

Existing Conditions Report & Pool Study

Veteran's Memorial Aquatic Center | 360 Burr W Jones Circle, Evansville, Wisconsin 53536

City of Evansville

12 September 2017



300 Cardinal Drive, Ste. 160
St. Charles, IL 60175
P | 630.221.0671
F | 630.221.0118

INTRODUCTION

1.0

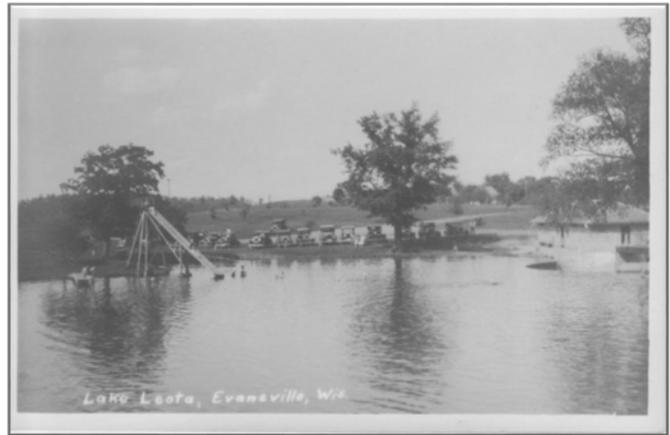
Introduction

The City of Evansville has retained Prairie Forge Group (PFG) to provide professional architectural and engineering services for assessment of existing conditions and master planning services of the Veteran's Memorial Aquatic Center. The Veteran's Memorial Aquatic Center is located in the historic Leonard-Leota Park (Lake Leota Park) that boasts a 38-acre stream-fed lake, numerous playgrounds, ballfields, the historic Park Store, and building shelters and pavilions. Lake Leota Park is the largest and most utilized recreation facility in the City of Evansville. The Park is central to the community and within walking distance to downtown. The Park offers its visitors the following recreation opportunities:



Fishing, swimming, ice skating, softball, baseball, football, disc golf, basketball, volleyball, tennis, biking, skate board area, cross-country skiing, sledding, horseshoes, shuffleboard, playground, passive recreation, nature study, and picnicking.

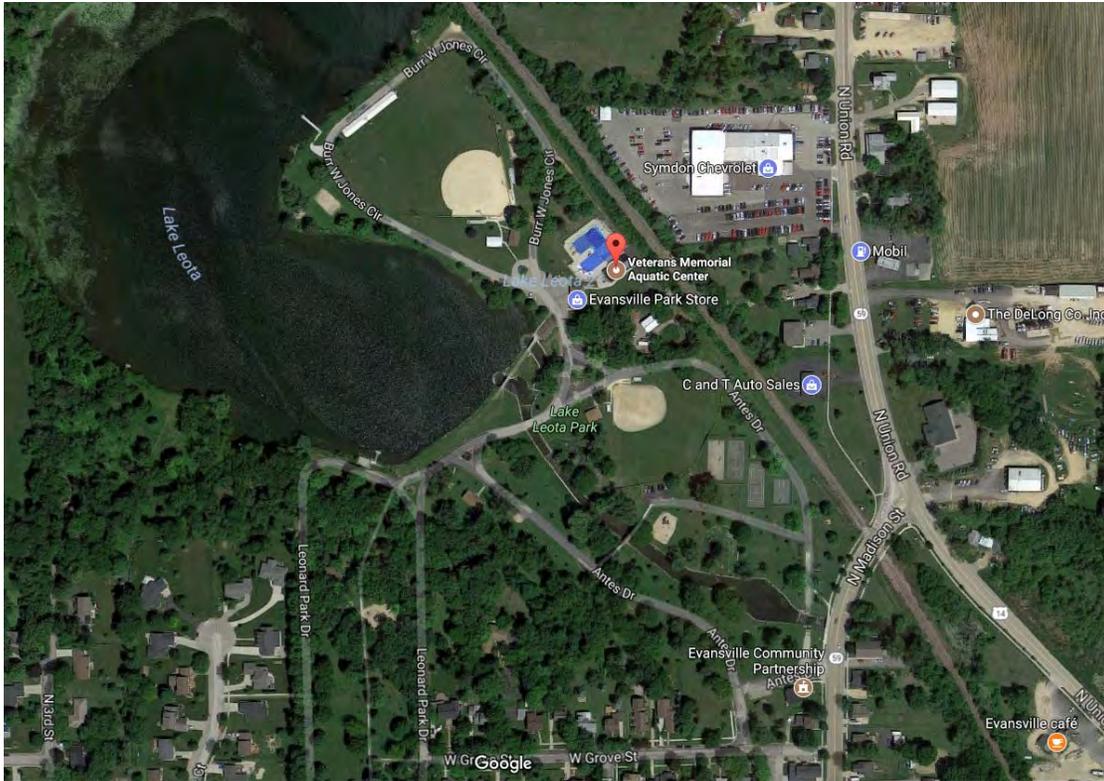
Leota Park also represents an important part of Evansville's history. The land was purchased by the city in 1922 and the dam re-built in 1923 to restore Lake Leota from the stream that it had turned into. Over the next few decades the park was improved, and much of its stonework structures and stone walls were built during the great depression as Civilian Conservation Corps (CCC) and Works Progress Administration (WPA) projects. Consequently, it has been listed on the National Register of Historic Places as a designed landscape.



Over the years the lake has required regular maintenance to provide an operational fishing site as well as a clean swimming location. The Lake was not only a popular destination for residents, but was also a popular stopping place for tourist traveling the Highways to Yellowstone National Park. In 1958 the Veterans Memorial Aquatic Center was added to the park and became immediately very popular in the city.

The Lake Leota Park is considered the "Jewel" of Parks.





The Veteran's Memorial pool is approximately 59 years old, with numerous additions and repairs some years later. The pool site is showing signs of deterioration. The city has requested Prairie Forge Group determine a concept plan for future renovation of the 59-year-old aquatic center. The current pool/bathhouse needs major improvements: a safe and code-compliant facility and program improvements. The existing pool site is antiquated, doesn't meet current codes, and has many systems that have been repaired and replaced. This evaluation of the pool site and structures will assist the City with future plans and funding for a new or updated improved aquatic center.

The scope and extent of the site assessment/planning study includes the current bathhouse/filter building/pump room, the pool deck and bodies of water, the adjacent historic Park Store, access drive along the railroad tracks, the land to the north/west of the deep hopper, and the land to the south of the existing bathhouse.

PFG scope of services includes an Assessment of Existing Pool Conditions as follows:

1. Provide a report summarizing our findings of the existing conditions of the Aquatic Center. This report addresses the condition of the major pool systems, reviews water loss, pipes, pool decks, pool shell, and pool equipment and systems of the existing Pump/Filter Room and the existing Bathhouse. The report includes observations of the aquatic, mechanical, electrical, plumbing, (MEP) systems and major building systems such as windows, doors, roofs, walls, and structure.
2. Review and identify non-compliance with ADA, State Health Department, and other current building code items.
3. Assist staff with any testing of the pool pipes, pool shell, and water-loss issues.
4. Review and identify any pool or building systems that have met their useful life.
5. Identify any deficient life-safety issues in the pool and the buildings.
6. Review current pool program and identify current trends of newer aquatic centers.
7. Identify items that retain value and can be adapted or reused for a future upgraded improved pool facility.

PFG received the following drawings:

- Title Sheet, Floor Plans & Diagrams, and Water Treatment & Electrical Plan and Diagrams, Dated January 1983.
- The City of Evansville retained W-T Land Surveying to provide a topographic survey to locate utility lines and existing pools, decks and buildings. A boundary survey was not provided for this study.

Executive Summary

This report includes data collection from site visits and meetings with observations made by PFG and its specialty consultants. The following is a report of our observations; it shall not be construed to be a warranty or guarantee of the buildings, pool and/or its components. Field probing/testing and detailed engineering/design services were not conducted. Inasmuch as our survey was limited to visual observation, we have not attempted to address responses to latent defects that may appear. This report does not address building elements and/or systems not specifically reviewed herein. This report includes recommendations to comply with deficiencies and replacement of equipment that is beyond its useful life. The following is a synopsis of the potentially significant improvements that should be budgeted for over the short term. This summary page is provided to allow for a brief overview of the report. This page is not all-encompassing. Reading this page alone is not a substitute for reading the report in its entirety. Other significant improvements, outside the scope of this inspection, may also be necessary. The following is a summary of our observations and recommendations. Please refer to the body of this report for further details on these and other recommendations.

Pool, Deck, and Systems

The usual life of an outdoor pool in the Midwest is between 30-40 years, so this pool is considered antiquated at 60 years old. The original pool structure is in fair condition and will require repairs on a yearly basis. If the existing pool is kept it, is recommended that additional pools and amenities be added to Veterans Memorial Aquatic Center to maintain the value of this important summertime facility. Keeping the existing pool and associated piping with a new Bathhouse and Filter Building, means the difference in age of these systems will be nearly 60 years.

The money currently being utilized to patch, repair, and keep this pool facility up and running might be better utilized in constructing a new pool that meets current code and uses technological innovations that have occurred over the years. This would be beneficial for energy efficiency, public safety, and an overall visual improvement.

It is doubtful that the current filtration pump is capable of delivering the design flow rate due to the head loss through ten filters. Also, the backwash procedure for that many individual filters requires much more time than necessary if the number of filters were reduced to 2 or 3 larger models. A new above-grade pool mechanical room would allow for a more efficient filtration system and better access for the delivery of chemicals.

Bathhouse/Filter Building

The Bathhouse Building is in poor and deteriorated condition. The City has maintained the pool system and buildings for nearly 6 decades to the best of their ability. There are systems and features of the complex that are beyond repair and that have met their useful life. Building walls and floors are in poor condition with excessive deterioration. Water damage and freeze/thaw appears to be an ongoing problem with the structure. It appears there is little to no reinforcing of masonry walls. The roof structure is in fair condition; however, the shingles are in poor condition and may have compromised the original roof assembly. The building is not up to current code in accessibility, safety, mechanical and electrical systems, and bathrooms. The building has met its useful life, and it is best to demolish and construct a new Bath House, Manager's Office, First Aid Room, Admissions Office, Storage areas, Chemical Storage room, and Filter building.

Park Store/Concessions Building

The Park Store building is in overall good condition and holds historical significance for the Community. With minor repairs and improvements, the building has many years of life left. However, with the concessions layout and current code deficiencies within this space, it is recommended that an interior renovation take place. Building walls and floors are in fair to good condition with very little deficiencies. Original mortar joints are intact with only minor areas in need of patching. Roof shingles were in need of replacement. It is recommended that the original mortar joints be patched in a few areas where needed, the roof be re-shingled, and the windows and doors be replaced.



FACILITY OBSERVATIONS

2.0



Pool and Pool Systems

Original Pool:

The Evansville Pool has a 25-meter, 6-lane lap area with an offset diving well. The original concrete structure is relatively sound and can remain for another 10 to 15 years with proper maintenance.



The top of the pool wall and gutter exhibit some deterioration. This should be monitored for future repairs (see photos below). The interior finish of the pool is paint. A new coat was installed this past spring after several repairs of concrete cracks and expansion joints. Repairs of this type will be required more frequently as the pool ages.



Pool and Pool Systems

Zero-Edge Pool Addition:

About 12 years ago a zero-depth area was added on the west side of the shallow end of the pool. This included a kiddie slide and raindrop water feature. The adjoining concrete deck was also replaced. It is likely that new pool piping was installed at the addition while the existing pool piping remained in place.



Filtration System:

The original filtration system, before the zero-depth area was added, consisted of six (6), 36" diameter Pac-Fab Hi-rate sand filters. When the zero-depth area was constructed four additional 36" filters, now manufactured by Pentair, were installed. Last year one of the original Pac-Fab filters failed and was replaced with a Pentair filter. The remaining five (5) Pac-Fab filters are in fair to poor condition and could also fail at any time.



Pool and Pool Systems

Filtration System:

The filtration pump and motor is an Aurora model #341-BF. It is rated at 1,030 G.P.M @ 70' total dynamic head. Due to the number of filters, there is a concern as to whether this pump is actually capable of operating at 1,030 G.P.M. even when the filters are clean. It is highly likely that the flow rates of the filters do not meet current code due to the number of filters and their arrangement. We recommend this be monitored and verified if this is actually the case. With flow rates naturally reduced when filters are dirty, this is even a greater concern. This condition may require backwashing more frequently and add to the cost of chemicals, heating, and other costly conditions. Otherwise, this pump is in good condition.



Pool and Pool Systems

Pool Heating Systems:

The pool water heater is manufactured by Raypak and has 1,035,000 B.T.U. input capacity. The heater, which operates on propane gas, is located outdoors on the west side of the bathhouse. Although the heater is an outdoor model, being exposed to the elements will shorten its life expectancy by several years when compared to an indoor model. With that said, this heater appears to be in fair condition (see photo to right).

The pool is also heated by solar panels located on the roof of the bathhouse. There is a small circulation pump as part of this system. The influent and effluent pipes that supply water to and from the panels were installed adjacent to each other, which may decrease the effectiveness of the system. It would have been more effective to have located the effluent pipe farther downstream from the influent pipe (see photos below).



Pool and Pool Systems

Chemical Storage:

The chemical system is comprised of liquid chlorine and acid for adjusting the pH. Each chemical is injected in to the pool return pipe by metering pumps manufactured by Blue-White (see photos below).



These pumps appear to be relatively new. The pool water chemistry is monitored by a Chemtrol model 250 chemical controller. This unit activates the chlorine and acid metering pumps as required to maintain proper chlorine and pH levels. The controller appears to be in good condition. The chlorine is stored in two 220-gallon polyethylene tanks that are located in the lower level of the bathhouse adjacent to the filters. These tanks are in good condition, but there is no containment system in the event of a leak. In addition, access to fill the chlorine tanks is inconvenient. (see photos below)



Pool and Pool Systems

Surge Tank:

The original concrete surge tank is located on the west side of the bathhouse. A secondary surge tank was installed adjacent to the original when the zero-depth entry was constructed. This newer surge tank appears to collect water from the zero-depth entry gutters. There is a pipe that connects both surge tanks.



Pool Play Equipment

There is a small slide that exits into the deep end of the pool. The steel columns that support the slide platform exhibit extensive corrosion. At some point, consideration should be given to removing this slide.



There is also a one-meter diving stand at the deep end of the pool. The diving stand is in fair condition, but the diving board is in extremely poor condition and should be replaced.



The zero-depth area has a small slide and a raindrop play feature. Both items of equipment are in good condition.



Pool Decks

Original Pool Deck:

The older, original pool deck is in poor condition. There is settling showing evidence of possible water loss from the pool. Cracks from settlement have been caulked numerous times and are raised themselves, creating tripping hazards. There is also settlement between the pool deck and pool wall, causing a large gap in the joint. A pool grounding wire exposed in one location from this was observed. Some deck drains in these areas have been painted over and are partially blocked.



Pool Deck Addition:

The newer pool deck addition is in fair condition with minor settlement and cracks.



Recommendations:

Full replacement of pool decks is recommended as the older decking area has met its useful life.

Walkways and Fencing

Walkways:

Walkways up to and surrounding the pool have settled enough to cause tripping hazards. The walkway up to admissions is in poor condition. The asphalt ramp to the sidewalk is deteriorated and uneven, there are major cracks in the concrete sidewalk, and the exhaust vent for the concessions kitchen is protruding into the path. This sidewalk does not meet ADA standards. Slope, handrails, and landings are the items that do not conform to current ADA codes.



Fencing:

The existing galvanized chain-link perimeter fence is in fair condition with some rust and corrosion throughout.



Recommendations:

It is recommended that all walkways be replaced and reworked for safer use and future development access.

Bathhouse

Walls:

The concrete masonry unit (CMU) walls, particularly the exterior or those exposed to the elements, are in poor condition. CMU walls are deteriorating, paint is peeling, and an excessive number of joints have been filled with caulk to remedy water damage in the walls. CMU walls appear to be hollow and improperly reinforced structurally. Damage to the East exterior wall has occurred and may indicate little to no reinforcement within the wall. Exterior block walls do not appear to be flashed properly and are without weep holes and drip edges.



Floors:

Concrete floors are spalling and settling. Filling of flooring voids is failing and creating tripping hazards. Settling is creating tripping hazards throughout, particularly at various building entrances. Carpet in manager's office and admissions is in poor condition and improperly installed, creating multiple tripping hazards.



Bathhouse

Roof:

Asphalt shingles are in poor condition. Shingles are past their useful life and are curling and popping up in many locations.



Code Issues:

- Drinking fountains: There are (2) existing drinking fountains and neither are mounted at an ADA-compliant height.
- Access to Office: Door hardware is non-compliant. The door between the Manager's Office and the Check-in area is not wide enough; it should be 3'-0" wide.
- Access to Chemical Storage and Filter Room: All door hardware is non-compliant. Stairway and handrail are non-compliant. Stairway treads and risers do not meet the required dimensions, and handrail should be continuous.
- Code requires at least one lavatory to have insulated pipes or other protection, which is not present.
- In the accessible toilet stall, the toilet is too close to the side wall.
- There are no ADA-compliant signs at the entrances.
- Showers are sharing floor drains. Code requires individual drains for each shower.
- There is not a floor drain in the toilet area.
- PVC supply piping does not meet current code.



Bathhouse

Manager's Office/First-Aid room:

Walls and ceiling are in fair condition. Space layout is inadequate. Manager cannot see entire pool from office. First-Aid room is lacking hand sink and adequate treatment area.

An extension cord run through office wall into chemical storage room to supply power for a pump does not meet current electrical code.



Admissions Office and Storage Closet:

Office and closet walls and ceilings are in fair condition. Storage space is inadequate to meet current needs. Patrons' personal storage baskets are outdated and take up space in office area.



Chemical Storage Room:

Walls, ceiling, and door are in poor condition. Improper ventilation is adding to the highly corrosive environment. Lighting is inadequate.

Filter Room:

Walls, ceiling, and floor are in poor condition. There is no ventilation present in the pool equipment room. This condition is a potential hazard, and also appears to be damaging the equipment and building.

**Recommendations:**

It is recommended that the bathhouse building be replaced and relocated. It has met its useful life and would require extensive repairs that would be costly and inefficient towards any future development. A separate filter building is recommended, as the present filter room does not provide adequate space or meet current code.

Park Store/Concessions Building

Walls:

Original limestone walls appear to be in good condition with very little deficiencies. Original mortar joints are intact with only minor areas in need of patching.

Floors & Ceiling:

Floor slab is in fair condition. Ceiling is cracking and appears to be in poor condition. There is no insulation above ceiling.



Roof:

Asphalt shingles are in poor condition. Metal fascia is dented and inadequately attached in certain locations. There is evidence of rotten roof deck at various locations.

Windows:

Wood window frames are rotting, and windows are not properly sealed from the exterior. One window has broken glass.



Park Store/Concessions Building

Layout:

Kitchen layout is inefficient. Although storage space is ample, kitchen space is crowded and poorly arranged. The hand sink is located directly next to the main entry and should be in the back of the space near any food-prep area.



Code Issues:

- There is not an ADA-accessible entrance to the Concessions building.
- Door widths, threshold heights, and door hardware are not ADA accessible.



Recommendations:

The Park Store building is currently under-utilized, but it is in good condition. It has the potential to be a beautiful, well-functioning, and greater utilized space by renovating the space layout and correcting current code issues.

Vehicular and Pedestrian Access

The approach to the Veteran's Memorial Aquatic Center is unfavorable as there is no designated vehicular drop-off route and no landscape to beautify or break up the asphalt surrounding the front of the building. Asphalt is in poor condition with deterioration.



Code Issues:

There are (3) parking spaces marked as accessible spaces; only one is required for this size of a parking lot. However, it would need to be van-accessible. The existing spaces do not comply in several ways: the ground surface slopes are too great, there is not an accessible aisle to the sides of the spaces, and the signage is not mounted at the correct height.



Recommendations:

It is recommended that the parking lot be redesigned to accommodate more parking stalls, a drop-off route, current code compliant accessible parking, and landscape islands to soften expanse of asphalt and complement the historic Park Store building and allow for safe pedestrian movement.

Utilities - Mechanical

Mechanical Systems:

The Bathhouse is open to the exterior and there is no HVAC present. The pool office contains an 'Amana' thru-wall A/C unit. There is no HVAC present in the Park Store/Concessions Building except for an exhaust hood. Exhaust for the hood runs out the wall and up through the roof to a roof-mounted exhaust fan. The exhaust hood and fan appeared to be in good condition. The thru-wall A/C unit appeared to be in fair condition.



The pool water is heated by a "Raypak" hot water heater (model # P-1083). The unit is installed outdoors, and has a gas input rating of 1,035,000 BTU's. This unit operates on propane fuel provided by an on-site propane tank.



Utilities - Electrical

Site:

Electrical power that serves the scope of work area is provided from two (2) utility locations:

1. The Bathhouse / Filter Building is served by pole-mounted transformers located near overhead utility lines that run parallel with the adjacent train tracks. Service entrance conductors (secondary) are routed down the utility pole, underground to an exterior building-mounted meter. This service is 120/240V, 3 phase, 4 wire, Delta (high-leg) type.
2. The second utility service is derived from utility overhead lines adjacent to the train tracks approximately 100'-0" south of the Bathhouse / Filter building utility service. Service conductors (primary) are routed down the utility pole underground to a pad-mounted transformer located between the Park Store and the Bathhouse / Filter Building. This service is 120/240V, 1 phase, 3 wire type. This pad-mounted transformer serves six (6) locations. All feeds from transformer are underground.
 - Boy Scout Building – 100-amp meter
 - Pole lighting near Boy Scout Building – 100-amp meter
 - Park Store Building – 100-amp meter
 - Park Maintenance Building – 100-amp meter
 - Pole Light to the south – Appears to be non-metered. Further investigation may be required with local utility company.
 - Transformer to the south near baseball diamond – Primary feed. Further investigation may be required with local utility company.

Electrical Service Provider: Evansville Water & Light; 608-882-2280



3 Phase Utility Service



Single Phase Utility Service



Single Phase Pad Transformer

Utilities – Electrical

Bathhouse / Filter Building Power:

The electrical service to the building is an underground type rated at 200 amps, 120/240 volts, 3 phase, 4 wire (delta – high leg). Utility transformers are pole-mounted, located east of the building near the train tracks. Service entrance conductors are routed underground to an exterior mounted meter cabinet, then to the electrical panel located in the basement pool equipment pump room.

This panel provides power for the Bathhouse / Filter Building receptacles, lighting fixtures, pool pumps, and exterior pool deck lighting.

A 60-amp, 8 circuit panel is at the main-level pool office and serves outlets and lights within the office areas.

Utility Meter



Panel in Pool Office



Main Panel in Basement Equipment Room



Condition of System:

The electrical system is in fair to poor condition. The electrical panel in the basement filter building appears to have rust and corrosion due to exposure to pool chemicals utilized in the same room. Electrical panel interior components are subjected to the same corrosion. Conduits within the basement Filter Building were observed to have surface corrosion. The existing 200-amp, 120/240V, 3 phase service is insufficient for building remodeling and/or expansion.

A security camera system is present throughout the exterior of building with the security system head-end and monitor observed in the pool office. The cameras appear to be in average condition.

Multiple PA (Public Address) speakers were observed on pool deck. The speakers appear antiquated.

Code Issues:

- Exterior receptacles located on pool deck not GFCI protected.
- Exterior receptacles are not installed with weather-proof "while-in-use" covers.
- Conductors from exterior meter to basement panel are unprotected. A main disconnect switch is required at the grade-mounted exterior meter.
- 25-HP Filter and chlorine feed pump are not bonded. Pool bonding conductors from pool enter Filter Building, but not connected. Observed lose within room.
- Chlorine feed pump not on GFCI protected circuit.

Utilities - Electrical

Recommendations:

It is recommended that the existing exterior meter be replaced with main disconnect; existing pool deck receptacles be changed to GFCI type with weather-proof "while-in-use" covers; existing 25-HP filter pump, chlorine pump, and solar pump be bonded; install chlorine feed pump on GFCI protected circuit; and replace the basement electrical panel and existing corroded conduits in that room.

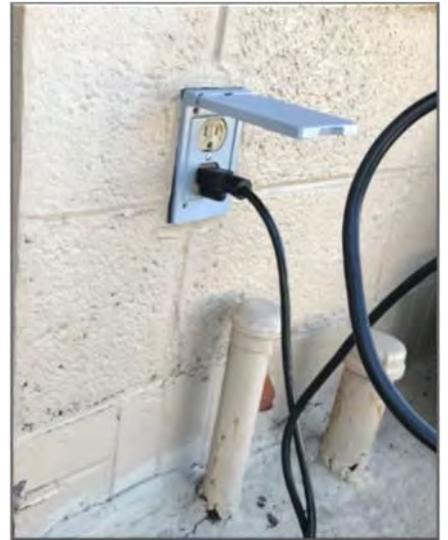
Bonding Conductor not connected



Conduits in Equipment Room Corroded



Non-GFCI Protected Exterior Outlet



Pool Deck Outlet – No Cover



Public-Address Speaker



Security Camera



Security System Head-End



Utilities - Electrical

Park Store Building Power:

The electrical service to the building is an underground type rated at 100 amps, 120/240 volts, 1 phase, 3 wire. The utility transformer is pad mounted approximately 15'-0" east of the building. Service entrance conductors are routed underground from pad-mounted utility transformer to an exterior-mounted meter fitting. From the exterior meter fitting, conductors are routed up in the ceiling space and back down to a panel that is located back-to-back with the exterior meter fitting.

Park Building Elec. Meter



Main Electrical Panel



Panel Near Kitchen



Condition of System:

The electrical system appears to be in fair condition. The electrical panel appears to be at its maximum capacity. The electrical panel and service size would need to be upgraded to a larger service, if building occupancy type expands.

Code Issues:

- Exterior outlets are not installed with weather-proof "while-in-use" covers.
- Receptacles near kitchen sinks are not GFCI protected.
- Kitchen receptacles are not GFCI protected.
- Electric water heater does not have local disconnect.

Recommendations:

- Provide weather-proof "while-in-use" covers for exterior receptacles.
- Upgrade electrical service.

Utilities - Electrical

Bathhouse / Filter Building Lighting:

Condition of System:

The interior lighting is in poor condition and inefficient compared to today's standards and current energy codes. The majority of lighting within the facility is fluorescent type with T8 linear bulbs and compact fluorescent lamps (CFL). Lighting controls within the facility are manual type. Lighting within changing areas are jelly-jar type with compact fluorescent bulbs. Lighting levels appear insufficient.

Lighting within office areas are surface globe type and linear fluorescent strips. Lighting levels appear to be average. Lighting within the basement filter building consists of porcelain incandescent sockets with fluorescent bulbs. Lighting levels appear to be in average condition.

Pool deck lighting consists of multiple bulbs types that are pole mounted; HID metal halide (white light) and high-pressure sodium lamps (orange light).

Storage Room Lighting



Office Area



Washroom Jelly-Jar Lights



Code Issues:

- A few of the exit signs throughout the facility were not operating.
- Combination exit sign and emergency battery lighting appears to accumulate condensation and was not operating within the men's changing room.
- Emergency lighting throughout the facility appears to be in inadequate; additional exit signs are required.

Utilities - Electrical

Bathhouse / Filter Building Lighting:

Recommendations:

- Upgrade existing interior lighting fixtures to LED.
- Upgrade existing exterior building lighting fixtures to LED.
- Install occupant sensors in all private offices, washrooms, open offices, storage rooms, etc.; lighting will automatically de-energize when not occupied. Required per current IECC 2015 energy codes.
- Common areas such as stairwells and hallways may be controlled via time-clock control device and de-energizing lighting at predetermined times, compliant with current IECC 2015 energy code.
- Install LED Exit sign and emergency battery lights.
- Replace existing Pool deck lighting with LED-type lighting fixtures.

Pool Deck Lights



Exterior Building Lighting



Combo Exit & Emergency Light



Changing Area Flood Lights



Utilities - Electrical

Park Store/Concessions Building Lighting:

Condition of System:

Interior lighting is in average condition and energy inefficient compared to today's standards and current energy codes. A majority of the lighting within the facility are 8'-0" & 4'-0" fluorescent strip (no lens) and wraparound (w/ lens) with T8 linear bulbs. Four (4) ceiling fans present in the open dining area are in operable condition and controlled via toggle switch near the electrical panel. Interior lighting controls within the facility are manual type.

Exterior building lighting consist of compact fluorescent flood lights that are controlled via toggle switch adjacent to main electrical panel.

4' Fluorescent Wraparound



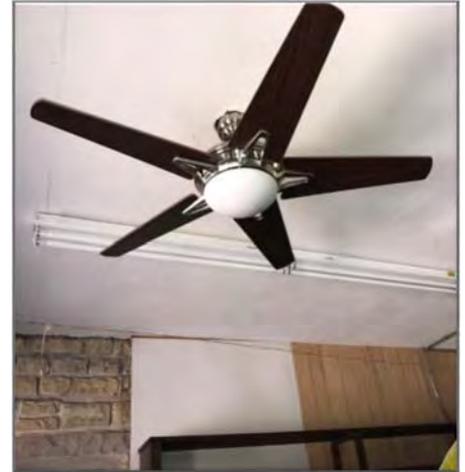
8'-0" Strip fixture
(No Lens)



Exterior building Floods



Dining Area Ceiling Fans



Code Issues:

- Kitchen prep lighting requires lighting fixtures to be lensed per Health Department.
- Emergency lighting throughout the facility appears inadequate.
- Additional exit are signs required.
- Lighting in storage room is inadequate.

Recommendations:

- Upgrade existing interior lighting fixtures to LED.
- Upgrade existing exterior building lighting fixtures to LED.
- Install occupant sensors in all storage rooms, open area, etc.; lighting will automatically de-energize when not occupied. Required per current IECC 2015 energy codes.
- Install LED Exit sign and emergency battery lights.

Utilities - Plumbing

Bathroom – General Plumbing Systems:

Sanitary Waste & Vent:

The sanitary waste and vent system is generally hub & spigot cast iron; however, additions, repairs, and modifications generally appear to be Schedule 40 PVC. All sanitary waste drains by gravity, including the basement. Based on the location of sanitary structures, the sanitary sewer likely exits the southwest or southeast side of the building.

Water:

A 2" domestic water service serves the building. The domestic water piping is generally hard lengths of copper tube with soldered fittings and sections of flexible polyethylene tubing (PEX). The domestic water assembly consists of a water meter and isolation valves.

A water softener provides softened water to the showers and is in good condition. The hot water system consists of a 100-gallon propane water heater. The water heater, located in the basement, has an input of 199,999 BTU/hour. The water heater is less than one year old and is in good condition with minor damage (dents) on the backside of the heater. A thermostatic mixing valve provides tempered water to the locker-room showers.

Water heater & water softener



Mixing Valve



Water heater damage



2" Water meter



Code Issues:

- None observed

Recommendations:

The thermostatic mixing valve needs water flowing across it constantly in order to ensure a consistent outlet temperature. The addition of a circulation pump and hot water return (HWR) piping will improve the performance of the mixing valve.

Utilities - Plumbing

Bathhouse – Men’s Locker Room:

The locker room consists of two (2) floor-mount tank-type water closets, four (4) stall-type urinals with electronic flush valves, three (3) wall-mount vitreous china lavatories with metering faucets (cold water only), and six (6) metering showers. Two (2) floor drains serve the communal shower stall. Two additional floor drains serve an outdoor area leading to the locker room.

Condition of System:

The fixtures are in fair working condition. One of the lavatory faucets is not operational. Clean-outs are above the floor level, but due to location, do not pose an obvious tripping hazard. The urinal drains are full of plant matter.

Water closet



Urinals



Metering Showers



Lavatories



Outdoor area



Code Issues:

- The lavatories need a single-tempered water supply or hot and cold supplies. Currently, only cold water serves the lavatories.
- The shower stalls need one floor drain per showerhead. Currently, two floor drains serve six showers.
- A hose connection is not present.
- A floor drain is not present in the locker room. The stall type urinal currently functions as a floor drain.
- Although much of the waste and vent piping is concealed, it does not appear that an adequate number of vents are present. Typically, each fixture has individual vents.
- Sections of PEX piping are exposed to sunlight, which is contrary to the manufacturer’s recommendations.

Recommendations:

- Given the issues with drain quantity and venting, it is recommended that the majority of the waste and vent system serving the locker room be replaced.
- Provide hot or tempered water to the lavatories.

Utilities - Plumbing

Bathroom – Women's Locker Room:

The locker room consists of three (3) floor-mount tank-type water closets, three (3) wall-mount vitreous china lavatories with metering faucets (cold water only), four (4) metering showers, and one (1) floor drain. One (1) floor drain serve the communal shower stall. Two additional floor drains serve an outdoor area leading to the locker room.

Condition of System:

The fixtures are in fair working condition.



Code Issues:

- The lavatories need a single tempered water supply or hot and cold supplies. Currently, only cold water serves the lavatories.
- The shower stalls need one floor drain per showerhead. Currently, one floor drain serves four showers.
- The water closets and floor drains are not vented. Typically, each fixture has individual vents.

Recommendations:

- Given the issues with drain quantity and venting, it is recommended that the majority of the waste and vent system serving the locker room be replaced.
- Provide hot or tempered water to the lavatories.
- Fix the hose connection, as it leaks between the vacuum breaker and hose connection.

Utilities - Plumbing

Bathhouse – Pool Equipment room:

The pool equipment room consists of one (1) hose connection, one (1) floor drain recessed under a metal grate, and one (1) 1-1/2" automatic pool fill. The 1-1/2" pool fill terminates via an air gap to the pool fill standpipe near the exterior pool heater.

Condition of System:

The fixtures are in working condition.

Floor drain below metal grate



1-1/2" Pool fill



Pool fill termination (exterior)



Code Issues:

Air gap not present on automatic pool fill.

Recommendations:

Cut pipe to ensure a six-inch air gap minimum on the automatic pool fill.

Utilities - Plumbing

Bathhouse – Pool Deck:

The pool deck consists of four (4) hose connections, two (2) drinking fountains, twenty (20) deck drains, and a 1-1/2" manual pool fill.

Condition of System:

The fixtures are in working condition.

Manual pool fill & hose



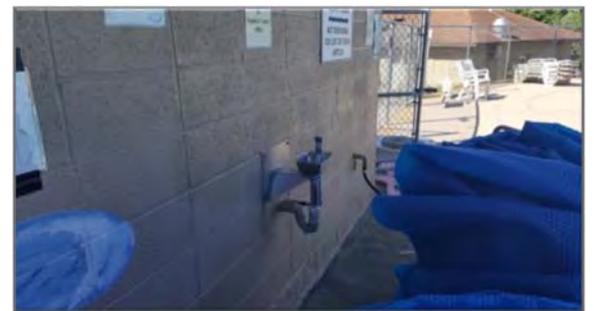
Hose connection



Drinking fountain and hose connection



Drinking fountain and hose connection



Code Issues:

- The drinking fountains are not ADA compliant.
- The hose connections on the building façade do not have backflow protection.
- The structure receiving pool deck drainage may be a sanitary structure. If it is a sanitary structure, the deck drainage needs to be routed to a lift station and drained to the sanitary system indirectly (with an air gap). Direct connections to the sanitary system are not recommended, as it allows the potential for sanitary waste water to back up onto the pool deck or pool equipment room.
- The 1-1/2" manual pool fill does not have backflow protection.

Recommendations:

- Replace drinking fountains with ADA-compliant models.
- Add vacuum breakers to the hose connections on the building façade.
- Verify if the structure receiving deck drainage is a sanitary storm structure. If sanitary, provide a lift station.
- Add 1-1/2" RPZ for manual pool fill.

Utilities - Plumbing

Park Store/Concession Building:

Sanitary Waste & Vent:

The sanitary waste and vent system is generally Schedule 40 PVC. All sanitary waste drains by gravity. Based on the location of sanitary structures, the sanitary sewer likely exits the south or west side of the building.

Water:

A 3/4" domestic water service serves the building. The domestic water piping is generally hard lengths of copper tube with soldered fittings, sections of flexible polyethylene tubing (PEX) and sections of CPVC piping. A water meter was not visible. It is possible that the meter is located in the structure just outside the west side of the building. A water softener provides soft water to the water heater. A 50-gallon electric water heater has an electrical input of 4.5 KW. The water heater has an input of 4.5 KW. The water heater is approximately two years old.

Fixtures:

The kitchen consists of a three-compartment sink, hand sink, and ice maker. The ice maker utilizes a water filter.

Hand Sink



Ice maker, water heater, water softener & 3-comp sink



Condition of Fixtures and Equipment:

The fixtures are in fair condition. The water heater and water softener are in good condition.

Code Issues:

The fixtures/drains do not have individual vents.

Recommendations:

Maintain equipment and systems. Modify waste and vent piping to meet code if required by authority having jurisdiction.

Summary

The original pool structure is in fair condition and may require routine repairs on a yearly basis. The shallow end of the lap area is only 2'-6" deep, which is not adequate for competition swimming. A minimum depth of 3'-6", preferably 4'-0", is required for flip turns. Most if not all of the gutter and inlet pipes were replaced with PVC when the zero-depth entry portion of the pool was installed.

As previously noted, it is doubtful that the filtration pump is capable of delivering the design flow rate due to the head loss through ten filters. Also, the backwash procedure for that many individual filters requires much more time than necessary if the number of filters was reduced to 2 or 3 larger models. An above-grade pool mechanical room would allow for a more efficient filtration system, and safer and better access for the delivery of chemicals.

The Bathhouse building is in poor condition, with multiple current code and functional deficiencies, and should be the first priority to be addressed. It is our observation that this building has served its useful life, and it may be time to replace it. Another recommendation is the improvement of site access. Vehicular drop-off areas, parking, and bike and pedestrian paths will need to be established in order to provide a safe Aquatic Center entry.

The Park Store Building is in overall good condition; however, is underutilized. With interior and exterior repairs and renovation, it can be upgraded and enjoyed for future years. The Park Store/Concessions Building can be improved into a more efficient, code-compliant facility that serves both Park and Aquatic patrons.

Next Steps:

- Select desired option and determine funding source.
- Finalize subsurface soil condition with soil borings.
- Finalize boundary survey.
- Review design and construction schedule to prevent pool shut down for a season.



CURRENT TRENDS

3.0

Landscaping

Current facilities bring in an abundance of attractive landscape elements into facilities including planting areas that separate and visually break up the large expanses of decks. Additionally, where possible, bather lawn areas are incorporated inside the pool enclosure to further “soften” the overall aesthetic appeal and provide an alternative to lounging on the concrete decks.



Decks and Walks

A variety of concrete decks throughout the facility are desirable. All deck areas, whether at pool level or elevated must be fully accessible for all patrons' use. In addition to concrete, a variety of finishes and textures can be used as surfaces for paved areas to provide additional interest. Care needs to be taken to ensure deck surfaces are safe, durable, easily cleaned, and all accessibility standards maintained.



Fencing and Enclosures

A variety of exterior enclosures can be used successfully. These include vinyl-coated chain link fencing, aluminum picket fencing, and decorative masonry walls. The most popular choice is eight (8) feet high black vinyl coated chain link. It is reasonably priced, visually pleasing, and can be installed to follow relaxed, curvilinear forms which enhance the overall appeal of the facility.

Interior enclosures should only be utilized where required by code or as necessary to control access to certain zones. The popular choices extend from rope and bollards, vinyl picket, wood and aluminum. The most popular, due to its visual appeal and nautical feel, is the rope and bollard fencing.

The vinyl fencing can be visually overwhelming and limits viewing between the different areas, thus making parental supervision more difficult.



Pools and Water-Play Features

Current technology has allowed newer facilities to provide a vast variety of opportunities to interact with water. Original lap swim and dive pool features alone do not provide a broad enough appeal to today's patrons. Over eighty (80%) percent of bathers spend the majority, if not all, of their time in the shallow water, three (3') feet or less in depth.



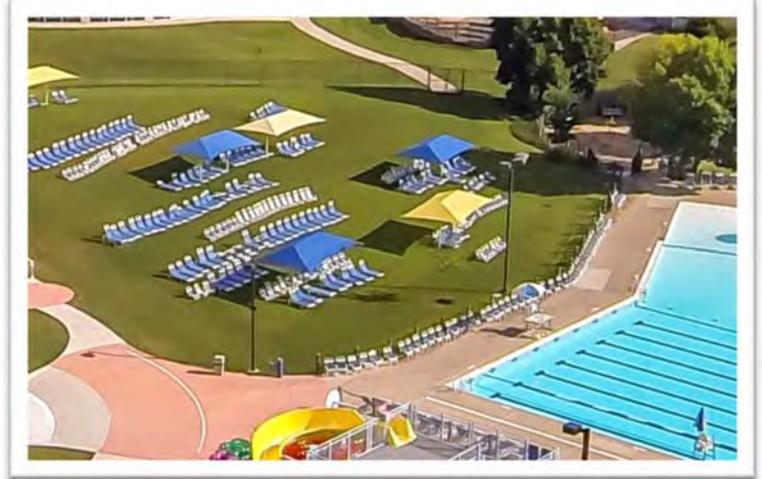
Water features in the main pool and wading pool areas could include pad walks, drop slides, waterfalls, interactive water features, etc.

Separate bodies of water allow for more opportunities to customize the pools for the intended use. This allows pool systems to be designed for better chemical and temperature control. Individual bodies of water can be shut down as needed for maintenance or a clean-up, without closing the entire facility.



Other Site Components

Other components that complement and enhance the bathers' experience include water-play areas, dry playgrounds, lawn areas, a variety of shade structures, and concessions/concession deck.



Shade is becoming ever more important throughout Aquatic Centers. Aside from deck areas, shade can be added in lawn and concession areas.

Concessions should have adjacent decks and lawn areas for patrons to sit and relax. The decks areas should be positioned to have good views of the pools, so patrons can watch the ongoing activity while they take their food break. To complement concessions, lawn and deck areas can be introduced to provide rental opportunities for birthday parties and other events.



Buildings

Bathhouses continue to be viewed from a very functional perspective. The primary purpose of the bathhouse is to support the use of the pools and other amenities.

Code requirements largely dictate the bathhouse requirements including dressing areas, toilet facilities, and shower facilities for both male and female bathers.



Family changing rooms allow adults with young children of the opposite sex to tend to their children's needs in a safe and effective manner. Bathhouse design has changed to maximize flow through the building by creating open, fully accessible spaces. High operable windows, vaulted ceilings, and continuous roof ridge vents provide an abundance of natural light and natural ventilation. This is important for bathers' comfort and also to minimize stagnant air conditions that may lead to mold, mildew, and deterioration of finishes. Material choices include concrete floors, masonry walls, and vaulted wood-framed roof structures that are durable and easily maintained.



Other important features include an admissions office, mechanical and storage space, and staff areas for guards, including a manager's office that has an excellent overview of the pool components.

