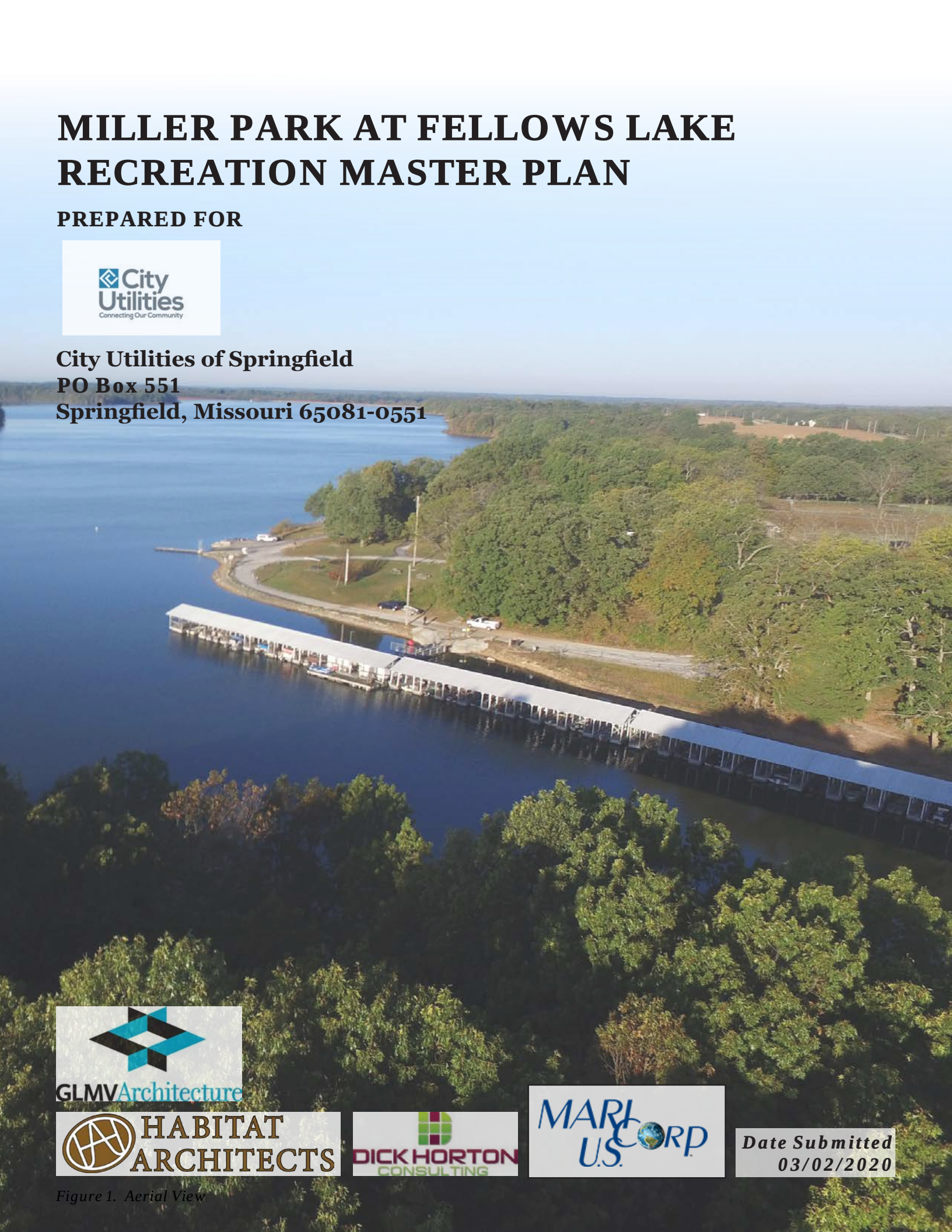
MILLER PARK AT FELLOWS LAKE RECREATION MASTER PLAN

PREPARED FOR

City Utilities
Connecting Our Community

City Utilities of Springfield
PO Box 551
Springfield, Missouri 65081-0551



GLMV Architecture

HABITAT ARCHITECTS

DICK HORTON CONSULTING

MARLCORP U.S.

Date Submitted
03/02/2020

Figure 1. Aerial View

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EXECUTIVE SUMMARY

Miller Park at Fellows Lake is an amenity that all communities would love to have adjacent to their community. It provides a close to home outdoor experience that many users travel long distances to enjoy.

Although its number one priority is to provide a dependable water supply for the community, its location in a natural environment has given City Utilities an opportunity to serve its citizens in two ways that virtually no one else can; a) The un-equaled priority of providing drinking water; and b) an outdoor close-to-home opportunity that is the type of amenity near the top of reasons that citizens live where they go.

This master plan emphasizes the condition of existing amenities surrounding the lake, possibilities for new/additional recreation uses of the lake itself, and recreation trends that would increase the appropriate future use of the park/lake when they are implemented.

The consultant has developed an opinion of probable costs for planned improvements. All of the costs can be phased over a number of years and are organized in a manner that considers the sequence that should be followed for orderly growth.

Miller Park at Fellows Lake is a magnificent facility! Each comment in this master plan study respects its undeniable role as a primary water source. The balance between that undeniable primary role and its recreation use is achievable and appropriate.

Project Description

Introduction - City Utilities has been a provider of recreational opportunities to the Springfield community and region at Fellows Lake since the creation of the Dam and Lake in 1955. Fishing, boating, picnicking, hiking, birding and enjoyment of the beauty of the natural setting found around the lake have been the primary recreational opportunities provided over that time. Fishing for Muskellunge, a trophy fish found in the lake, as well as other fish species, has been a regional draw for several decades. With a full-service marina and boat ramp at Miller Park, the 820-acre lake draws anglers from around the region.

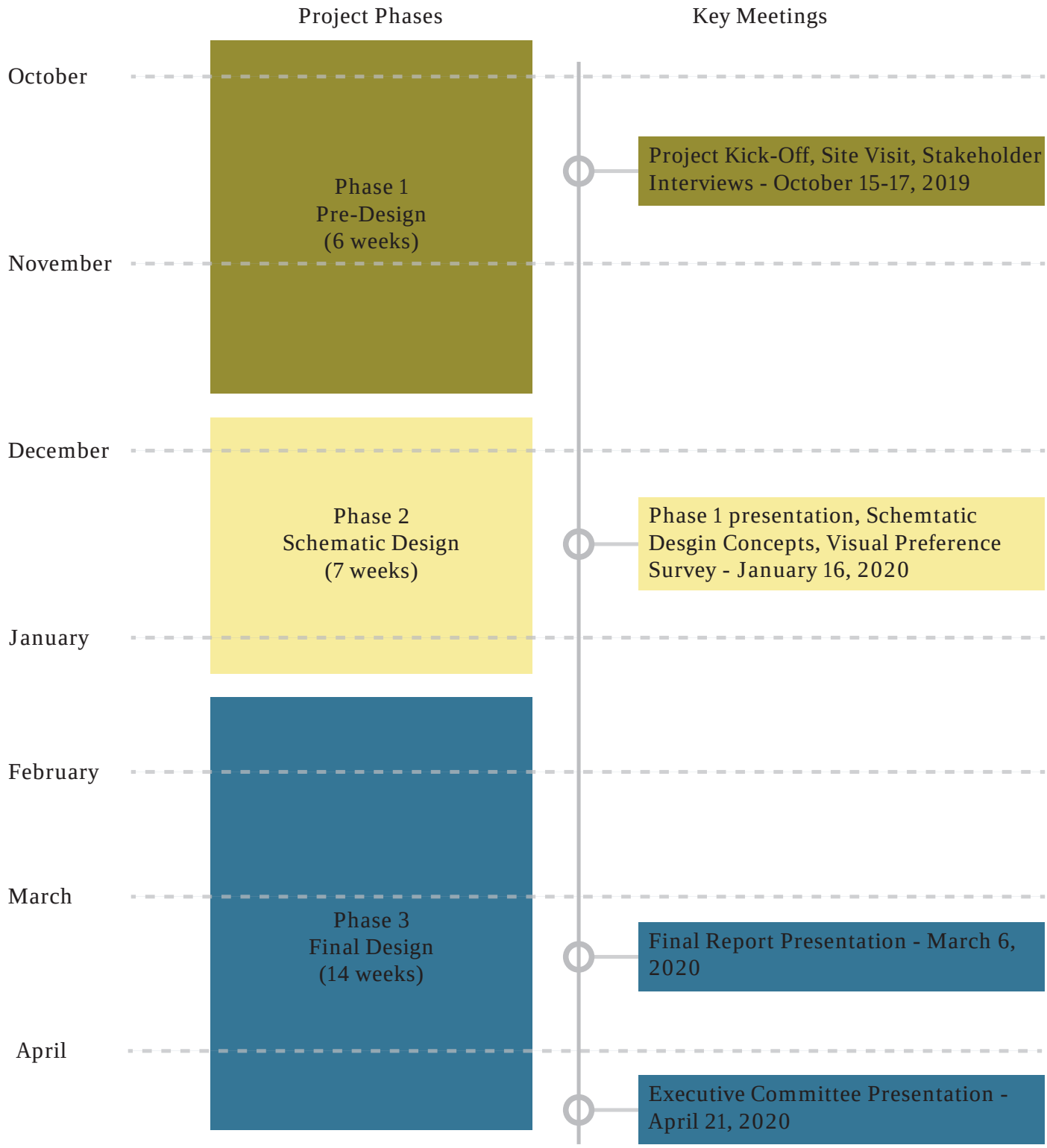
Top Priority - Fellows Lake is the primary reservoir of drinking water supply for the city of Springfield. While recreational opportunities are offered at the lake, protection of the water is and always will be the top priority. Each day, City Utilities and its stakeholders have no higher priority than to educate the public about its conservation initiatives for the water and natural systems surrounding the lake.

Aging Facilities - Today, with the aging marina and infrastructure in Miller Park that has all reached the end of its life cycles, City Utilities has hired a consultant team to lead a master planning and design process to guide redevelopment of the marina and park. Once completed, the master

plan will provide a phased and prioritized ten-year implementation action plan for redevelopment activities. The master plan is on schedule to be completed and adopted in the first half of 2020. Current planning is for the replacement of the marina and store in the first quarter of 2021.

New Amenities - The current master plan, in addition to the marina and store, has explored and is recommending a new conservation and education visitors' center with cafe and overlook, an event venue pavilion/shelter, an all-ability nature play playground, upgrades to parking and circulation, restroom buildings, disc golf, observation structures and native planting areas to support the conservation education message of the lake and park. New signage at the entry and throughout, especially interpretive signage to explain conservation and land stewardship features found in the park, will be included as well.

Project Timeline



PHASE 1 - Project Discovery

The GLMV project team met with representatives from City Utilities to discuss project scope, goals and expectations as it relates to the development of a recreational master plan for the existing marina area and adjacent public access space along the northern shore of Fellows Lake. The first session of activities included an initial in-house kick-off and field site visit. The meeting was held at the Fulbright Water Treatment Plant and was attended by the following:

Figure 2. The team

- City Utilities of Springfield – James Okumu, Bob Wilson, Jeff Marler
- GLMV - Chad Weinand, Angie Morgan, Dale Stafford
- Dick Horton Consulting (DHC) - Dick Horton
- Habitat Architects - Jonathan Polak, Ryan Bath
- MariCorp US - Aaron Wahlert

DEMOGRAPHICS

A study of the demographics was conducted to give the design team and City Utilities a deeper understanding of the quantity, locations, interests, spending habits and other important traits of potential users of the park and lake.

Demographic information was pulled from the Environmental Systems Research Institute (ESRI), an international supplier of geographic information system (GIS) software, web GIS and geodatabase management applications. ESRI is the foremost authority and clearinghouse of demographic data in the world and their information is used in many market analyses and formulating better business and policy decisions.

The result of the information that was gathered is reflected in the charts and graphics on the following pages. Because Miller Park and Fellows Lake is and will continue to be a regional draw, we pulled the demographic data for areas within a 30 minute drive, 60 minutes drive and 120 minute drive. This gives us a thorough understanding of the potential users and visitors that the design should work to serve. It also allows us to understand the importance of some recommendations versus others when it comes to recreational offerings and how potential users might spend their time and money at Miller Park

DEMOGRAPHIC SUMMARY

30-minute drive time from Miller Park/Fellows Lake

Demographics		
Population		325,106
Median Age		37.6
Median Household Income		$46,789
Predominant Race	White	91.6%
Predominant Gender	Female	51.2%
Highest age group percentage	20-24 25-29	9.8% 7.7%
Households by type	with two people	70.1%
Households by age of householder	Ages 15-44	42.2%
Selected sociographic consumer behavior potential by activity for Miller Park at Fellows Lake		
Off-road bicycling		U.S. Average
Kayaking		Above U.S. average by 6 points
Fresh water fishing		Above U.S. average by 21 points
Walking for exercise		Below U.S. average by 3 points
Birdwatching		Above U.S. average by 13 points
Overnight camping		Above U.S. average by 10 points

Figure 3.

60-minute drive time from Miller Park/Fellows Lake

Demographics		
Population		565,163
Median Age		38.7
Median Household Income		$47,212
Predominant Race	White	93.4%
Predominant Gender	Female	51%
Highest age group percentage	20-24	7.8%
Households by type	With two people	73%
Households by age of householder	Ages 15-44	41.1%
Selected sociographic consumer behavior potential by activity for Miller Park at Fellows Lake		
Off-road bicycling		Under U.S. average by 12 points
Kayaking		Above U.S. average by 5 points
Fresh water fishing		Above U.S. average by 29 points
Walking for exercise		Under U.S. average by 4 points
Birdwatching		Above U.S. average by 15 points
Overnight Camping		Above U.S. average by 11 points

Figure 4.

120-minute drive time from Miller Park/Fellows Lake

Demographics		
Population		1,484,040
Median Age		40.1
Median Household Income		$44,973
Predominant Race	White	91.8%
Predominant Gender	Female	50.5%
Highest age group percentage	20-24	7.3%
Households by type	With two people	73.1%
Households by age of householder	Ages 15-44	38.9%
Selected sociographic consumer behavior potential by activity for Miller Park at Fellows Lake		
Off-road bicycling		Below U.S. average by 20 points
Kayaking		Above U.S. average by 2 points
Fresh water fishing		Above U.S. average by 35 points
Walking for exercise		Below U.S. average by 5 points
Birdwatching		Above U.S. average by 18 points
Overnight Camping		Above U.S. average by 9 points

Figure 5.

INVENTORY by GLMV

Site Amenity Inventory

Fellows Lake currently has a limited set of recreational improvements on or adjacent to the lake. These resources can be utilized by the public on a "Day Use" only basis. Current recreational uses within the 20-acre study site include:

- Marina (Operates March 1 to October 31)
- Playground Equipment (1 swing set, 1 slide, 1 merry-go-round)
- Large Picnic Pavilion with 4 Tables and gravel parking (first come, first served)
- 5 Covered Picnic Tables (first come, first served)
- Accessible Boat Ramp / Dock
- Truck/Trailer Parking
- 2 Portable Restrooms (not ADA compliant)
- City Utilities Maintenance Facility
- Sparse Site Lighting

Location and Access

The park is located just north of the City of Springfield in Greene County, Missouri. It is accessed by vehicle primarily via two-lane city or county roads. Familiarity with the roads or use of electronic navigation is required to find the recreation area as it is not visible from nearby roads and there is not a direct vehicular road to the park.

The distance from downtown Springfield to the park is about 20 minutes by car. Bicycle access is possible, but more dangerous due to the width, curves and elevation changes along the roads leading to the park.

Direction or wayfinding signage to the lake is minimal to non-existent.

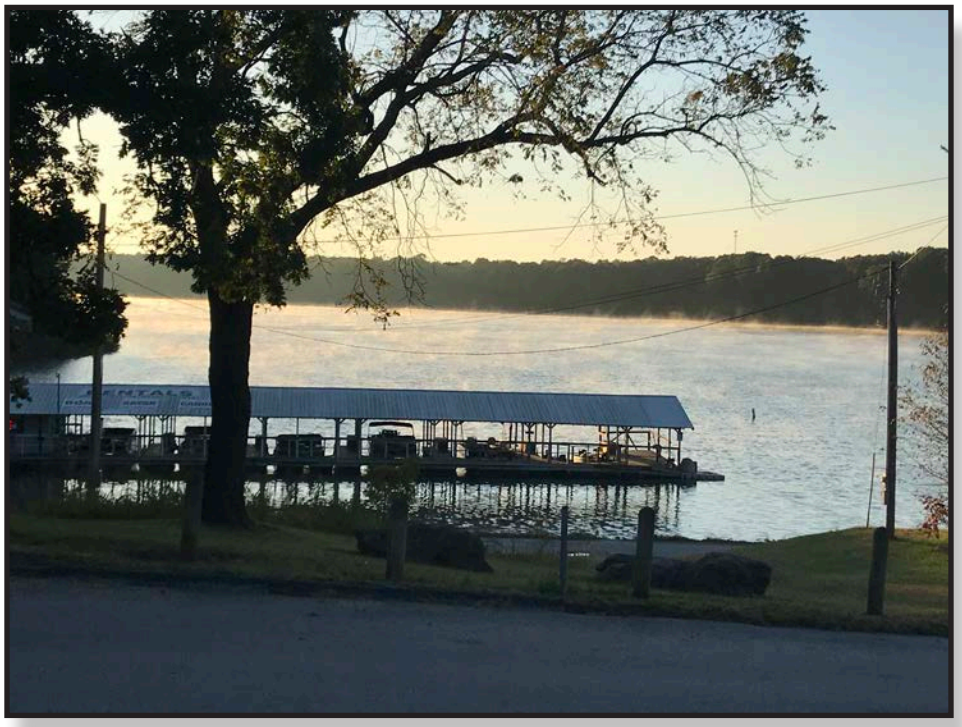


Figure 6. The marina

Summary of Site Amenity Inventory

Access to the lake is easier by car and more dangerous by bicycle. Bicycle access is more dangerous due to the narrow width of the road. The number, age, type and condition of existing amenities need to be considered for replacement, upgrades and new amenities to meet current trends and the level of service that users have come to expect.

ENVIRONMENTAL / LAND CHARACTERISTICS by HABITAT ARCHITECTS

Introduction

Habitat Architects completed a cursory review of the project area during the field visit on October 15, 2019. Based on a walk-through of the area including both the upland grassland and the fringe woodlands closer to the lake shoreline, we offer the following observations:

The Woodlands

The woodlands at Fellow Lake are dry-mesic Limestone Woodlands with relatively open canopies, consisting of primarily large oaks and hickories. The woodland area above the marina has a healthy, partially patchy and open understory with dominant native species consisting of a herbaceous layer of elm-leaf goldenrod, tick trefoils, white grass and asters along with oak and hickory saplings. The woodland area located toward the western extent of the project area near the larger pavilion/picnic shelter has a much more closed canopy with some of the same species of herbaceous plants within the understory but has a more overgrown understory consisting of invasive plants.

Invasive Plant Species

Invasive plant species identified include autumn olive, wintercreeper and eastern red cedar. Sumac was also noted in the area, and while this plant is not considered noxious or invasive, it can spread and take over areas if it is not managed as part of routine maintenance. Un-mowed areas near the lake shore consist of Kentucky bluegrass and Sericea lespedeza and the rocky sandstone shoreline has thick stands of buttonbush.

Soil Conditions

Soil conditions across the site include a limited depth of fertile soil for grassland and understory plants. Many places across the site exhibit surficial exposure of small rock, especially the closer you get to both the shoreline of the lake and in the understory of the woodlands. Upland areas closer to the maintenance building and playground appear to have more suitable soils for grasses to establish. Project planning should incorporate a focus on vegetative buffering where possible to limit erosive conditions due to the shallow soils.

Watershed

Fellows Lake is near the top of the Little Sac Watershed, making the water that flows to the lake relatively clean. The lake is primarily spring-fed and is deep, making it one of the southern-most lakes containing trophy Musky fish that draw Musky enthusiasts from long distances.

Summary of the Site Analysis

Generally speaking, the site has many typical conditions for the location and area. The property supports several natural systems that contribute to the overall quality of the vegetation and treatment of water runoff before it reaches the lake. The site functions well and modifications to the property should attempt to enhance rather than inhibit these systems from working as they are found today.

SITE ANALYSIS by GLMV

Site Analysis

Overall, the park study area is 20 acres of lake front park land with moderate to steep slope to the south toward the water edge.

The condition of all amenities in the park is fair to poor, primarily due to age. Maintenance of current amenities has prolonged their useful life, but in general, replacement of man-made amenities is warranted.

The map at the end of this section provides a detailed graphic analysis of the park.

Strengths

Natural Beauty – Connectivity to nature in a secluded, private setting is overwhelmingly the top strength of the lake and park.

Space - The park also has ample space to host all of the existing amenities without the feeling of overcrowding. The park also has room for added users and amenities to accommodate increases likely from the addition of trails and new amenities.

Mature Vegetation - The park has mature vegetation and shade from larger shade trees, while also having open meadow areas.

Water - Access to the water is ample and easy in some locations, enhancing all park activities.

Figure 7. Great Oak

Weaknesses

Location – The park is not located adjacent to any main roads or population base. The roads to the park are hilly and narrow and a clear path to the park is not prevalent without GPS or local knowledge.

Access – Access to the park is limited to daylight hours only. Most amenities in the park are also not ADA compliant.

Slope – The moderate slope on most of the park land and water edges makes the park less accessible to disabled users and makes development of accessible features more challenging.

Age of Amenities – All park amenities are aged and past their intended life cycle. Most have been in the park for over 60 years and need to be replaced with new, modern amenities.

Soils – Rocky soil conditions and shallow topsoil depth will limit or add cost to enhancements to the park that require excavation. Native plants that thrive in poor/limited soils should be used in re-vegetation efforts during construction.

Opportunities

Marina / Fishing – As indicated in the following section, there are many opportunities that the marina affords park users and more opportunities should be explored with the impending replacement of the marina.

Camping – Opportunities exist to offer camping experiences of various levels (from primitive to glamping). With potential improvements to the marina, addition of trail head facility and trails, conservation center, new pavilion, restrooms, etc., camping infrastructure should be explored as a possibility.

Trail Head – With the addition of the off-road bicycle soft trails and hiking trails, a trail head facility should be explored. At a minimum, the trail head should have signage and lighted vehicular parking, restrooms, trash collection.

Viewsheds – Spectacular viewsheds are available from the site to the lake and should be optimized as much as possible. Connection to the water should be emphasized with all park development as a unifying element.

Revenue Generating Amenities / Facilities – The potential for venues and amenities that capture revenue to offset operations and maintenance exists at Fellows Lake. With increased boat/kayak/paddle board rentals and more boat storage in the new marina, a larger pavilion event space for rental, camping rentals, increased daily use pass fees, bike/café/conservation center revenues, there are lots of opportunities to explore greater revenue generating amenities and activities.

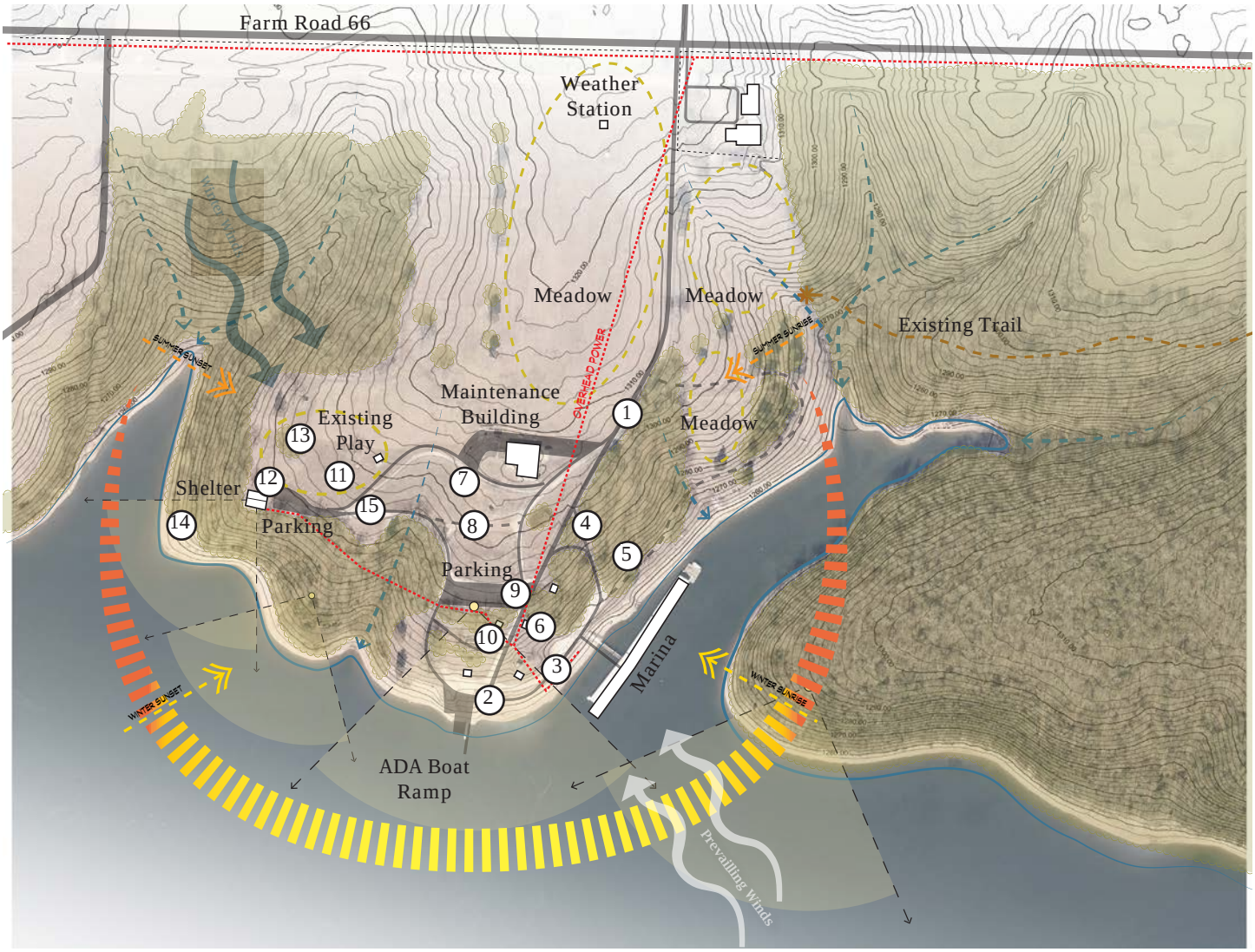


Figure 8. Site Analysis

Figure 9.

Figure 10.

Figure 11.

Figure 12.

Figure 13.

Figure 14.

Figure 15.

Figure 16.

Figure 17.

Figure 18.

Figure 19.

Figure 20.

Figure 21.

Figure 22.

Figure 23.

Environmental Factors

The site is positioned along the north shore of Fellows Lake and opens itself nicely to south solar exposure for most of the year prevailing winds from the south create the need to keep the marina tucked to the mouth of the cove while existing treelines provide a windbreak on gusty days.

Site Topography & Viewsheds

The majority of our site is located along the sloped banks of Fellows Lake. Observed to be predominantly decomposing sedimentary rock, the shoreline is lined with thick deciduous trees and relatively little undergrowth creating great opportunities for shaded viewsheds, shoreline trails and uninhabited access to the shoreline. Water moves across the site in natural and well established swales with little signs of extensive erosion.

Existing Infrastructure

Access into the site is controlled by a single paved point of entrance that is dominated by a view of the existing maintenance building and overhead power lines. Various paved and unpaved roads randomly lead to and from various parking opportunities and water access points. The random layout creates an unnecessary opportunity for pedestrian and vehicular interaction. Existing site amenities are limited to portable restrooms, aging shelters and dilapidated playground equipment. The existing dock and ADA boat ramp are aging but should not need improvements.

Trail users have little opportunity for hiking with a single trail connecting the site to the eastern ADA fishing dock and parking lot. Park users are currently using natural pathways as recreational trails with little to no contiguous hiking opportunities.

Water Quality

The preservation of the pristine water quality is the number consideration when exploring improvements to the site. The existing marina aside grading quickly and will need replaced within the next year. While yearly permits and boat inspections are required, boat owners have relatively unrestricted access to the water. This could lead to the introduction of zebra mussels and other natural contaminants to the lake's ecosystem.

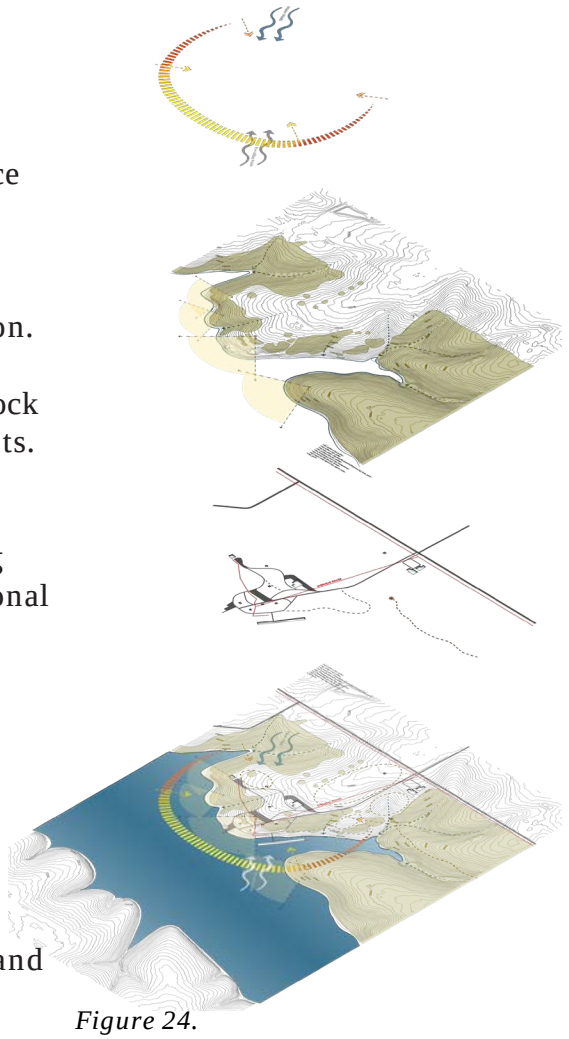


Figure 24.

Summary of the Site Analysis

The site is beautiful, spacious and a close to home opportunity to enjoy nature. Its location can be difficult for many users due to road conditions, hours of operation and lack of wayfinding signage. There are many opportunities at the lake to provide trail experiences and passive enjoyment of the many viewsheds that abound.

MARINA IMPACTS by MARICORP US

Studying the existing marina and understanding what components and level of service the new marina can and will provide once replaced guides the recommendations of the park master plan.

MARINA IMPACT SUMMARY

The following observations were made by the marina consultant, MariCorp US, during their visit and investigation to Miller Park at Fellows Lake:

During the initial visit and analysis of the existing marina, the marina was found to be very consistent with a 50-year old amenity in need of replacement. This marina has mainly served as a fisherman's marina with some kayak and canoe activity. There is also quite a bit of shore fishing at the lake.

The marina has good rental opportunity due to the 40-horsepower restrictions on any motored boat because most boat owners typically elect to have larger motors on their boat, so having lower powered boats for rent would be advantageous. Currently, boat rental opportunities at the marina include two pontoon boats and five to six fishing boats.

There are 30 kayaks and canoes available for rent at the marina and they have done up to 100 rentals in one day.

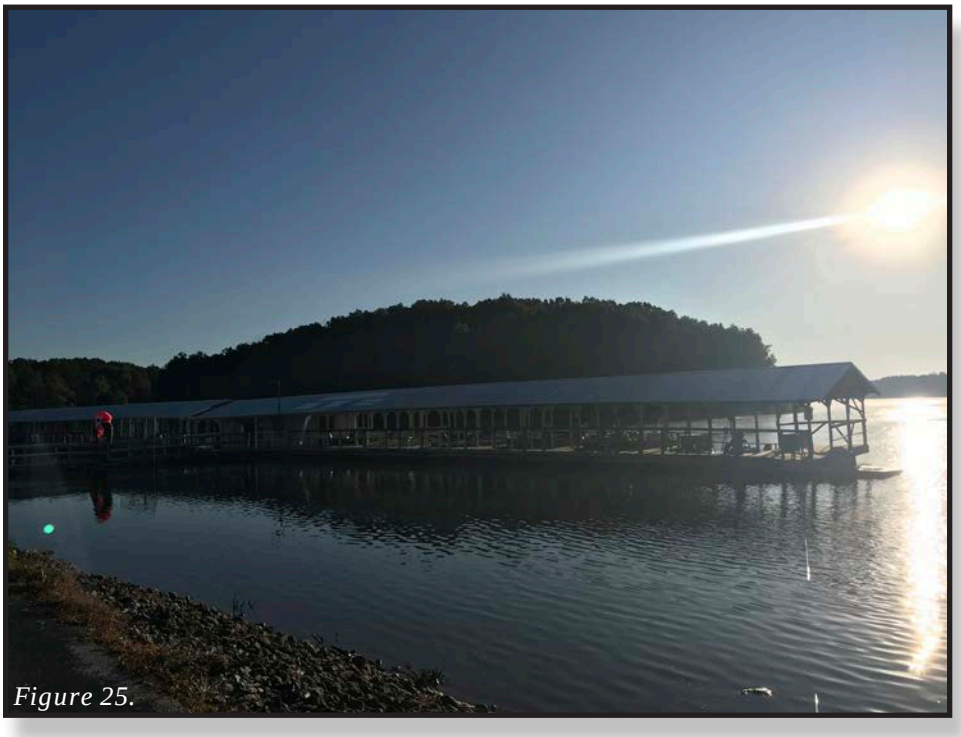


Figure 25.

The marina has 24 boat slips that measure 8' by 18' in dimension. The slips are on the small size, some boats were observed to be sticking out of their slip, which is a safety concern. All slips are covered, there is no opportunity for uncovered sailboat storage except for the on-shore area provided for sailboats that is not adequate. The marina slips, either for rental boats or for boat storage, are currently full and have a waiting list of people wanting a slip at the marina. The current marina is anchored to the shore with standoffs. This has caused a lot of issues when it comes to repairs and maintaining the marina. The gangway to the marina is short, which causes issues when the water level in the lake drops. The gangway is also not ADA compliant with steps and gaps to traverse to get to the gangway from the shore.

Figure 26.

HISTORIC BOAT PERMIT DATA from CITY UTILITIES

YEAR	Motorized Permits	Non-Motorized Permits	Day Passes	TOTALS
2013	701	343	123	1,167
	$17,525	$3,430		$20,955
2014	698	423	129	1,250
	$17,450	$4,230		$21,680
2015	703	559	186	1,448
	$17,575	$5,590		$23,165
2016	732	706	267	1,705
	$18,300	$7,060		$25,360
2017	714	802	274	1,790
	$17,850	$8,020		$25,870
2018	718	834	308	1,860
	$17,950	$8,340		$26,290
2019	691	762	282	1,735
	$17,275	$7,620		$24,895

Figure 27.

HISTORIC BOAT PERMIT DATA from City Utilities

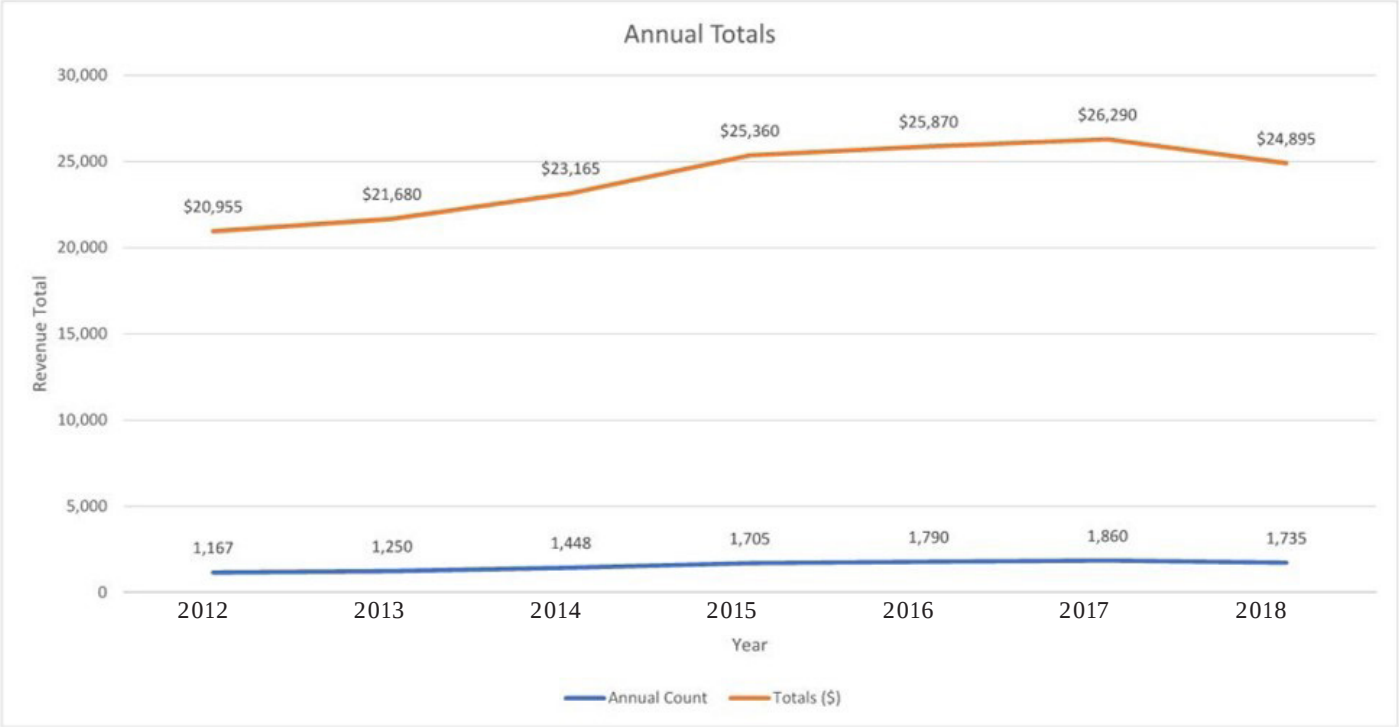


Figure 28.

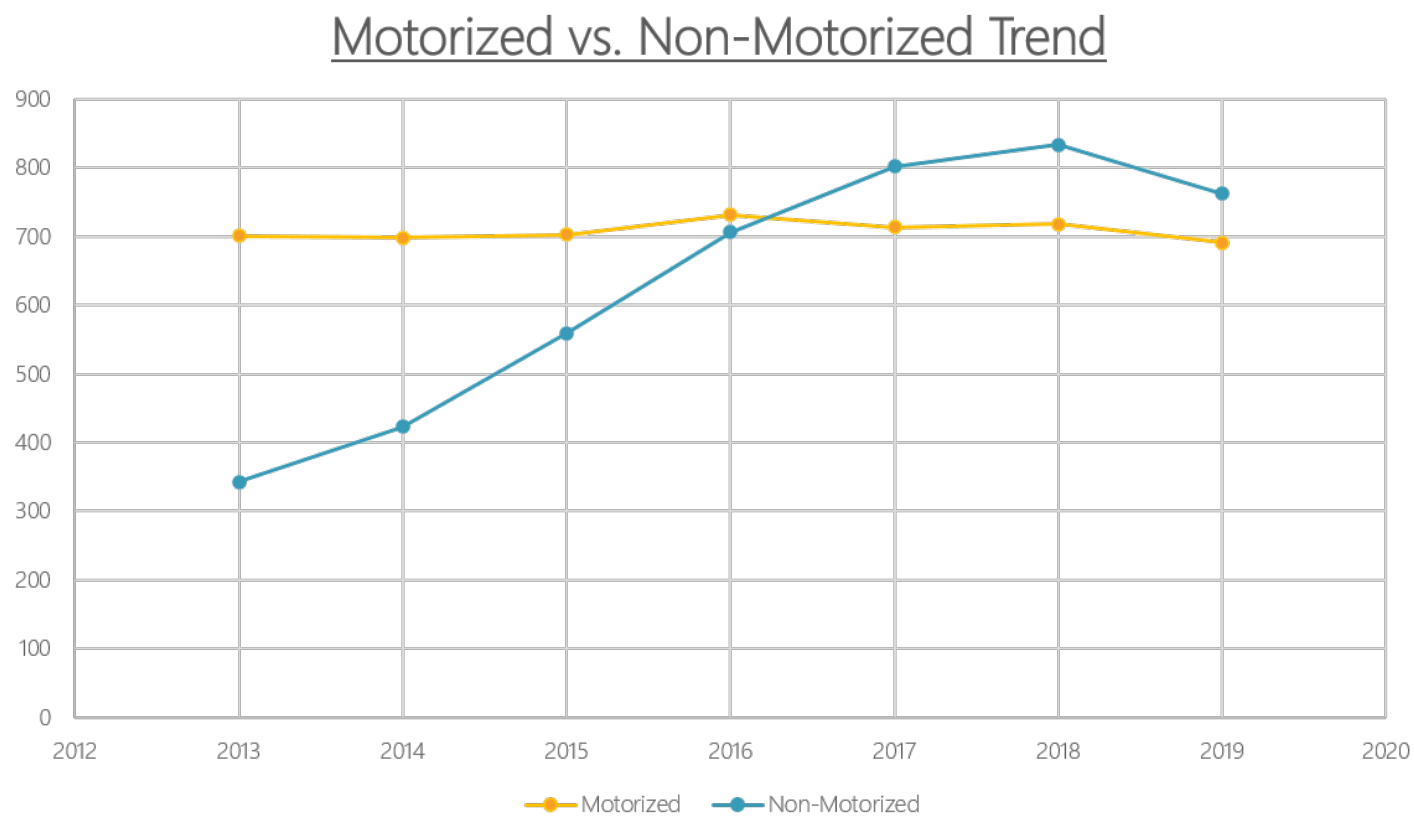


Figure 29.

Looking at the historic boat permit sales over the past seven years, it is easy to see the increase in boating activity on Fellows Lake, which speaks to the growing popularity of the lake and marina.

Taking a deeper look at the numbers, motorized permits have stayed relatively consistent over the years. However, the trend line for non-motorized boating permits shows the growing popularity of boating activities such as kayaking. This deeper understanding allows us to make the easy conclusion that more non-motorized boating opportunities should be encouraged and supported with the proper equipment, facilities and programming. This direction is an easy one to support because it aligns perfectly with the primary goal of protecting the water quality.

STAKEHOLDER ENGAGEMENT

There are several stakeholders, besides City Utilities and the park users, who will impact the park and amenities offered there in the future. Stakeholders will play an important part in shaping what the Fellows Lake Recreation Area will offer. To learn more about stakeholder preferences, the GLMV Team facilitated several interviews to get a comprehensive understanding of what they are doing now and what they would like to do in the future, including what limitations and opportunities they see to the development of the park.

Stakeholders who were interviewed were as follows:

- City Utilities Staff – Bob Wilson & James Okumu
- Watershed of the Ozarks – Mike Kromrey
- Ozark Greenways – Mary Kromrey
- Kiwanis – Les Mace & Ryan Aubuchon
- Springfield-Greene County Parks & Recreation – Bob Belote, Miles Park and Jeff Smith

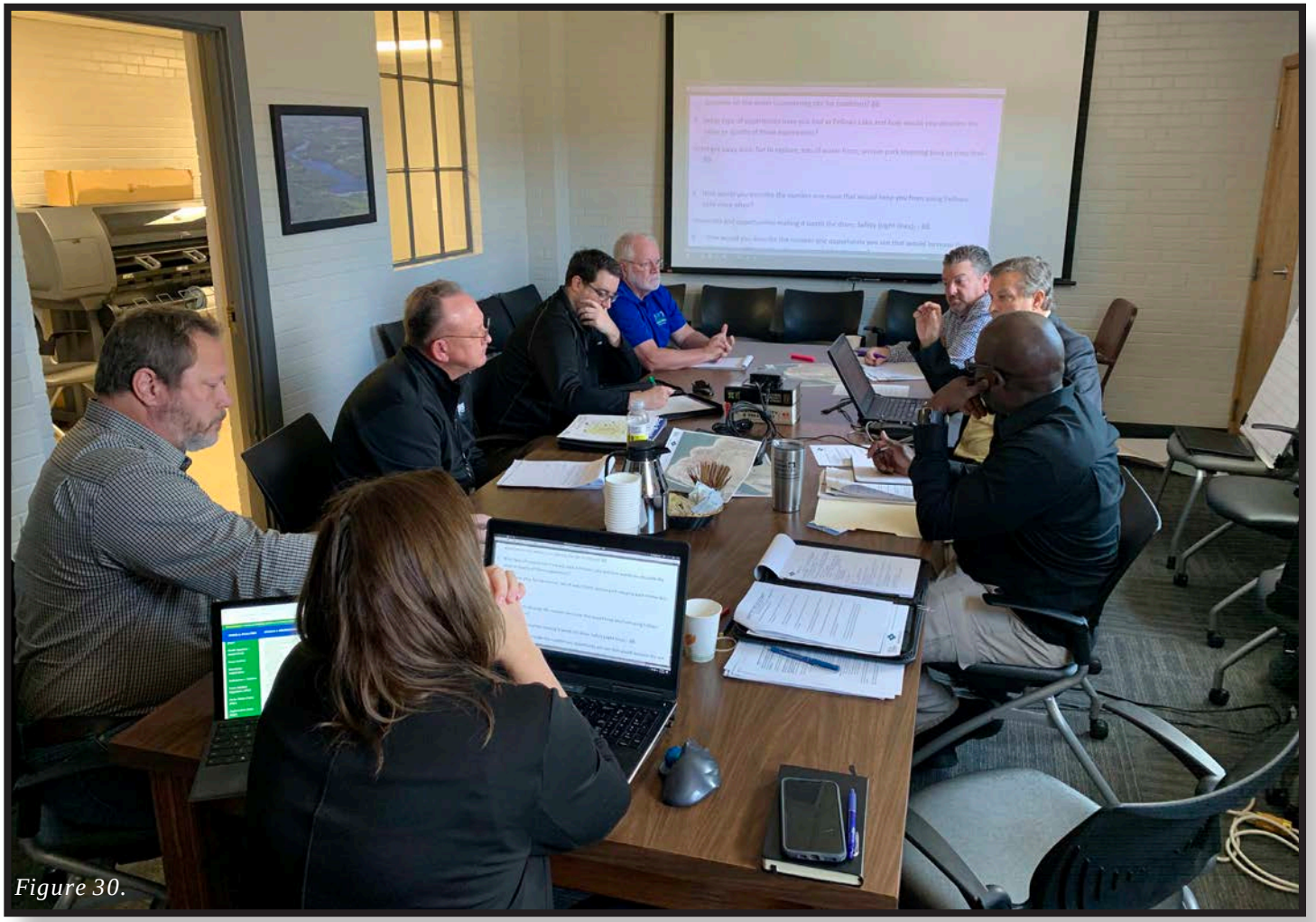


Figure 30.

PLANNING THEMES

Management of Fellows Lake by City Utilities (CU) will benefit from the creation and formal adoption of a set of planning themes that can be used as one tool that must be referenced when considering all future planned development and recreation programming requests. The value of this planning theme tool is that it provides guidance in the face of uncertainty and is a constant reminder of the most appropriate development and activities that can occur at the Lake. The importance of this basic assumption tool cannot be overstated! The consultant's interpretation of the highest priority themes as expressed during the kickoff meetings are stated below:

1. Protection of water quality is priority Number 1 ALWAYS
    a. motorized boats that use the water will be discouraged
    b. body contact activities are not allowed at the lake, and future recreational planning should avoid incorporating swimming or full body contact activities
2. Partners with a mission that is aligned with City Utilities will be encouraged for management, planned improvements and programs, with emphasis on educational, passive and self-directed activities and complementary facilities
3. Revenue-generating facilities, services and programs will be preferred and a direct cost recovery percentage of 100 percent will be the goal
4. Lake management will focus on strategic policies and marketing initiatives to ensure that staff, partners and users are aligned with the Mission and Goals of CU

PLANNING IMPLICATIONS

Preliminary observations from the kickoff meetings (Phase One) by the consultant and pending approval by CU of those observations is critical to a successful project. It is the consultant's observation that the combination of key stakeholder comments and the development of planning themes results in a number of planning implications. Those implications are detailed below:

Planning Theme #1 and Planning Implications – Protection of water quality

Planning Implications:

1. CU will benefit from taking this opportunity to evaluate the Level of Service (LOS) that it is capable of providing with its resources, or, a higher LOS, if a new funding source can be identified.
2. CU will benefit from taking this opportunity to focus on the business it is in, or, wants to be in. For example, a close to home opportunity versus a destination attraction.

Planning Theme #2 and Planning Implications - Partners with a mission that is aligned with City Utilities will be encouraged for management, planned improvements and programs, with emphasis on educational, passive and self-directed activities and complementary facilities

Planning Implications:

3. CU will benefit from taking this opportunity to critique current partnerships, programs and facilities with options to continue, abandon or modify each.
4. CU will benefit from taking this opportunity to pursue new partners with whom its preferred future is aligned.

Planning Theme #3 and Planning Implications - Revenue-generating facilities, services and programs will be preferred and a direct cost recovery percentage of 100 percent will be the goal

Planning Implications:

5. Suggested programs and facilities will need to be phased to allow for the development of funding sources, partnership development and political realities.
6. CU will benefit from taking this opportunity to research new trends that have proven to be revenue-producing and in balance with CU's number one priority of protecting the water quality.

Planning Theme #4 and Planning Implications - Lake management will focus on strategic policies and marketing initiatives to ensure that staff, partners and users are aligned with the Mission and Goals of CU

Planning Implications:

7. The CU Leadership Team will benefit from a Visioning Workshop by using an Evaluation Matrix Tool that will assist their process by identifying highest and lowest rated opportunities and by allowing an opportunity to discuss personal preferences, if there are any.
8. Several potential development opportunities at the Lake will cause discomfort for the CU Leadership Team, thus the need for a Visioning Workshop to ensure that concept development flows smoothly.
9. CU will benefit from this opportunity to create policies that:
    a. Clarify and formalize its past, current and future user expectations at the Lake for programs, services and complementary facilities
    b. Set cost recovery expectations
    c. Establish a pricing approach based on who benefits from their use of the Lake and the percentage that their use should contribute ranging from 0 to 100 percent
10. CU will benefit from taking this opportunity to create/enhance its brand and all marketing best practices

Figure 31.

Design sketch from recap meeting with CU staff on final day of kick-off meetings.

LEVEL OF SERVICE ANALYSIS

City Utilities staff was asked to rate a list of existing and potential improvements to the park, whether it is a physical improvement, programmed element or upgrade to existing facilities. The average ranking of these items in the eyes of City Utilities helps us establish what level of service they are comfortable offering in the park and gives us a look at the priority of each item.

This Level of Service will dictate the master plan design and implementation recommendations and be the foundation for prioritized master plan design elements (short-, mid- and long-term within the 10-year implementation goal). Knowing what business CU wants to be in when it comes to recreation at Fellows Lake starts with creation of a list of amenities and programming that CU will provide.

The following is a list of amenities and programming scorecard that CU staff rated. The compiled and averaged scores are shown and put into order of highest to lowest priority ranking. These rankings are used to determine priority for the master plan recommendations.

Figure 32.

Level of Service Matrix

Amenity / Programming Element	JNO Rating	KQ Rating	BW Rating	Average Rating
New Marina - Kayak Launch	10	10	10	10.00
Permanent (ADA) Restroom Structure	10	10	9	9.67
New Nature Play Playground	10	10	9	9.67
Large Event Pavilion	10	10	9	9.67
Combined Conservation/Marina/Storage/Batl	10	9	9	9.33
Disc Golf Course	9	10	9	9.33
Trails - Low Maintenance Multi-Use Trails	10	10	8	9.33
Trails - ADA Restrooms	10	9	9	9.33
Trails - Signage and Trail Maps	10	9	9	9.33
Improve Parking Surfacing	7	10	9	8.67
Lakeside Observation Platforms / Decks	10	7	9	8.67
New Marina - Sail Boat Slips	8	8	9	8.33
New Marina - Increased Boat Storage Slips	10	7	8	8.33
New Marina - On-Shore Marina Store	10	9	6	8.33
Increase Non-Boating Parking	9	7	9	8.33
Increase Parking Efficiency	5	9	10	8.00
New Marina - Increased Boat Rentals	10	6	7	7.67
Trails - Lighted Parking Lot	10	10	3	7.67
Shore Fishing Benches	9	9	5	7.67
Trails - Trail Head (outside gate)	10	3	8	7.00
Shore Fishing Boardwalk / Dock	7	9	5	7.00
Trails - Self Service Bike Repair Station	6	5	9	6.67
Increase Boat / Trailer Parking	8	7	4	6.33
Native Plantings / Demonstration Sites	9		10	6.33
Hammocking Spots / Permits $	10	NO	8	6.00
Boat Launch - One Boat	10	7		5.67
Observation Tower	9	2	5	5.33
Trails - Water Fill Station	2	2	9	4.33
Boat Access Camping (pad only) $$	10	NO	1	3.67
New Marina - Larger Marina Store (floating)	5	NO	5	3.33
Glamping (pad/canopy/power) $$$	8	NO	1	3.00
New Marina - Paddle Boards	3	NO	5	2.67
Boat Launch - Two Boats	NO	7		2.33
Primitive Camping Spots (pad only) $	5	NO	1	2.00
Camp Fire Rings / Gathering Spots	NO	NO	1	NO
Camping Spots (pad w/ power) $$	NO	NO	1	NO

Figure 33.

PHASE 1 SUMMARY

The following are summary statements that encapsulate the conversations, meetings, and site visit observations from Project Discovery that will be shape development of the Conceptual Master Plan Design and Implementation Strategies.

- Key stakeholders were identified by CU and each was given a unique opportunity to provide input into the planning process.

- CU emphasized the non-negotiable priority of protecting the city's water source at Fellows Lake.

- The importance of partnering with groups/agencies to implement the 2020 master plan was emphasized with the assumption that only partners who share a common mission as CU will be considered.

Figure 34.

- A dedicated funding source for planned improvements has not been identified.

- Planned improvements that include revenue generating possibilities approaching 100 percent cost recovery for operation and maintenance costs are preferred.

- A need for strategic marketing and operating policies has been identified as a high priority.

- The built environment is aging and in need of replacement, and/or upgrades throughout the lake area.

- Traveling to the Lake is difficult due to its distance from town (20-minute drive), narrow road conditions, lack of wayfinding signage, and lack of visibility from the road, all of which requires electronic navigation for visitors.

- Environmental:
    - o there is a need to manage invasive plant species
    - o there is a need to manage soil conditions by using vegetative buffering where possible to limit erosive conditions due to shallow soils
    - o natural beauty is overwhelmingly the top strength of the lake and park
    - o location/access to the lake/park is its greatest weakness

- Marina:
    - o Improvements at the marina could include:
    - o Larger slips (10 x 20)
    - o Larger tackle store to include snacks and drinks
    - o More focus on kayakers and paddle boarding as they are attractive to the same demographic as the trail users
    - o Additional slips
    - o Uncovered Sailboat slips
    - o Sell fish food
    - o Switch from standoff anchors to sea anchors
    - o A longer gangway

- Level of Service: The desired level of service based on a list of park improvements and amenity upgrades and/or additions has been quantified by City Utilities staff (Fig. 28) based on all inputs gathered during the first phase of this master plan and as the preferred future for Miller Park at Fellows Lake begins to take shape. It was clear to all involved during the project discovery investigation that there is a strong desire to capitalize on the spectacular natural beauty and unique, serene setting and to increase the level of service at Miller Park over what is currently provided.

PHASE 2 - CONCEPTUAL MASTER PLAN DESIGN

Based on findings and discoveries in Phase 1 of the study, the design team created two concepts for the layout of the future development of Miller Park at Fellows Lake. The designs focused on development of elements and connectivity throughout the park, maximizing the space and flow of the park while minimizing potential conflicts.

Phasing strategies and implementation of the master plan were also considered during the design of the concepts.
Concepts were then presented to City Utilities to measure interest and to identify a final layout of the park. The ultimate build out of the park is identified in this step based on programming and priorities for the future of the park.

The two master plans that were presented to CU for their feedback are included in Appendix 1.

VISUAL PREFERENCES SURVEY

Sample images of element design and level of detail were gathered and presented to CU staff for their input on the look and feel of each improvement to the park to help establish the visual feel of the park while refining the cost of construction of each element as best we can at this conceptual stage of the master planning exercise. The top-rated images as chosen by CU staff are included with each implementation project later in this report.

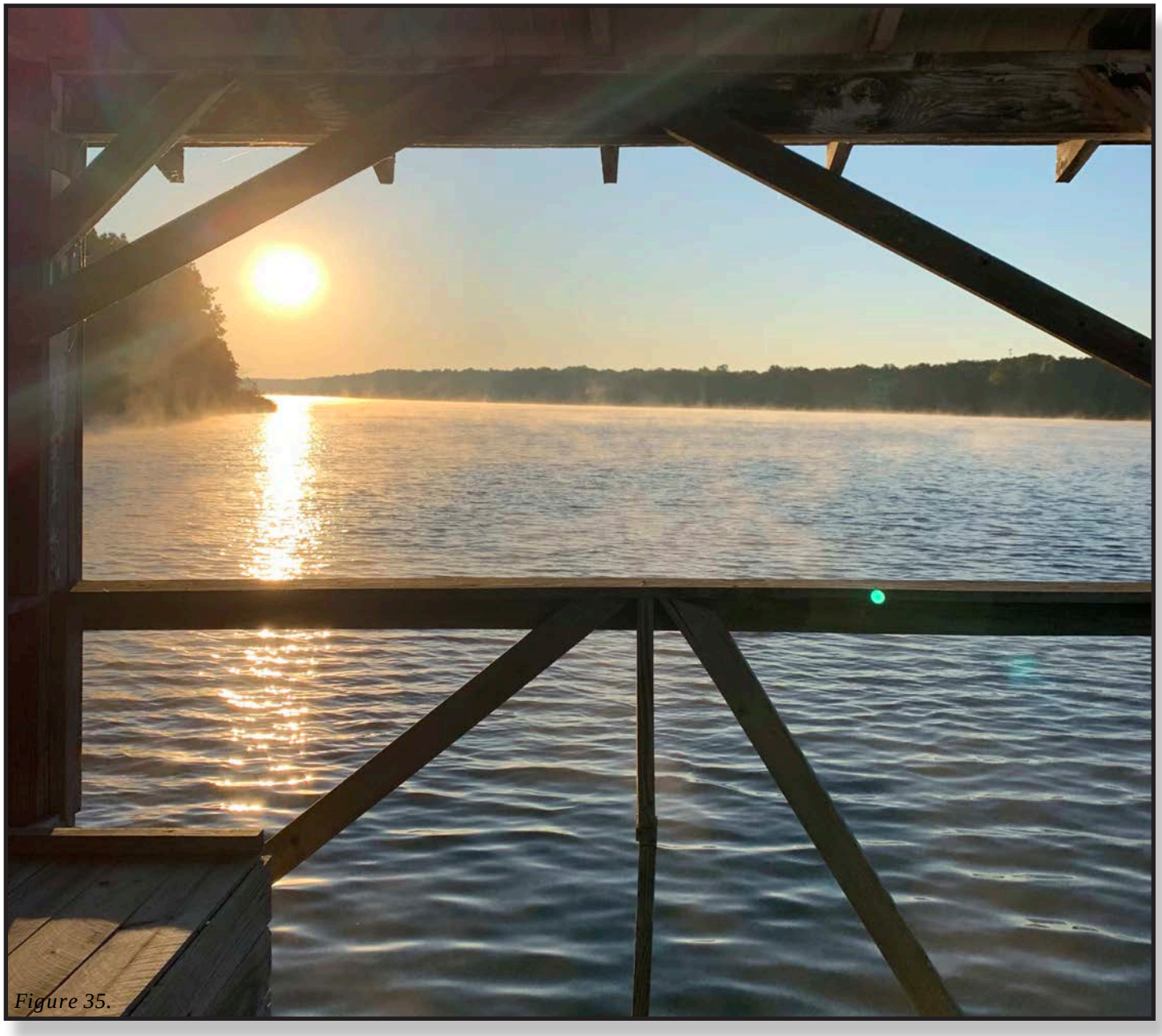


Figure 35.

PHASE 3 - FINAL DESIGN CONCEPT AND ACTION PLAN

Once we presented and discussed the two park design concepts, cost and visual preference for improvement elements, a final design concept was created that combined the best features and elements from each of two preliminary concepts. The resulting final design was then evaluated for phasing and prioritization strategies so that a 10-year implementation planning document could be created to guide development of the park, starting with the new Marina in 2020-2021.

1. Reconfigured Boat Trailer Parking
2. Reconfigured Vehicular Parking (ADA)
3. New Floating Marina
4. Permanent (ADA) Restroom
5. Nature Play - Playground
6. Large Event Pavilion w/ Patio & Fire Pit
7. Visitor Information Center & Marina Store
8. Boat Inspection/Parking Lane
9. Low Maintenance Walking Paths
10. Low Maintenance Multi-Use Trails
11. Lakeside Observation Deck
12. Native Plantings/Demonstration Areas
13. New Evergreen Screening
14. Large Sitting Deck
15. Disc Golf Launch Pad
16. Disc Golf Basket
17. Observation Tower
18. Amphitheatre

Figure 36.

PARTNERSHIP OPPORTUNITIES

Strategic partnerships will be key in providing recreational opportunities and Miller Park without incurring expense that would otherwise be passed along to CU customers. That is a guiding principal of the design of the park, but also will require funding mechanisms through public-private partnerships identified now and as they become available. The list of potential partnerships identified at the time of this final report are as follows:

- Missouri Department of Natural Resources
  - Land and Water Conservation Fund Grants
  - Recreational Trails Program Grants
  - https://dnr.mo.gov/financial.htm
- Springfield-Greene County Park Board
  - https://parkboard.org/
- Ozark Greenways
  - https://www.ozarkgreenways.org/
- Bass Pro Shop
- Bicycle Clubs
  - Springbike - https://springbike.org/
  - Trailspring (Dirt66) - https://trailspring.org/
  - Missouri Off-Road Cyclists (MORC) - https://missourioffroadcyclists.org/
- Disc Golf Enthusiast Groups
  - Missouri State University Disc Golf Club
- Fishing Organizations / Clubs
  - Missouri State Fishing Team
- Scouting Organizations
- University Rowing Teams
- Sail Boating Clubs
- Ozark Mountain Paddlers
  - https://www.ozarkmtnpaddlers.org/

FINAL COST ESTIMATE

The final cost estimate, or opinion of probable cost, is offered based on the final conceptual design of the park and the established visual preference for park features. These are budgetary numbers and are based on industry average costs of similar projects or scope of work in 2020. These budgetary numbers should include 10 percent contingency for unforeseen circumstances, do not include design and permitting fees, and should consider inflation over the time from the date of this report to when implementation happens.

Estimated costs associated with each element or improvement are indicated in the following section of this report. A full cost estimate can be found in Appendix 2.

ACTION PLAN

Based on all the findings, preferences, pricing and established priorities for the redevelopment of Miller Park, the following is a prioritized action plan for the implementation of the park master plan that has been developed. This categorization of improvement projects represents the priority at the time of this study and report and is a snapshot in time. As the improvements are built, funding is established, partnerships are forged or priorities change for any reason, the improvements may be re-organized to reflect current realities.

Phasing of improvements should consider how one phase effects the others and if improvements should be delayed or promoted in an order that facilitates the most efficiencies and cost savings. Master Plan implementation sequencing is an important factor in the ultimate build-out of Miller Park and the priorities and order of projects has taken those factors into consideration while developing the Action Plan order.

Estimate project costs are based on conceptual design analysis, visual preference styles and construction methods, current pricing from similar projects, current materials and labor costs and site conditions. The costs provided are for budgeting reasons only and should be re-evaluated at the time each project is undertaken. Prices do not include design fees or permitting fees that may be associated with the successful completion of the project. It is recommended that City Utilities engage a design consultant to fully design each major improvement project to properly understand all design and implementation cost implications.

SHORT-TERM PRIORITY IMPROVEMENTS (1-3 YEARS)

- New Marina ($500,000)
  - The design for the new marina has been started as a point of beginning, but the new marina should take into consideration larger slips, courtesy docks, sailboat slips, a kayak/ canoe launch dock, a new and improved anchoring system and a longer gangway. There appears to be a need for more boat slips than the existing marina has; however, numbers should be further studied to find the right number to include in the new marina.

Figure 37.
Figure 38.

Top Choice from Visual Preference Survey

- On-Shore Marina Store ($70,000-$100,000)
  - The on-shore marina store should be located adjacent to the gangway of the new marina and needs to be built at the same time as the new marina to facilitate operation of the new facility. There are two options for construction. If funding is available, the new marina store should be built in the basement foundation for the future Visitor Information Center and constructed to allow for the vertical expansion in the future. If funding of that option is not available, a modular unit should be explored as the backup option until such time funding is available for a more permanent structure. Approximately 1,00o square feet is needed for the store and some inside storage/office space. Outdoor storage should also be included for storage of kayaks,

Figure 39.

Top Choice from Visual Preference Survey

canoes, life vests, paddles, etc.

- Marina Store Parking / Boat Inspection Area ($105,000)
    - As part of the new on-shore marina store, added parking and boat inspection area should be added to facilitate the increase of activity around the new store. This new lane would allow for a bypass lane to ensure proper vehicular traffic can happen.

- Nature Play Playground by Kiwanis Club ($100,000-$200,000)
    - Partnering with the Kiwanis Club for a new all-inclusive play structure in the park, the character of the playground should emphasize the beauty and nature of the park and surrounds and should include imaginative nature play elements. The layout on the master plan design in this study is conceptual and a final design should be created to work with the budget available at time of construction.

Figure 40.
Figure 41.
Top Choice from Visual Preference Survey

- Playground Parking Area Upgrades with ADA Stalls ($70,00-$80,000)
    - Parking and ADA accessible parking and paths should be included when the playground is constructed to make it truly accessible.

- Evergreen Screen Plantings at Maintenance Facility ($20,000)
    - Plantings should be added to the north side of the existing maintenance facility to screen view of the large structure as you enter the park from the north. This will assist in beautifying the arrival at the park and make it all about the abundant beauty of the park setting and lake.

- New Monument Sign and Landscaping at Entry ($125,000)
    - o A new monument sign and landscaping are recommended at the park entry to improve the sense of arrival at the park. When branding is created for the park, it should be included in the entry monument sign so visitors associate the brand with the park. Curb appeal at a park's entrance improves the overall image of the park and makes it more inviting to visitors.

Figure 42.

Top Choice from Visual Preference Survey

MID-TERM PRIORITY IMPROVEMENTS (4-7 YEARS)

- Large Event Pavilion for 100-Person Capacity ($550,000)
    - o The renovation of the existing pavilion or replacement with a new event venue pavilion to accommodate events of about 100 people will add a revenue stream that will help to pay for improvements and/or maintenance of the park for years to come. The event venue should be built to take advantage of the tremendous view of the lake in this location and it should include some outdoor amenities that facilitate events.

Figure 43.

Top Choice from Visual Preference Survey

- ADA Restroom Building at Large Event Pavilion ($210,000)
    - o In conjunction with a larger event venue, an ADA accessible restroom should be built to accommodate larger groups of users. These restrooms will be in close proximity to the event venue and the new playground.

Figure 44.

Top Choice from Visual Preference Survey

- Parking Improvements for Event Pavilion ($70,000-$80,000)
    - o When the large event venue and restrooms are

constructed, it would be appropriate to add improved parking including ADA parking stalls and paths to the adjacent amenities.

- Underground Power to Event Pavilion ($217,908)
    - o As part of the event venue improvements, relocating the overhead power lines underground would help eliminate the visual impacts of the power lines while creating a safer power connection within the park. It would also eliminate the overhead power line conflict with larger sailboat masts if they are not lowered before leaving on a trailer. Upgrades to the power supply could also be made at this time, if needed.

- Reading Deck at Large Oak Tree ($45,000)
    - o Another opportunity to take advantage of the overwhelming beauty at Miller Park is all of the mature trees on the site. This reading deck around the base of the large oak tree near the existing play pieces would be a great addition to the park and allow users to find a peaceful spot under the old oak tree to relax, read a book or just enjoy being in nature. This piece can be added independently of any other improvements when funding is available.

- 18-Hole Disc Golf Course ($28,000-$40,000)
    - o Addition of a disc golf course should be considered if funding is available or if a strategic partnership is formed and an enthusiast group or club steps up to help with the design and construction of the amenity. It should start and end in the park, but it should primarily be installed north of the park property to limit conflicts with park users. The level of the course may vary, from a recreational course to a tournament course, based on the level of interest and potential for tournaments that could be a regional draw and potential revenue generator.

Figure 45.

Top Choice from Visual Preference Survey

- Lakeside Observation and Fishing Platforms ($12,000 each)
    - o These platforms should be a wood deck construction and include a bench for sitting to view the majestic lake and lake views or to fish from. The proximity to the water should be such as to enjoy being waterside and facilitate shore fishing as much as possible. The platforms can be installed as funding is available, one at a time in conjunction with trail development.

LONG-TERM PRIORITY IMPROVEMENTS (8-10 YEARS)

- Visitor Information Center ($1,328,000-$1,628,000)
    - o The single most impactful amenity that can be added to this site is a visitor Information center that could act as the activity center for the park. The center should include an upper floor that contains offices and meeting spaces, conservation and/or park operations staff, a café and/or snack/ food vendor, permanent restroom facilities, at a minimum, and the marina store in the lower level. An observation deck should wrap the entire upper floor and create a protected storage area under it. This visitor center should be similar to the Watershed Committee of the Ozarks conservation building at Valley Water Mill Park and should incorporate all levels of conservation and green building principals to act as the conservation center for Miller Park and Fellows Lake. All park activities, rentals and maintenance activities should be located in this facility to create a thriving and operationally sound organization to the activities offered at Miller Park.

Figure 46.
Figure 47.
Top Choice from Visual Preference Survey

- ADA Restroom Building at Visitor Center ($210,000)
    - o In conjunction with the Visitor Information Center, ADA restrooms should be included either in a separate structure or as part of the Information Center building.

- Parking Lot Upgrade/Expansion for Boating and Non-Boating Parking ($433,200)
    - o With the addition of the Visitor Information Center and increased park usage, parking areas should be expanded, added and reconfigured to accommodate all park goers and their vehicles to ensure the traffic flow within the park is coordinated and limits conflicts with park users.
- Underground Power ($217,908)
    - o As part of the addition of the Visitor Information Center and surrounding improvements, relocating the overhead power lines underground would help eliminate the visual impacts of the power lines while creating a safer power connection within the park. It would also eliminate the overhead power line conflict with larger sailboat masts if they are not lowered before leaving on a trailer. Upgrades to the power supply could also be made at this time, if needed.

- Trail-Head with Relocated Park Gate ($80,500)
    - o In conjunction with trail development and the Dirt66 trail project, and to keep local off-road bicycle traffic where it needs to be and to limit conflict with park users, a trail head and parking should be added near the maintenance facility and the park gate should be relocated to allow trail users to enter the park partially, park and use the trails before and after park hours. This should include trail signage, maps and parking.

Figure 48.
Top Choice from Visual Preference Survey

- Amphitheatre at Water Edge ($274,000-$314,000)
    - To facilitate education at the park for school groups, performances, ceremonies, etc., an amphitheatre capable of seating around 75-100 people should be considered in close proximity to the event venue and playground area with orientation with the lake as the backdrop to the stage area and utilizing the natural terrain and slopes in that area.


Figure 49.
Top Choice from Visual Preference Survey

- Observation Tower ($250,000-$300,000)
    - As trail development continues to occur, and to act as a beacon from the lake or a destination to draw hikers through the park and along the trails, an observation tower could be located on the point across the cove from the marina. This observation tower should take users just above the tree line to take advantage of spectacular views of the lake and the setting sun in the west. While this is a high-cost and low-priority amenity, it would be another landmark feature at Miller Park and Fellows Lake that would draw users from around the region.

Figure 50.
Top Choice from Visual Preference Survey

CONTINUAL IMPROVEMENT ITEMS

- Trails
  - o 6'-Foot Wide Low-Maintenance Multi-Use Trails ($10 / Linear Foot)
  - o 6'-Foot Wide ADA Paths ($65 / Linear Foot)

  The network of trails within Miller Park and connecting it to existing and future trails in the area can be added as budget is available, as user group partners engage with City Utilities, or as part of amenity upgrades and new park improvements are built. Many organically formed foot trails exist in the park currently and could be converted to mulched Low-Maintenance Multi-Use Trails as a starting point, or new trails could be created to expand upon this existing network.

  As multi-use soft trails are developed around the lake by other interest groups and partnerships (Like the Dirt-66 trail development), ways to incorporate or capitalize on trail spurs from those trails into Miller Park should be explored. Trail development should be coordinated to maximize dollars spent on trail construction.

Figure 51.
Top Choice from Visual Preference Survey

- Interpretive Signage, Trail Signage and Trail Maps (Varies in Price)

  Signage, maps and any informational graphics should be included with each upgrade and new project undertaken at Miller Park. The signage should have a consistent look to tie the elements and park together and help create a sense of place. New park branding, once established, should be included and wayfinding signage to the park should be explored.

- Asphalt Roads
  - o New Full Depth ($11 / square foot [SF])
  - o Mill and Overlay Existing ($11.50 /square foot [SF])

  Most of the existing asphalt roads and parking need repair or replacement. As improvements to the park are made, upgrades and/or replacement should be made to


Figure 52.
Top Choice from Visual Preference Survey

accommodate the new or improved amenities

- Native Plantings
    - o Native Grassland Conversion with Native Grasses and Forbs ($6,350 / Acre Seeded and Established)
    - o BMP Demonstration Garden Areas ($12 / SF – will vary based on construction type selected – planting assumes deep cell plug installed)

The following sections provide information related to the incorporation of native plantings and demonstration areas for both educational enhancement and stormwater management within the Miller Park master plan area at Fellows Lake.

Prairie Plantings

The goal of the prairie plantings is to establish a moderate to low maintenance prairie with both native forbs and grasses. This will allow for the creation of supplementary biological diversity with straight forward implementation and maintenance practices. The purpose of incorporating prairie areas within the Miller Park project is to incorporate community learning and provide additional filtration for stormwater runoff where water sheet flows across the existing topography. Placement of prairie species within the site will also create additional habitat that would enhance wildlife diversity.

Figure 53.

Site conditions are conducive to restoring prairie evolved for dry limestone substrate that is seen on the Miller Park site. Designing in context of the landscape minimizes maintenance requirements considerably and assures long-term sustainability as restoration features develop over time. Anticipated restoration activities will be to apply herbicide to restoration areas to rid them of any weedy species that are currently present. After the weedy species are removed, potentially requiring two herbicide applications, a cover crop will need to be broadcast throughout the zones so that any erosion will be prevented. Immediately following the cover crop seeding, the native seed would be drill seeded throughout the entire area. The zone should be monitored throughout the growing season for weedy or invasive species encroachment and should be managed appropriately either with a 6-inch mowing event or a spot-spray herbicide application. This approach to establishment can be implemented for small prairie demonstration plots or for larger scale meadow to prairie conversion.

Figure 54.

Prairie Planting Seed List

Common Name	Scientific Name	Lbs/Ac
Sideoats Gramma	Bouteloua curtipendula	4.5
Little Bluestem	Schizachyrium scoparium	4.5
Indian Grass	Sorghastrum nutans	4.5
Yellow Coneflower	Echinacea paradoxa	0.75
Pale Purple Coneflower	Echinacea pallida	0.6
Indian Blanket	Gaillardia pulchella	1.0
Blanketflower	Gaillardia aristata	0.5
Blackeyed Susan	Rudbeckia hirta	0.5
Green Milkweed	Asclepias viridis	0.3
Orange Puccoon	Lithospremum canascens	0.1
Plains Coreopsis	Coreopsis tinctoria	0.15
Dense Blazing Star	Liatris spicata	0.15
Wild Bergamont	Monarda fistulosa	0.3
Blue False Indigo	Baptisia australis	01
Total		**18**

Figure 55.

Bioswales and Rain Gardens

Bioswales and rain gardens are two examples of stormwater best management practices (BMPs) that represent shallow, landscaped depressions that are vegetated with native plants to provide stormwater management that mimics the natural water cycle. These features are proposed as part of the Miller Park improvements to collect stormwater from impermeable surfaces, including rooftops (Maintenance Building, Restrooms, Marina Store, etc.), parking lots, and pavilion using visually appealing native vegetation as a water filtration system to prevent pollutant and sediment runoff into nearby Fellows Lake.

The construction of stormwater BMPs within the Miller Park improvements will be closely tied to future grading activities around the marina store, parking areas, and adjacent to walking trails for an immersive experience. The existing soil strata is very shallow with rock close to or at the surface in many places across the site. Stormwater BMPs are most effective where there is sufficient depth to accommodate water infiltration that is then collected by subsurface perforated drains and discharged down gradient from the treatment cell. The portions of Miller Park that would best accommodate the creation of BMPs include the upper slopes near the maintenance building, within new parking lots or adjacent to buildings where fill will be added to create leveled surfaces and to support foundation and entrance development. Construction activities should include the removal and/or amendment of the existing soils to include engineered soils (sand, soil and compost mix) that will increase the rate of infiltration. Some basins that are small enough may be able to utilize evapotranspiration in place of underdrains; however, a secondary point of discharge for excess water should be planned accordingly for larger runoff events that exceed the capacity of the BMP cell.

Potential species that can be implemented into a site BMPs (bioswale, rain garden or depressed parking islands) will need to be constructed with vegetation that will inhabit an area built to fluctuate throughout the year in saturation and water level. Proposed species are included in the tables below.

Wildflower Planting List

Common Name	Scientific Name
Swamp Milkweed	Asclepias incarnata
Scarlet Toothcup	Ammannia coccinea
Canada Anemone	Anemone canadensis
Canada Milkvetch	Astragalus canadensis
Joe Pye Weed	Eupotorium maculatum
Boneset	Eupatorium perfoliatum
Sneezeweed	Helenium autumnale
Early Sunflower	Heliopsis helianthoides
Rose Mallow	Hibiscus leavis
Black-eyed Susan	Rudbeckia hurta
Brown-eyed Susan	Rudbeckia triloba
Prairie Blazing Star	Liatris pycnostachya
Obedient Plant	Physostegia virginiana
Mountain Mint	Pycnanthemum virginianum
Compass Plant	Silphium laciniatum
Cup Plant	Silphium perfoliatum
Blue Vervain	Verbena hastata
Common Ironweed	Vernonia fasciculata
Culver's Root	Veronicastrum virginicum

Figure 56.

Grasses, Sedges and Rushes Planting List

Common Name	Scientific Name
Big Bluestem	Andropogon gerardii
Switch Grass	Panicum virgatum
Indian Grass	Sorghastrum nutans
Cord Grass	Spartina pectinata
Fox Sedge	Carex vulpinoidea
Bicknell's Sedge	Carex bicknellii
Canada Wild Rye	Elymus canadensis
American Mannagrass	Glyceria grandis
Dark green Bulrush	Scirpus atrovirens
Great Bulrush	Scirpus validus
Inland Rush	Juncus interior
Dudley's Rush	Juncus dudleyi
Wool Grass	Scirpus cyperinus
Porcupine Sedge	Carex hystericine

Figure 57.

Wetland Installation

The goal of a created wetland is similar to that of the bioswales and rain gardens; improve water quality by inhibiting the downward movement of surface water to allow nutrient cycling, prevent erosion, and suppress pollutants carried in storm water from reaching Fellows Lake. The implementation of the wetland will also improve plant biodiversity and habitat availability to wildlife. This proposed feature will include fluctuation in surface level to incorporate sequences of pools and wet fringes throughout.

Wetland Plug List

Common Name	Scientific Name
Cordgrass	Spartina pectinata
Pickerelweed	Pondetara cordata
Sweetflag	Acorus calamus
Blue-Flag Iris	Iris shrevii
Soft-stemmed Rush	Juncus effusus
Swamp Milkweed	Asclepias incarnata
Fox Sedge	Carex vulpinoidea
Frank's Sedge	Carex frankii
Bottlebrush Sedge	Carex comosa
Fringes Sedge	Carex crinite
Lake Sedge	Carex lacustris
Fowl Mana Grass	Glyceria striata

Figure 58.

The entire area will be plugged with showing wetland plants to improve the natural aesthetics of the park (**Table 1-4**). Plantings should be spaced at 12"- to 18" -inches on center for live cell plugs within wetland or stormwater management areas.

REGULATORY COORDINATION

The following section provides information related to agency coordination and permitting that should be completed as part of the implementation of a new marina at Fellows Lake.

U.S. ARMY CORPS OF ENGINEERS

The Corps of Engineers has jurisdiction over all waters of the U.S. and is the regulating authority for decisions regarding the occurrence of wetlands, streams and open water within project sites. Discharges of dredged or fill materials in waters of the U.S., including Fellows Lake, require prior authorization from the Corps of Engineers under Section 404 of the Clean Water Act (33 USC 1344). Activities related to the removal and replacement of the existing marina could cause temporary fills to be placed within the ordinary high-water mark (OHWM) of the lake, as well as permanent fills associated with moorings, gangway construction, and docks/slips. During project design, it is recommended that City Utilities and/or their consultant initiate coordination related to the marina with the Corps of Engineers to identify if a Nationwide Section 404 Permit (NWP 18 – Minor Discharge or NWP 42 – Recreational) will be required for project authorization.

STUDY CONCLUSIONS

At the end of the Miller Park at Fellows Lake Recreation Master Plan study, there are some very clear and defined conclusions that shape the path to the future of Miller Park and continued park development.

The demographics, preferred outcomes, design solutions, and realities of the undeniable beauty and attractive setting all support redevelopment of Miller Park. All of these study factors, along with the support of stakeholders and user groups in the region, point to increased users of the park when redevelopment and improvement occurs. The following are projections for four of the main improvement centers of the park and some quick facts about each.

1. MARINA -Projected Growth of Use (Improved/Expanded Amenity)

- 24 Slip to 28 Slips (plus 5 courtesy slips)
- Current wait list for slip rentals
- National Sporting Goods Association - Annual survey results for region - 3.3 million fishermen in MO (2nd highest region in US)
- Barriers to Growth - boat motor hp restrictions, lake location, small marina store

2. EVENT PAVILION - Projected Growth of Use (Improved/Expanded Amenity)

- No baseline usage data (first come, first served facility currently)
- Similar size pavilion in local Springfield park is reserved 68 times per year between April 1 and Nov 1
- Reservations primarily on weekends and holidays
- Often used for wedding receptions and family reunions
- Demographics indicate higher than average enjoyment of barbecue within 120-minute radius of Miller Park
- Barriers to Growth - reservation system administration, proximity of support amenities, parking

3. TRAILS - Project Growth of Use (New/Improved/Expanded Amenity)

- Baseline usage data is difficult to obtain in the Fellows Lake vicinity (current trails at Fellows Lake are sporadic and mostly natural trails (non-paved)
- Trend for local trail usage is in growth mode with new trails added regularly to meet demand (Ozark Greenways reports trails user counts within the last 5 years of 114,000-250,000 users)
- Master plans identify trail development including Miler Park and Fellows Lake as an important link (Little Sac Greenway, David C. Murray Trailhead for the Fulbright Spring Greenway Trail, Dirt66)
- Statistically valid citizens surveys (ETC Institute) from across the country routinely reflect trails as top one or two preferences + local surveys in Ozark and Republic indicate highest priority for trails among built recreation amenities

4. VISITOR CENTER - Projected Growth of Use (New Amenity)

- Nearby Watershed Center at Valley Water Mill Park is considered highly successful based on visitor count, educational opportunities, location, facility quality, available amenities.
- Watershed Center near capacity for visitor groups, programs, etc.
- As a compliment to the Watershed Center, other amenities at Miller Park, with similar operations and management to the Watershed Center, can be easily projected for growth with the addition of a second similar facility at Miller Park (provides multitude of attractive qualities)
- Barriers to Growth - cost of facility, operation and management of facility, park location

It is clear that the future of Miller Park is bright and is a great investment in providing a park that contributes positively in the quality of life of the community and park users. We can't wait to enjoy the great outdoors at Miller Park for decades to come!

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Appendix 1 - Demographics

esri

2010 Census Profile

4208 E. Farm Road 66 Springfield MO 65803
4208 E. Farm Road 66 Springfield MO 65803
Drive Time: 30 drive time minute radius

Latitude: 37.3156
Longitude: -93.2942

	2000	2010	2000-2010 Annual Rate
Population	261,476	300,308	1.39%
Households	105,862	123,860	1.58%
Housing Units	113,297	136,333	1.87%

Population by Race	Number	Percent
Total	300,308	100.0%
Population Reporting One Race	292,698	97.5%
White	275,166	91.6%
Black	7,983	2.7%
American Indian	2,025	0.7%
Asian	4,500	1.5%
Pacific Islander	326	0.1%
Some Other Race	2,698	0.9%
Population Reporting Two or More Races	7,610	2.5%
Total Hispanic Population	8,817	2.9%

Population by Sex		
Male	146,450	48.8%
Female	153,858	51.2%

Population by Age		
Total	300,310	100.0%
Age 0 - 4	18,926	6.3%
Age 5 - 9	17,779	5.9%
Age 10 - 14	17,376	5.8%
Age 15 - 19	21,477	7.2%
Age 20 - 24	29,463	9.8%
Age 25 - 29	22,982	7.7%
Age 30 - 34	18,829	6.3%
Age 35 - 39	17,706	5.9%
Age 40 - 44	18,045	6.0%
Age 45 - 49	20,346	6.8%
Age 50 - 54	20,294	6.8%
Age 55 - 59	18,574	6.2%
Age 60 - 64	16,074	5.4%
Age 65 - 69	12,478	4.2%
Age 70 - 74	9,546	3.2%
Age 75 - 79	7,939	2.6%
Age 80 - 84	6,181	2.1%
Age 85+	6,294	2.1%
Age 18+	235,447	78.4%
Age 65+	42,438	14.1%

2010 Census Profile

4208 E. Farm Road 66 Springfield MO 65803
4208 E. Farm Road 66 Springfield MO 65803
Drive Time: 60 drive time minute radius

Latitude: 37.3156
Longitude: -93.2642

	2000	2010	2000-2010 Annual Rate
Population	479,546	565,164	1.66%
Households	189,068	225,261	1.77%
Housing Units	206,906	253,755	2.06%

Population by Race	Number	Percent
Total	565,163	100.0%
Population Reporting One Race	552,776	97.8%
White	527,700	93.4%
Black	9,634	1.7%
American Indian	3,884	0.7%
Asian	5,712	1.0%
Pacific Islander	466	0.1%
Some Other Race	5,380	1.0%
Population Reporting Two or More Races	12,387	2.2%
Total Hispanic Population	16,260	2.9%

Population by Sex		
Male	276,782	49.0%
Female	288,382	51.0%

Population by Age		
Total	565,164	100.0%
Age 0 - 4	37,023	6.6%
Age 5 - 9	36,519	6.5%
Age 10 - 14	36,771	6.5%
Age 15 - 19	40,049	7.1%
Age 20 - 24	44,234	7.8%
Age 25 - 29	38,333	6.8%
Age 30 - 34	34,395	6.1%
Age 35 - 39	34,430	6.1%
Age 40 - 44	35,029	6.2%
Age 45 - 49	39,658	7.0%
Age 50 - 54	39,212	6.9%
Age 55 - 59	35,168	6.2%
Age 60 - 64	31,772	5.6%
Age 65 - 69	25,624	4.5%
Age 70 - 74	19,337	3.4%
Age 75 - 79	15,388	2.7%
Age 80 - 84	11,328	2.0%
Age 85+	10,897	1.9%
Age 18+	432,498	76.5%
Age 65+	82,574	14.6%

2010 Census Profile

4208 E. Farm Road 66 Springfield MO 65803
4208 E. Farm Road 66 Springfield MO 65803
Drive Time: 120 drive time minute radius

Latitude: 37.3156
Longitude: -93.2642

	2000	2010	2000-2010 Annual Rate
Population	1,319,742	1,484,040	1.18%
Households	523,260	589,527	1.20%
Housing Units	615,498	711,023	1.45%

Population by Race		Number	Percent
Total		1,484,039	100.0%
Population Reporting One Race		1,447,932	97.6%
White		1,362,702	91.8%
Black		25,734	1.7%
American Indian		20,948	1.4%
Asian		13,961	0.9%
Pacific Islander		2,551	0.2%
Some Other Race		22,036	1.5%
Population Reporting Two or More Races		36,107	2.4%
Total Hispanic Population		55,718	3.8%
Population by Sex			
Male		735,241	49.5%
Female		748,799	50.5%
Population by Age			
Total		1,484,043	100.0%
Age 0 - 4		95,972	6.5%
Age 5 - 9		94,497	6.4%
Age 10 - 14		96,439	6.5%
Age 15 - 19		105,965	7.1%
Age 20 - 24		108,065	7.3%
Age 25 - 29		93,059	6.3%
Age 30 - 34		85,050	5.7%
Age 35 - 39		85,666	5.8%
Age 40 - 44		88,774	6.0%
Age 45 - 49		103,497	7.0%
Age 50 - 54		103,850	7.0%
Age 55 - 59		95,269	6.4%
Age 60 - 64		89,252	6.0%
Age 65 - 69		74,852	5.0%
Age 70 - 74		57,869	3.9%
Age 75 - 79		44,428	3.0%
Age 80 - 84		32,065	2.2%
Age 85+		29,472	2.0%
Age 18+		1,138,472	76.7%
Age 65+		238,686	16.1%

Recreation Expenditures

4208 E. Farm Road 66 Springfield MO 65803
4208 E. Farm Road 66 Springfield MO 65803
Drive Time: 30 drive time minute radius

Latitude: 37.3156
Longitude: -93.2042

Demographic Summary	2019	2024
Population	325,106	340,169
Households	133,987	140,224
Families	80,887	84,206
Median Age	37.6	38.5
Median Household Income	$46,789	$53,341

	Spending Potential Index	Average Amount Spent	Total
Entertainment/Recreation Fees and Admissions	72	$512.10	$68,614,168
Tickets to Theatre/Operas/Concerts	72	$53.85	$7,215,285
Tickets to Movies	75	$41.03	$5,497,402
Tickets to Parks or Museums	73	$23.63	$3,165,708
Admission to Sporting Events, excl.Trips	76	$47.80	$6,405,195
Fees for Participant Sports, excl.Trips	74	$79.50	$10,652,204
Fees for Recreational Lessons	68	$97.70	$13,090,606
Membership Fees for Social/Recreation/Civic Clubs	71	$167.99	$22,507,993
Dating Services	86	$0.60	$79,775
Recreational Vehicles and Fees	66	$105.53	$14,140,015
Docking and Landing Fees for Boats and Planes	72	$6.90	$924,705
Camp Fees	55	$37.15	$4,977,096
Payments on Boats/Trailers/Campers/RVs	76	$44.30	$5,935,915
Rental of Boats/Trailers/Campers/RVs	70	$17.18	$2,302,299
Sports, Recreation and Exercise Equipment	75	$156.25	$20,935,241
Exercise Equipment and Gear, Game Tables	75	$49.22	$6,594,489
Bicycles	75	$22.22	$2,977,216
Camping Equipment	77	$15.35	$2,056,109
Hunting and Fishing Equipment	76	$53.60	$7,181,823
Winter Sports Equipment	66	$3.60	$482,608
Water Sports Equipment	70	$5.29	$708,691
Other Sports Equipment	76	$5.04	$675,399
Rental/Repair of Sports/Recreation/Exercise Equipment	76	$1.93	$258,905

Recreation Expenditures

4208 E. Farm Road 66 Springfield MO 65803
4208 E. Farm Road 66 Springfield MO 65803
Drive Time: 60 drive time minute radius

Latitude: 37.3156
Longitude: -93.2042

Demographic Summary	2019	2024
Population	606,712	632,191
Households	241,020	250,960
Families	156,802	162,500
Median Age	38.7	39.5
Median Household Income	$47,212	$53,342

	Spending Potential Index	Average Amount Spent	Total
Entertainment/Recreation Fees and Admissions	67	$479.61	$115,595,444
Tickets to Theatre/Operas/Concerts	65	$49.22	$11,862,271
Tickets to Movies	68	$37.43	$9,020,860
Tickets to Parks or Museums	70	$22.56	$5,436,445
Admission to Sporting Events, excl.Trips	72	$45.70	$11,015,519
Fees for Participant Sports, excl.Trips	70	$75.49	$18,194,740
Fees for Recreational Lessons	63	$91.04	$21,941,629
Membership Fees for Social/Recreation/Civic Clubs	67	$157.65	$37,997,725
[illegible]	[illegible]	[illegible]	[illegible]
Recreational Vehicles and Fees	70	$112.30	$27,066,802
Docking and Landing Fees for Boats and Planes	70	$6.65	$1,603,140
Camp Fees	51	$34.23	$8,250,621
Payments on Boats/Trailers/Campers/RVs	90	$52.56	$12,668,017
Rental of Boats/Trailers/Campers/RVs	77	$18.86	$4,545,023
Sports, Recreation and Exercise Equipment	73	$152.19	$36,681,053
Exercise Equipment and Gear, Game Tables	72	$46.94	$11,313,496
Bicycles	72	$21.31	$5,136,671
Camping Equipment	75	$14.83	$3,574,893
Hunting and Fishing Equipment	77	$53.84	$12,977,599
Winter Sports Equipment	60	$3.24	$780,296
Water Sports Equipment	70	$5.27	$1,270,252
Other Sports Equipment	73	$4.85	$1,168,058
Rental/Repair of Sports/Recreation/Exercise Equipment	75	$1.91	$459,786

Recreation Expenditures

4208 E. Farm Road 66 Springfield MO 65803
4208 E. Farm Road 66 Springfield MO 65803
Drive Time: 120 drive time minute radius

Latitude: 37.3156
Longitude: -93.2042

Demographic Summary	2019	2024
Population	1,552,255	1,587,278
Households	615,499	629,184
Families	406,507	413,512
Median Age	40.1	41.0
Median Household Income	$44,973	$50,904

	Spending Potential Index	Average Amount Spent	Total
Entertainment/Recreation Fees and Admissions	61	$431.69	$265,707,356
Tickets to Theatre/Operas/Concerts	58	$43.89	$27,012,751
Tickets to Movies	61	$33.40	$20,556,146
Tickets to Parks or Museums	64	$20.84	$12,825,696
Admission to Sporting Events, excl.Trips	66	$41.83	$25,746,067
Fees for Participant Sports, excl.Trips	64	$68.62	$42,236,429
Fees for Recreational Lessons	56	$80.45	$49,518,886
Membership Fees for Social/Recreation/Civic Clubs	60	$142.21	$87,527,057
Dating Services	66	$0.46	$284,324
Recreational Vehicles and Fees	74	$117.70	$72,447,012
Docking and Landing Fees for Boats and Planes	66	$6.27	$3,859,819
Camp Fees	46	$30.89	$19,010,444
Payments on Boats/Trailers/Campers/RVs	102	$59.93	$36,886,055
Rental of Boats/Trailers/Campers/RVs	84	$20.62	$12,690,695
Sports, Recreation and Exercise Equipment	69	$142.62	$87,779,653
Exercise Equipment and Gear, Game Tables	67	$43.47	$26,753,605
Bicycles	68	$20.16	$12,405,459
Camping Equipment	68	$13.56	$8,348,146
Hunting and Fishing Equipment	73	$51.36	$31,611,259
Winter Sports Equipment	54	$2.93	$1,802,563
Water Sports Equipment	66	$4.94	$3,042,330
Other Sports Equipment	67	$4.45	$2,736,535
Rental/Repair of Sports/Recreation/Exercise Equipment	69	$1.75	$1,079,756

1. Reconfigured Boat Trailer Parking
2. Reconfigured Vehicular Parking (ADA)
3. New Floating Marina
4. Permanent (ADA) Restroom
5. Nature Play - Playground
6. Large Event Pavilion w/ Patio & Fire Pit
7. Visitor Information Center & Marina Store
8. Boat Inspection/Parking Lane
9. Low Maintenance Walking Paths
10. Low Maintenance Multi-Use Trails
11. Lakeside Observation Deck
12. Native Plantings/Demonstration Areas
13. New Evergreen Screening
14. Observation Tower


1 Reconfigured Boat Trailer Parking
2 Reconfigured Vehicular Parking (ADA)
3 New Floating Marina
4 Permanent (ADA) Restroom
5 Nature Play - Playground
6 Large Event Pavilion w/ Patio & Fire Pit
7 Visitor Information Center & Marina Store
8 Boat Inspection/Parking Lane
9 Low Maintenance Walking Paths
10 Low Maintenance Multi-Use Trails
11 Lakeside Observation Deck
12 Native Plantings/Demonstration Areas
13 New Evergreen Screening
14 Large Sitting Deck
15 Amphitheatre
16 Observation Tower

Appendix 3 - Opinion of Probable Cost

Cost Estimate and Budget Disclaimer

Disclaimer: The Client understands that the Architect, in providing opinions of probable construction costs, has no control over the cost or availability of labor, equipment or materials, or over market conditions or the Contractor's method of pricing, and that the Architect's opinions of probable construction costs are made on the basis of the Architect's professional judgment and experience. The Architect makes no warranty, express or implied, that the final bids or the negotiated cost of the Work will not vary from the Architect's opinion of probable construction cost.

Plan Label #	Amenity / Programming Element	Master Concept	Cost
3	New Marina w/ Kayak Launch	1 EA	$500,000.00
4	Permanent (ADA) Restroom Structure (500 SF each, basic park style restrooms)	2 EA	$210,000 EA
5	New Nature Play Playground (designed and funded by Kiwanis)	1 EA	$100,000 - $200,000
6	Large Event Pavilion (100-person venue)		
	Open air pavilion w/ power, lighting, fire place (optional), concrete floor, buffet line counter	3,500 SF	$350,000-$500,000
	Concrete patio/sidewalk areas around pavilion	5,000 SF	$50,000-$60,000
7	Combined Conversation/Marina/Storage/Bath House-Restrooms/Café/Trail Head Shop Building (2-story)		
	Upper level (conservation, park office, bath house, café)	3,000 SF	$1,200,000-$1,500,000
	Lower level (marina stoer, storage under deck)	1,000 SF	$70,000-$100,000
	Deck around main building for café, dining overlook (wood construction)	3,000 SF	$128,000.00
	Concrete paths/stairs	2,500 SF	$36,000.00
15 & 16	18-Hole Disc Golf Course (variable based on level of course - recreational vs. tournament level)	1 EA	$28,000-$40,000
9 & 10	Trails		
	ADA hard surface (asphalt, 6' wide)	1,200 LF	$78,000.00
	Low Maintenance Multi-Use (mulch, 6' wide)	per LF	$9.82
	Trail Head - outside gate (sugnage/maps, new gate, security light, 6,500 SF asphalt parking)	1 EA	$80,500.00
11	Lakeside Observation Platforms / Decks (wood deck construction - 10' x 15' each - 1 6' park bench at each)	5 EA	12,000 EA
1, 2 & 8	Increase Parking Efficiency		
	Truck & Boat Trailer Parking (asphalt, 1 security light)	24,000 SF	$260,000.00
	Non-Boating Car Parking near Multi-Use Marina Building (asphalt)	16,000 SF	$173,200.00
	Playground / Event Venue Parking (asphalt, 1 security light)	4,500 SF	$70,000-$80,000
	Marina Drive / Parking at Boat Check Point (asphalt, 1 security light)	7,500 SF	$105,000.00
12	Native Plantings/Demonstratino Sites		
	Native Grassland Conversion	per AC	$3,250.00
	Native Demonstration BMP's	1.5 AC	$3,375.00
17	Observation Tower (steel and wood concstruction, 60' height)	1 EA	$250,000-$300,000
13	Evergreen Screening Plantings (300 LF, 30 evergreen trees, staggered planting rows)	LS	$20,000.00
	New Park Entry (Sign and Landscaping)	LS	$125,000.00
18	Amphitheatre		
	Concrete Stage	LS	$40,000-$50,000
	Natural Stone Seat Walls (24" high)	LS	$134,000.00
	Pergola / Trellis Structure (wood construction)	LS	$40,000-$60,000
	Mulch paths (8' wide)	LS	$10,000.00
	Natural Stone Retaining Wall at Water Edge for Stage/Pergola area (6' high)	LS	$50,000-$60,000
14	Reading Deck (wood deck construction around trunk of large oak tree)	1,000 SF	$45,000.00
	Underground Electricity (rock close to surface anticipated)	1,500 LF	$217,908.00
	Roads		
	New full depth (asphalt - 20' width)	1,000 LF	$11,000.00
	Mill and overlay existing to 2" depth	2,500 LF	$28,000.00