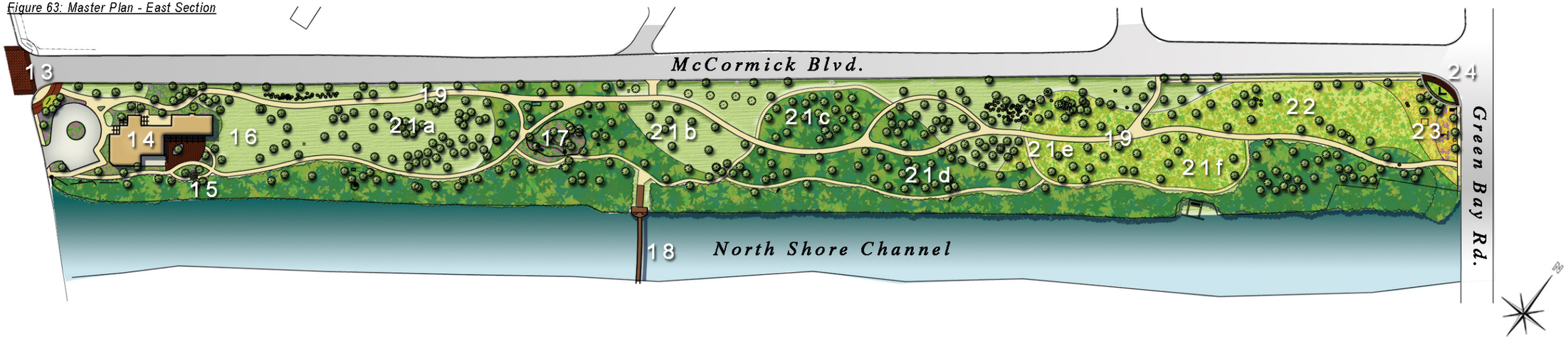
21a: The Pine Knoll
21b: The Oak Grove
21c: The Maple Knoll
21d: The Legume Trees
21e: The Birch Family
21f: The Nut Trees

22. OAK SAVANNA: See Page 24

23. SILVER WINGS SCULPTURE: See Page 24

24. ENTRY GATEWAY at Green Bay Rd.: See Page 24

Figure 63: Master Plan - East Section



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1 inch = 150 ft.

Master Plan

Recommendations

(1) Gateways_Emerson St.

The traffic along McCormick Blvd. and Emerson St. at this location is significant and the view of the arboretum from this intersection is one of the most visible and prominent. It is important that this Gateway reflect the character of the arboretum while making a good first impression. It should be inviting, natural, informal and reflective.

Figure 61: Sample Signage

The Gateway consists of a paved plaza space with a combination of permeable or ecofriendly pavers and concrete. The new entrance signage, a monolithic slab of natural stone with engraved writing, sits behind the plaza in a landscaped planting bed. The plantings should be drought tolerant, native perennials, low shrubs, and tall prairie grasses for impact.

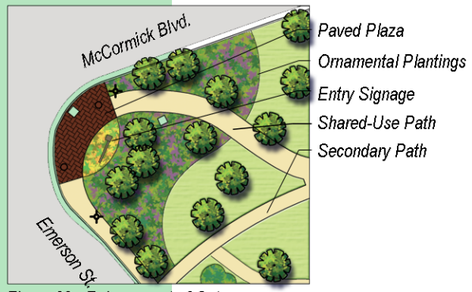


Figure 62: Enlargement of Gateway (Not To Scale)

(2) Habitat Corridors

The proposed Habitat Corridors are intended to be extensions of the wooded embankment vegetation and provide expanded habitat areas for wildlife. The naturalistic woodland extensions of the embankment growth serve several functions: 1) Promote sustainability and bio-diversity; 2) Help minimize maintenance associated with mowing and ornamental landscape upkeep; and 3) Link the elements of the arboretum that are otherwise unrelated.

The corridors consist of native plant materials, when possible, that provide food and shelter for birds and small mammals. Refer to Appendix 7 for suggested plant lists. It is critical that a proper understory within the habitat corridors be established. This can be achieved with a diverse plant palette consisting of forbs, grasses, woody shrubs, and understory trees.

Figure 63: Example of Habitat

In order to properly introduce new native tree and shrub species into the existing wooded embankment area it is important to remove the invasive and non-native plants. Selective manual removal of the Wild Buckthorn, Garlic Mustard, Multi-flora Rose and other invasive plants is suggested. This will allow for the native plant material to generate and sustain itself. In time the native, more bio-diverse plant population will naturally control the spread of the invasive plants. Refer to the *Tree and Shrub Inventory and Management Plan* for more information regarding invasive plant species and their suggested removal and control techniques.

(3) Wildlife Viewing Stations

Figure 64: Wildlife Viewing Station

The Wildlife Viewing Stations are stops along the secondary trail system and are also incorporated into the deck overlooks. The stations will provide opportunities for interaction and passive viewing of wildlife and natural settings.

Coupled with a bench and interpretive signage, the station allows the visitor to take advantage of an educational opportunity and experience the natural setting found in the habitat corridors or along the wooded channel embankment.

(4) Prairie Patch

The Prairie Patch should be expanded to encourage a more significant prairie ecosystem. Interpretive signage related to the importance and function of native prairie systems may be incorporated. Refer to Page 26 for information regarding suggested signage. Refer to Appendix 7 for suggested Plant Lists related to updating and improving the bio-diversity of the Prairie Patch. Refer to Appendix 5 for suggested maintenance and management of prairie ecosystems.

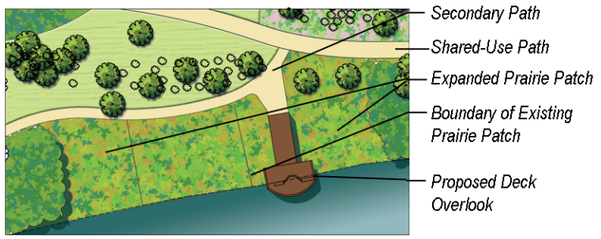


Figure 65: Enlargement of Prairie Patch: (Not to Scale)

(5) Deck Overlooks

The deck overlooks take advantage of the clearings formed by the storm system upgrades of 2006 allowing visitors to physically get closer to the channel. The overlooks are placed over the existing concrete headwalls and help conceal these structures. It is recommended that the decks be made of recycled planks that resemble wood. The planks would be relatively maintenance free and help promote the guiding principle of "Green Design."

Figure 66: View from Butler Park

Any construction or manipulation of the North Shore Channel embankment must be reviewed and approved by MWRDGC. A thorough engineering study that focuses on the stability of the embankment needs to be completed prior to any construction activities.

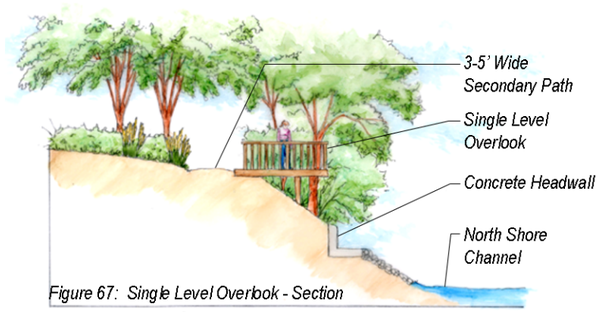


Figure 67: Single Level Overlook - Section

(6) Women's Terrace

Originally developed to honor the women of Evanston, the area has been indistinguishable from other parts of the arboretum. To better delineate the area, it is recommended that the sod be replaced with a field of colorful flowering bulbs for springtime that would be replaced with a mass planting of white flowering perennials for enjoyment through the late spring and summer. Medium height prairie grasses would emerge in the late summer and stand tall throughout the fall and winter seasons. The year round interest would highlight the area and provide a more engaging experience for visitors.

The Shared-Use path that winds its way through the Women's Terrace would be complimented by a proposed secondary path system. A small memorial sign at either end of the exhibit would explain the significance of the Women's Terrace. Small, unobtrusive interpretive signs along the path would highlight the plant material.

(7) Aspegren Memorial Gazebo

The gazebo structure would be replaced with a larger, more architecturally significant element. The style of the new structure should reflect the architectural style of the existing Ecology Center and coordinate with the materials being proposed for the entrance signage and ground treatments throughout the arboretum.

It is recommended that seating be provided under the gazebo and that the ground treatment be composed of brick pavers. The new paths leading to the gazebo should be ADA accessible and be of the same material as the ground treatment under the structure itself.

The location of the gazebo within the Women's Terrace suggests that it is a significant element within the garden, thus, the plantings directly adjacent to the gazebo should be chosen to blend with the planting scheme being proposed for the Women's Terrace.

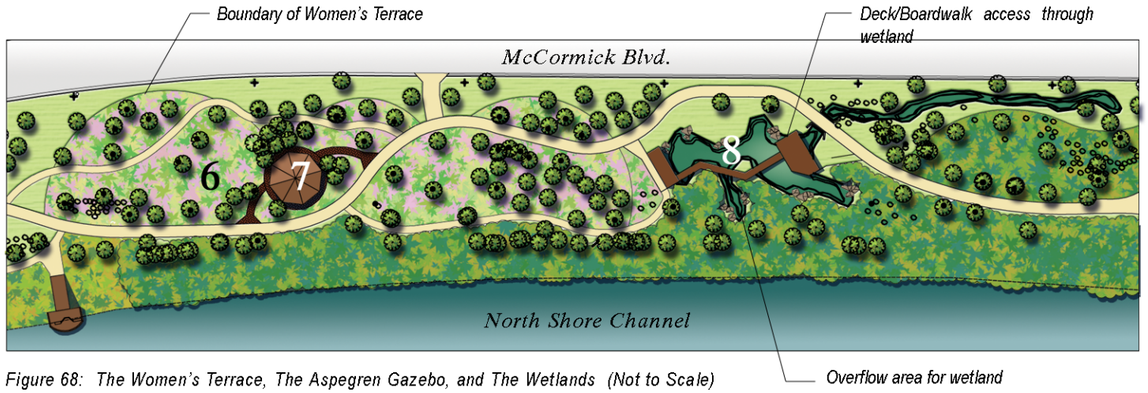


Figure 68: The Women's Terrace, The Aspegren Gazebo, and The Wetlands (Not to Scale)

(8) Wetlands

This new element allows the visitor to learn about and experience the wonders of an aquatic habitat up close. The ecosystem would provide habitat and cover for animals, reptiles, and amphibians not seen at the arboretum previously.

Figure 69: Example Wetlands with Boardwalk

The pond would be a combination of open water and marshy edges highlighted by rock outcroppings and naturalistic plantings. It is anticipated that this amenity would be naturally supplied with water and, in turn, would be dry during the late summer months. The area of the arboretum northeast of the proposed wetland location frequently retains a large amount of water and it is recommended that this area be physically tied into the hydrology of the wetland. An overflow at the southwest end of the wetland is recommended so that excess water can be directed towards the North Shore Channel.

A boardwalk comprised of recycled plastic lumber is proposed for traversing the wetland and getting a "bird's eye view" of the water habitat. Interpretive signage incorporated into the exhibit would showcase specific plants, aquatic species, and inform the visitor regarding the importance of wetlands in the environment.

(9) Independence Knoll

The area, dedicated by the Evanston 4th of July Association, has long been overdue for an upgrade. It consists of an upper area with a flagpole and raised planting bed. The lower area is a newly installed circular stone terrace that is actually a part of the International Friendship Garden.

A new path system that connects the upper area with the circular stone terrace is proposed. The sloped, accessible paths would encircle the upper area of the Knoll and connect around the east side of the stone terrace. This configuration allows the visitor to traverse the change in topography without the intrusion of ramps, stairs or railings. The sloped path should be of the same material as that of the Shared-Use paths found throughout the arboretum or could be paved using the same material as the International Friendship Garden's circular terrace.

It is recommended that dry laid stone steps be installed on the east edge of the International Friendship Garden circular paved terrace. The steps would match the dry laid stone retaining wall that separates the Knoll from the circular paved terrace.

The evergreens and conifers currently in place should be replaced by a variety of flowering shrubs and evergreen plants within the eastern part of the knoll that will provide interest all year long and highlight the space more appropriately. Expanding the habitat corridors to McCormick Blvd. and around the western half of the knoll will support the overall vision of the arboretum as a place of nature. Providing a more updated planting scheme will help tie the space in with the surrounding International Friendship Garden and proposed wetland exhibit.

Electricity should be provided at the circular stone terrace area to support future events or functions.

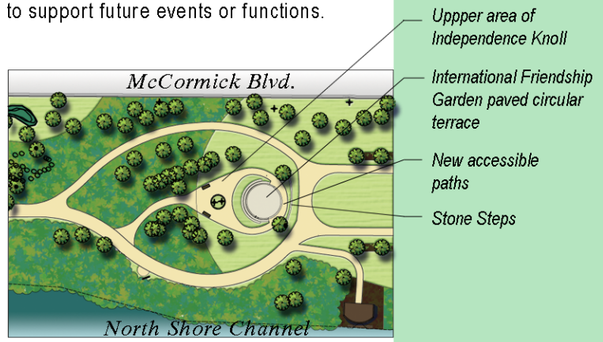


Figure 70: Independence Knoll (Not to Scale)

Recommendations

(10) International Friendship Garden

Figure 71: Garden Entrance

The International Friendship Garden is a beloved and well-maintained part of the arboretum. The east entrance to the garden is proposed to be improved by making it more significant. Reconfiguring the parking lot and allowing a more pedestrian oriented access plaza that separates the garden entrance from the parking lot contributes to the upgraded entrance.

New signage at the entrance on the east end is proposed. The signage should be consistent with the educational or interpretive signage categories in size and placement. Refer to Page 26 for signage recommendations.

(11) Canoe Launch

Relocating the canoe launch area is critical in implementing an ADA accessible launch area. The proposed location, just off the parking lot, facilitates the loading and unloading of canoes and provides an accessible route from a vehicle to the dock area.

A series of sloped walkways that wind their way down the steep embankment provides an accessible route without the need for ramps and railings. Retaining walls will be required at portions of the installation. The sloped walk would be constructed of concrete. The concrete will be stained and stamped with a natural stone pattern to provide a more natural character consistent with the overall vision of the arboretum.

The existing vegetation along the embankment would be removed and the embankment slope would be graded to accommodate the new sloped walk. Recommendations for revegetating the slope can be found in Appendix 7 – Plant Lists under the Embankment table.

Any construction or manipulation of the North Shore Channel embankment must be reviewed and approved by MWRDGC. A thorough engineering study that focuses on the stability of the embankment needs to be completed prior to any construction activities.

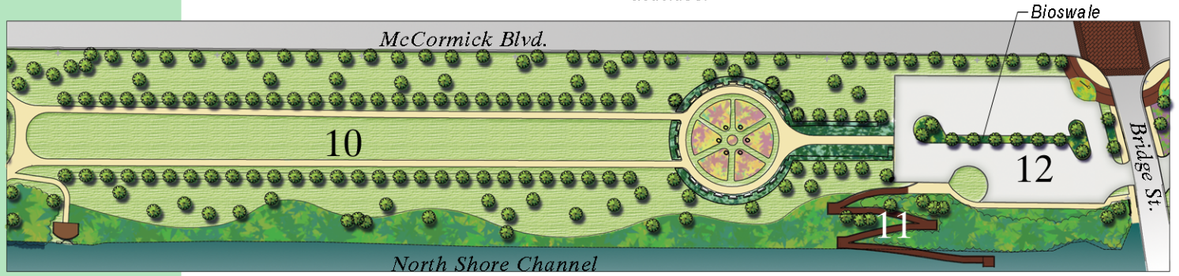


Figure 72: Rotary Garden, The Canoe Launch, and the Parking Lot (Not to Scale)

(12) Parking Lot

The parking lot configuration was maintained to accomodate the most cars. It will be surfaced with permeable pavers, similar to those installed in the Ecology Center circle drive. The lot will be sloped to allow for stormwater that doesn't percolate through the permeable pavers to run off the lot into vegetated swales known as bioswales. The depressions would be planted with water tolerant plants and sized to accommodate the anticipated amount of water. The runoff would naturally percolate and replenish the water table.

Figure 73: Bioswale Section

Additional parking at Twiggs Park adjacent to Green Bay Rd. will be accessible to arboretum visitors beginning late Fall 2007.

LIGHTING

Site lighting provides security, pedestrian safety, and can improve the visual character of a site. Lighting should be designed as a coordinated system that is attractive, energy-efficient, cost effective, and easy to maintain.

The lights should be powered by a timer that is set for specific times based on the Ecology Center business hours and evening use. The lights should be solar powered to further the concept of "Green Design."

Figure 74: Solar powered lighting

The height of the lamp posts should be determined by an electrical engineer and be based on a photometric plan. Light trespass should be per the City of Evanston requirements for residential neighboring uses.

(13) Main Entry Gateway

Figure 75: Sample Signage

This gateway is unique considering that all four corners of the intersection are occupied by Evanston park properties. It is an opportunity to make a grander statement that identifies the area.

A combination of new signage, landscape plantings, and a variety of pavement materials will highlight the four corners and bring definition to the properties.

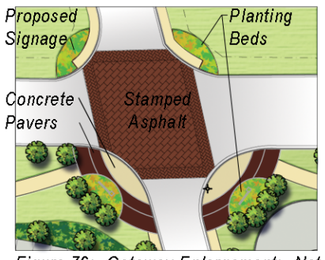


Figure 76: Gateway Enlargement: Not to Scale

It is recommended that stamped asphalt crosswalks and an overall intersection design be implemented to define the intersection. The asphalt can be stained different colors to look like brick pavers without the cost or maintenance. A consistent planting scheme that encompasses all four corners will provide continuity and year-round visual interest. It is recommended that the identification signage used at the two arboretum corners be consistent with the Emerson St. Gateway and the Green Bay Rd. Gateway. However, the signage at the corner of Eggleston Park and The McCormick Community Gardens should be different from the arboretum signage but coordinated in colors, size, and proximity to the intersection.

Figure 77: Gateway at Bridge St. and McCormick Blvd.

(14) Ecology Center

Being the focus of educational activities within the arboretum, it is appropriate that the Ecology Center promote the guiding principles of "green" design, sustainability, and bio-diversity.

Figure 78: Ecology Center with updated landscape and paths

The landscaping around the building will be mostly native and functional: it serves a purpose. For example, using water-loving plants on the north side of the building allows the landscape to serve a purpose and enhance the building architecture.

The foundation plantings on the east and north sides of the building should be kept low as to not block the view out of the large windows. Additional landscape screening should be provided on the north side between the Shared-Use path and McCormick Blvd. to filter the view out of the Ecology Center in that direction.

Water tolerant plants should be planted at the base of downspouts, in low areas and in the center of the circular drive to form Rain Gardens.

Rain Gardens are celebrations of storm water runoff designed to naturally gather and filter it while allowing it to naturally percolate back into the ground.

Bike racks will be placed on the north side of the building on an enlarged paver terrace.

It is recommended that an outdoor boat storage area be incorporated on the south side of the building. The storage area should be enclosed with a masonry wall that matches the architecture of the building and be lockable with an opaque commercial grade steel gate. The ground treatment for the storage area would be crushed gravel. The gate should be accessible on the east side of the storage area.

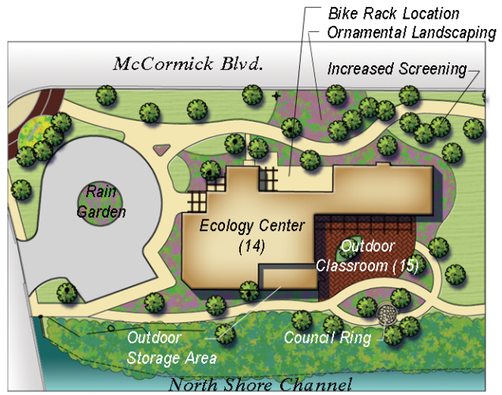


Figure 79: Enlarged Plan View of Ecology Center and Outdoor Classroom (Not to Scale)

(15) Outdoor Classroom

An outdoor classroom on the southeast side of the building will allow the Ecology Center to better utilize the outdoor environment. It is recommended that the space be partially paved with permeable pavers and decomposed granite. The inclusion of a raised seasonal garden allows for active participation by all visitors.

A sunken council ring provides a gathering space that is partially hidden by the forested channel embankment and does not obstruct the view from inside the building. It is recommended that the retaining walls of the council ring be made of stacked stone. The ground treatment should be a dry-laid stone with crushed gravel joints.

The landscape planting being proposed around the Ecology Center should continue around the outdoor classroom for continuity and visual interest.

Figure 80: Council Ring Example

(16) Aspegren Meadow

The meadow is heavily utilized by the Ecology Center for its educational programs and the space will remain as an open and flexible lawn space. Providing a memorial sign that replaces the lost sign is recommended.

It is also recommended that the habitat corridor extend to McCormick Blvd. and wrap around the meadow to provide a more enclosed space.

(17) Bird Sanctuary

Figure 81: Bird Sanctuary

The newly upgraded and dedicated Bird Sanctuary will remain intact. The popular exhibit will be integrated into a series of habitat corridors so that it becomes a part of a larger sanctuary for birds and wildlife. The goal is to take the benefits and character introduced by the Bird Sanctuary and expand upon those to be used throughout the arboretum.

(18) Pedestrian Bridge

The introduction of a pedestrian bridge on the east half of the arboretum property is intended to physically connect Twiggs Park on the south side of the North Shore Channel with the arboretum. The pedestrian bridge offers a quiet alternative to crossing the channel at the busy street bridges. The bridge is intended for pedestrian use only.

It is recommended that the bridge be constructed of recycled plastic lumber to reinforce the "green" design principles. The bridge should also incorporate seating if possible.

Any construction or manipulation of the North Shore Channel embankment must be reviewed and approved by MWRDGC. A thorough engineering study that focuses on the stability of the embankment needs to be completed prior to any construction activities.

Figure 82: Pedestrian Bridge Example

Recommendations

(19) Shared-Use Path

The City of Evanston's plan for a city-wide bicycle system calls for a path connection through the arboretum. It is recommended that the main path being proposed through the arboretum be developed as a Shared-Use Path. The term "Shared-Use Path" is defined as a trail or path that accommodates a variety of non-motorized uses.

It is recommended that the path be developed to the minimum standards as outlined in the *Evanston Bicycle Improvement Plan*. The plan can be accessed at the following web site:

http://www.cityofevanston.org/departments/parks/pdf/Task 2FNPolicies.pdf

The arboretum Shared-Use Path is categorized as low volume, defined as less than a 100 users per hour. This would allow the path to have a minimum width of 8'-0" wide. The International Friendship Garden paths are 5'-0" wide and it is not recommended that those paths be widened. The areas of the path that cannot be widened should be posted with signage indicating one-way use only.

It is recommended that a 2'-0" wide area on both sides of the shared-use path be maintained. The area would be lawn and allow users to safely step off the path to help facilitate traffic.

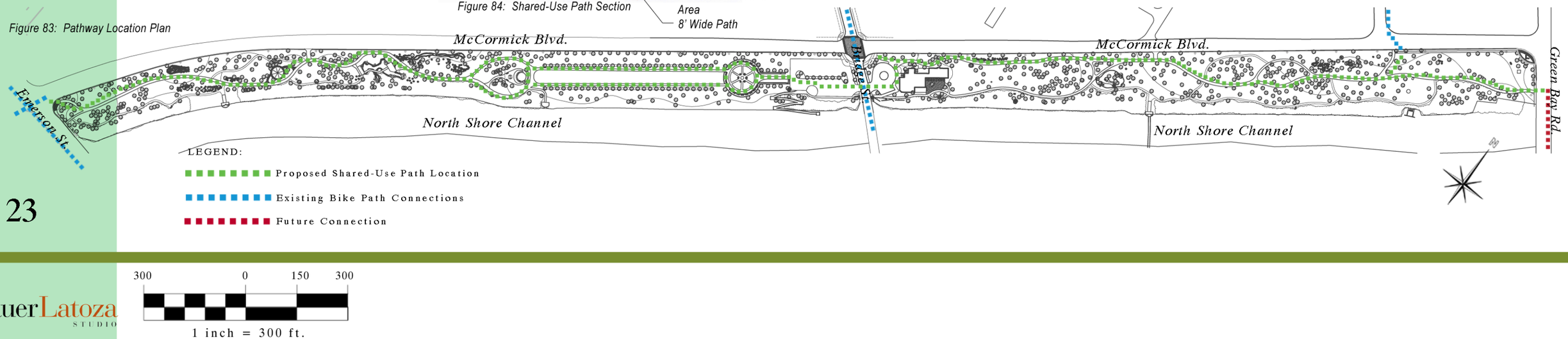
The path should be constructed using decomposed granite in lieu of the crushed limestone currently in place. The decomposed granite has a neutral pH which is better for the trees and plant material. Limestone raises the pH of the soil limiting the growth of plants. It is recommended that the color of the decomposed granite be natural in character instead of a bright white.

According to the *Evanston Bicycle Improvement Plan*, connections to the arboretum's Shared-Use Path are to be incorporated at Emerson St., Bridge St., Prairie Ave., and Green Bay Rd. It is recommended that all connections to this path occur at corner intersections where traffic signals and pedestrian signage can facilitate the crossing in an efficient and safe manner.

The connection at the Green Bay Rd. bridge across the channel requires an expansion and widening of Green Bay as it crosses the North Shore Channel. The current condition of Bridge St. and Emerson St. should be able to accommodate a bike route that crosses the North Shore Channel. Proper street signage and pavement markings would be required.

Figure 84: Shared-Use Path Section

Figure 83: Pathway Location Plan



(20) Secondary Path System

As part of the path upgrades it is recommended that additional paths be placed where desired paths have been traversed over the years. This mainly occurs along the wooded embankment near the channel bank. The secondary path system affords visitors the opportunity to get off the main path and experience a more isolated view of nature. It allows for different route options when visiting the arboretum on a regular basis.

It is recommended that the paths be 3'-5' wide. Depending on the level of accessibility, the path could be made of decomposed granite or shredded mulch.

Figure 85: Secondary Path Section

(21) The Knolls

The "Knolls" - Pine Knoll, Maple Knoll, Legume Trees, Nut Trees, Birch Family and Oak Grove - will remain as showcases for different tree species. To help eliminate the high maintenance of mowing around each tree it is recommended that the bulk of the trees be connected in large planting beds, Habitat Corridors, and the Oak Savanna. The Knolls will be planted with plants that provide cover and food for birds and small mammals. Refer to Appendix 7 – Plant Lists for recommended plants for these areas. With proper maintenance, the Knolls planting will help nourish and protect the specimen trees and fulfill one of the goals of the master plan to increase the bio-diversity of the arboretum as a whole.

The habitats for this area should be based on a detailed analysis of hydrological conditions, soils and sun/shade conditions. The planting scheme should focus on developing biotic communities rather than a purely aesthetic design.

BauerLatoza STUDIO

300 0 150 300

1 inch = 300 ft.

(22) Oak Savanna

Figure 86: Oak Savanna

The far eastern end of the arboretum, originally occupied by Grant St., is open and sun-drenched on long summer days. This area offers an opportunity to incorporate a sunny garden or ecosystem not readily available in other parts of the property.

The open expanse is perfect for a prairie ecosystem. Since the arboretum already showcases a prairie system on the western half, it seemed appropriate to introduce a more transitional environment, something that is between forest and grassland: an Oak Savanna. The Oak Savanna is a transitional landscape that links open grassland to an Oak Forest and is indigenous to Illinois.

The existing memorial trees in this area will need to be accessible through the taller plantings and understory of the Oak Savanna. It is recommended that dedicated trees and specific species in this area be shown on a map that is viewed from the path. This alternative to placing a sign at each tree would ensure that the sensitve ecosystem would not be trampled by curious visitors.

(23) Silver Wings Sculpture

To better integrate the Silver Wings sculpture in with the surrounding character of the arboretum, it is recommended that a bold planting statement be introduced in this previously under-utilized part of the arboretum.

The large area of land surrounding the sculpture should be planted in tall prairie grasses. The intention is that the grasses would cover the base of the sculpture, wave in the wind and help to give the illusion that the wings are truly taking flight out of the ground.

This grass planting scheme would also provide a transition from the Oak Savanna towards the more formalized decorative landscaping recommended for the portion of the arboretum that fronts Green Bay Rd.

(24) Gateway _ Green Bay

The view of the arboretum at this point is unique because the traffic along Green Bay Rd. catches a glimpse of the arboretum while passing by at speeds of 30-40 mph. The Gateway needs to be strong and significant yet simple enough to comprehend while being viewed from a moving car. It also needs to reflect the character of the arboretum by being natural, inviting, informal and reflective.

The Gateway consists of a paved plaza space comprised of a combination of pavers and concrete. The new entrance signage, a monolithic slab of natural stone with engraved writing, is located behind the plaza in a landscaped planting bed. The plantings should be drought tolerant, native perennials, low shrubs, and tall prairie grasses for impact. Additional shade trees planted just beyond the sign provides a dense backdrop that highlights the sign.

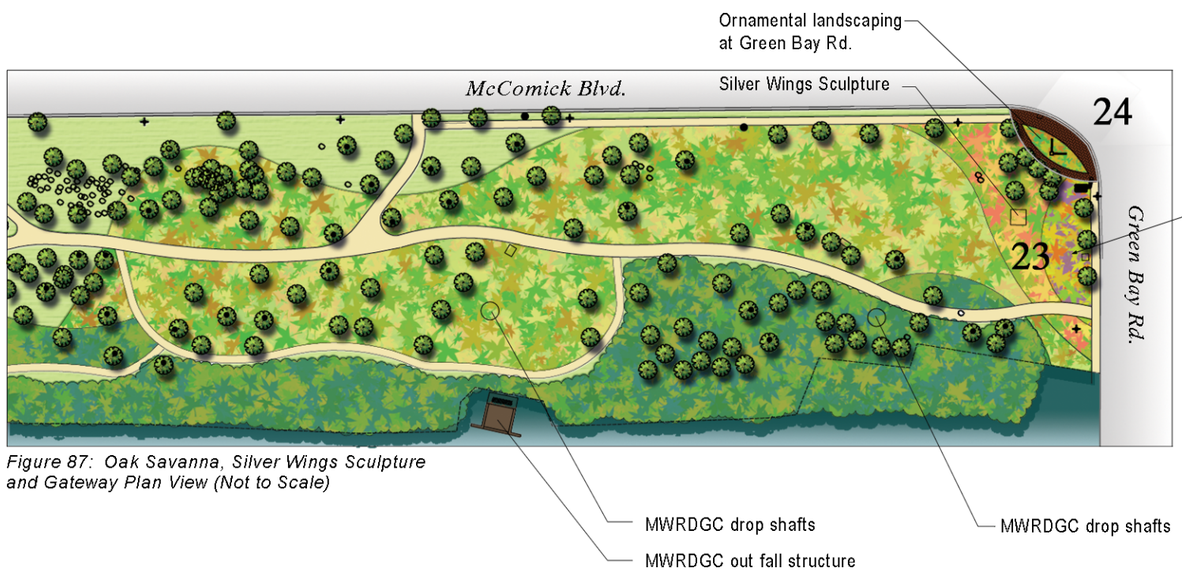


Figure 87: Oak Savanna, Silver Wings Sculpture and Gateway Plan View (Not to Scale)

Figure 88: Sample Signage

Figure 89: Sample Signage

Master Plan

Site Furnishings &

Site Furnishings

Site furnishings are important to both the visual character and pedestrian experience of the Ladd Arboretum. They establish continuity within the arboretum and help create a unique identity.

The following recommendations provide guidance on various signage and furnishings found throughout the arboretum.

General Recommendations:

• Standards for seating and other furnishings should be developed to address the entire arboretum as a whole and work together for a coordinated appearance. Each exhibit may require a unique style of furnishing but the impact of that style on the arboretum as a whole should be considered.

• Site furnishings should contribute to the special character of the Ladd Arboretum and should work to reinforce the arboretum as a unique place within the City of Evanston.

• Site furnishings should be used consistently throughout the arboretum.

SEATING
Benches are an integral part of the pedestrian network. They provide seating for relaxation, waiting, and resting.

Style: Benches with backs should have arms at the ends of the seat area and a middle arm. This prevents the bench from being used for sleeping. Backless benches are preferred in areas where multiple view points are possible.

Material: The benches should be made of stone material or recycled plastic. Wood and concrete are discouraged for their lack of durability. The ground under the bench should be paved or modified to accept pedestrian traffic. Block pavers, gravel, or concrete pads are acceptable ground treatments.

Figure 90: Example of backless bench

Locations: Benches should be incorporated into the deck boardwalk of the wetlands exhibit, incorporated into the design of the pedestrian bridge, incorporated into the deck overlooks placed along the paths to take advantage of scenic views and vistas, and incorporated within the design of each new exhibit.

Mounting: Provide for ground mounting of the benches.

Figure 91: Example of backed bench

Existing benches to remain include the stone memorial benches at Independence Knoll and the concrete benches at the International Friendship Garden. Broken and degraded benches at the International Friendship Garden should be replaced in kind.

Figure 92: Example of trash and recycling receptacles

TRASH/RECYCLING RECEPTACLES
Trash receptacles contribute to the overall character of the arboretum by discouraging litter and encouraging recycling. As part of the family of site furnishings, they are an attractive site element promoting a unified visual image throughout the arboretum. It is important that the refuse be disposed of regularly.

Style: The trash receptacles and recycling containers should be coordinated with the style of the seating. A 32-gallon container with a liner and top that discourages wildlife access is recommended.

Material: It is preferable that the receptacles be made of a recycled plastic lumber. The style should be simple and resemble wood.

Locations: The receptacles should be placed near parking areas, the Ecology Center, Gateway entrances, and along the paths – both the Shared-Use Path and the secondary path system. Do not place receptacles near benches because bee and insect infestation can make sitting near them impossible.

Mounting: It is recommended that the receptacles be ground mounted.

BIKE RACKS:
The presence of bicycle racks relay the message that alternative forms of transportation are encouraged. This concept coincides with the arboretum's vision of a natural setting that showcases "Green Design" principles.

Figure 93: Evanston standard bike rack

Bicycle racks will be located on the north side of the Ecology Center. As part of the Master Plan it is recommended that the brick paver terrace area be expanded to accommodate additional bicycles. The bike rack proposed to be used is the City of Evanston standard bicycle rack: an inverted U-rack with square tubular steel.

Bike racks at other key locations should be considered. The wetland area is a possible secondary location due to its centrality to many key arboretum exhibits.

Signage

Signage

The Edward R. Ladd Arboretum is a unique amenity within the Evanston park system. It provides opportunity for education, passive recreation, and has a deep history that is worth telling. A comprehensive and consistent signage program is important to convey the information that the different parts of the arboretum have to offer. It is also important that the signage character, size, and placement not detract from what makes the arboretum special.

To provide the appropriate information in a format that enhances rather than detracts from the character of the surroundings, the Ladd Arboretum Master Plan provides guidelines for sign appearance, size, and placement. The signage plan addresses GENERAL SIGNAGE CHARACTERISTICS and categorizes the types of signs as INTERPRETIVE: signs that provide information regarding the history, function, or background of an exhibit; DIRECTIONAL: signs that guide and provide way-finding for visitors; and PLANT IDENTIFICATION: signs that are small and provide information regarding a plant species and/or memorial dedication.

GENERAL SIGNAGE CHARACTERISTICS
Although different types of signs require special consideration when developing a comprehensive signage plan, all of the sign types within the arboretum should have consistent appearance. This will provide continuity and help to reinforce the character of the arboretum.

Materials: A consistent material palette should be developed. Decisions regarding the materials for the sign panels and letter/graphic application need to be made.

It is recommended that the sign panels be constructed of a durable, vandal-resistant material such as metal or recycled plastic. The mounting of the signs depends on the type of sign and is detailed in the categories below. The letter and graphic application should be integral to the sign panel. Engraving, etching, or digital imprinting is recommended.

Appearance: The appearance of the signs should be simple, comprehensible, and consistent. The graphics, font style for text, and images placed on the different types of signs should be similar. The graphics should be of the same style; if they are hand-drawn then it is recommended that the same artist be used. There may be several different font styles within one sign but the same fonts should be consistently used for the same elements on all signs.

The color palettes among the different types of signs should be coordinated and relate to one another. It is recommended that if color is desired, a maximum of four colors be used. Black, white, and shades of grey should be considered, in lieu of color, for a classic and elegant appearance. The color images and graphics are susceptible to fading and falling out of style over time.

Below are the recommended sign types for the Ladd Arboretum:

INTERPRETIVE
Definition: Signs that provide information regarding the history, function, or background of an exhibit.

Size: 10 inches high by 24 inches wide. The sign should be placed at 42 inches above the ground and mounted on a post(s) as required. The posts should be embedded in concrete footings. The sign should be tilted away from the viewer at a 60 degree angle.

Appearance: The graphics should be simple, information expressed as text should be minimal, and an adequate amount of white space should be provided to allow for proper flow of the eye.


Figure 94: Interpretive Signage

Placement: Signs are recommended for natural ecosystem exhibits, Wildlife Viewing Stations, historical elements of the arboretum, memorialized exhibits, and donor sponsored exhibits such as the Rotary International Friendship Garden. One sign per exhibit, maximum, is recommended. Placement of the sign should be central within the exhibit but care should be taken to ensure that proper pedestrian circulation is not obstructed and the view of the exhibit is not diminished by the sign placement.

DIRECTIONAL
Definition: Signs that provide way-finding information to visitors. Directional signs can be further categorized as overall site maps ("You Are Here" type signage).

Size: The signs will vary in size depending on the amount of information being provided. Overall Site Maps are recommended to be 18 inches high and 30 inches wide maximum. The Overall Site Maps should be placed at 42 inches above the ground and mounted on a post or posts as required. The post(s) should be embedded in concrete footings. The sign should be tilted away from the viewer at a 60 degree angle.


Figure 95: Directional Signage

Appearance: It is recommended that Overall Site Maps have little to no text. A "You Are Here" locator on a map of the arboretum is preferred for easy reference. The Directional signs should include exhibit names and an arrow for each exhibit; no more than three lines of text is recommended. Mile Marker signs should contain a number only.

Placement: Overall site maps should be placed at the Ecology Center.

PLANT IDENTIFICATION
Definition: Signs that educate visitors regarding plant and tree species. These signs also contain the names of donors and memorial recipient information.

Size: The signs should be 3 inches high and 5 inches wide maximum. The sign should be mounted to a wooden post that is exactly the same size as the sign or slightly larger. The post should be embedded in a concrete footing to prevent removal or shifting.

Figure 96: Tree Signage

Appearance: It is recommended that Plant Identification signs contain text only, different fonts could be used for different information on the sign. The botanical name and common name of the plant should be included. Memorial recipients should be included if applicable to that plant.

Placement: The signs should be located at the base of the designated tree. Height of the sign should be 12 inches - 14 inches maximum.

Appendices

APPENDIX 1 ..... Participants/Credits
APPENDIX 2 ..... Public Process
APPENDIX 3 .....Phasing & Implementation
APPENDIX 4 .....Funding Sources
APPENDIX 5 .....Maintenance Plan
APPENDIX 6 .....Policy Recommendations
APPENDIX 7 .....Plant Lists
APPENDIX 8 .....Index of Figures
APPENDIX 9 .....Documents Referenced

APPENDIX 1: PARTICIPANTS/CREDITS

PARTICIPANT ACKNOWLEDGEMENTS

The following individuals have contributed to the development of this plan and their input, guidance, and direction has been invaluable. A special thanks is extended to the countless community members, local residents, and concerned individuals who attended the public meetings, filled out surveys, and offered their input out of direct concern and appreciation for the Edward R. Ladd Arboretum.

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Ladd Arboretum Committee

Gordon Guth	Chairman
Elizabeth O'Connor	President, Evanston Environmental Association
H. Zane Robbins	Member
Marti Bjornson	Member
Jan Weeks	Member
Jean Esch	Member
Donald Opitz	Member
Hal Oates	Member
Charles Smith	Member

APPENDIX 2: PUBLIC PROCESS

Introduction

As part of the design process for the Edward R. Ladd Arboretum, the Evanston community was asked to provide input in a number of ways. Three separate public meetings were held to gain direct input from attendees. A survey was distributed at the first public meeting, mailed to members of the Evanston Environmental Association, was available at the Evanston Ecology Center, and posted online at http://www.laddarboretum.org/ .

PUBLIC MEETING #1
The first public meeting was held October 19, 2006 at the Evanston Ecology Center. The design team presented the findings from Phase 1 of the Master Plan process, which included site inventory, analysis, and identification of opportunities and constraints. As part of the meeting the attendees were divided into small discussion groups and given a list of topics to discuss. A summary of those comments are below.

DISCUSSION ITEMS
Item 1: What do you think of when you hear the following words:

a. Arboretum?
- Not This
- More Formal, landscaped, inviting, educational – stronger ecology center connection
- Guided map
- Trees!
- Deer and wildlife pathways
- Serenity, unique for Evanston

b. Park?
- Kids at play
- Playgrounds/recreation
- Grass, activity, entertainment

c. Nature Center?
- Education, Social center
- Interpretive trails, mini zoo (not exotic)
- Exhibits, teaching space, uses natural materials

Item 2: What would you NOT change about the Arboretum? What do you consider sacred? Be specific.

- Leave the formal elements
- No more statues
- Bird sanctuary
- Groves, rotary garden, prairie
- Don't pave the paths
- Keep the lawn area
- Wildlife pathways
- Areas that are already dedicated or have historical significance
- Keep character of natural pathways
- Natural materials
- Lighting is OK, like drive along McCormick
- Education demonstration of plant life
- No fishing
- Quiet, peaceful

Item 3: What would you like to see improved about the Arboretum? Be specific.

a. Which of these should be implemented first?
- Educational aspects
- Sustainable signage – vandal proof
- More street visibility, welcoming gateway
- Connection between 2 halves
- Connection of pathways to a larger path system
- Integrate the arboretum with the channel, access and overlooks
- No sculpture
- Feature local trees, guide to the trees (locator)
- Wind generator is disposable
- Memorial tree program expanded to commemorative trees, benches, etc – allow for tree selection and location
- Gazebo including interpretive elements
- Condition of pathways
- Over under paths at cross streets
- Tree signage, reasoning behind plant selection
- Trees and plants for your yard examples
- Lighting in the parking lot
- Water quality and monitoring
- Public canoe access (revenue), moving location to decrease liability
- Pedestrian bridge across canal to connect neighborhoods, and experience the canal
- Attract younger age groups
- Environmental resource and research
- Public canoe access, keep natural feel

Item 4: "Green" design and issues of ecology and sustainability are important issues in today's world. Please provide some examples below that best portray your understanding of what "green" design is:

- More native tree species
- Deer proof, wildlife accommodations
- Low maintenance ground covers
- Volunteer program
- Storm water management, bio-swales
- Trees that clean the air, make that kind of information/education available
- Example of a rain garden (perhaps at new ecology drive) and at other locations
- Green education here and at home
- Observation area at location of generator
- Solar powered lighting
- Reusing resources, smart decisions about energy consumption and use of materials

<u>Item 5:</u> If budget was not an issue and all the world's resources were at your fingertips, what would your "vision" for the Arboretum look like?

- See above
- Increased access to ecology center (7 days)
- 24 hour access to toilet rooms
- "A Place of Nature"
- Virtual tour of trees/arboretum on website (seasonal information)
- Buffer along McCormick (planted)
- City hosted events in arboretum to support arboretum
- Vendors, market possibilities
- Acquire more land, expand the system
- Integrate the north and south sides of the canal as an arboretum resource (less park like)
- Use arboretum to test/experiment with improving health of trees

PUBLIC MEETING #2

The second public meeting was held January 24, 2007 at the Evanston Ecology Center. The focus of the meeting was to present preliminary design concepts based on the input from the first public meeting. The design team displayed a series of rendered plans, sketches, sections, example photos, and vignettes to convey the design concepts. The meeting participants were asked to review the boards and record their thoughts and post them directly on the boards. A summary of those comments are below.

Deck Overlooks:
Participants appreciated the concept of the deck overlooks and preferred them to be at the same elevation as the arboretum. It was felt that decks at the water level may discourage wildlife.

Pedestrian Bridge:
The consensus was that a pedestrian bridge was a good concept. There was not a consensus on the type of material for the bridge. Seating on the bridge was preferred.

Lighting:
The participants felt that if lights were required than low-profile and low voltage were preferred. Having them on a timer would be preferable.

Trash Receptacles:
Participants like the idea of recycled plastic but wanted the appearance of wood.

Bike Racks:
The Evanston standard bike rack will be used and is acceptable to the attendees.

Benches:
The attendees preferred a backed bench with arms made out of wood or stone.

Bike Path:
The overwhelming consensus was that 10 foot wide path was too wide for the arboretum. The attendees definitely did not want an asphalt path.

Canoe Launch:
The attendees preferred that the canoe launch be open to the public. They preferred Option #1: larger footprint but less impact to existing vegetation.

Ecology Center:
The participants like the council ring location.

Signage:
- **Interpretive:** *The participants were divided on this type of signage. Some felt is was needed and others felt it would be too intrusive.*
- **General:** *Braille and large print signs were requested, the majority of the comments preferred small, unobtrusive signage.*

New Amenities & Retired Exhibits:
The participants enjoyed the introduction of some new exhibits including the wetland, wildlife viewing stations, and the Oak Savanna ecosystem.

Below are general comments from the participants in relation to various parts of the plan.

Master Plan:
- No designated bike path. 10 foot path is too wide.
- Use native plants only throughout the site.
- Make sure prairie area is large enough to have sustainability.
- Sustainability: avoid pesticides (including herbicides) and chemical fertilizers. Compost is great.
- (Deck Overlooks) Excellent idea.
- NO NO NO. I love my conifers with long needles that smell after rain (in reference to updating plants at Independence Knoll).
- (The Women's Terrace) Great Idea to have as much natural flowers and color.
- Use low plant cover sparingly to avoid security problems.
- (The Wetland) A "wetland" is a transitional phase of nature and require a lot of upkeep to eliminate undesirable exotics.
- More emphasis on plantings can start to improve habitats for song birds,[unreadable word], and amphibians.
- Is wetland expensive to maintain?
- (Parking Lot) Make without access composition so our tires won't sink.
- Is lot capacity adequate enough?
- Any possibility of getting more and better control of cars at intersections?
- Current walk has grass growing in walkway!
- Trees from foreign conifers should be acknowledged – sign showing name of countries.
- Canoe launch needs ADA std. of gradient and without lift for future disabled boat access.
- Canoe launch unnecessary, expensive and duplicates existing Skokie facility.
- Canoe launch seems redundant with Skokie location so close.
- Improve existing canoe launch for EEA programs only. ADA accessible launch already available 1 mile away. Eliminate redundancy in expenses for second ADA launch but upgrade existing at EEA.
- I like the outdoor classroom idea.
- (Bird Sanctuary) My favorite place of ALL. Solace.
- I like the secondary path system idea. More "isolated" in nature.
- Oak Savanna: great idea.
- Sign map telling about canal – when dug, why dug? Etc. Sign by drop shaft telling about TARP, a very major engineering project running under arboretum.

PUBLIC MEETING #3

The third public meeting was held April 25, 2007 at the Evanston Ecology Center. The intent of the meeting was to update the participants on the master plan and gain input regarding the design and overall concepts. A Powerpoint presentation provided the audience with a visual tour of the proposed plans and a lengthy discussion period yielded the following comments:

- Include bird houses and bat houses where possible.
- The wildlife habitats should be developed towards specific bird, mammal, amphibian and reptile species.
- The fence along the channel embankment should be improved or removed.
- The embankment plantings should be upgraded and addressed similarly to the rest of the arboretum ecosystem upgrades.
- Consideration should be given to winding the path down along the embankment.
- The plan should consider adding parking at the east end along Green Bay Road.
- Native plantings do require maintenance. Consideration should be given to improving and formalizing the volunteer program to help offset some of the care required to maintain the proposed improvements.
- Consideration should be given to incorporating graffiti resistant materials.
- Include signs that direct patrons to stay on the path in environmentally sensitive areas.
- Consideration should be given to allowing public access to the canoe launch.
- The proposed parking lot configuration could cause traffic problems.
- The representative from the Rotary Club, Dick Peach, expressed concern that the pergola proposed for the east entrance to the International Friendship Garden would not be positively accepted by the Rotary members.
- Thought should be given to contacting MWRDGC regarding their plans to improve the embankment ecosystem.
- A policy should be developed that dictates that funding for donated items be taken from the donation amount and placed in reserve for future maintenance needs.

APPENDIX 3: PHASING AND IMPLEMENTATION

Introduction

The *Edward R. Ladd Arboretum Master Plan* is a comprehensive re-development of a highly valued and heavily utilized park facility. The plan should be broken down into smaller construction projects and implemented on a multi-year basis.

In order to minimize disruption and allow continued access to the arboretum it is recommended that implementation of the plan be phased according to priority.

The plan implementation recommendations are described below. The priorities are categorized using the following criteria:

PRIORITY 1: These projects will enhance the Ecology Center's function, programming and appearance, address tree identification and memorials, provide ADA and site access improvements and achieve core accomplishments towards the Arboretum's refocused ecological and educational mission.

A. Ecology Center improvements
    a. Outdoor classroom
    b. Outdoor storage area
    c. Ornamental landscaping/ Entry Area
    d. Council ring
    e. Signage
    f. Furnishings

B. New tree identification and memorial signage

C. Pathway Improvements
    a. Implementation of Shared-Use path (8 foot wide portion) including grading and proper drainage
    b. Secondary path system – The secondary path system feeds off of the 8 foot Shared-Use path. Different sections of the secondary system, as it connects to the Shared-Use path, can be approached as independent projects but must be coordinated with adjacent features and exhibits.
    c. Site furnishings – Additional benches, bicycle racks, and trash receptacles throughout the arboretum

D. Planting Improvements
    a. Maintenance of tree and shrub inventory based on *Tree and Shrub Inventory and Management Plan* by Davey Resource Group.
    b. Independence Knoll – Physical path upgrades, material improvements, and planting upgrades
    c. Installation of the Oak Savanna, including plantings, paths, and signage
    d. Installation of the habitat corridors with understory
    e. Installation of decorative, prairie inspired landscapes around the Silver Wings sculpture and adjacent to Green Bay Rd.

E. Installation of "Gateways" at Emerson St., Green Bay Rd., and Bridge St.
    a. Signage
    b. Hardscape
    c. Planting

PRIORITY 2: These independent, long-term, and/or multi agency projects should be implemented as funds become available. Projects in this category are isolated and easy to implement and/or provide a significant impact. In addition, these projects may generate additional donations and interest in future projects.

A. Removal of invasive and non-native plants and trees from the channel embankment as defined in the *Tree and Shrub Inventory and Management Plan* by Davey Resource Group. Re-planting the channel embankment with desired plant and tree species per Plant Lists in Appendix 7 should be implemented as part of this project. This should be coordinated with the MWRDGC.

B. Removal or replacement of channel embankment fencing. This should be coordinated with the MWRDGC.

C. Deck overlooks – Each deck overlook can be approached as an independent project. Including physical deck structure, associated wildlife viewing station signage, and approaching pathways.

D. Installation of new wetland exhibit including pond area, culvert, raised boardwalk, plantings, and signage.

E. New Aspegren Memorial Gazebo area, including new walk, ground treatment, structure, signage, plantings around the gazebo, and the plantings associated with the Women's Terrace exhibit.

F. Wildlife Viewing Stations – Each station can be approached as an independent project. Includes bench, signage, and staging of wildlife feature.

G. Pedestrian bridge
    a. Structure
    b. Approaching paths
    c. Seating
    d. Interpretive signage

H. New canoe launch
    a. Path
    b. Dock
    c. Parking lot

APPENDIX 4: FUNDING SOURCES

Program Name	Type of Funds Allocated	Funding Limits	Application deadline	Contact Info
Bike Path Grant Program (IDNR)	This program provides funding for public recreation trails, bike path development, and restroom facilities.	50%, max=$200K	March 1	217.782.7481 http://dnr.state.il.us/ocd/newbike2.htm
ITEP – Illinois Transportation Enhancement Program (IDOT)	This program supports alternate modes of transportation. For example, bike paths must provide access to other community sites. Funding is also available for pedestrian/bike bridges.	80% /20%	Hasn't been announced yet, possibly Fall '07 at earliest.	Keith Sherman – 217.782.0378; Sue Palmer – Sue.Palmer@illinois.gov http://www.dot.il.gov/opp/itep.html http://www.fhwa.dot.gov/environment/te http://www.enhancements.org
CMAQ – Congestion Mitigation & Air Quality Improvement Program (CATS)	This program provides funding for projects that could mitigate vehicular congestion or improve air quality.	80%	Mach 1	312.793.3474 www.fhwa.dot.gov/environment/cmaqpgs/
RTP – National Recreational Trails Program (IDNR)	This program provides assistance for acquisition, development, rehabilitation, and maintenance of motorized and non-motorized recreation trails.	80%	March 1	David Sellman – 217.782.7481 www.fhwa.dot.gov/environment/rectrails
Open Space Lands Acquisition and Development (OSLAD) Program and Land and Waterway Conservation Fund (LAWCON) (IDNR)	This program provides funding for the acquisition and/or development of land for public parks and open space.	50%, Max $400,000	July 1, funding announced in Jan.	217.782.7481 http://dnr.state.il.us/ocd/newoslad1.htm
Highway Safety Improvement Program (IDOT)	This program provides funding for projects that improve traffic hazards. Example projects include installation of bike lanes, pedestrian signals, and mid-block crossing.	80%	Not specified.	Priscilla Tobias-217.782.3568 http://safety.fhwa.dot.gov/state_program/hsip/index.htm
Illinois Tomorrow Corridor Planning Grant Program	This program provides funding for projects that promote land use and transportation options to reduce the growth of traffic congestion, connect infrastructure and development decisions, etc.	varies	Not yet announced for 2007.	Betsy Tracy-217.782.2863 http://www.dot.state.il.us/corridorplanning/corridor_grant.html
STP – Urban Program	This program provides funding for bicycle facilities (paths, bridges, lanes).	80%	Evaluated in winter or spring, accepted year-round.	Shaylin Hunter

Program Name	Type of Funds Allocated	Funding Limits	Application deadline	Contact Info
Federal Government's Recreational Trails Program (IDNR & IDOT)	This program provides funding for the construction of nature trails and viewing platforms.	80%	See RTP program above.	See RTP program above.
Northeastern Illinois Wetlands Conservation Account (US Fish and Wildlife Services)	This program provides funding for the development of projects or programs that promote a general understanding, appreciation, and stewardship of wetlands and related resources.	range from $650-$200,000	Posted in the Fall.	269.426.8825 http://www.fws.gov/
Wetland Program Development Grants	This program provides funding for the development of new programs or the enhancement of existing wetland protection, management, and restoration programs (very "program" oriented).		RFP for 2007 coming out soon.	Cathy Garra – 312.886.0241 http://www.epa.gov/owow/wetlands/initiative/#financial
Great Lakes Funding Program	This program provides funding for projects that further protection and clean-up efforts of the Great Lakes ecosystem.		Closed for 2007; new proposal out in Fall of '07.	http://www.epa.gov/glnpo/fund/current.html
Great Lakes Protection Fund	This program provides funding for projects that enhance the health of the Great Lakes ecosystem and that will return the greatest ecosystem benefits (basin-wide ecological benefits).		Decisions made in March, June, September and December; accepted year-round.	http://www.glpf.org/application/index.html
Five-Star Restoration Program	This program brings together students, conservation corps, corporations, government agencies, and others to provide environmental education and training through projects that restore wetlands and streams. Eligible projects provide wetland or stream restoration.	$5,000-$20,000	Due early March; notified in May-early June.	http://www.epa.gov/owow/wetlands/restore/5star/index.html
Other Wetland Grant Information				http://www.epa.gov/owow/wetlands/initiative/grantinfo.html
Boat Access Area Development Program	This program provides financial assistance to local government agencies for the acquisition, construction, and expansion/rehabilitation, including necessary A/E services, of public boat and canoe access areas on Illinois' lakes and rivers.	100%, max of $200,000	Applications accepted July 1-Sep. 1 (announced in the following Spring).	http://dnr.state.il.us/ocd/newboat2.htm
Illinois Conservation Foundation	This program supports and fosters ecological, educational, and recreational programs for the benefit of contemporary and future people.		Deadline is March 31, 2007; grants awarded August 1, 2007.	http://www.ilcf.org/
Urban and Community Forestry	This program provides financial assistance to local units of government for the development of local urban and community forestry programs. These activities must help to establish, manage, conserve, and preserve the urban and community forests from inner city to associated public lands.	<$5,000		217.785.2438 http://dnr.state.il.us/conservation/forestry/Urban/grantoppor.htm

Program Name	Type of Funds Allocated	Funding Limits	Application deadline	Contact Info
Illinois Habitat Fund	Eligible projects are limited to those seeking to preserve, protect, acquire, or manage habitat (all wetlands, woodlands, grasslands, and agricultural lands, natural or altered) in Illinois that have the potential to support populations of wildlife in any or all phases of their life cycles.		August 1	http://dnr.state.il.us/grants/Special_Funds/WildGrant.htm
Migratory Waterfowl Stamp Program	This program is dedicated to the conservation of waterfowl that pass through Illinois during their migrations. Eligible projects are limited to development of waterfowl propagation areas within the Dominion of Canada or the United States that specifically provide waterfowl for the Mississippi Flyway. Eligible recipients are limited to appropriate not-for-profit organizations.		January 1	http://dnr.state.il.us/grants/Special_Funds/WildGrant.htm
Illinois Wildlife Preservation Fund	This program provides funding to preserve, protect, perpetuate, and enhance non-game wildlife and native plant resources of Illinois through preservation of a satisfactory environment and an ecological balance. Examples of this type of project include exotic species removal, brush cutting, nest structures, and vegetation management. Site inventory projects are those activities which inventory species, taxa (birds, mammals, reptiles, amphibians, fishes, plants, invertebrates, etc.), vegetation, habitats, etc. on an area of land. Education projects are those activities that teach Illinoisans about the natural world around them and hopefully have lasting effects. Examples of this type of project include interpretive trails, trail signs, curricula, displays, workshops, development of ongoing outdoor education activities, instructional packets and materials.	<$2,000	April 1	http://dnr.state.il.us/grants/Special_Funds/WildGrant.htm
North American Wetlands Conservation Act	These projects must involve long-term protection, restoration, and/or enhancement of wetlands and associated uplands habitats (allows for Standard as well as Small Grant Program proposals).	Standard Grants have large cap, Small Grants Program provides <$75,000	Deadlines are March 2 and July 27	http://www.fws.gov/birdhabitat/Grants/NAWCA/Standard/index.shtm
Illinois Recycling Grants Program	This program helps communities, businesses, and not-for-profit organizations collect and process materials for recycling. While grant funding is not immediately available, the program encourages entities to schedule an individual consultation with their regional DCEO representative by calling 217.785.3416. DCEO is interested in learning about your recycling plans. If you would like to be added to a notification list for our next grant opportunity (estimated for fall 2007), please contact the program staff listed.		December 15	Traditional Recycling David E. Smith 217.785.2006 David.E.Smith@illinois.gov http://www.commerce.state.il.us/dceo/Bureaus/Energy_Recycling/Recycling/irgp.htm

Program Name	Type of Funds Allocated	Funding Limits	Application deadline	Contact Info
Solar Thermal Grant Program Guidelines	This program provides funding for projects focused on increasing the utilization of alternative energy technologies in Illinois.	30%, <$400,000	April 30	William S. Haas 312.814.4763 william.haas@illinois.gov http://www.commerce.state.il.us/dceo/Bureaus/Energy_Recycling/Energy/Clean+Energy/02-Solar_Thermal_Grant_Program.htm
Illinois Clean Energy	This program provides funding for implementing and improving the use of energy efficiency technologies and methods that can decrease pollution and reduce energy costs for Illinois consumers. It focuses on developing and increasing the use of renewable energy resources – wind power, solar power, biomass energy, and innovative new technologies such as fuel cells – that can decrease pollution, diversify Illinois' energy portfolio, and create economic benefits for the state's communities. Preserving and enhancing natural areas and wildlife habitats in Illinois communities is also a chief goal.		July 16	http://www.illinoiscleanenergy.org/programs.asp
The StEPP Foundation (Matches projects with funding)	This program is dedicated to helping organizations realize their vision of a clean and safe environment by nationally matching projects with funders. The StEPP Foundation provides project oversight to enhance the success of projects increasing the number of energy efficiency, clean energy, and pollution prevention projects implemented at the local, state, and national levels for the benefit of the public.		Deadlines and Specific Project Criteria will vary by the RFP #.	http://www.steppfoundation.org/main.htm
Streambank Cleanup and Lakeshore Enhancement (SCALE)	This program provides funds to assist groups that have established a recurring stream or lakeshore cleanup.	$500-$3,500	Application due at the end of November; funds available following spring.	http://www.epa.state.il.us/water/watershed/scale.html 217.782.3362
319 Program (State of Illinois Program)	This program works to protect rivers, lakes, streams, groundwater, and wetlands from sources such as urban or construction site runoff, agricultural runoff, hydrologic modification, and resource extraction. It provides funding for "non-point source pollution control." Example projects may include wetland creation for water quality concerns, native plantings, and more.	$20,000 - +$1 Million	Deadline is August 1; funds available following spring.	Ms. Chris Davis – 217.524.3036 http://www.epa.state.il.us/water/watershed/nonpoint-source.html
Government Grants				http://www.grants.gov/
Additional Sites				http://www.smartcommunities.ncat.org/management/financl.shtml http://www1.eere.energy.gov/financing/states.html http://www.eere.energy.gov/state_energy_program/

APPENDIX 5: MAINTENANCE PLAN

INTRODUCTION

The management of a facility like the Edward R. Ladd Arboretum requires an understanding of its guiding vision and the elements that make up the arboretum as a whole. The vision of the arboretum is to provide an educational experience with nature within a sustainable, bio-diverse environment that balances the heritage and significance of the Edward R. Ladd Arboretum within the Evanston community.

Elements addressed in this management plan include a review of the existing management practices of the arboretum grounds, recommendations for Plant Material, Plant Ecosystems, Inert Material, Water Features, Signage, Permeable Pavers, Site Furnishings and Architectural Features. Specific management recommendations and techniques will be provided, including schedules, where applicable, and performance requirements.

EXISTING MAINTENANCE TASKS AND METHODS

The physical grounds of the arboretum are maintained by the City of Evanston Parks/Forestry Division with weekly mowing, yearly shrub pruning, and periodic pathway repair. Tree trimming and garbage disposal are also handled by the Parks/Forestry Division on an as-needed basis. In addition, weed populations in the planting beds are controlled twice yearly by a chemical spray. Maintenance associated with tree health and upkeep related to perennial plantings has been minimal over the life of the arboretum.

Recently, major improvements have included the rebuilding of the Ecology Center entrance drive, the International Friendship Garden upgrades, the development of the Bird Sanctuary, and the replacement of lost trees due to the McCormick Boulevard reconstruction. These improvements have been funded through volunteer efforts or as part of capital improvement projects funded through other City departments.

The physical structures within the arboretum boundaries are maintained by the City of Evanston Public Works Department. This department is responsible for structural maintenance and repairs of the Aspegren Gazebo, the structure surrounding the wind generator, the Murdoch Street Washers, all electrical and plumbing systems within the arboretum, and the maintenance and repairs for the Ecology Center building. The Parks/Forestry Division, in turn, is responsible for the canoe launch, fencing, signage, and site furnishings.

PROPOSED LANDSCAPE MAINTENANCE TASKS AND METHODS

DEFINITION

Landscape maintenance tasks are the recurring procedures and duties required to ensure a viable, functional, and beautiful environment. Landscape maintenance methods are the standards and practices of the landscape industry used to accomplish these tasks.

The following tasks common to landscape maintenance will be defined and described:

LANDSCAPE MAINTENANCE TASKS

- **Aeration**
- **Fertilization**
- **Mowing**
- **Mulching**
- **Pest and Plant Disease Control**
- **Soil Amendments**
- **Trimming**
- **Weed Control**

Aeration

Aeration is the process of improving the gas and air exchange capabilities of soil being utilized for growing plant material. Compacted or water-logged soil conditions limit plant growth. Aeration reduces shallow rooting, improves nutrient infiltration, and increases overall plant vigor. Turfgrass is the most commonly aerated landscape element.

The most effective aerifiers are power hole-punching machinery that actually removes small cylinders of soil. New machines have been developed that employ high pressure water jets to aerate turfgrass on golf course greens and tees. Any aeration method that increases the permeability of compacted soils has merit and should be considered for use on the installation.

Fertilization

Fertilization is the supplemental application of nutrients required in the soil for healthy and sustained plant growth. There are 16 elements required for plant growth. Most soils contain traces of each.
The three major elements – nitrogen, phosphorus, and potassium – are usually required in greater amounts. Numbers on fertilizer containers represent the three major plant nutrients: the first number is nitrogen (N), the second phosphorus (P), and the third potassium (K). For example, 10-8-6 shows nitrogen content of 10%, phosphorus content of 8%, and potassium content of 6%.

If a fertilizer's label says all or most of the nitrogen contained is in the nitrate or nitric form, it is a fast acting fertilizer and the nitrogen will be released quickly. If most of the nitrogen is ammoniac or organic, the nitrogen release will be slower but more sustained once the process begins. Phosphorus is absorbed through plant root tips. Acidic soils require increased phosphorus fertilizers. Potassium is described on the label in various ways: available or soluble potash, water soluble potash, or water soluble potash from muriate or tankage. Plants remove potassium from the soil in much the same way as phosphorus. The other thirteen trace minerals required for plant growth are usually readily available in most soils. Iron is the most common of these that may require replenishing.

There are three dry fertilizers commonly used: ammonium nitrate, 34-0-0; ammonium sulfate, 21-0-0; and ammonium phosphate, 16-20-0. They are readily available and safe for use. Soil should be tested to determine exact fertilization requirements. Local extension agencies or nurseries can provide this service at little or no cost. These professionals will be able to provide detailed fertilization guidance based on the results of the soil analysis.

The most important aspect of fertilization is regularity. It is best not to fertilize unless it will be performed on a scheduled and recurring basis. Research has revealed irregular fertilization actually causes more harm than good. There is also the possibility of root burn if too much fertilizer is applied. Always water immediately after fertilizing any plant material.

Fertilizer can be applied in many ways. Always follow recommended application rates. Hand-held crank units for shrubs, push rotary or drop spreaders for smaller turfgrass areas, and tractor pulled rotary spreaders for large turfgrass areas are a few common methods of fertilizer application.

Mowing

Proper mower and height of cut, sharp blades, and low moisture content are the main requisites for a successful mowing operation. In addition, not more than one-third of the grass should ever be removed in any one mowing operation.

Some turfgrass types require special mowers. Most grasses can be cut with standard rotary mowers. Prairie grasses and forbs can be mowed with flail type mowers.

Mulching

Mulching is the placement of organic material over a plant's root zone. Mulch keeps the soil near plant roots cool and moist longer than soil exposed to the sun and drying wind. Mulch provides insulation during winter, discourages weed germination, reduces soil erosion, impedes soil compaction, and protects plants from the damage caused by mowers and trimmers. Mulching should be replenished annually as it decomposes, breaks down, and shifts. Depth should be 2-4 inches depending on plant type and geographical location. Never place mulch over artificial weed barrier as the mulch can be washed away from its installation site. Also, the intention of mulch is to have contact with the soil, decompose and add nutrients to the soil. The artificial barrier impedes this natural process.

Available materials for use as mulches include mushroom compost, shredded hardwood bark, and pine needles. Inert materials such as rock or stone, which reflect sunlight, retain heat, and may cause plant stress, should never be used in the arboretum as mulch.

Pest and Disease Control

Pest and disease control is the logical process of minimizing or eliminating damaging insects, animals, and pathogens. Many pests are cyclic and their actual damage to the landscape is minimal. Some are thwarted through natural processes. Some pests, such as ground squirrels, termites, and particular varieties of blight, should receive immediate attention and treatment. Always consult a certified arborist or an entomologist on pest related problems.

Many states have adopted requirements and restrictions regarding pesticides, as well as who can apply them. Many require licensed pest control specialists for the application of certain chemicals. The City of Evanston Parks/Forestry Division discourages the use of chemicals in the park properties but some pests are devastating enough to warrant chemical use.

Application methods for the control of pests and plant diseases are numerous and include attachments to garden hoses, hand-held pump sprayers, tractor-mounted tank sprayers, foggers, and hand or machine broadcasted granules.

The Tree and Shrub Inventory and Management Plan produced by the Davey Resource Group offers specific treatments related to common arboreal pests and diseases.

Pruning

Pruning is the selective removal of foliage or branches from plant material. It contributes to the quality, attractiveness, and longevity of installation trees and shrubs. Few landscape maintenance tasks are more important than pruning. Workers must be trained in the proper methods and then be supervised in the field by an experienced person.

Refer to *The Tree and Shrub Inventory and Management Plan* for specific management information related to the Ladd Arboretum's tree and shrub population.

Soil Amendments

Soil amendments are any materials added to the soil to improve or maintain it's texture, pH, or friability to encourage healthy plant growth. They are vital to the viability of all soils, especially those composed largely of sand or clay or those lacking sufficient organic matter.

Many soils require modification of the pH, or the acidity or alkalinity, to improve their ability to support plant material. Acidic soils have a low pH and often require the addition of lime, or calcium carbonate, as an amendment to raise the pH. Alkaline soils have a high pH and require the addition of gypsum, or calcium sulfate, as an amendment to lower the pH. They are often added to the drip or root zone as a long-term supplement to established plants. These amendments usually improve aeration and release many of the trace elements present in the soil that are unavailable to the plant.

The primary tools required to apply soil amendments vary greatly depending on the size of the plant or area being treated. Shovels, wheel barrows, front end loaders, and tractor-pulled spreaders are among the various methods of applying these materials.

Trimming

Trimming is the removal of excess or unwanted turfgrass or similar plant material on the edge of a turf area, walkway, or planter bed, and along fence lines and building foundations. These areas are generally trimmed at each mowing.

There are a variety of trimming tools available and selecting the proper one depends upon the area being trimmed, plant material involved, and desired final affect. Tools include gas or electric powered nylon-monofilament trimmers and gas powered bladed edgers. Monofilament trimmers allow for rapid and efficient removal of unmowable grass around steel edging, concrete mowing strips, sidewalks, foundations, and poles.

One of the inherent problems is the potential damage to trunks and bark. Continued damage leads to girdling, which severely stunts growth and may even lead to the loss of the shrub or tree.

Weed Control

A weed is defined as any plant material growing where it is not wanted. Weed control is the process of controlling or eliminating unwanted plant material. Man-hours and funds can be reduced by using modern labor-saving methods and tools.

Soil sterilants should not be used in landscape maintenance operations at the arboretum. The tendency of these chemicals to migrate and kill mature trees and shrubs by poisoning the soil usually limits their value and widespread use.

Weed Control Methods

Chemicals
It is the policy of the City of Evanston's Parks/Forestry Division that chemicals not be used to control weeds within park properties. This policy will be applied to the Ladd Arboretum property.

Mechanical
Mechanical weed control can be accomplished using shovels, hoes, spades, or by hand. It is critical that the entire weed, including the root, be removed to discourage regeneration.

LANDSCAPE MAINTENANCE GUIDELINES

INTRODUCTION

Landscape maintenance guidelines are site specific directions for the care of plants and inert materials. They should be used by the grounds maintenance manager to efficiently care for the installation landscape. The numerous and varied plant types, natural and man-made landscape project components, and functional areas on installations require detailed and specific maintenance and care.

Utilization of the following guidelines will improve efficiency and reduce overall maintenance costs while creating a more aesthetically pleasing and environmentally sound installation landscape.

GUIDELINES

- **Plant Material**
- **Plant Ecosystems**
- **Inert Material**
- **Water Features**
- **Signage**
- **Permeable Pavers**
- **Site Furnishings**
- **Architectural Features**

PLANT MATERIAL

- Trees
- Shrubs
- Groundcovers
- Vines
- Turfgrass
- Annuals
- Perennials

Trees

Refer to *The Tree and Shrub Inventory and Management Plan*.

Shrubs

Refer to *The Tree and Shrub Inventory and Management Plan*.

Groundcovers

Fertilization

Most evergreen groundcovers require annual supplemental feeding in the early spring with a balanced fertilizer. Flowering groundcovers require more phosphorus and benefit from at least one application annually of ammonium phosphate.

Mulching

Mulch all groundcovers with 2-4 inches of organic material. Replenish as required. Do not apply a filter fabric or inert barrier between mulch and soil.

Trimming

Groundcovers should only be trimmed when they overgrow their planter bed or to remove dead or damaged branches. As a general rule, do not mow groundcovers.

Soil Amendments

Depending on soil analysis results, add lime or gypsum as required and water thoroughly.

Vines

Fertilization

Most vines require annual supplemental feeding using a balanced 8-8-8 fertilizer formula.

Mulching

Mulch under and around all vines with 2-4 inches of organic material. Replenish as needed to maintain the desired depth. Do not apply a filter fabric or inert barrier between mulch and soil.

Soil Amendments

Depending on soil analysis results, add lime or gypsum as required and water thoroughly.

Turfgrass

Aeration

Turfgrass areas in regions of clay, caliche, and highly compacted soils require regular aeration. Aeration should be accomplished in the early spring or before soils freeze in late autumn in colder climates.

Fertilization

Do not feed newly sodded, seeded, hydroseeded, or sprigged turfed areas. Allow the turfgrass to get established and mow at least three times before applying the first fertilizer treatment.

Turfgrasses require nitrogen and iron to maintain good health and color. Feed all turfgrasses just prior to the growing season. In areas where the growing season is over 250 days, apply additional fertilizer about two months prior to dormancy or onset of the first killing frost.

Mowing

Turfgrass mowing should be accomplished as required to maintain aesthetic appeal and vigor. Turf grass should be mowed to ensure that no more than 1/3 of the height of the grass is removed in a single mowing.

Soil Amendments

Apply organic soil amendment as top dressing every 2-4 years.

Trimming

Trim turf grass with mechanical trimmers at areas where a mower cannot reach or could cause damage. Ensure that trimmer strings do not come in contact with tree trunks, shrubs, or perennials. Hand trimming may be required around plant material and should be required if damage to the plant is a possibility.

Annuals

Annuals are flowering, short-lived plants. They add color and variety to any area. Just as their name implies, annuals require removal and replacement with new plants every season. In warmer climates, there are a wide variety of winter and summer annuals that can provide year-round interest.

Mulching

Mulch all annuals with 1-2 inches of organic material immediately after planting. Replenish as required.

Perennials

Perennials are a diverse assortment of plants. Typically, perennials have one blooming season each year. After blooming, the plant may continue to grow; it might die back and virtually disappear, or it may retain the same appearance throughout the year. Most perennials are grown for their flower color or interesting foliage.

Mulching

Mulch all perennials with 2-4 inches of organic material.

Trimming

Remove spent blooms from plants to encourage blooming throughout growing season. Cut plants back at end of growing season or beginning of new growing season.

NATURALIZED PLANT ECOSYSTEMS

Maintenance and management of the different small natural areas within the arboretum should be managed similarly to ensure optimum bio-diversity and minimize the long term maintenance sometimes required with traditional ornamental landscapes. The following guidelines can be applied to prairie grass and forbs ecosystems, forested embankment, wetland plantings, habitat corridors, and Oak Savanna.

Planning

The winter season should be used to assess the success of the previous season's maintenance and management activities and to plan ahead for upcoming maintenance needs and modifications to the arboretum's exhibits.

Controlling Invasive Species

Monitoring and removal of non-native invasive plant species should be done on a bi-weekly basis from March through November. This will help keep infestations under control and eradication manageable. Removal of invasive plants can be done manually by hand or with machinery where access to the affected area is possible.

Planting

Hand broadcasting seed, installing plugs, and planting trees and woody shrub material should take place in the early spring, once the threat of frost has passed. Early fall plantings can include seeding, laying sod, and planting dormant tree species. If fall planting is necessary, heel in newly planted material with a thick layer of dried leaves or mulch for added insulation.

Planting during the summer months is discouraged. The summer season can be defined as June 15th through September 15th. Refer to APPENDIX 7 for recommended plants for each plant ecosystem.

Managing Bio-diversity with Prescribed Burns or Periodic Haying (specific to herbaceous ecosystems)

Prairie and savanna systems are dependent on annual cycles of severe disruption. That disruption can be due to fire or haying. Haying is described as the cutting and removal of organic litter. Wetlands, depending on the composition of species present, can benefit from occasional fires through the reduction of biomass and the cycling of nutrients.

Restoration ecologists do not always agree on the preferred timing of controlled burns. Early spring and late fall burns can both be successful and may have slightly different consequences for the natural areas. No matter what time of year the burn takes place it is recommended that every precaution be taken to ensure it is done safely. The burn should be conducted by an outside agency or consultant that is highly trained and experienced

with this practice. Registering the burn with the local fire enforcement department and conducting the burn in a tightly controlled area will further ensure it is done safely. Permits may be required to conduct prescribed burns. Check with the local agencies having jurisdiction over permitting before conducting the burns.

Early spring haying can be an effective practice that heeds similar results as that of a prescribed burn. Research indicates that the benefit to the bio-diversity of fire is the removal of organic litter. Thus, simply mowing does not provide the same benefits as fire. Haying, the practice of cutting and removal of litter, can effectively increase bio-diversity and clear away organic litter.

INERT MATERIAL

Maintenance requirements for inert material in the landscape are focused on weed control and repairs. Regular and timely manual removal of weeds will keep inert material areas largely free of weeds. Periodic raking and litter removal also contribute to their attractiveness.

Walkways, Trails and Bike Paths, depending on the material composition, are included in this category.

Concrete and Masonry

Sweep as required. Wash with high pressure hose at least once annually. Cracks and spalling on concrete surfaces should be monitored for safety and replaced once the area of concern becomes a trip hazard. A section of concrete with a crack that exhibits upheaval of more than a ¼" should be replaced in its entirety.

Asphalt

Asphalt walks and paths may require repair of cracks, rejuvenation by spray sealing, or even replacement as they age. Consult with a civil engineer to determine the most efficient and appropriate method of maintenance.

Decomposed Granite

Paths and walks comprised of decomposed granite are to be inspected twice yearly for ruts, wash-outs, and inconsistent levels. Inspections should occur in the early spring and fall. Upon inspection, the areas demonstrating need for maintenance should be addressed promptly.

Areas that demonstrate a recurring need for maintenance should be addressed in a more holistic way. If wash-outs keep occurring on one location then a review of the drainage patterns in that area should be addressed. If rutting is a recurring theme then site circulation may need to be reviewed or restrictive barriers may need to be installed.

WATER FEATURES

Mechanical equipment of fountains, pools, and ponds should be inspected regularly. Maintenance of the mechanical systems should be coordinated with the manufacturer of such equipment.

Weekly checks of the water quality should be conducted. Corrective actions, based on the recommendations of the equipment manufacturer, should be taken.

Winter shut down procedures for the equipment provided by the manufacturer should be followed. Winter shut down should be complete before November 15th.

SIGNAGE

Repair and replacement of signage should be considered a PRIORITY 1 issue throughout the life of the arboretum. Missing or broken signage indicates a level of neglect and invites vandalism.

It is recommended that upgrading and replacement of signage be included in a yearly budget that governs the management and maintenance of the arboretum. The signage should initially be inventoried and documented for age, content, and condition. Follow-up reviews of the signs should be done on a yearly basis. The winter season is a good time to conduct the yearly review. Conducting the review in the winter allows for time to place orders for new signage. The signs can then be in place before the spring season.

PERMEABLE PAVERS

Permeable pavers are concrete unit pavers that, when in place, allow for surface water to be absorbed into the ground water table rather than be piped off site. The pavers are combined with an inert aggregate that occupies voids created by the paver pattern and dry laid over a drainage layer of sand and gravel. The pavers are recommended for use in the new parking lot design, the outdoor classroom at the Ecology Center and are currently in place in the circle drive in front of the Ecology Center.

The pavers should be assessed annually for cracks, upheaval and settling. The damaged units can be removed and replaced. Upheaval and settling will require removal of a section of pavers, re-establishing the sub-grade and replacement of the pavers. Unless the pavers are damaged, replacement of the old pavers is acceptable.

The aggregate within the voids of the pavers should be topped off bi-annually.

The pavers should be cleaned using a leaf blower or broom. High pressure washers are not recommended as they may displace the aggregate.

SITE FURNISHINGS

Site furnishings throughout the arboretum include trash receptacles, benches, and bicycle racks.

The furnishings should be reviewed annually for usability and safety. Issues found during the review should be addressed promptly. Repairs and replacement of parts should be made per the manufacturers' recommendations.

The furnishings should be assessed annually for overall condition. Chipped paint, knicks, and gouges should be addressed promptly to avoid rusting and degradation of the structural integrity of the item. Maintenance kits and touch-up paint can be obtained through the manufacturer.

ARCHITECTURAL FEATURES

Architectural features include the Aspegren Memorial Gazebo, the canoe launch, the Ecology Center building and its systems, deck overlooks, deck boardwalks, and the pedestrian bridge.

The Department of Public Works repairs, maintains, or facilitates the replacement of these items and should be notified when attention is needed. Providing Public Works with an appropriate amount of notice will help ensure these structures are not neglected.

Annual reviews of each element should be scheduled to coincide with the submission of department budgets. Conducting the reviews and submitting the maintenance requirements to Public Works before the budgets are finalized is crucial to addressing the maintenance in a timely manner.

To help facilitate this process it is recommended that checklists be developed for each element. The checklists should include assessments of the structure, superficial damage to finishes, missing hardware, and roof integrity (where applicable). The completed checklists will alert Public Works that further investigation may be needed and assist in developing a repair/replacement strategy for each element.

SUMMARY

The management of a facility like the Edward R. Ladd Arboretum requires planning, foresight, and a long term vision. Proper maintenance and management are tools in realizing that vision.

Reviewing the existing maintenance and management techniques provided the first step in being able to develop a more comprehensive plan that will ensure the longevity of the Ladd Arboretum. Properly maintaining the Plant Material, Plant Ecosystems, Inert Material, Water Features, Signage, Permeable Pavers, Site Furnishings, and Architectural Features using the guidelines provided will result in this well-loved Evanston amenity surviving and flourishing for use by future generations.

APPENDIX 6: POLICY RECOMMENDATIONS

Introduction

Adoption of the Master Plan is the first step to improving the Ladd Arboretum. Implementation of the plan will likely occur in phases over several years. During the implementation of the plan, procedures and protocols should be considered and followed to ensure a smooth and consistent plan realization.

The final Master Plan for the Ladd Arboretum will spark new interest in this long time Evanston landmark. Past development within the arboretum has been piecemeal and fragmented. A concerted effort to introduce procedures and protocols will allow development to occur that is based on a long term vision and foresight. With the interest of local citizens, and a coordinated effort between the Ladd Arboretum Committee, city staff and agencies many new initiatives are possible.

Memorial Tree Program

DRAFT POLICY: The Memorial Tree Program provides an opportunity to memorialize trees in honor of events, people, or animals on the grounds of the Edward R. Ladd Arboretum.

IMPLEMENTATION:

- Train staff members on the use of the tree inventory database.
- Update the database as new memorials are added and add memorials that were not incorporated due to missing signage or insufficient data.
- A specific person or group of persons should be delegated to oversee the Memorial Tree Program. This person or persons should be within close proximity of the Ladd Arboretum to be able to answer questions from visitors.
- A procedure for purchasing a tree should be developed outlining contact information, tree selection process, payment options, payment contact information, planting procedures, and memorial timeframe.
- The procedure for purchasing should be documented and available for distribution to the public. Notification on the Ladd Arboretum website or a pamphlet should suffice.
- The purchasing procedure and background information related to the Memorial Tree Program should be included in a formal application that prospective donors can fill out. The application should be available online or in person at the Ecology Center or the City of Evanston Parks Department. Specific information should be included on the application that tells the donor to send the application to the person or persons overseeing the Memorial Tree Program.
- The application is then copied and sent to the city arborist so that a consultation appointment can be made with the donor.
- The arborist will consult with the donor to decide on a type of tree. The type of tree chosen will be based on location of the planting, soil conditions, and other pertinent environmental conditions.
- The arborist shall notify the person or persons overseeing the Memorial Tree Program of the type of tree, location of tree, and approximate planting timeframe within 10 days of consultation with donor.
- Cost of the new tree should be based on the type of tree and the size of tree if a new tree is chosen as the memorial. A separate, flat fee cost should be determined for existing trees, generally $300-$400 per memorial is acceptable.
- A memorial timeframe should be established. A general rule of thumb is the life of the tree equals the length of the memorial.
- The memorial tree should be guaranteed to live for a minimum of 5 years. After the five year warranty, should the tree die and replacement of the tree becomes necessary, the memorial will desist.
- If a memorialized tree requires relocation, the donor should be notified of new location. Relocation should only occur within 5 years of initial planting and if it is determined that the tree has a significant chance at survival. If the tree does not survive the relocation process AND the memorial is less than 5 years old then the tree will be replaced and the memorial will remain intact. If the relocation occurs AFTER 5 years of initial memorialization and the tree does not survive the relocation process then the memorial will desist.

The Use of Non-Natural Materials

DRAFT POLICY: Natural, Native, Recycled, Energy Efficient, and Resource Conserving materials and techniques are encouraged to be used and implemented in the improvement and upgrading of the physical grounds of the Ladd Arboretum whenever possible. This relates to, but is not limited to, site furnishings, path materials, plant material, and building materials. All improvements to the physical grounds of the Ladd Arboretum are subject to review and approval by the Ladd Arboretum Committee, the City of Evanston Parks/Forestry Division, and the Metropolitan Water Reclamation District of Greater Chicago.

IMPLEMENTATION:

- All proposed plans and projects are to be presented to each of the above mentioned entities for review and subsequent approval.
- A procedure that documents the submission and review process should be developed. The procedures should outline submission materials, submission timeline, and follow-up procedures if changes or alterations need to be made based on the initial review.
- The documented procedure should be made available for distribution to interested parties. Posting the procedure and policy on the Ladd Arboretum web site or a pamphlet should suffice.

Construction Activities within the Ladd Arboretum

DRAFT POLICY: Construction activities within the boundary of the Ladd Arboretum should be reviewed and approved by the Ladd Arboretum Committee, the City of Evanston Parks/Forestry Division, and the Metropolitan Water Reclamation District of Greater Chicago. Construction activities should be monitored and strictly concentrated to minimize disturbances to environmentally sensitive ecosystems and habitats. Restoration of impacted areas should be prompt and considered incidental to the construction project.

IMPLEMENTATION:

- All potential construction projects are to be reviewed by the Ladd Arboretum Committee, City of Evanston Parks/Forestry Division and the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC) prior to the start of work. Construction activities by one of the aforementioned agencies are subject to review by the other entities.
- As part of the construction project and prior to the beginning of any work, an As-Built survey should be completed to document plant species, plant locations, existing topography, above-ground and below-ground utilities, and other site amenities for the affected areas.
- Built into the budget for the construction activities should be enough funding to re-establish any impacted areas.
- An As-Built survey should be provided to Parks/Forestry at the end of the construction project and when restoration of the affected areas is complete. A copy of the survey should be submitted to the Ladd Arboretum Committee and MWRDGC.

- Any area of the arboretum specifically developed to provide habitat, to act as a food source, or to provide education related to a specific ecosystem should be documented in plan and held on record at the Department of Parks/Forestry and Recreation. Copies of the plans should also be held at the Ecology Center.
- The areas noted as Environmentally Sensitive should be protected from construction activity and impacts related to construction activity through the use of stable and secure fencing and signage indicating the area's sensitivity. Fencing should be placed at the drip line of trees and shrubs, at a minimum, or at the boundary of planting areas and ecosystems.
- A form indicating compliance with the above mentioned construction protection techniques should be developed for use in evaluating the construction activities. The completed form should be submitted at the onset of the construction activity.
- The construction activities should be inspected weekly by a third party familiar with the construction project and the construction protection techniques outlined above. The form noted in the above item should be completed at each inspection. The completed weekly forms should be submitted to Parks/Forestry for record keeping and/or corrective actions.

APPENDIX 7: PLANT LISTS

Introduction

The following plant lists are for reference only and are not meant to be all inclusive. Further analysis of hydrological conditions, soils and sun/shade conditions are recommended for each specific planting site.

FORESTED EMBANKMENT AND HABITAT CORRIDORS
TABLE 7-1

TREES	**Botanical Name**	**Common Name**	**Growing Condition & Notes**
	Aesculus glabra	Ohio Buckeye	Dense canopy, tolerates shade
	Platanus occidentalis	American Sycamore	Tolerates wet, naturally occurring along streambanks
	Quercus bicolor	Swamp White Oak	Fast growing, tolerates wet soils
	Quercus palustris	Pin Oak	Fast growing, tolerates poorly drained soils
	Quercus alba	White Oak	More upland, prefers well drained soil
	Tilia americana	American Linden	Upland tree, fast growing
	Acer rubrum	Red Maple	Fast grower, tolerates wide range of soils
	Acer saccharinum	Silver Maple	Fast grower, tolerates wide range of soils
	Acer saccharum	Sugar Maple	Upland tree, slow growth, great fall color
	Quercus rubra	Red Oak	Well drained slopes, good food source
	Fagus grandifolia	American Beech	Slow growth, good habitat
	Juglans nigra	Black Walnut	Well drained and rich soils floodplain soils, good food source
	Juglans cinerea	Butternut	Well drained and rich soils floodplain soils, good food source
	Prunus serotina	Black Cherry	Well drained slopes and uplands, good food source
	Cornus florida	Flowering Dogwood	Well drained sites, great spring color
	Liriodendron tulipifera	Tulip Tree	Fast grower, well drained sites
	Hamamelis vernalis	Vernal Witchhazel	Edge treatment plant, great transition from forest to open space.
	Staphylea trifolia	American Bladdernut	Adapts to shade and moist soil, interesting fruit
SHRUBS	**Botanical Name**	**Common Name**	**Growing Condition & Notes**
	Cephalanthus occidentalis	Buttonbush	Wet soils, perfect along shore of channel
	Viburnum recognitum	Northern Arrow-wood	Adapts to variety of soils, fast growing
	Cornus amomum	Silky Dogwoods	Wet soils, great habitat
	Cornus stolonifera	Red Osier	Wet soils, great habitat
	Salix discolor	Pussywillow	Adapts to variety of slope conditions, showy flowers
FORBS	**Botanical Name**	**Common Name**	**Growing Condition & Notes**
	Allium cernuum	Nodding Onion	Dry to medium wet, well-drained soil, 1-2’ tall, showy lilac flowers
	Andropogon gerardii	Big Bluestem	Variety of drainage conditions, tall and showy
	Asclepias syriaca	Common Milkweed	Dry to mesic prairies, roadsides, often weedy, 2-4' tall, dry soils, pink flowers
	Aster novae-angliae	New England Aster	Prefers medium moist to wet soils, flowers late summer to fall, abundant purple flowers
	Baptisia australis	Blue false Indigo	Dry to medium wet, well-drained soil, tolerates drought and poor soils, 2-4’ tall, purple flowers
	Carex vulpinoidea	Brown Fox Sedge	Very common sedge found in moist open areas
	Chamaecrista fasciculata	Partridge Pea	Dry soils, 1-3' tall, yellow flowers
	Coreopsis lanceolata	Sand Coreopsis	3’ height, yellow flowers
	Desmodium canadense	Showy Tick-Trefoil	Wet meadows, lake margins, roadsides, 2-6’ tall, pink flowers
	Elymus riparius	Riverbank Wild Rye	Mesic -wet mesic, 2-4’ tall
	Elymus virginicus	Virginia Wild Rye	Wet, wooded conditions, fast growing
	Eupatorium fistulosum	Joe Pye Weed	Wet meadows and stream margins, 4-7' tall, pink-purple flowers attract butterflies, showy seed heads persist into winter
	Eupatorium maculatum	Spotted Joe Pye Weed	Common marsh species, prefers wet soils, found at edges of ponds, lakes and streams, 4-7' tall, large purple-pink flower clusters
	Eupatorium perfoliatum	Common Boneset	Found in moist meadows and marsh edges, flat head of white flowers
	Euthamia graminifolia	Grass leaved Goldenrod	Common goldenrod of moist soils, roadsides, 1-4’, yellow flowers
	Glyceria striata	Fowl Manna Grass	Common grass of moist habitats such as wooded floodplains, marshes, and moist meadows
	Heliopsis helianthoides	False Sunflower	Well-drained soils, 4-6' tall, yellow flowers
	Juncus effusus	Common Rush	Common rush of wet meadows, stream corridors, and marshes
	Liatris spicata	Marsh Blazing Star	Medium wet, well-drained soils, 2-4’ tall, purple flowers, attracts birds and butterflies

	Monarda fistulosum	Wild Bergamont	Hill prairies or dry to mesic prairies, edges of woods, dry soils, 2-5' tall, lavender flowers
	Panicum virgatum	Switchgrass	Native grass, good habitat, spreads fast to help with erosion control
	Panicum clandestinum	Tioga Deer Tongue	Moist soils of woodland edges, 1-3' tall
	Penstemon digitalis	Tall White Beard Tongue	Dry to medium wet, well-drained soil, 3-5' tall, white flowers
	Penstemon laevigatus, PA Ecotype	Appalachian Beard Tongue, PA Ecotype	Moist soils, wetlands, 1-3' tall, purplish flowers
	Rudbeckia hirta	Black Eyed Susan	3' height, yellow flowers
	Schizachyrium scoparius	Little Bluestem	Dry soil moisture, 2-4' tall
	Senna hebecarpa	Wild Senna	Moist to mesic conditions, yellow flowers, 4 - 6' tall
	Senna marilandica	Maryland Senna	Occurs in open woods and wet meadows,4 -6' tall, yellow flowers
	Sorghastrum nutans	Indian Grass	6' height, dry soils, August - October impact
	Tradescantia ohioensis	Ohio Spiderwort	Prefers moist, acidic, sandy soil, 1-3' tall, blue flowers
	Verbena hastata	Blue Vervain	Marshy areas, moist to wet soils, spike of purple flowers
	Veronia gigantea	Giant Ironweed	Medium soil moisture, 4-9' tall, purple flowers
	Zizia aurea	Golden Alexanders	Medium soil moisture, early bloomer, flat top of yellow flowers in cluster

ORNAMENTAL LANDSCAPES
TABLE 7-2

TREES	**Botanical Name**	**Common Name**	**Growing Condition & Notes**
	Amelanchier interior	June berry	Light shade, well drained soils
	Chionanthus virginicus	Fringe Tree	Fragrant flowers, requires good garden soil
	Cornus florida	Flowering Dogwood	Well drained sites, great spring color
	Cornus alternifolia	Pagoda Dogwood	Morning sun, moist soil
	Cercis canadensis	Redbud	Great spring color, excellent accent plant, requires rich soil
	Betula nigra	River Birch	Full sun, wet soil, great accent specimen
	Hamamelis vernalis	Vernal Witchhazel	Edge treatment plant, great transition from forest to open space
SHRUBS	**Botanical Name**	**Common Name**	**Growing Condition & Notes**
	Viburnum trilobum	American Cranberry	10' height, moist soil, showy flowers
	Viburnum dentatum	Arrowwood Viburnum	10' height, hedge, great food source
	Ribes americanum	Black Current	5' height, great food source, showy flowers
	Staphylea trifolia	Bladdernut	12' height, seeds rattle, pollinated by moths
	Calycanthus floridus	Carolina Allspice	8' height, excellent scent
	Viburnum rafinesquianum	Downy Arrowwood	8' height, fall color excellent, woodland edge plant
	Rosa blanda	Early Wild Rose	4' height, large flowers, has thorns
	Rhus aromatica	Fragrant Sumac or Gro-lo Sumac	8' height, fragrant, good fall color
	Spiraea tomentosa	Hardhack	3' height, wetter soils, good hedge plant, showy flowers
	Rosa setigera	Illinois Rosa	8' height, drier soils, does well with afternoon shade
	Viburnum acerifolium	Maple Leaf Viburnum	8' height, drier woodland settings, attracts birds
	Spiraea alba	Meadowsweet	5' height, wetter soils, hardy growth, hedge plant
	Ceanothus americanus	New Jersey Tea	2' height, great flowers, fragrant, drought tolerant
	Physocarpus opulifolius	Ninebark	10' height, grows in the worst conditions, showy bark
	Hydrangea quercifolia	Oak-leaved Hydrangea	6' height, protect from wind and full sun, showy flowers, good fall color
	Salix humilis	Prairie Willow	5' height, attracts birds, interesting seed heads
	Rubus odoratus	Purple Flowering Raspberry	6' height, shrub hedge plant, edible fruit, showy flowers
	Aronia arbutifolia	Red Chokeberry	7' height, upright plant, excellent fall color
	Hypericum prolificum	Shrubby St. John's Wort	3' height, showy flowers, good accent plant
	Hydrangea arborescens	Smooth Hydrangea	5' height, wet soils, showy flowers
	Symphoricarpos albus	Snowberry	3' height, showy winter appearance, grows in thickets
	Lindera benzoin	Spicebush	12' height, fragrant, moist wooded site, good fall color
	Ilex verticillata	Winterberry	12' height, full sun, wetter soils

PERENNIALS AND GRASSES	Botanical Name	Common Name	Growing Condition & Notes
	Andropogon gerardii	Big Bluestem	8’ height, variety of drainage conditions
	Panicum virgatum	Switchgrass	5’ height, variety if soils
	Elymus virginicus	Virginia Wild Rye	4’ height, Wet, wooded conditions, fast growing
	Sorghastrum nutans	Indian Grass	6’ height, dry soils
	Hystrix patula	Bottlebrush Grass	3’ height, partial shade, dry soils
	Agastache foeniculum	Anise Hyssop	4’ height, purple flowers
	Rudbeckia hirta	Black-Eyed Susan	3’ height, yellow flowers
	Sanguinaria canadensis	Bloodroot	30” height, white flowers
	Verbena hastata	Blue Vervain	6’ height, purple flowers
	Asclepias tuberosa	Butterfly Weed	3’ height, orange flowers, butterfly food
	Lobelia cardinalis	Cardinal Flower	4’ height, red flowers
	Aquilegia canadensis	Columbine	3’ height, variety of flower colors
	Silphium perfoliatum	Cup Plant	8’ height, interesting habit, yellow flowers
	Actaea pachypoda	Doll's Eyes	2’ height, white flowers
	Belphilia ciliata	Downy Wood Mint	12” height, purple flowers
	Smilacina racemosa	False Solomon's Seal	3’ height, yellowish-white flowers
	Euphorbia corollata	Flowering Spurge	4’ height, white flowers
	Penstemon digitalis	Foxglove Beardtongue	4’ height, white flowers, attracts hummingbirds
	Lobelia siphilitica	Great Blue Lobelia	4’ height, purple flowers
	Ratibida pinnata	Yellow Coneflower	6’ height, yellow flowers
	Monarda fistulosa	Wild Bergamot	4’ height, variety of colors
	Aster laevis	Smooth Blue Aster	5’ height, purple flowers
	Coreopsis lanceolata	Sand Coreopsis	3’ height, yellow flowers
	Liatris aspera	Rough Blazing Star	3’ height, purple flowers
	Silene regia	Royal Catchfly	4’ height, red flowers
	Thalictrum dasycarpum	Purple Meadow Rue	7’ height, purple flowers
	Echinacea purpurea	Purple Coneflower	4’ height, purple flowers
	Lilium philadelphicum	Prairie Lily	3’ height, orange flowers
	Pycnanthemum virginianum	Mountain Mint	3’ height, white flowers

WOMEN’S TERRACE
TABLE 7-3

PERENNIALS AND BULBS	Botanical Name	Common Name	Growing Condition & Notes
	Crocus	Giant Crocus	Late March-April
	Narcissus	Daffodil Mixture	April-May
	Euphorbia corollata	Flowering Spurge	June-August Flowering
	Sorghastrum nutans	Indian Grass	August-October impact

PRAIRIE ECOSYSTEMS
TABLE 7-4

	Botanical Name	Common Name	Growing Condition & Notes
SHRUBS/SMALL TREES	*Rosa blanda*	Early Wild Rose	Mesic Prairie. various habitats, often in association with weedy species
	Rosa carolina	Pasture Rose	Hill and sand prairies, dry to mesic prairies, dry soil, 2-4' tall
	Rosa setigera	Illinois Rose	Mesic prairies, woods, thickets, clearings, edges of woods, 2' tall
GRASSES & SEDGES	*Andropogon gerardii*	Big Bluestem	Dry-mesic Prairie, tall grass with "turkey foot" inflorescence, 4-8' tall
	Bouteloua curtipendula	Side-Oats Gramma	Dry Prairie, 2-4' tall, dry soils
	Elymus canadensis	Canada Wild Rye	Hill and sand prairies, dry to mesic prairies, shaded bottomlands; 3-5' tall, prefers average to medium-wet, well-drained soils
	Panicum virgatum	Switch Grass	Dry to mesic prairies, 3-5' tall, aggressive grass, grows in dry to moderately wet soils
	Schizachyrium scoparium	Little Bluestem	Mesic-dry prairie, 2-4' tall, senescent tussocks remain attractive through fall
	Sorghastrum nutans	Indian Grass	Hill and sand prairies, dry, mesic, wet prairies, 4-9' tall; medium soil moisture
FORBS	*Aquilegia canadensis*	Wild Columbine	Medium soil moisture, 1-3' tall, red/yellow flowers
	Asclepias hirtella	Tall Green Milkweed	Dry and sand prairies, 1-3' tall, medium soil moisture, green flowers
	Asclepias purpurascens	Purple Milkweed	Mesic-dry prairie, 2-3' tall, medium soil moisture, purple flowers
	Asclepias sullivantii	Prairie Milkweed	Mesic prairies, 2-3' tall, dry soils, pink flowers
	Asclepias syriaca	Common Milkweed	Dry to mesic prairies, roadsides, often weedy, 2-4' tall, dry soils, pink flowers

	Asclepias tuberosa	Butterfly Milkweed	Dry or sandy prairies, savannas, 1-3' tall, orange flowers
	Asclepias verticillata	Whorled Milkweed	Hill prairies, dry to mesic prairies, roadsides, open soil, dry woods, 1-2' tall, dry soils, white flowers
	Aster novae-angliae	New England Aster	Prefers medium moist to wet soils, flowers late summer to fall, abundant purple flowers
	Ceanothus americanus	New Jersey Tea	Hill and sand prairies, mesic to dry prairies, open woods, 1-3' tall, dry soils, white flowers
	Chamaecrista fasciculata	Partridge Pea	Dry soils, 1-3' tall, yellow flowers
	Coreopsis lanceolata	Sand Coreopsis	Dry prairie, dry soils, 1-2' tall, yellow flowers
	Coreopsis palmata	Prairie Coreopsis	Hill prairies, mesic to dry prairies, open woods, 1-2' tall
	Coreopsis tripteris	Tall Coreopsis	Dry prairie, medium soil moisture, 4-8' tall, yellow flowers
	Dalea purpurea	Purple Prairie Clover	Well-drained soils, 1-3' tall, purple flowers
	Desmanthus illinoensis	Illinois Sensitive Plant	Well-drained soils, 3-5' tall, white flowers
	Echinacea purpurea	Broad-Leaved Purple Coneflower	Prefers dry soils, 2-5' tall, purple flowers
	Eryngium yuccifolium	Rattlesnake Master	Medium soil moisture, 3-5' tall, white flowers
	Helianthus grosseseratus	Sawtooth Sunflower	Very common, sometimes weedy, 4-12' tall, thrives in disturbed, wet fields, large yellow flowers
	Helianthus occidentalis	Western Sunflower	Dry prairie, dry soils, 2-4' tall, yellow flowers
	Heliopsis helianthoides	False Sunflower	Well-drained soils, 4-6' tall, yellow flowers
	Lesdedeza capitata	Round-Headed Bush Clover	Well-drained soils, 2-4' tall, green flowers
	Liastris aspera	Rough Blazing Star	Well-drained soils, 2-3' tall, violet flowers
	Monarda fistulosa	Wild Bergamot	Hill prairies or dry to mesic prairies, edges of woods, dry soils, 2-5' tall, lavender flowers
	Potentillla arguta	Prairie Cinquefoil	Well-drained soils, 1-3' tall, yellow flowers
	Pycnanthumum virginianum	Common Mountain Mint	Medium to wet soils, pleasant minty smell, small white flowers
	Ratibada pinnata	Yellow Coneflower	Well-drained soils, 3-6' tall, yellow flowers
	Rudbeckia hirta	Black-eyed Susan	Hill, gravel, and sand prairies, dry to mesic prairies, degraded prairies, 1-3' tall, medium soil moisture
	Silphium integrifolium deamii	Rosin Weed	Mesic-dry prairie, 2-6' tall, medium soil moisture, yellow flowers
	Silphium laciniatum	Compass Plant	Mesic prairies, well-drained soils, 3-8' tall, yellow flowers
	Silphium terebinthinaceum	Prairie Dock	Mesic to wet prairies, 3-8' tall, yellow flowers
	Solidago graminifolia	Common Grass-leaved Goldenrod	Moist to dry prairie, especially in degraded areas
	Solidago nemoralis	Old-field Goldenrod	Well-drained dry prairie soils, 1-3' tall, yellow flowers
	Vernonia gigantea	Giant Ironweed	Medium soil moisture, 4-9' tall, purple flowers

OAK SAVANNA
TABLE 7-5

	Botanical Name	**Common Name**	**Growing Condition & Notes**
TREES	*Carya ovata*	Shagbark Hickory	Common tree of upland woods and savannas, medium soil moisture
	Quercus alba	White Oak	State tree of Illinois, common in regional woodlands, medium soil moisture
	Quercus macrocarpa	Bur Oak	Common species in woodlands; fire resistant, medium soil moisture
	Quercus rubra	Red Oak	Occurs in rich woods, medium soil moisture
SHRUBS/SMALL TREES	*Corylus americana*	American Hazel	Dry woodlands and savannas
	Prunus americana	Wild Plum	Understory species in open woodlands, well-drained soils
GRASSES & SEDGES	*Bouteloua curtipendula*	Side-oats Grama	Dry soil moisture, 2-4' tall
	Elymus canadensis	Canada Wild Rye	Medium soil moisture, 3-6' tall
	Elymus virginicus	Virginia Wild Rye	Medium soil moisture, 2-4' tall

	Hystrix patula	Bottlebrush Grass	Woodlands grass, dry-mesic savanna, 3-5’ tall
	Koeleria Macrantha	June Grass	Dry soil moisture, 1-2' tall
	Schizachyrium scoparium	Little Bluestem	Dry soil moisture, 2-4' tall
	Sporobolus hererolepis	Prairie Dropseed	Dry soil moisture, 2-3' tall
FORBS	*Asclepias tuberosa*	Butterfly Weed	Dry or sandy prairies, savannas, 1-3' tall, orange flowers
	Coreopsis lanceolata	Sand Coreopsis	Hill and sand prairies, savannas, well-drained soils, 1-2' tall, yellow flowers
	Coreopsis tripteris	Tall Coreopsis	Dry Savanna, medium soil moisture, 4-8' tall, yellow flowers
	Helianthus strumosus	Pale-leaved Sunflower	Dry soils, 2-5' tall, yellow flowers
	Monarda fistulosa	Wild Bergamot	Hill prairies or dry to mesic prairies, edges of woods, dry soils; 2-5' tall, lavender flowers
	Solidago ulmifolia	Elm-leaved Goldenrod	Open oak woods, dry soils

WETLAND
TABLE 7-6

	Botanical Name	**Common Name**	**Growing Condition & Notes**
SHRUBS/SMALL TREES	*Cephalanthus occidentalis*	Buttonbush	Wet ground, margins of swamps, ponds, and marshes, backwaters of rivers
	Cornus obliqua	Blue-fruited Dogwood	Along streamsides and in various open, low areas
	Cornus stolonifera	Red-osier Dogwood	Marshy ground, often with *C. obliqua*
GRASSES & SEDGES	*Calamagrostis canadensis*	Bluejoint Grass	Obligate wetland perennial grass that grows in tussocks, prefers wet meadows and lake banks
	Carex comosa	Bristley Sedge	Common sedge of emergent marshes and pond edges
	Carex cristatella	Crested Oval Sedge	Common sedge of moist degraded meadows and emergent wetlands
	Carex lupulina	Common Hop Sedge	Found in swamps, wet prairies and wet woodlands, often in alluvial soils
	Carex lurida	Bottlebrush Sedge	Found in pond edges, swamps, and stream edges, may retain foliage after bloom
	Carex stipata	Common Fox Sedge	Very common sedge found in low open areas
	Carex vulpinoidea	Brown Fox Sedge	Very common sedge found in moist open areas
	Eleocharis erythropoda	Red-Rooted Spike Rush	Very common spike rush, found in pond borders, marshes and ditches
	Elymus canadensis	Canada Wild Rye	Adaptable to a variety of habitats, from open oak woods to prairies, prefers average to medium-wet, well-drained soils
	Elymus virginicus	Virginia Wild Rye	Grows in a variety of moist conditions, including wooded floodplains
	Glyceria striata	Fowl Manna Grass	Common grass of moist habitats such as wooded floodplains, marshes, and moist meadows
	Juncus effusus	Common Rush	Common rush of wet meadows, stream corridors, and marshes
	Juncus torreyi	Torrey's Rush	Common rush to a variety of habitats with moist-soils; can thrive in degraded areas
	Leersia oryzoides	Rice Cut Grass	Common grass of shorelines and swales, leaves are abrasive
	Panicum virgatum	Switch Grass	Common tall prairie grass, grows in dry to moderately wet soils
	Scirpus atrovirens	Dark Green Rush	Marsh plant found near ditches, streams, and ponds
	Scirpus pendulus	Red Bulrush	Found in moist meadows and ditches
	Scirpus validus	Great Bulrush	Found in marshes and shallow water of ponds and streams
	Spartina pectinata	Prairie Cord Grass	Tall prairie grass also found in wet meadows, pond edges, and ditches
FORBS	*Alisma subcordatum*	Water Plantain	Wetland forb found near the edge of slow or still waters, good early colonizer, tiny white flowers
	Asclepias incarnata	Swamp Milkweed	Common marsh plant, 3-5' tall, attractive pink flowers
	Aster novae-angliae	New Enland Aster	Prefers medium moist to wet soils, flowers late summer to fall, abundant purple flowers
	Bidens cernua	Nodding Swamp Marigold	Found in muddy shores of streams and ponds, yellow flowers
	Eupatorium maculatum	Spotted Joe-Pye Weed	Common marsh species, prefers wet soils, found at edges of ponds, lakes and streams, 4-7' tall, large purple-pink flower clusters

	Eupatorium perfoliatum	Common Boneset	Found in moist meadows and marsh edges, flat head of white flowers
	Gentiana andrewsii	Bottle Gentian	Prairie species that prefers moist low spots, 1-3' tall; blue flowers
	Helenium autumnale	Sneezeweed	Grows in moist meadows in full to partial sun, 3-5' tall, abundant yellow flowers
	Helianthus grosseseratus	Sawtooth Sunflower	Very common, sometimes weedy, 4-12' tall, thrives in disturbed, wet fields, large yellow flowers
	Hibiscus laevis	Halberd-Leaved Rose Mallow	Grows along streams, tolerant of sedimentation and erosion, white-pink flowers
	Iris virginica	Blue Flag Iris	Common marsh plant, 2-3' tall, showy blue to violet flowers
	Lobelia cardinalis	Cardinal Flower	Common to ditches and shaded, shallow waters, striking red flowers
	Lobelia siphilitica	Great Blue Lobelia	Wet soils at edges of ponds and streams, blue flowers
	Mimulus ringens	Monkey Flower	From damp soils to standing water, common to marshy ground and muddy shores, 2-4' tall, purple flowers
	Physotegia virginiana	Obedient Plant	Medium to wet soils, common to wet prairies and sedge meadows, pink flowers
	Pycnanthemum virginianum	Common Mountain Mint	Medium to wet soils, pleasant minty smell, moist prairie to pond shore, small white flowers
	Sagitarria latifolia	Broad-Leaf Arrowhead	Emergent aquatic plant that prefers standing water, muddy marsh edges of ponds and streams, attractive long-stalked white flowers
	Cassia hebecarpa	Wild Senna	Stream floodplains, medium soil moisture, yellow flowers
	Silphium perfoliatum	Cup Plant	Often found near streams, 3-10' tall, yellow flowers
	Solidago gigantea	Late Goldenrod	Common to shaded floodplains, rich soils near ponds and streams
	Solidago graminifolia	Common Grass-leaved Goldenrod	Moist to dry prairie, especially in degraded areas
	Solidago riddelii	Riddel's Goldenrod	Wet to mesic prairies, yellow flowers
	Sparganium eurycarpum	Common Bur Reed	Emergent aquatic plant that prefers standing water, marshes and muddy ditches, fun ball-shaped flowers and zig-zag stalks
	Spirea alba	Meadowsweet	Marshy meadows and ditches, clusters of white flowers
	Verbena hastata	Blue Vervain	Marshy areas, moist to wet soils, spike of purple flowers
	Vernonia fasciculata	Common Ironweed	Open moist areas, attractive purple flowers
	Zizia aurea	Golden Alexanders	Medium soil moisture, early bloomer, flat top of yellow flowers in cluster

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