



LAKE KATHERINE
NATURE CENTER AND BOTANIC GARDENS
MASTER DEVELOPMENT PLAN

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INTRODUCTION

Letter from the Board Chairman

Dear Lake Katherine Stakeholder,

I am pleased to announce the completion of the Master Site Plan for Lake Katherine Nature Center and Botanic Gardens. This is the first large-scale improvement plan created for the site since its formal inception in 1988. It incorporates thoughtful planning expertise and rich community input. We are confident that this new Master Plan preserves the beauty of Lake Katherine while it also charts the way toward an expanded and detailed view of how Lake Katherine may serve the public.

The Lake Katherine Master Site Plan encourages sustainable development that lays a foundation for enhancing natural areas, expanding recreational activities, encouraging life-long learning, and strategically helps to create new revenue opportunities that will promote self-sufficiency.

The staff and volunteers of Lake Katherine, along with the Lake Katherine Board of Directors, look forward to fully utilizing this plan to facilitate the redevelopment process, a process that will help Lake Katherine Nature Center and Botanic Gardens emerge as the foremost environmental learning destination in the south suburbs.

We invite continued communication and community input as we proceed with the development of Lake Katherine Nature Center and Botanic Gardens. No doubt our commitment to the purposeful, on-going development of this site will enhance the experience of living in our wonderful City of Palos Heights and for the many surrounding communities that have come to love Lake Katherine.

With deepest regards,

Ginny Carpenter

Lake Katherine Board of Directors, Chair

Lake Katherine Board of Directors

The Master Development Plan for Lake Katherine would not be possible without the support and input from the Lake Katherine Board. Thank you to each member who has given and continues to give of their time freely to guide the future of Lake Katherine.

Ginny Carpenter - Chairman
Terry Horvath - Secretary
Frank Oswald - Treasurer
Walter Bernard - Board Member
Diana Roscich - Board Member
Jack Tolley - Board Member
Jean Gnap - Board Member

Focus Group Members

The Master Development Plan Focus Group gave of their time to attend meetings as well as working to understand the needs of the community for this site. Thank you for all their time and efforts.

Jim Reichel	Lake Katherine Resource Management Committee
Irene Pazzo	Lake Katherine Resource Management Committee
Joe McCloskey	Lake Katherine Resource Management Committee
Mary O'Leary	Lake Katherine Consultant
Gareth Blakesly	Lake Katherine, Staff Member
Karl Schram	City of Palos Heights, Public Works
Scott Smith	City of Palos Heights, Public Works
Mike Leonard	City of Palos Heights, Director of Parks and Recreation
Terry Horvath	Lake Katherine, Board of Directors
Marian Sinkus	Lake Katherine, Environmental Education
Samuel Huenick	Lake Katherine, Staff Member
John Hanley	Palos Heights Classic Car Committee
Bridget Peovost	Lake Katherine, Staff Member

Consultants



With

 Bollinger Environmental, Inc.
810 Warren Avenue, Downers Grove, Illinois 60515
630-968-1960

Master Plan Vision

Lake Katherine stakeholders have determined that the site will be the foremost environmental learning destination in Chicago's southern suburbs. To achieve this vision, its passive and active recreational landscape will be unique along the Cal-Sag Channel corridor while providing spaces for a wide range of programming opportunities. Lake Katherine will be a place for lifelong learners to embrace nature.

The mission of Lake Katherine Nature Center and Botanic Garden is twofold:

- To promote environmentally sustainable choices through education, outdoor experiences, and scientific research
- To inspire passion for environmental stewardship and gardens in a unique urban land site



Children's Forest Viewed across the West End of the Lake

History

The Calumet - Saganashkee Channel, nicknamed the Cal-Sag, is located in southern Cook County between the Little Calumet River and the Chicago Sanitary and Ship Canal. Construction of the channel took place between 1911 and 1922. The sixteen-mile-long waterway serves as a navigational channel for barges, industry, and wastewater. During construction, land along the channel was disturbed and soil was relocated. In Palos Heights the earthwork included creation of a storm-water detention lake.

What the Sanitary District of Chicago did not envision in 1911 was that this public works effort would one day be repurposed into Lake Katherine Nature Center and Botanic Garden.

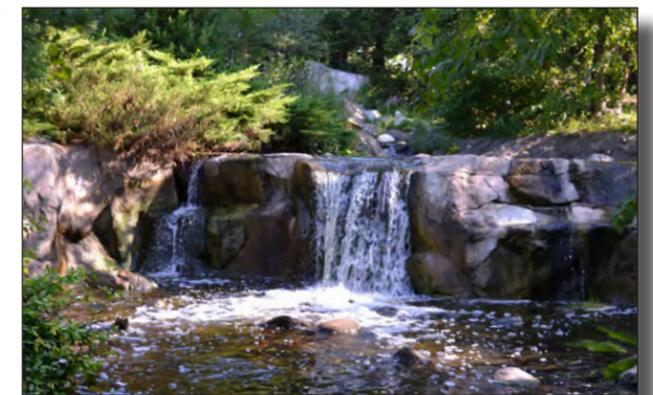
In 1985, the Mayor of Palos Heights, Eugene G. Simpson, envisioned 100 acres of land along the Cal-Sag as a respite for the residents of Palos Heights. A place away from suburban and urban life. He envisioned pines and hardwoods much like his beloved Wisconsin woods. The City board agreed and began the process of leasing land from the Metropolitan Water Reclamation District (MWRD) to create Lake Katherine. A formal lease agreement was signed in 1988. The lease is for 50 year and is up in 2038. The City started the beautification and municipal funding efforts in earnest. Many City employee hours were dedicated to planting trees and removing debris to reclaim the land for public use.

Planning Background

In 2004, the City of Palos Heights commissioned a study by the Association of Nature Center Administrators to review operations at Lake Katherine. The report recognized that Lake Katherine Nature Center and Botanic Gardens has the potential to become the premier community-supported and volunteer-driven environmental learning destination in the region. The report recommended management changes to build on past success and to move Lake Katherine forward.

In 2005, Lake Katherine Nature Center and Botanic Gardens became a separate entity from the City. It now has non-profit status and a stand-alone Board. The Board guides development and maintenance of Lake Katherine and reports to the Palos Heights City Council.

In the 2006, the Board of Directors and staff created a strategic plan for Lake Katherine. In 2010, following the strategic plan, the Board and staff decided that a Master Development Plan was needed to guide the site and create standards for all future work. In 2011, the Board brought Upland Design Ltd. aboard to develop that plan.



Waterfall Garden

Planning Approach

A three-phase approach was delineated to create the Lake Katherine Nature Center and Botanic Garden Master Development Plan.

Phase one began with a site inventory and analysis. This included a review of plant materials, existing gardens, buildings, pedestrian paths as well as vehicular circulation and adjacent land use. The information is presented in map and written format. These are included in the final document accompanied with a summary of findings.

Phase two concentrated on goal defining and gathering input through focus group meetings. Community involvement was instrumental in choosing the path that the process took. This phase overlapped into the final phase—creation of the master plan. This allowed the focus group members and the public to continue to give input and feedback on the documents as they were developed and ensured that the plan met the needs of the community and the larger vision for Lake Katherine.

Funding

In 1986, Palos Heights established the Lake Katherine Tax Increment Financing District (TIF) to assist with funding the conservation area and site improvements. This dedicated funding source continued until 2005 when it was dissolved so that the City could focus on a new TIF district—Palos Heights Gateway Redevelopment Area—to encourage commercial development on nearby Harlem Avenue. The new redevelopment area includes the western portion of the Lake Katherine site. However, with the current economic downturn in both commercial and residential development, the future of this redevelopment is on hold. Nonetheless, the community continues to support Lake Katherine through projects like the recent development of the Lake Katherine Anniversary Garden. This portion of lake front improvement was completely funded by Palos Heights Woman's Club members and community donations. Another recent show of support is the donor provided addition of ten new rental canoes.

Funding sources will continue to be key to the future development of Lake Katherine. A summary of potential funding sources with budgets for capital improvements is made in the appendix section.



Boat Rental Area

Process



2.0 SITE ANALYSIS

Site Analysis Summary

A master plan begins with a realistic evaluation of existing conditions. Both natural and built systems were reviewed by the design team so that recommendations could be prepared. Brief recommendations are listed in each section immediately following the record of observations and analysis. The following site assessment is the basis for which site development priorities were built upon.

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REGIONAL CONTEXT

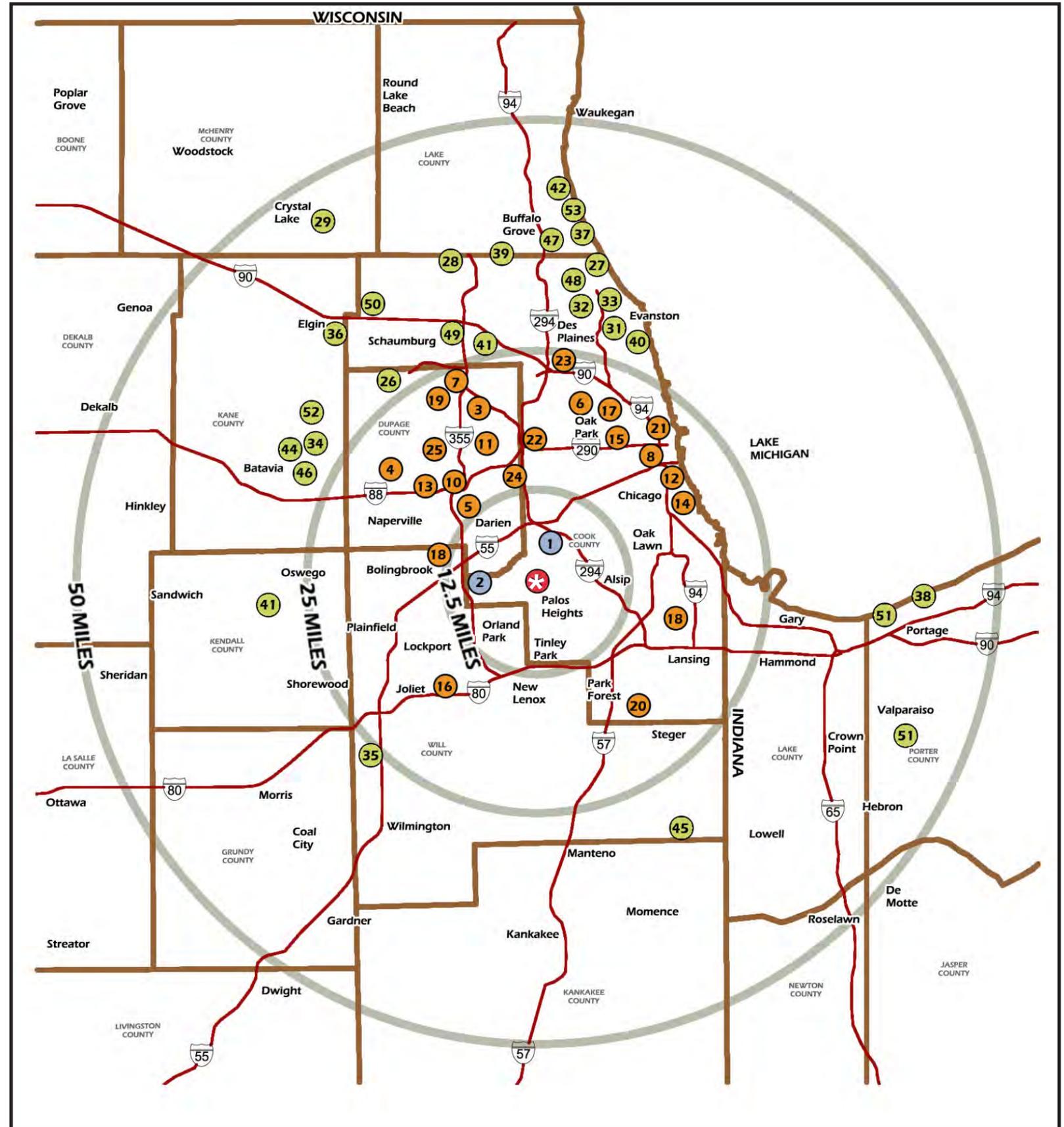
Nature Centers & Botanic Gardens Located in the Chicago Area

The map shows Lake Katherine at the center of three proximity rings. It highlights the fact that only two other nature centers are within 12.5 miles of Lake Katherine.

When one looks to the next ring, at 25 miles from Lake Katherine, there is a predominance of sites located in DuPage County and the central and northern parts of Cook County. Southern Cook County and Northern Will County have very few nature center locations.

Recommendation:

As Lake Katherine expands facilities and programs it will be important to market to areas where there is a lack of existing facilities. Reaching out to these identified underserved areas will provide new visitors, program participants and patrons.



LAKE KATHERINE NATURE CENTER AND BOTANIC GARDENS

 7402 W. Lake Katherine Dr.
Palos Heights, IL 60463

NATURE CENTERS & BOTANICAL GARDENS WITHIN 12.5 MILES OF LAKE KATHERINE

- | | |
|--------------------------------------------------------------|-------------------------------------------------------|
| 1 Little Red Schoolhouse Nature Center
Willow Springs, IL | 2 Sagawau Environmental Learning Center
Lemont, IL |
|--------------------------------------------------------------|-------------------------------------------------------|

NATURE CENTERS & BOTANICAL GARDENS WITHIN 25 MILES OF LAKE KATHERINE

- | | |
|------------------------------------------------------|---------------------------------------------------------------------|
| 3 Cabin Nature Center
Wood Dale, IL | 15 Oak Park Conservatory
Oak Park, IL |
| 4 Cantigny Park
Wheaton, IL | 16 Pilcher Park Nature Center
Joliet, IL |
| 5 Fullersburg Woods Education Center
Oakbrook, IL | 17 Prairieview Education Center
River Forest, IL |
| 6 Harold Tyrell Trailside Museum
River Forest, IL | 18 Sand Ridge Nature Center
South Holland, IL |
| 7 Flint Creek Wildlife Rehabilitation
Itasca, IL | 19 Spring Brook Nature Center
Itasca, IL |
| 8 Garfield Park Conservatory
Chicago, IL | 20 Thorn Creek Nature Center and Preserve
Park Forest, IL |
| 9 Hidden Oaks Nature Center
Bolingbrook, IL | 21 University of Chicago Botanic Garden
Chicago, IL |
| 10 Lake View Nature Center
Oakbrook Terrace, IL | 22 Wilder Park Conservatory
Elmhurst, IL |
| 11 Lilacia Park
Lombard, IL | 23 Wildwood Nature Center
Park Ridge, IL |
| 12 Lincoln Park Conservatory
Chicago, IL | 24 William F. Sherman, Jr. Interpretive Center
Downers Grove, IL |
| 13 Morton Arboretum
Lisle, IL | 25 Willowbrook Wildlife Center
Glen Ellyn, IL |
| 14 North Park Village Nature Center
Chicago, IL | |

NATURE CENTERS & BOTANICAL GARDENS WITHIN 50 MILES OF LAKE KATHERINE

- | | |
|-----------------------------------------------------------------|---------------------------------------------------------------|
| 26 Bartlett Nature Center
Bartlett, IL | 40 Ladd Arboretum & Evanston Ecology Center
Evanston, IL |
| 27 Chicago Botanic Garden
Glencoe, IL | 41 Laws of Nature Center
Yorkville, IL |
| 28 Crabtree Nature Center
Barrington, IL | 42 Lockhart Family Nature Center
Lake Forest, IL |
| 29 Crystal Lake Park District Nature Center
Crystal Lake, IL | 43 Olmstead Nature Shack
Elk Grove, IL |
| 30 Dunes Nature Center
Chesterton, IN | 44 Peck Farm
Geneva, IL |
| 31 Emily Oaks Nature Center
Skokie, IL | 45 Plum Creek Nature Center
Beecher, IL |
| 32 Evelyn Pease Tyner Interpretive Center
Glenview, IL | 46 Red Oak Nature Center
Batavia, IL |
| 33 The Grove National Historic Landmark
Glenview, IL | 47 Rivershire Park and Nature Center
Lincolnshire, IL |
| 34 Fabyan Japanese Garden
Geneva, IL | 48 River Trail Nature Center
Northbrook, IL |
| 35 Four Rivers Environmental Education Center
Channahon, IL | 49 Spring Valley Nature Center
Schaumburg, IL |
| 36 Hawthorne Hill Nature Center
Elgin, IL | 50 Stillman Nature Center
South Barrington, IL |
| 37 Heller Nature Center
Highland Park, IL | 51 Taltree Arboretum & Gardens
Valparaiso, IN |
| 38 Indiana Dunes State Park Nature Center
Chesterton, IN | 52 Tekakwitha Nature Center
St. Charles, IL |
| 39 Kildeer Nature Center
Kildeer, IL | 53 Wildlife Discovery Center at Elawa Farm
Lake Forest, IL |

NEIGHBORHOOD CONTEXT



Surrounding Land Use

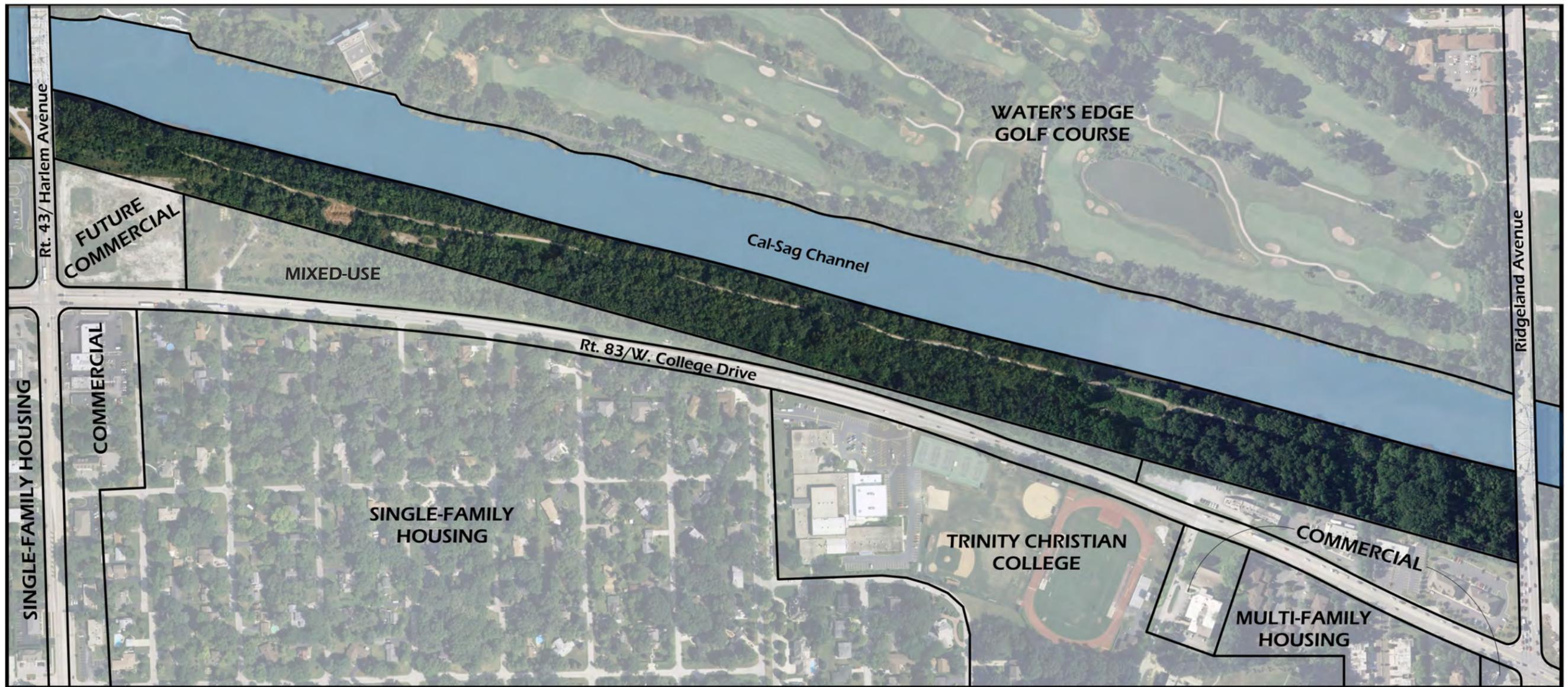
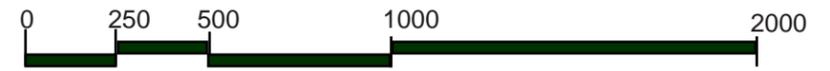
Lake Katherine Nature Center and Botanic Gardens is bordered to the north by the Cal-Sag Channel. Across the channel are a number of public properties including a Metra Station, Altman Park and the Water's Edge Golf Course. To the south of the site's west portion is multi-family housing and commercial properties. Land use to the south of the site's eastern portion is a neighborhood of single family houses where residents must cross busy Route 83 to reach the site. A foot path on the north side of Route 83 is heavily used and allows some site access. Finally the property's far east end is adjacent to Trinity Christian College and more commercial areas bordering Harlem Avenue at Route 83.

Located within Palos Heights, Lake Katherine is ideally situated to serve the residents with educational opportunities as well as a beautiful natural setting for recreation. Its proximity to nearby commercial and retail centers provide further uses for meeting and event spaces.

Lake Katherine is a well-used site with multiple pedestrian entry points and one public vehicular entry point. The present main access is via Lake Katherine Drive from Route 83 (College Drive). Pedestrians can access the trails from sidewalks at Route 171/Southwest Highway and along Ridgeland Avenue. Additionally, users from properties to the south of Lake Katherine have created a number of informal dirt footpaths. The pedestrian entry points beyond the main entry are not signed and visitors often do not realize they are entering the Lake Katherine site.

Recommendation:

Create a sense of entry at designated trail and roadway entry points. Entry features may include signage, landscape features and entry monuments. Entry areas may necessitate access control measures.



CIRCULATION & ACCESS

Auto Access

Within the boundaries of Lake Katherine, automobile traffic is limited to the main parking lot off Lake Katherine Drive and a small maintenance road. This road provides staff and handicap accessible parking just east of the cluster of buildings. Maintenance vehicles are allowed on the few paved paths as well as the wood chip trails. Additionally, a maintenance access point exists east of Harlem Avenue that allows access to a City wood chip storage area as well as the east trails.

Pedestrian Access

The majority of visitors utilize the one-mile wood chip walking trail loop around the lake. The existing trail system meanders east from the nature center through the Buzz and Bloom Prairie and under Harlem Avenue. It then runs along the Cal-Sag Channel ending just before Ridgeland Avenue. A few trail spurs exist that take visitors to see the Cal-Sag and other minor viewing areas. On the west, a shorter trail continues from the Lake loop and ends at a utility easement near the railroad bridge.

Bicycle Access

Currently, bicycles are not allowed on Lake Katherine trails. In 2013, the Cal-Sag multi-use trail will be constructed. The trail, as shown on the map below with a yellow dotted line, will welcome cyclists, as well as pedestrians with non motorized access to the site. The entire Cal-Sag trail will stretch over 16 miles and bring many visitors to Lake Katherine.

Parking

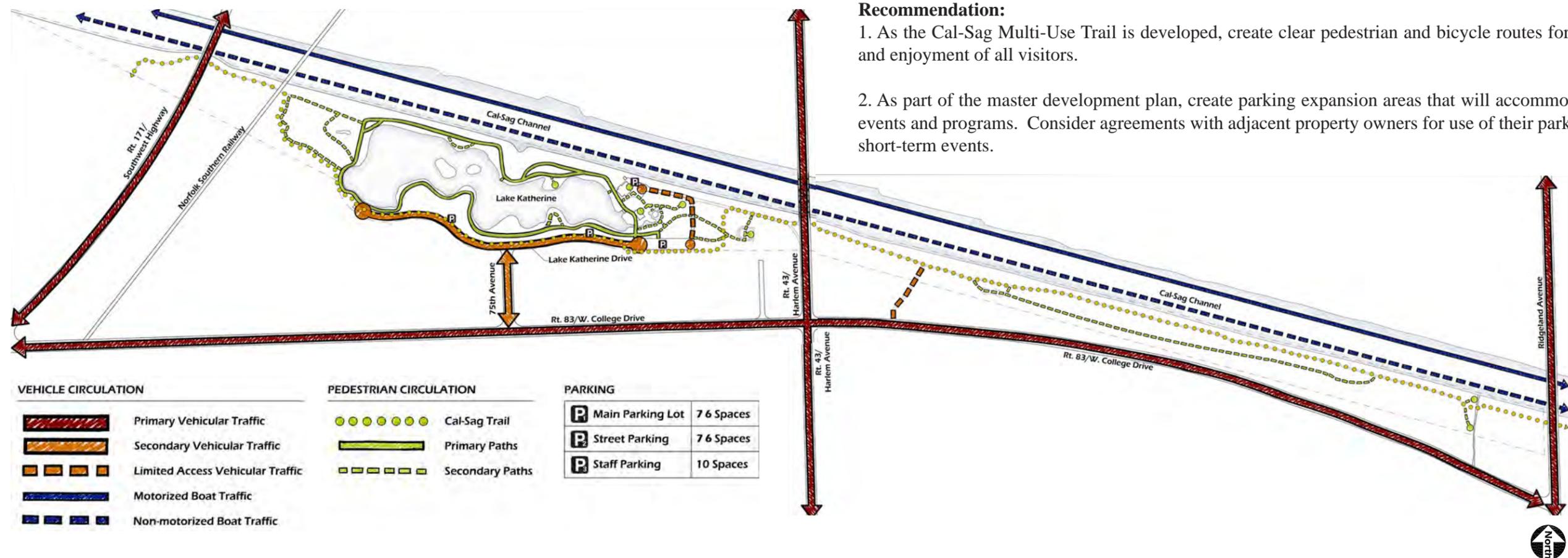
Visitor car parking is in the main lot on the north side of Lake Katherine Drive and along the entrance Street. A small staff parking lot east of the buildings has two handicap accessible spaces and is adjacent to the maintenance area outdoor storage. The total street and on-site parking is approximately 162 spaces.

When large community events are held at Lake Katherine, such as the Butterfly Fest, parking overflows onto adjacent off-site commercial lots to the south of the site. Because these events are usually on weekends when the commercial lots are getting low use, there have not been conflicts.

As Lake Katherine expands its activities and encourages more site use, greater on-site parking will be needed. Additionally, Lake Katherine will become a major trail head for the Cal-Sag trail and planning for that use is prudent.

Recommendation:

1. As the Cal-Sag Multi-Use Trail is developed, create clear pedestrian and bicycle routes for the safety and enjoyment of all visitors.
2. As part of the master development plan, create parking expansion areas that will accommodate larger events and programs. Consider agreements with adjacent property owners for use of their parking during short-term events.



Accessibility

Accessibility is governed by the Federal government through the Justice Department and by the State of Illinois through the Illinois Capital Board. Each has created and maintains standards by which all public facilities including Lake Katherine shall abide. Accessibility includes both permanent facilities as well as the ability for persons with disabilities to attend and participate in programs and events at the site. In this plan, the focus will be on current and future permanent facilities.

Trails: Federal Regulations set forth in the updated Federal 2010 ADA Standards for Accessible Design state, “Floor and ground surfaces shall be stable, firm, and slip resistant” (Section 302.1). These surfaces should resist deformation and remain unchanged by applied force. The existing trail system is predominantly a wood chip surface does not meet the Federal definition of accessible surfacing. The nature of wood chip surfacing makes it difficult to maintain a consistent and accessible cross slope and running slope. Where running slopes exceed 5.00% handrails and landings are required.

Parking Lot: Persons with mobility issues can park adjacent to the Nature Center in a small parking lot marked with ADA spaces. The main parking lot is currently gravel and is not accessible. Additionally, the route from the main parking lot to the two public buildings is not accessible because of material and changes in slope.

Primary Function Areas: Existing destinations and unique activity areas within Lake Katherine such as the lake walking loop, the Herb Garden or the Heritage Garden are not currently accessible. This is mostly for lack of an accessible route and the type of surfacing within the activity area. Newer facilities such as the Anniversary Garden do meet the Federal ADA standards, but again the route to the facility may not meet current standards. The interior of buildings was not part of the master development plan, but these areas should also be reviewed to ensure they meet current ADA standards.

Recommendation:

1. It is recommended that accessibility improvements become a priority for future capital projects to ensure the site, its buildings and its unique activity areas are accessible to visitors of all abilities. The most recent Federal Standards require that all new facilities, additions to facilities and alternations affecting primary function areas shall be brought into compliance with ADA standards. Facilities may include both buildings and outdoor site elements.

2. To encourage people of all abilities to explore and enjoy Lake Katherine, an aggressive plan to upgrade the main trails to meet federal ADA standards along with parking lot and access to main activities areas should be undertaken. A description of potential paving materials that meet ADA is found in the Design Manual in Section 5.0.

3. An ADA audit of the interior spaces in all buildings should be undertaken to prioritize and budget for interior improvements.

Resources:

Federal ADA Standards: <http://www.ada.gov/regs2010/2010ADASTandards/2010ADASTandards.pdf>
 Illinois Accessibility Code: <http://www.cdb.state.il.us/IAC.shtml>

Existing Signage

Well-designed signage lets visitors know they have arrived at a special place. It also shapes and defines the experience. The current signage styles and types represent the evolution of the site over the past 20 years. Existing trails have minimal signage directing visitors to amenities or gardens. Below are examples of interpretive, way finding and rule signs found at Lake Katherine. The signs vary in design and an overall system of way finding is not apparent.

Recommendations:

Create a uniform sign package with a hierarchy of sizes and types that provides way finding, interpretation and guidelines.

1. The way finding package should include comprehensive site map that coordinates with directional signs and announcement of arrival to specific amenities and gardens throughout the site.
2. Interpretive signage should be developed to enhance the nature center experience at Lake Katherine. These should be geared to both adults and children alike.
3. Guidelines for visitors should express in the positive and should reflect the current allowed uses at the site.
4. Include ADA compliance in sign design.



Rule Signage



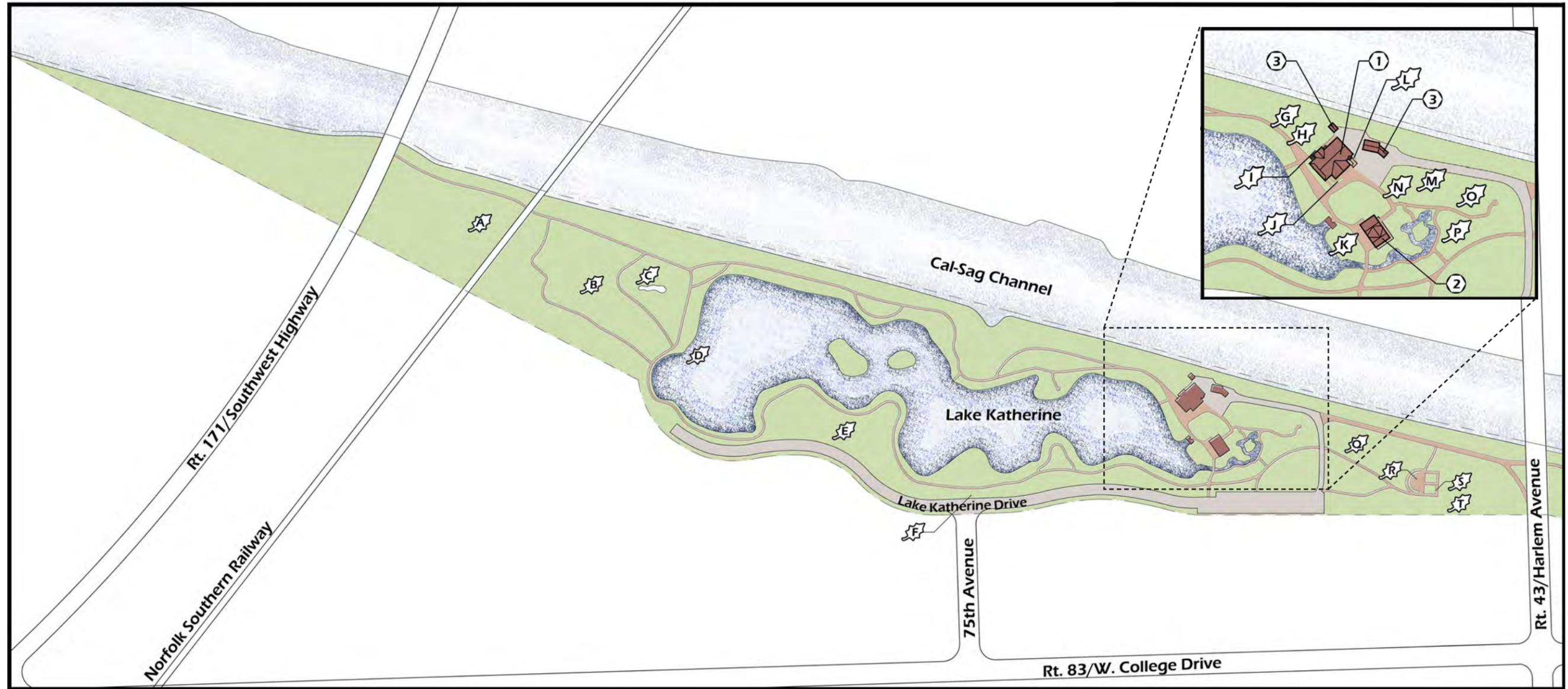
Way Finding Signage



Interpretive Signage



EXISTING GARDENS & BUILDINGS



Gardens

There are twenty-one named garden areas within the Lake Katherine site. Generally, they vary from one another based on plant material type and they are thematically different. Their size varies from a single planting bed to several acres. Gardens adjacent to each other often flow into one another without distinct boundaries. In some cases, such as the Dahlia Garden, they were formed because a dedicated volunteer group planted and now maintains them. Other gardens seem to have obtained named status based on previous use or programs. Visitors can have a difficult time locating a specific garden. Some are mentioned on flyers or site maps while others are not. Many are identified with signs at their edges, but others lack signs.

Fast facts:

- The newest garden is the Anniversary Garden built in 2010 at the lake's edge, donated by the Palos Heights Woman's Club
- There are two butterfly gardens; the Bird & Butterfly Garden and the Butterfly Garden.
- The Waterfall Garden area is the most visited garden.
- Volunteers care for much of the ornamental gardens.

Recommendations:

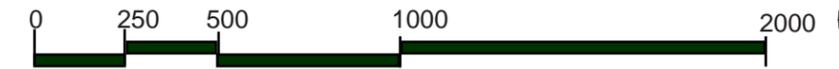
- A consolidation of gardens should be considered with a tie to the overall mission of Lake Katherine. Gardens can also serve interpretive programs, educational opportunities and natural restoration work.
- Updating and publishing a site map with garden locations will enhance visitor experiences.

GARDENS

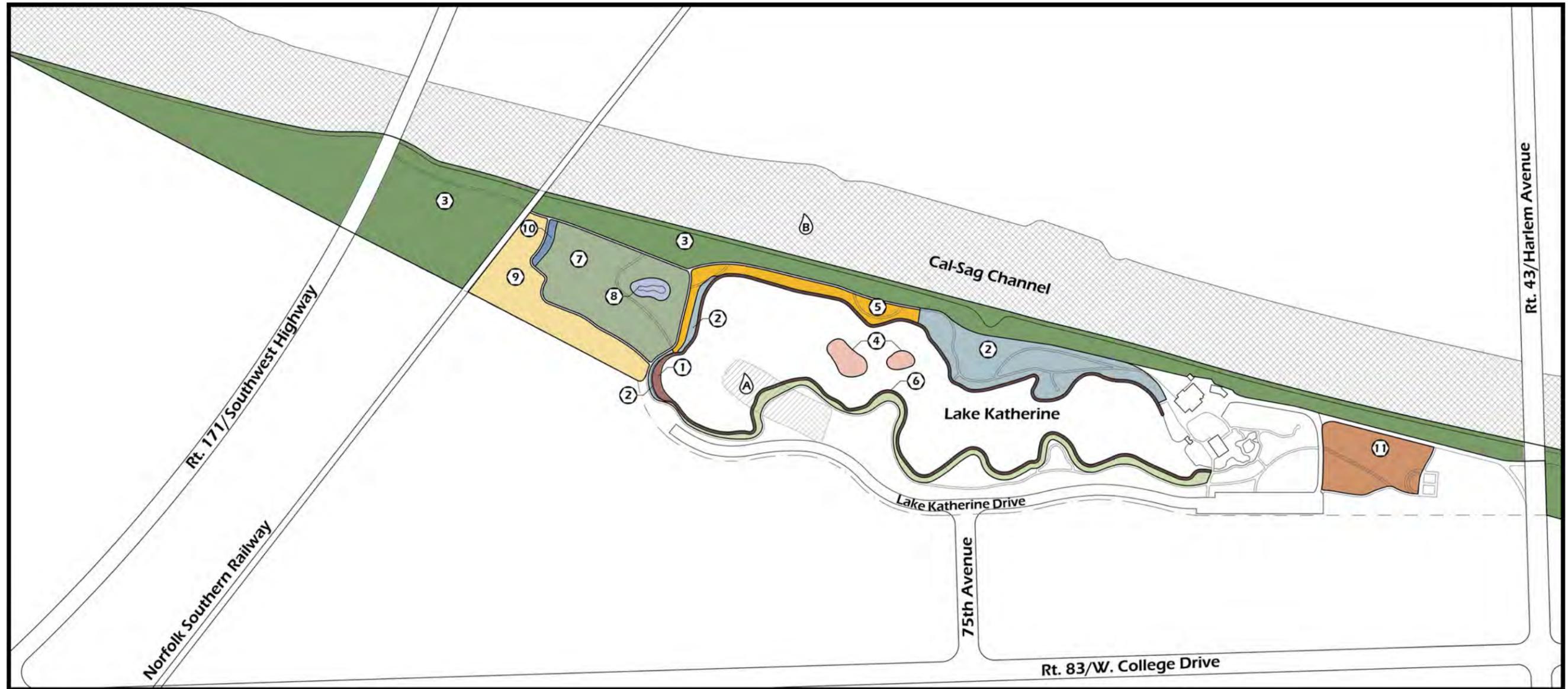
- | | | | | |
|-----------------------------|------------------------------|----------------------------------|---------------------------------------------------------|-------------------------|
| A Western Preserve | F Entrance Garden | K Anniversary Garden | P Waterfall Garden | U Eastern Trails |
| B Children's Forest | G Butterfly Garden | L Alpine Rock Garden | O Buzz N' Bloom Prairie | |
| C Ephemeral Wetlands | H Herb Garden | M Hosta Garden | R Farm Implements & Crops | |
| D Turtle Bay | I Rhododendron Garden | N Bird & Butterfly Garden | S Heritage Garden | |
| E Arboretum | J Dahlia Garden | O Conifer Garden | T Loretta Kupchick Woodland
Wildflower Garden | |

BUILDINGS

- ① Brigid O'Malley Auditorium & Nature Learning Center
- ② E.G. Simpson Club House
- ③ Maintenance Building & Storage



VEGETATIVE COMMUNITIES & WETLANDS



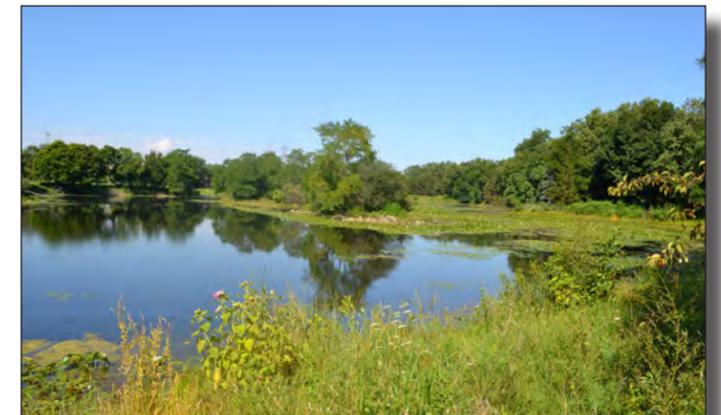
Plant Community Assessment

As part of the site analysis, the Master Plan Team completed Plant Community Mapping and Quality Assessment of natural areas. This allowed staff to examine existing conditions and rate ecological integrity of the plant communities. Eleven vegetated communities were observed on site. These are valuable because of their uniqueness in the Chicago metropolitan area. A total of 162 plant species were observed with 104 of those being native plants to northern Illinois.

The wide range of plant communities creates a natural habitat education opportunity. Each community ranges in quality from moderate to low. The highest quality community being the Emergent Wetland located in the Children's Forest (labeled #8). This area was planted in 2011.

There were no endangered species found, but there are invasive species and in some areas they have become dominant such as the Buzz N' Bloom Prairie. Detailed descriptions of the assessment can be found in the appendix.

Recommendation:
Create a plan to restore natural areas with ecological restoration and an on-going management plan.

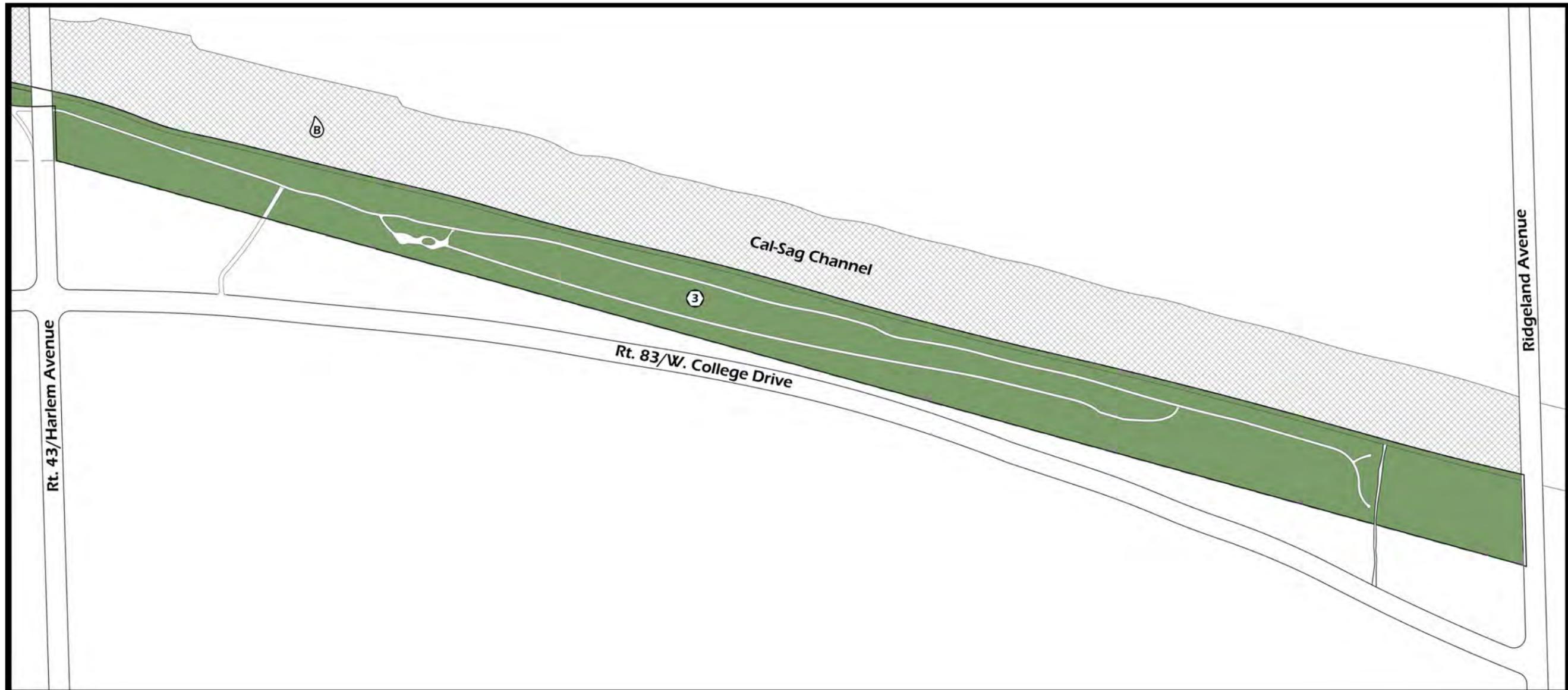
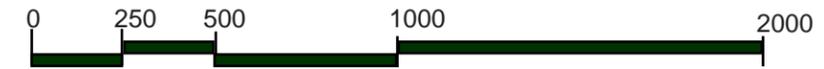


VEGETATIVE COMMUNITIES

- | | |
|------------------------------------|------------------------------------|
| ① Emergent Wetland | ⑦ Savannah |
| ② Sideslope Prairie | ⑧ Emergent Wetland |
| ③ Deciduous Forest/
Scrub/Shrub | ⑨ Deciduous Forest/
Scrub/Shrub |
| ④ Island (Scrub/Shrub) | ⑩ Emergent Wetland |
| ⑤ Coniferous Forest | ⑪ Buzz & Bloom Prairie |
| ⑥ Lawn Sideslope | |

NATIONAL WETLAND INVENTORY

- Ⓐ Freshwater Emergent
- Ⓑ Riverine



SOILS

Soil Classifications

There are three types of soils at Lake Katherine according to the U.S. Department of Agriculture's Natural Resources Conservation Service's National Cooperative Soil Survey. Most of the property includes soils that have been disturbed during the construction of the Cal-Sag in the early 20th century. Some of the soils have been improved over time with the addition of amendments, while much of the site has poor quality soil systems from the past disturbance. Below is a description of each soil type.

535B Orthents, stony, undulating

Landform: Flood plains Slope: 1 to 6 percent

Soil Properties and Qualities

Drainage class: Well drained

Description: This unit consists of disturbed, calcareous soil material, stones, and boulders from spoil banks that were formed during dredging operations. The surface layer is very dark grayish brown, friable stony loam about 6 inches thick. The underlying material to a depth of 60 inches or more is brown, dark yellowish brown, and yellowish brown, friable and firm stony clay loam and stony loam.

Composition: Orthents and similar soils: 90 percent

Dissimilar soils: 10 percent

Similar soils:

- Soils that contain less than 15 percent stones in the profile
 - Soils that have carbonates at a depth of more than 10 inches
 - Soils that have a seasonal high water table at a depth of less than 4 feet
- Dissimilar soils:
- The poorly drained Faxon and Sawmill soils and the very poorly drained Houghton

802B Orthents, loamy, undulating

Landform: Moraines, outwash plains, and stream terraces Slope: 1 to 6 percent

Soil Properties and Qualities Drainage class: Well drained

Description: This unit consists of disturbed soil material. The surface layer is very dark grayish brown, friable loam about 6 inches thick. The underlying material extends to a depth of 60 inches or more. It is brown and dark yellowish brown, firm clay loam and silty clay loam in the upper part and mottled yellowish brown and brown, firm loam in the lower part.

Composition: Orthents and similar soils: 90 percent

Dissimilar soils: 10 percent

Similar soils:

- Soils that contain more silt and less sand in the profile
- Soils that contain more than 15 percent gravel in the lower one-half of the profile
- Soils that have a seasonal high water table at a depth of less than 4 feet

Dissimilar soils:

- The poorly drained Drummer soils and the very poorly drained Houghton and Muskego soils in depressions and drainageways
- Soils that have carbonates at or near the surface

903A Muskego and Houghton mucks Slope: 0 to 2 percent

Landform: Till plains, outwash plains, and lake plains

Position on the landform: Depressions

Soil Properties and Qualities

Drainage class: Very poorly drained

Parent material: Muskego—herbaceous organic material over coprogenous deposits Houghton—herbaceous organic material

Composition: Muskego and similar soils: 50 percent

Houghton and similar soils: 40 percent

Dissimilar soils: 10 percent

Similar soils:

- Soils that have organic deposits less than 51 inches thick
- Soils that have carbonates at or near the surface
- Soils that have less organic matter in the surface layer
- Soils that are lighter colored in the lower one-half of the profile

Dissimilar soils:

- The poorly drained Drummer, Dunham, and Milford soils in the slightly higher positions on the landform
- Loamy Orthents in positions on the landform similar to those of the major soils

Recommendation: As new gardens and landscape areas are developed, soil testing should be done and amendments made to improve soils for the proposed uses. Where natural areas are enhanced, soil testing can assist in choosing the best plants which can thrive with the current conditions.



USGS Soil Map

3.0 CONCEPT IDEAS AND IMAGES

Concept Summary

The concept stage is an exploration into ideas and images. Each planning area is defined on the concept plan. The pages that follow expand the imagination into what Lake Katherine could be.

Concept Ideas and Images Contents

Planning Areas	20
Ideas & Images	21

PLANNING AREAS

Concept Plan

The concept plan is a broad brush approach to creating defined areas within Lake Katherine. The site is divided into planning areas that fit the landform, current eco-types and location. Physical barriers help define spaces. These include Harlem Avenue, the lake and parking access. In some instances the planning area is also a suggested use or theme that can be developed.

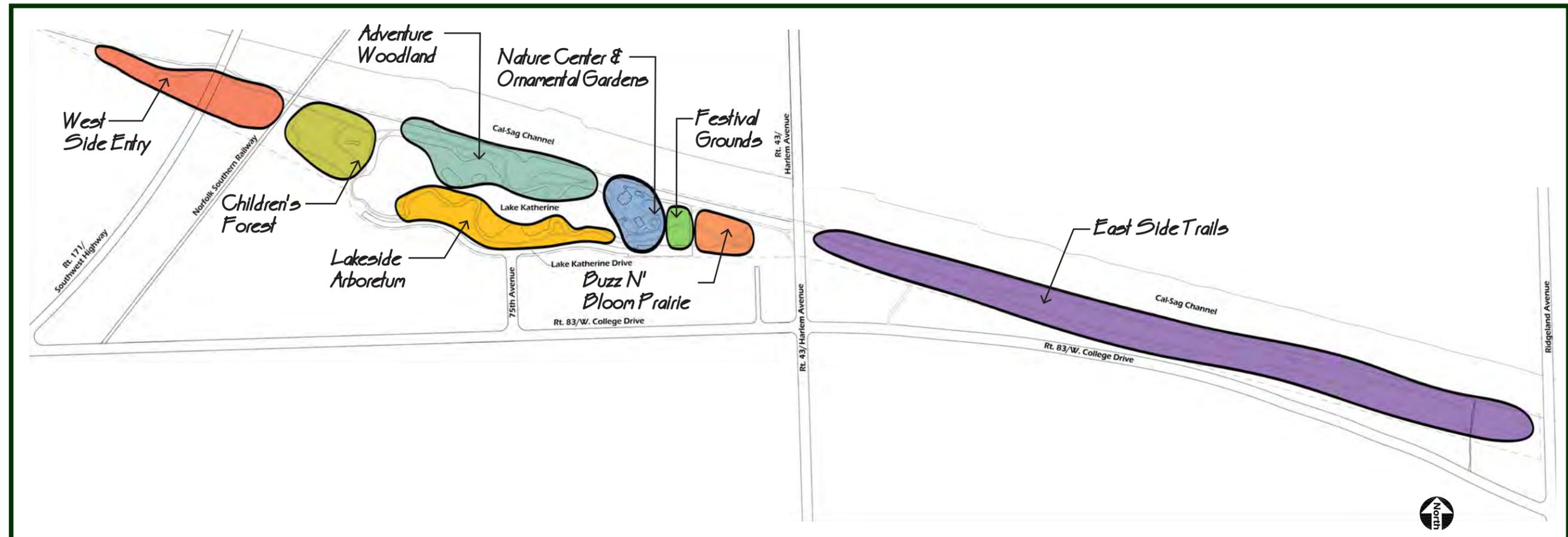
The photographs that follow are meant to illustrate the look and feel of each planning area. This visual reference provides a level of detail that is sufficient for an understanding of the project's scope, style and content.

The Master Plan focus group met to discuss the concept plan and corresponding images. Their input was incorporated by removing images and adjusting the concept plan to fit the site and its mission. Those updated plans are what follows.

Master Plan Goals

Focus group input led to many clear goals for Lake Katherine. Below are some key goals that guided the overall concept and each development area.

- * Attract lifelong learners
- * Protect the existing beauty of the site
- * Increase activities on the Lake
- * Improve habitat to attract more birds, butterflies and animals
- * Increase biodiversity to inspire exploration and research
- * Make the site people-friendly and reduce negative signage
- * Create opportunities for financial sustainability
- * Integrate the Master Site Plan with the intersecting Cal-Sag Trail plan
- * Create spaces appropriate for children
- * Increase diversity of site activities so that visitors can return many times and find new things to learn and do
- * Lake Katherine should become the natural retreat for the City of Palos Heights residents



IDEAS & IMAGES

Planning Areas

West Side Entry

Children's Forest

Lakeside Arboretum

Adventure Woodland

Nature Center and Ornamental Gardens

Festival Grounds and Buzz N' Bloom Garden

East Side Trails

West Side Entry

The West Side Entry Area is a peaceful space where native grasses, forbs and spring ephemerals can be found. The small meadow provides a spot of bright sunlight, so its edge is surrounded by flowering trees and shrub species. The Cal-Sag Trail runs through this far western part of the site welcoming visitors to the meadow with an entry monument. A smaller trail winds through the area.



IDEAS & IMAGES

Children's Forest

The Children's Forest invokes images of play and fun that lead from one exploratory activity to the next. For children, play is their work. The spaces in the future Children's Forest will encourage children to exercise their minds and bodies while playing among gardens and natural areas. Adult visitors will enjoy the folly and diverse plantings.



Let the children come. Play. Explore. Find out who they are.



IDEAS & IMAGES

Lakeside Arboretum

This passive area spotlights trees and individual shrubs with ornamental or horticultural value. The main lake loop path meanders through the arboretum with places to stop and enjoy the changing seasons. Overlook spots will bring visitors near the water for expansive views. It is a restful place that is accessible to all. It is a place of learning with signs that share the story of trees within the Chicago Region.



Adventure Woodland

The trees, trails, boardwalks, and native flowers create a sense of wonder and excitement in the Adventure Woodland. You might stumble upon an “old” shed to explore, peek out onto the sunny Cal-Sag waterway or discover tadpoles at the edge of the lake. If you are traveling with a guide, your group might happen upon a bridge, a zip line or a climbing wall. Whatever you find, it is a place where an adventure can happen any day of the week.



IDEAS & IMAGES

Nature Center & Ornamental Gardens

The Nature Center and Ornamental Gardens are the heart of Lake Katherine. Journeys into the site start here. You will find comfort with shade, rest rooms and food. Once you are ready to go, the well defined and maintained ornamental gardens await you. They include existing gardens along with renovated and new areas for all visitors to enjoy. A spot in the gardens acts as an outdoor classroom with tables and shade. Volunteers know their hard work is worth it with many families and seniors sharing the space each day.



Festival Grounds

The Festival Grounds are made for both big and small events. The area provides a flexible lawn space along with a protected tent space for three season use. In summer, concerts and outdoor theater can be found here for the entire community to enjoy. It is surrounded by prairie, woodlands and gardens.

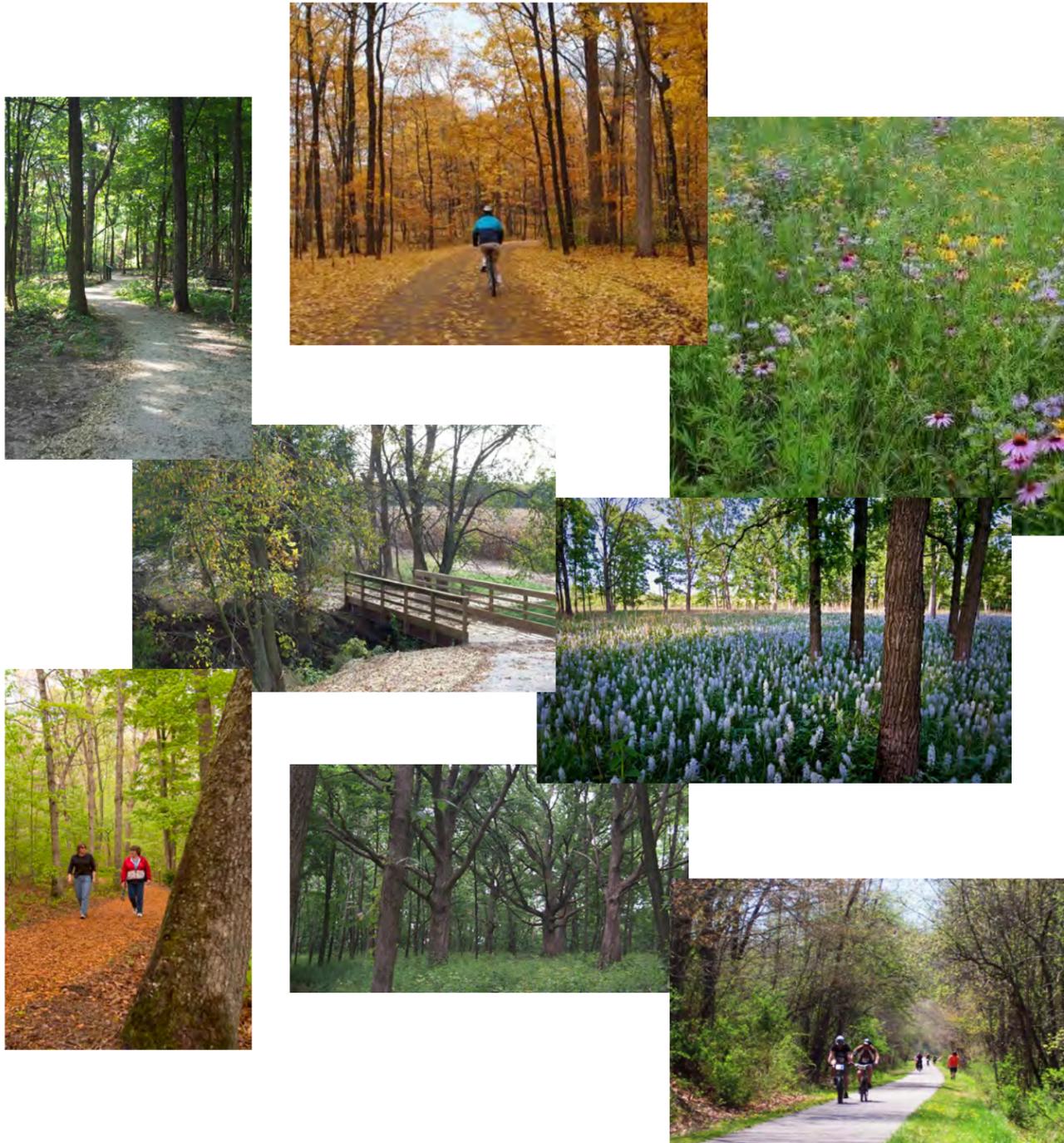


Festival: An occasion for feasting or celebration, especially a time of cultural events, performances and exhibitions.

IDEAS & IMAGES

East Side Trails

The Eastern Trails will surprise you with the various native plant communities found in Illinois. These include savannah, prairie and woodlands. As you travel through the plant communities your sense of exploration will be encouraged with views to the Cal-Sag Channel. Each plant community will be highlighted with interpretive signs showing facts about the animals, biology and history of these communities.



4.0 MASTER DEVELOPMENT PLAN

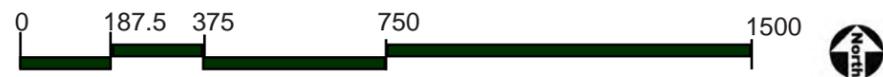
Plan Summary

The Master Development Plan is a compilation of all the input gathered through the previous phases including board, staff, focus group members and public input. The plan is a guide to help the Lake Katherine board and staff progressively grow amenities in a thoughtful manner that represents the Lake Katherine mission and vision. It is also intended to be used as a tool to generate funding for development projects through grants and fundraising.

Master Development Plan Contents

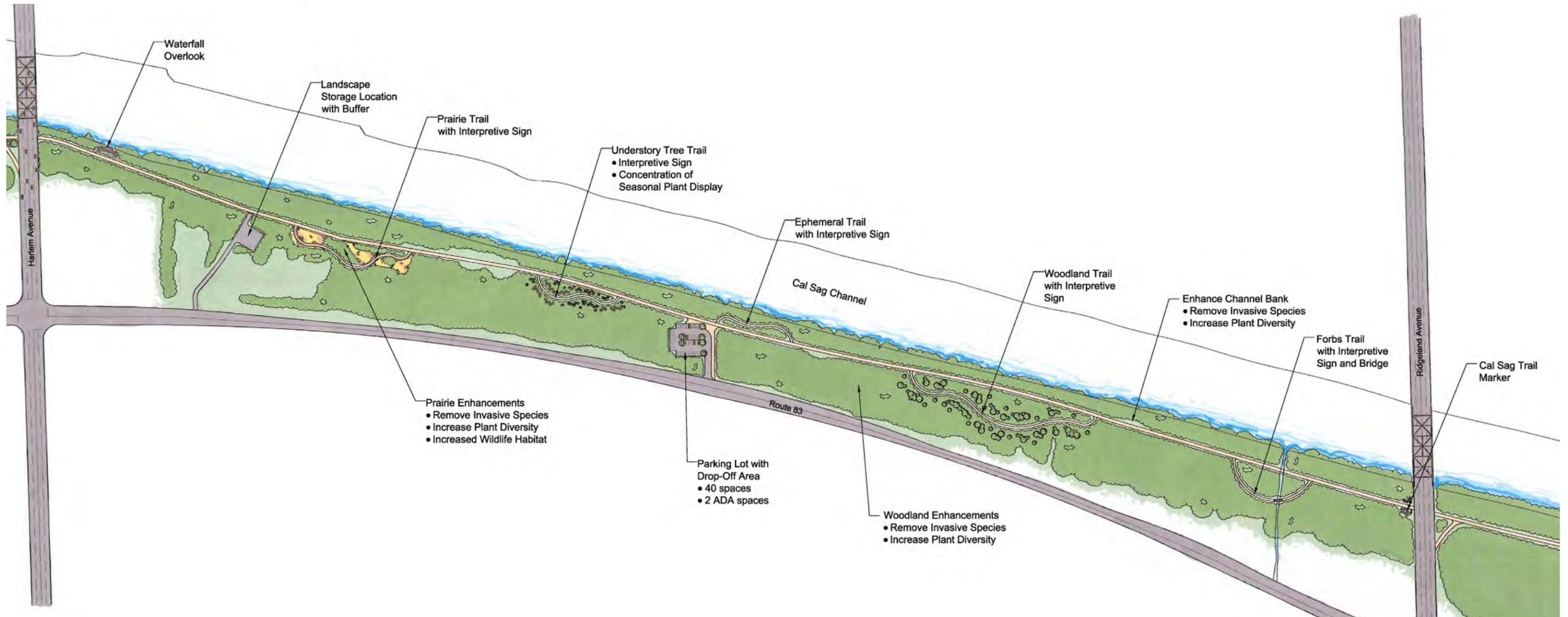
Master Site Plan	28
Central Core Enlargement.....	30
Master Site Plan Details.....	32

MASTER SITE PLAN



Master Site Plan

The Master Plan seeks to create the foremost environmental learning destination in Chicago's southern suburbs. By embracing nature through restoration and education, the plan creates passive and active recreational uses that will be unique along the Cal-Sag Channel corridor. It will also provide spaces for a wide range of programming opportunities.



CENTRAL CORE ENLARGEMENT



Central Core

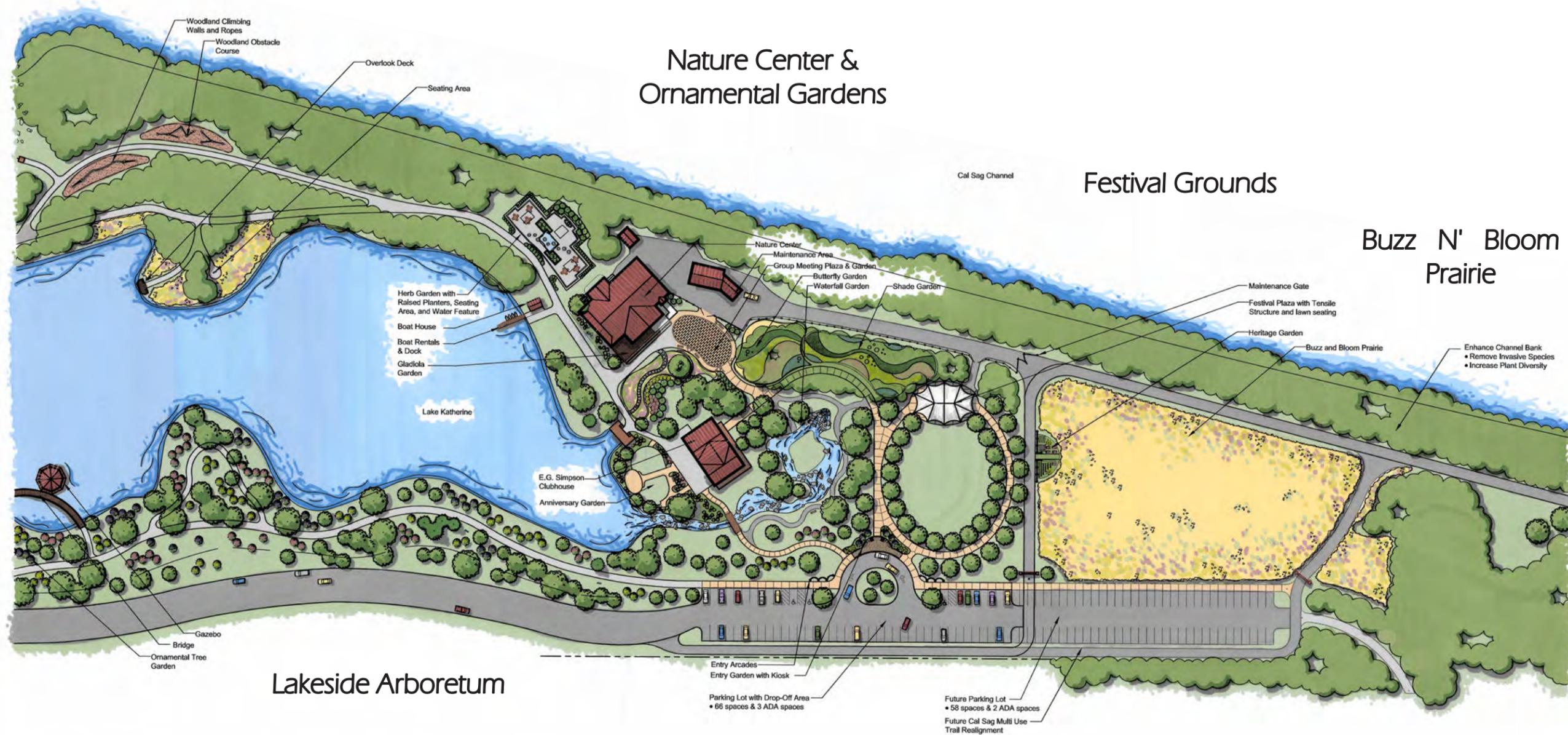
This central core area is the hub of activity and a focus of proposed future development. The following pages detail each planning area and include suggested user groups, activities and amenities

Adventure Woodland

Nature Center & Ornamental Gardens

Festival Grounds

Buzz N' Bloom Prairie

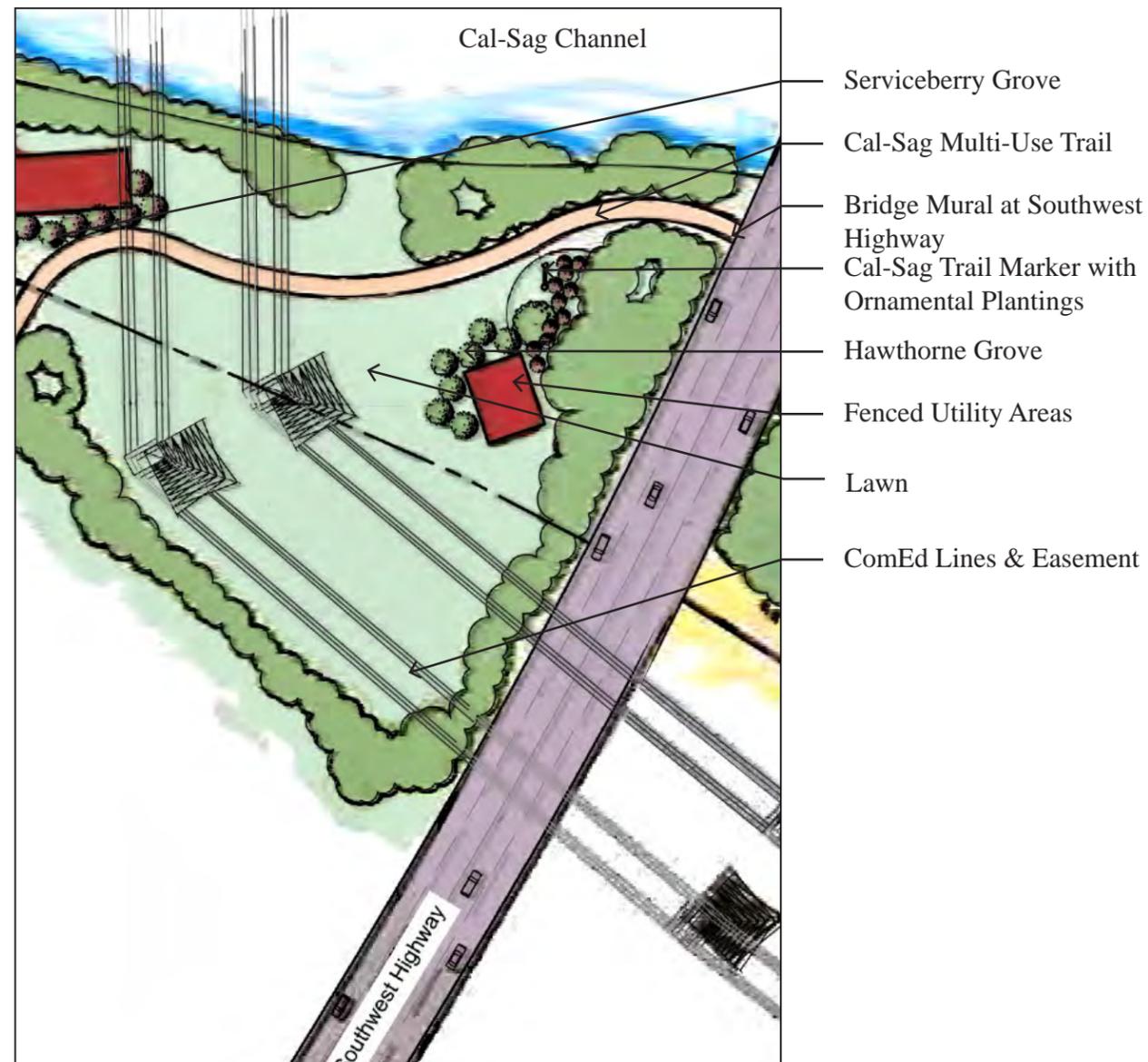


Lakeside Arboretum

MASTER SITE PLAN DETAILS

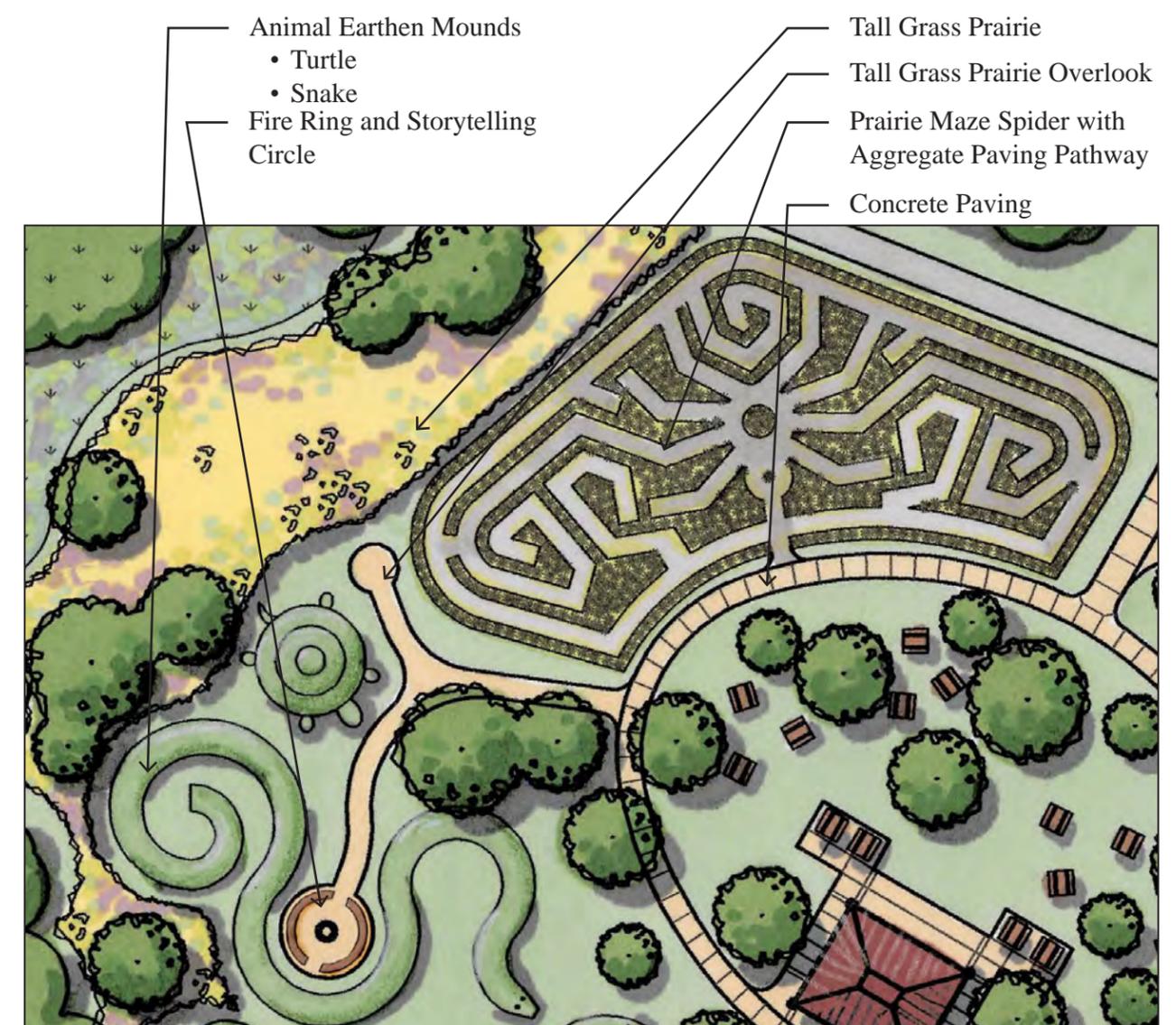
West Entry Area

Location	West area of Southwest Highway by the ComEd corridor and utility area. Cal-Sag Trail users, including bikers and pedestrians.
User Group	West end pedestrian and bicycle entry into the Lake Katherine property.
Activities	Access for utility companies as necessary
Amenities	The Cal-Sag Trail and Lake Katherine marker sign greet users to the site with landscape enhancements including maintained lawn area along the trail in addition to Serviceberry and Hawthorne groves to screen the existing fenced utility areas while still allowing maintenance access.



Children's Forest: Prairie Maze Spider

Location	Northwest Corner of the Children's Forest.
User Group	Families, scout troupes, preschool to middle school classes and medium size event groups
Activities	Public play area with nature-based theming throughout.
Amenities	Prairie Maze Spider offers a fun way to learn about prairies systems and the animal earthen mounds offer interesting play experiences for children. The Fire ring and storytelling circle add an outdoor gathering and meeting space.





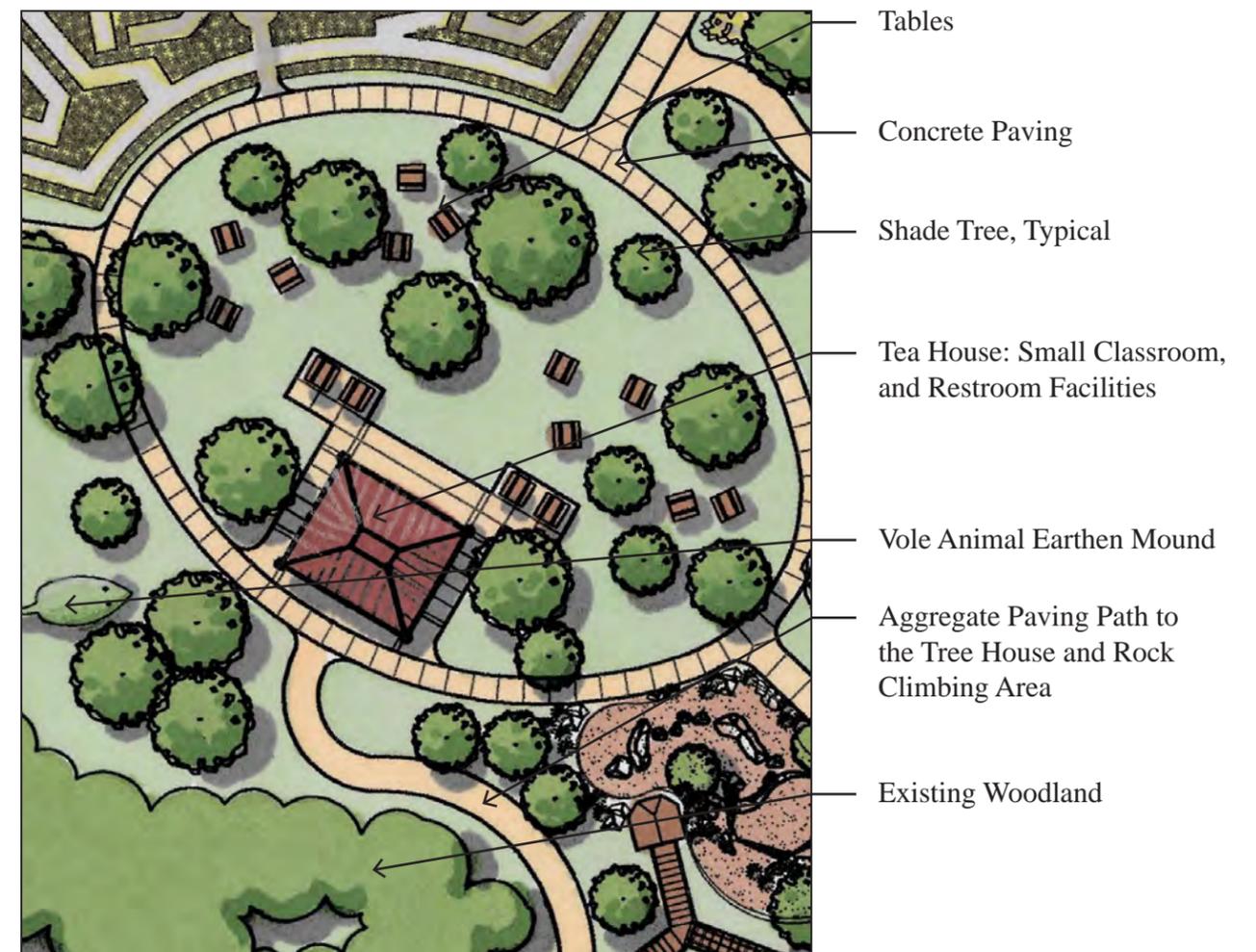
Potential Tea House Design



Alternative Prairie Style Building Designs

Children's Forest: Tea House Classroom and Restroom Building

Location	Central area of the Children's Forest.
User Group	Families, scout troupes, preschool to middle school classes and medium size event groups
Activities	Public and private educational and children's entertainment program space. The Tea House Building includes public restrooms and rentable indoor classroom space. The use of this space is an extension of the Nature Center for programs located within the vicinity of the Children's Forest.
Amenities	A concrete loop walkway around the central area with a Tea House and activity area. Indoor classroom space for approximately 15-30 people, public restrooms available during hours of operation, and an outdoor area that can accommodate approximately 100-150 people. Surrounding amenities include animal mounds, fire ring, maze, woodland climbing area and wetland boardwalk.



MASTER PLAN DETAILS



Children's Forest: Woodland Climbing Area and Tree House

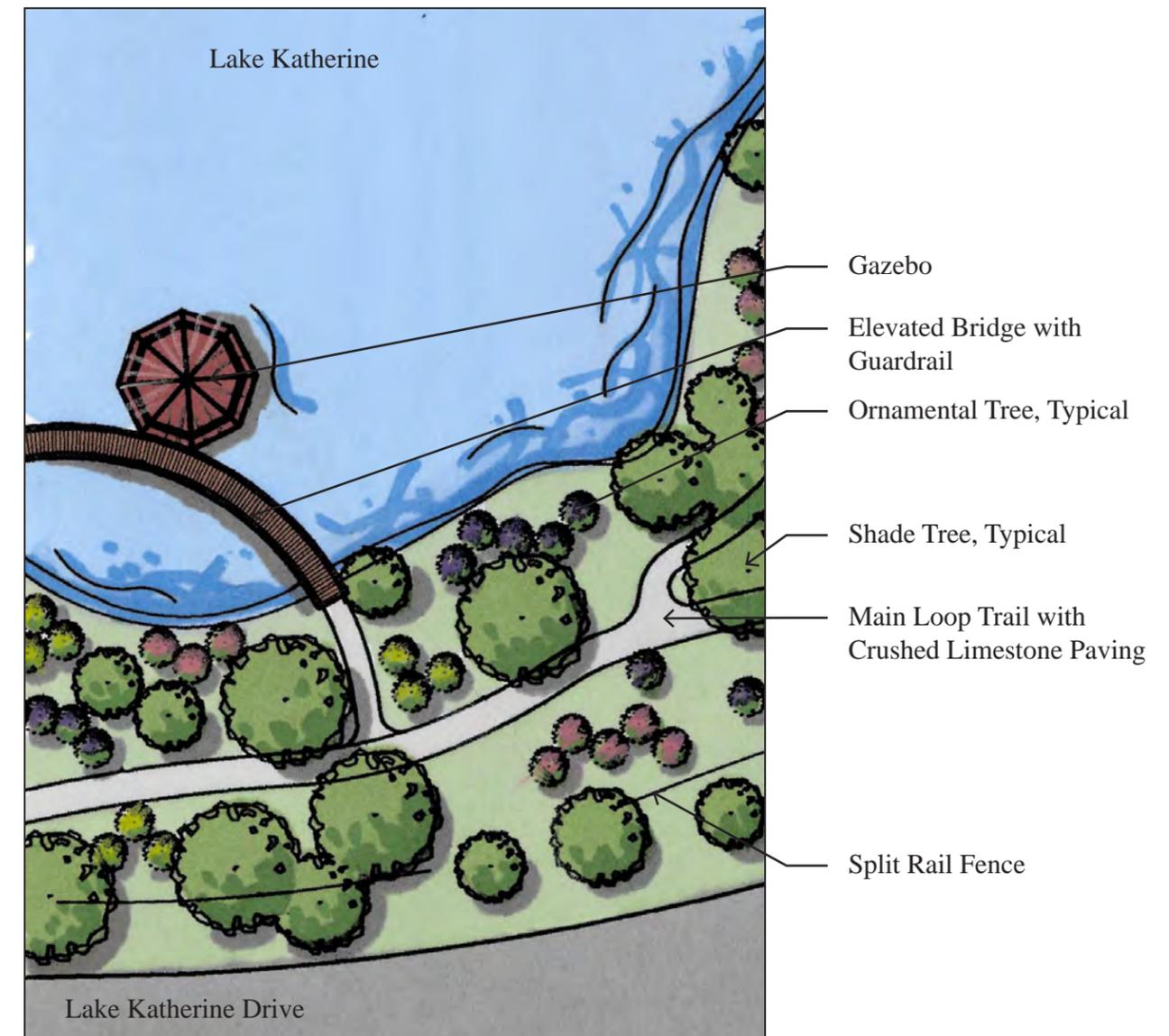
Location	Along main entry pathway of the Children's Forest.
User Group	Family oriented public play area.
Activities	Public play area with nature-based theming throughout.
Amenities	Use of the existing historical school arch acts as a gateway into the Children's Forest and trellis arches emphasize the main walkway to the Tea House. A wetland trail and boardwalk area is included as well as nature-based play elements including a rock climbing area and an woodland climbing area with tree house and overlook tower.





Lakeside Arboretum: Ornamental Tree Garden

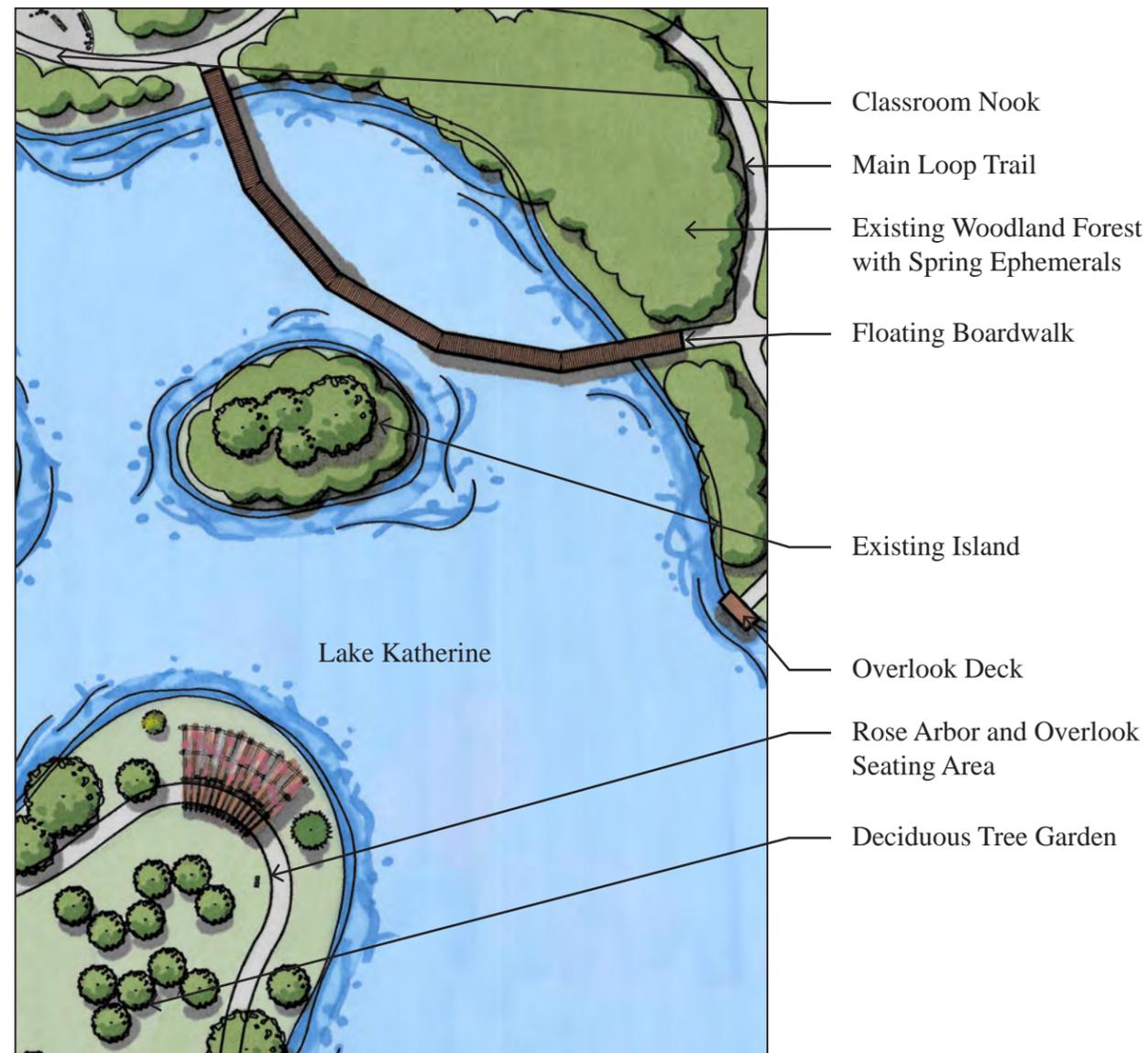
Location	Access is located off the main loop trail in the Ornamental Tree Garden within the Arboretum.
User Group	For all visitors of Lake Katherine.
Activities	Public space for scenic photos and private meditation purposes. The use of this space can also be used for private rentals, such as intimate ceremonies and picture permits. The ornamental arboretum can be used for educational tours and classes.
Amenities	An elevated boardwalk and gazebo allows users to experience Lake Katherine more intimately. The boardwalk gives a unique, picture-perfect shoreline view of the ornamental garden.



MASTER PLAN DETAILS

Lakeside Arboretum: Rose Arbor and Adventure Woodland Boardwalk

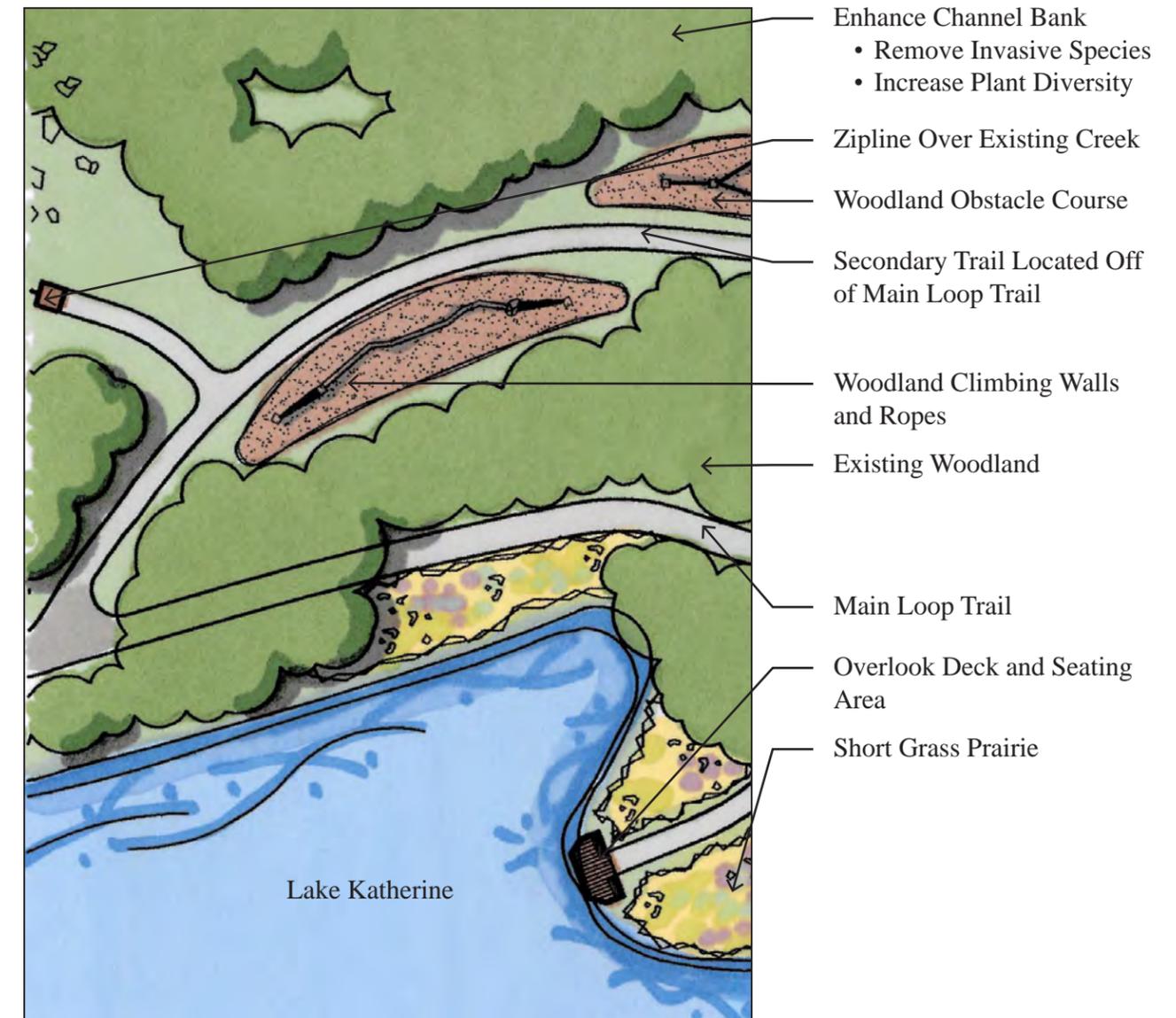
Location	Near the central area of Lake Katherine.
User Group	For all visitors of Lake Katherine
Activities	The Rose Arbor is intended as a public space for scenic and meditation purposes along the main loop trail. The use of this space can also be used for private rentals, such as intimate ceremonies and picture permits. The floating boardwalk allows users to have closer interaction with the lake and observe wildlife nesting on the islands.
Amenities	In addition to creating seasonal interest, the rose arbors hosts a shade structure with seating opportunities for users to enjoy while walking along the main loop trail. The floating boardwalk gets users closer to the water and vegetated islands for educational opportunities.



- Classroom Nook
- Main Loop Trail
- Existing Woodland Forest with Spring Ephemerals
- Floating Boardwalk
- Existing Island
- Overlook Deck
- Rose Arbor and Overlook Seating Area
- Deciduous Tree Garden

Adventure Woodland

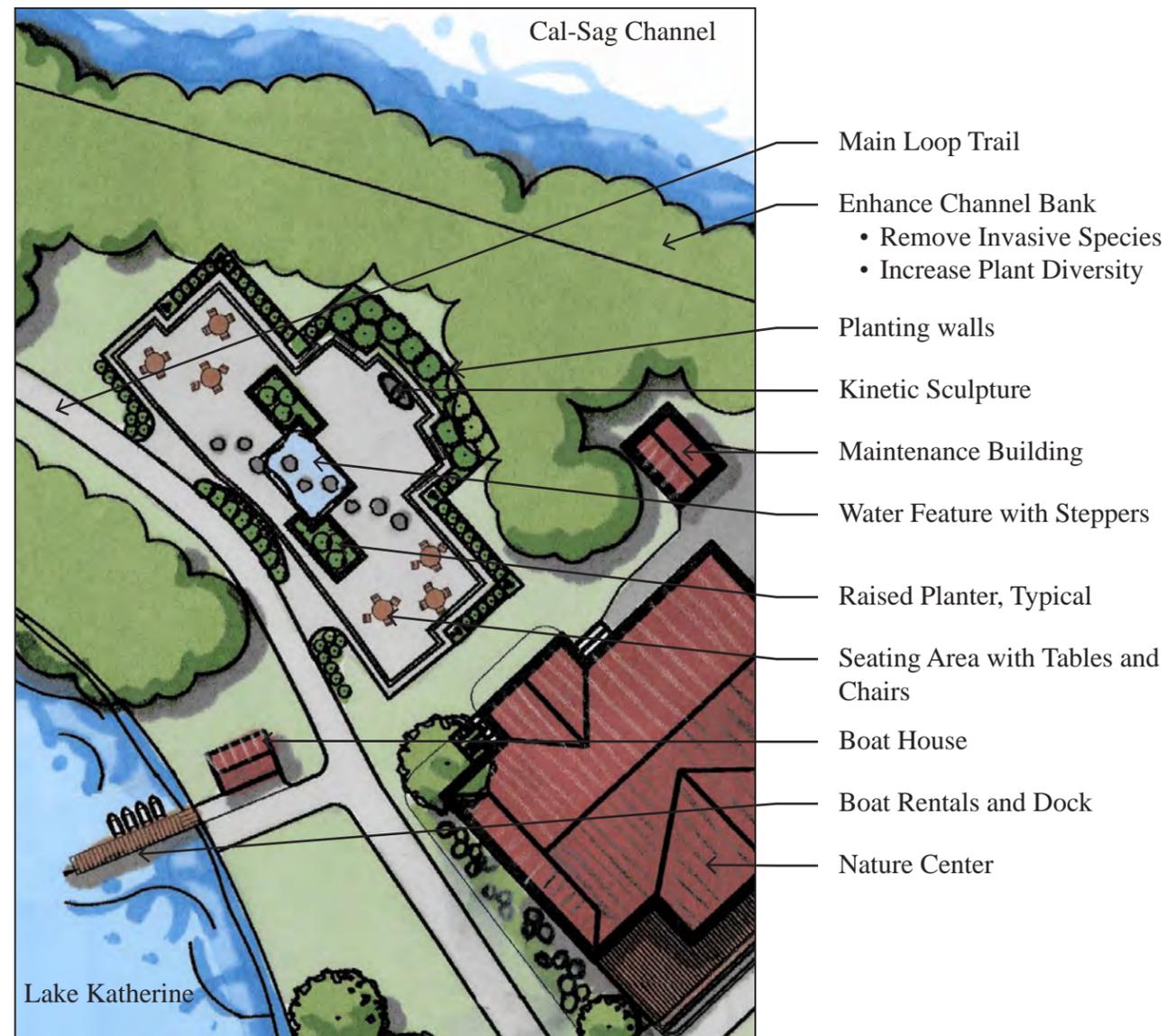
Location	Access is located off the main loop trail to the north of Lake Katherine.
User Group	Youth, corporate and community groups intended for ages 12+ with staff supervision.
Activities	Programmed space for group strength and team building exercises. The use of this space can also be open for special public use events with staff supervisors.
Amenities	An elevated zipline over the existing creek, climbing walls, and ropes course offer entertainment and educational opportunities. While the side loop offers a shorter, scenic pedestrian loop for walkers through the woodland areas. An overlook deck area spur off the main loop trail and provides great views of the lake with seating.



- Enhance Channel Bank
 - Remove Invasive Species
 - Increase Plant Diversity
- Zipline Over Existing Creek
- Woodland Obstacle Course
- Secondary Trail Located Off of Main Loop Trail
- Woodland Climbing Walls and Ropes
- Existing Woodland
- Main Loop Trail
- Overlook Deck and Seating Area
- Short Grass Prairie

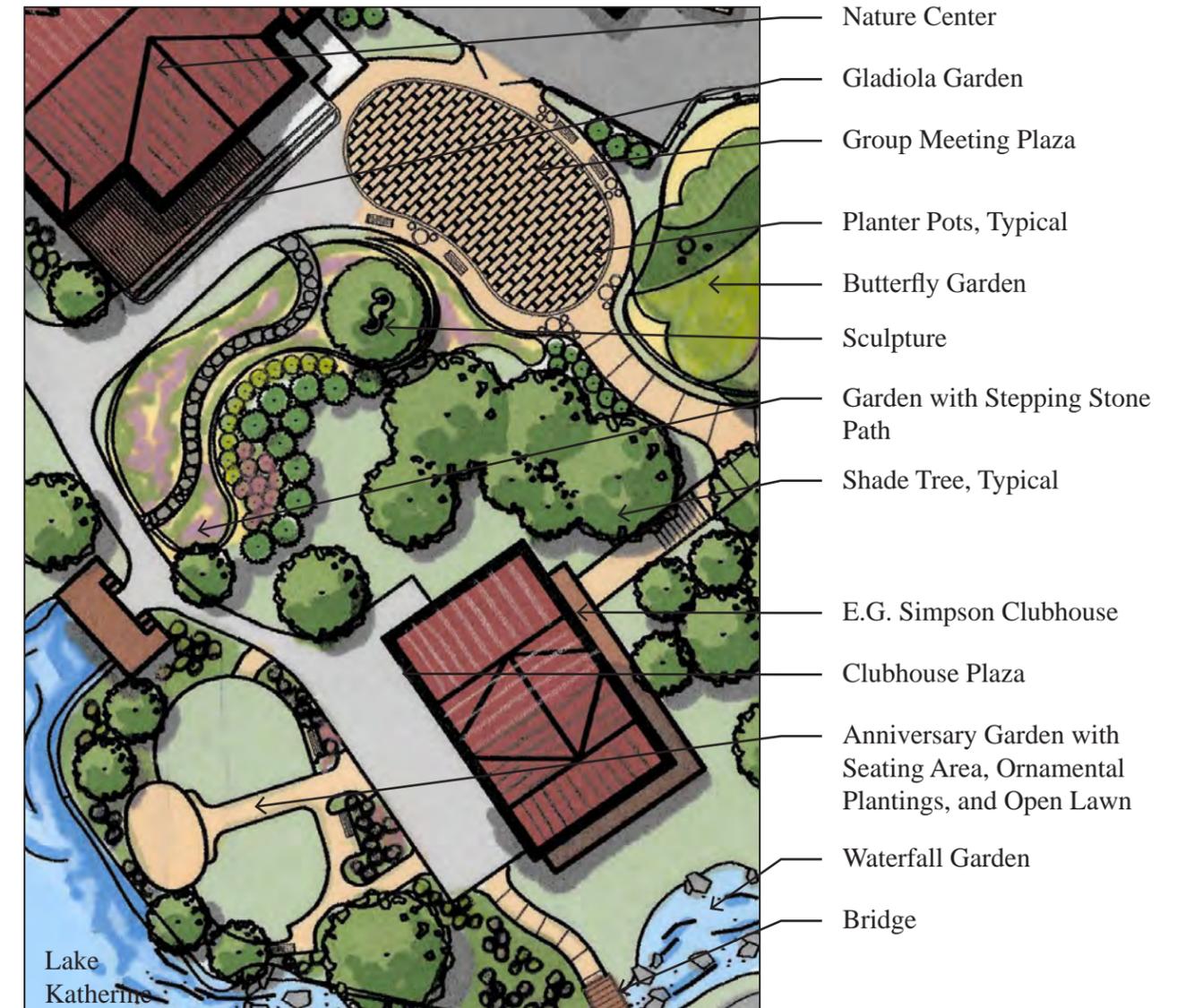
Nature Center: Herb Garden and Boat Access

Location	Access is located off the main loop trail adjacent to the Nature Center.
User Group	For all visitors of Lake Katherine.
Activities	Herb Garden raised planters for volunteer gardeners and demonstration gardens for small groups including seating areas with tables and chairs. Boat rental: for individuals and groups to rent non-motorized boats on Lake Katherine.
Amenities	Healing garden area with raised planters for therapeutic gardening and a water feature to enhance the audio sensory experience. A boat house for storage and rental office also features a floating dock and boat launch.



Nature Center: Group Meeting Plaza and Anniversary Garden

Location	Adjacent to the Nature Center.
User Group	Available for all visitors to Lake Katherine. Group Meeting Plaza especially for classes and groups to meet before leaving on a tour or class.
Activities	Group Meeting Plaza can accommodate 50-100 people. Public and private flexible event space. The Anniversary Garden is ideal for ceremonies and receptions, as well as other special fund raising events.
Amenities	Dedicated themed gardens for educational opportunities and community involvement. Large dedicated, accessible space for group meetings and ceremonies in a centralized location. A new bridge across the waterfall gardens for a main access to the Nature Center and Clubhouse and adjacent gardens.

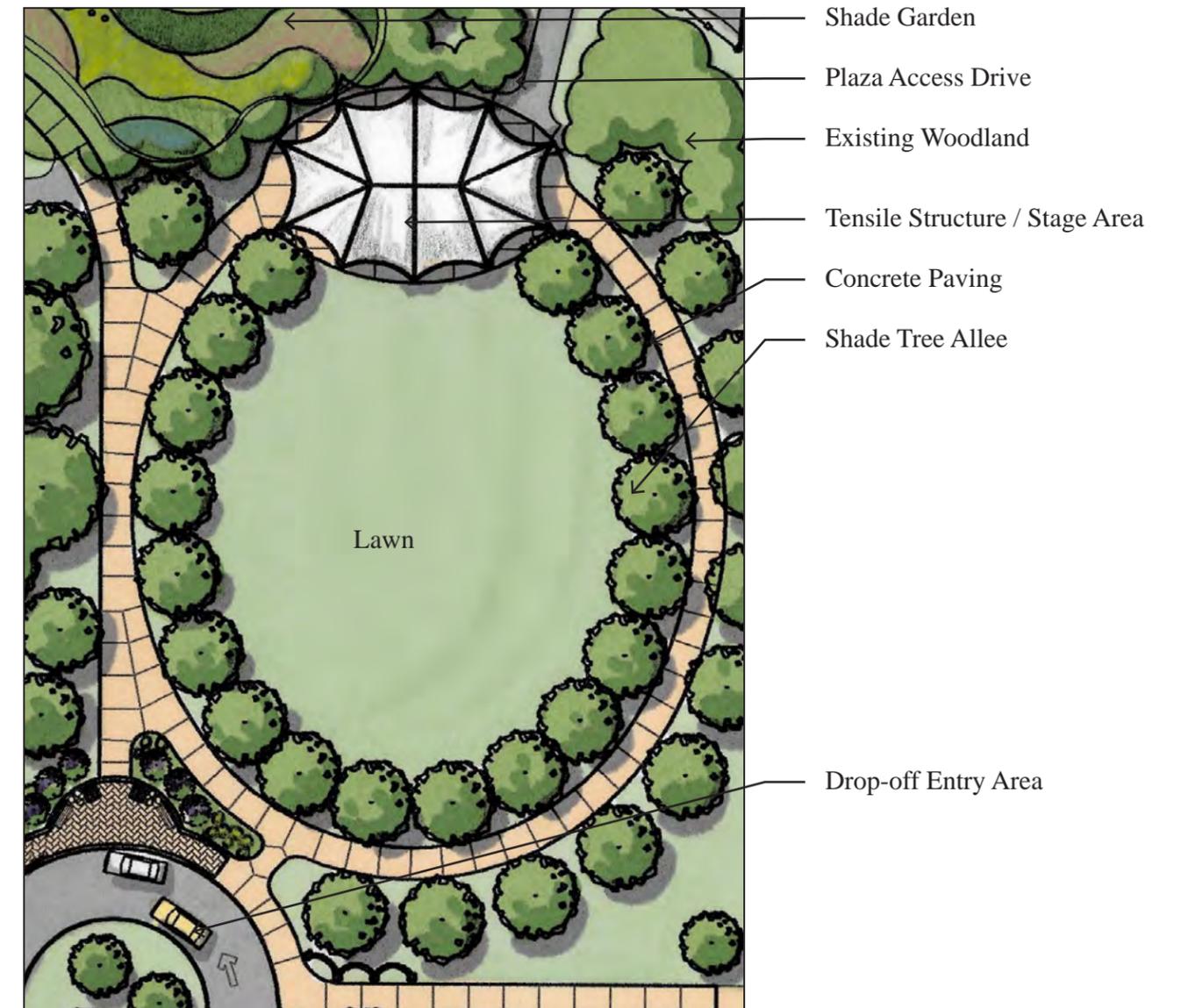


MASTER PLAN DETAILS



Festival Grounds: Festival Plaza and Lawn Space

Location	Adjacent to the vehicular drop-off entry area,
User Group	For all visitors of Lake Katherine especially community events, large rentals and flexible group use.
Activities	Public and private flexible event space to accommodate 150 on the lawn and up to 220 under the tent people. The use of this space is ideal for festivals, movie nights, concerts, wedding ceremonies and receptions, as well as other special fundraising events.
Amenities	48' x 62' Tensile Structure with the potential to add indoor restrooms and catering kitchen. A concrete loop walkway around the entire area surrounded by a formal shade tree allee that defines a lawn area with a large tensile structure as the primary focal point.

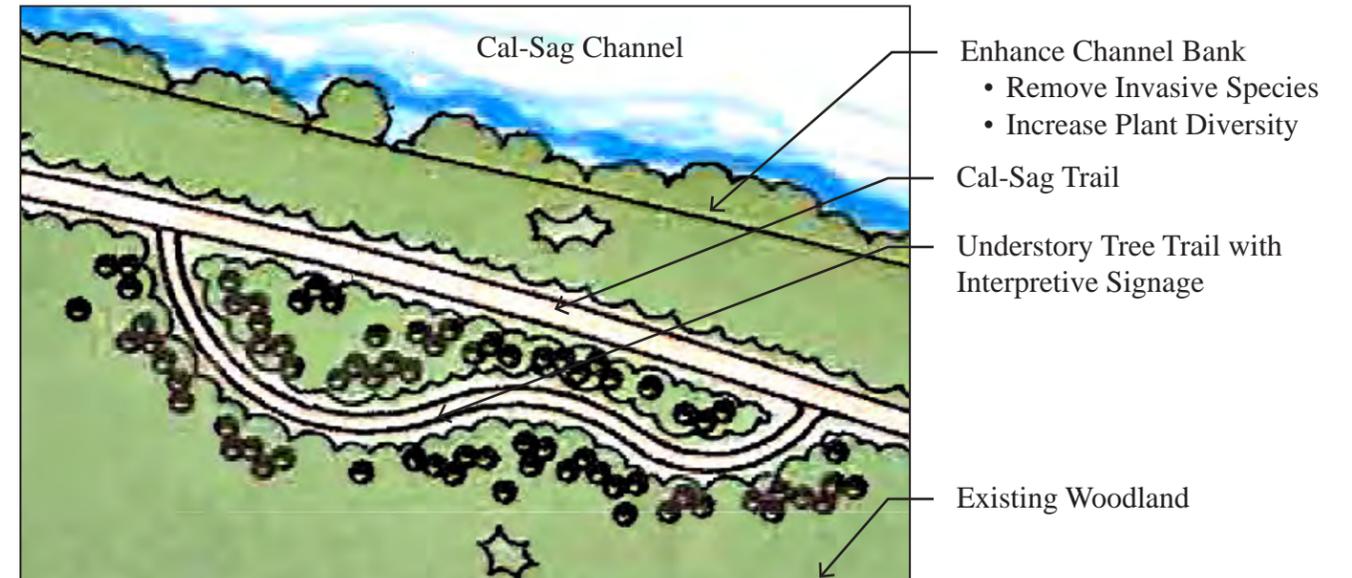
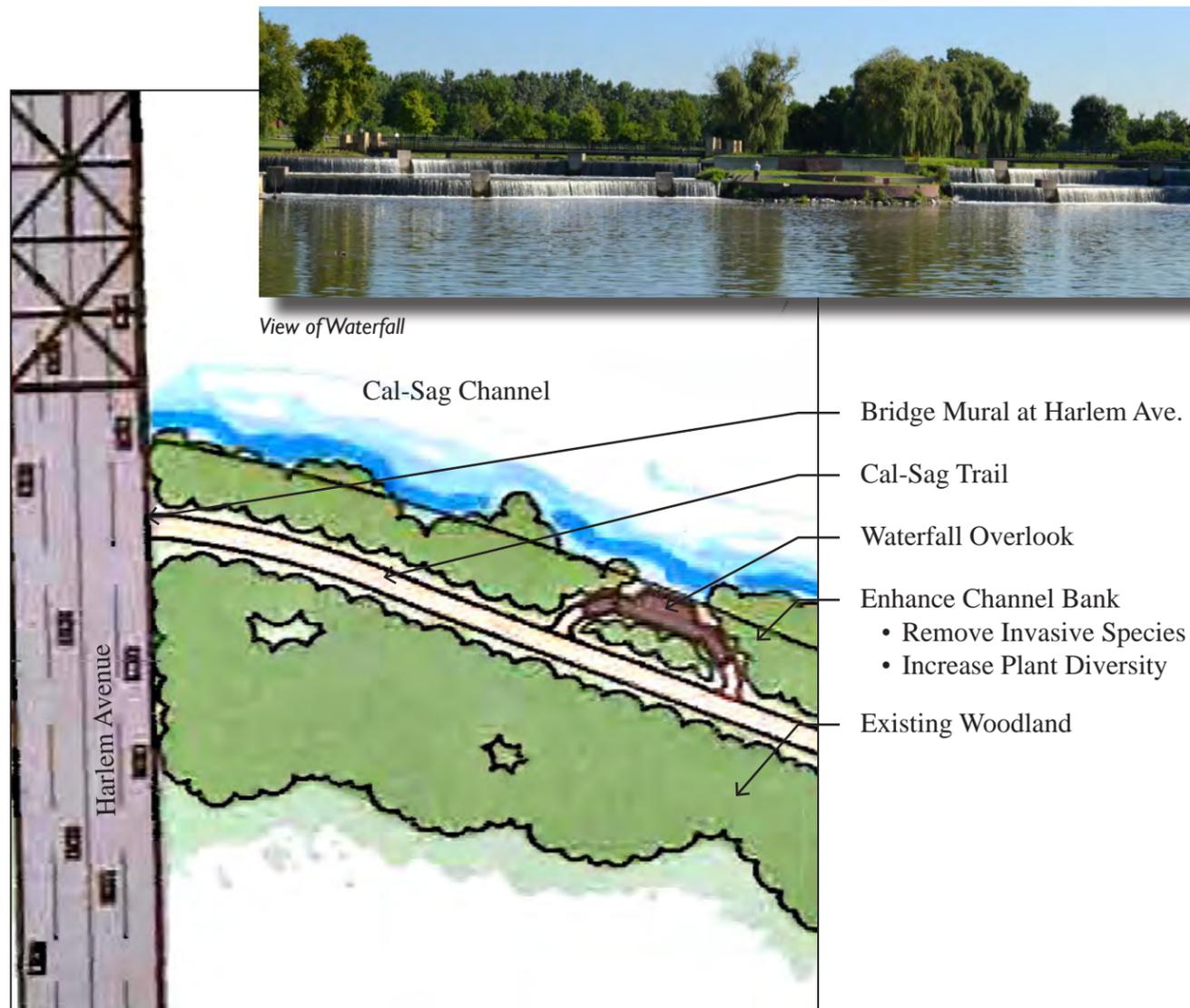


East Side Trails: Overlook Deck

- Location** | Off of the Cal-Sag Trail, just east of the Harlem Avenue bridge.
- User Group** | For all visitors of Lake Katherine.
- Activities** | Public space for scenic lookout with visual connection to the Cal-Sag Channel and Water's Edge Gold Club waterfall.
- Amenities** | A secondary path off of the Cal-Sag Trail, an elevated boardwalk connection with seating area allows users to experience the waterfall in a serene setting. Interpretive signage offers educational and historical trail background. Water quality improvements from the waterfall explained in text and graphics.

East Side Trails: Illinois Eco-type Trails

- Location** | Off of the Cal-Sag Trail, east of the Harlem Avenue bridge.
- User Group** | For all visitors of Lake Katherine.
- Activities** | Public space for educational, scenic and programmed tour purposes.
- Amenities** | A secondary path off of the Cal-Sag Trail with interpretive signage and themed native plantings.



Interpretive sign example

5.0 DESIGN MANUAL

Design Manual Summary

The design manual section is intended to guide site development. General information regarding current safety and code guidelines is presented. In addition, specific site furniture selections have been included. The intent is to define a sense of place and tie the site together with complimentary elements.

Within the Landscape Enhancements sub-section, strategic plans and suggestions are presented. Decisions were made to better utilize garden spaces and allow more visible impacts to be made by volunteers.

Design Manual Contents

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Site Furniture	44
Site Lighting and Security	45
Landscape Enhancements	46

PAVING MATERIALS

Main Access Walks



Material	Concrete Paving
Accessible	Yes
Width	8'-0" preferred in high traffic areas 6'-0" minimum
Cross Slope	1.9% maximum
Running Slope	4.9% maximum
Example Locations	<ul style="list-style-type: none"> • Pathway from the Parking lot to the Nature Center; • Main loop around the Tea House

Cal-Sag Bike Trail



Material	Asphalt Paving
Accessible	Yes
Width	12'-0" standard 10'-0" minimum
Cross Slope	1.9% maximum
Running Slope	4.9% maximum
Example Locations	<ul style="list-style-type: none"> • Cal-Sag Bike Trail; • Maintenance Access Areas

Primary Pathways



Material	Crushed Limestone (Aggregate Paving)
Accessible	Yes
Width	8'-0" preferred in high traffic areas 6'-0" minimum
Cross Slope	1.4% maximum
Running Slope	4.9% maximum
Example Locations	<ul style="list-style-type: none"> • Main Loop Trail around lake • Spider Maze Path in Children's Forest

Alternative Pathways



Material	Wood Chips
Accessible	No. This material should only be used in areas that already have accessible options to reaching a destination.
Width	6'-0" minimum
Cross Slope	1.9% maximum
Running Slope	4.9% maximum
Example Locations	To be determined

Special Materials

Special materials can be used based on development of key locations within Lake Katherine. For instance, stamped concrete is used at the Anniversary Garden and fits the area well. These special materials include, but are not limited to the following:

- Unit Paving (Brick)
- Stamped Concrete
- Permeable Paving
- Wood or Recycled Material Boardwalk

SIGNAGE

Orientation Map - Kiosk

Orientation maps at kiosk locations provide visitors with a place to stop and re-orient themselves with the surrounding features and attractions. They specify “you are here”, the locations of the Nature Center, Club House, and all the main gardens in a detailed map of Lake Katherine. Signs may also provide a concise list of site regulations and a calendar of special events and programs to encourage visitors to come back throughout the year.

Sign Panel	Combination Metal and Acrylic Display Case
Frame and Posts	Metal
Approx. Dimensions	6'-0" width 9'-0" height
Example Location	Main Entry Garden; Group Meeting Plaza and Garden; Children's Forest

Directional and Destination Signs

Directional signs help pedestrians find their way while on the move. Simple clear directional arrows indicate the pathways visitors should follow to locate the main attractions within Lake Katherine.

Sign Panel	Aluminum Sign with Logo Decal
Frame and Posts	Metal
Approx. Dimensions	3'-0" width 6'-0" height
Example Location	Butterfly Garden; Herb Garden; Heritage Garden; Along Main Loop Trail

General Park Interpretive Signs

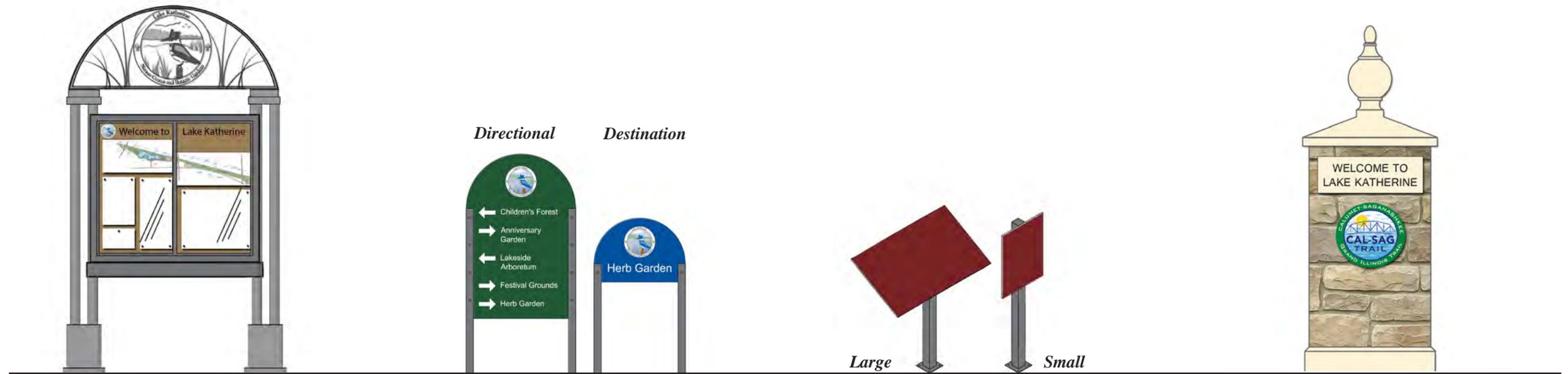
Interpretive Signs provide background information and interpretive content that help the visitor understand what they are looking at and provide relative educational information. These signs should be located throughout Lake Katherine to interpret various garden spaces, natural areas, and the historical significance of the site.

Sign Panel	Phenolic Resin
Frame and Posts	Metal
Approx. Dimensions	Sign Panel 3' x 2' 3'-6" height
Example Location	Buzz and Bloom Prairie; Bio-Swale Trail; Woodland Trail

Cal-Sag Multi-Use Trail Marker

Consistent throughout the length of the Cal-Sag Multi-use Trail, these entry markers will have a special designation for Lake Katherine. Located at each end of the site, these markers will welcome all who enter.

Sign Panel	Engraved Precast Concrete
Frame and Posts	Natural Limestone Column
Approx. Dimensions	5'-0" width 12'-0" height
Example Location	Southwest Highway Gateway; Ridgeland Avenue Gateway



Color Palette

	Evergreen Pantone 357C		Navy Blue Pantone 2945C		Cottage Red Pantone 1815C
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SITE FURNITURE

Purchase / Replacement / Donation

The following list represents the site furniture chosen to help emphasize the identity of Lake Katherine. Future purchases and site furniture replacements should follow these new standards.

Special Furniture

Special furniture may be used based on development of key locations within Lake Katherine. Additional standards should be referenced during the selection process, such as the City of Palos Heights Parks and Recreation Master Plan and Cal-Sag Bike Trail Master Plan.

These special materials include, but are not limited to the following:

- Tables
- Chairs
- Bike Racks
- Planters
- Lighting

Bench



Product	94-60
Length	6'-0"
Support Options	S-1 Embedment S-2 Surface Plate Mount
Finish	Black, Powder Coat Finish
Manufacturer	DuMor, Inc. 800-598-4018
Supplier	NuToys Leisure Products 800-526-6197

Trash Receptacle



Product	17-22
Liner	22 Gallon Plastic
Support Options	S-1 Embedment S-2 Surface Plate Mount
Finish	Black, Powder Coat Finish
Manufacturer	DuMor, Inc. 800-598-4018
Supplier	NuToys Leisure Products 800-526-6197

Bollards



A



B

Product	A: 451-36 S-2 Removable Bollard 450-36 S-1 Embedded Bollard B: Fold Over Bollard
Height	A: 36" B: 42" Extended 4" Collapsed
Support Options	A: S-1 Embedment S-1SL Removable B: Padlock Upright position
Finish	A: Black, Powder Coat Finish B: Yellow or Black
Manufacturer	DuMor, Inc. 800-598-4018
Supplier	NuToys Leisure Products 800-526-6197

SITE LIGHTING AND SECURITY

Site Lighting

A lighting plan should be developed to balance the need for security with maintaining the environmental quality that currently exists on the site. The parking and main visitor entrance should be considered for additional lighting that would provide security as well as improved visibility for the main facilities. Areas that have programming in the evening should also be considered for additional security and pedestrian level lighting. The Children's Forest, Club House, Learning Center, and along the Main Loop Trail are potential evening programming areas that may be considered. These areas would comply with the local City of Palos Heights ordinance as well as taking a sustainable approach similar to the "Dark Sky" efforts of minimal light disturbance of adjacent land uses.

Increasing light levels unilaterally is not necessarily the answer to security concerns. Adding the right amount of light, in the right place and at the right time is more effective at providing security. Other areas which will not be used for evening or night events can continue to be void of site lighting. This enhances the natural area and habitat of the site.

City of Palos Heights Ordinance - Lighting Summary

Luminaire design factors:

- The style of the light and light standards shall be consistent with the architectural style of the principal building.
- Pathways, sidewalks, and trails shall be lighted with low-level fixtures not to exceed eight feet in pole height.
- All building lighting for security or aesthetics shall include glare controls and shall be shielded.
- All parking area lighting shall include glare controls and shall be shielded.
- Poles supporting lights shall be no taller than 12 feet in a residential district.

Standards and requirements:

- IESNA Parking Lot Levels of Activity: Low
- IESNA Maintained Horizontal Illuminance Standards (measured in foot-candles): 0.08
- Lighting for outdoor recreational facilities shall be shielded to minimize light and glare from spilling onto adjacent residential properties.
- The maximum permitted illumination at adjoining residential property lines shall be one foot-candle. The maximum permitted illumination at adjoining nonresidential property lines shall be two foot-candles.

Lighting shall be provided in accordance with the standards of the Illuminating Engineering Society of North America (IESNA) and the City of Palos ordinance should be referenced before any development occurs.

Dark Sky Compliance and Lighting Recommendations

The International Dark-Sky Association (IDA) and LEED (Leadership in Energy and Environmental Design) have recommended standards and provided guidelines for lighting applications with the intent to, "Minimize light trespass from the building and site, reduce sky-glow to increase night sky access, improve nighttime visibility through glare reduction, and reduce development impact on nocturnal environments." The following zones were developed to guide standards to meet this intent.



The five zones are LZ0, LZ1, LZ2, LZ3 and LZ4. Each zone covers a different type of environment and uses of that area. LZ0 covers areas where the natural environment will be seriously and adversely affected by lighting. When not needed, lighting should be extinguished. At the other end of the spectrum, LZ4 covers areas where lighting is generally considered necessary for safety, security and/or convenience, but may be extinguished or reduced in some areas as activity levels decline.

LEED for New Construction classifies LZ1 as a Dark zone appropriate for parks and rural settings. The LEED requirements for these area include exterior lighting be designed so that all site and building mounted luminaires produce a maximum initial luminance value no greater than 0.01 horizontal and vertical foot candles at the site boundary (or public right of way) and beyond. The total initial designed fixture lumens emitted shall not be at an angle of 90 degrees or higher from nadir (straight down) to meet LZ1. IDA further recommends that most lighting should be extinguished or reduces as activity levels decline.

These standards should serve as overall guide while developing Lake Katherine's lighting plan. With its variety of uses from natural area to regional trails to parking areas, a range of light levels will be appropriate.

Local Police Department Presence

Currently, Lake Katherine depends on the City of Palos Heights Police Department for security and evening surveillance. A continued collaboration with the Police Department is a crucial step in maintaining a safe visitor environment as well as reducing vandalism. Appropriate lighting and foot traffic can aid the Police Department in their patrol efforts.

LANDSCAPE ENHANCEMENTS

Natural Area Management at Lake Katherine

Natural area management and enhancement for habitat, public enjoyment and educational purposes are part of the Lake Katherine mission. Approximately 1,500 native plant species occur in the Chicago region, making the metropolitan area one of the more botanically rich areas in the United States (Swink and Wilhelm 1994). Nations of the world have signed a treaty calling biodiversity the common heritage of humankind and calling on all people to be custodians of the biodiversity found in their countries and regions (Chicago Region Biodiversity Council 1999).

Natural communities are the basis of the region's environmental health. They provide ecological services in maintaining water quality, abating the impact of floods, supporting pollination, controlling outbreaks of pests, and increasing the quality of life. High-quality remnants, even if small, are important reservoirs of genetic material for maintaining regional biodiversity.

Eleven vegetated communities were identified at Lake Katherine. Of these, only the lawn and garden areas are not considered potential areas for natural area enhancement and management. The opportunity exists to enhance and improve all grades of on-site natural areas through ecological restoration and management. Much of the work can be done by volunteers. More complex projects such as the island restoration and any seeding and matting projects may have to be completed by a contractor. Also, major work along the Cal-Sag Channel within the Deciduous Forest/Scrub/Shrub communities may have to be completed by contractors under a grant, due to the large size of the clearing and the difficult slopes.

The key ingredients to the future improvement of natural areas are the following action items:

- Selective clearing of invasive species through hand removal, mechanical removal, and mowing
- Use of chemical herbicide application to eradicate and/or reduce invasive species. Both selective and non-selective herbicides should be used as appropriate and applied by an Illinois licensed applicator.
- Prescribed burning
- Increase plant diversity through seeding, planting plugs and planting plants

A list of native plants appropriate for the natural areas at Lake Katherine is found in the appendix.



Natural area management work, when successful and on-going, will lead to an increase in wildlife habitat. To enhance wildlife habitat further, good quality natural areas should be linked by green-ways and by providing man made habitat enhancements such as bat and bird houses or fish hatching structures in the lake.

Cal-Sag Channel Slopes

The Calumet- Saganashkee Channel is a man made shipping channel with deciduous trees and scrubby shrubs lining the entire bank along the Lake Katherine site. With the goal of reducing invasive species and improving views to the Cal-Sag from within the Lake Katherine, a major project is required to improve the bank. Work from both the land side and the channel side is necessary to fully improve the bank. An early approach without the need for channel side access would be removal of buckthorn and invasive wood species on the upper bank area within Lake Katherine. This would enhance the visitor's view to the channel and with some interpretive signage could share the story of Lake Katherine and the Cal-Sag.

The addition of spring ephemerals and other native understory plantings along the bank will increase plant diversity, build upon existing ecosystems, and create a desirable place for Lake Katherine visitors to enjoy nature. Additional efforts should be made in prime viewing locations on the Cal-Sag Channel such as the Water's Edge Golf Course waterfall to provide overlook locations with seating and reduce bank erosion from use.

Ornamental Gardens

Ornamental gardens are found in numerous areas within Lake Katherine. They provide beautiful places to visit, and are meaningful spaces that visitors enjoy while learning about plants. Additionally, volunteers give many hours to these spaces keeping them up and finding a sense of ownership with their investment of time and energy. Because of these reasons, maintaining the best of these gardens while combining repetitive gardens is part of the site improvement process. These improvements are proposed though the Master Plan by first evaluating the condition of each garden space including the location, proximity and size. The garden's future planning included enhancement of some spaces, relocation of others, combining some gardens and in some cases, complete removal of gardens. These are suggested in order to gain the most value of volunteers and their time spent maintaining each space. Below is a summary of the direction for each delineated garden area. A map and key of these gardens can be found on page 14-15 in section two.



Children's Forest will be enhanced and expanded following the new master plan. This is detailed in section four.

Ephemeral Wetlands within the Children's Forest will be maintained and enhanced with a new boardwalk and interpretive signage.

Turtle Bay is more of a part of the lake than a garden. It will continue to be a place for visitors to enjoy wildlife viewing.

The Arboretum has been renamed Lakeside Arboretum. The expansion of this area is shown in section four.

The Entrance Garden located at the entrance sign on Lakeside Drive will continue to be a space of annuals and perennials welcoming visitor. This garden will be part of the larger Lakeside Arboretum area and future enhancement to this garden should fit within the Arboretum guidelines.

The Butterfly Garden and Herb Garden are both well visited areas, but the raised garden beds are showing signs of wear. These two gardens have been combined and renamed the Herb Garden (actually named for a man named Herb). The new Herb Garden will include newly built raised planters, a water feature, green walls and seating with tables and benches. The space is designed for all visitors and volunteers including those with mobility issues. It has an open view to Lake Katherine. Permanent plant identification signs would further the educational nature of this garden.

The Rhododendron Garden has fallen into disrepair. This garden will be eliminated.

The Dahlia Garden is well cared for by volunteers and visited and photographed daily. This garden will remain in place at the entry to the Nature Center.

The Anniversary Garden was installed in the fall of 2010 and has become a space for photographs, events and weddings. A new irrigation system is planned garden and it will remain in place.

The Alpine Rock Garden has important plant material that will be relocated to other appropriate gardens and this separate garden eliminated.

The Hosta Garden is being relocated and expanded into a Shade Garden north of the waterfall garden. It will an extension of the waterfall garden as visitors will pass it along the way to and from the Nature Center. Also, it is a buffer between the maintenance drive and fence along the Cal-Sag Channel.

The Bird and Butterfly Garden has been renamed the Butterfly Garden. To enhance this garden, a number of deciduous shade trees located at the garden should be removed to allow more sunlight for plants. The existing plant palette should then be expanded to incorporate more butterfly attracting plants.

The Waterfall Garden is a perennial spot for photos as well as a place to touch, hear and play near water. The paths along the waterfall are well worn and sometimes muddy. To enhance this area a concrete walk is designed along part of the waterfall. Additionally, pockets of small shrubs and flowering perennials can be added along the waterfall to enhance the garden feel of the area. Locations for photographs will be highlighted.

The Buzz N' Bloom Prairie is a native prairie area with eleven native species currently. Removal of invasive species and the addition of more types of prairie plants will improve this learning garden area. Also, the new master plan removes the trail through the prairie to improve habitat, but keeps both a western and eastern access path to view the prairie. The additional of interpretive signage is suggested.

The Farm Implements & Crops will be reduced to just a handful of machinery pieces that can be restored for display. These will be relocated along with the Heritage Garden to the west side of the Buzz N' Bloom Prairie where visitors will have more access and volunteers will be closer to a water source. The final garden size will be smaller to reduce maintenance.



Loretta Kupchick Woodland Wildflower Area will have the existing decks and paths removed that are no longer in an acceptable condition. The naturalized garden will have the native plant quality improved over time to better highlight native wildflowers.

The Entry Garden, a new garden, will be added along with a plaza at the south side of the nature center, which will be enhance this group meeting area with perennials, shrubs and a sculpture.

As Lake Katherine moves forward to updating the gardens a priority plan will be of assistance to guide efforts. Some garden areas can be updated with staff and volunteers. For instance plans for the relocation of the Heritage Garden area are already underway by Lake Katherine staff. Other garden areas such as the new Herb Garden and Shade Garden would do best if planned out with detailed drawings and then installed with a combination of volunteers and contractors as necessary. An immediate improvement to the site would be removal of garden signage where gardens no longer exist and a plan for the priority garden work. Volunteers and staff should be given the opportunity to share input on these plans.

Lakeside Arboretum

The Lakeside Arboretum is one of the first views when entering Lake Katherine by automobile. It acts as a buffer between the entry road and the Lakeside pathway. This area should represent a strong collection of plant material highlighting both seasonal interests as well as representing the best trees for Northern Illinois. The two areas identified within the Lakeside Arboretum include the Deciduous Tree Garden and the Ornamental Tree Garden.



Creating a plant palette for these areas will be instrumental in developing each area with strong aesthetics. The layout of the plants will be important to creating pleasing views, year round interest and educational opportunities. Groupings of species are suggested as they create pockets for seating, photos and enjoying the landscape along the lake shore. A detailed landscape planting plan that identifies each existing tree in the Arboretum area, determines the viability of the existing trees and details future plantings will be an important tool for the full development of the Lakeside Arboretum.

Lake Enhancement and Maintenance

Efforts in shoreline enhancements and wildlife diversity have been addressed in a separate plan dedicated to lake improvements and should be referenced throughout the year.

Tree Donation Program

All donation programs should consider and build upon the long term plan and vision of Lake Katherine. Future tree memorials should fit the geared toward the Lakeside Arboretum. Here staff can guide potential donors to choose trees that fit the new planting plan and will be easily viewed and maintained. A second tree donation area could be the Children's Forest area. Again donations should follow a planting plan so that all new elements follow the master plan.

A-1 APPENDIX

Appendix Summary

The appendix includes documents supporting the Master Development Plan and gives aid in the development of Lake Katherine.

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FUNDING SOURCES

Public Funding Sources

	Program Title	Description of Grant	Administrative Agency	Match Requirement	Maximum Request	Date Grant Due	Payment Method	Eligible Applicants
1	Tourism Marketing Partnership Program	Promote tourism attractions and events thus increasing hotel/motel occupancy and travel into and throughout the state	Illinois Department of Commerce and Economic Opportunity	Up to 50% Funds	\$100,000	May 1st		Counties, municipalities and local not-for-profit organizations
2	Tourism Attraction Development Program	Assist in the development and improvement of tourist attractions in Illinois, thus increasing hotel/motel stays and providing economic impact for the state.	Illinois Department of Commerce and Economic Opportunity	Up to 50% Funds	\$1,000,000	May 1st		Counties, municipalities, not-for-profit and for-profit organizations
3	Illinois Wildlife Preservation Fund	Management of Site Inventories or Education Related Stewardships of Land, Water, Plants, and Animals	Illinois Department of Natural Resources	Up to 100% State Funding Additional Funds Encouraged (no in kind)	\$2,000	April 1st 5pm	Reimbursement	Organizations, Schools, Local Government
4	Land and Water Conservation Fund	Acquisition and Development of Public Outdoor Recreation Areas and Facilities	Illinois Department of Natural Resources	Up to 50% Funds	\$5,000	June 1st	Reimbursement After Project Completion	Local Units of Government
5	Open Space Land Acquisition and Development	Acquire and Develop Outdoor Recreation Areas	Illinois Department of Natural Resources	Up to 50% Federal Funds	ACQ. \$750,000 DEV. \$400,001	July 1st Noon	Reimbursement After Project Completion	Local Units of Government
6	Recreational Trail Program	Develop and Maintain Recreational Trails and Trail Related Projects	Illinois Department of Natural Resources	Up to 80% Federal Funds	None	March 1st Noon	Reimbursement	Local Government
7	Urban and Community Forestry Grants	Assist Local Units of Government to Create or Enhance Local Forestry Programs	Illinois Department of Natural Resources	Up to 50% State Funding	No More Than 5% of Total Available Funds	To Be Announced	Reimbursement After Project Completion	Units of Governments with Forestry Ordinances
8	Illinois Habitat Fund	Preserve, Protect, Acquire, or Manage Habitat That Have The Potential to Support Populations of Wildlife in Any or All Phases of Their Life Cycle	Illinois Department of Natural Resources	Up to 100% State Funding Additional Funds Encouraged (no in kind)	Open	August 1st 5pm	Reimbursement	Non for Profit Organization; Government Agency
9	Migratory Bird Conservancy	Projects to Conserve and Restore Fish, Wildlife and Native Plants and the Habitats on Which They Depend	National Fish and Wildlife Federation	1:1 with Cash or Tangible in-Kind Contributions; 2:1 to be Competitive	\$10,000 - \$30,000			Non-Profit Groups; Local Government
10	National Wildlife Refuge Support Group Grant Program	Project Specific Grants Such as Conservation Education Programs for Local Schools, Habitat Restoration Projects, Interpretive Signs, Observation Tower	National Fish and Wildlife Federation		\$5,000			Non-Profit Organizations
11	Section 206 Aquatic Ecosystem Restoration	Restoration Projects Benefiting Aquatic Habitats	U.S. Army Corps of Engineers	65% Federal, 35% Non Federal (Includes Land, Easements, & R.O.W. Costs and In-Kind)	\$5,000,000	None - Request and Determination of Project Feasibility	None - Federal Covers Cost	Public Agencies
12	U.S. Small Grants Program	Long Term Protection Restoration and/or Enhancement of Wetlands and Associated Upland Habitats for the Benefit of All Wetlands - Associated Migratory Birds	U.S. Fish and Wildlife Service Division of Board Habitat Conservation	1:1 Ratio-Match Non-Federal and Linked to an Acre Acquired, Restored, Enhanced, and/or Established	\$75,000	To Be Announced		Public - Private Partnerships
13	U.S. Standard Grants Program	Long Term Protection Restoration and/or Enhancement of Wetlands and Associated Upland Habitats for the Benefit of All Wetlands - Associated Migratory Birds	U.S. Fish and Wildlife Service Division of Board Habitat Conservation	1:1 Ratio-Match Non-Federal and Linked to an Acre Acquired, Restored, Enhanced, and/or Established	\$75,000 - \$1,000,000	To Be Announced		Public - Private Partnerships

Private Funding Sources

	Program Title	Description of Grant	Administrative Agency	Match Requirement	Maximum Request	Date Grant Due	Payment Method	Eligible Applicants
1	Captain Planet Foundation Grant	Grants are made for activities that promote and support high-quality educational programs that enable children and youth to understand and appreciate our world through learning experiences that engage them in active, hands-on projects to improve the environment in their schools and communities.	Captain Planet Foundation	Up to 50%	\$2,500	May 31st, September 30th, January 15th	After Signed Grant Award Agreement	Schools and organizations that are exempt under section 501 (c)(3)
2	Environment	Preserve and Restore Natural Lands and Waterways, Expand and Connect Preserved Natural Lands, Challenge Grants for Capital Projects, Land ACQ for Preservation of Quality Natural Areas	Grand Victoria Foundation	Challenge Grants of Capital Projects	No Set Range	Letter of Inquiry First Friday of May and October	After Signed Grant Award Agreement	501c3 or Certified Public Institutions
3	Kaboom! Construction Grants	Toward the purchase of playground equipment that will be built using the KaBOOM! community-build model	Kaboom!	Total playground equipment purchase between \$24,000 and \$40,000	\$15,000	Open		U.S.-based municipalities, neighborhood associations, schools, day care centers, and non-profit organizations
4	Youth Garden Grants	NGA awards Youth Garden Grants to schools and community organizations with child-centered garden programs.	National Gardening Association	None	\$1,000	December 12th		Schools, youth groups, community centers, camps, clubs, treatment facilities, and inter-generational groups
5	Wild Ones Seed for Education	Enhancement and Development of an Appreciation for Nature Using Native Plants Emphasizing and involvement of Students and Volunteers and Increasing the Educational Value of the Site	Seeds for Education; The Lorrie Otto Seeds for Education Grant Program		Open			Schools, Nature Centers, or Other Non-Profit Educational Organizations for the Purpose of Establishing Outdoor Learning Centers
6	Access to Recreation Initiative	Projects to be Recognized Models of Best Practices that Demonstrate New and Creative Ways to Make Typical Recreation Environments and Opportunities Inclusive and Universally Accessible	W.K. Kellogg Foundation	1:1 Local Match for Recreation Projects and Endowments (\$41,000 - \$334,000)	\$53,000 - \$426,000	July 1st		Community Foundations Partnering with Public Park and Recreation Providers and Individuals with Disabilities, Their Families, and Advocates

BUDGET AND PHASING STRATEGY

LOCATION	ESTIMATED BUDGET	PHASE I	PHASE II	FUTURE
West Entry Area				
West Entry Area, Enhancement & Planting	\$ 26,204		\$ 26,204	
Woodland Path, Footbridge and Restoration	\$ 70,883			\$ 70,883
Prairie Restoration	\$ 5,980	\$ 5,980		
Bridge Mural	\$ 13,500			\$ 13,500
Signage	\$ 5,750	\$ 5,750		
Benches (5)	\$ 10,000			\$ 10,000
Subtotal: \$ 132,316				

LOCATION	ESTIMATED BUDGET	PHASE I	PHASE II	FUTURE
Children's Forest				
Circular Concrete Paths	\$ 55,406	\$ 55,406		
Signage	\$ 13,875	\$ 13,875		
Prairie Spider Maze	\$ 60,121	\$ 60,121		
Fire Ring & Story Telling Circle	\$ 34,489	\$ 34,489		
Savannah Animal Mounds	\$ 21,250	\$ 21,250		
Tall and Short Grass Prairie Restoration	\$ 10,000	\$ 10,000		
Bioswale - West of Children's Forest	\$ 11,549		\$ 11,549	
Wetland Trail and Boardwalk	\$ 54,398		\$ 54,398	
Tea House Restroom & Small Classroom	\$ 924,896	\$ 924,896		
Woodland Climbing Area (& Tree House)	\$ 235,895	\$ 235,895		
Rock Climbing Area	\$ 117,668	\$ 117,668		
Trellis Arches and Entry Landscape	\$ 40,395		\$ 40,395	
Woodland and Spring Ephemeral Enhancements	\$ 9,656	\$ 9,656		
Subtotal: \$ 1,589,597				

LOCATION	ESTIMATED BUDGET	PHASE I	PHASE II	FUTURE
Lakeside Arboretum				
Main Loop Trail - Entire Lake Loop - Crushed Stone	\$ 200,105			\$ 200,105
Benches (12)	\$ 25,250		\$ 25,250	
Signage	\$ 11,750	\$ 11,750		
Rose Arbor and Overlook Seating Area	\$ 76,704		\$ 76,704	
Gazebo and Bridge	\$ 137,534	\$ 137,534		
Ornamental Tree Garden	\$ 45,128	\$ 45,128		
Deciduous Tree Garden	\$ 80,000	\$ 80,000		
Subtotal: \$ 576,470				

LOCATION	ESTIMATED BUDGET	PHASE I	PHASE II	FUTURE
Woodland Adventure				
Signage	\$ 15,250	\$ 15,250		
Classroom Nook	\$ 24,332	\$ 24,332		
Floating Boardwalk	\$ 130,000		\$ 130,000	
Zipline	\$ 62,588	\$ 62,588		
Woodland Enhancements	\$ 48,445	\$ 48,445		
Channel Bank Enhancements	\$ 125,000	\$ 125,000		
Woodland Climbing Obstacle Course, Walls and Ropes	\$ 227,910	\$ 227,910		
Overlook Deck and Seating Area	\$ 39,799		\$ 39,799	
Subtotal: \$ 673,323				

LOCATION	ESTIMATED BUDGET	PHASE I	PHASE II	FUTURE
Nature Center				
Boat House and Dock Enhancements	\$ 54,688	\$ 54,688		
Herb Garden with Raised Planters, Seating & Water Feature	\$ 329,156		\$ 329,156	
Group Meeting Plaza and Garden	\$ 129,737		\$ 129,737	
Butterfly Garden	\$ 41,531		\$ 41,531	
Waterfall Garden	\$ 59,622		\$ 59,622	
Shade Garden	\$ 57,764		\$ 57,764	
Maintenance Area Fence and Gate	\$ 33,125		\$ 33,125	
Signage	\$ 17,000	\$ 17,000		
Subtotal: \$ 705,623				

LOCATION	ESTIMATED BUDGET	PHASE I	PHASE II	FUTURE
Festival Grounds				
Festival Plaza with Tensile Structure	\$ 333,885	\$ 333,885		
Festival Grounds: Concrete Walk, Lawn & Trees	\$ 92,649	\$ 92,649		
Restroom/Catering Kitchen Building	\$ 1,212,500	\$ 1,212,500		
Entry Arcade, Walk and Drop-off	\$ 120,608	\$ 120,608		
New Bridge and Entry Walk	\$ 53,745	\$ 53,745		
Existing Parking Lot Improvements and Walk	\$ 103,588	\$ 103,588		
Parking Lot Expansion - 60 Spaces and Walk	\$ 185,435		\$ 185,435	
Buzz N' Bloom Prairie Enhancements	\$ 11,875	\$ 11,875		
Subtotal: \$ 2,114,284				

LOCATION	ESTIMATED BUDGET	PHASE I	PHASE II	FUTURE
East Side Trails				
Signage	\$ 13,375	\$ 13,375		
Channel Bank Enhancements	\$ 150,000			\$ 150,000
Waterfall Overlook	\$ 124,325	\$ 124,325		
Landscape Storage Area	\$ 77,480	\$ 77,480		
Prairie Trail with Interpretive Signage	\$ 44,637		\$ 44,637	
Understory Tree Trail and Interpretive Signage	\$ 33,722			\$ 33,722
Ephemeral Trail with Interpretive Sign	\$ 32,051			\$ 32,051
Woodland Trail with Interpretive Sign	\$ 53,774		\$ 53,774	
Parking Lot	\$ 164,788	\$ 164,788		
Forbs Trail with Interpretive Sign	\$ 46,618			\$ 46,618
Subtotal: \$ 727,394				

Grand Total	\$ 6,519,007	\$ 4,653,425	\$ 1,312,875	\$ 485,996
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NOTES:
1. This budget has been developed utilizing highly conceptual ideas. More comprehensive costing can be provided upon further design in the future phases of the project.
2. Curatorial services are not included in this budget.
3. Outdoor performance stages / platforms do not include costs of sound / lighting equipment. It is assumed that equipment will be provided by performance groups or rented per engagement.
4. Professional service fees are not included in the above costs.

PLANT COMMUNITY MAPPING AND QUALITY ASSESSMENT

Introduction

Below provides a summary of the report produced by Bollinger Environmental, Inc. dated June 2011.

The purpose of the assessment is to examine existing vegetative community conditions and rate their current ecological integrity. We also recommended possible restoration techniques, which may increase the natural area attributes of the site. The natural areas at the Lake Katherine Nature Preserve are valuable because of their uniqueness in the Chicago metropolitan area. Eleven vegetated communities were observed on-site. They were numbered in order observed in the field. Some plant communities are named the same and have different numbers, this was done for similar natural communities but were geographically separated

Existing Community Summary

As previously noted, we classified vegetative communities into broad ecological categories. After investigating the site a total of 11 vegetated communities were identified. Plant Communities with their corresponding number include:

- | | |
|---------------------------------|---------------------------------|
| 1) Emergent Wetland | 7) Children's Forest |
| 2) Sideslope Prairie | 8) Emergent Wetland |
| 3) Deciduous Forest/Scrub/Shrub | 9) Deciduous Forest/Scrub/Shrub |
| 4) Island (Scrub/Shrub) | 10) Emergent Wetland |
| 5) Coniferous Forest | 11) Buzz N' Bloom Prairie |
| 6) Lawn Sideslope | |

See page 16 Vegetative Communities Map for locations of these communities.

The natural areas contained a total of 162 plant species with 104 being native. Plant communities ranged from moderate to low quality.

Table 1. Vegetative Community, Inventory and Grading Summary

Plant Community Number	Community Type	Total # of Species	# of Native Species	C-value	FQI	Grade	Proposed Plant Community
1	Emergent Wetland	21	15	4.1	16.0	D	Emergent Wetland
2	Sideslope Prairie	54	30	2.7	14.8	D/E	Prairie
3	Deciduous Forest/Scrub/Shrub	66	41	2.7	17.0	E	Prairie or Floodplain Forest
4	Island (Scrub/Shrub)	N/A	N/A	N/A	N/A	E	Island (Prairie)
5	Coniferous Forest	31	15	1.3	4.9	E	Prairie or Deciduous/Coniferous Forest
6	Lawn Sideslope	9	5	3.2	7.2	E	Prairie
7	Children's Forest	28	15	3.9	15.2	E	Savanna
8	Emergent Wetland	14	13	4.1	14.7	C	Emergent Wetland
9	Deciduous Forest/Scrub/Shrub	31	17	2.4	9.7	E	Prairie or Floodplain Forest
10	Emergent Wetland	12	8	1.0	2.8	E	Emergent Wetland
11	Bloomin Prairie	37	25	2.4	12.2	E	Prairie
	Total	162	104	3.0	31.1		

- Emergent Wetland:** The community was dominated by red-rooted spike rush. Restoration within this area could consist of planting native emergent wetland plugs. Restoration should also consist of the eradication of invasive species such as narrow-leaved cattail, common reed and purple loosestrife.
- Sideslope Prairie:** The community was dominated by non-native species with scattered areas of native prairie plants. Invasive species such as common and glossy buckthorn should be removed, as well as teasel and yellow sweet clover. Seeding should be done with a native prairie mix species.
- Deciduous Forest/Scrub/Shrub:** This area was dominated by invasive non-native shrubs and pioneer native trees. Buckthorn is in this area and clearing and seeding as appropriate, see recommended plant list
- Island (Scrub/Shrub):** The island was dominated by non-native tree and shrub species, and the understory appeared to have bare ground due to shade and/or goose herbivory and trampling. Shoreline edges should be reinforced and planted with native emergent plugs. Non-native shrubs and possibly select trees should be removed and deep rooted native prairie species planted on the bare ground. Geese deterrents should be added and devices added to encourage native wildlife
- Coniferous Forest:** The area is dominated by shade trees such as sugar maple that create an acidic soil environment, so the understory was mainly bare ground. Also non-native invasive shrubs such as buckthorn have started establishing and as a result erosion has taken place with sediment entering Lake Katherine. All non-native shrubs and some select trees should be removed to open up the canopy so deciduous floodplain forest species can be seeded and matted within the understory.
- Lawn Side slope:** Non-native invasive species were observed growing along the sideslopes and algae was observed within Lake Katherine adjacent to this area. The area between the open water and the nature path could be converted to native prairie, which may reduce the density of algae and discourage geese. Muskrat should be trapped and removed which will prevent further sideslope erosion.
- Children's Forest:** This area was dominated by non-native tree, grass and herbaceous species. The area appears to have been planted to give a savanna like appearance. Tall fescue is a non-native grass and teasel is considered a non-native invasive species.
- Emergent Wetland:** The community was dominated by common water plantain with scattered native wetland plantings. The wetland had non-natives such as common reed and purple loosestrife. Native plug plantings were observed and should continue with possible over seeding of native emergent wetland species
- Deciduous Forest/Scrub/Schrub:** This area was dominated by invasive non-native shrubs and pioneer native trees. This areas significant density of buckthorn threatens other areas within and outside the Lake Katherine Nature Preserve.
- Emergent Wetland:** A man-made linear ditch vegetated with non-native invasive plant species. Reed canary grass should be eradicated in this area. Then reseeded with native emergent species.
- Buzz N' Bloom:** A tallgrass prairie restoration area, however invasives like teasel are taking over and should be controlled. Tall goldenrod is a native species, but can be a weedy native species. Prescribe burning and native species and hand broadcast of native prairie species by volunteers will encourage the dominance of native prairie plant species and increase diversity.

Recommended Planting Lists

Prairie Seed Mix

Species	Common Name	lbs/acre
<i>Andropogon gerardii</i>	Big bluestem	5.00
<i>Andropogon scoparius</i>	Little bluestem	5.00
<i>Elymus canadensis</i>	Canada wild rye	1.00
<i>Elymus virginicus</i>	Virginia wild rye	1.00
<i>Panicum virgatum</i>	Switch grass	1.00
<i>Sorghastrum nutans</i>	Indian grass	2.00
<i>Asclepias tuberosa</i>	Butterfly weed	0.05
<i>Aster ericoides</i>	Heath Aster	0.05
<i>Aster novae-angliae</i>	New England aster	0.10
<i>Cassia fasciculata</i>	Partridge pea	1.00
<i>Coreopsis lanceolata</i>	Sand coreopsis	0.50
<i>Coreopsis palmata</i>	Prairie coreopsis	0.05
<i>Echinacea purpurea</i>	Purple coneflower	0.50
<i>Heliopsis helianthoides</i>	Early sunflower	0.25
<i>Monarda fistulosa</i>	Wild bergamot	0.05
<i>Penstemon digitalis</i>	Foxglove beard tongue	0.05
<i>Petalostemum purpureum</i>	Purple prairie clover	0.05
<i>Ratibida pinnata</i>	Yellow coneflower	0.25
<i>Rudbeckia hirta</i>	Black-eyed Susan	1.00
<i>Rudbeckia subtomentosa</i>	Sweet coneflower	0.05
<i>Silphium integrifolium</i>	Rosin weed	0.05
<i>Silphium laciniatum</i>	Compass plant	0.05
<i>Silphium perfoliatum</i>	Cup plant	0.10
<i>Silphium terebinthinaceum</i>	Prairie dock	0.10
<i>Solidago rigida</i>	Stiff goldenrod	0.10
<i>Tradescantia ohiensis</i>	Common spiderwort	0.05
<i>Verbena stricta</i>	Hoary vervain	0.10
<i>Zizia aurea</i>	Golden Alexander's	0.05

Deciduous Floodplain Forest Seed Mix

Species	Common Name	lbs/acre
<i>Andropogon gerardii</i>	Big bluestem	4.00
<i>Elymus canadensis</i>	Canada wild rye	5.00
<i>Elymus riparius</i>	Riverbank wild rye	0.50
<i>Elymus virginicus</i>	Virginia wild rye	5.00
<i>Hystrix patula</i>	Bottlebrush grass	0.50
<i>Actinomeris alternifolia</i>	Wingstem	0.75
<i>Allium cernuum</i>	Nodding wild onion	0.10
<i>Aquilegia canadensis</i>	Wild columbine	0.05
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	0.05
<i>Aster lateriflorus</i>	Side-flowering aster	0.05
<i>Anemone virginiana</i>	Virginia anemone	0.05
<i>Campanula americana</i>	Tall bellflower	0.05
<i>Dodecatheon meadia</i>	Shooting star	0.05
<i>Eupatorium purpureum</i>	Purple Joe-pye weed	0.05
<i>Eupatorium rugosum</i>	White snakeroot	0.05
<i>Geranium maculatum</i>	Wild geranium,	0.05
<i>Rudbeckia laciniata</i>	Wild golden glow	0.25
<i>Rudbeckia triloba</i>	Brown-eyed Susan	0.50
<i>Zizia aurea</i>	Golden Alexander's	0.05

Emergent Plugs

Species	Common Name	rate/acre
<i>Acorus calamus</i>	Sweet flag	500
<i>Iris virginica shrevei</i>	Blue flag	500
<i>Juncus effusus</i>	Common rush	1000
<i>Sagittaria latifolia</i>	Common arrowhead	1000
<i>Scirpus atrovirens</i>	Dark green rush	1000
<i>Scirpus validus creber</i>	Great bulrush	1000
<i>Sparganium eurycarpum</i>	Giant bur-reed	1000

