Lake Byllesby Regional Park
Master Plan

Prepared by:

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Prepared for:

Dakota County Parks

July 2005

ACKNOWLEDGEMENTS

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Appendices

CHAPTER 1

Introduction

OVERVIEW

The Cannon River Valley is becoming an important regional recreation destination and Lake Byllesby is envisioned to be one of the primary recreational hubs of the valley. Lake Byllesby is the largest recreational lake in the far southern metro area and for that matter, in southern Minnesota. The 620-acre Lake Byllesby Regional Park has been a Dakota County recreational facility since 1970.

This master plan document is an update of the previous master plan completed in 1987. The master plan for Lake Byllesby Regional Park is a visionary and strategic document that is intended to build consensus around directives and guide investments in the park for the next fifteen years. This plan is a reflection of the inherent qualities of the landscape, of the community values heard through the planning process and of future recreational needs in the Cannon River Valley. The master plan has been formulated in the context of community input and feedback that occurred through every stage of the planning process. Certainly not every wish for Lake Byllesby has been suggested in the master plan. However, each comment has been carefully considered, has had professional expertise applied and has been weighed against alternative viewpoints.

The Plan is written for a fifteen-year lifespan. Although it is recognized that circumstances during that time will require some evolution of the plan, every attempt has been made to incorporate applicable trends such as recreational use and population growth while building the master plan around the inherent qualities of the park and the desires of anticipated park visitors.

WELCOME TO LAKE BYLLESBY REGIONAL PARK

Lake Byllesby Regional Park is located on the southern border of Dakota County near Cannon Falls, Minnesota. The park is characterized by its namesake, Lake Byllesby, an impoundment of the Cannon River created by a hydroelectric dam built in 1910. The park's landscape is relatively flat with the most dramatic topographic change occurring along some stretches of the Lake Byllesby shoreline.

The primary focus of the recreational experience at Lake Byllesby Regional Park is the reservoir. Unfortunately, water quality problems due to upstream agricultural runoff limit direct-contact (swimming) water recreation during portions of the year. Lake elevation draw-downs every fall expose mudflats in Byllesby that provide high quality shore bird habitat. According to avid birders, the Byllesby mudflats offer some of the best shore bird watching in Minnesota. The dam itself, although not technically in the park boundary, also provides recreational and cultural interest to visitors. The base of the dam is a popular fishing spot and the dam structure and function is intriguing.

The Lake Byllesby reservoir divides the park into two distinct areas. The open landscape of East Byllesby contains the recreational development of the park with RV/tent camping, picnicking and water-related recreation including a boat launch and beach. The more forested West Byllesby is recreationally underdeveloped although recently purchased park land at the northwest corner of Lake Byllesby is a growing destination for birders at the Byllesby mudflats.

Lake Byllesby is often a busy place during summer weekends mainly due to RV campers. Many visitors have been camping at Byllesby for years and through multiple family generations. Despite this, Lake Byllesby experiences relatively low visitorship within the Dakota County park system. The reasons are that 1) Lake Byllesby is removed from the population centers of the metro area who tend to look northward rather than south for lake experiences and 2) the park offers only a narrow range of recreational experiences focussed on camping and boating.

Here are some basic statistics about Lake Byllesby Regional Park:

- park size: 620 acres (lake not included)
    - East Byllesby: 254 acres
    - West Byllesby: 366 acres
    - publicly (Dakota County) owned: 165 acres
    - inholdings (private ownership within official park boundary): 455 acres
- Lake Byllesby water surface area: 1,300 acres
- roughly 3 miles north to south and 2 miles east to west
- topographic change: 230 feet
- access via: Cannon River Blvd, 292nd Street E, 295th Street E, Harry Ave, Gaylord Ave
- land area currently developed for recreational use: 6%
- land area dedicated to recreational development by this master plan: 30%

VISUAL CHARACTER

Lake Byllesby Regional Park's character is heavily influenced by Lake Byllesby itself. Most (but not all) places in the park are best referenced by their relationship to the lake. The park's visual character is described below according to geographic area:

East Byllesby recreation area: Most people experience the park through the developed recreation area. This area has flat topography with a traditional park lawn character. The area encompasses most of the East Byllesby shoreline and adjacent lands to include the uses of camping, picnicking, playground, circulation roadways, recreational buildings and parking.

Byllesby dam: The portion of the park around the Byllesby dam is an intense transition area. Above the dam, the flat water of Lake Byllesby stretches between the Dakota and Goodhue County shores. Below the dam is felt the power of lake water rushing through the hydo-turbines and then quickly returning to normal flow in a small gorge of the Cannon River. This area is marked by the industrial character of the power plant adjacent to the most natural portion of East Byllesby – the shoreline below the dam.

Echo Point: Echo Point is arguably the most beautiful location of the park. It stretches into the lake from East Byllesby. The point has a meadow and savanna character and contains undeveloped park land as well as several private homes lining the point's north shore. The point offers panoramic vistas of the lake as well as a view to dramatic sandstone bluffs a short distance across the lake to the south.

Aggregate pit: A portion of East Byllesby at one time contained an aggregate mine. The mine has an old-field landscape character with steep banks, a sunken pit floor and remnant soil and aggregate piles.

Byllesby mudflats: In most years, the mudflats in West Byllesby are only visible from the fall to the spring. They become exposed due to a managed lake water elevation draw-down. The mudflats attract shore birds that, according to avid birders, offer some of the best shore bird watching in Minnesota. While most of the mudflats are surrounded by densely vegetated shoreline, the recent parkland addition of mudflat shoreline with an open and accessible character is attracting more birders every year.

Cascade: In the pioneer era, the town of Cascade was platted on the Cannon River, slightly up-river from current Lake Byllesby. While a few buildings were developed in the town, the area is now abandoned and gown-over floodplain with the only signs of settlement being the foundation of a gristmill and stone abutments for a Cannon River bridge crossing. Much of the platted town is within the park and is typical of the West Byllesby floodplain forest landscape.

Picnic shelter – East Byllesby

Byllesby Dam

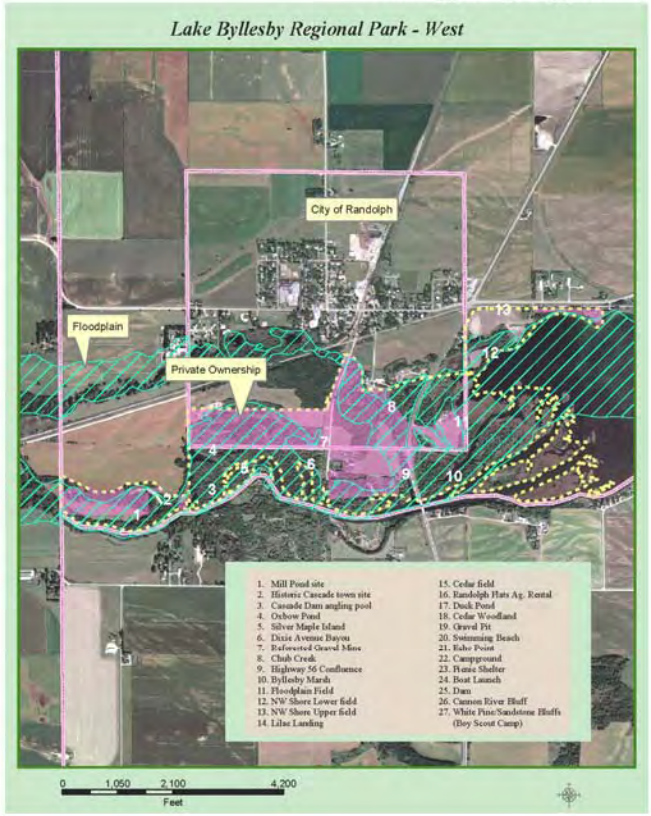
Fishing below Byllesby Dam

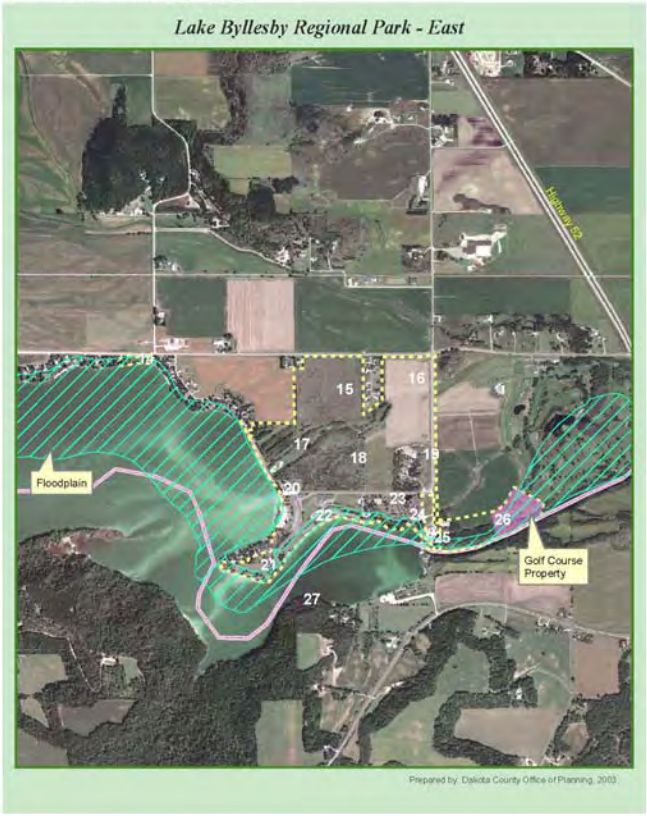
Campground and winter activities facility

Campground

Swimming beach facilities

Lake Byllesby Regional Park - Aerial Photography





Swimming beach

Dog sledding is a popular winter activity

Rip Rap along shoreline of Lake Byllesby

Boat launch

View of bluffs from Echo Point

Cannon River bluffs below Byllesby Dam

Mud flats – Byllesby west

Highway 56 confluence

Cannon River at bridge ruin – Byllesby west

Mill ruin – Byllesby west

Cannon River bottom near mill ruin – Byllesby west

LAKE BYLLESBY'S ROLE IN THE REGIONAL SYSTEM

Dakota County is one of numerous park implementing agencies that operates in coordination with the Metropolitan Council to designate a regional system of recreational facilities. While the implementing agency owns, maintains and operates the regional facilities, they are eligible for funding and assistance from the Metropolitan Council. Dakota County owns seven recreational facilities designated as part of the Regional Park System.

The Regional Park System contains four major park classifications; park reserves, regional parks, regional trails, and special recreation features. Lake Byllesby is one of two Dakota County facilities designated as a "regional park," defined as follows:

- Regional Parks are areas of natural or ornamental quality for nature-oriented outdoor recreation such as picnicking, boating, fishing, swimming, camping and trail uses. The minimum size is 100 acres with a desired size of more than 200 acres. Access to water bodies suitable for recreation is of particular importance in regional parks.

RELATIONSHIP WITH OTHER PLANS

Dakota County Parks Plan

The Dakota County Parks Plan contains four park planning documents combined into a single plan with system-wide information on all Dakota County Parks and trails. The four documents include a Policy Plan, a Park System Plan, a Natural Resources Management Plan and an Outdoor Education Plan.

The Lake Byllesby Regional Park Master Plan is consistent with the Policy Plan that identifies major goals for the parks and outlines polices and strategies for reaching these goals. The plan's general vision is a park system that;

1. *Protects and preserves important natural, historic and/or cultural areas and landscapes;*
2. *Provides opportunities for the recreational enjoyment and education of the public; and*
3. *Complements the opportunities offered by other outdoor education and recreation providers.*

The County uses land acquisitions, park development, and natural resource/outdoor education programming as tools in achieving this vision.

This plan document is consistent with the Park System Plan and its description of Lake Byllesby Regional Park's role in the park system, as a park that offers a wide variety of lakeshore recreational experiences.

This plan document is consistent with the Natural Resource Management Plan in recommending selective restoration of prairie, savanna, and high-quality woodlands. m.

This plan document is consistent with the Outdoor Education Plan for interpreting the environmental, historical and cultural themes of the park. The plan recommends focusing on current park users with presentation type activities and self-guided activities.

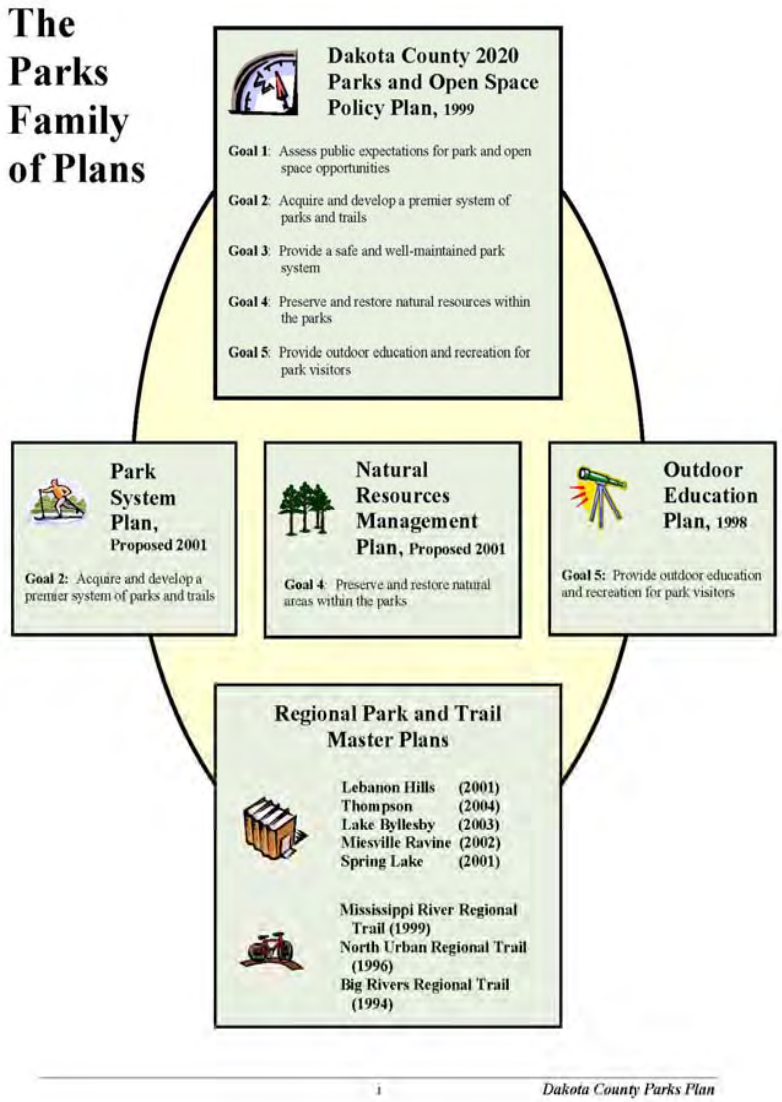
1987 Lake Byllesby Regional Park Master Plan

The previous master plan for Lake Byllesby Regional Park completed in 1987 lays the groundwork and overall guidance for the park. It states that the objective for Lake Byllesby is to provide active recreational use with a water recreation focus and limited habitat restoration.

The current version of master plan builds on the groundwork formulated by the 1987 plan, incorporates contemporary trends and issues and takes advantage of the more sophisticated and in-depth analysis and public involvement tools at our disposal.

THE PLANNING PROCESS

The year-long planning process to develop the master plan was built around detailed analysis, visits to the park and surrounding area, exploring a spectrum of alternatives, making sometimes difficult decisions about design directives and identifying sound strategies toward implementation. The planning approach was organized around public consensus-building as the process unfolded to create a well-grounded but far-reaching plan that will act as a roadmap for future park management. The underpinnings of the planning process are:



COMPREHENSIVE DEMAND FORCASTING

The process included a number of data-gathering techniques that made the effort in park programming comprehensive and forward-thinking. Techniques utilized included:

a. Statistically accurate, random-sample recreational opinion survey/demand forecasting.

b. 3 focus groups.

c. Cross-reference of survey findings with other independent research data.

d. Review of recreation and demographic trend data.

e. Interviews with specialized park user groups.

A CHARRETTE PLANNING PROCESS

To take greatest advantage of the innovation and depth of knowledge possessed by Dakota County staff and outside stakeholders, the park master planning process was conducted through an interactive charrette process facilitated by the consulting team. This format began in the analysis phase of the planning process with a stakeholder roundtable where stakeholders such as the Minnesota Department of Natural Resources (DNR), Dakota County Soil and Water Conservation District (SWCD), Minnesota State Historic Preservation Office (SHPO) and Metropolitan Council were brought together along with Dakota County staff and the Dakota County Park & Recreation Advisory Commission (PARAC). Insights provided at the roundtable became part of the resource-based landscape analysis for the park. The charrette format continued during the concept alternatives stage with a planning charrette involving the same group to conceptualize the basis for concept alternatives that were refined by the consulting team before the public concept review workshop.

PLACE-APPROPRIATE DESIGN

Combined with existing information, natural and cultural resource inventory mapping was prepared as a basis for landscape assessment. This resources-based assessment "tells a story" about the landscape - where there are ecological and cultural features to be respected and how programmed park elements and circulation patterns can "fit" within the ecological systems. Place-appropriate design informs decisions about adjacent landscape connections, view shed preservation, park boundaries, land management practices and of course park development and preservation directives.

COMMUNITY OUTREACH

Community outreach was conducted in the following ways:

a. Project newsletters were prepared at key points in the process for electronic and paper distribution. Each newsletter offered public feedback opportunities and invited readers to attend upcoming workshops and open houses.

b. News releases were prepared for local media announcing opportunities for public involvement in the planning process.

c. The Dakota County website had pages devoted to the planning process with progress updates and announcements for public involvement opportunities.

d. Posters describing the effort and pointing out locations for more information were displayed at Dakota County park facilities.

e. Invitations to open houses and workshops were sent to all park neighbors, inholding property owners and a listserv of people expressing interest in the process.

f. Exhibits were posted at the Dakota County Fair and a preference exercise of concept alternatives was conducted during the fair.

g. Public workshops and open houses were conducted at three stages in the process. A visioning open house was held early in the planning process to allow the public to review and troubleshoot base information collected and for the design team to listen to information the public wished to share before concept alternatives were explored. A concept review workshop was organized to review alternatives and build community consensus around a refined approach for the park. A master plan open house allowed an additional opportunity for community feedback prior to finalizing each park master plan.

h. Because of their unique knowledge and vested interests in the park, park neighbors and inholders including the local jurisdiction of Randolph Township and the City of Randolph were involved in small group discussions at three points through the planning process. The first of these discussions was an opportunity for the design team to gather deeper knowledge and understanding of Lake Byllesby. Follow-up meetings were held with this

group after concept alternatives were prepared because of a controversial land acquisition alternative that warranted close and ongoing communication.

MASTER PLAN AS A WORKING TOOL

This master plan will be a working document that will help guide park investments and management for years to come. The planning approach integrated innovative design with operations and maintenance issues, capital improvement planning and conservation practices.

The following work plan outlines how the planning approach was applied to the project.

Task 1 - Organize the Effort

The focus of this task was to lay the foundation for the planning process. Before work began, the consultants and county staff made sure that all expectations for the process and desired outcomes were clearly understood.

Task 2 - Identify What Exists

During this stage, a deeper understanding of the forces influencing the park was uncovered. Investigations helped ensure that the eventual master plan would be based on comprehensive information and a deep understanding of the recreational and ecological systems that are inherent to the park.

Task 3 - Explore What is Possible

During this stage of the project, a range of concept alternatives were prepared for the park. The alternatives explored recreational development, ecological preserves, cultural interpretation, programming, park boundaries, view shed preservation, access, circulation and facility planning. Concepts were illustrated in plan view and ideas communicated with vignette sketches, photos and drawings.

Each set of alternatives created in this stage had different implications in terms of aesthetics; relationship to other recreational and ecological features; establishment or reinforcement of ecological patterns, recreational facilities, or other special features such as views and overlooks; cost; development potential; or the means of implementation.

Task 4 - Establish the Plans

Concepts were only "paper plans" at this point in the process. This stage transformed concepts into a single refined approach embodied in a master plan document with comprehensive directives for plan implementation and park management.

EARLY COMMUNITY INPUT

Early in the park planning process, surveys, focus groups and workshops provided opportunities for the public to share their knowledge about Lake Byllesby Regional Park. Below is a summary of their observations, concerns and desires regarding the park.

- Surveys indicate that few people in the northern part of Dakota County know about Lake Byllesby Regional Park – the park draws visitors from the southern part of the County and a broader southern region of the State;
- People visit the park because of the lake – boating, beach, wind surfing, RV camping next to the water;
- The park is a place where groups gather to socialize and enjoy recreation, often year after year;
- Poor lake water quality, algae blooms and problems with wind at the current beach location make swimming unreliable and sometimes unsafe;
- The Cannon River Valley is a growing recreational destination. Lake Byllesby is among the largest camping opportunities in the valley;
- Recreational endeavors adjacent to the park (Goodhue County Park, Mill Town Trail effort) offer opportunities for future linkages and collaboration;
- The Byllesby mud flats in Byllesby “West” provide excellent migratory bird habitat - it has become a popular destination for bird watching;
- Enhancing the recreational experience will be dependent on a several pivotal elements:
    - safe and reliable swimming
    - enhanced and more diverse camping options (tent, RV, group sites)
    - greater diversity of recreational activities (trails, equipment rental, etc.)
    - park beautification and shoreline enhancements
    - close collaboration with Goodhue County

- The Park is difficult to find and needs better signage;
- Visiting the park as a newcomer is a bit confusing – an obvious, central point of visitor orientation and greeting would be helpful;
- Echo Point is the prime location in the park to experience the lake and scenic views;
- The current beach location will offer only a hit-or-miss beach experience because of winds, lake debris and poor water quality;
- A loop trail system around Lake Byllesby and trail connection to the Cannon Valley Trail are realistic opportunities that would have a dramatic impact on Lake Byllesby recreation;
- The landscape of the park feels disjointed. A comprehensive landscape beautification plan will help unify the park and make it a more enjoyable experience;

CHAPTER 2

Recreational Needs Forecast

OVERVIEW

Recreation is an increasingly important element in people's lives. Parks, trails and natural resources are a key consideration in many people's choices about places to live. Natural resource based recreation is a fundamental component of quality of life. Recreation desires are dynamic and shift as people's interests shift and recreation technology (i.e. in-line skates and mountain bikes) evolves. The County should emphasize flexible facilities (such as multi-use park buildings and trails) that can adapt to changing needs and interests. One constant is the desire for a high quality "wilderness" experience (an escape for urban pressures). The County vision is "To enrich lives by providing high quality recreation and education opportunities in harmony with natural resource preservation and stewardship." The realization of that vision fits well with people's desire for a retreat and connection with nature.

This Recreational Needs Forecast was conducted February through June 2004 in conjunction with concurrent master planning for Thompson County Park, Lake Byllesby Regional Park and Miesville Ravine Park Reserve. The forecast is designed to help guide park planning for Lake Byllesby Regional Park. The forecast is based on regional recreation and demographic research, a public opinion survey and focus group sessions. The intent is to determine current and future natural-resource based recreation needs and to allow Dakota County to respond to those needs through informed facility planning, resource management and programming. The findings address countywide and park specific needs for Lake Byllesby.

NEEDS STUDY PROCESS

The recreation forecast used a variety of information sources to determine countywide and park specific recreation needs. The analysis focused on determining existing and future natural resource-based

recreation needs. The analysis evaluates countywide needs as well specific needs for Lake Byllesby Regional Park.

Public Opinion Survey

A mail-back written public opinion survey of Dakota County residents was conducted in April/May, 2004. The survey was designed to determine countywide recreation needs and to gather residents' opinions on desired recreation and natural resource activities at Lake Byllesby Regional Park, Miesville Ravine Park Reserve and Thompson County Park. The survey questionnaire was mailed to 2,500 households selected randomly throughout the county. 221 completed surveys were received resulting in a 9% rate of return. The survey results have a 6-7% margin of error. A copy of the survey questionnaire and a summary of the results are provided in Appendix C.

Focus Groups

Three focus group sessions were held. The focus group sessions gathered information from County staff, residents and city park commissioners. The purpose of the focus group sessions was to obtain more detailed information than was possible through the survey. Because of their knowledge of the parks the staff focus group sessions provided valuable information on facility needs, natural resources and programs at the three parks. The resident and city park commission sessions focused on Countywide needs and provided detailed perspectives about outdoor recreation and natural resource preservation and management. Summaries of the focus group sessions are in Appendix D.

Recreation Service Area and Market Analysis

Dakota County Parks are designed to serve natural resource-based county recreation needs and seven county metropolitan area recreation needs. Other park and recreation facilities also serve county and metro recreation needs. It is important to look at the big picture supply of facilities to understand County Park roles and resident needs. This allows park facilities to complement each other and to not duplicate facilities and experiences. The needs analysis looked at other natural resource-based recreation areas within Dakota County and within 10 miles of the county.

Demographic and Recreation Trends

Demographic data from the county, the year 2000 Census and the Metropolitan Council was collected to help determine growth and age specific recreation needs. Recreation trend data from the public opinion survey, County Park visitation reports and other sources were used to help paint a picture of recreation needs.

Recreation Research

Recreation information from the following sources helped inform the needs findings:

The Lifestyles Market Analyst 2004 - Leisure Profile
Metropolitan Region Recreation Survey
Dakota County Visitor Surveys
Three Rivers Park District Needs Assessment

GENERAL FINDINGS

Demographics and Growth

Dakota County Parks serve county residents, and visitors from other Twin City metropolitan counties, greater Minnesota and other states. The metro area (Dakota County included) is forecast to grow in population by nearly 1,000,000 people by 2030. That growth will increase demand for new parks, trails and recreational facilities and facility improvements at existing parks. Population growth will increase the need and demand for trail and park land acquisition.

Dakota County is one of the fastest growing counties in Minnesota. Between 1990 and 2000 Dakota County population grew by 29.3% compared to average county growth in Minnesota of 12.4%. Despite that growth only 35% of the county land area is urbanized and 65% is rural. The county is forecast to add an additional 150,000 residents between 2000 and 2030 (42% increase). Dakota County population is concentrated in the northern and north central part of the county. Over the next 25 years county population growth will occur primarily in the center part of the county. There is a need for a County Park near the center of the county. The County is currently evaluating a site in Empire Township (near the center of the county) to fill the “hole in the doughnut” (gap in the distribution of recreation facilities). This is a wise move as convenient locations and travel time will only increase in importance

in the future. The Twin City metro area is forecast to add an additional 1,000,000 people between 2000 and 2030. This growth will increase use of and demand on Dakota County Parks.

Dakota County residents are younger on average (average age of 33.7 years) than the average Minnesotan (average age of 35.4 years). Dakota County residents are also more affluent that the average Minnesotan. Younger populations and more affluent populations are more frequent users of regional parks.

The greater the distance a park is from residents, the larger the need is for an attractive recreation experience and unique amenities at that park.

Service Area and Recreation Market

The county recreation market includes park and recreation facilities that compete with or complement Dakota County facilities. People are willing to travel a great distance for desired recreation facilities and character. Witness the weekend migration to northern Minnesota cabins and resorts. Due to time constraints people are also looking for close to home recreation. County facilities are often the balance between the desire for natural amenities and the need for convenience. The greater the distance a park is from residents, the larger the need is for an attractive recreation experience and unique amenities at that park.

The County Park system includes parks and trails that are designed to play specific roles and meet specific recreation and natural resource needs. Certain parks (park reserves and regional parks) are designed to meet metropolitan recreation needs. County parks like Thompson Park are designed to meet sub-regional and local needs. Other area parks and facilities (like city parks, State Parks, scientific and natural areas, parks in other counties, etc.) help meet County recreation needs.

Roles of Park and Recreation Facilities

Facility Type	Primary Role	Competitive Segment
City Parks	Active and passive recreation for city residents.	Larger passive city parks and conservation areas compete with county and regional parks.
County Parks	Natural resource based recreation for county residents.	Parks in adjacent counties compete with Dakota County Parks. Adjacent parks can compliment each other if designed cooperatively.
Regional Parks/Park Reserves	Natural resource based recreation and resource preservation for the seven	Regional parks are designed to appeal to a wide audience. Park reserves focus on natural resource protection with

	county region.	limited recreation development.
State Parks	Natural resource based recreation serving a 30 mile plus radius area	Typically a large park, based around natural features such as lakes rivers, woodlands or prairie.
Private Facilities	Varies depending upon setting and facilities (i.e. campground, gardens, historic site).	Varies.

Recreation

Recreation trends are influenced by demographics. The baby boom generation and their children are significant demographic segments. Boomers are frequent recreation participants. Their recreation interests shifted to frequent trail use (walk, bike) and interest in the environment, history, culture and arts. Their children are also trail users (running, biking, in-line skates, skate skiing, etc.), and emerging sports participants (climbing, kayaking, etc.) Interest in traditional activities such as fishing, hunting, and golf is high. Interest in recreational motor sports (ATV, motorcycles) is high, but those uses do not fit with the County and Regional Park recreation mission. Camping participation has shifted from backpacking to car camping and RV camping. Continued urbanization will increase the public demand to preserve natural areas and corridors to provide *"quiet respites from today's hectic life"* (quote - 2004 focus group participant).

The Lifestyles Market Analyst 2004 shows that compared to other United States metropolitan areas, Twin City residents are more avid participants in the following activities: traveling, (48%), fishing frequently (40%), walking for health (33%), camping/hiking (31%), golf (29%), bicycling frequently (27%), hunting (26%), wildlife/environmental (18%), boating (14%), RV camping (14%) and snow skiing frequently (11%).

Considering all aspects of research, the needs analysis found that there is great interest by county residents in parks, recreation and natural resources (84% of survey respondents felt that outdoor recreation activities are moderately to highly important). Dakota County residents are interested in a broad range of facilities and natural environments. Trails are the number one desired recreation facility. Other top recreation desires are public gardens, boat/canoe rental and festivals or concert space. There

is a significant lack of awareness of County Parks in general and 72% of county residents (2004 survey) have not visited Lake Byllesby Regional Park.

There is continued strong interest in trails. Primarily walking and biking, but also for cross country skiing and in-line skating. A secondary, but important desire is for water-oriented recreation. Resource sites with water access (visual or participatory) are always popular. This includes the desire for loop walking trails around a lake and the ability to rent boats, canoes, kayaks, and pedal boats. The ability to visit public gardens is limited within the county and there is a desire for festival and concert spaces.

The most popular natural resource-based recreation activities in Dakota County as evidenced by participation rates and the County public opinion survey are:

1) Hiking/walking
2) Walking/biking around loop trails around a lake
3) Picnicking
4) Visiting natural areas
5) Attending festivals or concerts
6) Biking on paved trails
7) Visiting public gardens
8) Picnicking in shelters
9) Swimming beaches
10) Visiting nature centers
11) Renting boats and canoes

This is consistent with the desire of most residents to be able to recreate by themselves or in small groups at the time of their choosing.

Residents felt the following facilities are lacking in Dakota County Parks:

1) Paved trails
2) Loop trails around a lake
3) Public gardens
4) Boat /canoe rental
5) Festivals or concerts

LAKE BYLLESBY REGIONAL PARK RECREATION FINDINGS

Lake Byllesby Regional Park is located at the very southern edge of the county and far from most residents. Therefore, the park must have highly unique amenities and facilities to attract visitors to travel the longer distance. This situation will gradually change over time as the regional population grows and more people live closer to Lake Byllesby.

The following is a summary of the forecast findings and key issues as they relate to Lake Byllesby Regional Park.

Lake Byllesby Regional Park Attributes and Perceptions

Park	Current Users	User perception	Why do they visit?	Why don't they visit?
Byllesby Regional Park	Campers, anglers, boaters, families.	RV park close to the cities. Convenient lake. Far from the home. Not much to do there.	Lake, RV camping.	Unknown to 85% of residents. Too far. No trails.

Lake Byllesby Regional Park Needs and Opportunities

Water recreation: Water is a highly desired recreation amenity. Improved access to Lake Byllesby, the Cannon River and shoreline can help meet this need. This could include an improved beach, a user friendly shoreline surface (more accessible than rip rap), better shore fishing access, boat pull-up spots, a fishing pier, etc.

Trail access: There are opportunities to connect Lake Byllesby with area regional trails including the Milltown and Cannon Valley Trails. It would require cooperative planning and partnerships with Goodhue County, private landowners and interest groups. The Mill Towns Trail is in the planning phase. The Cannon Valley Trail needs only a short extension from Cannon Falls to the park. These trails would be popular recreation assets for the counties, the region and the state.

Increased recreational activities: The park is located miles away from the population center of Dakota County. As such, the park facilities and activities must have sufficient draw to attract visitors. The lake and lakeside camping are the primary attractions at Lake Byllesby Regional Park. Visitors desire more things to do. Expanding camping and adding internal trails, an outdoor education area, children's play area, boat /canoe rental, historical and natural resource interpretation and other activities and facilities would enhance user experience and attract additional visitors.

Improved water quality: The park visitor's experience is heavily influenced by water quality. This occurs in late summer due to algae bloom and lower water flow. While water quality improvements are a watershed-wide issue, it is important to encourage any meaningful water quality improvement.

CHAPTER 3

Vision & Guiding Principles

OVERVIEW

In order to put detailed ideas in an appropriate context, this chapter describes the "big picture" thinking that acts as the foundation for park development and restoration recommendations. This chapter uses words about the approach, vision and guiding principles for the park reserve as a foundation for development recommendations.

The purpose of this chapter is to:

- identify the over-arching approach that this master plan document suggests in the development, restoration and management of the park;
- describe the long-term vision for the park;
- identify guiding principles that have directed suggestions in this document and will guide investments in the park;
- describe the user groups that are anticipated to visit the park.

OVER-ARCHING APPROACH

Based on all of the input and research conducted during the planning process, this master plan takes an approach that focuses financial and staff resources on the following aspects:

1. East Lake Byllesby is a place for active recreation. Park development should focus on diversifying universally accessible recreational facilities with a focus on water play, picnicking and camping.
2. Park beautification should be a priority.
3. Expanded outdoor education has strong synergies with the activities and targeted visitors at Lake Byllesby.

VISION & GUIDING PRINCIPLES

The vision statement and guiding principles establish the foundation for the Master Plan. The vision statement succinctly expresses the master plan intent while the guiding principles identify broad directives for development and management. Together they have guided preparation of the master plan and the will hopefully continue to guide decision making related to park development and management through the life of this document.

Vision Statement

Lake Byllesby Regional Park is envisioned as a group recreation destination focused on water play. A diverse package of "recreational entertainment" will be developed around the recreational desires of typical visitors. Visitors are envisioned to be families and groups seeking comfortable and fun day and overnight recreation and individuals seeking specific recreational activities such as boating, birding and skijoring. Visitors will bring recreational "toys" (boats, bikes, campers) with them to "plug into" a diverse range of park facilities.

Guiding Principles

- **Make Lake Byllesby the home-base for recreational use of the Cannon River Valley.** Recreation in the Cannon River Valley is growing; primarily due to the popularity of the Cannon Valley Trail. Recreation and camping at Lake Byllesby can complement and support other area recreation.
- **Create a destination with a diverse set of recreational entertainment opportunities.** The vision for Lake Byllesby suggests it is a group/family destination. The park should contain a range of recreational activities for all ages to make Lake Byllesby a compelling destination.
- **Focus on enhancement and enjoyment of Lake Byllesby as the reason for the park.** The lake is the reason for the park to exist but interaction between the lake and the park could be enhanced through shoreline restoration, lake-side trails, enhanced views to the lake, etc.
- **Make "fun in the water" the focus.** Most visitors expect to be able to go into the water when they choose to make a trip to the lake but water quality concerns in Lake Byllesby limit the recreational value of park visits. These concerns can be addressed with alternative water recreation opportunities and park design adjustments.

TARGETED USER GROUPS

Park visitors are envisioned to be families and groups seeking comfortable and fun day and overnight recreation and individuals seeking specific recreational activities such as boating, birding and skijoring. Park visitors are expected to include:

- **Group/family campers:** This is the primary visitor to Lake Byllesby Regional Park. The park will be a gathering point for convening groups and families of all ages. Diverse recreational activities in the park will offer enjoyment for multi-day trips.
- **Canoeists:** Even though the lake itself is not an attractive canoe destination for most, the park will offer visitor services and camping for canoeists and a launch point just below the dam. The proposed launch in the park may become attractive to outfitters desiring to use Byllesby as a launch point for canoeing or tubing.
- **Picnickers:** Picnickers who visit Lake Byllesby will enjoy the combination of lakeside serenity and the recreational opportunities in the park.
- **Cyclists:** This is a relatively new potential user group to Lake Byllesby. They will have direct access to the park when the proposed Mill Towns State Trail runs through the park, connecting to the Cannon Valley Trail on a proposed pedestrian bridge over the Cannon River. This group ranges from families to small groups who will find the camping facilities at Byllesby a great benefit to their recreational cycling.
- **Special event groups:** With the enhancements proposed by this master plan, Byllesby will become an attractive location for scenic outdoor and recreational events such as weddings and reunions.
- **Special interests:** Outdoor education for activities such as skijoring, dog sledding and boating will grow in popularity at Byllesby, bringing visitors to the park for day trips and specific, planned activities.

CHAPTER 4

Cultural Resources Stewardship

OVERVIEW

Preserving historical memory is a political as well as cultural process. What we remember of history is largely based on multi-generational story telling and the preservation of artifacts and documents. Our own identities and the way we identify with physical places are intimately tied to historical memory, both personal and social. Incorporating historical memory into place-making through preservation and design and keeping that memory alive through interpretation is critical if the full power and meaning of a place is to be maintained or even enhanced.

This two-stage process of preservation/design and then interpretation is a primary mission of Dakota County Parks and has been integrated with the master plan for Lake Byllesby Regional Park. The intent of the cultural resource stewardship chapter is to:

- identify historical, cultural, and archaeological sites within the park;
- characterize the significance of any identified cultural resources;
- review a cultural resource map of the park that identifies zones for avoidance, preservation, interpretation, and additional research;
- identify legislative requirements in regard to cultural resource preservation;
- identify potential interpretive themes with particular attention given to the interrelationship of the cultural and natural resources of the park.

BACKGROUND RESEARCH

The information and ideas related to the cultural resources of Lake Byllesby Regional Park came from a variety of sources. These included previously conducted archaeological excavations; primary sources, such as newspaper articles and photographs; and secondary sources, such as local histories.

Background research was conducted at the Minnesota State Historic Preservation Office for information on cultural resources surveys previously conducted within Lake Byllesby Regional Park. In addition, Trygg's Composite Map of United States Land Surveyors' Original Plats and Field Notes, which depicts the lands of Minnesota as recorded during the 1850s, and other historical maps were used to identify potential historic period archaeological resources that might be located within the study area.

No formal archaeological surveys have been documented within the boundaries of Lake Byllesby Regional Park. In 2001, however, a professional cultural resources assessment was conducted for the proposed Lake Byllesby boat launch relocation project. The study area was located in the NW ¼ of the NW ¼, Section 13, and the NE ¼ of the NE ¼, Section 14, T112N, R18W, within the south-central portion of the east section of the park. The purpose of the study was to visually assess the project area's potential to contain previously unidentified archaeological resources as well as to identify any aboveground historic properties that may be impacted by the project. The archaeological portion of the assessment determined that due to prior disturbances from construction and landscaping activities, there was a low potential for intact archaeological resources to survive within the project area. In addition, no aboveground resources that were 50 years in age or older were identified within the project's area of impact.

The results of the research on the history of Lake Byllesby Regional Park are contained in the historical overview presented in the next section of this report.

Two important terms used in this chapter are "pre-contact archaeological remnants" and "historic archaeological remnants". Pre-contact refers to the time before European settlement. Historic refers to the time since European settlement.

Power and the River – The Story of Lake Byllesby Regional Park

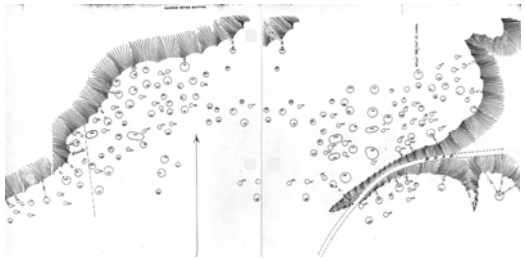
The history of Lake Byllesby Park is a story of both continuity and change. It illustrates how a constant in the landscape, the Cannon River, has drawn people to the area over thousands of years. It also illustrates how a human presence in Lake Byllesby Park altered the natural landscape, and how the

features of this landscape, in turn, affected that human presence. Between these storylines interweaves the thread of the power, spiritual and physical, of the water. This thread is made tangible by the narratives, buildings, structures, objects, and sites within and surrounding the park. Today, the Cannon River and related human-made and natural features continue to draw visitors to the park. There, the natural and cultural landscapes combine to provide a historical vision of the water and its relationship to the people of Lake Byllesby Park.

Archaeological Sites Along the Cannon River: Numerous archaeological sites have been located along the Cannon River, many of which are near Lake Byllesby Park. Several sites were, in fact, discovered during an archaeological survey that occurred in 1987 when the Lake Byllesby Dam was repaired and water levels dropped. These sites were all large lithic scatters, which consist of the pieces of fractured rock left over from the manufacture of stone tools, and sometimes the stone tools themselves. Upon completion of the repairs to the dam, these sites were re-submerged under the waters of Lake Byllesby, thereby preserved for years to come. The residents of these sites likely remained close to the river to take advantage of the resources it contained and attracted. They would have lived on a landscape very different than that of today. The dam, and its creation, Lake Byllesby, would have been absent, and in their place, the Cannon River would have flowed through deciduous forests or native prairie.

Mound Groups Along the Cannon River: The mound groups present along the Cannon River and its tributaries indicate that intense Native American occupation of the greater Lake Byllesby Park area occurred during or after the Ceramic/Mound Stage. As its name implies, the Ceramic/Mound Stage corresponds to the time when Native Americans in the Midwest began making pottery and building earthen mounds, between 3000 and 900 years ago. This period corresponds to the time when the Maya settled the Yucatan peninsula, Homer wrote the Iliad and the Odyssey, and construction began on both the Roman Coliseum and the Great Wall of China. During this stage, the manufacture of pottery, domestication of plants, and construction of burial mounds within a pattern of sedentary village life became typical for Native American groups in the area, though adoption of these elements would not necessarily be immediate or concurrent.

During the second half of the nineteenth century, nearly 700 mounds were recorded along or near the Cannon River. The presence of so many of these earthworks indicates the importance of this place, the Cannon River, to their builders through time.



Cannon River Mounds in Goodhue County

Randolph Depot and Grain Elevator

Miller Brothers General Store

Randolph Grain Elevator Fire - 1916

Early Settlers and Water-Powered Industries: The first Euro-American settlers of the location that would eventually be known as Randolph Township arrived in 1854. Within five years, the Velie brothers constructed the first sawmill in town along Chub Creek, a tributary of the Cannon River, and they operated it until they went into the Army in 1862. The frame building that housed the mill was subsequently moved to the property of D. H. Morrill in Section 7, and he used it as a barn. Over the late nineteenth and early twentieth centuries, Randolph continued to be involved in both lumber milling and grist milling, with operations run by citizens such as Walbridge J. Tyner, William McElrath, Al Otte, Frank Held, and Alton Hosfield. Beginning in 1885, Louis and Henry Miller established a general store that they ran until 1930. According to local historians, for five years during the operation of the store, the brothers concurrently ran a feed mill and a tow mill (for processing flax) until both were destroyed by fire. Fire also destroyed the two grain elevators present in Randolph around the turn of the century. One of these was replaced after it burned in 1916 and continued to be operational until at least 1976. The other was never replaced. The last lumber business in Randolph closed its doors in 1947.

Though Cascade was not platted until 1883, the village originated with the 1860s construction of a flour mill along the Cannon River in Stanton Township (Goodhue County). This flour mill economically supported people such as John Whitson and Thomas Byrnes, who operated the mill; William Whitson and Herman Metz, who manufactured barrels for the mill; and John Keyes, a blacksmith who served residents of the area. In the early 1880s, the men who would file for the incorporation of Cascade purchased the mill, and in 1883, they platted the village with the north half in Dakota County and the south half in Goodhue County. At this time, a grain elevator was located on the north side of the river. A post office had been established for Cascade a few months prior, and in addition to the mill and cooper shop, the village would eventually also be home to a store, a hotel, and a schoolhouse/church/social center. Just over a decade after Cascade was platted, however, fire took the mill and the cooper shop, initiating the demise of the village.

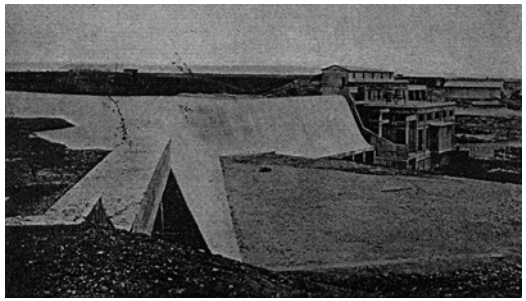
Railroads Through Randolph: While milling along the Cannon River had already attracted people to the area of Lake Byllesby Regional Park, the introduction of the railroads led to the development of the village of Randolph near the west end of the park. In 1882, an east-west line from Red Wing to Waterville was constructed by the Minnesota Central Railroad Company, which had merged with the Cannon River Improvement Company in 1878. This line, which skirts along the north edge of the park, eventually became part of the Chicago Great Western Railway Company. In 1886, shortly after the

completion of the east-west line, a north-south line from St. Paul to the Iowa-Minnesota border was completed by the Minnesota & North Western Railroad Company. This line, which crosses through the west end of Lake Byllesby Regional Park, was later subsumed into the Chicago Great Western Railway Company. The development of these lines created a crossroads of two major rail lines to the northwest of the park. Though comparison of an 1879 map of the area with the 1896 plat shows the villages of Randolph and Cascade near the junction of these transportation routes, with Randolph to the north of Chub Creek and Cascade to the south, it was the village of Randolph, located directly at the crossroads, that benefited from them. Cascade, having already lost its economic foundation in the fire at the flour mill in 1894 and facing the rise of steam power over water power, would see the location of the crossroads nearer to Randolph seal its fate.

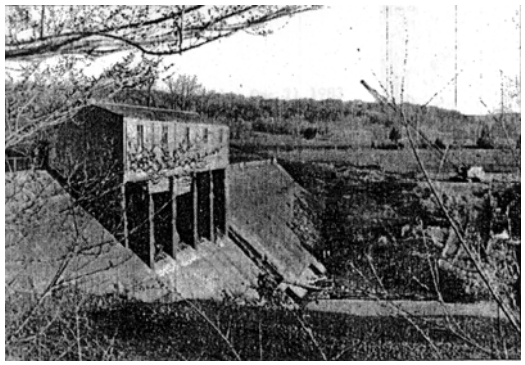
Henry Byllesby and the Northern States Power Company: Beginning in 1881, Henry Byllesby, then 22 years old, served as a draftsman for Thomas Edison as the latter designed the Pearl Street generating station in New York and power plants for such distant lands as Chile and Montreal. Four years later, Byllesby left Edison to work for his competitor, George Westinghouse. He continued this pattern of movement from company to company until he gained the experience, know-how, and colleagues to start his own engineering firm. His firm was an empire-building enterprise, established with the goal of purchasing struggling utility companies in Minnesota, the Dakotas, Wisconsin, Oklahoma, California, and Alabama and their lines; refinancing, reviving, and enhancing them; and adding them to his network. Though many found this enterprise to be risky, Byllesby foresaw the future of electricity, and it eventually paid off.

In 1909, Byllesby, then living in Chicago, visited the state of Minnesota, where he organized Washington Light and Power Company. In that same year, the company was re-named Consumers Power Company. It was under this name that Byllesby began the construction of new power plants to replace the obsolete ones operated by the companies he had bought. Byllesby would soon create a network of transmission and distribution lines to link cities throughout Minnesota, the Dakotas, and Wisconsin. By 1916, the successful Henry Byllesby settled on the name Northern States Power Company. This company became a major supplier of power to the midwestern United States. Later, Northern States Power merged with Denver-based New Century Energies to become Xcel Energy, now the fourth-largest combination electricity and natural gas energy company in the country.

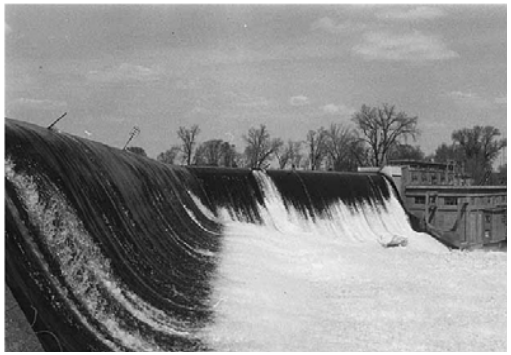
Lake Byllesby Dam: Early in Henry Byllesby's electrical empire-building conquest, he selected the Cannon River through Randolph and Cannon Falls as the site of a hydropower dam. Byllesby hired the



Lake Byllesby Dam circa 1912



Lake Byllesby Dam During Repair - 1978



Lake Byllesby Dam - 1983

Ambursen Hydraulic Construction Company of Boston to construct the dam in 1910, and excavation began on April 9th of that year. Ambursen pioneered the construction of hollow reinforced concrete dams, which they began building in 1904, and the Lake Byllesby Dam is of this type of construction. Nearly 17,000 yards of earth and 21,500 cubic yards of rock had to be excavated to make way for the dam, then 23,500 barrels of cement and 750,000 pounds of reinforcing steel were used in its construction. When the dam was completed in January of the following year, Lake Byllesby, a 3 ½-mile long, 14,800-acre reservoir and one of the largest bodies of water in Dakota County, was created. This lake submerged the southernmost portion of Randolph Township and the sites of Native American and Euro-American settlement alike. While the presence of the lake prevented further settlement in that portion of the township, the dam encouraged it in the surrounding area by providing power, initially at a capacity of 1,900 kilowatts and later at a rate of 8.3 million kilowatt hours per year, to area residents, but also by providing pleasure, giving residents a place of beauty and recreation in Lake Byllesby.

The Decline of Hydropower: During the Great Depression, hydroelectric plants, once the most economical source of power in the country, began its shift to becoming one of the least cost-effective methods of producing power. The power supplied by many rivers and streams was becoming unpredictable as their water levels diminished, whether by natural or artificial alterations to the landscape, and the costs of maintaining hydroelectric plants rapidly escalated during this period. Many of these plants, therefore, were shut down during the 1930s.

Hydroelectric power got a brief reprieve when the U.S. entered World War II as materials and manpower had to be diverted to the war effort, putting new power plant construction on the back burner. When the war ended, however, hydroelectric power's downward slide continued. By 1948, for example, hydroelectric plants were responsible for only approximately 20 percent of Northern States Power Company's total output, and this percentage continued to drop significantly over the next two decades. By the 1960s, Northern States Power found that, in many cases, it was more cost effective to dismantle the dams and deed surrounding lands to townships or counties for use as public parks, rather than continue operations.

Lake Byllesby Park and the Return of Hydropower: In 1967, with the move away from hydropower in full effect, Northern States Power Company announced its intention to drain Lake Byllesby and abandon the dam. In response, area citizens formed the Lake Byllesby Improvement Association, a group established with the goal of ensuring the transfer of the dam and the lake to public ownership. The group was successful in its endeavor, and in 1969, the dam, lake, and surrounding lands were donated to Dakota

and Goodhue Counties. The counties were dedicated to operating the dam in order to maintain the level of Lake Byllesby for the recreation of their residents. On the Dakota County, or north, side of the lake, the recreational experience was enhanced by the creation of Lake Byllesby Regional Park.

In the late 1970s and early 1980s, with the energy crisis looming over the country, the rehabilitation of many abandoned dams brought hydropower back into the minds of several companies across the United States. Approximately 10 of these companies expressed an interest in the Lake Byllesby Dam, and in 1983, the bidding process began. The rehabilitation project was awarded to North American Hydro, Inc., who continues to manage the dam. Today, the power from the dam serves approximately 2,400 homes.

With Lake Byllesby Dam once again generating power, visitors to the park can experience pieces of the park's history throughout time. The natural portions of the landscape provide a sense of what Native American and early Euro-American settlers of the area may have seen as they approached the land surrounding the Cannon River. The picnics, swimming, fishing, and other recreational activities being carried out by families and friends who visit the park today are reminiscent of the human interactions that have occurred along the shores of the Cannon River and, later, of Lake Byllesby throughout history. Finally, the Lake Byllesby Dam recalls the days when water was the primary source of power in Dakota County and in the nation.

ARCHAEOLOGICAL ASSESSMENT

In April of 2004, the project archaeologist conducted an assessment (windshield survey) of the Lake Byllesby Regional Park to identify areas with high archaeological potential. Such areas were generally defined as the undisturbed portions of the park:

- within 500 ft. (150 m) of an existing or former water source of 40 acres (19 hectares) or greater in extent, or within 500 ft. (150 m) of a former or existing perennial stream;
- located on topographically prominent landscape features;
- located within 300 ft. (100 m) of a previously reported site; or
- located within 300 ft. (100 m) of a former or existing historic structure or feature (such as a building foundation or cellar depression).

In addition, the project archaeologist compared historical documentation, such as plat maps and aerial photographs, with current field conditions to assess the potential within the survey area for intact historical archaeological sites.

Areas defined as having a relatively low potential for containing intact archaeological resources included inundated areas, former or existing wetland areas, poorly drained areas, and areas with a 20 percent or greater slope. Low potential areas and areas in which Holocene (less than 10,000 years old) deposits have been significantly disturbed are defined as having little or no potential for containing intact archaeological resources.

Lake Byllesby Regional Park is divided into an east half and a west half, which are discussed separately, below.

East Byllesby

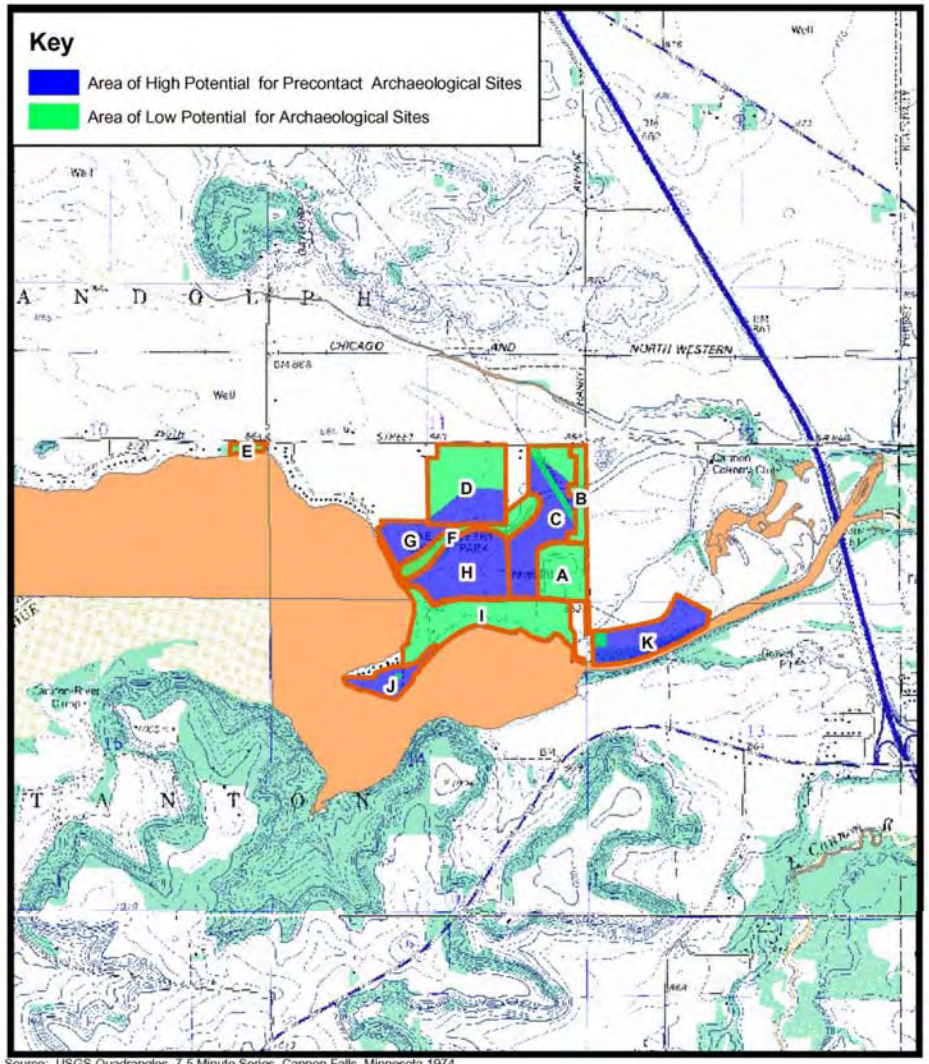
The east half of Lake Byllesby Regional Park consists of former and existing agricultural fields, wetlands, a former gravel mining area, a wooded area, and park development, including a boat launch, campground, parking areas, and restrooms. The topography of this half of the park is lightly undulating, but in general, this half is low-lying in relation to the high river terraces of the region. For ease of reference in the field, the east half of the park was divided into sub-areas, which were designated Areas A-K (Figure 1). Historical plat maps of the area illustrate no structures in the east half of Lake Byllesby Regional Park over time, thus the entire east half is considered to have little to no potential for containing historic period archaeological resources. The discussion of archaeological potential that follows, therefore, pertains only to pre-contact archaeology.

Area A: Area A is a former gravel mining area. This portion of the park has been obviously and heavily disturbed and, therefore, has extremely low potential for containing intact archaeological resources.

Area B: Area B consists of the edge of an agricultural field along Harry Avenue and the locations of utility poles within that field. This area has likely been heavily disturbed by the construction of the road and the installation of the power poles. Based on the level of disturbance to this area, it is considered to have low potential for containing intact archaeological resources.

Area C: Area C consists of lightly undulating agricultural fields, the borders of which partially follow Harry Avenue and 295th Street (County Road 88). Portions of these fields abut a wetland that, based on historical maps, appears to be a small tributary of the historical course of the Cannon River. Locations within 500 ft. of this wetland, therefore, are considered to have high potential for containing

archaeological resources. These locations have been impacted by agricultural activities, such as plowing, and the construction of a gas pipeline. While construction of the pipeline would cause heavy disturbance in the area of construction, impacts caused by agricultural activities are usually limited to the top approximately 30 cm of soil, and intact archaeological resources frequently remain beneath the plow zone. Based, therefore, on the various levels of disturbance to this area and its proximity to an offshoot of the historical course of the Cannon River, areas within 500 ft. of the wetland and outside of the pipeline right-of-way are considered to have high potential for intact archaeological resources.



Source: USGS Quadrangles, 7.5 Minute Series, Cannon Falls, Minnesota 1974

Figure 4.1 – East Byllesby Assessment Results

Locations within Area C that extend further than 500 ft. south of the wetland increase in proximity to the Cannon River and may be within 500 ft. of its former course. The southernmost portion of Area C, therefore, is also considered to have high archaeological potential. Locations within Area C that extend further than 500 ft. north of the wetland are considered to have low archaeological potential, with archaeological potential decreasing with distance from the wetland. The location of the pipeline right-of-way within Area C is considered to have low potential for intact archaeological resources.

Area D: Area D is a fallow agricultural field, the north end of which borders on 295th Street, that is now planted in young pines and encompasses a park hiking trail. The southern portion of Area D abuts the wetland described within the discussion of Area C, and like Area C, Area D appears to have undergone minimum disturbance from agricultural activities. The portions of Area D within 500 ft. of the wetland, therefore, are considered to have high potential for containing intact archaeological resources. This potential decreases with distance from the wetland.

Area E: Area E consists of a small area separated from and to the west of the main portion of the east half of the park. This location contains a cleared area that appears to be frequently used as a turnaround, with lightly wooded areas on the east and west. The vegetation of the wooded areas appears scrubby and fairly young, indicating that this area has previously undergone disturbance. In addition, Area E is not topographically prominent and is not in proximity to either the Cannon River, one of its tributaries, or a previously recorded site. Based on these conditions and the apparent disturbance to this area, Area E is considered to have low potential for containing intact archaeological resources.

Area F: Area F consists of the wetland mentioned above in the discussions of Areas C and D. This wetland appears to follow the trajectory begun by a bend in the Cannon River as it appears on 1879 and 1894 plat maps of the area. While the areas surrounding the wetland are considered to have high archaeological potential, the wetland itself would have been unsuitable for occupation and is, therefore, considered to have low potential for containing archaeological resources.

Area G: Area G consists of an area planted thickly in pines that appear to have served either as a windbreak or as a sight and noise barrier between the park and residential development to the northwest. The southeast edge of Area G abuts the wetland of Area F and appears to have undergone little disturbance other than the bioturbation that may have been caused by the roots of the pines. Area G is also approximately 400 ft. east of a previously recorded site. Based, therefore, on the limited disturbance to this area and its proximity to Area F and a previously recorded site, Area G is considered to have high

potential for intact archaeological resources.

Area H: Area H is a fallow agricultural field containing a hiking trail. It is similar in vegetation and appearance to Area D except that it contains a higher density of pines. The north/northwest edge of Area H abuts Area F. Like Area D, Area H appears only to have undergone disturbance from agricultural activities. The portions of Area H within 500 ft. of the wetland designated as Area F, therefore, are considered to have high potential for intact archaeological resources. Locations within Area H that extend further than 500 ft. from the wetland increase in proximity to the Cannon River, and may come within 500 ft. of its former course; therefore, these locations are also considered to have high archaeological potential.

Area I: Area I consists of most of the southern portion of the east half of Lake Byllesby Park, and it contains the amenities of the park, such as the campground, driveways, parking areas, the boat launch, restrooms, and other park buildings. This area is one of the closest within the park to the Cannon River as it appeared prior to the construction of the dam, and it is within 500 ft. of one previously recorded archaeological site. The eastern portion of Area I was previously assessed by The 106 Group prior to the relocation of the boat launch and recommended as having low archaeological potential based on the prior construction in the area and landscaping activities related to the dam and the park. Prior construction and landscaping activities would also have heavily impacted the remainder of Area I; therefore, though the proximity of Area I to the Cannon River and to a previously recorded site would normally render it as having high archaeological potential, based on the levels of disturbance to this area, it considered to have low potential for intact archaeological resources.

Area J: Area J consists of a grassy terrace overlooking Lake Byllesby and containing a residence. This terrace, unlike Area I, has undergone little park development and appears to be largely undisturbed, with the exception of the construction of the residence. Historical maps suggest that this area consisted of prairie land along the Cannon River. This area is within 300 ft. of three previously recorded archaeological sites. Based, therefore, on its historical proximity to the Cannon River and previously recorded archaeological sites, and on the lack of disturbance to this location, Area J is considered to have high potential for intact archaeological resources, with the exception of the location of the residence, which is considered to have low potential for such resources.

Area K: Access to Area K was limited by a lack of public roads and trails that provided visibility of the area. A combination, therefore, of observation at the park and recent aerial photos were used to assess the archaeological potential of this area. The northwestern most portion of Area K contains a

building that appears to be related to the maintenance of the dam. The remainder of Area K consists of woodlands, agricultural fields, and field access roads. Area K is located along the pre-dam course of the Cannon River and its east end is approximately 600 ft. west of a previously recorded site. It is, therefore, is considered to have high archaeological potential. It appears that, with the exception of the building in the northwest, most of Area K has been largely undisturbed, undergoing only minimal impacts through agricultural activities. Based, therefore, on this area's proximity to the former course of the Cannon River and the lack of disturbance to most of this area, Area K is considered to have high potential for intact archaeological resources. The northwestern corner of Area K, in the location of the building, is considered to have low potential for such resources.

West Byllesby

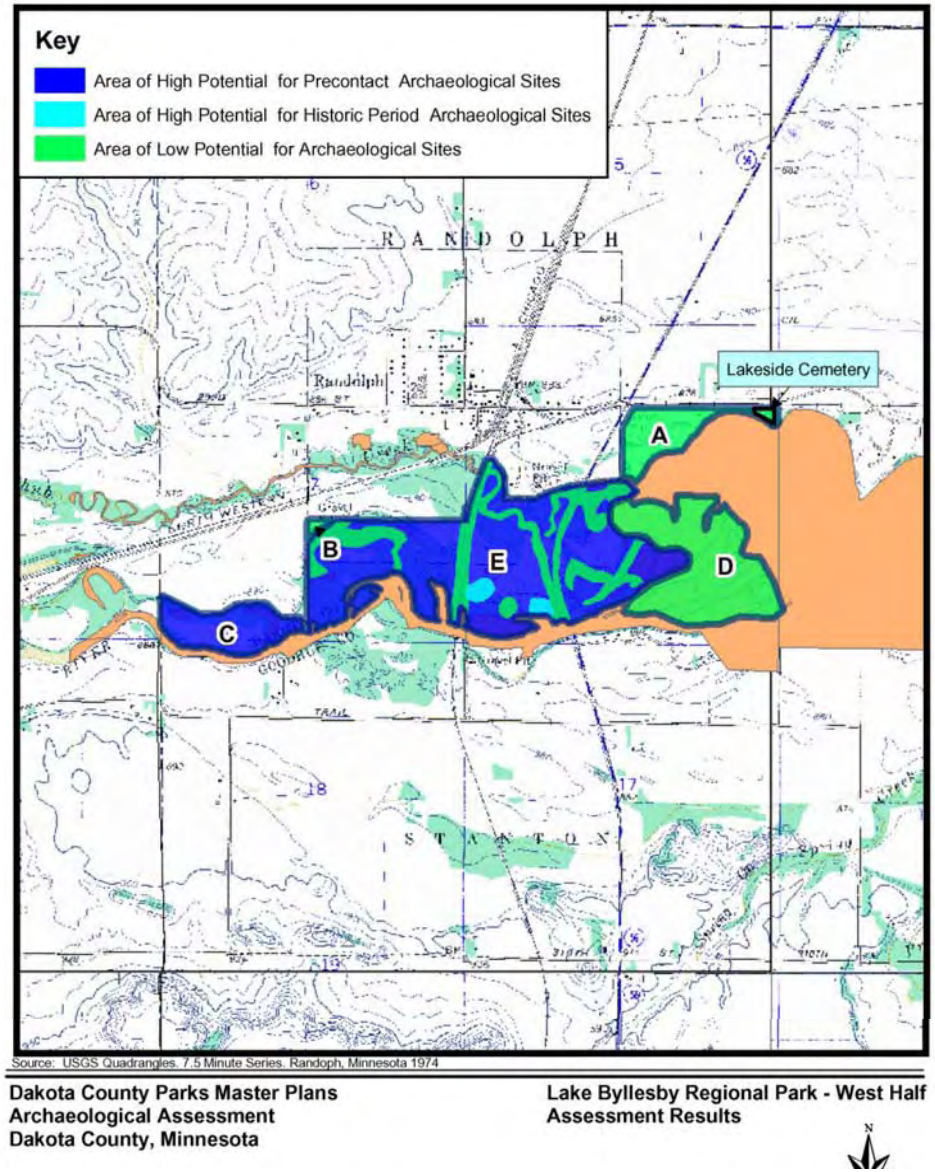
The west half of Lake Byllesby Regional Park consists largely of wooded areas and wetlands interspersed with farmsteads and associated agricultural fields, as well as a cemetery. The topography in this half of the park is undulating, with most of the lower areas being occupied by the wetlands. Overall, however, this half of the park is within the Cannon River Valley and is, therefore, lower than the greater area encompassing the park. For ease of reference in the field, the west half of the park was divided into sub-areas, which were designated Areas A-E (Figure 2).

Area A: Area A, for the most part, consists of a former gravel mine. The portion of Area A in which mining activities were carried out has been heavily disturbed by those activities and is considered, therefore, to have low potential for intact archaeological resources. The easternmost portion of Area A, however, is the location of Lakeside Cemetery, which dates back to 1857 and was not impacted by gravel mining. The family names identified within this cemetery include those of some of the earliest Euro-American families to settle this area. The location of the cemetery is directly along the former north bank of Chub Creek, a tributary of the Cannon River. Based on its proximity to Chub Creek, this area would normally be considered to have high pre-contact archaeological potential. It is likely, however, that the excavation of graves in the cemetery would have caused heavy disturbance to any potential archaeological sites; therefore, the easternmost portion of Area A is considered to have low potential for intact pre-contact archaeological resources. Because the cemetery has been in this location since the time that the first Euro-American settlers came to Randolph, it is also considered to have low potential for historic period archaeological resources.

Area B: Area B is the northwestern-most corner of the west half of Lake Byllesby Park, and it consists of a portion of a former gravel mine. This area has been heavily disturbed by gravel mining activities and

is, therefore, considered to have low potential for intact archaeological resources.

Figure 4.2 – West Byllesby Assessment Results



Area C: Area C consists of an agricultural field surrounded by trees and the Cannon River on the south. Trygg's map of the area as it appeared in the 1850s has the location of Area C labeled as "bottoms," with the Cannon River on its south, much as it appears today. This area appears to have undergone only minimal disturbance, as might be caused by agricultural activities, and, therefore, may contain intact archaeological resources beneath the plow zone. Based on the lack of disturbance to this area and its proximity to the former and current course of the Cannon River, Area C is considered to have high potential for intact pre-contact archaeological resources. Historical maps of this area illustrate the southern portion of the Dakota County portion of the village of Cascade in the northern portion of Area C. The northern portion of Area C, therefore, is considered to have high potential for historic period archaeological resources.

Area D: Area D is the southeastern portion of the west half of the park. It consists of lands that were inundated by the waters of Lake Byllesby at the time of the assessment and, based on the vegetation present, is probably almost always inundated. Like Area C, Area D is labeled as "bottoms," on Trygg's map, with the Cannon River on its south. A tributary of Chub Creek, however, is also illustrated in Area D; therefore, it is likely that this area was frequently inundated prior to the creation of Lake Byllesby. Historical plat maps do not illustrate any structures in the location of Area D. Because this location has likely been a wetland throughout time, Area D is considered to have low archaeological potential.

Area E: Area E consists of the remainder of the park. The majority of Area E is wooded, and the woods encompass both dry land and wetlands, depending on elevation and proximity to the Cannon River and Lake Byllesby. In addition, farmsteads and associated agricultural fields are present within Area E. All of the lands within Area E are in proximity to the former course of the Cannon River and Chub Creek. The portions of Area E where farmsteads were previously constructed, where there are agricultural fields, and where transportation corridors exist have undergone various levels of disturbance. In the agricultural fields, this disturbance is likely limited to the plow zone, underneath which intact archaeological resources may exist. In the transportation corridors, such as the railroad grade, and in the locations of buildings, disturbance is likely more severe. The portions of Area E occupied by former and existing buildings and transportation corridors are, therefore, considered to have low potential for intact pre-contact archaeological resources. Based on the overall lack of disturbance to the rest of Area E, including the agricultural fields, and their proximity to the Cannon River and Chub Creek, the higher, and therefore drier portions of Area E are considered to have high potential for intact pre-contact archaeological resources.

Historical plat maps illustrate only one structure within Area E prior to 1916. This structure was located in the center of the southwest quarter of the southwest quarter of Section 8 on plat maps dating to 1896 and 1916. Because plat maps are not always completely accurate, it is possible that this farmstead is the one depicted in the northwest quarter of the southwest quarter of the southwest quarter of Section 8 on the topographic map of the area. According to the Dakota County tax assessors website, the house at this location was constructed in 1890. Because this location could only be accessed by a private drive, it was not observed in the field. Recent aerial photos and the topographic map of this area indicate, however, that the farmstead still exists. Other farmsteads in Area E include a 1975 farmstead to the southeast of the 1890 farmstead and a 1925 farmstead to the east of the 1975 farmstead, as well as a 1974 farmstead in the easternmost portion of Area E. The location of the 1890 and 1925 farmsteads are considered to have high potential for intact historic period archaeological resources. The 1970s farmsteads, being too recent for historic period resources and having likely disturbed any potential pre-contact resources, are considered to have low archaeological potential.

The lower, and therefore inundated portions of Area E are considered to have low potential for pre-contact and historic period archaeological resources. Isolating the numerous wetlands throughout Area E was beyond the scope of the assessment; therefore, while much of Area E is keyed as having high pre-contact archaeological potential in Figure 1, it should be noted that there are numerous pockets of wetlands considered to have low archaeological potential scattered throughout this location. In addition, based on the levels of disturbance caused by the construction of the transportation corridors, the locations of those corridors are also considered to have low archaeological potential.

SUMMARY OF LEGISLATIVE REQUIREMENTS

There are many federal laws that govern the treatment of historic, archaeological and cultural resources. However, the most relevant and meaningful for Lake Byllesby Regional Park if federal funds or permits are involved in park development, is the National Historic Preservation Act of 1966. In addition, there are three state laws that may pertain to the park.

National Historic Preservation Act of 1966

Section 106 of the National Historic Preservation Act requires Federal agencies to take into account the effects of their undertakings on historic properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. The State Historic Preservation Office acts on behalf of the Advisory Council in each state. The Section 106 process

seeks to accommodate historic preservation concerns with the needs of Federal undertakings through consultation among the agency officials and other parties with an interest in the effects of the undertaking on historic properties, commencing at the early stages of project planning. The goal of consultation is to identify historic properties potentially affected by the undertaking, assess its effects and seek ways to avoid, minimize or mitigate any adverse effects on historic properties. A Federal undertaking includes such activities as transfer of funds, issuing of permits, providing loans etc.

For further information see http://www.achp.gov/regs.html

Minnesota Historic Sites Act (M.S. 138.661 – 138.6691), 1965

This Act created a state register of properties "possessing historical, architectural, archaeological, and aesthetic values" and outlines a consultation process for projects that will affect historic sites. Important points:

- Historic sites are defined as properties named in the Act or listed on the National Register of Historic Places.
- Similar to federal regulations, any undertaking receiving funding or licensing by any political subdivision is covered by the Act.
- If the undertaking affects historic sites, the agency must consult with the Minnesota Historical Society (MHS) to avoid or mitigate adverse effects.
- If the parties agree in writing to an appropriate course of action, the undertaking may proceed.
- If the parties cannot reach agreement, any of the parties may request that the governor appoint a mediation task force.

Minnesota Field Archaeology Act (M.S. 138.31 – 138.42), 1963

- A "state archaeological site" is defined as any publicly owned or leased land or water area that contains material of archaeological interest.
- Only licensed archaeologists may undertake field archaeology on a state site.
- The Act created the Office of State Archaeologist (OSA), which, along with the MHS, oversees compliance with the Act.
- When a state archaeological site is known or suspected to exist, the controlling agency must submit development plans to MHS and OSA for review.
- The controlling agency, in consultation with MHS and OSA, is directed to preserve such sites

(which may include data recovery) and is authorized to use its funds for such activities.

- If a site is related to American Indian history or religion, OSA must coordinate with the Minnesota Indian Affairs Council for review and comment.

Minnesota Private Cemeteries Act, 1975

This act provides protection for marked and unmarked human burials and remains. Highlights include:

- It is a crime to intentionally destroy or remove human skeletal remains or burials.
- The Act directs the state archaeologist to authenticate all burial sites. In particular it directs the state to retain the services of a professional archaeologist to authenticate burials on public lands or waters when requested by a scientific or Indian group.
- Only burials older than 50 years are covered by this Act.
- When human remains or burials are Indian, the State Archaeologist and the Minnesota Indian Affairs Council (MIAC) must attempt to identify their tribal identity.
- No authenticated Indian burial may be relocated without approval of the MIAC.
- When Indian burials are known or suspected to exist on public lands, the political subdivision controlling the land must submit development plans to the state archaeologist and the MIAC for review prior to advertising bids.

RECOMMENDATIONS

Based on archaeological research and field review, it is suggested that planning and management of Lake Byllesby's cultural resources should concentrate on the following:

- **Conduct archaeological field reconnaissance along with excavation activity**: If construction activity that involves excavation is conducted in areas of the park reserve identified in Figures 4.1 and 4.2 as having high potential for archaeological sites, archaeological field reconnaissance should accompany the activity. If archaeological remnants are discovered, appropriate steps to document, protect and prevent looting of the remnants should be taken.
- **Identify and document archaeological sites:** For those portions of Lake Byllesby Park considered to have high archaeological potential, it is recommended that consideration be given to identifying the actual location of archaeological sites to try to prevent potential looting. In addition, if site identification has not previously occurred and ground-disturbing activities within the areas of high

archaeological potential are planned, identification of archaeological sites within the areas of impact should be conducted.

- **Incorporate interpretive themes into the outdoor education programming of the park reserve**: The cultural research documented in this chapter identifies several important and interesting elements of pre-contact and historic archaeological findings. The interpretive themes resulting from research include:

    - *THEME 1: PROVIDER OF LIFE AND PLACE OF DEATH - THE CANNON RIVER AND THE NATIVE AMERICANS OF LAKE BYLLESBY PARK.* For thousands of years, numerous Native American cultures inhabited the area surrounding modern-day Lake Byllesby Park. The Cannon River and its tributaries provided these peoples with food, drinking water, water for cooking and for bathing, medicinal plants, and places of beauty. Though no archaeological surveys have been conducted within the park boundaries, numerous archaeological sites have been identified just outside of those boundaries, most along the former path of the Cannon River, and many of which are now submerged beneath the lake. Further, the banks of the Cannon River at its east end, and its tributary, Chub Creek, toward its west end, are the sites of hundreds of known mounds. The use of riversides as places for the burial of the dead is well documented throughout Minnesota. This use speaks to the spiritual power of these places, in addition to their power to provide the more practical requirements of life.

    - *THEME 2: WHEELS IN MOTION - THE CANNON RIVER AND THE EARLY EURO-AMERICAN SETTLERS OF LAKE BYLLESBY PARK.* When the first white settlers came to the future Lake Byllesby area in the mid nineteenth century, they found it equally as inviting as the first Native American settlers to the area and for many of the same reasons. To the list of food, water, beauty, and recreation, however, they would add financial opportunity. In an age when lumber and grain were the economic footholds of the state, a location along the Cannon River held great appeal. Its power could be harnessed in mills to process these goods, or it could carry steamboats that would transport both raw and finished products to places along the river or to the Mississippi River, upon which they could be further transported. At this time, due to the many natural benefits of the area, the townships of Randolph and Stanton were formed. Later in the century, the transportation of products could be accomplished using newly

constructed railroad lines, which further contributed to the growth of the township of Randolph. In addition, the construction of these lines resulted in the creation of the village of Cascade in the southwestern part of Randolph Township and the northwestern part of Stanton Township, and of the village of Randolph in the southern part of the township, as settlements became concentrated at the crossroads.

- *THEME 3: POWERING MINNESOTA - HENRY BYLLESBY AND THE LAKE BYLLESBY DAM.* With the increase in the population of Randolph and the subsequent move into the electrical age came the need for power in the homes, businesses, and industries of the Lake Byllesby area. The response to this need was provided by Henry Byllesby, a forerunner in the use of hydroelectric power in America. Byllesby, whose company, Consumers Power Company, was based in Chicago, realized that in directing the power of the rivers of Minnesota, North Dakota, South Dakota, and Wisconsin, he could create the energy needed to sustain the ever-growing populations of these states. One of these rivers was the Cannon River, upon which he had the Ambursen Hydraulic Construction Company construct the Lake Byllesby Dam in 1910. Six years later, he changed the name of his company to Northern States Power Company, recognized today as one of the major providers of power in the midwestern United States.

- *THEME 4: THE POWER OF ATTRACTION - LAKE BYLLESBY REGIONAL PARK.* Though for many years, hydropower was the most economical method of producing power, by the 1960s, larger companies had largely replaced their hydropower plants with coal or nuclear power plants. In replacing many of their hydropower facilities, Northern States Power Company opted to donate much of its property upon which these facilities were situated to the towns or counties encompassing such property. One of these properties was the location of the Lake Byllesby Dam. After the land was donated to Dakota and Goodhue Counties in 1969, Dakota County created Lake Byllesby Regional Park from potions of the land on the north shore of the lake. Lake Byllesby Park attracted residents and visitors alike to picnic, camp, fish, swim, canoe, and simply enjoy the view. Today, both the park and the dam interact to provide a sense of all facets of the area's history, from natural history, to the history of everyday human interactions, to the engineering history at Lake Byllesby Regional Park.

CHAPTER 5
Natural Resource Stewardship

OVERVIEW

Lake Byllesby Regional Park exists within an agricultural watershed that has significant impacts on the water quality of the lake. The landscape of the park barely resembles the plant communities that existed before European settlement. Plowing and grazing have significantly altered ecological processes.

The landscape of the park prior to European settlement looked very different from what is seen today. The flat lands above the Cannon River floodplain were an expansive prairie that stretched as far as the eye could see. Lake Byllesby did not exist at that time because there was no dam, but along the sinuous Cannon River grew a large floodplain forest. Remnants of this forest still remain in the western unit of the park. Settlers plowed the rich prairie soil to grow food and raise livestock. Forests were harvested for firewood, and the Cannon River provided a plentiful source of fish and clams. In the early 1900s Byllesby dam was built to produce electricity. Together these human activities have thrown the ecosystem out of balance. Today both animal and plant diversity is greatly reduced. Water and nutrient cycles have been significantly altered.

One of the primary objectives of this master plan is an understanding the park's natural resources. The master plan uses that understanding to inform plans for recreational development and habitat restoration. This chapter is intended to:

- describe the historic and current plant communities in the park;
- identify the ecological quality of park and the impacts affecting the quality;
- suggest development guidelines that assist in appropriately placing and designing facilities;
- suggest sustainable trail guidelines;
- make natural resource stewardship recommendations.

The presettlement prairies of the park were broad and flat, with a great diversity of vegetation.

VEGETATIVE COVER TYPES

Plant communities within the park have been evaluated and broken down into several cover types. Vegetative cover types for the park are delineated on Figures 1 and 2.

Cover types (existing plant communities) in the park are categorized as follows:

- Disturbed Native Forest
- Floodplain Forest
- Oak/Red Cedar Woodland
- Disturbed Temporarily Flooded Shrubland
- Cultivated/Planted Fields
- Old Field Community
- Wetlands

The disturbed forests of the park typically have been invaded by a thick under-story of common buckthorn.

Disturbed Native Forest

Portions of the park that were once pastured have evolved through a process of succession to a mix of box elder, green ash and bur oak forest. Elm, hackberry, aspen, cottonwood, and basswood are also present in limited numbers. The shrub layer is typically dominated by buckthorn and Tartarian honeysuckle, but native gooseberries and elderberries are also common. The ground layer is dominated by species that establish after disturbance, including white snakeroot, motherwort, and garlic mustard (a very aggressive non-native). This community transitions into floodplain forest as land elevation lowers towards the Cannon River. Some native ground plane species are doing well in the disturbed forest of the eastern unit of the park just below the dam. Species include showy orchis, woodland phlox and Pennsylvania sedge. They are, however, being displaced by invasive species.

Figure 5.1 - Existing Vegetative Cover, East Side

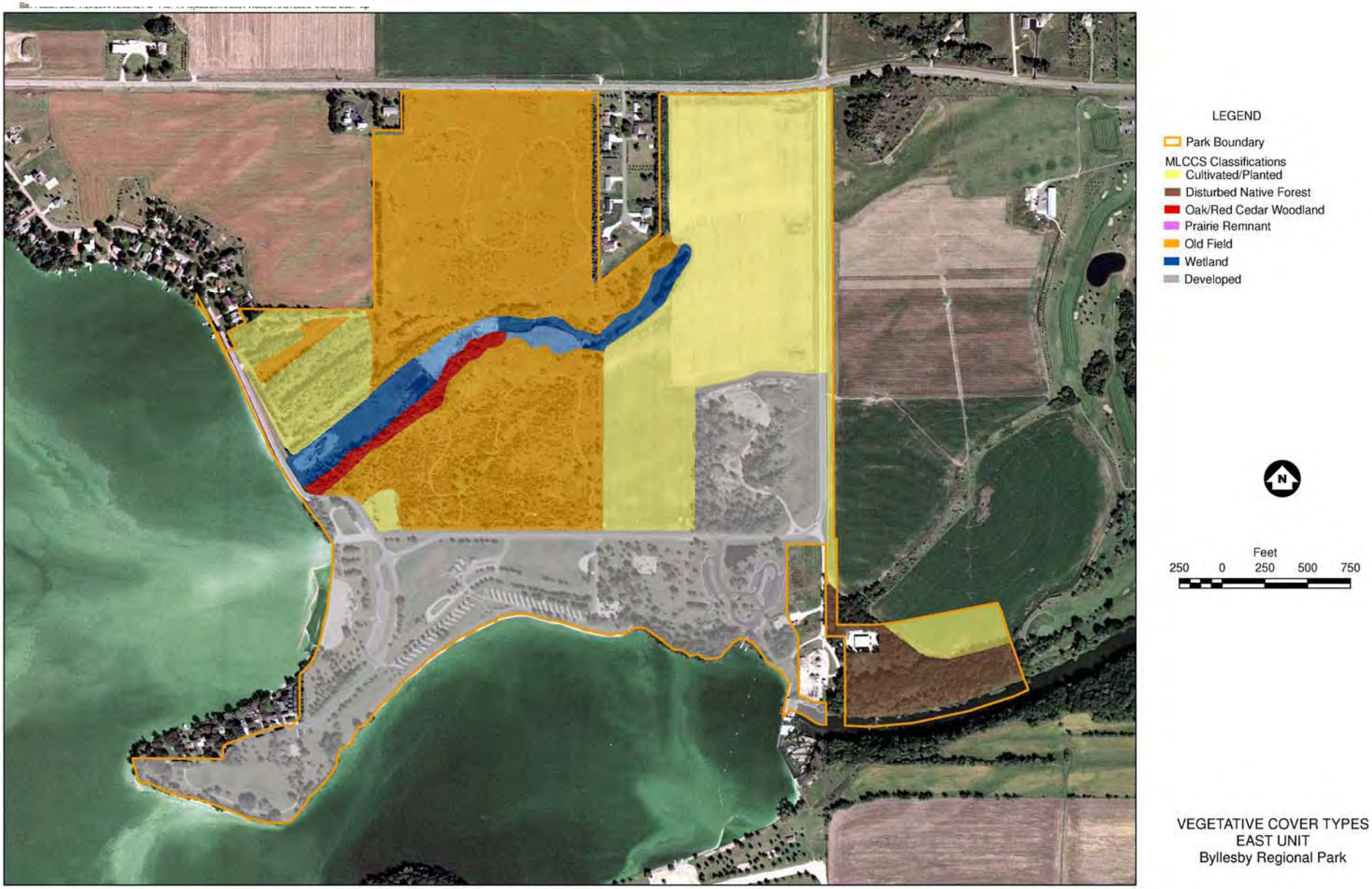
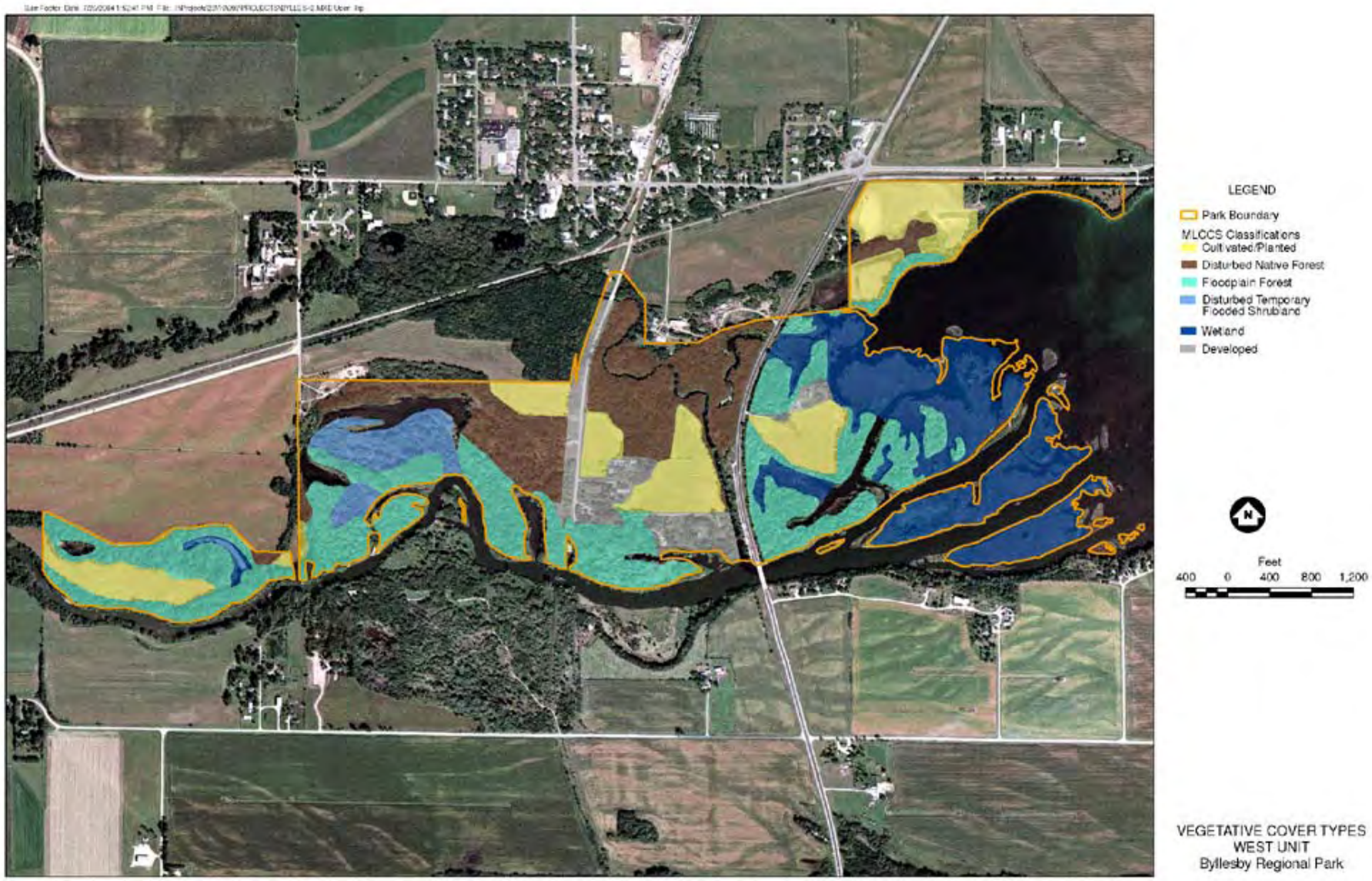


Figure 5.2- Existing Vegetative Cover, West Side



Floodplain Forest

Floodplain forests are wet forests that occur on seasonally inundated soils in the floodplain terrace of the Cannon River. The most common canopy species are silver maple, cottonwood, green ash, and bur oaks. In some of the wettest pockets of the forest, beautiful stands of native wildflowers such as woodland phlox, buttercup and Virginia waterleaf cover the ground. Thickets of buckthorn have established within much of the floodplain forest of the park. In the western unit buckthorn has become the canopy layer in many areas. Here buckthorn dominates the sub-canopy layer as well. Species diversity is very low in these forests due to buckthorn invasion. Free roam of all-terrain-vehicles in the forests is impacting their integrity.

Silver Maples are the dominant tree of the floodplain forest.

Oak/Red Cedar Woodland

An oak and red cedar woodland has evolved in the eastern unit of the park as a result of fire suppression. Suppression of fire has allowed the proliferation of red cedar and bur oak that would have been sparsely scattered prior to settlement. Prairie species have been displaced from the community and replaced by cool season non-native grasses.

Disturbed Temporarily Flooded Shrubland

Two areas within the west unit of the park fit this category. This community grows on temporarily flooded soils with <30% tree cover and >50% shrub cover. Glossy-leaf buckthorn typically dominates this community, but sandbar willows, red osier dogwood, and other native shrubs are also present. Reed canary grass dominates the herbaceous layer. In the past these areas were disturbed by either cropping or grazing, and their species diversity is currently very low.

One of the park's cornfields is shown in the background. The foreground is a section of abandoned field in the process of succession, here showing brome grass with young box elder and common buckthorn.

Cultivated/Planted Fields

Many acres of cropland (corn and soybeans) remain within the park boundaries. Wind and water erosion is occurring on these fields. Erosion problems would be reduced if perennial crops were established, or if native plant communities were restored. Species diversity is, of course, very low and habitat value is marginal.

Broad mud flats are created from sediments deposited in Byllesby Lake by the Cannon River. The shallow waters are excellent wading bird feeding areas, but once the flats become vegetated with hybrid cattail and purple loosestrife, feeding potential drops drastically.

Old Field Community

Most of the eastern unit of the park has been highly impacted by agriculture and mining. Through the process of succession, the former croplands have reverted to old-field communities. After farming activities ceased smooth brome grass was typically planted. Within the brome, both native and non–native plants have colonized. Early in the process of succession, the old-field plant community is treeless with non-native grasses and a few scattered shrubs or red cedars. Early successional native species colonizing the park include box elder, red cedar, aspen, Canada goldenrod and prickly ash. Non-natives include smooth brome, Kentucky bluegrass, and common buckthorn. All successional stages of old-field exist within the park and they range from brome grasslands to box elder/Siberian elm and red cedar/Siberian peashrub woodlands. These plant communities arising from the non-native grass plantings are of low species diversity and provide marginal wildlife habitat. Native plant species should be introduced to these communities to increase diversity. In many cases complete restoration to prairie or oak savanna is appropriate if species diversity and quality habitat is desired.

Wetlands

Marshes exist in both the western and eastern units of the park. The most extensive marshes are those created by riverine deposits at the mouth of Lake Byllesby in the western unit of the park. Sediment washed from agricultural fields within the Cannon River watershed deposits as river waters slow entering the lake. On these mud flats non-native invasive species dominate. Reed canary grass, purple loosestrife and hybrid cattail thrive on the nutrient-rich, saturated soils. The shallow waters at the west end of the lake provide excellent feeding grounds for migrating waterfowl and wading birds.

In the east unit of the park a linear shallow marsh occupies a former channel of the Cannon River. In these saturated alluvial soils reed canary grass thrives. Due to a lack of vegetative diversity this wetland is of rather poor quality.

ECOLOGICAL QUALITY

The ecological quality assessment of the park evaluates the degree of ecosystem degradation as the result of human disturbance. Lake Byllesby Park has been greatly impacted by previous agricultural uses. The original prairies were plowed and the fields have since been abandoned. Regional disturbance of this type does not allow for prairie habitats to re-establish because the seed source of native plants has been completely eliminated. Soils are also drastically altered – they become compacted and poor in plant nutrients – losing their potential to support the original diversity of plant species. The floodplain forests of the park are indirectly impacted by human activity; they are being over-run by buckthorn species that will eventually out-compete the native forest. Weedy species are common or dominant in the park. Natural processes are highly altered, the result of repeated human disturbance.

The ecological quality assessment of the park began with the review of the Dakota County's Minnesota Land Cover Classification System (MLCCS) maps. Ecologists took these maps to the parks to examine each land cover unit (polygon). Each polygon was given a high, medium or low ecological quality rating based on the following criteria:

High. Sites with little or no human disturbance, important to preserve. Less than 5 percent invasive species.

High-quality sites include many species typical of the natural community. Few weedy plants, either native or nonnative, are present. Most natural processes are occurring, including disturbances such as fire or flooding, if appropriate. There is little or no evidence of human disturbances such as logging or livestock grazing.

Medium. Sites with some disturbance, but with potential for restoration. Between 5 and 40 percent invasive species.

Medium-quality sites often lack many of the species typical of the natural community. Weedy species may be abundant, but they are not more prevalent than typical native species. (In communities with multiple layers of vegetation, weedy species do not dominate any one layer.) While natural processes may be interrupted and human disturbance apparent, the nature of the community has not been altered beyond recognition.

Low. Very disturbed sites, most appropriate for alternative uses or total restoration. 40 percent or more invasive species.

Weedy species are common or dominant in any or all layers of vegetation. Natural processes are highly altered and extensive human disturbance is evident. The community may not resemble any naturally occurring community (that is, one described by DNR Natural Heritage Database).

Figure 5.3, Ecological Quality, was created from the information gathered on site.

It seems appropriate due to the current extent of degradation that this park be managed in a way that focuses on human use, but takes a sustainable approach that does not repeatedly disturb the environment or alter water or nutrient cycles. This approach would not attempt to restore large areas of habitat to pre-settlement conditions.

Figure 5.3 - Ecological Quality, East Side

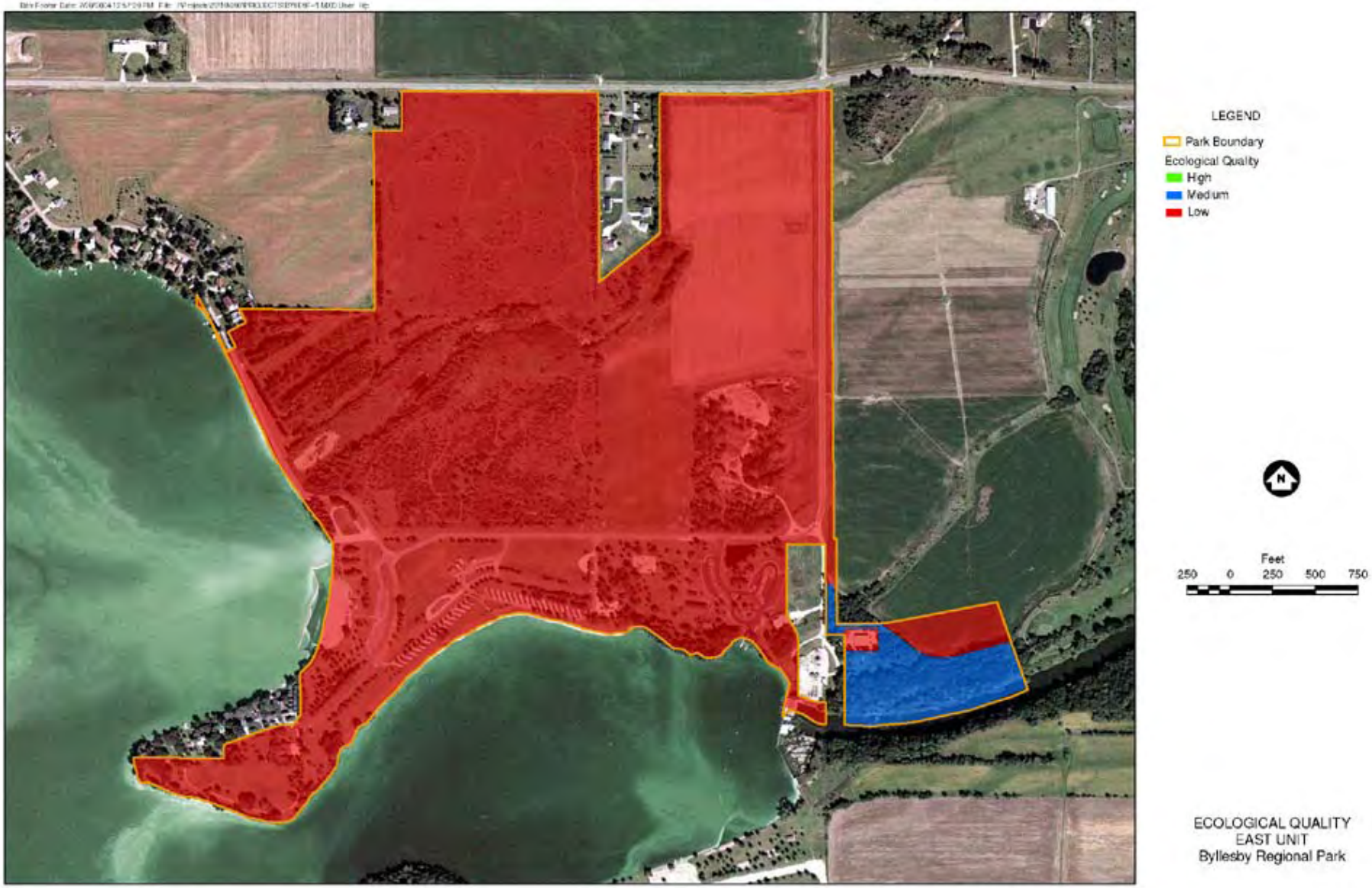
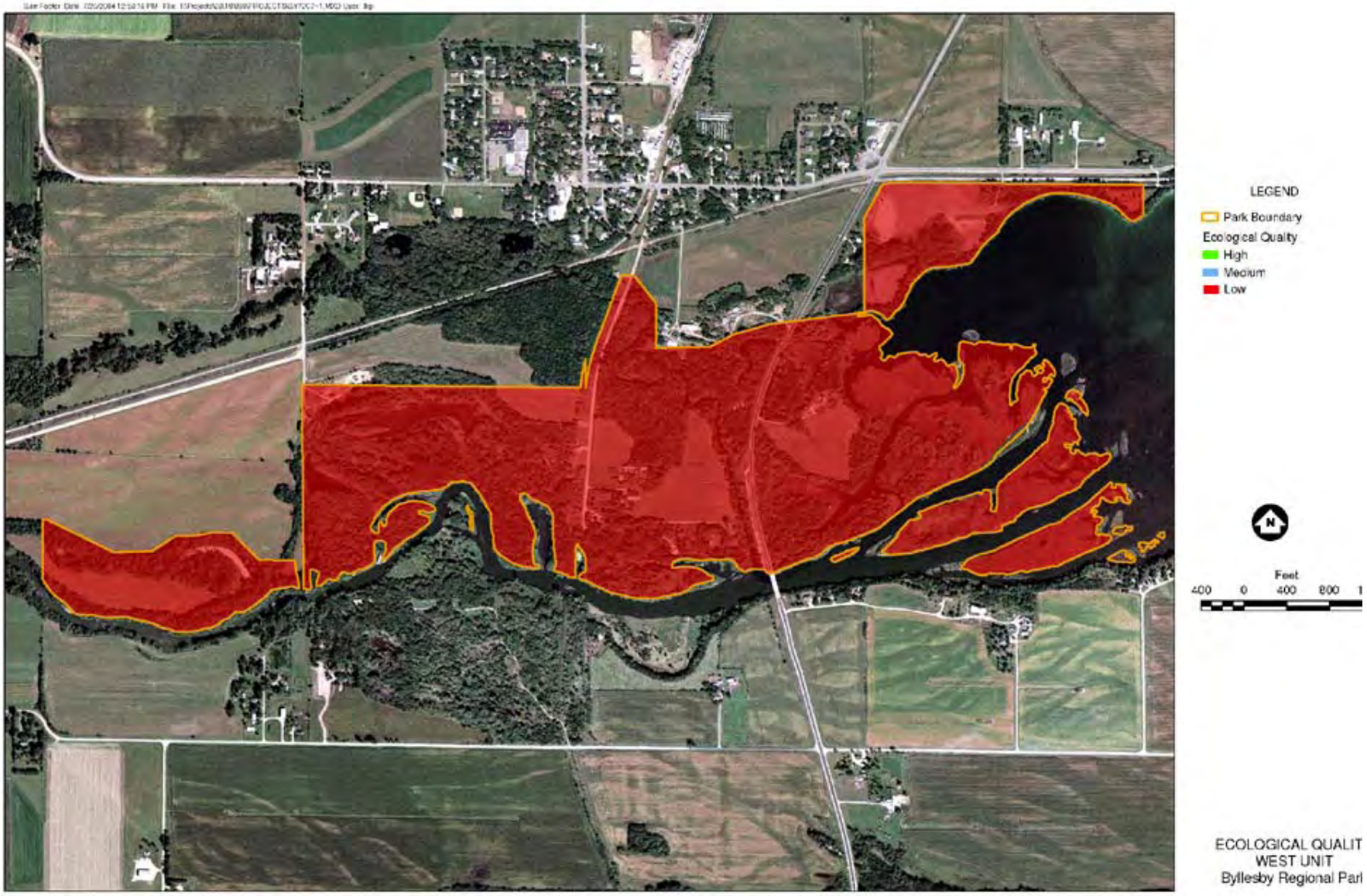


Figure 5.4 – Ecological Quality, West Side



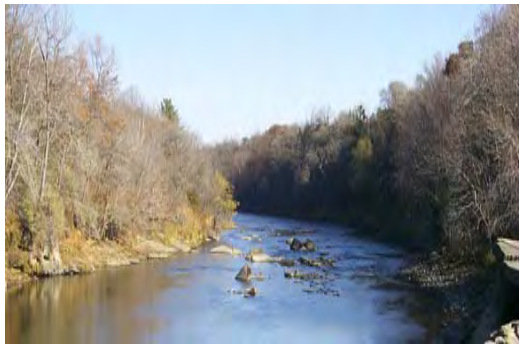
ECOLOGICAL IMPACTS

Extensive patterns of ecological impacts (Figures 5.5 and 5.6) exist throughout the park. Degradation of native plant communities is related to historic agricultural land uses. ATVs are the primary source for erosion in the western side of the park. The quality of Lake Byllesby is also a serious concern, caused by excessive nutrient and sediment loads from the Cannon River Watershed.

Invasive Species

In the east unit of the park smooth brome (*Bromus inermis)* dominates the abandoned agricultural land, and reed canary grass (*Phalaris arundinacea)* thrives within the disturbed wetland. These non-native grasses form monotypic stands that have displaced almost all native plants. Most of the park is of low ecological quality with nearly all locations being very degraded. In many locations the plant community does not resemble the naturally occurring community that would be expected. In the western unit forests, the structural resemblance (tree canopy) to the native plant community is all that remains due to encroachment of invasive plants. Eventually this structure will fade as invasive species do not allow for natural reproduction of canopy trees. The most threatening invasive plant species within the park are common buckthorn (*Rhamnus cathartica)* in upland forests, glossy buckthorn (*Rhamnus frangula*) in wetlands and Siberian peashrub (*Caragana arborescens*) in upland open areas. Common buckthorn is in the early stages of establishment in the northern open area of the east unit, and therefore control is feasible in these locations. Colonies of glossy and common buckthorn have become firmly established throughout most of the western unit forests. In many of these locations buckthorn is large (>20') and has completely displaced the native shrub and ground layer. Siberian peashrub is found in two locations: as a planted hedge in the campground and in a very large colony north of the campground in the Randolph Flats savanna. European honeysuckles are also scattered throughout the park, but in much lower numbers than buckthorn.

Plantations of Amur maple *(Acer ginnala)* found north of the eastern unit wetland are also a concern as an invasive due to its prolific production by wind-blown seed. A large number of red cedar *(Juniperus virginica)* has established in the old field of the east unit. They are considered invasive in prairies, but in this situation could be thinned to create a pleasant shaded area for picnicking or camping.



The highest quality forest of the park is located just downstream from the dam (left bank in photo). Its quality can be retained and improved if buckthorn and Tartarian honeysuckle is removed.

As seen in the forest on the far side of the river, buckthorn produces a thick under-story. Eventually the canopy trees die, but are not replaced because small seedlings can not compete with buckthorn.

The east unit woodland on the north bank of the Cannon River (downstream from the dam) is one of the areas in which some semblance of natural plant communities still exist. Although this area has some incursions of common buckthorn and prickly ash, weedy species do not dominate any one layer of the plant community. This area has the best potential for restoration in the park.

Figure 5.5 – Ecological Impacts, East Side

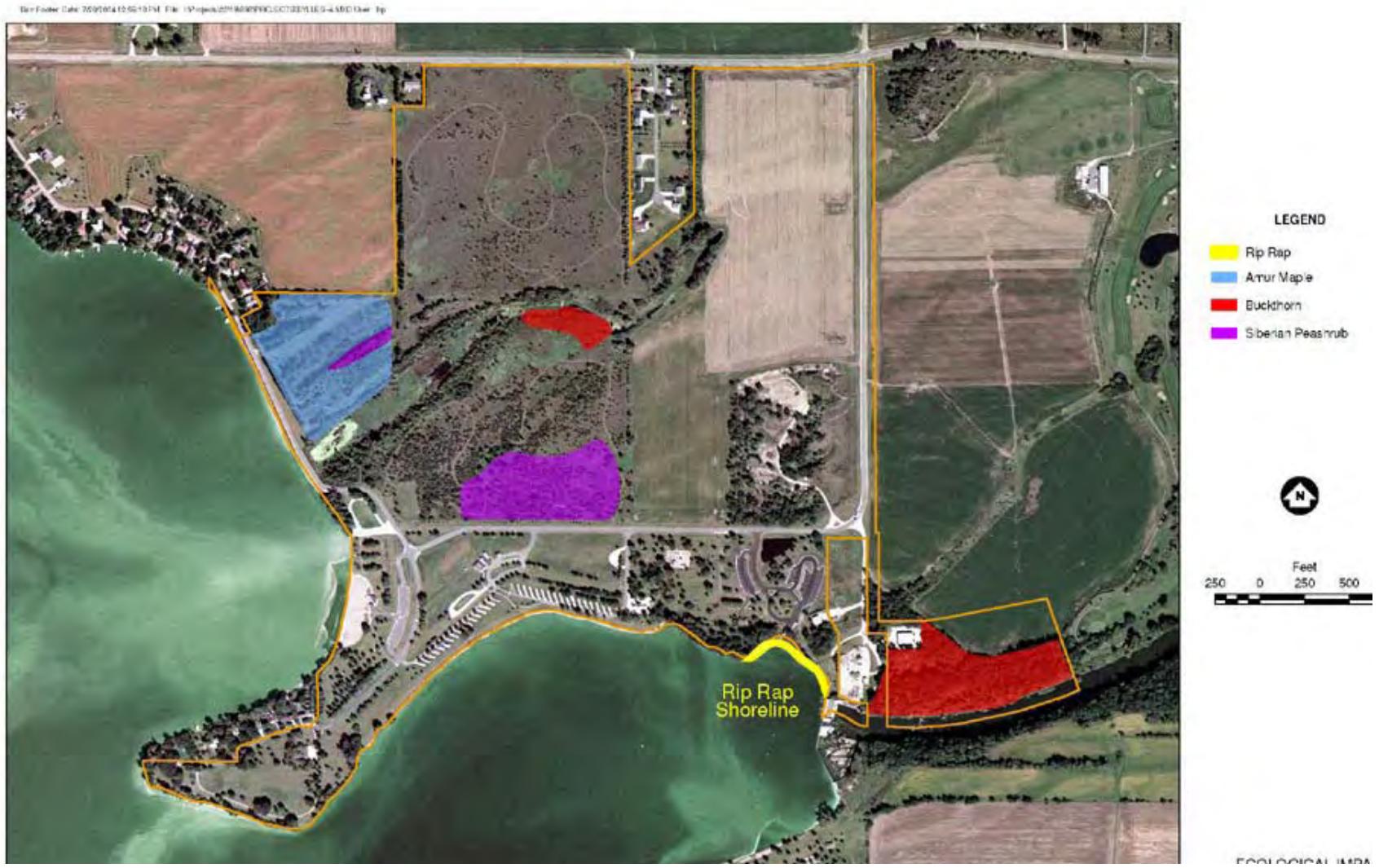
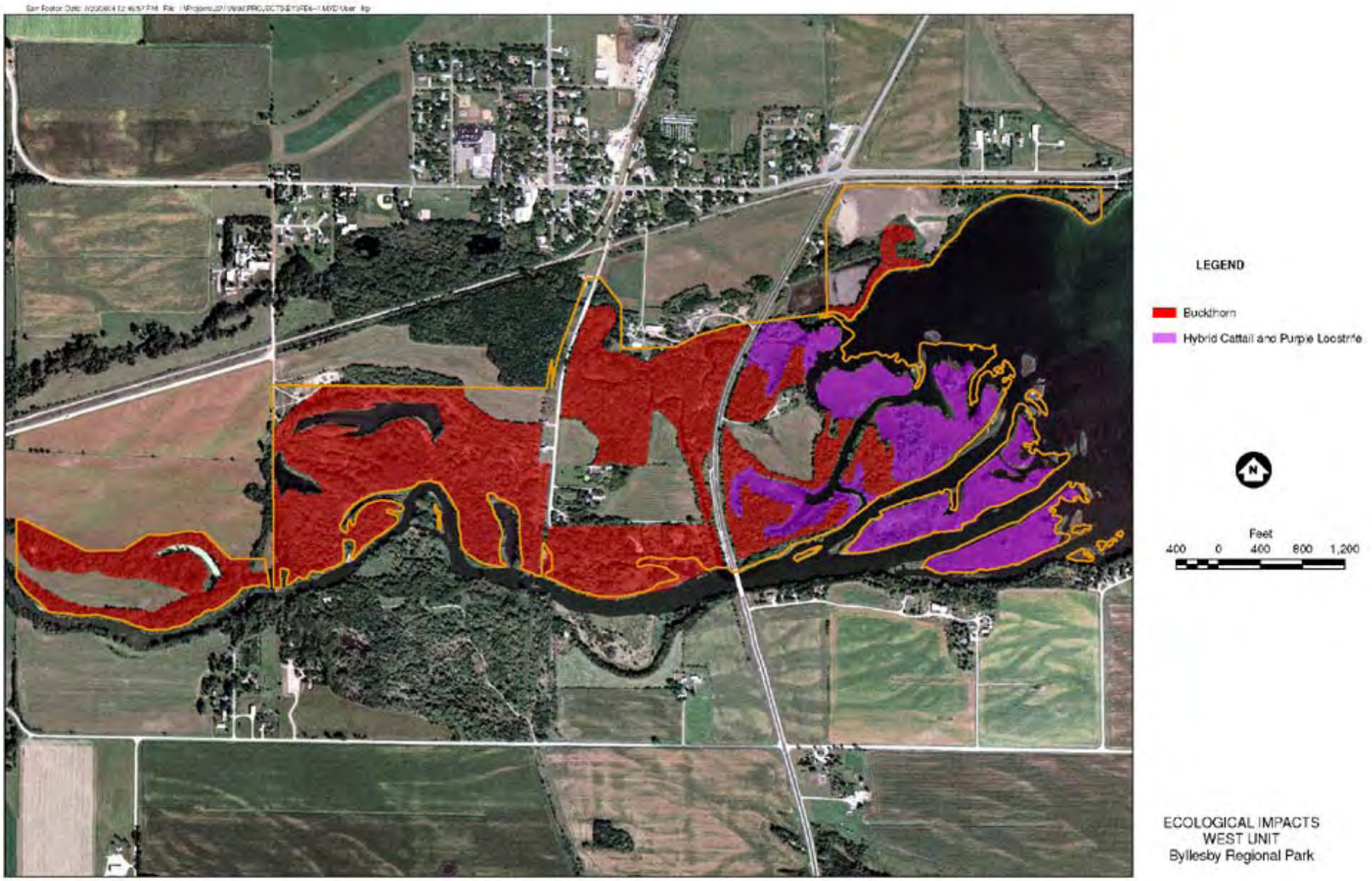


Figure 5.6 – Ecological Impacts, West Side



All-terrain-vehicles have caused significant damage to the forests in the western unit of the park.

Rip-rap on the lake shore creates a barrier for people and wildlife.

ATVs

All-terrain-vehicles have illegally used the western unit of the park. On the gravel roads they have had minimal impact, but ATV users have created an extensive network of off-road trails. These trails are sometimes deeply rutted and eroding. ATV use is prohibited within Dakota County Parks, and should be managed through enforcement of Ordinance 107...

Lake Shore

A long stretch of lake shore just south of the campground has been rip-rapped in an effort to stabilize shoreline erosion. The stone has created a barrier for both wildlife and people to reach the shoreline. Many plant species would inhabit this transitional habitat between land and water, but it is barren and inhospitable. The shoreline could be restored to natural conditions, stabilized by native plants such as is seen up river. People and wildlife could make better use of this central location of the park.

Lake Byllesby Water Quality

Lake Byllesby was sampled by the Minnesota Pollution Control Agency (MPCA) during the summer of 1996 as a part of the Lake Assessment Program. Results of that study indicate that Lake Byllesby is hypereutrophic due to high phosphorus concentrations and the resulting high levels of algae growth. Hypereutrophic lakes are very nutrient-rich lakes characterized by frequent and severe nuisance algal blooms and low transparency. Excessive nutrient and sediment loads from the Cannon River Watershed are the principal cause of water quality problems in Lake Byllesby. Excessive nutrient loads lead to low water clarity and severe nuisance algal blooms. Internal recycling of phosphorus within the lake itself further exacerbates the problem. Lake Byllesby is currently listed on the MPCA List of Impaired Waters due to high levels of phosphorus.

Although phosphorus concentrations in Lake Byllesby tributaries appear to be reasonable, their combined flows in the Cannon River add up to significant phosphorus loading. The 1996 Lake Assessment Program showed that the Cannon River was the largest contributor of water (~83%) and phosphorus (~90%) to Lake Byllesby. The 1,116 square mile Cannon River watershed above the dam is primarily agricultural. The other three tributaries (Chub and Spring Creeks and Prairie River) contributed approximately 15 percent of the water and 6 percent of the phosphorus load to the lake.

Cannon River Watershed Land Use

Land Use	Forest	Water & Wetland	Pasture Cultivated & Open	Urban
7.46	4.12	10.34	73.73	4.34

Fishing is still very popular in the river and lake.

Chlorophyll *a* concentrations are used as an indicator of algal production in a lake. It is not desirable to have a lake that contains high levels of chlorophyll *a* since this represents the accumulation of excessive algal biomass. Chlorophyll *a* concentrations above 30 to 40 µg/l are an indication of excessive biomass and would be considered "nuisance bloom" levels. During 1996 Lake Byllesby had an overall summer average of 62.5 µg/l chlorophyll *a* concentrations, with a range from less than 6 µg/l to 207 µg/L.

Transparency in lakes is a function of the amount of algae and suspended sediments in the water. Secchi disc transparency in Lake Byllesby has averaged 2.4 feet over the six-year period for which data is available (1996 – 2002). This average Secchi disc transparency is in the eutrophic to hypereutrophic range of water quality.

Year	Average Secchi Reading (feet)
1996	2.7
1997	2.5
1999	1.9
2001	2.6
2002	2.3

A silt curtain has been installed as an effort to control algae on the beach.

Fisheries: Lake Byllesby is classified as a rough fish-game fish lake and has been managed primarily as a warm-water gamefish lake by the MN DNR. The DNR reports that water temperatures exceed those preferred by cool-water species such as Walleye and Northern Pike. Walleye had been stocked from 1960-1993, but populations are very low. Carp dominated the catch in the DNR's 1993 fishery assessment (mainly two and three year old fish). Channel catfish abundance has not increased despite extensive stocking of approximately 90,000 yearlings from 1981-1989. Golden redhorse have increased in numbers in recent years. Bluegill and black crappie have also been stocked in the lake. A lack of aquatic vegetation in the lake necessary for largemouth bass, bluegill, and black crappie reproduction limits the abundance of these species. Aquatic vegetation is sparse because light does not penetrate far into the murky waters.

Swimming: The 1996 MPCA study found that total phosphorus concentrations ranged from 103 parts per billion (ppb) in May to 495 ppb in September, with a summer lake average of 269 ppb. The summer average surface water total phosphorus concentration was 258 ppb. This indicates that the lake had severe hypereutrophic conditions throughout the summer of 1996. MPCA target phosphorus levels for the Lake Byllesby ecoregion are 90 ppb to provide partial support for swimming and 40 ppb for full support of swimming.

LANDSCAPE SENSITIVITY ANALYSIS

In order to tell a story about the natural and cultural resources in the park and to determine what areas of the park would be sensitive to impact an in-depth analysis of landscape features was conducted.

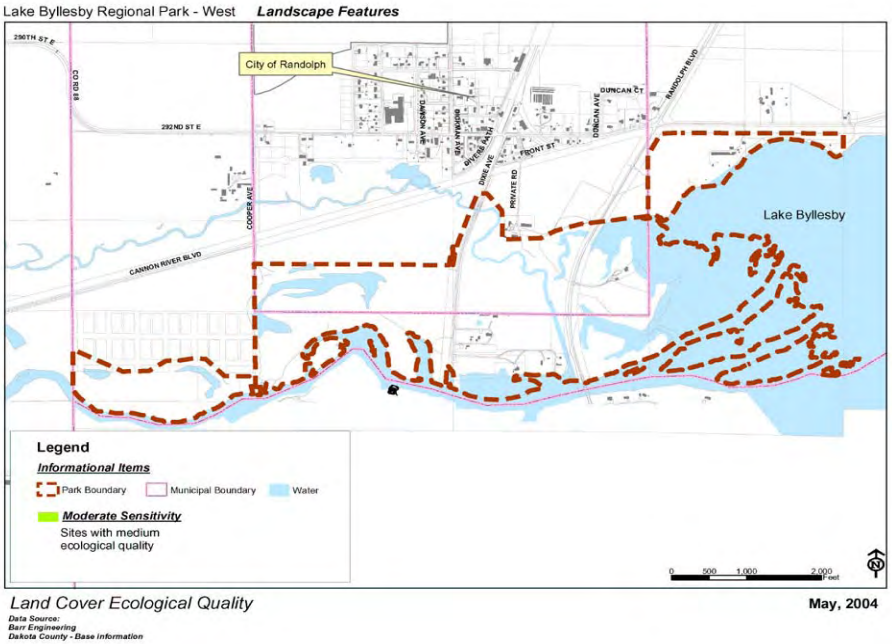
First, landscape features were studied to begin to understand cultural and ecological patterns within the park. Features including: topography; soils; land cover/ecological quality; water resources; runoff from surrounding agricultural lands; viewsheds; and potential for historic and cultural sites were mapped.

Next, sensitivity thresholds were determined and applied to each landscape feature. For instance, it was determined that slopes greater than 12% are sensitive to erosion and poorly suited to many types of recreational development. In addition, a differentiation was made between high sensitivity features and moderate sensitivity features. For example, slopes 12%-20% have moderate sensitivity to impacts while slopes over 20% are highly sensitive to impacts. Since analysis of the park's cultural history indicates the potential for archeological sites in much of the upland areas, a third category was developed, potential sensitivity. This designation means that, prior to any ground disturbing areas,

further investigation should be done in areas with high potential for precontact archeological sites. The Feature Threshold Maps (*Figure 5.7)* illustrate this stage of the process, and sensitivity thresholds are listed on the Landscape Sensitivity Map (*Figure 5.8*).

After sensitivity thresholds were determined for each feature, they were overlaid into a single Landscape Sensitivity Map (*Figure 5.8*). This map illustrates areas of the park that are highly or moderately sensitive to impacts. The picture that emerges in the eastern portion of the park is a relatively low sensitivity landscape due to extensive human alteration of the land. There are two high sensitivity areas of note. The first is a linear wetland area extending east from Lake Byllesby and the second is the portion of the park below the dam that has some high sensitivity areas due to steep slopes. Below the dam there are also areas of moderate sensitivity primarily due to medium quality vegetative cover. The shore of Lake Byllesby is considered moderately sensitive because it is within the 100-year floodplain and the fields in the northern portion of the park have a high potential for archeological or historic sites and therefore are potentially sensitive. The western portion of the park contains extensive highly sensitive areas because of wetlands and flood prone soils. The upland areas have potential sensitivity due to the high potential for historic and archeological resources.

Figure 5.7 - Feature Thresholds



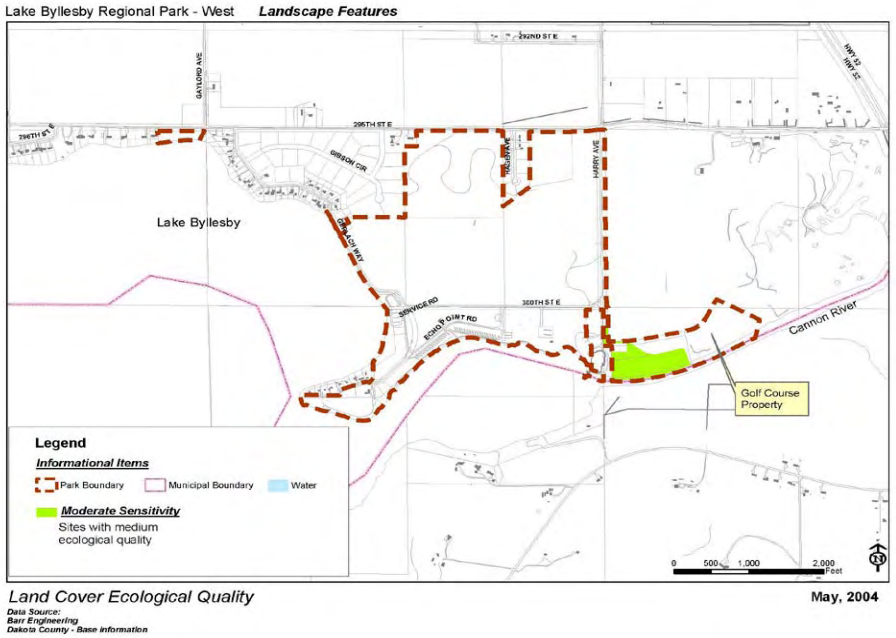
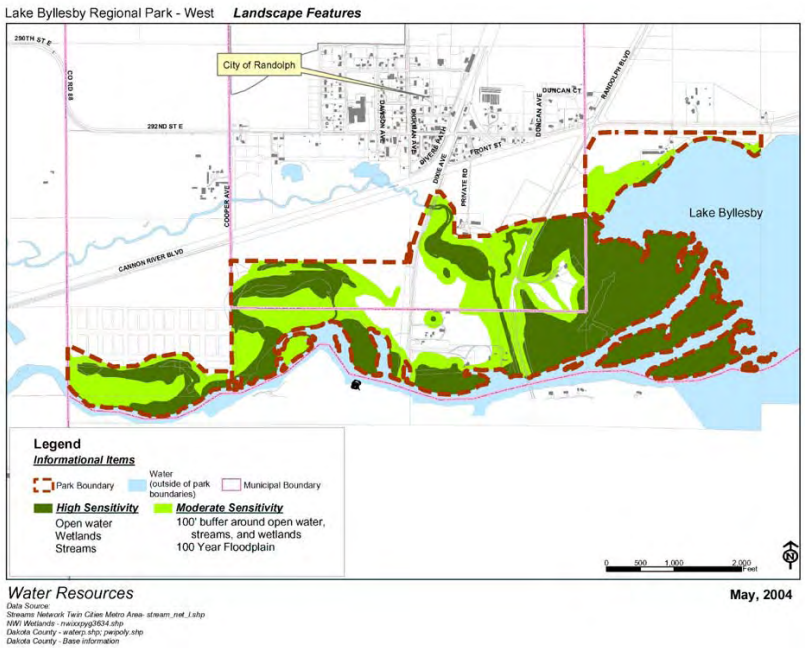
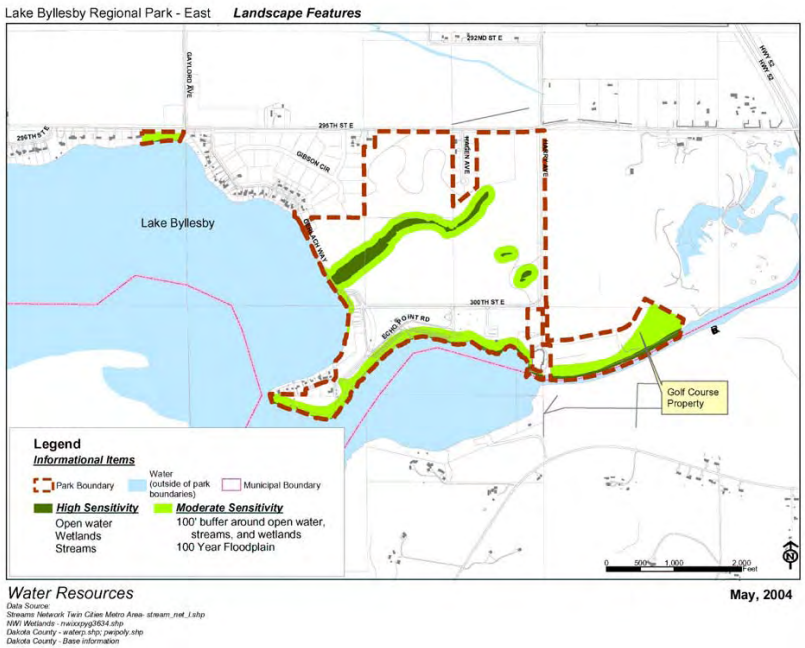
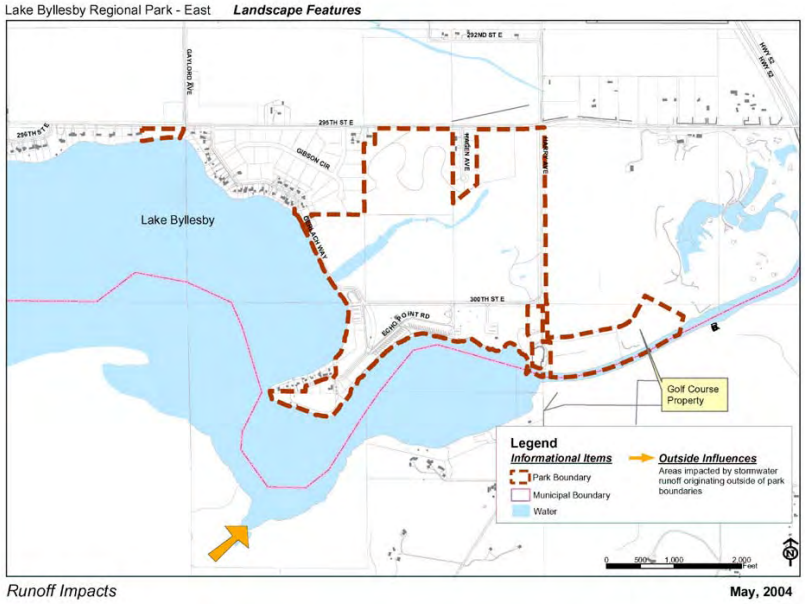


Figure 5.7 - Feature Thresholds (continued)







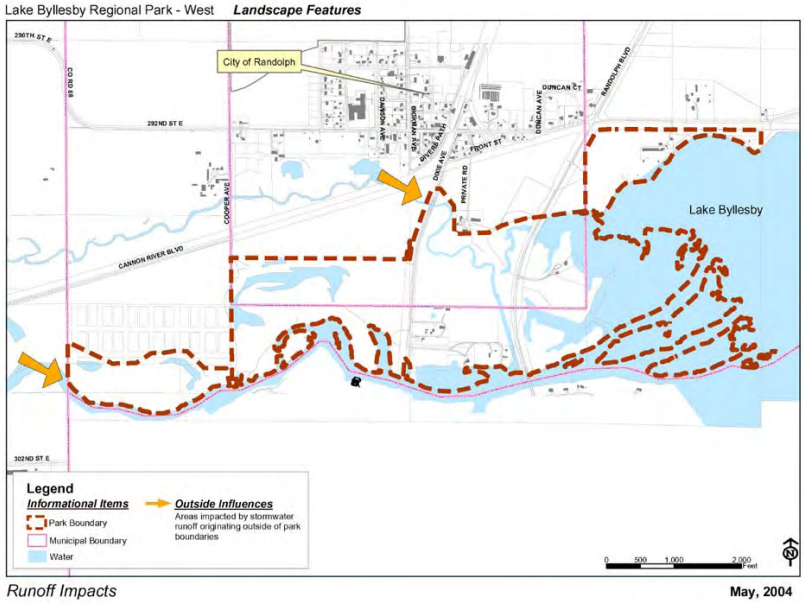
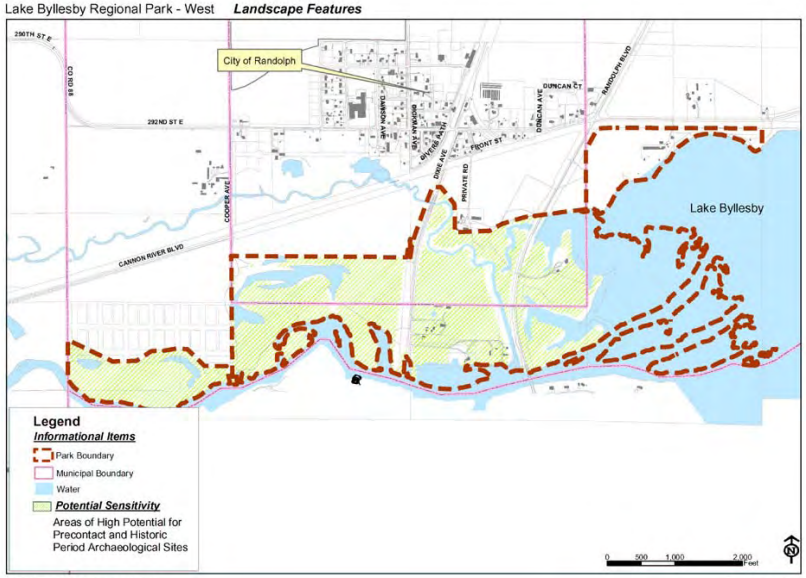


Figure 5.7 – Landscape Sensitivity Analysis (continued)

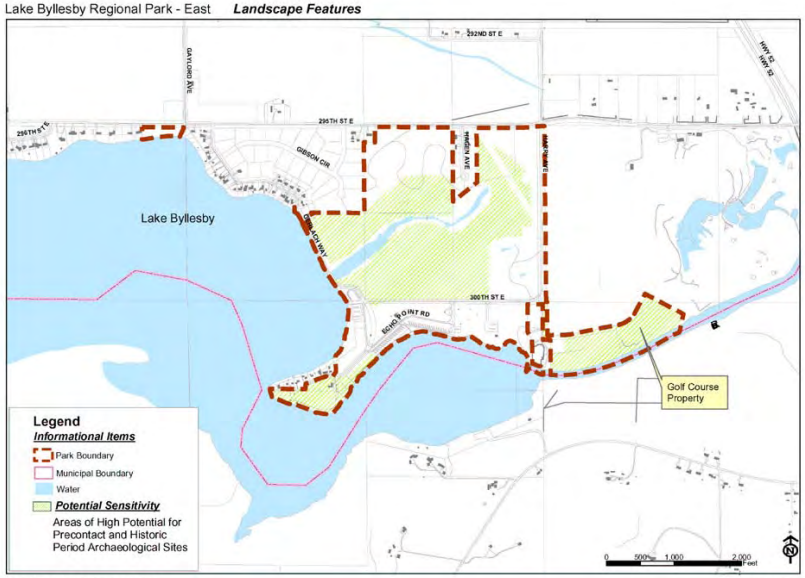
Lake Byllesby Regional Park - West **Landscape Features**



Cultural Assessment **May, 2004**

Data Source:
106 Group
Dakota County - base information

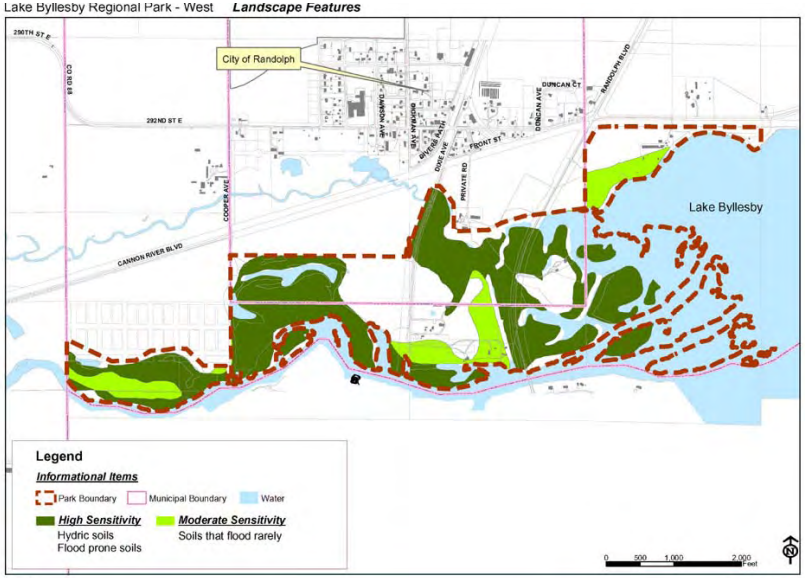
Lake Byllesby Regional Park - East **Landscape Features**



Cultural Assessment **May, 2004**

Data Source:
106 Group
Dakota County - base information

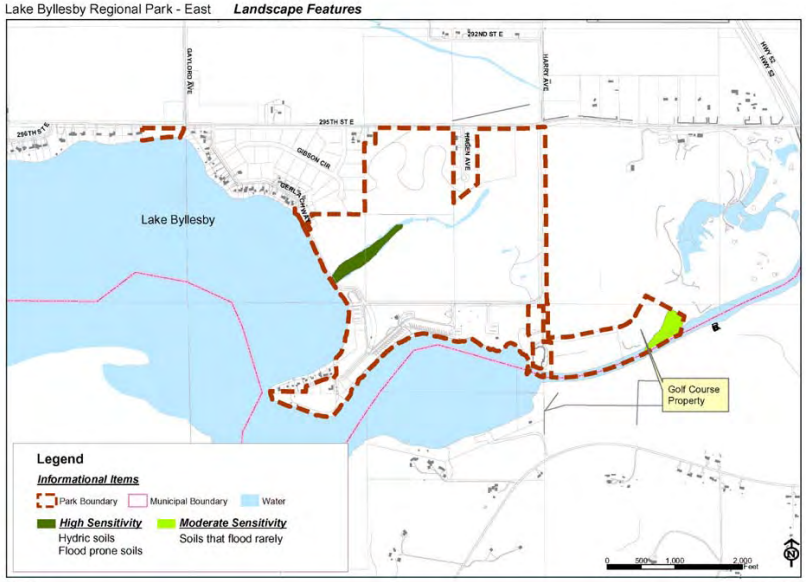
Lake Byllesby Regional Park - West **Landscape Features**



Soils **May, 2004**

Data Source:
Dakota County - soils.shp
Dakota County - base information

Lake Byllesby Regional Park - East **Landscape Features**

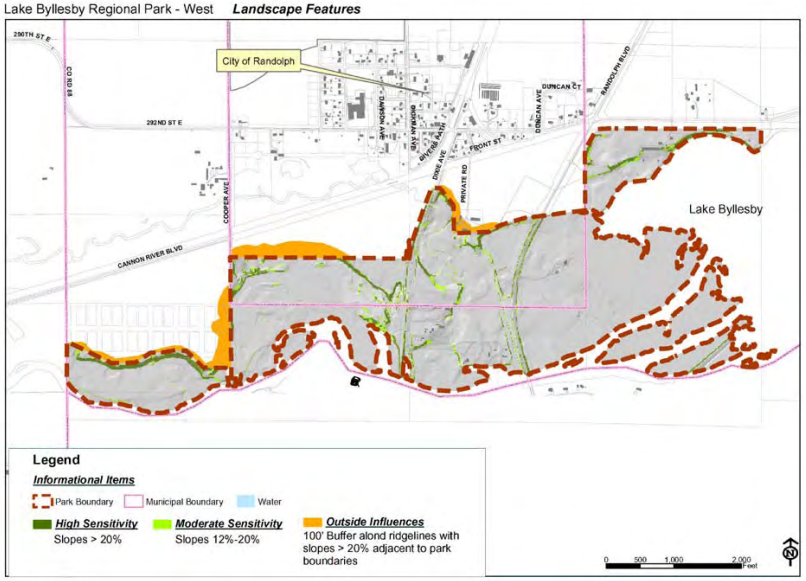


Soils **May, 2004**

Data Source:
Dakota County - soils.shp
Dakota County - base information

Figure 5.7, Feature Thresholds (continued)

Lake Byllesby Regional Park - West **Landscape Features**

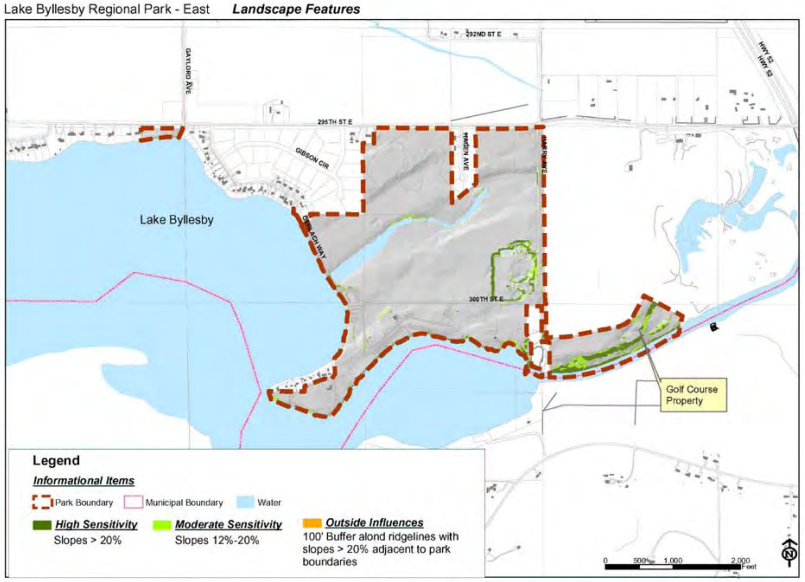


Topography

Data Source:
Dakota County- thompgrid_2; tomphlshd_2;countour.shp
Dakota County - base information

May, 2004

Lake Byllesby Regional Park - East **Landscape Features**

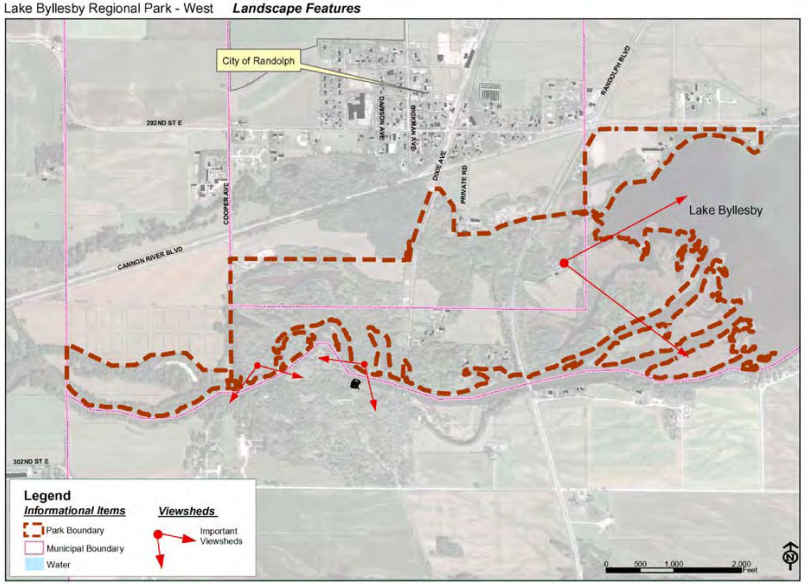


Topography

Data Source:
Dakota County- thompgrid_2; tomphlshd_2;countour.shp
Dakota County - base information

May, 2004

Lake Byllesby Regional Park - West **Landscape Features**

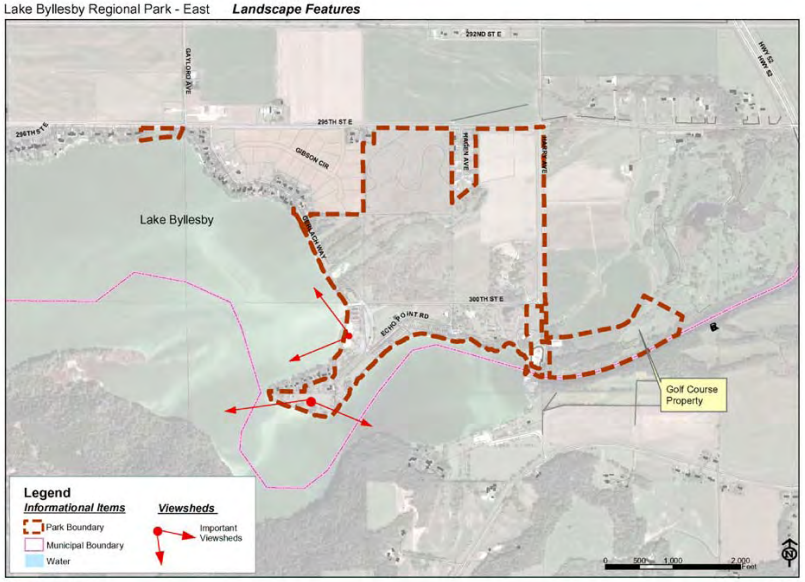


Viewsheds

Data Source:
Dakota County - base information

May, 2004

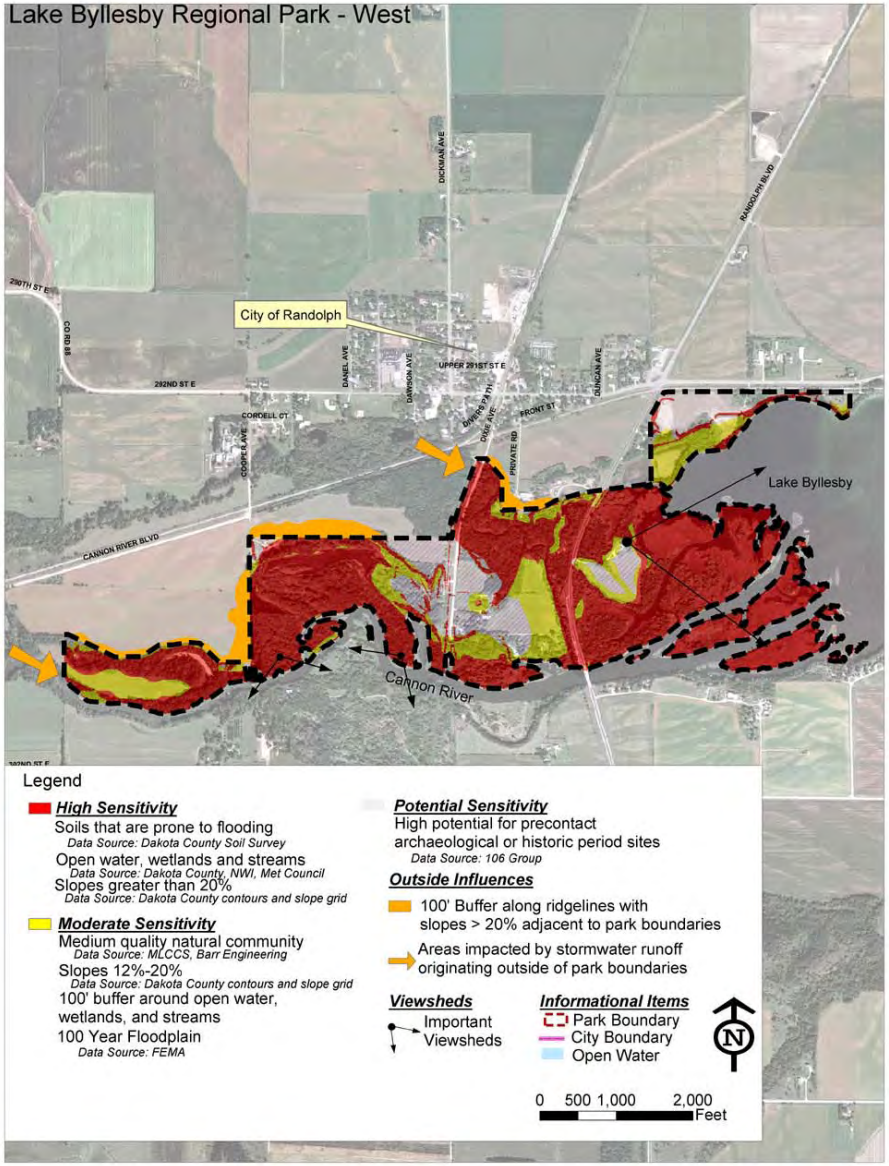
Lake Byllesby Regional Park - East **Landscape Features**



Viewsheds

Data Source:
Dakota County - base information

May, 2004


Lake Byllesby Regional Park - West
City of Randolph
Lake Byllesby
Cannon River
Legend
High Sensitivity
Soils that are prone to flooding
Data Source: Dakota County Soil Survey
Open water, wetlands and streams
Data Source: Dakota County, NWI, Met Council
Slopes greater than 20%
Data Source: Dakota County contours and slope grid
Moderate Sensitivity
Medium quality natural community
Data Source: MLCCS, Barr Engineering
Slopes 12%-20%
Data Source: Dakota County contours and slope grid
100' buffer around open water, wetlands, and streams
100 Year Floodplain
Data Source: FEMA
Potential Sensitivity
High potential for precontact archaeological or historic period sites
Data Source: 106 Group
Outside Influences
100' Buffer along ridgelines with slopes > 20% adjacent to park boundaries
Areas impacted by stormwater runoff originating outside of park boundaries
Viewsheds
Important Viewsheds
Informational Items
Park Boundary
City Boundary
Open Water
N
0 500 1,000 2,000
Feet

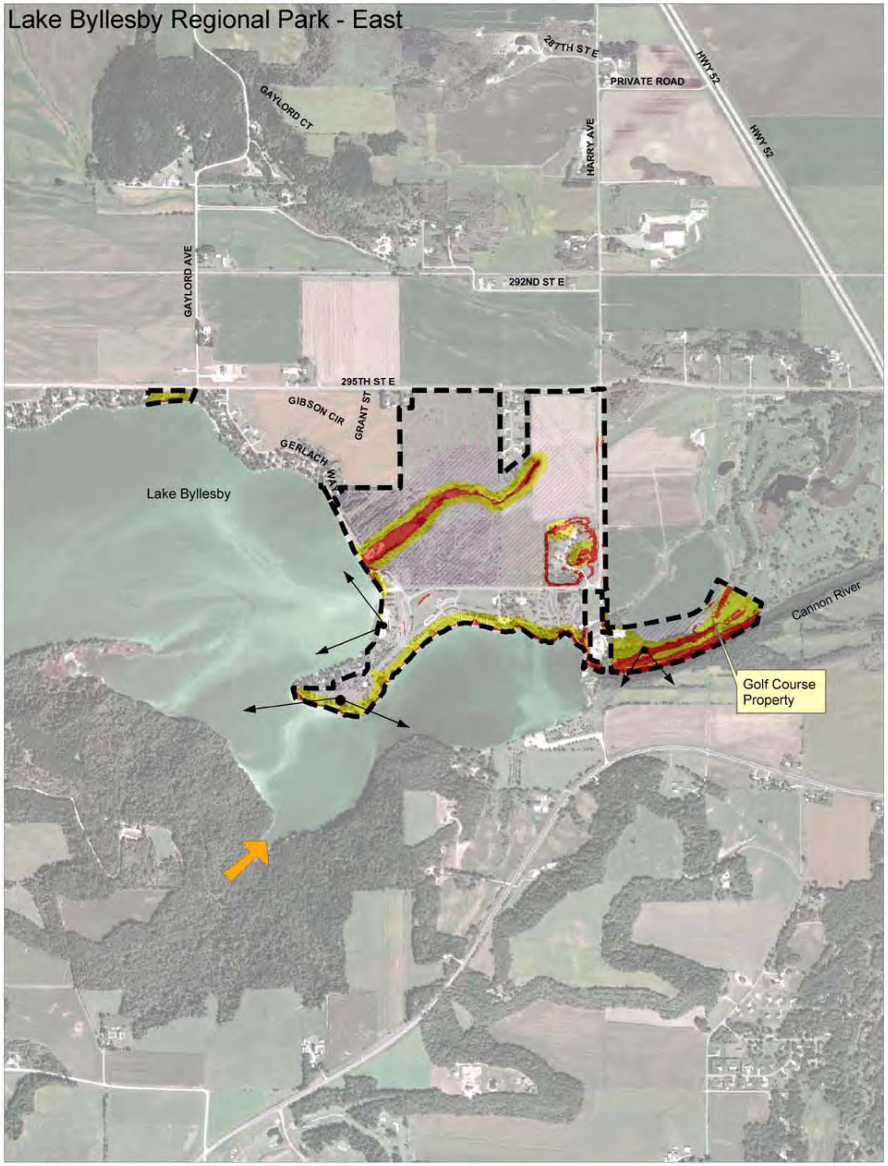

Lake Byllesby Regional Park - East
287TH ST E
PRIVATE ROAD
HWY 52
HWY 63
GAYLORD CT
HARRY AVE
GAYLORD AVE
292ND ST E
295TH ST E
GIBSON CIR
GRANT ST
GERLACH WAY
Lake Byllesby
Cannon River
Golf Course Property

Table 5.1 below identifies park development guidelines based on landscape sensitivity. Greater landscape sensitivity equates to the suggestion for more restrictive development standards.

Development standards represent the link between landscape sensitivity analysis and the development master plan described in Chapter 8. To the extent possible, park development is suggested and facilities are located in ways that minimize ecological impact.

DEVELOPMENT GUIDELINES

Table 5.1 Development Guidelines

Landscape Sensitivity	Ecological Criteria	Habitat Restoration & Management	Development Standards
High	Areas that require protection due to habitat quality or susceptibility to degradation. Criteria include: • Soils that are prone to frequent or occasional flooding • Hydric Soils • Slopes greater than 20% • High quality natural community • Wetlands	• Manage invasive species • Control erosion in steep slope areas • Restoration to native vegetative communities in key areas.	Resource protection is the highest priority in these areas and any development must be carefully considered and weighed against ecological impact. When development is deemed necessary, special design will be required to mitigate impacts. Appropriate development uses: • Trails • Primitive camping • River & lake access • Gravel roadways and parking • Overlooks • Pit or composting toilets • Primitive structures such as picnic shelters and restroom buildings

Continued on the next page

Table 5.1 Development Criteria (continued)

Landscape Sensitivity	Ecological Criteria	Habitat Restoration & Management	Development Standards
Moderate	Areas that justify some protection due to habitat quality and moderate susceptibility to degradation. Criteria include: • Slopes between 12%-20% • Medium quality natural communities • 100' buffer around open water, wetlands, springs, and streams. • 100 year floodplain • High Potential for precontact and/or historic period sites	• Manage invasive species • Control erosion in steep slope areas • Restoration to native vegetative communities in key areas.	Though not as restrictive to development as high sensitivity areas, resource protection is still a high priority and desired development should be weighted against ecological impact. When development is desired, design considerations must be made to minimize impact. Since these areas are less susceptible to degradation than high sensitivity areas, design considerations will likely be less restrictive. Appropriate development uses: • Uses listed in the high sensitivity category
Potential	These areas are not ecologically sensitive but have some potential for pre-contact archaeological sites.	• Manage invasive species • Landscape planting of key areas with an emphasis on native species for erosion control, aesthetic qualities and habitat diversity.	Due to past disturbance there is a high level of flexibility for development although ecological stewardship remains an important consideration. In addition, if ground-disturbing development within these areas is planned, identification of archaeological sites within the areas of impact should be conducted. Appropriate development uses: • Uses listed appropriate for high or moderate sensitivity • Paved roadways and parking • Car or RV camping • Buildings and structures with utilities and septic systems
Outside Influences	Areas outside of the park that impact runoff into the park and park views.	Acquisition or partnerships with landowners is required for management.	Not Applicable

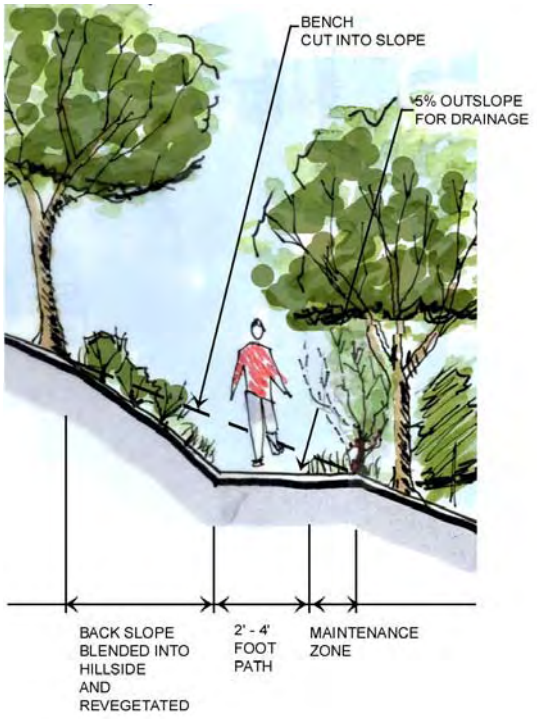


Figure 5.9 - Trail on slope with full bench construction and outslope

SUSTAINABLE TRAIL GUIDELINES

This section is an overview of appropriately locating trail corridors as well as properly designing trails so they cause the least negative impacts to the landscape. Sustainable trail design is an emerging specialty with a growing number of experts to assist with detailed design of trail corridors. While the Lake Byllesby Regional Park Master Plan suggests trail locations that embrace sustainable trail guidelines, based on the small scale of site map data available, detailed trail layout and design should be done along with actual trail development to finitely locate trails according to sustainable trail guidelines.

The park's trails are envisioned as a mix of trail types with paved trails in the developed high use areas and rustic trails and boardwalks in the more natural areas of the park. Most of the park is relatively flat, though there may be some instances where the guidelines for trails on slopes will be necessicary. Particularly important will be the use of boardwalk trail in the wet areas on the west side of the park.

Guidelines

- **Trail Types** – Paved trails are envisioned in the high traffic developed areas of the park. Trails on slopes in the more natural areas are envisioned as stabilized earth footpaths varying in width from 2' – 6' depending on site conditions. In areas with wetland, hydric, or seasonally flooded soils, boardwalk trails should be constructed. Through prairies and grasslands, 6' mowed trails are envisioned. *(Figures 5.9, 5.10)*
- **Half Rule** - Trail grade shouldn't exceed half the grade of the sideslope. If the trail grade is steeper than half the grade of the sideslope, it is considered a fall-line trail and gravity will pull water down the trail instead of across it, which leads to erosion.
- **The Ten Percent Average Guideline** - An average trail grade of 10 percent or less is most sustainable. This does not mean that all trail grades must be kept under 10 percent. Many trails will have short sections steeper than 10 percent, and some unique situations will allow average trail grades of more that 10 percent.
- **Maximum Sustainable Grade** –Although an average trail grade of 10 percent is best, some segments of a trail can be steeper and still be sustainable. Maximum sustainable trail grade is typically about 15 to 20 percent but it is site-specific and varies based on several factors.
- **Grade Reversals**- Reverses in the trail grade – usually a short dip followed by a rise – that force water off the trail should be used. Grade reversals are known by several different terms, including grade dip, grade brake, drainage dip, and rolling dip. Frequent grade reversals are a

critical element of sustainable trail design. Most trails will benefit from grade reversals every 20 to 50 feet, depending on soil type and rainfall.

- **Outslope** - Trail tread must be graded to allow the outside edge of a hillside trail to be lower than the inside to shed water. The outslope should slope no more than 1 inch for every 18 inches of tread (or about 5 percent).
- **Full Bench Cut** - Build the trail with a full bench cut into the hillside. Cutting the entire width of the trail into the hillside will result in a stable tread. Blend and revegetate the back-cut into the slope to prevent cascading water from undercutting the trail tread. *(Figure 5.9)*
- **Special Conditions** - Steep terrain may require climbing turns, switchbacks, rock armoring, or stairs depending on site specific conditions.
- **Boardwalk Trails** should be constructed through wetland, hydric or seasonally flooded soils. *(Figure 5.10)*
- Dakota County Parks has adopted the design standards and principles outlined in the International Mountain Biking Associations book, Trail Solutions, which should be referenced for more information.

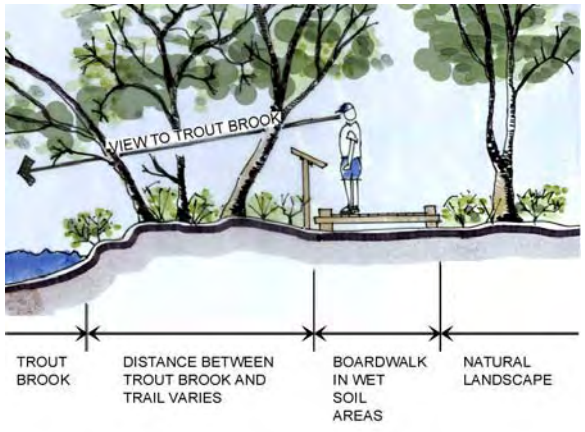


Figure 5.10 - Boardwalk trails should be constructed when wet or seasonally flooded soils cannot be avoided.

RECOMMENDATIONS

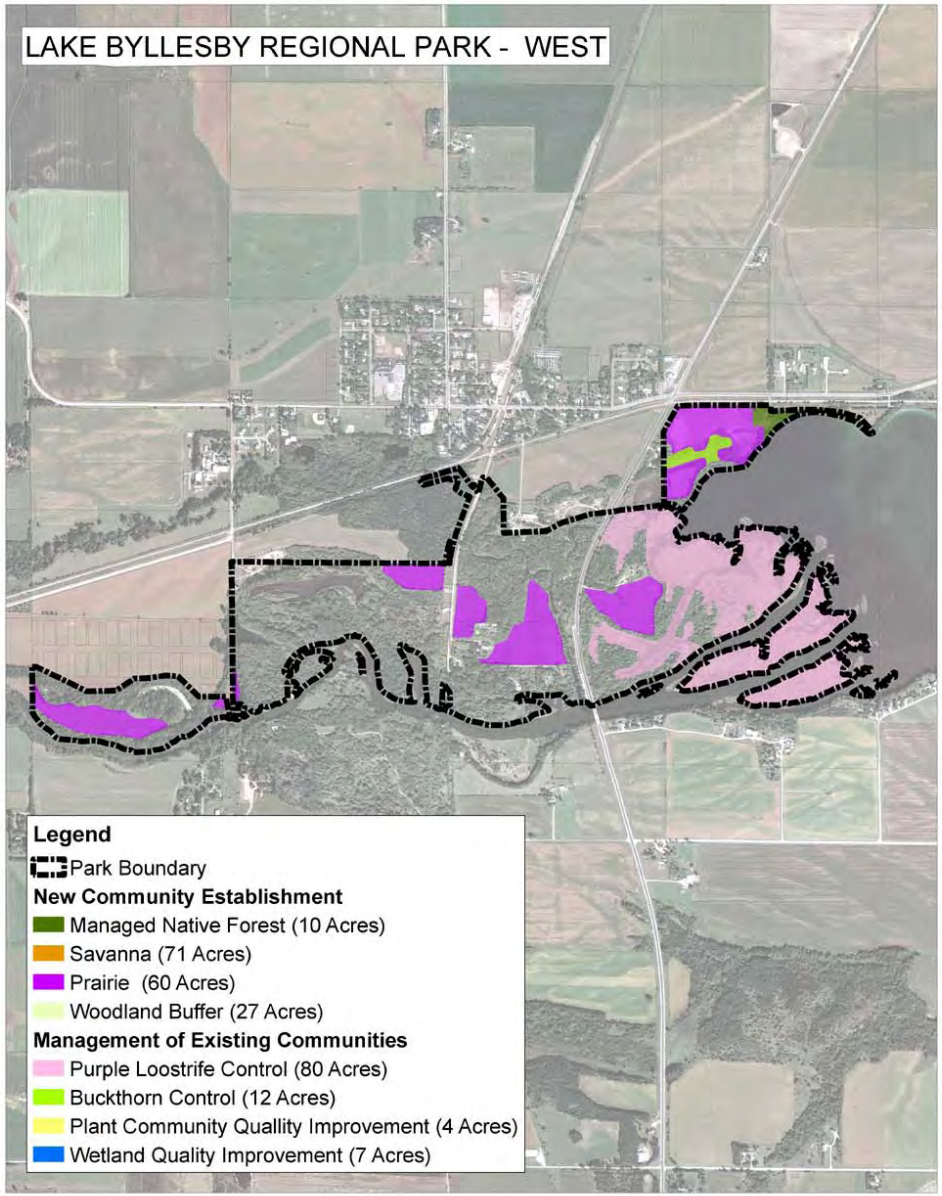
Based on ecological research and field review, it is suggested that planning and management of Lake Byllesby habitat should concentrate on the following:

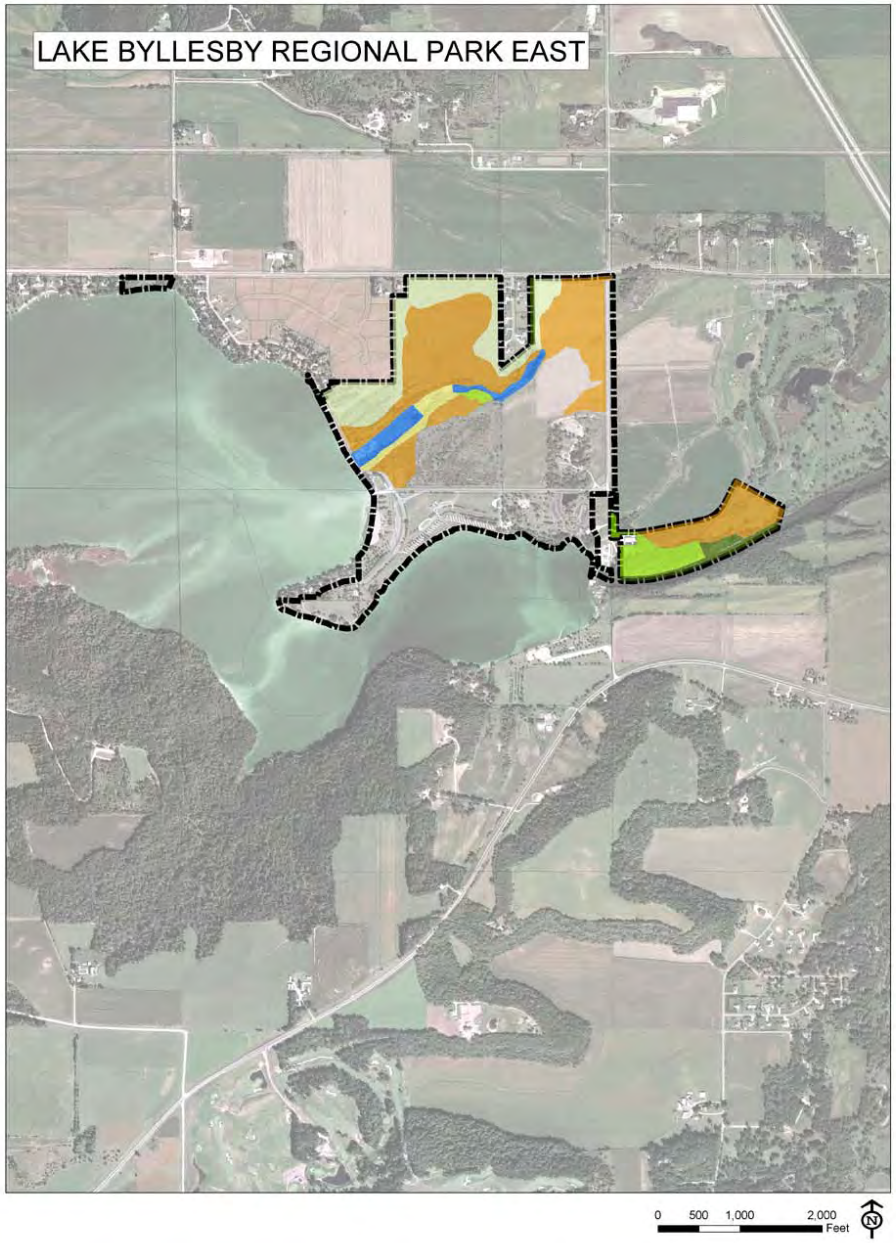
- **Conduct targeted plant community restoration**: The former Knox farm site, the northern portion of Byllesby East and the shoreline area below the dam (as identified in *Figure 5.11*) are prime opportunities for prairie, savanna and some forest plant community restoration in the park. Restoration efforts will need to be targeted because of the realities of budget constraints and because much of the Byllesby land area is programmed for active recreational use.
- **Control Invasive species**: There are several invasive species infestations within the park that are suggested for active control in *Figure 5.11*. They include:
    - Buckthorn – concentrate on eradicating identified hot spots. Even though the floodplain forest in West Byllesby has significant buckthorn infestation, the area in not suggested for active control because of the tremendous ongoing resources needed for

that large of an area. Concentrating on smaller zones with an opportunity to positively manage the impact is the strategy suggested here.

- Purple Loosestrife – biological control in the mud flat areas of West Byllesby.
- Amur Maple – stands of Amur Maples are generally in areas of the park where development or habitat restoration are proposed. There may be instances where they can remain as screening between campsites but in general the species should be eradicated from the park.
- Watch for and eradicate invasive weeds that do not yet have a presence in the Park such as Garlic Mustard and Spotted Knapweed.

- **Naturalize the shoreline from Echo Point to the dam**: This shoreline has been filled with rip rap in many areas due to past erosion problems. While the rip rap is effective at controlling erosion, it has negative habitat impacts and limits enjoyment of the shoreline. New techniques in shoreline stabilization could be implemented that accomplish the functional needs of rip rap as well as enhance the aesthetic and habitat qualities of the shoreline.
- **Use native trees and groundcovers in "landscaped" areas of the park**: Lake Byllesby Park has sandy soils that dry quickly and make the use of many cultivated landscape plants difficult without irrigation. Using native trees and shrubs such as bur oak, hazelnut and even western red cedar and native ground covers such as fescue grasses will limit fertilizer and watering needs, bring plants into character with the landscape and give plantings a fighting chance for survival.


LAKE BYLLESBY REGIONAL PARK - WEST
Legend
Park Boundary
New Community Establishment
Managed Native Forest (10 Acres)
Savanna (71 Acres)
Prairie (60 Acres)
Woodland Buffer (27 Acres)
Management of Existing Communities
Purple Loostrife Control (80 Acres)
Buckthorn Control (12 Acres)
Plant Community Quallity Improvement (4 Acres)
Wetland Quality Improvement (7 Acres)


LAKE BYLLESBY REGIONAL PARK EAST
0 500 1,000 2,000 Feet
N

CHAPTER 6

The Development Master Plan

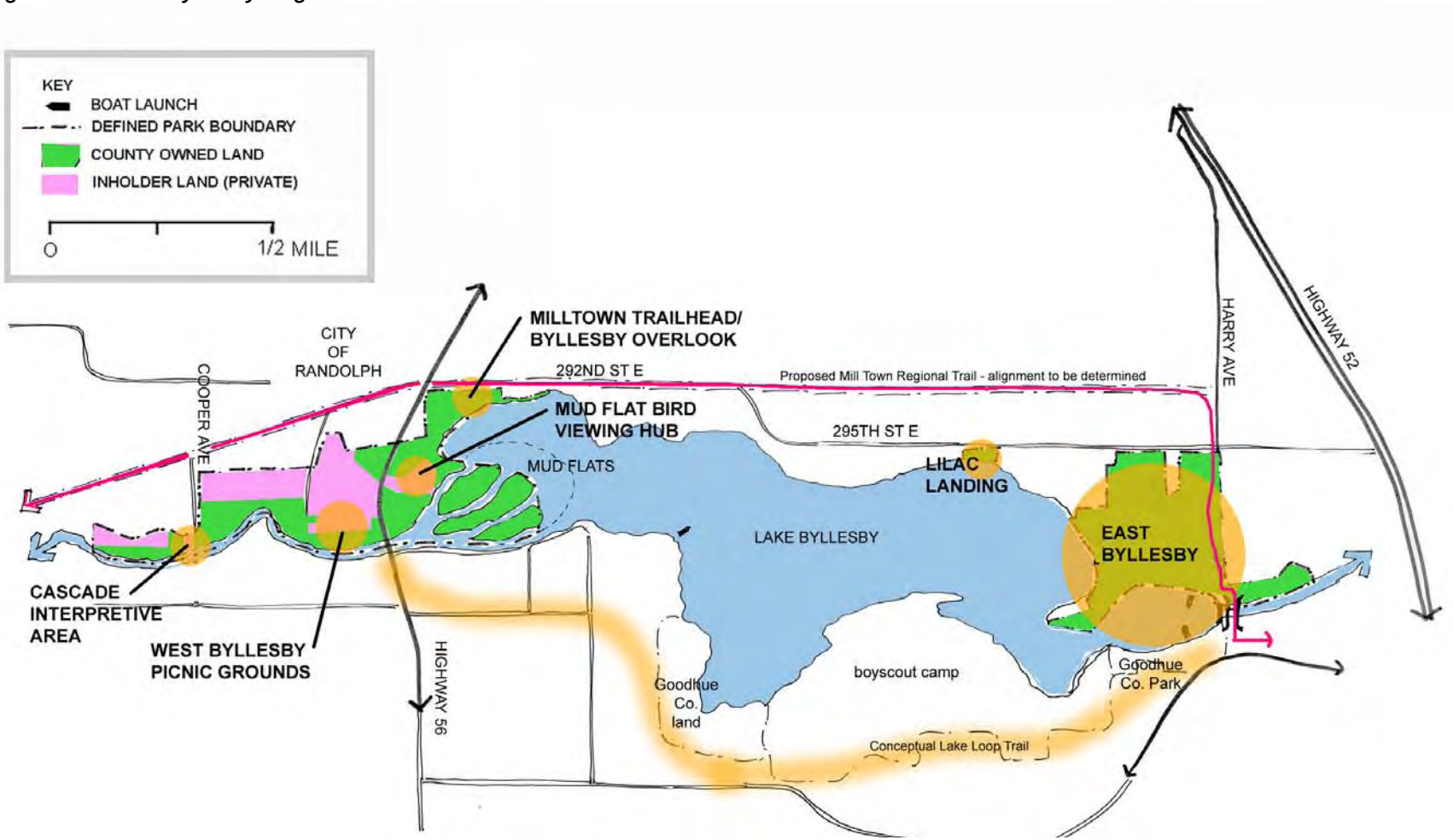
OVERVIEW

Labeling both an overall document and a chapter within that document "master plan" could cause confusion. The reason it is done in this case is that the full document pivots on the master plan chapter. This chapter is an illustrative and written description of park development. The document is a strategic guide that supports the development plan and directs its implementation.

The master plan for Lake Byllesby Regional Park builds on the unique natural resources and opportunities this land offers, establishes the basis for capital investments over the 15-year life of the document and suggests facilities that act as the visitor interface to the park experience.

In order to put detailed ideas in an appropriate context, this chapter builds from the "big picture" visioning described in the previous chapter with detailed description of individual park elements. The master plan uses graphic illustration and written description of design elements to communicate their character and how they fit into the context and use of the park. Because park development is inherently tied to the living landscape, this chapter also describes the vegetation patterns that are proposed to inhabit the park and that work in concert with park development to create a full experience for the visitor and enhance the ecological integrity of the park (for vegetation restoration recommendations see Chapter 5).

Figure 6. 1 Lake Byllesby Regional Park Context Plan



Context Plan

Due to the fact that Lake Byllesby Regional Park land consists of eastern and western lands of vastly different character separated by 2 miles of lake, the master plan graphics are divided up into a context plan showing all parkland (fig 6.1), separate master plans for the western (fig 6.2) and eastern (fig 6.3) sections, detail plans of developed areas, plan vignettes and typical plans and sections.

Figure 6. 2 East Lake Byllesby Regional Park Master Plan with Details

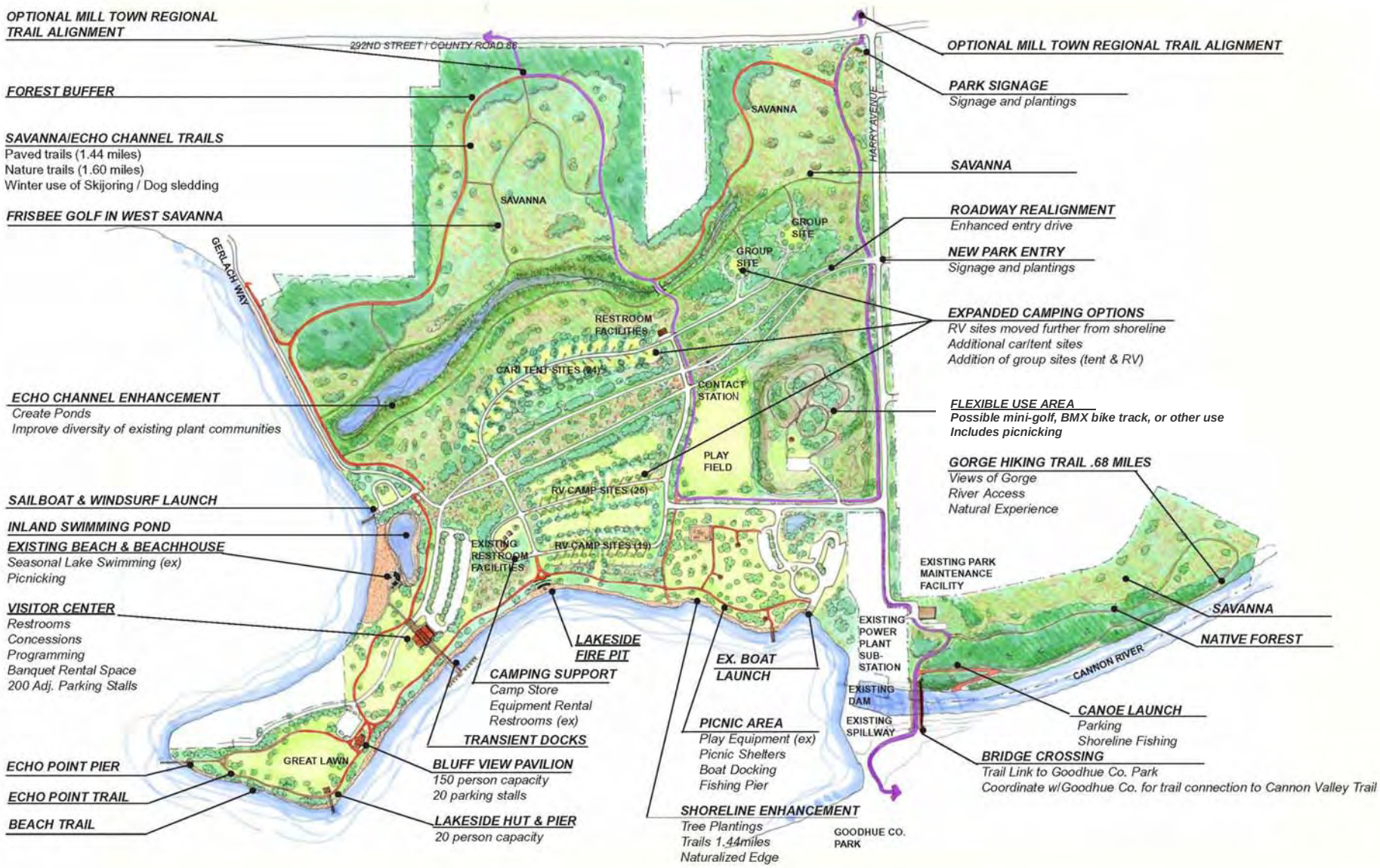
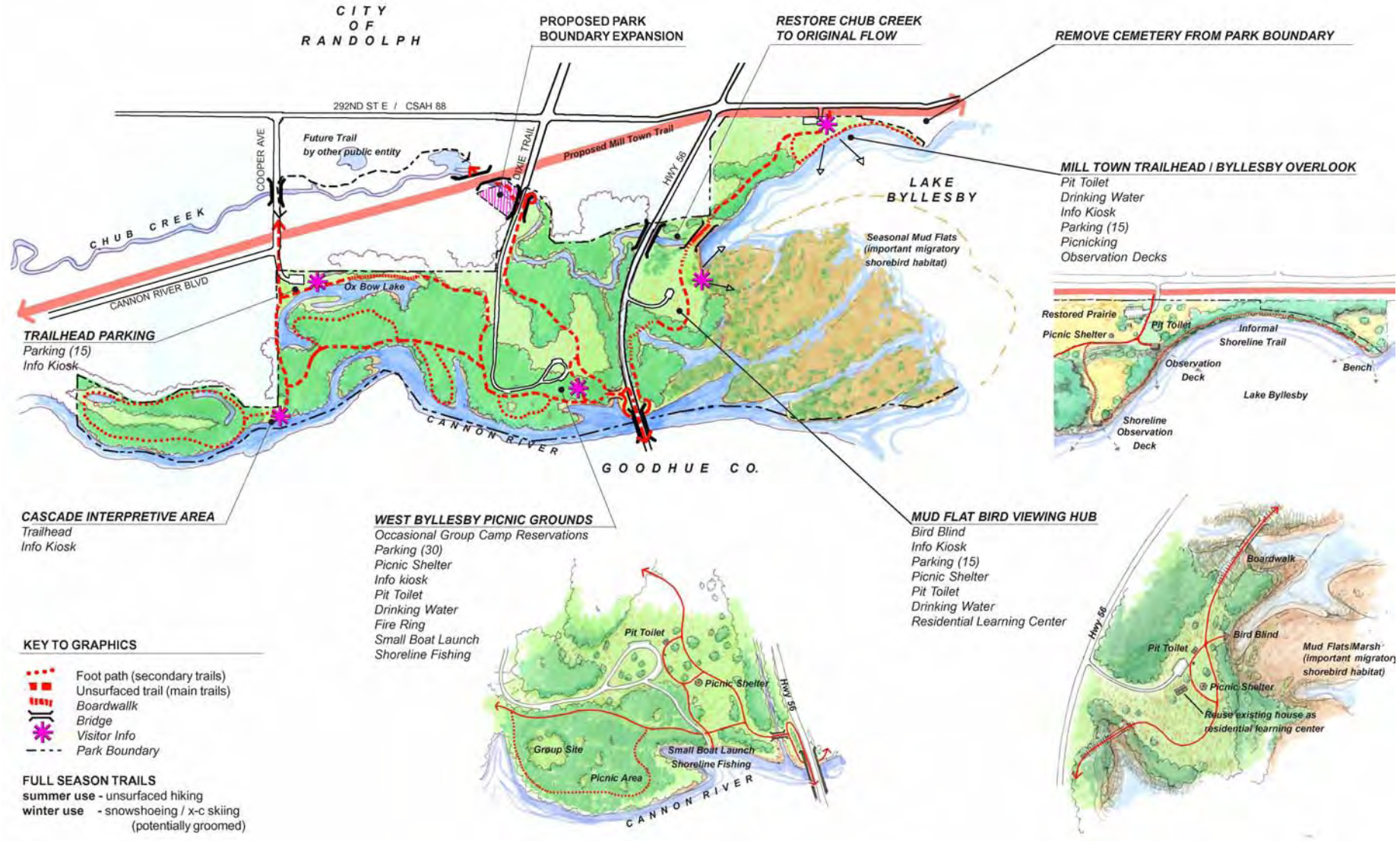


Figure 6. 3 West Lake Byllesby Regional Park Master Plan with Details



ADDRESSING KNOWN ISSUES

This master plan addresses several issues that were brought out during the planning process. Some of the issues were expressed by the general public and park neighbors; others were expressed by Dakota County staff and officials. The primary issues include:

- **Park access on township roads**: Lake Byllesby Regional Park is accessed via township roads. Randoph Township has expressed concern about roadway maintenance needs and safety concerns resulting from park traffic. While the master plan only addresses this issue slightly with the suggestion for better directional signage, Dakota County can explore outside the master plan process opportunities for greater cooperation and partnership with the township regarding this issue.
- **Potential conflict between park use and existing residential uses on Echo Point**: There are several homes on Echo Point that gain access through the park and are encompassed by the park on all landward sides. The master plan suggests an approach to Echo Point that has recreational benefit and respects adjacent homeowners.
- **Lake water quality:** Water quality of Lake Byllesby is a significant regional issue that will take years to improve. The master plan suggests that the park do its part in improving water quality by doing shoreline restoration that will buffer the lake from runoff. The master plan also suggests alternative facilities that allow for a safe and enjoyable swimming experience for visitors regardless of lake water quality.
- **Coordination with Goodhue County:** Goodhue County owns a park across the lake from Lake Byllesby Regional Park. Some of the facilities are duplicated and need to be based on roadway access. The master plan suggests a pedestrian bridge crossing at the dam that will greatly enhance the connection between the two parks.
- **Park beautification:** The landscape of the park feels much like a conglomeration of parcels that have not been unified with an approach to vegetation. Also, because the area is sandy and flat, summer winds tend to dry the landscape at times of the summer. The master plan addresses these issues by suggesting vegetation that is appropriate for the dry conditions and creating a comprehensive landscape design that unifies the park.

ACCESSIBILITY

Dakota County is committed to offering universal accessibility at park facilities. Lake Byllesby offers an excellent opportunity for universal accessibility due to gentle topography and highly developed facilities. Nearly all of the facilities suggested in the master plan are located and planned for universal accessibility in order to provide all visitors to the park reserve with a meaningful experience.

FACILITY QUANTIFICATION

This section identifies and quantifies the primary facilities existing in and proposed for the park. They are as follows:

Visitors Center
Inland Swimming Pond
Restroom Facilities: 3
Pit Toilets: 3
Drinking Water Wells: 3
Campers Store
Trailheads: 2
Trails: 11.9 miles total
- Paved trails: 4.34 miles
- Nature trails: 7.56 miles

Pedestrian Bridge over Cannon River
Camp Sites: 70 total
- RV campsites: 44
- Tent/pop-up camp sites: 24
- Group camp sites: 2

Picnic Areas: 4
Fishing Piers/Boat Dock: 4
Transient Docks
Flexible Use Area (mini-golf, BMX track, or other)
Canoe Launch: 2
Boat Launch
Sailboat & Windsurf Launch

Residential Learning Center
Play Field

FACILITY DESCRIPTIONS

Lake Byllesby Regional Park land exists on both the western and eastern sides of Lake Byllesby approximately 2 miles apart. The context plan (fig 6.1) shows the relationship between the eastern and western portions of parkland. The eastern portion is highly developed with many active uses while the western portion consists of a few focused passive areas connected by trails. Lilac Landing lies between the eastern and western parklands and offers winter ice access and shoreline fishing.

The Mill Towns State Trail, is proposed to run from Faribault to Red Wing, and offers a great opportunity to connect Lake Byllesby's eastern and western park lands. This State Trail is shown north of the lake and routes through the eastern park land, over the proposed Cannon River bridge and through Goodhue County to the Cannon Valley Trail just 3 miles to the east. This would greatly expand opportunities to use Lake Byllesby Regional Park as a starting or resting point on a regional trail. The idea for a southern trail alignment through Goodhue County could someday complete a lake trail loop and offer an excellent day trip from the park.

The master plan for the western portion of parkland (fig 6.3) focuses on nodes for bird viewing, trailhead parking, picnicking, Cannon River access and Cascade historic interpretation. These nodes are connected through a series of trails, allowing visitors to be engaged in their environment between nodes. The nodes offers visitor services, some including pit toilets, drinking water and information kiosks.

The master plan for the eastern portion of parkland (fig 6.2) suggests a highly developed park by expanding on existing uses. The camping is expanded and improved to include car and tent campsites and group sites in a more natural landscaped environment. Swimming opportunities are expanded by an inland swimming pond next to the existing seasonally useable natural beach.

To expand the gathering function in the park a Visitor Center is proposed that would offer great lake views, all seasons programming and rental for community celebrations. The Lakeshore experience is further improved by providing opportunities to walk along the shoreline, naturalizing the edge, and providing much desired piers and boat docking.

The East Byllesby master plan provides opportunities to enjoy Echo Point, the peninsula that reaches into Lake Byllesby, by providing various shelters and trails sited for views of the dramatic bluffs, the Lake and the Great Lawn.

EAST LAKE BYLLESBY FACILITIES

Entry Enhancements

Signage

Eastern signage includes entry signs at Harry Avenue/Hwy 52, Harry Avenue/County Road 88, and Harry Avenue/park entry drive. Park way-finding signage will direct visitors to facilities from the main entry drive.

Special Plantings

Special plantings of flowering prairie plants and enhanced landscaping can help identify key entries.

Entry Road Re-alignment with Planted Median

The main park entry drive (formerly 130th Street) is re-aligned to meet Harry Avenue further north and bring visitors into the park sooner to create a more scenic entry experience. Park roadway circulation should provide a clear hierarchy, with the main entry road providing views of Lake Byllesby, the park's major activity areas, and the future Visitors Center.

Contact Station

The contact station serves as a first contact for new visitors. Its location in a center median will allow visitors to quickly check in via a drive up window, or pull their vehicle over to the left and come in for a more informative orientation.

Expanded Camping Options

Camping options have been enhanced and expanded to accommodate car and tent campers and group camping in a more private landscaped setting. The existing restroom facilities continue to serve campers near the lake, while a new northern restroom facility would be needed to serve the group sites and Echo Channel car and tent sites.

Northern Restroom Facilities

Restroom facilities at this location would serve the group campsites, the car/tent sites and trail users.

Existing RV Camper Restroom Facilities

This facility would be expanded to offer rental equipment and camper services. The intention is to relieve the Visitor Center of too many functions and keep the camping functions within the camping area.

Group sites (fig 6.4)

About four acres have been designated for two separate group campsites. Each group site accommodates six to twelve with an associated tent site and picnic table. One large fire pit with log seating provides a central gathering area. There is a small open turf area for overflow tents or other group activities. Unpaved trails connect the campsites to the system of park trails. A facilities shed could house garbage and firewood or other suitable support items.

RV sites (fig 6.5)

About 10 acres have been designated for RV type camping. The sites are set back from the lakeshore (fig 6.6), to keep the lakeshore open for trail use, and the sites have been enhanced through landscaping. Each site is typically 50’ x 100’ with a gravel parking pad, fire pit and picnic table. Open turf spaces are provided between sites for informal play areas. Prior to plan implementation in this part of the park, the RV area site layout will be refined to optimize the lakeshore experience for RV sites within the footprint of the campground graphic.

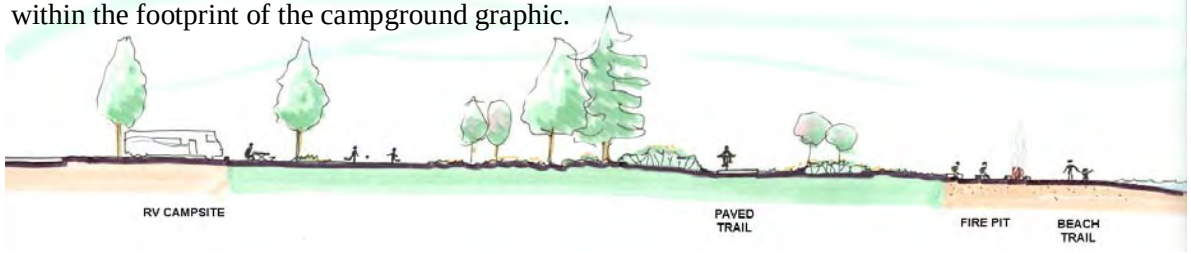


Figure 6. 6 Section through RV campsite to shoreline

Figure 6. 4 Typical Group Camp Site Plan

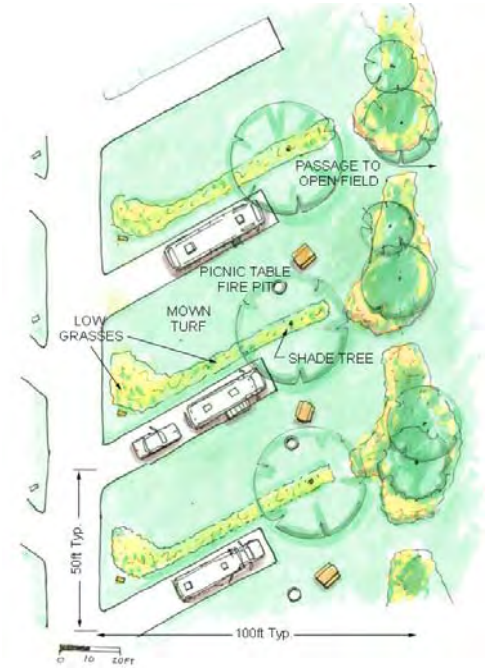


Figure 6. 5 Typical RV Camp Site

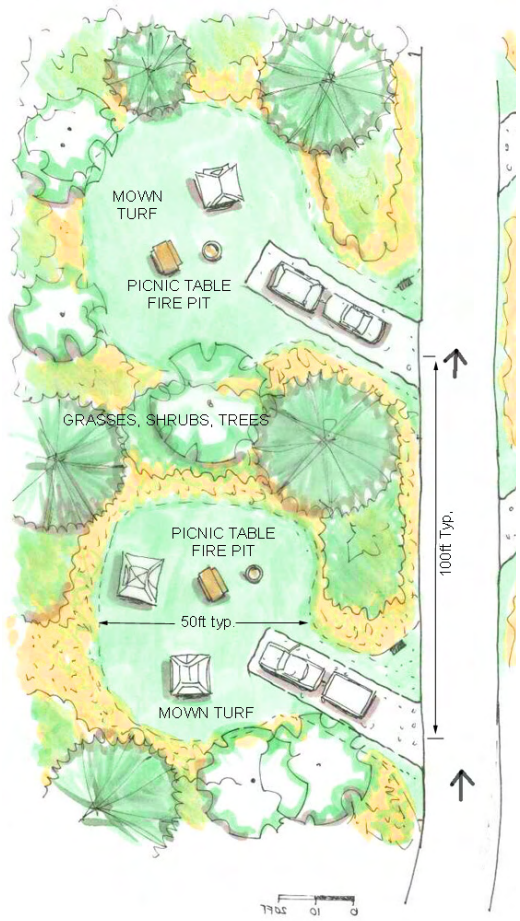


Figure 6.7 Typical Car and Tent camp site

Car/tent sites (fig 6.7)

About six acres have been designated for car and tent camping sites with a more remote setting along Echo Channel. Each site is typically 100' x 100' set in a more natural landscaped setting. Within this natural setting a 50' x 50 ' mown turf area would provide a gravel parking pad, fire pit, picnic table and tent area.

Lakeside Fire Pit

This is an opportunity to have formal and informal gathering around a campfire at the water's edge. Lakeside campfire "chats" would offer fun and interpretive discussions for camping guests.

Inland Swimming Pond (fig 6.8)

Proposed inland swimming pond, with a sand bottom, is located next to the lake and existing beach house to create a natural swimming experience and make use of existing facilities.

Figure 6. 8 Section through Inland Swimming beach

Natural Swim Beach and Beach House

The existing swim beach offers a large area of sand beach, and a beach house with changing rooms, outdoor showers and a concession building.

Sailboat & Windsurf Launch

The existing launch on the eastern shore of Lake Byllesby will continue to function as a small boat launch focused on providing carry-in access for small watercraft.

The Visitors Center

The Visitor Center will be the central feature of the park and the gateway to Echo Point. Careful consideration of the building's architecture and relationship to surroundings will be key to creating an outstanding visitor experience. See fig. 6.9.

Parking

A parking lot will serve the inland swimming pond, the natural beach and the Visitors Center users, thus pedestrian connections to these use areas should be strong.

The Visitors Center Building

The building will have a drop off area at front entry, strong pedestrian connections to the swimming area and transient docks, and expandable programming space that relates to the outdoor space. Building functions should include restrooms, concessions, equipment rental, rooms for programming, and banquet rental. Creating great views from inside the building to both shorelines will strengthen its importance as a centerpiece of the park. Winter use will be greatly enhanced by a fireplace that could have an indoor and outdoor exposure. See fig 6.9 for site relationship diagram

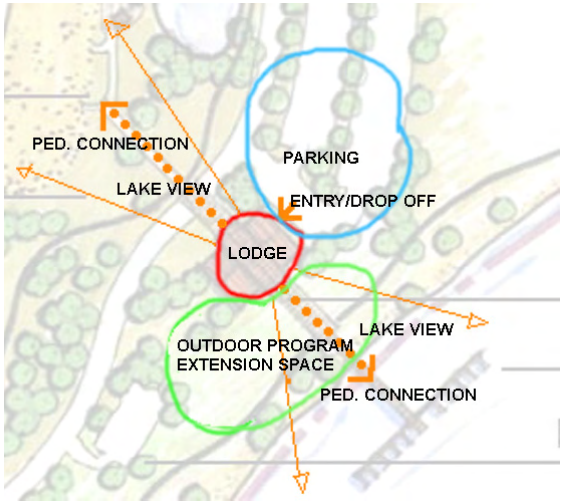


Figure 6.9 Visitor Center site relationship diagram

Transient Docks

Boaters will have a place to dock temporarily to use lodge facilities, picnic, or just take a break from cruising around. Dock use could be tied to events at the lodge, boat rental, or tours.

The Great Lawn

The great lawn on Echo Point offers an informal play field with views of the lake and bluffs. The open space will support the surrounding picnic shelters and trails as a place to relax both the body and eye.

Bluff View Pavilion

One of the great geological features of this area is the bluffs across the lake. The Bluff View Pavilion formalizes this opportunity by offering parking (20 stalls) and a shelter (150 person capacity) for visitors to gather and picnic in a beautiful setting.

Lakeside Hut & Pier

This small (20 person capacity) shelter and fishing/observation pier is another opportunity for a lakeside experience. No parking will be directly associated with this hut. Users would come from the trails and other parking lots in the park, their campsites or the future bike trail.

Echo Point Pier

Surrounded by water and away from the rest of the park activities, Echo Point offers one of the most special places in the park. The Echo Point Pier dramatizes this experience by taking visitors out over the water for a dramatic panoramic vantage point of the big lake and bluffs. There would be no parking directly associated with this hut.

Picnic Area

Picnicking opportunities will be expanded with the addition of three shelters, maintained play equipment and a fishing and boat docking pier.

Boat Launch Expansion Option

The existing boat launch is well sized for today's users. It was designed with the potential to expand the parking by 85 stalls. Evaluation of Lake Byllesby's boating capacity should be reviewed before expansion of lot is considered.

Flexible Use Area in Quarry

The old quarry area would offer a more active recreation amenity, such as mini-golf or an entry level, unattended BMX play area for young kids on bicycles. This would be an additional activity to offer campers. If a BMX group was interested, is could be further developed for their program. This area may also attract picnickers with its picnic shelter and a gravel parking area.

Play Field

This open space can serve as an informal play field for campers or visitors and may become more programmed as needs warrant.

Canoe launch below the Dam

A parking lot and trail down to the Cannon River will offer canoeists an opportunity to canoe this stretch of the river where there are bluffs, good fishing and park support facilities. A short route could be to Cannon Fall 3 miles down the river from Lake Byllesby Park. The parking and trail may also be used by shoreline anglers wanting to fish below the dam.

Cannon River Bridge Crossing below the Dam

This bridge would be built in collaboration with Goodhue County, spanning the Cannon River just below the dam, offering connection potential to the Goodhue Park, and to Cannon Falls and the Cannon Valley Trail. The bridge would also offer great view of the dam falls and the bluffs carved out by the river channel. Goodhue County and the MN DNR are potential funding partners since the bridge will be part of the Mill Towns State Trail alignment.

Trails

Beach Trail (fig 6.10)

The beach trail is developed based on the desire to get close to the water. Removing the rip rap and creating a more natural shoreline that will be walkable when the water level is low will allow visitors a chance to "get their feet wet."

Paved Lake Trail & Echo Point Trail (fig. 6.10)

The paved lake trail offers visitors an opportunity to move through the whole park and enjoy the different characteristics of Lake Byllesby. The trail is paved to accommodate wheelchair users, strollers, in-line skater, kids on bikes, etc.

Savanna / Echo Channel Area Trails (fig 6.12, fig 6.13)

Trails through the savanna restored old field areas and Echo Channel will offer visitors the opportunity to hike, bike, in-line skate and witness the restoration process from year to year. Winter visitors can participate in skijoring and snowshoeing through this area as well. Both paved and unpaved trail courses should be designed in detail to provide the best experience for different user types. Use of boardwalk and interpretive signage is recommended in areas near Echo Channel. (fig 6.11)

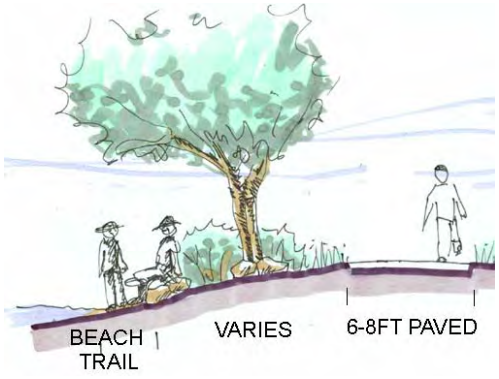


Figure 6.10 Typical Beach Trail Section

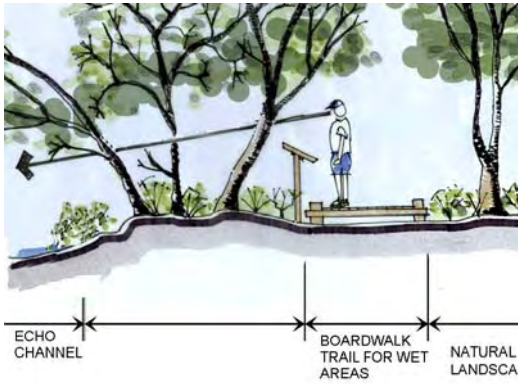


Figure 6.11 Section through boardwalk trail

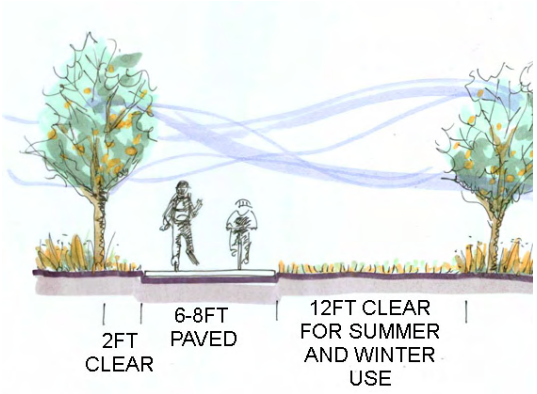


Figure 6.12 Savanna area trail

Figure 6.13 Savanna area unpaved trail

Gorge Hiking Trails

The unpaved trails below the dam will offer the most wooded and natural experience available to visitors of the eastern portion of the park. Trail design and construction will rely on sustainable trail development guidelines. . The trail will allow visitors to gain access to the Cannon River to fish, view the opposing bluffs and for wildlife and plant viewing.

Mill Towns State Trail Link

The proposed Mill Towns State Trail would cross the park to reach Cannon Falls and the Cannon Valley Trail, crossing the Cannon River via the proposed Cannon River bridge crossing below the Byllesby Dam. The desired alignment from the north was not known at the time of this report, thus the plan shows two optional routes through the park. This paved trail will be constructed with appropriate state trail standards.

WEST LAKE BYLLESBY FACILITIES

Signage

Western signage includes entry signs at Cooper Avenue and Cannon River Blvd. for the Cascade Interpretive Area and parking trailhead, at Dixie Avenue and 292nd Street for the picnic grounds, at Hwy 56 and 292nd Street for the Mud Flat Bird Viewing Hub and at 292nd Street for the Mill Town Trailhead / Lake Byllesby overlook. A general West Lake Byllesby Trail sign would be most appropriate at the corner of Hwy 56 and 292nd Street, which has good visibility. This sign should direct first time visitors to the informational kiosk at the Mill Towns Trailhead node for an orientation to the rest of the Lake Byllesby Regional Park system. Each node will have an informational kiosk with trail maps and interpretive information about the area. Park information should be incorporated on the Mill Towns Trail signage as this area will be a popular destination and resting point for trail users.

Mill Towns Trailhead / Byllesby Overlook (Fig. 6.14)

Visitor Services

Toilets, drinking water, info kiosk and picnic shelters will enhance this site for bird viewing, lake viewing and trailhead parking.

Parking Lot

Parking will serve the birding observation area and may be expanded to serve as a Mill Town Trail users' parking area.

Information Kiosk

Information would include an area trail map and areas of interest, birding information, Lake and Dam information, park notices, and other information.

Accessible Upper Observation Deck (fig 6.15)

This upper observation deck would be located near the parking lot, at the edge of the slope. It will include a seating area for 4-6 people (to listen to a guide), a spotting scope, a mud flat interpretive sign, and have a paved trail for accessibility.

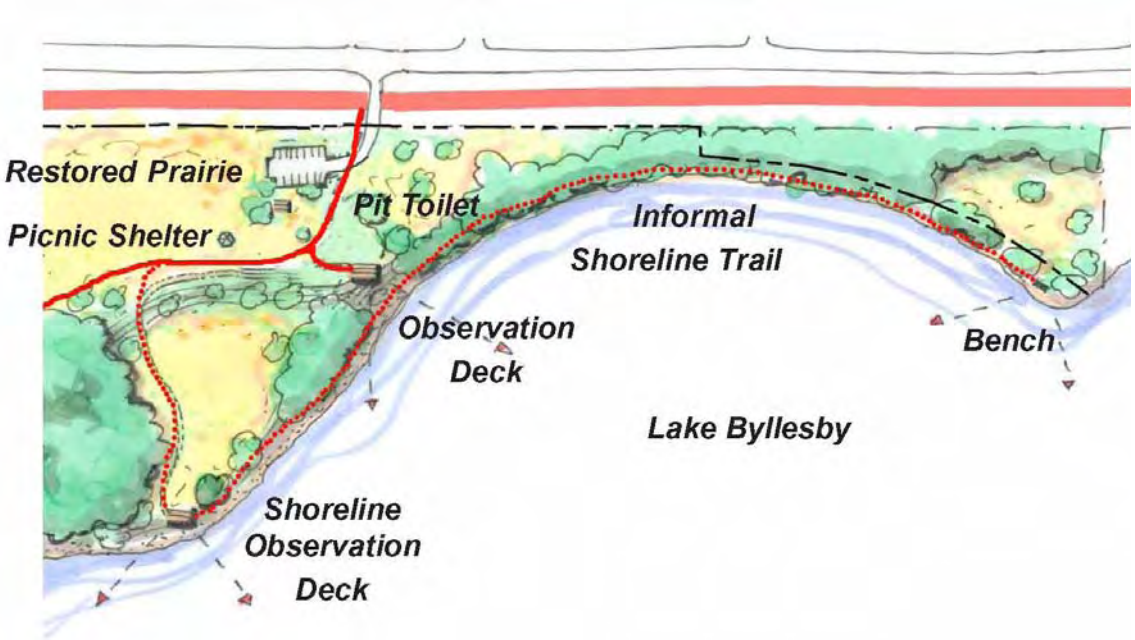


Figure 6. 14: Mill Towns Trailhead / Lake Overlook

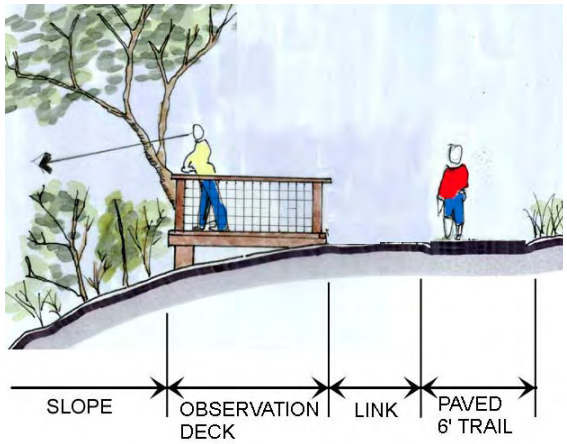


Figure 6.15:: Accessible Upper Observation Deck

Lower Observation Deck

This lower observation deck would be near the shoreline with an unpaved trail leading to it. Seating for 4-6 people should be incorporated into the design.

Note that Chapter 7 of this plan suggests the removal from the jurisdictional park boundary the cemetery property adjacent to the Mill Towns trailhead. The cemetery remains in active use and there is no compelling reason to include it within the park boundary.

Mud Flat Bird Viewing Hub (Fig. 6.16)

Residential Learning Center

An existing house creates a great opportunity to develop a learning center that would take advantage of the unique characters of this location. An architectural assessment is necessary to determine the feasibility of re-use of the existing structure.

Picnic Area with Visitor Services

Parking, pit toilets, Drinking water, info kiosk, and picnic shelter are facilities that would enhance the opportunities for West Byllesby trail use and bird viewing.

Figure 6.16: Mud Flat Bird Viewing Hub

Bird Blind

As a birding hub, this site will offer trail access and birding blinds that enhance the viewing opportunities of the mud flats and the migratory birds it attracts.

Figure 6.17: West Byllesby Picnic Grounds

West Byllesby Picnic Grounds (Fig. 6.17)

As one of the few open areas above the Cannon River floodplain, this area is suited for access and picnicking. An entry drive that follows existing driveways for minimal impact brings visitors close to the Cannon River for picnicking, small boat launching, shoreline fishing, group camping and trail uses.

Pit toilet, drinking water, picnic shelter, trail connections, security features and parking are proposed visitor services.

Small Boat Launch

A small boat launch will provide access to explore the Cannon River and its many meandering channels and bayous. Accessing this western portion of the parkland via boat will have the least amount of impact.

Occasional Group Camp Reservation Area

An occasional use group campsite would allow controlled overnight experiences along the bayous of the Cannon River.

Shoreline Fishing

This access point provides better access to the Cannon River, away from the noise of Hwy 56.

Cascade Interpretive Area (fig 6.18)

Trailhead Parking Lot and Kiosk

A 15-stall parking lot would serve as a trailhead for both the Mill Towns Trail and the West Byllesby Park trails. An informational kiosk would orientate visitors.

Paved Trail from Trailhead Parking at Cooper Avenue to Cascade Area

A trail connection from the proposed Mill Towns State Trail to the Cascade Interpretive Area would provide river access and a point of interest off the Mill Towns Trail. The trail could be packed limestone or paved depending on desire to match the level of service on the Mill Towns Trail. Ideally the trail would offer a route removed from the roadway, but due to limiting steep slopes and wetlands it may need to be in the roadway right-of-way.

Information Kiosk at Cascade Area

Kiosk can include interpretative information on the historic Cascade town and mill site and an area map of trails and parkland interest points.

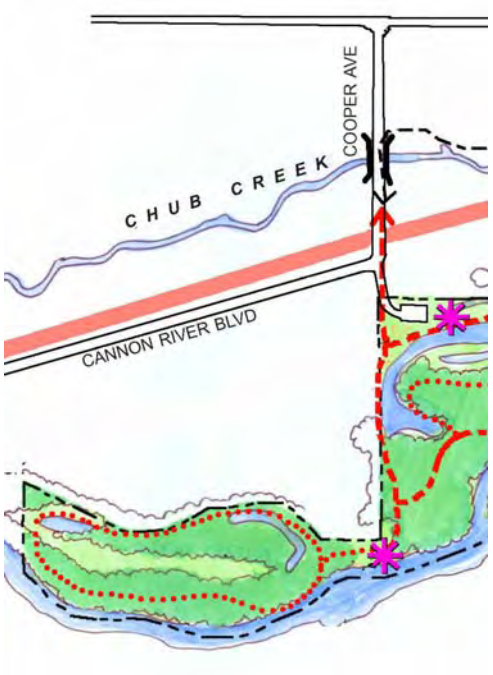


Figure 6.18: Cascade Interpretive Area

Lilac Landing

This parcel will continue to provide seasonal access for ice fishing and summer shoreline fishing opportunities.

Restore Chub Creek to Original Flow

This plan supports the idea of working with the Minnesota Department of Transportation and the Minnesota Department of Natural Resources to restore Chub Creek to the original flow alignment that existed before it was re-routed as part of the Hwy 56 construction many years ago. Erosion problems along Hwy 56 may lead to an evaluation of the need to allow creek flowage under Hwy 56. This plan would support a bridge concept that would allow a more complete wildlife connection under the roadway.

West Byllesby Trail System

Pedestrian Bridge along Hwy 56

When the Hwy 56 is scheduled for reconstruction, providing a pedestrian/bicycling trail will be an important step to achieving the lake trail loop as shown conceptually in figure 6.1.

Trail under Dixie Trail Bridge and Parkland Expansion (fig 6.19)

This connection will add to the area trail system by linking the future Chub Creek trail to the other West Byllesby trails proposed in the master plan.

Main Trails

These trails will consist of unsurfaced paths, boardwalks and bridges to allow visitor connection and access to the variety of landscapes in the park. The main trails connect all the developed areas of the western Byllesby Park with the proposed Mill Towns Trail. When completed, the Mill Towns trail will connect the Eastern and Western sections of Byllesby Park allowing campers at East Byllesby to head out on day adventures to explore the western sites.

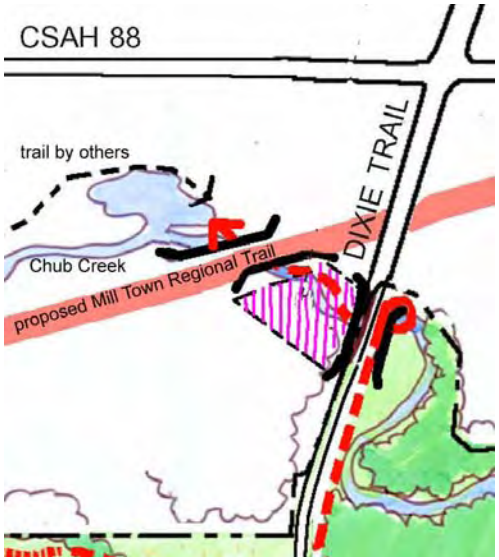


Figure 6.19: Park Boundary Expansion

Secondary Foot Paths

These trails would be developed to a lesser degree and may be seasonally flooded due location in the flood plain. These trails generally offer loops off the main trails. In winter these trails can be used for snowshoeing and skiing.

RECOMMENDED PLANT COMMUNITIES (COVER TYPES) FIG 6.20

The plant community plan for Lake Byllesby Regional Park is based on what exists today and on what will enhance visitor experiences in the future. Few changes to the existing plant communities are recommended in the western portion of the park. Only in the areas focused around the proposed development does this plan recommend restoration efforts. On the eastern portion of the park, this plan relies on major efforts to improve degraded landscapes and enhance visitor experiences, including; a woodland buffer, a savanna landscape for loop trails, landscaped campsites, quality turf for picnicking and play, and a naturalized shoreline. See Natural Resource Stewardship, chapter 4 for more information about existing conditions, restoration and invasive species management recommendations.

Savanna

Savanna landscape is recommended for the northern part of the eastern park as a background for trail loops and for the area below the dam. Oak savannas are characterized by scattered trees, predominantly oaks, above a ground layer of prairie grasses and forbs. The existing old field consists of volunteer cedars and grasses that can be slowly converted over time without removing all the cedars., Cedars are native and will not detract from the savanna experience.

Woodland Buffer

The woodland buffer proposed for the northern edge of the east park may consist of a variety of native trees in order to create a diverse buffer to existing residents and northwest winds, and create a defined edge to the parkland. The buffer should not be planted as a windrow, but rather undulate, offering varying widths and opportunities to wind trails in and out for a dramatic trail experience.

Echo Channel Enhancement

Improving Echo Channel's existing plant community diversity of wetland, shrubland, prairie and oak/red cedar woodland will improve wildlife attraction and hiking experiences.

Shoreline Naturalization

Existing rip rap shoreline should be removed or broken up to create a more naturalized shoreline that allows visitors to get to the water in places. The beach trail relies on the rip rap removal such that the shoreline can be walkable during seasonably dry periods. Groupings of low shrubs and grasses will enhance the natural appearance, and teach visitors about good water management techniques. Turf areas right up to the shoreline should be avoided. Shade trees should be planted near the shoreline to create shaded areas for visitors.

Park Landscaping

Landscape improvements throughout the park can greatly increase a visitor's experience. Landscaping the campsites for privacy and a more natural experience, trees to shade picnic and shoreline trails, plantings at focal points in the park, and plantings to soften the impact of parking lots will all have a major effect on improving the park environment.

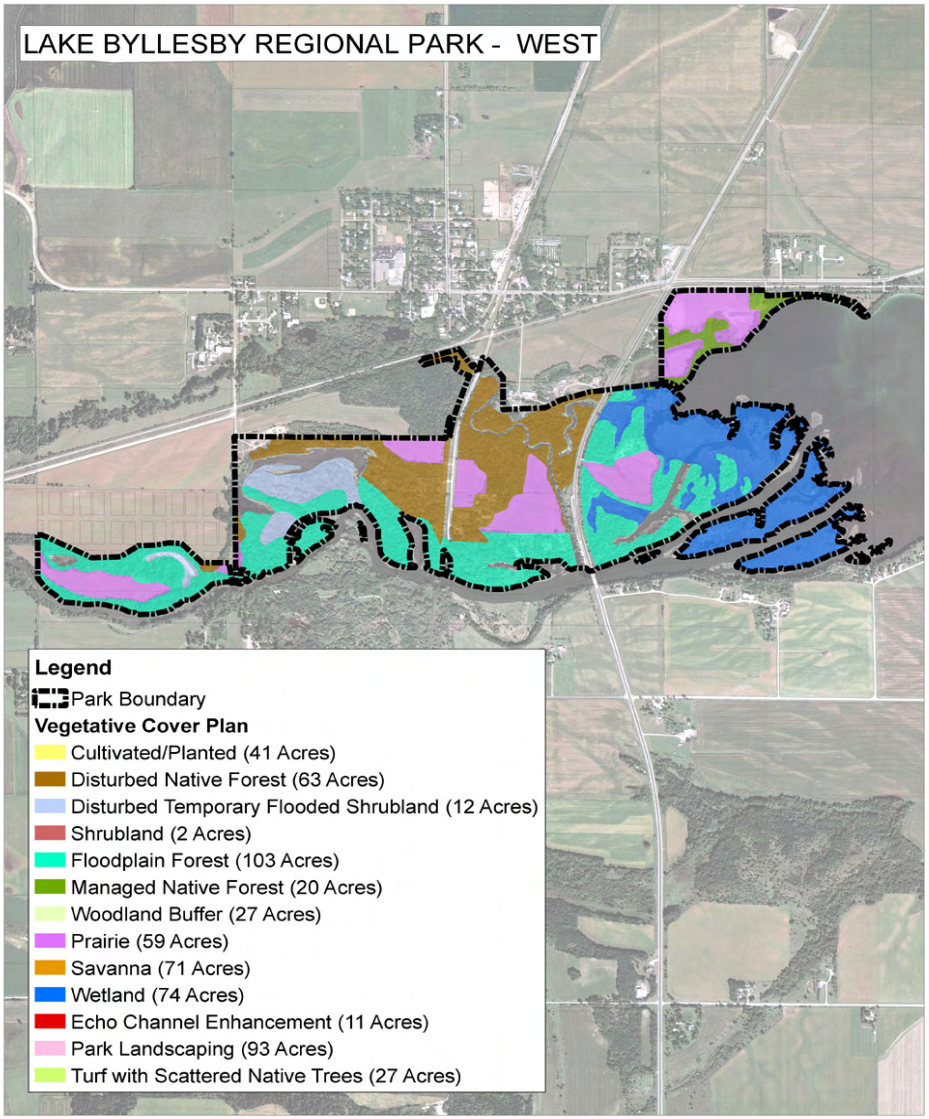
Turf and Shade Trees

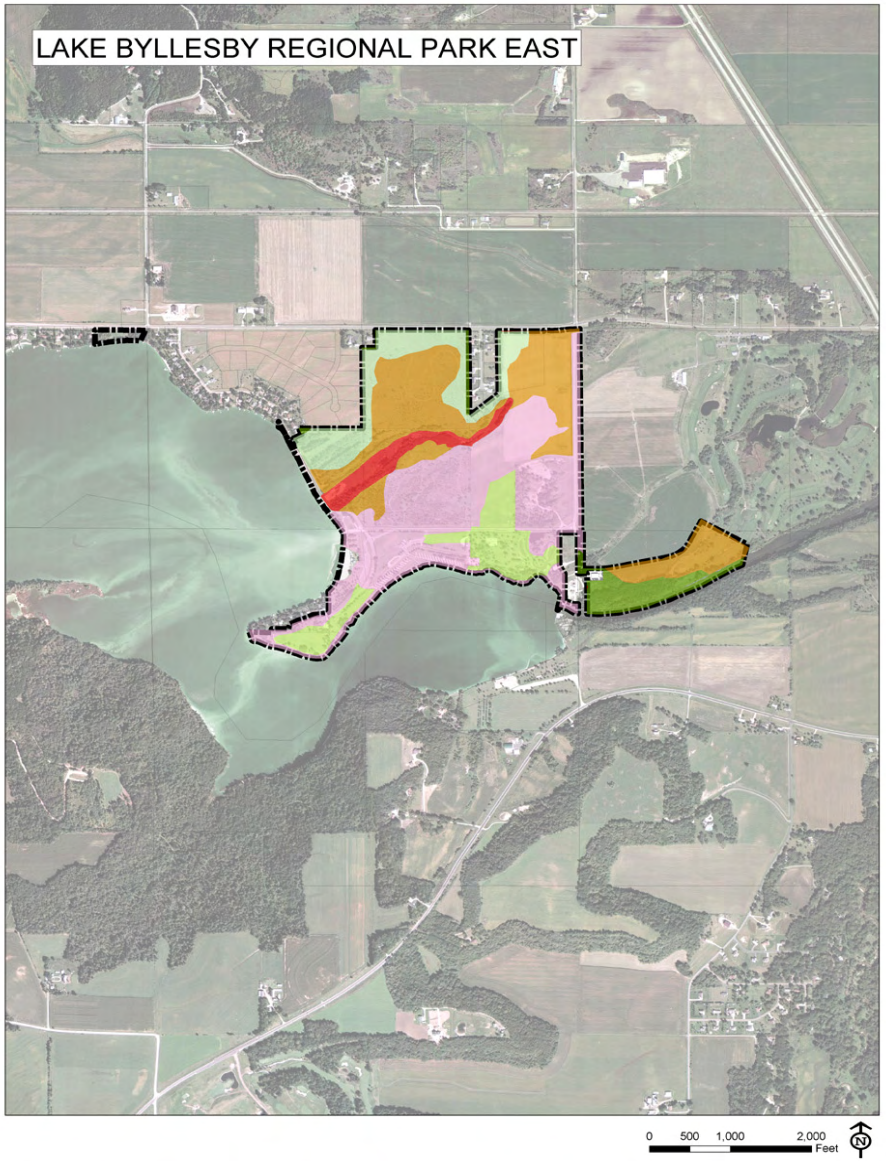
In areas that rely on mown turf for user activity such as picnicking and field play the quality of the turf is important. The soils at the park are very sandy and the turf dries out most summers. Consideration should be given to irrigating these areas. Major areas that are in turf include, the Great Lawn, the picnic area, and the play field. Efforts should be made to limit areas of mown turf throughout the park except where it will function to support a park activity. Short prairie grasses instead of turf should be considered for a more environmental sound message to portray to visitors.

Prairie

Prairie restoration should occur on the western park portion at the proposed West Birding Trailhead area. Prairie plantings will be appropriate at a smaller scale in the eastern park portion as part the general park landscaping effort to reduce mown turf.

Fig. 6.20 Recommended Plant Communities





CHAPTER 7

Park Boundary & Acquisition

OVERVIEW

Two small modifications to the statutory park boundary are suggested with this master plan. One is a small deletion of inholding status of Lakeside Cemetery at the northwest corner of Lake Byllesby. The other is an addition of a small amount of land in West Byllesby along Chub Creek in order to provide a permanent greenway connection and provide a trail opportunity.

When the Dakota County Board adopts this updated master plan, they are also adopting the park boundary described in this chapter. Acquisition of lands within the adopted boundary is subject to Dakota County policies and eligible for regional acquisition funds. If Dakota County wishes to acquire property at a future date that is outside of the park boundary, regional park funds will not be available unless the County Board resolves to amends the park boundary to include the property in question.

There are three important terms used in this chapter that warrant definition:

1. **Inholding** is a property within the designated park boundary but in private ownership at the time this master plan was adopted.
2. **Suggested park boundary adjustment** identifies lands suggested for acquisition by this master plan (beyond current inholdings) and current inholdings suggested for removal from inholding status. Upon adoption of the master plan by the Dakota County Board and approval by the Metropolitan Council, the addition and deletion of lands will formally adjust the statutory park boundary.
3. **Echo Point properties outside the park boundary** identifies the nine properties that were not included in the park boundary. These properties are adjacent to a high use recreational use area. They are not suggested for acquisition with this master plan, but the future may pose situations that would lead the County Board to reconsider acquiring these parcels from willing sellers on a case by case basis if:
    a. tension or un-resolvable conflicts arise between residents and normal operations of the park.
    b. any one of the property owners approaches the County about acquisition of their property.

The purpose of this Chapter is to:

- Review Dakota County parkland acquisition policies and their application to Lake Byllesby Regional Park;
- Discuss alternative approaches to parkland acquisition;
- Discuss why boundary adjustments are being proposed;
- Identify lands suggested for acquisition (inholdings).

DAKOTA COUNTY LAND ACQUISITION POLICY

The Dakota County Parks Plan identifies policies and strategies for parkland acquisition that relate directly to acquisition strategies for Lake Byllesby Regional Park. Acquisition policies stated in the Dakota County Parks Plan are as follows:

- *Policy*: County will acquire property from willing sellers and condemn land if private land use interferes with park operations, security or development; impacts park use or user safety; degrades natural resources; threatens the inherent quality of the property for park uses; means the loss of acquisition funds due to grant expiration; or results in significant change in intensity of use of the property.
    - *Commentary*: Historically, Dakota County has strongly supported the "willing seller" approach to parkland acquisition and although it is a discretionary means of acquisition, has demonstrated extreme caution in exercising condemnation authority.
    - *Strategies*:
        - Build relationships with inholders to keep informed of property owner intentions and property owners of County intent to purchase.
        - Work regularly with local jurisdictions to monitor possible development of property within park reserve boundary.
        - Actively pursue funding for purchase of inholding properties.
        - Seek other resources for acquisition efforts, such as partnerships with nonprofit organizations.
- *Policy:* County will set sunset dates for completing acquisition of park property.
    - *Commentary:* Acquisition using the preferred willing seller approach can take decades to accomplish. As a result, suggested acquisitions will likely take longer than the 15-year life of the master plan.
    - *Strategies:*
        - Critically review inholdings with each master plan update to determine whether their inholding status is still appropriate.
        - Establish the sunset date for Lake Byllesby Regional Park inholdings as adoption of the succeeding master plan update.
- *Policy:* County will minimize future private development on inholding parcels:
    - *Strategies:*

- Pursue life estates and rights of first refusal with inholders.
- Investigate the use of conservation easements and purchase of development rights (PDR) on inholdings and steward partnership lands

APPROACHES TO LAND PROTECTION

There are numerous approaches to parkland acquisition that can be employed based on the desires and wishes of the property owner. Stewardship tools can be employed in cooperation with property owners to enhance land management practices on inholdings and discourage development of inholdings prior to the time when a property owner is ready to sell their property.

Tools toward ownership:

- Willing-seller acquisition: This is an umbrella form of acquisition that other acquisition tools fall under. It is often most successful when there is a relationship between the property owner and County representatives and an understanding that when the property owner is ready to sell their property, the County has interest in acquiring it.
- Life estate: In this form of acquisition the property is purchased from a willing seller and an agreement is reached where the seller continues living on and sometimes farming the land for a period of years or for their lifetime.
- First right of refusal: This is a granted or purchased agreement with a property owner for notification to the County of their intent to sell at the time they are ready to sell their property. The County and property owner then have a period of time in which to negotiate purchase of the property before the property is advertised for sale on the market.

Stewardship tools:

- Farmland & Natural Area Program: This Dakota County program uses conservation easements and purchase of development rights to protect at-risk lands. The program affords a great deal of flexibility to mold agreement to meet both the property owner's need for continued use and enjoyment of the land and the County's need for enhanced stewardship and preclusion of development.

- Conservation easement: An easement agreement that can be molded through negotiation in many different ways to meet the needs of both the County and property owner. It can, for instance, preclude development, allow for agricultural use but require special conservation practices, allow the County to undertake conservation practices on the land, etc. Conservation easements can be temporary or permanent.
- Purchase of development rights: all properties carry with them a bundle of rights such air rights, mineral rights, and use rights such as development. PDR literally acquires and then retires the development rights on a property. This is a potential tool for property at risk of development where development could negatively impact the park reserve.
- Cooperative stewardship agreement: This is cooperation between the County and property owner (without formal agreement) to allow the County to undertake ecological and cultural stewardship of the property.
- Cooperative planning: Dakota County should work with the City of Randolph and Randolph Township to coordinate compatible land uses adjacent to park boundaries in West Byllesby.

PARK BOUNDARY ADJUSTMENTS

This master plan suggests two small changes to the statutory park boundary that balance each other thus keeping the park limits at 620 acres. The property suggested for removal from inholding status is Lakeside Cemetery at the northwest corner of Lake Byllesby. The property is a pioneer-era cemetery although burials continue. There is no recreational need for this property's inclusion as an inholding.

The suggested park boundary expansion is along Chub Creek in West Byllesby identified in Table and Figure 7.1 as A-1 and A-2. This master plan suggests their acquisition to provide a public land connection between the regional park and what is expected to be public open space owned by another agency to their north.

SUGGESTED ACQUISITION LANDS

Figure 7.1 and Table 7.1 illustrate and provide basic property data about the lands identified as current inholdings, suggested park boundary expansions and suggested park boundary option land.

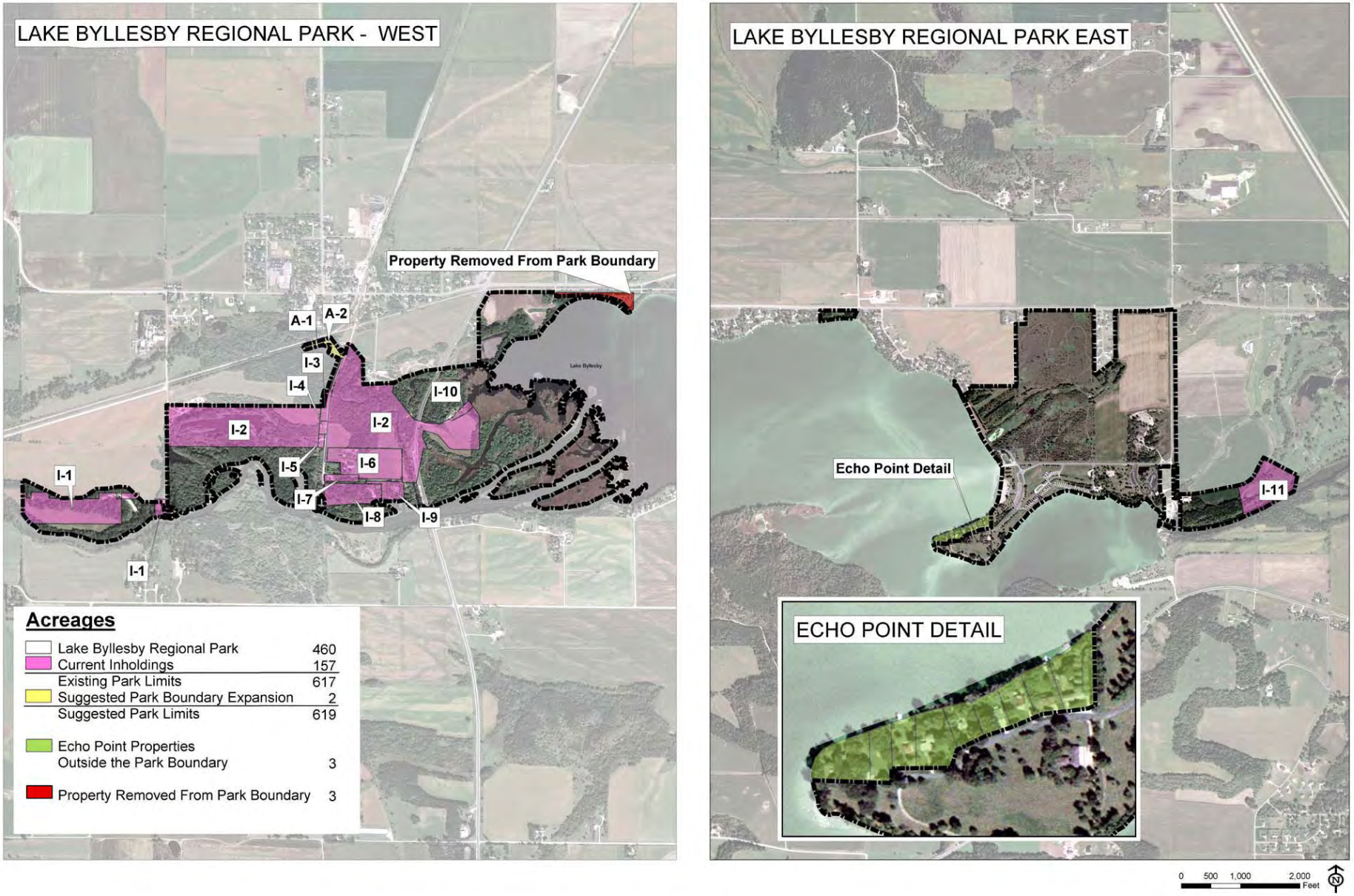
It is important to note that the "willing seller" approach to acquisition is an opportunistic venture. In other words, when a property earmarked for acquisition becomes available on the market, every reasonable effort should be made to acquire it regardless of the level of priority it receives in the master plan.

Table 7.1 also identifies the assessed value of the property, as recorded for property tax purposes. Market value is likely higher. Where entire parcels are proposed for acquisition, the County-assessed value is identified. Where portions of parcels are proposed for acquisition, an estimated value based on surrounding per/acre assessed values is listed.

Table 7.1 – Inholding and Acquisition Diagram

Key	Type	Acres	Assessed Value
I-1	Current Inholding	20	$163,300
I-2	Current Inholding	95	$350,395
I-3	Current Inholding	1	$4,795
I-4	Current Inholding	1	$195,500
I-5	Current Inholding	1	$219,500
I-6	Current Inholding	13	$225,700
I-7	Current Inholding	2	$70,700
I-8	Current Inholding	8	$224,300
I-9	Current Inholding	3	$165,100
I-10	Current Inholding	1	$216,100
I-11	Current Inholding	13	$44,765
A-1	Suggested Acquisition	1	$3,500
A-2	Suggested Acquisition	1	$3,500

Figure 7.1 – Property Acquisition Diagram



CHAPTER 8

Outdoor Education

OVERVIEW

In addition to the obvious recreational needs that parks fulfill, Dakota County is committed to providing compelling and high quality outdoor education in its park facilities. Educational opportunities in conjunction with recreation is an identified value held by park users (see Chapter 2) and is an important way to diversify the reasons people visit and enjoy parks.

Outdoor education at Lake Byllesby Regional Park will focus on active outdoor recreational experiences and lake-oriented interpretation. Lake Byllesby draws many campers every year. One of the primary goals of this master plan is to diversify recreational opportunities for visitors on overnight stays at the park. Outdoor education is one of the ways to make that happen. The history of damming the Cannon River to create a reservoir called Lake Byllesby makes the park a unique interpretive story in the region. One unintended result of the dam is what experts identify as some of the best shore bird habitat and thus bird watching in Minnesota. Development of additional indoor facilities proposed with this master plan will round out the facilities needed to conduct high quality outdoor education at the park.

Interpretation is a communication process that forges emotional and intellectual connections between the interests of the audience and the inherent meanings in the resource.

The purpose of this Chapter is to:

- Identify how Lake Byllesby Regional Park builds on system-wide goals for outdoor education;
- identify how to leverage the capital investments proposed for Lake Byllesby Regional Park in ways that advance Dakota County's outdoor education mission;
- identify how natural resource and cultural heritage stewardship efforts can be brought to life for park visitors;
- identify how special needs populations are served by the park;

- suggest educational program activities and techniques that are sensitive to the park's vision and will be appealing to anticipated users.

INTERFACE WITH DAKOTA COUNTY OUTDOOR EDUCATION PLAN

The strategies of this chapter are closely linked to the Dakota County Comprehensive Outdoor Education Plan, which is a system-wide plan for providing educational opportunities in Dakota County parks. The plan addresses a variety of aspects of outdoor education including environmental, historical, cultural and recreational programs. It also addresses partnership opportunities and educational staffing needs.

The Comprehensive Outdoor Education Plan contains a number of recommendations, many of which can be manifest in Lake Byllesby Regional Park. These system-wide recommendations have been used to focus the educational strategies proposed for the park. The system-wide recommendations that can be applied to Lake Byllesby Regional Park are:

- Provide outdoor education services to current users of park facilities (specifically at campground)
- Offer special events and programs for the general public
- Collaborate with other county departments
- Collaborate with other agencies and organizations
- Provide self-guided opportunities
- Provide outdoor education services for special populations
- Provide wilderness experiences
- Provide outdoor education with winter emphasis
- Provide outdoor education services for families
- Provide facilities for outdoor education services

LEVERAGING CAPITAL INVESTMENTS FOR EDUCATIONAL GOALS

Significant capital investments are being proposed through this master plan. Because resources are obviously scarce, plans for the park have been devised to meet a spectrum of values and uses including outdoor education. Examples include the provision for interpretive signage along trails and birding facilities at what could become a regional trailhead. The table at the end of this chapter identifies the relationship between outdoor education and built park facilities.

BRINGING RESOURCE STEWARDSHIP TO LIFE FOR VISITORS

This master plan document devotes full chapters (Chapters 4 & 5) to cultural and natural resource stewardship. Stewardship is obviously as important to the mission of Dakota County Parks as the actual development of park facilities. The table at the end of this chapter suggests interpretive techniques for expressing the stewardship themes identified in the natural resource and cultural resource chapters.

SERVING SPECIAL NEEDS

As mentioned earlier, the Dakota County Outdoor Education Plan is a guiding policy that directs the provision for system-wide outdoor education opportunities including special needs populations. Plans for facility development and education programming at Lake Byllesby Regional Park provide excellent opportunities to serve special needs populations. The park's gentle topography is conducive to universal access and the high level of recreational programming suggested with this master plan offer strong venues for special needs populations. Table 8.1 identifies outdoor education programs that will serve special needs populations.

SUGGESTED EDUCATIONAL PROGRAMS

Table 8.1 identifies cultural and environmental education activities currently offered and suggested for Lake Byllesby Regional Park. It also demonstrates the inter-relationship between anticipated users, educational activities, park development and stewardship efforts.

The most unique audience is the very high-use campground that provides a captive audience and tremendous opportunity for both staff-led and self-guided education during the camping season. Increasing services with education programs, facilities and recreation equipment would significantly increase the level of service to the campground users.

Interpretive signage allows for self guided educational opportunities

The west Byllesby mudflats offer a unique one-of-a kind birding opportunity. This seasonal landscape offers critical feeding opportunities for a variety of shoreline birds on their migratory route. This area is already a draw for birders that know about it. With additional facilities and education this learning opportunity would be opened up to a wider audience.

The proximity of the Maltby Nature Preserve creates an great opportunity for collaboration on education programming.

The table is organized by category of educational opportunity such as cultural interpretation and natural resource stewardship education. Program topics are suggested for each category based on the inherent assets of Lake Byllesby Regional Park and the types of users that are expected to enjoy the park in years to come. The remainder of the table generally identifies the staff and facility resources needed to conduct each program and the target audience to be served. This table is a listing of suggested programs; it includes both existing and future opportunities.

Table 8.1

Category	Suggested Program Topics	Activity Options	Support/facility	Target Audience Options
Cultural	Wheels in Motion	Guided or self interpret	Staff Guide, Interp.Sign, Web	all
	Powering Minnesota	Guided or self interpret	Staff Guide, Interp.Sign, Web	all
	The Power of Attraction	Guided or self interpret	Staff Guide, Interp.Sign, Web	all
Stewardship Nature	Mudd Flat Birding	Guided hike or self interpret	Staff Guide, Interp.Sign, Web	youth, special interests, special needs
	The Cannon River landscape & watershed	Guided talk or self interpret	Staff Guide, Interp.Sign, Web	youth, special interests, special needs
	Restoration of Old Fields	Guided hike or self interpret	Staff Guide, Interp.Sign, Web	General
Recreation	Winter Skijouring	Guided lessons	Staff Guide	special interests
	Fishing for Variety	Guided or self interpret	Staff Guide	youth, special interests, special needs
	Bike Tours of Area	Guided or self interpret	Staff Guide, Interp.Sign	all
	Star gazing	Workshop	Staff Guide	all
	Wind Powered Recreation	Guided lessons	Staff Guide	youth, special needs
	Frisbie Golf	Club formed or self interpret	interpretive signs, web	all
	BMX	Club formed or self interpret	interpretive signs, web	special interests
	Craft workshops	Group formed, led or self interpret	Staff Guide	special interests, special needs
	Campfire story telling	Guided event	Staff Guide	all
	Winter events	Guided event	Staff Guide	special interests, special needs

Support facility categories

Staff Guide: naturalists, historians, archaeologists, trained volunteers or paid staff
Interpretive sign : kiosk, along trail
Map: kiosk, brochure
Brochure: hand out, on site, mailing, off site options
Web: printable brochure/guide, post monitoring results, register, chat groups

Target Audience categories

Youth Education: focus on interactive, age appropriate programming
Special Interests: naturalists, birders, archaeologists, anglers, hunters, organized groups/clubs, etc.
General Park Users
Special needs populations: handicapped, disadvantaged

CHAPTER 9

Implementation and Management

OVERVIEW

This Master Plan represents a long-term vision and plan for allocating resources for acquisition and ecological and recreational improvements in Lake Byllesby Regional Park. The volume of recommendations contained in the plan that get accomplished in its 15-year lifespan largely depends on allocation of necessary financial and staff resources. Recognizing that resources are scarce and that there may not be the ability to implement all plan elements, it will be critical for Dakota County leadership to be strategic in implementing what can be accomplished and to leverage available resources to the greatest extent possible. Chapter 3 of the plan offers guidance about the over-arching approach to investments in the park should less-than-budgeted resources be available.

While Dakota County will be the lead agency in implementing this plan, partnerships with other organizations including The City of Randolph, Randolph Township, Metropolitan Council, Soil & Water Conservation District, Mill Town Trail, DNR, non-profit groups and others will be vital. Partnerships can range from financial contributions to volunteer mobilization for activities that would otherwise consume financial resources to outdoor education programs by other organizations.

The purpose of this chapter is to:

- Identify budgets and suggested phasing of improvements;
- Review pertinent ordinances that guide implementation of the plan;
- Provide a general overview of staff resources;

BUDGET & PHASING

A budget (in 2005 dollars) and a suggested outline for phasing of improvements are identified in Table 9.1 at the end of this chapter. The table includes budgets for land purchase, capital investments and anticipated maintenance. Budgets have been categorized for land acquisition, park development,

landscape/plant community restoration and yearly maintenance costs. Each budget category identifies anticipated administrative and design costs as well as a contingency factor. As the budget information contained in the table is transferred to capital improvement plans over the life of the master plan, it will be important to add realistic inflationary figures to the identified budgets.

The acquisition table uses assessed values where full parcels are suggested for acquisition and assumed values in the case of partial parcels. While these are best figures available, it is important to note that assessed values are often lower than a negotiated market value at the time of acquisition.

The suggested phasing plan included in Table 9.1 identifies early (1-5 years), mid (6-10 years) and late (11-15 years) categories of improvements. These categories are not necessarily an indication of priority but are sometimes related to the realities of incremental investing.

ORDINANCES

Public use and enjoyment of the County park system is controlled by Ordinance No. 107, Park Ordinance, (the Ordinance) which was last revised on June 3, 1997. The ordinance incorporates pertinent Minnesota statutes, and addresses the following issues:

- Regulation of Public Use
- Regulation of General Conduct
- Regulations Pertaining to General Parkland Operation
- Protection of Property, Structures, and Natural Resources
- Regulation of Recreational Activity
- Regulation of Motorized Vehicles, Traffic, and Parking

OVERSIGHT & STAFF RESOURCES

The Dakota County Parks Department is charged with the operation of the County's park system. The Dakota County Board of Commissioners establishes policies and goals for the park system and through an annual budgeting process provides capital and operating funds for the Department. The Park and Recreation Advisory Committee (PARAC), appointed by the Dakota County Board of Commissioners, serves as an advocate for an improved and enhanced

park and trail system in the County. The specific responsibilities of the PARAC, which are outlined in County Ordinance No. 120, are as follows:

- Review proposals and make recommendations concerning park and trail acquisition and development.
- Review and make recommendations concerning recreation programming, fees for facility use and park use policies.
- Recommend supporting or enhancing natural resources in County parks and regional trail corridors.
- Provide input into the County Park Policy Plan and Park Master Plans for park development site planning.
- Review and make recommendation on the Bikeway Capital Improvement Program, signage, kiosks, and trail connections.
- Perform fact-finding tasks as directed by the county board.

General Operations

The Parks Department has an annual budget of approximately $3.5 million to operate and maintain the County's park system and approximately 35 permanent employees. In addition, approximately 30-40 seasonal employees are hired each year as maintenance workers, park patrol, concession workers, recreation workers, lifeguards, gate attendants, and campground attendants. Volunteers assist with outdoor education programs, patrol, park clean-ups, and a variety of special events. Contractual agreements are also in place with outside agencies (e.g., Minnesota Conservation Corps, Tree Trust) for some maintenance and natural resource work.

Maintenance

Maintenance of facilities and lands are essential to protect public investment, enhance natural resource qualities and achieve the County's goals of providing recreational users clean, safe, enjoyable year round park experiences. The Dakota County Parks Department has a clearly defined maintenance program and reporting hierarchy led by the Parks Director. The following staff report to the Parks Director:

- Maintenance Superintendent
- Planning/Engineering Assistant
- Senior Planner, Natural resources

Reporting to the Maintenance Superintendent are the following staff:

- 4 Supervisors
- 1 Mechanic
- 15 Park keepers
- Seasonal maintenance workers

The predominant categories of tasks accomplished by maintenance staff are:

- Ground Maintenance
- Building custodial
- Facility maintenance/repair
- Equipment maintenance/repair
- Natural resource management
- Program support
- Miscellaneous shop duties
- Emergency response other miscellaneous/unique duties

Dakota County recognizes the needs to remain committed to the maintenance needs of the park and to meet the new needs/priorities identified by the master plan. It is likely that existing staff and budget resources will not be sufficient and increased funding and staff levels will be necessary.

As an example, trail rehabilitation or habitat restoration have initial capital investment needs but the longevity of those investments is dependent upon adequate and sustained maintenance for many years, which obviously requires yearly staff and resource commitments. Traditional

and non-traditional funding and staffing sources have been creatively used in the past and will need to be a continued pursuit.

Enforcement

Park visitors are informed of park rules and regulations in a variety of ways. Kiosks and signs are strategically located to address specific information about park hours, trails, permitted and prohibited activities, fees, and directions. Park patrol educates visitors and enforces Ordinance 107,. They patrol the park in vehicles, on bicycles and on foot. During the winter months, they patrol in vehicles, on snowmobile and on skis. Local law enforcement and public safety agencies are responsible for emergency and criminal complaints that occur within the park.

		Acquisition and Capital Improvements			
		Estimated Quantities			Acquisition Costs
Item	Description	Qty.	Unit	Unit Cost	Total
1.00	**Land Acquisition**				
1.1	Current Inholdings	158	AC		
	I-1 (assessed value)	20	AC	$ 163,300	$ 163,300
	I-2 (assessed value)	95	AC	$ 350,395	$ 350,395
	I-3 (assessed value)	1	AC	$ 4,795	$ 4,795
	I-4 (assessed value)	1	AC	$ 195,500	$ 195,500
	I-5 (assessed value)	1	AC	$ 219,500	$ 219,500
	I-6 (assessed value)	13	AC	$ 225,700	$ 225,700
	I-7 (assessed value)	2	AC	$ 70,700	$ 70,700
	I-8 (estimated value)	8	AC	$ 224,300	$ 224,300
	I-9 (estimated value)	3	AC	$ 165,100	$ 165,100
	I-10 (estimated value)	1	AC	$ 216,100	$ 216,100
	I-11(estimated value)	13	AC	$ 44,765	$ 44,765
1.2	Proposed Boundary Expansions	2	AC		
	A-1 (estimated value)	1	AC	$ 3,500	$ 3,500
	A-2 (estimated value)	1	AC	$ 3,500	$ 3,500
	subtotals	**160**	**AC**	$ 1,887,155	$ 1,887,155
	due diligence	2%			$ 37,743
	contingency	20%			$ 377,431
		Land Acquisition Subtotals			**$ 2,302,329**
	Assessed values are used on whole parcels; otherwise a per/acre assumed value				
			Land Acquisition Total		**$ 2,302,329**

		Estimated Quantities			Capital Budget by Implementation Phase			Yearly Maintenance			
								Estimated Quantities			Budget
		Qty.	Unit	Unit Cost	Early	Mid	Late	Qty.	Unit	Unit Cost	per year
2	**Park Development**										
	East Byllesby										
2.1	Park entry/directional signage	1	LS	$ 40,000	$ 40,000			1	LS	$ 1,000	$ 1,000
2.2	Main park road (Harry to visitors ctr)	3000	LF	$ 140	$ 420,000			3000	LF	$ 2	$ 6,000
2.3	Contact station	1	LS	$ 250,000		$ 250,000		1	LS	$ 2,000	$ 2,000
2.4	RV camp sites w/electrical,	44	EA	$ 15,000	$ 660,000			44	EA	$ 200	$ 8,800
	gravel parking pad, signage										
	picnic table, fire pit, landscaping										
2.5	RV camp circulation drive	3000	LF	$ 60	$ 180,000			3000	LF	$ 1	$ 3,000
2.6	Car/tent camp sites w/	24	EA	$ 15,000	$ 118,800	$ 118,800	$ 122,400	24	EA	$ 200	$ 4,800
	gravel parking pad, signage										
	picnic table, fire pit, landscaping										
2.7	Car/tent camp circulation drive	1700	LF	$ 60	$ 102,000			1700	LF	$ 1	$ 1,700
2.8	Group camp site w/parking pad	2	EA	$ 60,000	$ 120,000			2	EA	$ 1,000	$ 2,000
	large fire pit, picnic tables										
2.9	Group camp circulation drive	808	LF	$ 60	$ 48,480			808	LF	$ 1	$ 808
2.10	Camp store expansion	1	LS	$ 100,000			$ 100,000	1	LS	$ 2,000	$ 2,000
2.11	North restroom bldg for group/car si	1	LS	$ 120,000	$ 120,000			1	LS	$ 1,000	$ 1,000
2.12	Visitor's center facilities	1	LS	$ 2,100,000			$ 2,100,000	1	LS	$ 50,000	$ 50,000
	visitor's center			$ 1750,000							
	parking			$ 150,000							
	site improvements			$ 150,000							
	multiple dock			$ 50,000							
2.13	Beach area	1	LS	$ 1,500,000		$ 1,500,000		1	LS	$ 50,000	$ 50,000
	lakeside beach (existing)										
	beach house (existing)										
	sailboat launch (existing)										
	Inland swimming pond			$ 1,500,000							
2.14	Echo Point	1	LS	$ 500,000	$ 500,000			1	LS	$ 4,000	$ 4,000
	great lawn			$ 25,000							
	bluff-view pavillion			$ 150,000							
	lakeside hut and pier			$ 100,000							
	Echo Point pier			$ 25,000							
	access drive			$ 75,000							
	parking			$ 50,000							
	landscaping			$ 75,000							

	Estimated Quantities			Capital Budget by Implementation Phase			Yearly Maintenance			
							Estimated Quantities			Budget
	Qty.	Unit	Unit Cost	Early	Mid	Late	Qty.	Unit	Unit Cost	per year
2.15 Picnic area	1	LS	$ 235,000		$ 235,000		1	LS	$ 4,000	$ 4,000
3 sun shelters			$ 120,000							
dock			$ 15,000							
play field			$ 50,000							
play ground (existing)										
landscaping			$ 50,000							
2.16 Boat launch area	1	LS	$ 70,000			$ 70,000	1	LS	$ 2,000	$ 2,000
boat launch (existing)										
parking area (existing)										
parking expansion			$ 50,000							
landscaping			$ 20,000							
2.17 Flexible use area in old quarry	1	LS	$ 215,000	$ 215,000			1	LS	$ 5,000	$ 5,000
new use area			$ 75,000							
driveway and parking (gravel lot)			$ 50,000							
sun shelter			$ 40,000							
2.18 Frisbee golf circuit	1	LS	$ 50,000	$ 50,000			1	LS	$ 1,000	$ 1,000
2.19 Ped bridge over Cannon River	250	LF	$ 2,400	$ 600,000			1	LS	$ 3,000	$ 3,000
2.20 Canoe launch below dam w/ access drive, parking, trail to river	1	LS	$ 120,000	$ 120,000			1	LS	$ 1,000	$ 1,000
2.21 Savanna trail (paved)	1.44	MILE	$ 320,000		$ 460,800		1.44	MILE	$ 5,000	$ 7,200
2.22 Milltown trail within park (paved)	0.85	MILE	$ 320,000		$ 272,000		0.85	MILE	$ 5,000	$ 4,250
2.23 Shoreline trail (paved)	1.44	MILE	$ 320,000	$ 460,800			1.44	MILE	$ 5,000	$ 7,200
2.24 Misc internal park trails (paved)	0.61	MILE	$ 320,000		$ 195,200		0.61	MILE	$ 5,000	$ 3,050
2.25 Savanna nature trail (unpaved)	1.61	MILE	$ 45,000			$ 72,450	1.61	MILE	$ 5,000	$ 8,050
2.26 Gorge nature trail (unpaved)	0.68	MILE	$ 60,000			$ 40,800	0.68	MILE	$ 5,000	$ 3,400
2.27 Interpretive markers	15	EACH	$ 8,000			$ 120,000	15	EACH	$ 100	$ 1,500
2.28 Internal park wayfinding signage	1	LS	$ 150,000	$ 150,000			1	LS	$ 1,500	$ 1,500
2.30 Lakeside fire pit	1	LS	$ 25,000		$ 25,000		1	LS	$ 200	$ 200
2.31 Shoreline naturalization	4400	LF	$ 60		$ 264,000		4400	LF	$ 4	$ 17,600
2.32 General park landscaping/beautificatio	1	LS	$ 200,000	$ 50,000	$ 50,000	$ 100,000	1	LS	$ 10,000	$ 10,000
West Byllesby										
2.33 Milltown trailhead w/	1	LS	$ 320,000		$ 320,000		1	LS	$ 5,000	$ 5,000
restrooms w/pit septic			$ 60,000							
hydrant/fountain			$ 10,000							
driveway and parking (15 stalls)			$ 25,000							
picnic shelter			$ 60,000							
observation decks			$ 100,000							
emergency phone			$ 20,000							
security features			$ 30,000							
orientation kiosk			$ 15,000							

	Estimated Quantities			Capital Budget by Implementation Phase			Yearly Maintenance			
							Estimated Quantities			Budget
	Qty.	Unit	Unit Cost	Early	Mid	Late	Qty.	Unit	Unit Cost	per year
2.34 Mud flat bird viewing hub w/	1	LS	$ 485,000		$ 485,000		1	LS	$ 10,000	$ 10,000
restrooms w/pit septic			$ 60,000							
bird blind			$ 50,000							
drive and parking (15 stalls)			$ 40,000							
orientation kiosk			$ 15,000							
picnic shelter			$ 60,000							
hydrant/fountain			$ 10,000							
emergency phone			$ 20,000							
security features			$ 30,000							
residential learning center			$ 200,000							
2.35 West Byllesby picnic grounds w/	1	LS	$ 390,000			$ 390,000	1	LS	$ 5,000	$ 5,000
restrooms w/pit septic			$ 60,000							
well and hydrant/fountain			$ 35,000							
drive and parking (30 stalls)			$ 80,000							
orientation kiosk			$ 15,000							
picnic shelter			$ 60,000							
occasional group camp site			$ 50,000							
fire ring			$ 15,000							
small boat launch			$ 25,000							
emergency phone			$ 20,000							
security features			$ 30,000							
2.36 Cascade interpretive area	1	LS	$ 60,000			$ 60,000	1	LS	$ 2,000	$ 2,000
2.37 Cooper Avenue trailhead w/	1	LS	$ 30,000			$ 30,000	1	LS	$ 500	$ 500
orientation kiosk			$ 15,000							
driveway and parking(15)			$ 15,000							
2.38 West Byllesby nature trails	3.5	MILE	$ 60,000			$ 210,000	3.5	MILE	$ 1,500	$ 5,250
2.38 West Byllesby boardwalks	0.25	MILE	$ 750,000		$ 187,500		0.25	MILE	$ 10,000	$ 2,500
2.39 West Byllesby rustic foot paths	2	MILE	$ 45,000			$ 90,000	2	MILE	$ 1,500	$ 3,000
			Subtotal	$ 3,955,080	$ 4,363,300	$ 3,505,650			Subtotal	$ 250,308
design / admin / testing	18%			$ 711,914	$ 785,394	$ 631,017				
contingency	20%			$ 791,016	$ 872,660	$ 701,130				
			Development Subtotals	**$ 5,458,010**	**$ 6,021,354**	**$ 4,837,797**			**Yearly Dev. Maintenance**	**$ 250,308**
			Development Total	**$**		**16,317,161**				

		Estimated Quantities			Capital Budget by Implementation Phase			Yearly Maintenance Estimated Quantities			Yearly Maintenance Budget
		Qty.	Unit	Unit Cost	Early	Mid	Late	Qty.	Unit	Unit Cost	per year
3.00	**Plant Community Restoration**										
3.1	Buckthorn control target areas	12	AC					12	AC	$ 200	$ 2,400
3.2	Purple loosestrife control target areas	80	AC					80	AC	$ 200	$ 16,000
3.3	Native forest management	10	AC		$ -			10	AC	$ 600	$ 6,000
3.4	Prairie restoration	20	AC	$ 3,500	$ 70,000			20	AC	$ 200	$ 4,000
3.5	Savanna restoration	71	AC	$ 6,000	$ 426,000			71	AC	$ 300	$ 21,300
3.6	Plant Community Quality Improvemer	4	AC					4	AC	$ 400	$ 1,600
3.7	Wetland Quality Improvement	7	AC					7	AC	$ 400	$ 2,800
				Subtotal	$ 496,000					Subtotal	$ 54,100
	design / admin	12%			$ 59,520						
	contingency	20%			$ 99,200						
			Restoration Subtotals		**$ 654,720**	**$ -**	**$ -**		**Yearly Restor. Maintenance**		**$ 54,100**
			Restoration Total		**$**		**654,720**				
			Budget Totals by Phase		**$ 7,056,754**	**$ 7,125,820**	**$ 5,091,636**		**Yearly Maintenance Budget**		**$ 304,408**

ACQUISITION / CAPITAL IMPROVEMENT BUDGET TOTAL **$ 19,274,211**

Budget figures are in 2005 dollars.
Budgets for mid and late priority items should be reevaluated during capital improvement cycles to factor known inflation, commodity price fluctuations, etc.