

**CITY OF  
SAINT  
PAUL**

DEPARTMENT OF PARKS AND  
RECREATION -  
DESIGN SECTION

C O M O  
WOODLAND  
OUTDOOR  
CLASSROOM



MASTER  
PLAN

*The Como Woodland Outdoor Classroom is a 17¾ acre restored woodland which provides ecological education and historical interpretation for school children and adults, habitat for native wildlife, and an urban woodland oasis.*

## ACKNOWLEDGEMENTS

Many resources were utilized during this planning process. The greatest of these resources included the time, knowledge, and enthusiasm of the following individuals:

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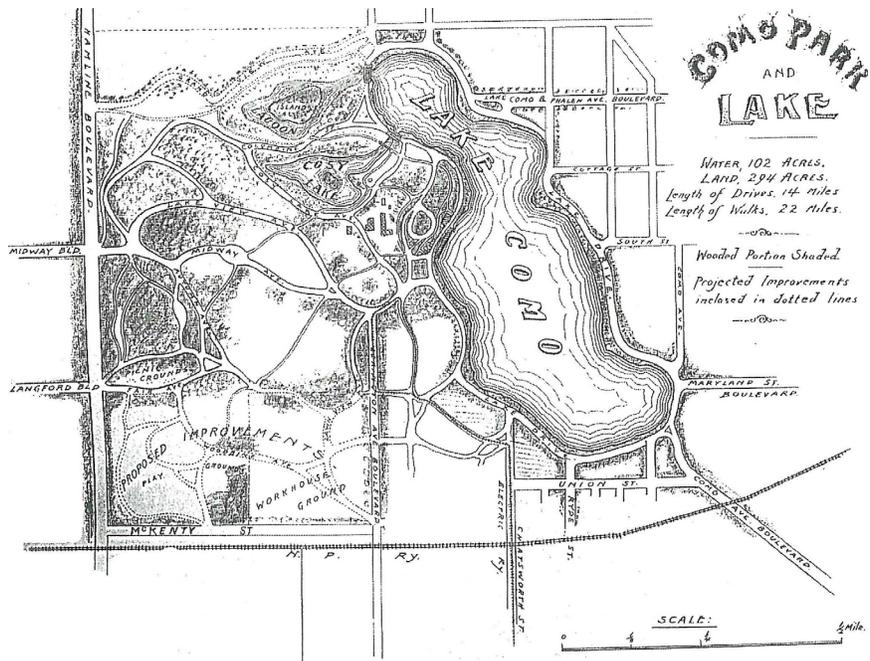
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## SITE HISTORY

Como Park was purchased in 1873 upon the recommendation of a Chicago Landscape Architect, HWS Cleveland. No development occurred in the park until 1889, when Cleveland was hired by the City of Saint Paul to provide a plan for improvements to Como Park. His 1889 plan, as well as subsequent plans in 1895 and 1917 by the park's new superintendent, Frederick Nussbaumer, showed the southwest portion of the park as primarily a series of open wooded park spaces linked by curvilinear paths for "strolling". The only significant improvement to this area of the park occurred in 1905 with the addition of the Como-Harriet Streetcar Line. This line was constructed just south of Horton Avenue and included a stone and steel bridge over the former Beulah Lane, located in the heart of this 17 3/4 acre parcel. The area remained relatively unchanged until the 1930's and was considered part of the park's informal landscape serving to "emphasize the beauty of the park's natural landscape" (Nussbaumer ca. 1905).



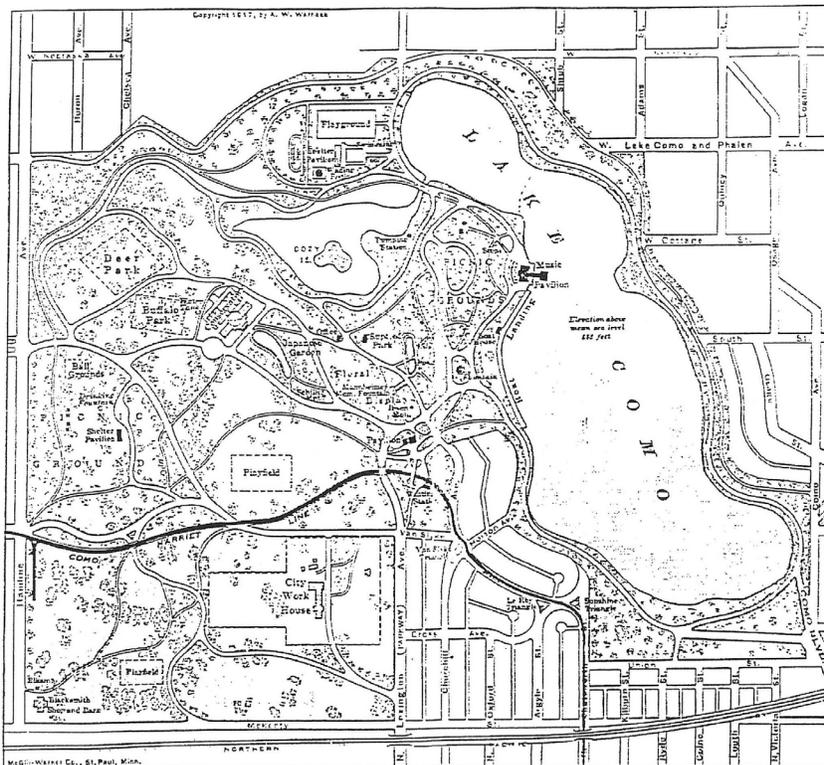
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In 1932, a new Landscape Architect, LaMont Kaufman, took over the on-going development of Como Park at the height of the Depression. With funding donated by the Joyce Kilmer Post, Fourth district of the American Legion, Mr. Kaufman set about designing and implementing a plan for the Joyce Kilmer Arboretum designated for the 14.5 acre woodland south of Horton Avenue and north of Como Avenue, and encompassing the Como-Harriet streetcar Line. Two features were constructed in this area, likely with WPA labor (other portions of the park were being developed at the time with WPA Labor using the same type of stone material). The first feature, constructed in 1935 was a series of stone pools filled with recirculating water called the Joyce Kilmer Cascades. The second feature constructed to the east of the cascades in 1936 was a large outdoor fireplace and fire ring called the Joyce Kilmer Fireplace. Both of these features appear to have been constructed in open areas surrounded by forested woodland.



LaMont Kaufman standing  
at entrance to Historic Joyce  
Kilmer Arboretum



SITE HISTORY

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## GOALS & OBJECTIVES

### VISION

*The Como Woodland Outdoor Classroom is a 17 3/4 acre restored woodland which provides ecological education and historical interpretation for school children and adults, habitat for native wildlife, and an urban woodland oasis.*

### **Goal: Maximize Site Restoration and Environmental Opportunities**

- Remove Invasive Species
- Conduct a Biological Study
- Improve Species Diversity
- Replant Native Species
- Manage Storm Water on Site
- Retain area for Parks and Recreation Nursery Production and Demonstration
- Create a habitat which attracts butterflies, etc.

### **Goal: Develop a User-Friendly Site**

- Develop a defined trail system hierarchy accessible to all users.
- Utilize existing footpaths when possible to minimize site impact
- Provide parking for a range of user groups including those arriving by bike, car, or bus.
- Establish an information and coordination center for arriving visitors
- Develop a system of signage and/or markers to communicate site features and educational lessons
- Consider seasonal or year round restroom and warm room space
- Identify and develop site entry point(s)

**Goal: Provide Education Opportunities for School Children and Adults**

- Identify and Develop multiple woodland ecosystems
- Restore and Utilize historic features for reuse
- Develop area(s) suitable for group gatherings
- Establish areas for small group study
- Provide learning/enrichment opportunities for ongoing active participation

**Goal: Provide a Safe and Secure area for site users**

- Minimize opportunities for vandalism
- Consider areas where fencing may be necessary
- Maintain visibility into and out of site
- Study impact of lighting on site

**Goal: Study site context roadway patterns**

- Consider impacts of modified circulation on adjacent users
  - Como Aquatic Facility
  - Humane Society
  - Parks Maintenance
  - McMurray Fields
- Investigate alternate traffic routes
  - One-way streets
  - Two-way streets
  - Dead end streets
  - Cul-de-sac streets

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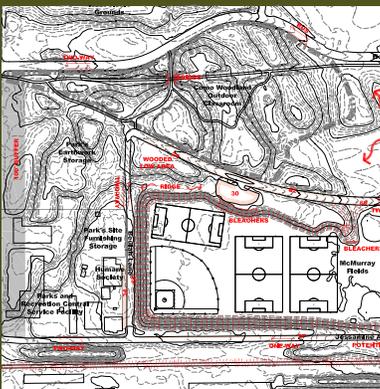
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New shared use path



Cow Path



Circulation study graphic

## INVENTORY & ANALYSIS

### CIRCULATION

The Como Woodland Outdoor Classroom area features a network of paved and unpaved trails. In 2008, a shared use bituminous trail was constructed from Hamline Avenue to the east on the alignment of the original Como-Harriet Streetcar Line. This trail crosses a restored bridge supported by the original historic limestone abutments. Another segment of paved shared use trail links the west picnic grounds north of Horton Avenue to the Outdoor Classroom.

A network of worn 'cow-paths' criss-cross the woodland area. Some of these paths were likely from the original Joyce Kilmer Arboretum while others have been created by off-road bicycles. These paths are used by people for many different purposes including dog walking, jogging, or birding. Many of the paths have been created on fairly level or gently sloping terrain and provide opportunities for great views and ample width for accessibility. These trails should provide an excellent framework for development of a new trail system.

Currently, Como Avenue and Beulah Lane meet at an unsafe intersection due to lack of sightlines. In addition, Como Avenue's existing alignment creates an isolated wooded area between the roadway and McCormick athletic fields. The value of including this isolated piece of land with the area designated for the Outdoor Classroom may be of some value and is worth considering as the plan progresses. A circulation study of Como and Jessamine Avenues, Beulah Lane, and Lexington Parkway is suggested to help guide development of the classroom area.

See the graphic on page 12 for an illustration of these existing trails. The cow-paths have been identified with a value based on criteria such as slope, width, and potential views which help to determine which trails would be suitable for development in the trail system. The graphic on page 12 identifies specific values for each of these trail segments.

## HISTORIC FEATURES

The Como Woodland Outdoor Classroom area was identified as the Joyce Kilmer Arboretum in the early 1930's and contains remnants of three historic landscape features which could provide an additional educational element to the classroom. The Joyce Kilmer Memorial Fireplace is the most recognized historic feature in the area. It is in severe disrepair, however, its central location and visibility would provide an excellent site entry feature, focal point and gathering area.

Another historic feature once existed west of the fireplace and was known as the Joyce Kilmer Cascades. Although only visible today as a series of open depressions in the landscape, it would be an

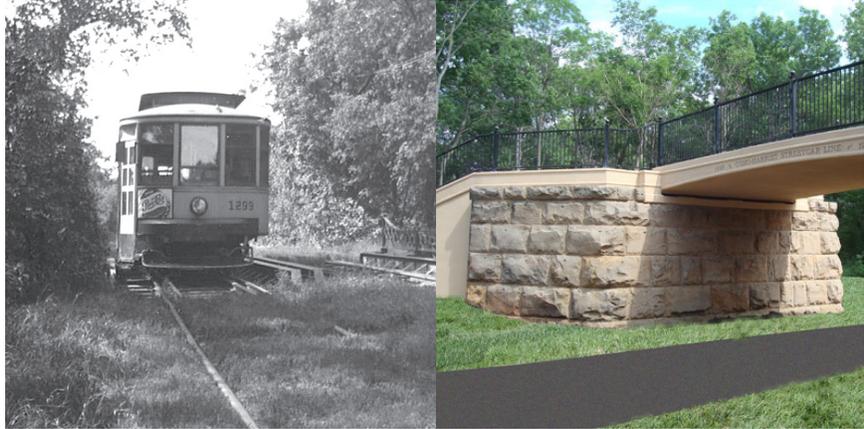


interesting interpretive opportunity to restore this WPA era feature based on historic photographs which exist at Saint Paul Parks and Recreation.

The sandstone bridge abutments which now carry a new bridge deck, are remnants of the Como-Harriet Streetcar line built by the Twin Cities Rapid Transit Company in 1905. Recent removal of overgrown vegetation around the abutments and construction of the new pedestrian/bicycle trail allow users to view the massive stone blocks up close.

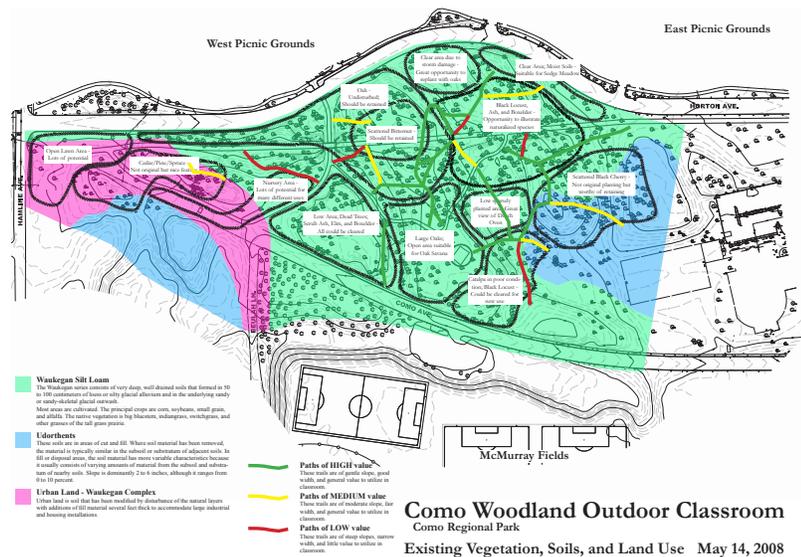
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## VEGETATION

A key benefit of the Como Woodland Outdoor Classroom is the abundance of existing native tree species. These species include Bur Oak, Red Oak, Ash, Basswood, Butternut, White Pine, Cottonwood, and Hackberry. Other species which are not native to the area include Blackcherry, Black Locust, and Catalpa. The variety of species will influence how the woodland can be developed. See image below for an illustration of the location of these species and the value they have for the development of the woodland.

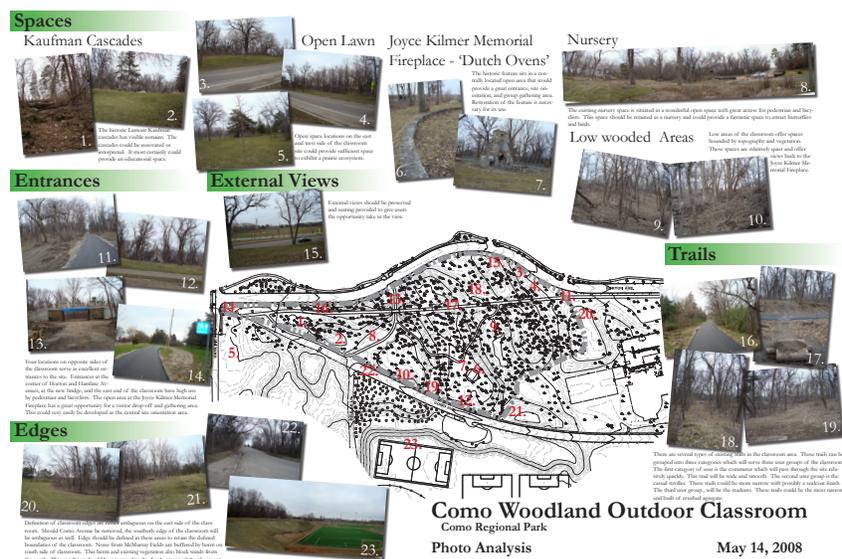


## SOILS

The Como Woodland Outdoor Classroom has three soil types - Waukegan Silt Loam, Udorthents, and Urban Land - Waukegan Complex. The graphic on the previous page illustrates the soil types and locations. The largest soil type in the classroom is Waukegan Silt Loam which is a very deep, well drained soil formed in 50 to 100 centimeters of loess or silty glacial alluvium and the underlying sandy or sandy-skeletal glacial outwash. The native vegetation is big bluestem, indiangrass, switchgrass, and other grasses of the tall grass prairie. Small areas of Udorthents and Waukegan Complex make up the balance of the site. Both Udorthents and Waukegan are characterized by disturbed land.

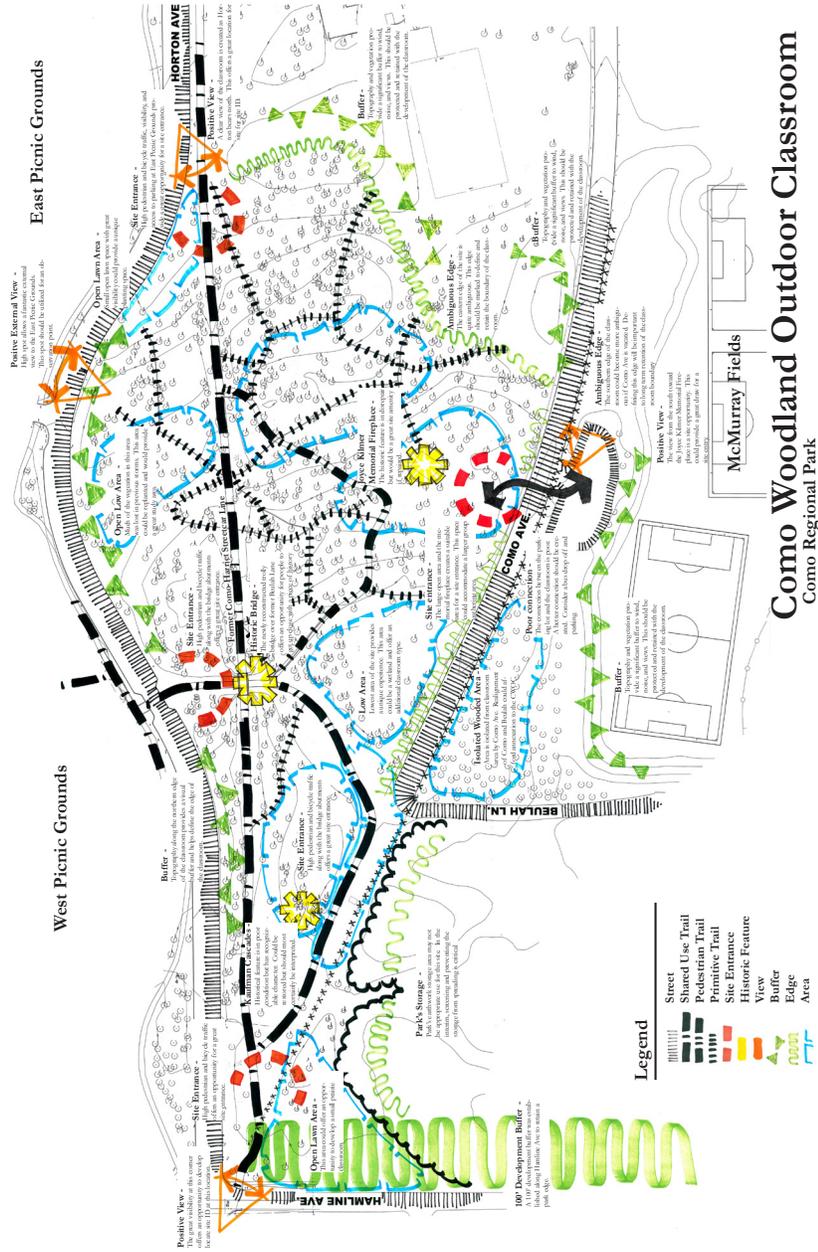
## VIEWS

Several significant views exist in the woodland. The Joyce Kilmer Memorial Fireplace is highly visible from Como Avenue and other points within the woodland and functions as an orientation point for the site user. Developing this area as the main entrance and utilizing this feature as an entry element, will continue to provide the site



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April 30, 2008

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user with a sense of place while exploring the woodland. In the northeast corner of the woodland, is a prominent point overlooking the East Picnic Grounds. This area would provide an ideal spot for a bench for site users to stop and take in the view. Another excellent view is through the former trolley corridor. The trail clearing and overstory trees create a long vista through the woodland.



Woodchuck inhabitant in  
Como Woodland

# Concept 1 - Native Restoration

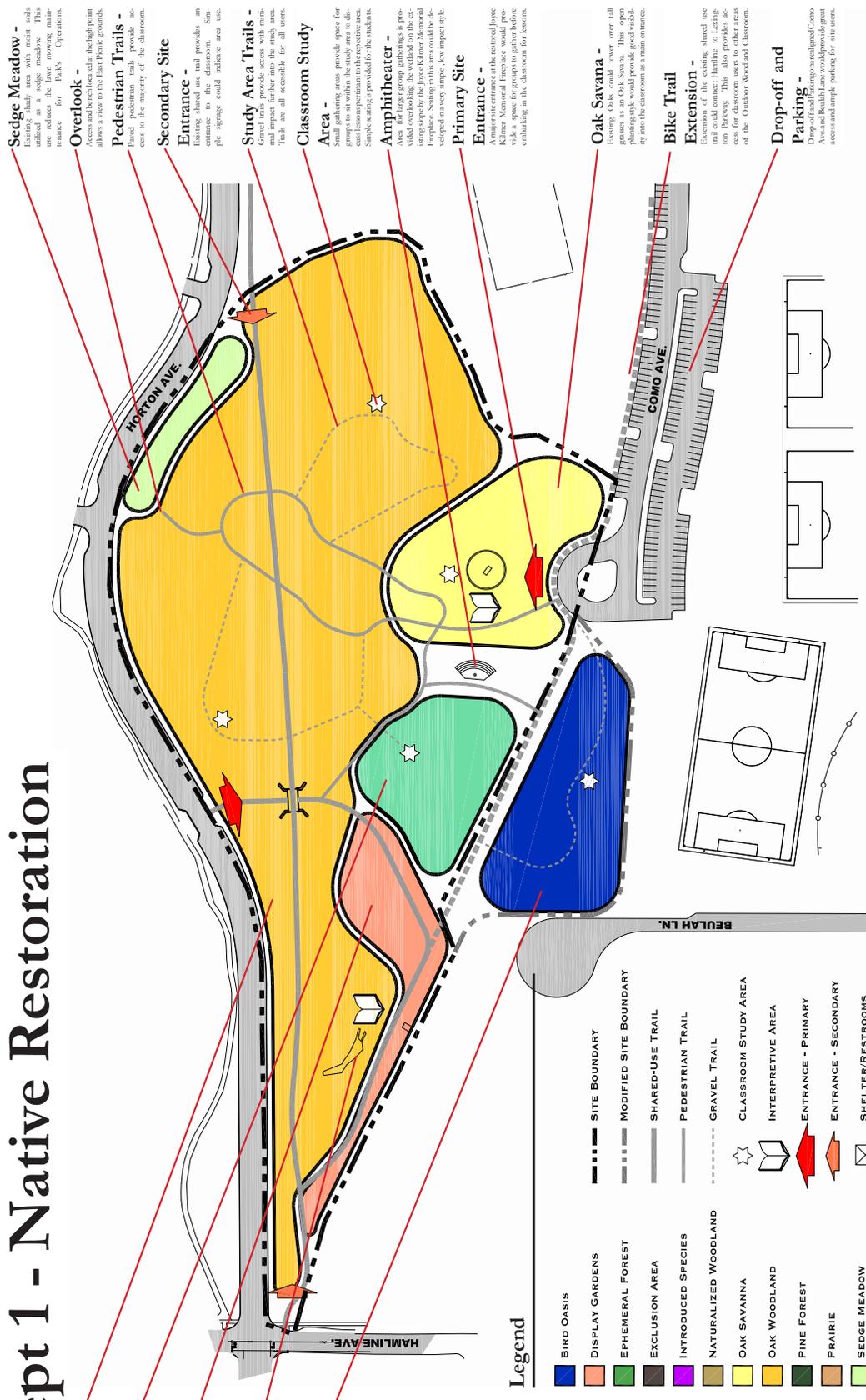
**Oak Woodland -**  
Restoration of the primary native species of the area could be developed over the majority of the site.

**Wetland -**  
Much of the vegetation in this area could be removed to permit regrading, lining, and planting as a wetland.

**Display Gardens -**  
The area currently used as a nursery could be redeveloped as a display garden to feature native plants and trees for use as study areas.

**Historic Cascades -**  
This area could be interpreted through the use of a series of interpretive trails that are left as is as evidence of a former use.

**Bird Oasis -**  
The area opened up by the vegetation of the area could be interpreted through the use of a series of interpretive trails used for plantings that attract birds.



**Sedge Meadow -**  
Existing shady area with more soil added to create a sedge meadow. This area would be used as a main entrance for Park Operations.

**Overlook -**  
A high point overlooking the site with a view of the city and surrounding area.

**Pedestrian Trails -**  
Paved pedestrian trails provide access to the majority of the classroom.

**Secondary Site Entrance -**  
Existing shared use trail provides an alternative entrance to the classroom. A bike storage could indicate area use.

**Study Area Trails -**  
Trails lead to various study areas and impact further into the study area. Trails are all accessible for all users.

**Classroom Study Area -**  
Small gathering areas provide space for groups to sit within the study area to discuss lessons pertinent to the respective area. Sample readings provided for the students.

**Amphitheater -**  
Area for larger group gatherings is provided overlooking the wetland on the existing site. Seating in this area could be developed in a very simple, low impact style.

**Primary Site Entrance -**  
A major site entrance at the restored Joyce Kilmer Memorial Entrance would provide a new entrance to the classroom for lessons.

**Oak Savanna -**  
Existing Oaks could tower over tall grasses as an Oak Savanna. This open area would be used as a main entrance to the classroom as a main entrance.

**Bike Trail Extension -**  
Extension of the existing shared use trail could connect Hamline to Como Ave and provide access to other areas of the Outdoor Woodland Classroom.

**Drop-off and Parking -**  
Drop-off and Pick-up on a paved Como Ave and Beulah Lane would provide great access and ample parking for site users.

## Legend

- BIRD OASIS
- DISPLAY GARDENS
- EPIMERAL FOREST
- EXCLUSION AREA
- INTRODUCED SPECIES
- NATURALIZED WOODLAND
- OAK SAVANNA
- OAK WOODLAND
- PINE FOREST
- PRAIRIE
- SEDGE MEADOW
- WETLAND
- SITE BOUNDARY
- MODIFIED SITE BOUNDARY
- SHARED-USE TRAIL
- PEDESTRIAN TRAIL
- GRAVEL TRAIL
- ☆ CLASSROOM STUDY AREA
- ☆ INTERPRETIVE AREA
- ENTRANCE - PRIMARY
- ENTRANCE - SECONDARY
- X SHELTER/RESTROOMS
- AMPHITHEATER/ GATHERING AREA

# Como Woodland Outdoor Classroom

Como Regional Park

May 14, 2008

## CONCEPT DEVELOPMENT

Three different concepts were developed and explored in detail. These include *Native Restoration*, *Naturalized Woodland*, and *New Introductions*. Each concept is explained in detail as follows.

### CONCEPT ONE - Native Restoration

The study areas of this concept include an Oak Woodland, Display Gardens, Oak Savanna, Sedge Meadow, Bird Oasis, and Wetland. Restoration of an Oak Woodland over a large area of the site would be the key feature of this plan. A small sedge meadow takes advantage of the open area with shady, moist soils on the north slope along Horton Avenue. The area around the Joyce Kilmer Memorial Fireplace would be developed as an Oak Savanna. The low area just to the west of the Joyce Kilmer Memorial Fireplace would be cleared and prepared as a wetland. Display gardens for Parks and Recreation Arts and Gardens staff would be rearranged along the shared use trail which connects with the intersection of Horton and Hamline Avenues. The isolated area between McMurray fields and Como Avenue would be utilized as a bird oasis.

A system of three trail types provides an accessible route to all areas of the classroom. The first trail type would include the recently completed 10' wide paved, shared-use trail. A narrow bituminous stone-surfaced trail would provide a secondary level of access to each classroom study area. The third level of trail would be a soft-surface gravel or woodchip trail which provides interior circulation throughout each distinct classroom area.

Woodland classrooms are located in each of the woodland areas. These classrooms would have benches for small groups of 4-8 students to sit while the study group leader provides the lesson for the area. The benches could be as simple as a half log or stone boulder.

# Concept 2 - Naturalized

**Oak Woodland -**  
Restoration of the primary native species of the area could be developed over a large portion of the site.

**Wetland -**  
Much of the vegetation in this area could be removed to permit regrading, lining, and planting as a wetland to access the wetland for up-close study.

**Pine Forest -**  
An area of existing pines could be expanded to provide a nice forest area for study.

**Historic Cascades -**  
This area could be interpreted through the use of interpretive signs and native keystone maintenance by Parks Operations.

**Prairie -**  
The open area at the intersection of Horton and Hamline avenues could be used for native keystone maintenance by Parks Operations.

**Display Gardens -**  
An expansion of the shared use area could be expanded for a display of shrubs, perennials, ornamental grasses, and so forth. This area could attract butterflies and birds for use as a study area.

**Sedge Meadow -**  
Existing shady area with moist soils utilized as a sedge meadow. This area could be interpreted through interpretive signs and native keystone maintenance by Parks Operations.

**Study Area Trails -**  
Gated trails provide access with minimal impact further into the study area. Trails are all accessible for all users.

**Secondary Site Entrance -**  
Existing Hamline Ave trail provides an alternate site entrance. Additional bike storage could indicate area use.

**Pedestrian Trails -**  
Based pedestrian trails provide access to the majority of the classroom.

**Classroom Study Area -**  
Small gathering areas provide space for groups to sit within the study area to discuss lessons pertinent to the respective area.

**Naturalized Forest -**  
Species of trees native to this area but not currently present in the area could be introduced as a valuable tree make up this area and provide a great learning experience.

**Shelter/Restrooms -**  
A simple shelter and restroom facility would provide an area for groups to gather before or after their visit to the classroom.

**Primary Site Entrance -**  
An existing trail along the intersection of Horton and Hamline Avenues would provide a space for groups to gather before embarking in the classroom for lessons.

**Oak Savanna -**  
Existing Oaks could tower over all grasses as an Oak Savanna. This open planting style would provide good visibility into the classroom as a main entrance.

**Bike Trail Connection -**  
Restroom of the existing shared use trail would provide an alternate main entrance of the classroom.

**Drop-off and Bus Parking -**  
A drop-off area on a redigned Como Ave would provide great access and ample parking as a main entrance for site users.



## Como Woodland Outdoor Classroom

Como Regional Park

May 14, 2008

Two major site entry points are shown on this concept; the Joyce Kilmer Memorial Fireplace north of Como Avenue, and the site of the new bridge south of Horton Avenue. Secondary entrances would be located on the east and west ends of the classroom where the shared use trail enters the site.

Restoration of the Joyce Kilmer Memorial Fireplace and Cascades including the addition of interpretive signage at these features as well as the Streetcar bridge, would recount the interesting history of these features.

A final feature of this concept is the construction of a small amphitheater for group presentations on the gentle slope west of the Joyce Kilmer Memorial Fireplace .

#### CONCEPT TWO - Naturalized Woodland

In concept two, the study areas include an Oak Woodland, Display Gardens, Oak Savanna, Sedge Meadow, Naturalized Woodland, Wetland, Pine Forest, and Prairie. The area developed as a restored Oak Woodland is reduced in size from the first concept. On the eastern side of side of the woodland is an area identified as a Naturalized Woodland. This area allows those species which are not native to this area but have adapted to this region, to be studied. A small sedge meadow takes advantage of the open area with shady, moist soils on the north slope along Horton Avenue. The area around the Joyce Kilmer Memorial Fireplace would be developed as an Oak Savanna. The low area just to the west of the Joyce Kilmer Memorial Fireplace would be cleared and prepared as a wetland similar to the first concept, but could also be expanded into the isolated area between McMurray fields and Como Avenue. Display gardens for Parks and Recreation Arts and Gardens staff would be rearranged along the shared use trail which connects with the intersection of Horton and Hamline Avenues. At the intersection of Hamline and Horton Avenues is an ideal location for a Prairie study area. The area around the Cascades would be developed as a

# Concept 3 - New Introductions

**Oak Woodland -**  
Restoration of the primary native species of the area could be developed over a large portion of the site.

**Ephemeral Forest -**  
A low area could provide an ideal location for a seasonal forest.

**Historic Cascades -**  
The area could be reconstructed to provide a beautiful cascading stream setting for the display gardens. An interpretive sign could show what it looked like when first constructed.

**Prairie -**  
The open area at the intersection of Horton and Hamline Avenues could be used as a prairie area. This use could help alleviate maintenance by Parks Operations.

**Display Gardens -**  
A large area could display shrubs, perennials, and annuals. The area could be laid out adjacent to a shelter/restroom facility to provide a beautiful setting to attract butterflies and birds. This area would showcase suitable plants for a Minnesota landscape.

**Study Area Trails -**  
Gravel trails provide access with minimal impact further into the study area. Trails are all accessible for all users.

**Pedestrian Trails -**  
Paved pedestrian trails provide access to the majority of the classroom.

**Secondary Site Entrance -**  
Existing shared use trail provides an entrance to the classroom. Signage could indicate area use.

**Classroom Study Area -**  
Small gathering areas provide space for groups to sit within the study area to discuss lessons pertinent to the respective area. Sample seating is provided for the students.

**Naturalized Forest -**  
Species of trees not native to this area but have succeeded in establishing themselves as a valuable tree make up this area and provide a great learning experience.

**Introduced Species -**  
An area around the restored Joyce Kilmer fountain could be used to display species once not suitable for a Minnesota landscape. With a warmer climate some species may be suitable to introduce to our area.

**Exclusion Area -**  
A fenced off area to allow a forest to live without impact.

**Drop-off and Parking -**  
A designated parking area on a railroad Como Ave. would provide access and ample parking as a secondary entrance for site users.



## Como Woodland Outdoor Classroom

Como Regional Park

May 14, 2008

Coniferous forest in this concept.

A system of three trail types provides an accessible route to all areas of the classroom. The first trail type would include the recently completed 10' wide paved, shared-use trail. A narrow bituminous stone-surfaced trail would provide a secondary level of access to each classroom study area. The third level of trail would be a soft-surface gravel or woodchip trail which provides interior circulation throughout each distinct classroom area.

Woodland classrooms are located in each of the woodland areas. These classrooms would have benches for small groups of 4-8 students to sit while the study group leader provides the lesson for the area. These benches could be as simple as a half log or stone boulder.

This concept identifies one main entrance located at the restored Joyce Kilmer Memorial Fireplace. A shelter which serves as a gathering space with maps of the woodland, is shown at this location as well as a restroom facility. Secondary entrances would be located on the east and west ends of the Classroom where the shared use trail enters the site and at the site of the new bridge just south of Horton Avenue.

The concept includes restoration of the Joyce Kilmer Memorial Fireplace and Cascades and installation of interpretive signage at these sites as well as the Streetcar Bridge site.

### CONCEPT THREE - New Introductions

Concept three identifies seven separate study areas including an Oak Woodland, Display Gardens, Naturalized Woodland, Ephemeral Forest, Introduced Species Woodland, Exclusion area, and Prairie. The Oak Woodland and Naturalized Woodland are identical to concept two. A key difference in concept three is the area around the Joyce Kilmer Memorial Fireplace, which would be developed as an

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Introduced Species Woodland. The changes we have experienced in our climate over the past few decades have allowed species that have been in the fringes of our hardiness zone to survive. This Introduced Species Woodland would provide an area to study survivability of species which are native to areas just outside our hardiness zone. The low area west of the Joyce Kilmer Memorial Fireplace would be developed as an Ephemeral Forest. The isolated area between McMurray fields and Como Avenue is identified as an exclusion area. The purpose of the exclusion area is to allow the forest to evolve without intervention. Concept Three proposes the largest display gardens of the three concepts for Parks and Recreation Arts and Gardens staff. This area includes the restored Joyce Kilmer Cascades. Hamline and Horton Avenue area would be developed as a Prairie study area.

A system of three trail types provides an accessible route to all areas of the classroom. The first trail type would include the recently completed 10' wide paved, shared-use trail. A narrow bituminous stone-surfaced trail would provide a secondary level of access to each classroom study area. The third level of trail would be a soft-surface gravel or woodchip trail which provides interior circulation throughout each distinct classroom area.

Woodland classrooms are located in each of the woodland areas. These classrooms would have benches for small groups of 4-8 students to sit while the study group leader provides the lesson for the area. These benches could be as simple as a half log or stone boulder.

There is one main entrance in Concept Three located at the restored historic streetcar bridge. Secondary entrances would be located on the east and west ends of the classroom where the shared use trail enters the site and from the south at the Joyce Kilmer Memorial Fireplace.

Upon restoration of the Joyce Kilmer Memorial Fireplace and

Cascades, interpretive signage would be installed at each site including the historic Como-Harriet Streetcar bridge site.

## CONCEPT REVIEW

Each concept alternative was discussed by the Task Force which then provided feedback on the strengths and weaknesses of each concept. The comments were used to develop the final Master Plan and included:

- The trail hierarchy is good - Circulation in Concept One is preferred.
- The look of an arboretum or garden is not the appearance desired.
- The Joyce Kilmer Memorial Fireplace is preferred as the main entrance.
- The Wetland, Sedge Meadow, and Savanna should be included in the final plan.
- The Display Garden is too large in Concept Three.
- The Joyce Kilmer Cascades should be restored.
- The overlook in Concept One should be retained.
- The Coniferous Woodland idea should be retained.

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## MASTER PLAN

The final master plan illustrates a system of woodland classrooms, multi-surfaced trails, developed entrances, historical points of interest, and small and large group gathering areas accessible to individuals of multiple abilities and interests.

The 17 3/4 acre woodland is divided into eight woodland classrooms and includes :

**Coniferous Forest** (1.9 acres)

An existing grove of coniferous trees provides a setting for a developed coniferous forest.

**Display Gardens** (.85 acres)

Currently utilized by Parks and Recreation Gardeners, this space will highlight useful native species in the home landscape.

**Transitional Woodland** (3.2 acres)

Woodland of various non-native species of plants not typically found in a woodland community.

**Oak Savanna** (2.3 acres)

The transition between forest and grassland - a mixture of grasses and trees.

**Oak Woodland** (5.8 acres)

The predominant native plant community in this area.

Oak species and respective understory plantings make up the composition of this woodland community.

**Sedge Meadow** (.35 acres)

Typically found in flat low-lying river or stream bottoms, the perpetually shaded, rich, moist soils provide the opportunity to exhibit this plant community.

**Tallgrass Prairie** (.95 acres)

A type of grassland dominated by herbaceous plants, especially grasses and nearly absent of trees.

# CITY OF SAINT PAUL

DEPARTMENT OF PARKS AND RECREATION - DESIGN SECTION

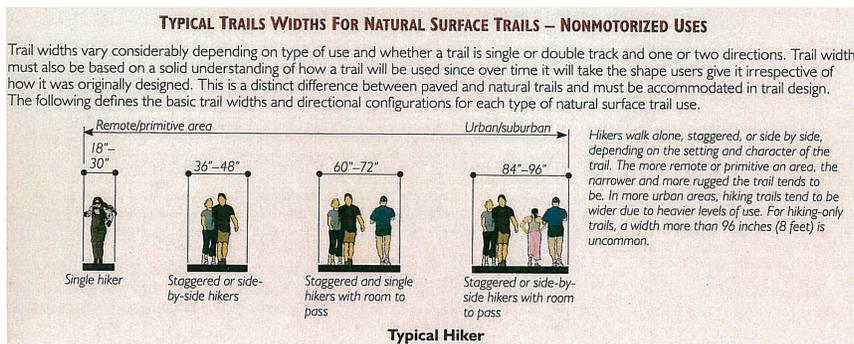
## Ephemeral Wetland (2.3 acres)

Ephemeral wetlands temporarily hold water, often times these wetlands dry up in mid to late summer. This area may allow breeding of certain amphibians and invertebrates.

There are four entrances shown in the Master Plan. The main entrance is located on the south side of the Joyce Kilmer Memorial Fireplace off Como Avenue. This restored feature provides a unique element to attract site visitors, a gathering place for groups, and a historic interpretive opportunity. In the final Master plan (as well as all of the previous concepts), Beulah Lane and Como Avenue were each terminated by a cul-de-sac to eliminate through traffic and allow additional land area between Como Avenue and McMurray Fields to be incorporated into the Como Woodland Outdoor Classroom. A vehicular drop off and turn-a-round capable of handling buses is located at the end of Como Avenue. A simple shelter is located at this entrance to provide cover during inclement weather, site information signage, and future restrooms. The remaining three entrances are at the north, east, and west edges of the woodland. These entrances may simply provide a sign identifying the entrance to the woodland.

A network of three trail types are shown, providing access into and through the area for a variety of user groups. The trail types will include:

**Shared-use trail** - A new trail constructed in 2008 crosses



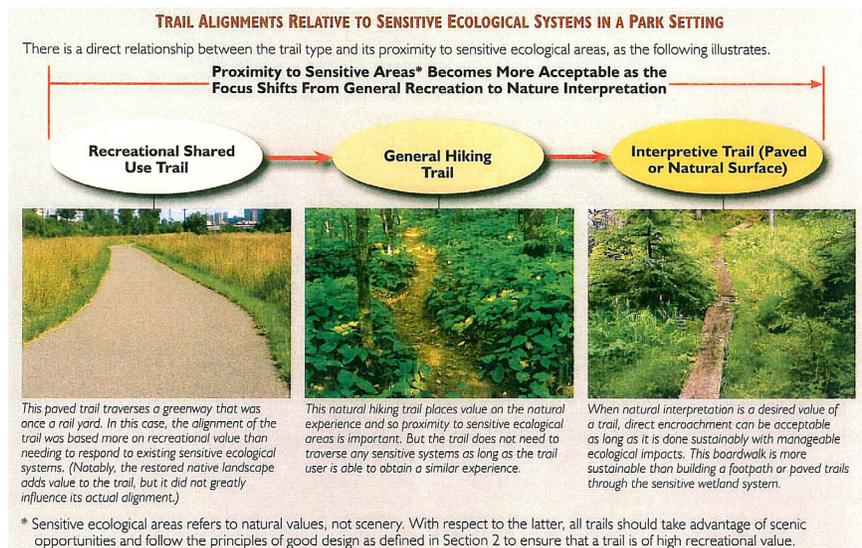
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from west to east through the woodland in the corridor formally utilized by the Como-Harriet Streetcar Line and passes over and under a new bridge deck constructed on the historic trolley bridge abutments. This trail is a 10 foot wide bituminous trail and is suitable for bikers, walkers, joggers, and in-line skaters. Benches located along the trail can provide space for visitors to stop, relax, and take in the scenery of the woodland.

**Pedestrian Trail** - The second level of the trail system is for pedestrians only. This trail will be approximately 5-6 feet wide with a stone sealcoated bituminous surface. These trails will provide site users the ability to access all areas of the woodland.

**Woodland Trail** - The third level of the trail system will be a soft surfaced trail that allows access to the most remote areas of the woodland. These trails may be 3 to 4 feet wide and constructed of gravel or woodchips. This provides access yet remains indiscriminate in the woodland. These trails also provide access to the woodland classrooms where small groups (6-8 students) can gather for informal discussions.



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- CONIFEROUS FOREST** 1.9 ACRES  
AN EXISTING GROVE OF CONIFEROUS TREES PROVIDES A SETTING FOR A DEVELOPED CONIFEROUS FOREST
  - DISPLAY GARDENS** .85 ACRES  
CURRENTLY UTILIZED BY PARKS AND RECREATION GARDENERS, THIS SPACE CAN HIGHLIGHT USEFUL NATIVE SPECIES IN THE HOME LANDSCAPE.
  - TRANSITIONAL WOODLAND** 3.2 ACRES  
WOODLAND OF VARIOUS SPECIES OF PLANTS NOT TYPICALLY FOUND AS A WOODLAND COMMUNITY.
  - OAK SAVANNA** 2.3 ACRES  
THE TRANSITION BETWEEN FOREST AND GRASSLAND - A MIXTURE OF GRASSES AND TREES.
  - OAK WOODLAND** 5.8 ACRES  
THE NATIVE PLANT COMMUNITY PREDOMINANT IN THE AREA. OAK SPECIES AND RESPECTIVE UNDERSTORY PLANTINGS MAKE UP THIS COMMUNITY.
  - SEDGE MEADOW** .35 ACRES  
NORMALLY FOUND IN LOW-LYING, FLAT, RIVER OR STREAM BOTTOMS, THE PERPETUALLY SHADED, RICH, MOIST SOILS PROVIDE THE OPPORTUNITY TO EXHIBIT THIS PLANT COMMUNITY.
  - TALLGRASS PRAIRIE** .95 ACRES  
A TYPE OF GRASSLAND DOMINATED BY HERBACEOUS PLANTS, ESPECIALLY GRASSES AND NEARLY ABSENT OF TREES.
  - EPHEMERAL WETLAND** 2.3 ACRES  
EPHEMERAL WETLANDS TEMPORARILY HOLD WATER, OFTENTIMES, THESE WETLANDS DRY UP IN MID TO LATE SUMMER. THIS AREA MAY ALLOW BREEDING OF CERTAIN AMPHIBIANS AND INVERTEBRATES.
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- SITE BOUNDARY**
  - SHARED-USE TRAIL**
  - PEDESTRIAN TRAIL**
  - GRAVEL TRAIL**
  - BOARDWALK**
  - CLASSROOM STUDY AREA**
  - INTERPRETIVE AREA**
  - SHELTER/RESTROOMS**
  - OVERLOOK AREA**
  - ENTRANCE - PRIMARY**
  - ENTRANCE - SECONDARY**

MASTER PLAN

## PROJECT PHASING PLAN

The following page illustrates the suggested phasing plan for the woodland classroom.

### **PHASE 1 - Restoration of Joyce Kilmer Memorial Fireplace**

Restoration of the Joyce Kilmer Memorial Fireplace and adjacent stone circle seating at the woodland entrance will be done in phase one.

Restoration of historic fireplace .....	\$205,000.00
Design and Engineering .....	\$37,000.00
<b>Total.....</b>	<b>\$242,000.00</b>

### **PHASE 2 - Trail construction and trail signage**

Development of the trail system, including both paved pedestrian trails and gravel or woodchip trails and installation of a trail signage system. The signage will include site orientation signage/woodland map and classroom information posts. The entry points would be developed as part of this phase.

Bituminous trails .....	\$66,000.00
Gravel trails.....	\$4,000.00
Stairs .....	\$15,000.00
Entry and trail signage .....	\$50,000.00
Design and Engineering .....	\$25,000.00
<b>Total.....</b>	<b>\$160,000.00</b>

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## PHASE 3 - Develop study areas

Phase 3 includes the development of the study areas, except for the wetland study area. The development of these study areas would include planting and development of seating areas in the small group classroom areas.

Coniferous Forest.....	\$20,000.00
Display Gardens.....	\$25,500.00
Transitional Woodland.....	\$13,000.00
Oak Savanna.....	\$20,000.00
Oak Woodland.....	\$20,000.00
Sedge Meadow.....	\$2,500.00
Tallgrass Prairie.....	\$9,000.00
Design and Engineering.....	\$20,000.00
<b>Total.....</b>	<b>\$130,000.00</b>

## PHASE 4 - Wetland Study Area development and road improvements to Como Avenue and Beulah Lane (by others).

Phase four includes development of the Wetland Study Area including the addition of the isolated area south of the Como Avenue and Beulah Lane intersection. Implementation of this phase is dependent on the completion of roadway improvements around McMurray Fields required for the construction of the proposed Como Pool.

Road Improvements.....	\$ - NA -
Wetland Development.....	\$130,000.00
Design and Engineering.....	\$23,500.00
<b>Total.....</b>	<b>\$153,500.00</b>

**PHASE 5 - Restoration of Joyce Kilmer Cascades, Interpretive Signage, and Entry Area Shelter/Restroom**

The final development phase would include restoration of the historic Joyce Kilmer Cascades. Interpretive signage would be added at the Joyce Kilmer Memorial Fireplace, Joyce Kilmer Cascades, and Historic Trolley Bridge. A small shelter and restroom would be constructed at the site entry area.

Restoration of cascades.....	\$300,000.00
Interpretive signage.....	\$15,000.00
Entry area shelter/restrooms .....	\$250,000.00
Design and Engineering.....	\$92,700.00
<b>Total.....</b>	<b>\$657,700.00</b>

<b>PROJECT TOTAL.....</b>	
PHASE 1 .....	\$242,000.00
PHASE 2.....	\$160,000.00
PHASE 3 .....	\$130,000.00
PHASE 4.....	\$153,500.00
PHASE 5 .....	\$657,700.00
<b>Total.....</b>	<b>\$1,343,200.00</b>

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- SITE ENTRANCE
  - ☆ CLASSROOM
  - 📖 INTERPRETIVE SIGN
  - BOARDWALK
  - ⋯ GRAVEL TRAIL
  - PAVED PEDESTRIAN TRAIL
  - SHARED USE TRAIL
- 
- PHASE 1
  - PHASE 2
  - PHASE 3
  - PHASE 4
  - PHASE 5

PHASING PLAN