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AQUATICS FOR LIFE

R.C. Icabone Swimming Pool

Aquatic Facility Assessment



Report By: Connor Riley, P.E. – Counsilman-Hunsaker

Report Sent: June 13, 2023

Date of Site Visit: May 8, 2023

Location: R.C. Icabone Swimming Pool
1131 College Ave, Cañon City, CO 81212

June 13, 2023

Kyle Horne
Executive Director
Cañon City Area Recreation and Park District
575 Ash Street
Cañon City, CO 81212

RE: R.C. Icabone Swimming Pool – Cañon City, CO
Swimming Pool Assessment

Mr. Horne,

The following report was prepared after a site visit on May 8th, 2023 to the existing pools at the R.C. Icabone Swimming Pool facility in Cañon City, Colorado. Existing conditions were evaluated and discussions were conducted with personnel who are familiar with the daily operation of the pools and their related systems. Field notes, photographs, and pool information provided to Counsilman-Hunsaker (C-H) were utilized to prepare the assessment and provide professional recommendations as to the future of the facility in order to fulfill the scope of services outlined in the agreement between Cañon City Area Recreation and Park District and Counsilman-Hunsaker.

Goals of the Swimming Pool Assessment:

- Review the pools, systems, and surrounding spaces for deficiencies regarding current local health code, federal law, and industry standards.
- Prepare a brief written analysis of the current condition of the pools and associated pool equipment.
- Provide recommendations for the future of the facility.
- Create 2D-renderings of two (2) new pool concepts complete with anticipated construction costs.
- Virtually present findings and concepts to the Client.

Should you have any questions or need additional information, please do not hesitate to call or email at (303) 323-8524 or connorriley@chh2o.com.

Respectfully submitted,



Connor Riley, P.E.
Studio Director
Counsilman-Hunsaker

Cañon City Area Recreation and Park District commissioned Counsilman-Hunsaker (C-H) to provide a swimming pool evaluation of the R.C. Icabone Swimming Pool in May of 2023. The site is home to two (2) bodies of water: a six (6) lane L-shaped lap pool and a wading pool. Ultimately, the District is interested in determining if the existing pools are worth keeping for future use, and if so, what repairs should be prioritized to keep the pools running. Providing a safe and sanitary environment for the pool users is the highest priority for the District.

Counsilman-Hunsaker was provided with pictures of the original construction drawings to review and to assist with the creation of this report. It is clear that the construction drawings do not exactly match exactly what is on site. Between field measurements, conversations with pool staff, and analysis of the construction drawings, C-H used their best judgment to determine actual field conditions and values that could not be physically measured while on site.

The L-shaped lap pool is constructed of concrete with a fiberglass liner covering all interior surfaces and wrapping up over the gutter onto the pool deck. It consists of six (6) 25M lap lanes and an adjacent 30' x 33' dive area. The water depth extends from 3'-0" at the shallow end to 10'-0" at the deep end beneath the diving boards. The pool water surface is 4,455 SF with a perimeter of 315 FT. The provided original construction drawings indicate a volume of 167,033 gallons with an 8 HR turnover rate at a flowrate of 348 GPM.

The wading pool is also constructed of concrete and is fully lined with a vinyl liner. The original construction drawings provided do not appear to match the pool that is installed on site, so hand measurements and approximations are used for the sake of this report. The wading pool is approximately 15' x 40' with a surface area of 600 SF and a 110 FT perimeter. The pool water depth extends from 1'-0" on the sides to 1'-3" in the middle and contains roughly 5,000 gallons of water. Turnover rates or flowrates could not be determined due to the lack of flowmeters on the recirculation piping.

According to the pool staff, the R.C. Icabone swimming pools and bathhouse were originally constructed in 1966, making the facility 57 years old. C-H understands that the pools have been open and operational every summer since original construction, which is a true testament to the dedication of the maintenance staff throughout the years. Due to its age, significant pool and equipment failures are becoming more and more common. Most recently, a significant crack surfaced in the lap pool liner and a substantial leak has developed in the wading pool, ultimately leading to the decision to shut down the facility for the 2023 season. It is apparent that many of the physical aspects of the pools and associated mechanical systems are at, or nearing, the end of their useful lives. The staff has performed repairs as needed throughout the years, but a major renovation has not been performed in the pool's nearly 60-year existence. A typical lifespan of a commercial grade concrete swimming pool built using today's standards is 40-50 years, assuming it is meticulously maintained. However, many older pools struggle to come close to this longevity benchmark which is why pools of this age are so rare to come across nowadays. Without undergoing a significant, and likely cost prohibitive, renovation, the evidence speaks for itself that the facility is in dire need of replacement.

The following items represent the major deficiencies and code violations that were observed during the inspection. Note that this list is not all-inclusive and omits some of the minor items observed on site. Pictures of various items are included in Appendix A and are referenced in the following list:

- Lap Pool
 - o Fiberglass liner has failed as evidenced by multiple large cracks (Photo 2)
 - o Pool shell movement is apparent as evidenced by non-consistent rim flow around the gutter (Photo 6)
 - Surface skimming is only provided at certain locations causing the gutter to flood in areas and dry-out in other areas
 - o Fiberglass liner apron has created uneven conditions (toe-stubbers) around the pool perimeter (Photo 1)
 - o Fiberglass liner patch repairs on the apron are not slip resistant
 - o Pool does not have the required amount of surge capacity (Photo 3)
 - o Diving stands are corroded beyond repair (Photo 5)
 - o The water depth at the diving board does not meet code requirements
 - There is also a discrepancy between the 1966 construction drawings and the depth markers found on-site
 - o Pool is not ADA compliant (two (2) lifts are required due to size of pool)
 - o Depth markers are difficult to read and no-diving symbols are not provided
 - o Pool deck is crumbling/eroding away in various locations
 - o Rebar staining and exposed rebar was observed in the pool deck at various locations (Photo 4)
 - o The VGB main drain grates require replacement every 10 years and were last replaced in 2010 according to pool staff
 - o The water depth at the shallow end of the lap pool does not meet required depth for competition swimming (assuming the depth markers on-site are accurate)
 - o The structural integrity of the pool shell could not be inspected b/c of the pool liner and water in the pool at the time of the inspection
 - A structural engineer should be engaged to analyze the structural integrity
- Wading Pool
 - o Vinyl liner has failed as evidenced by bubbling caused by water between the liner and the concrete (Photo 7)
 - o Pool does not have required number of skimmers
 - o Pool does not have required number of main drains and is therefore not VGB compliant (Photo 8)
 - o Vertical depth markers and no-diving symbols/markers are not provided
 - o Staff reported a significant leak in the pool shell or the piping requiring the pool to be fully refilled daily
 - o Pool is not ADA compliant (a zero-depth entry or ramp is required for wading pools)
 - o The structural integrity of the pool shell could not be inspected b/c of the pool liner
 - A structural engineer should be engaged to analyze the structural integrity
- Pool Mechanical Room and Chemical Storage
 - o Various water leaks from piping and equipment were observed
 - o The 8 HR lap pool turnover rate, according to the construction documents, does not meet code requirements
 - o Water velocity in various pipes to/from the lap pool does not meet code requirements
 - o Underground pool pipes are made of copper which causes elevated metals in the water and turns the water green
 - Metallic piping is much more susceptible to pinhole leaks and corrosion than industry standard SCH 80 PVC piping
 - o The 4" copper piping is undersized – in order to meet pipe velocity and turnover requirements, the pressure piping needs to be upsized to 6" and the suction piping to 8"

- A flow meter is not provided on the wading pool piping (water velocity/turnover is unknown)
- The lap pool filters are corroded both internally and externally (Photo 9)
- Pinhole leaks have developed in the lap pool filters
- Filter media should be replaced every 3-5 years, C-H is unaware if the media has ever been replaced
- Exposed metallic valves, flanges, pipe supports, and associated hardware are corroded beyond repair (Photo 10)
- A pump pit is not provided causing regular motor failure/replacement (Photo 11)
- The lap pool recirculation pump has far outlived its expected life (Photo 11)
- Soft starts or VFDs are not provided for the pool recirculation pumps/motors causing premature failure
- No pressure gauges are provided on the influent and effluent sides of the pumps as required by code (Photo 11)
- Piping and valves are not identified and labeled as required by code
- The sanitizer (liquid chlorine) is stored in the lifeguard breakroom with no cap on the bulk storage tank creating an unsafe environment for the lifeguards (Photo 12)

It should be noted that Counsilman-Hunsaker walked through the bathhouse during the site inspection but, C-H is, by no means, experts on bathhouses. However, having seen hundreds of bathhouses around the country, C-H did find it peculiar that the locker rooms were exposed to the environment from above. From observation and discussions with staff members, it is apparent that the lack of enclosure creates unnecessary strain on the maintenance staff and poses concerns for patron privacy. C-H's overall impression of the bathhouse is that it is functional, but extremely utilitarian, dated, and should be renovated or replaced to meet the needs and expectations of patrons today.

Many of the items noted above are in violation of various local, state, and federal codes while other items are simply not in line with industry standards. While some of the violations would be considered "grandfathered-in" due to the age of the pool, many others pose serious safety concerns or they are omitted from the "grandfather clause", such as VGB (suction entrapment) violations. These items should be prioritized if it is the District's desire to reopen and undertake a major renovation. However, with the pool shells nearing 60 years old, it is very likely that the structural integrity of the concrete is compromised as evidenced by the pool shell movement and the installation of the pool liners. Pool liners are typically only installed on concrete pools when the concrete is not functioning as originally designed in an effort to extend the lifespan of the pool another ~10 years.

Due to the extent and cost of the necessary repairs required in order to bring the facility up to current standards, it is Counsilman-Hunsaker's professional opinion that the entire facility (pools, pool deck, mechanical room, and bathhouse) should be fully replaced. If it is the District's desire to operate the existing pools as they are, they should expect significant issues to continue to arise. To continue to perform minor repairs to the current pools and expect many more years of successful use is unrealistic. Therefore, a "band-aid" approach to the facility is not appropriate due to the age of the pools and the desire of the District to continue to offer appropriate aquatic amenities for their residents for many years into the future. Long-term goals should be considered in order to properly plan for the future of aquatic offerings at the R.C. Icabone Swimming Pool.

APPENDIX A – SITE VISIT PICTURES

Photo 1: Toe stubbers around pool perimeter



Photo 2: Lap pool liner failure



Photo 3: Limited surge capacity



Photo 4: Exposed rebar in pool deck



Photo 5: Corroded dive stands



Photo 6: Dry gutters (pool shell movement)



Photo 7: Wading pool liner failure



Photo 8: Single wading pool main drain



Photo 9: Corroded lap pool filters



Photo 10: Corroded metallic items



Photo 11: Pump above water level



Photo 12: Chemical storage

