Carol Stream Park District

Coral Cove Water Park Evaluation

June 16, 2021

Prepared For:
Carol Stream Park District

Prepared By:
WT Group

CAROL STREAM
Park District

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EXECUTIVE SUMMARY

BACKGROUND

The Carol Stream Park District commissioned the WT Group to provide an assessment of the Coral Cove Water Park located at 849 W Lies Rd, Carol Stream, IL. The intent of the evaluation was to determine the present condition of the pools and filtration systems to consider planning for aquatic repairs/replacements as they relate to short term and long range considerations for this facility.

Current amenities include:

- Zero depth entry Leisure/lap pool.
- Plunge pool with two (2) flume slides.
- Diving pool with one meter dive stand, drop slide and climbing wall.
- Splash pad with multi-level SCS Interactive play structure
- Toddler splash pad

METHODOLOGY

The evaluation consisted of an on-site visual inspection on January 13, 2021 and on June 10, 2021 of the facility with onsite discussions with staff regarding areas of specific concerns. The investigation included a visual examination of the structure and finish for the pools, pool gutter systems, exposed piping, pool filtration systems and chemical control and feed systems. This report will help identify items that do not meet the current regulations of the Illinois Department of Public Health (IDPH) Swimming Pool and Bathing Beach Code and required repairs/replacements. Reference to violations of the State Administrative Code, in the body of this report, should not necessarily be construed as grounds for pool closure.

The State administrative code referred to in this pool audit report is:

State of Illinois Administrative Code
Title 77: Public Health
Chapter 1: Department of Public Health (IDPH)
Subchapter n: Recreational Facilities
Part 820 Illinois Swimming Pool and Bathing Beach Code

OBSERVATIONS

The facility has five separate bodies of water, a zero depth entry leisure/lap pool, a diving pool with a one meter dive stand, drop slide and climbing wall, a slide plunge pool, a splash pad with a multi-level SCS play structure and a toddler splash pad. All of the pools, including the toddler splash pad, incorporate PVC liners. Per staff all of the pools are experiencing some level of water loss. All of the filtration systems for the pools are in good condition.

CONCLUSION

The findings of our facility assessment indicate the following major areas of concern.

1. The main pool is losing significant amounts of water daily, staff estimated aprroximately 6,000 gallons/day. This adds significant operational costs with respect to water, chemicals and heat. Leak detection test's should be performed to locate the source of the leaks and appropriate repairs should be made.

2. Staff indicated that the plunge pool and dive pool, which are on one filter system, are losing water also. However, they could not verify how much. Leak detection test's should be performed to locate the source of the leaks and appropriate repairs should be made.

3. The pool PVC liners, in all the pools, are past their useful life and in poor condition. Deteriorated concrete can be felt under the liners. The deteriorated concrete in the pool structures should be repaired and the pool liners should be replaced.

4. The main pool zero depth gutter has significant cracking that is most likely a source of water loss. The zero depth gutter concrete trough should be repaired.

These repairs should be performed in order to extend the life of the facility and reduce operating costs and further deterioration.

STAFF DISCUSSIONS

The following are problems and concerns that were brought up during our kick-off discussion with staff members.

1. Staff beleives that the main pool has been leaking water for the past 12 years. Currently the pool loses approximately 6,000 to 8,000 gallons of water per day. A leak detection investigation was performed by Underground Imaging six years ago, however the source of all the leaks was never really completely found. Staff indicated that it appears to lose water when the filtration system is running, indicating that the leaks could be in the filtered water supply piping.
2. The main pool uses a lot of chlorine, which is due to the amount of water it loses on a daily basis.
3. The main pool has a PVC liner that was installed in 2002. The liner is in poor condition and cracking. The liner is significanlty past its useful life.
4. The main pool zero depth gutter has significant cracks.
5. Broken concrete can be felt under the main pool pvc liner.
6. The dive pool and the slide plunge pool are on the same filtration system. Staff stated that they feel the pools are losing water.
7. Both the dive pool and the slide plunge pool have PVC liners.
8. Broken concrete can be felt under the plunge pool PVC liner.

OBSERVATIONS

The following are observations and discussions regarding the condition and function of the pool structure and pool equipment

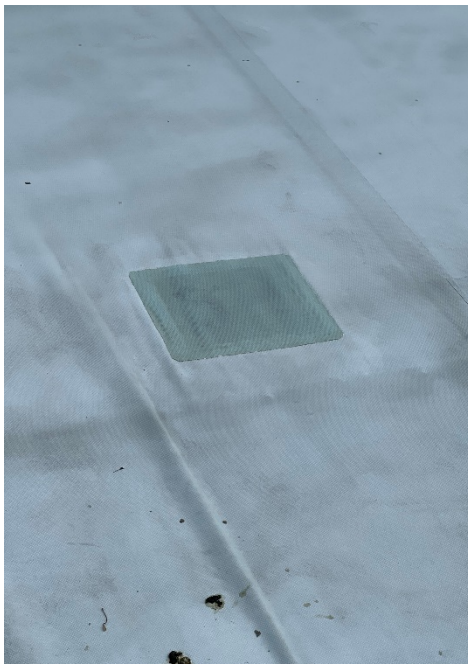
MAIN POOL

1. The zero depth concrete gutter has significant cracking on the walls of the gutter trough. Staff indicated that there are numerous areas throughout the gutter where there are cracks.

2. The top of the concrete gutter wall, adjacent to the pool deck has cracking in many areas.

3. The stainless steel perimeter gutter has significant rust on the welds and adjacent weld boundaries. These areas should be cleaned and passivated. Additionally, the entire gutter should be cleaned and polished.

4. The pool PVC liner is 19 years old, well past the useful life. Liners are warranted for 10 years against leakage. The liner has been patched multiple times. Seams require patching every year. Staff indicated that the liner starts to burn rather than melting/fusing, when attempts are made to patch it



5. The liner has pulled away from the floor and wall at the 2'-0" depth at the northwest zero depth area, creating a large void under it. There is a potential that the liner will tear if stepped on repeatedly by patrons.

6. Compression strips at the 1'-0" depth in the zero depth area are not installed correctly. Sharp edges are present.

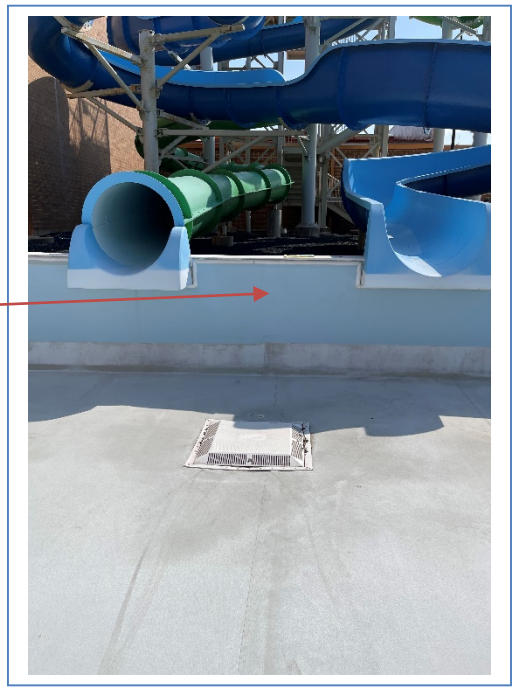
7. Deteriorated/cracked concrete can be felt under the PVC liner in areas on the pool floor.

8. The caulk joint under the gutter, and above the compression strip, is in very poor condition.

9. There are no depth markers on the pool walls. *This is a violation of current IDPH code requirements: Section 820.200.i Depth Markers – 1) The water depth shall be marked at or above the water surface on the wall of the pool and on the edge of the deck next to the pool so as to be readable by persons entering or in the pool. Where depth markers cannot be placed on the walls at or above the water level such that at least 50% of the marking is above water level, they shall be placed on the pool wall as high as practicable and also on the fencing or pool enclosure so as to be plainly visible to persons in the pool. Depth markings shall be provided at the shallow and deep ends of the pool, the transition point, and the point of maximum depth, and shall be spaced at not more than 25 foot intervals measured peripherally, except that depth markings are not required at a zero-depth edge.*

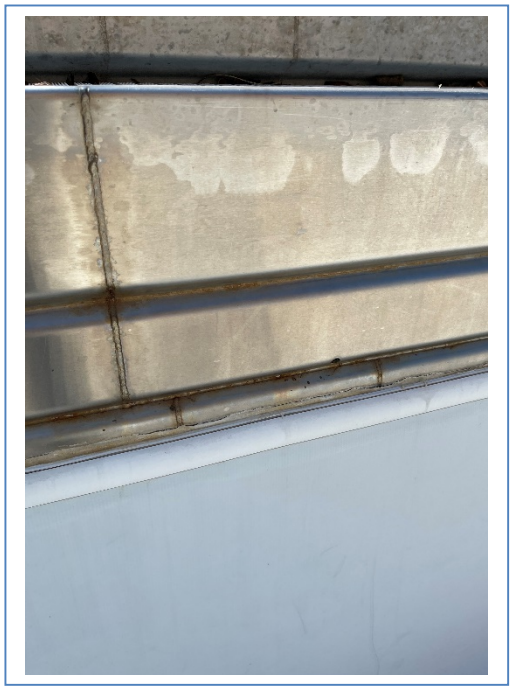
SLIDE PLUNGE POOL

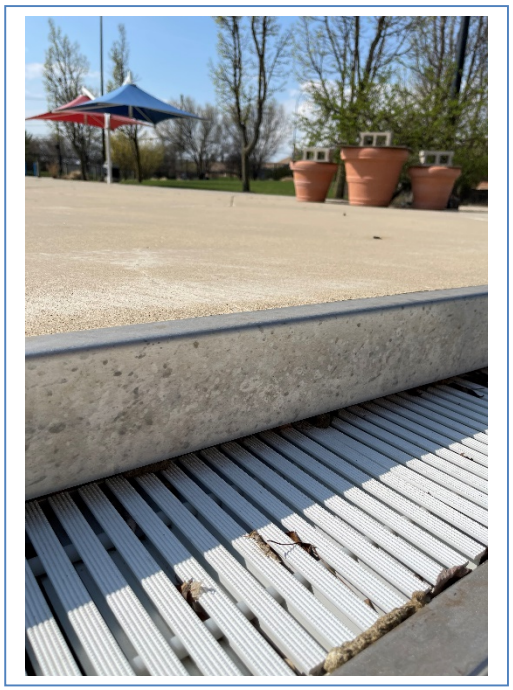
1. The plunge pool wall, where the slide flumes terminate, had significant cracking. The liner was removed, walls repaired and patched.



2. Deteriorated/cracked concrete can be felt under the PVC liner by the main drains on the pool floor.

3. The stainless steel perimeter gutter has rust on the welds and on the adjacent weld boundaries. These areas should be cleaned and passivated. Additionally, the entire gutter should be cleaned and polished.



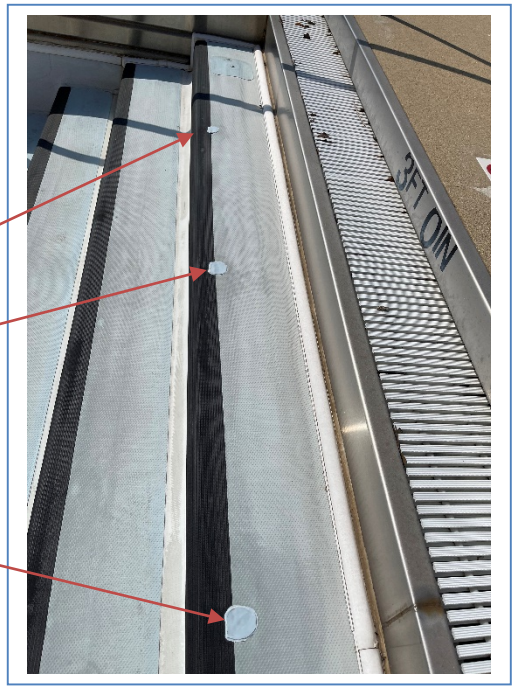


4. The caulk joint under the gutter, and above the compression strip, is in very poor condition

5. Main drain grates need to be recaulked, voids are present.

6. The pool PVC liner is 19 years old, well past the useful life. Liners are warranted for 10 years against leakage. The liner has been patched multiple times.

PATCHING



7. The PVC liner is discolored.

LINER IS DISCOLORED

DIVE POOL

1. The caulk joint under the gutter, and above the compression strip, is in very poor condition condition. Moss is growing in areas.

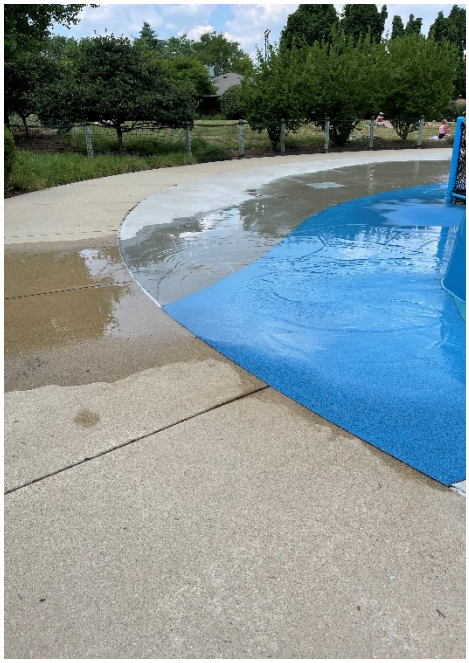
2. The pool PVC liner is 19 years old, well past the useful life. Liners are warranted for 10 years against leakage. The liner is severely stained/faded. The liner is detaching from the wall and floor in the southeast corner of the pool.

3. The compression strips at the recessed steps are terminated with no end cap. This condition creates a sharp edge and is in need of repair. The compression at the southeast corner recessed steps is cracked.

SCS SPLASH PAD

1. The splash pad surfacing and play structure are in very good condition.

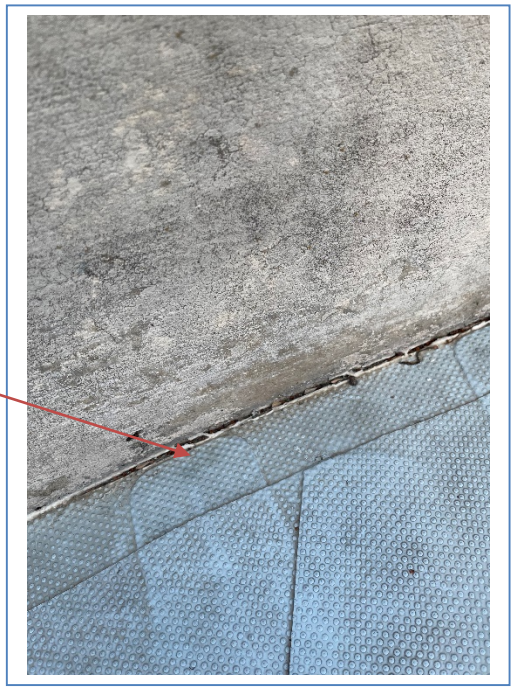
2. The slide runout is leaking from under the flume and pouring across the deck into the landscape area.


KIDDIE SPLASH PAD

1. The splash pad utilizes a PVC Liner surface. The PVC liner is 19 years old, well past the useful life. Liners are warranted for 10 years against leakage. The liner has been patched.

2. The caulk joint at the perimeter wall to liner joint is deteriorated. .



3. The Hoop spray feature and Palm Tree spray feature are faded.

POOL MECHANICAL SYSTEMS

MAIN POOL MECHANICAL ROOM

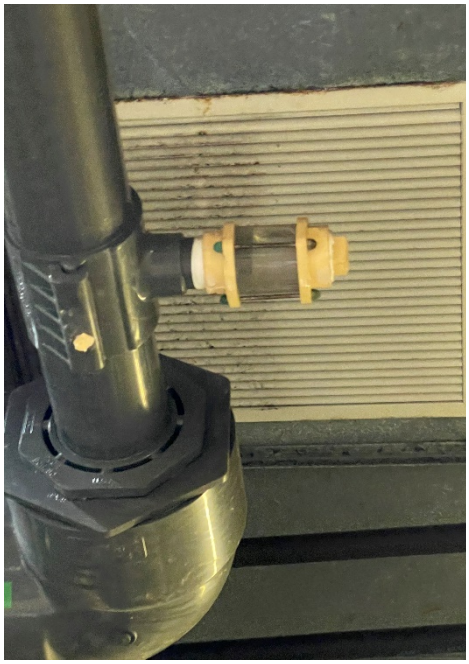
1. The original filter was a vacuum sand filter. In 2000 the original vacuum sand filter was converted into a balance tank and new pressure sand filters were installed on top of the old filter. The existing pressure sand filters have some surface rust and some of the legs also have surface rust, however they appear to be in very good condition.

2. The original vacuum filter, which is currently used as a balance tank, appears to be in good condition.

3. The piping, valves and pipe supports are in very good condition.

4. The chlorine storage tank is located in its own chemical storage room. There is minimal containment. A curb was installed to provide containment but the volume is not large enough to contain the volume of the storage tank.

5. Backwash site glass is leaking.



6. The backwash valve on the face pipoing of the filters is leaking.

DIVE POOL/PLUNGE POOL/SPLASH PAD MECHANICAL ROOM

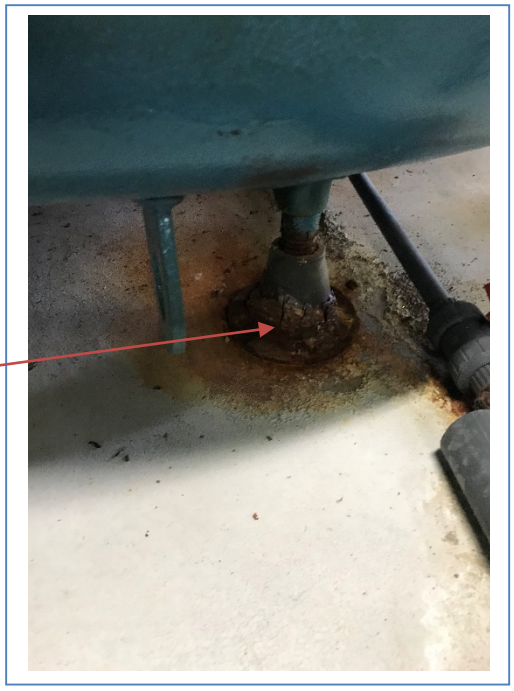
1. The filtration system for the splash pads is located on top of the surge tank and storage reservoir. The tanks off-gas through the stilling lines, fill lines and access hatch. This creates a corrosive environment on top of the tanks. These conditions have severly corroded valves, bolts and supports.

2. The splash pad filtration and backwash piping needs additional support, there is a lot of movement.

3. The sample stream pumps for the plunge pool and dive pool chemical controllers are not anchored to the concrete and could easily move.

4. There is surface corrosion on the exterior of the strainers. However, the strainers are in great condition on the inside.

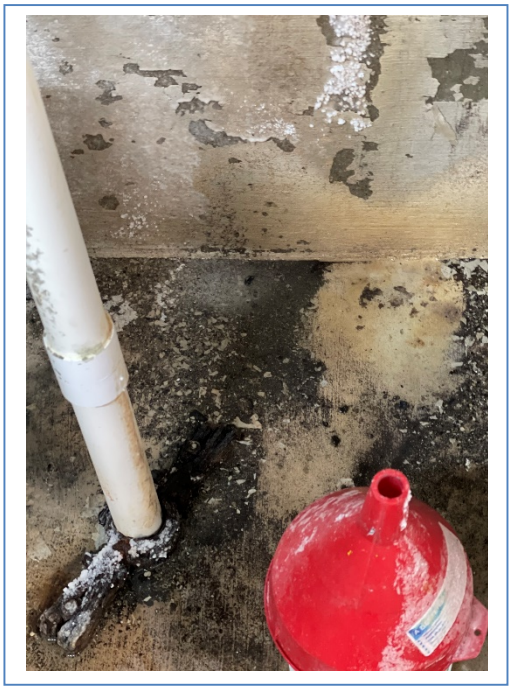
5. The dive pool/plunge pool filter is in good condtion. There is some minor surface rust on the legs. The sand in the filter is original.



6. The filter for the splash pads is a Pentair TR-140 pressure sand filter. Staff indicated that the filter needs to be backwashed on a daily basis. The sand in the filter is original.

7. The pool heaters are original and working fine per staff. Staff has them serviced every year, replacing parts as necessary.

8. The chlorine injection is leaking at the elbow and at the valve connection for the splash pads. This is causing severe corrosion fo the support for the stilling line.



RECOMMENDATIONS

The following recommendations and opinion of probable cost address major items identified in this report as needing repair, replacement or renovation.

It is recognized that this Consultant or Owner have no control over the cost of labor, materials or equipment, over the Contractor's methods of determining bid prices, or over competitive bidding, and market or negotiating conditions. Accordingly, the Consultant cannot, and does not, warrant or represent that bids or negotiated prices will not vary from the Owner's project budget or from any opinion of construction cost or evaluation prepared or agreed to by the Consultant.

Each recommendation has been assigned a priority level which determines the importance of the repair/replacement. The priority level assigned to a recommendation is based on the following:

Priority	Time Frame	Assessment Criteria
1	Immediate to 1 year	Deterioration of structure; health and human safety deficiencies; maintenance items that will reduce future maintenance; Illinois Swimming Pool and Bathing Beach Code compliance Illinois Swimming Pool and Bathing Beach Code compliance.
2	1 year to 2 years	Repairs that will be required in the near future; improvements that will reduce or eliminate future maintenance. Illinois Swimming Pool and Bathing Beach Code

		compliance; maintenance improvements that can be performed by the Park District
3	1 year to 4 years	Improvements that will improve the performance of the facility; improvements that will provide greater enjoyment for patrons

RECOMMENDATION	PRIORITY LEVEL	PROBABLE COST RANGE
Perform leak detection testing for main pool, plunge pool, dive pool, and splash pads on all underground piping.	1	$5,000 TO $7,000
Replace the pool liners in the main pool, plunge pool, dive pool and kiddie splash pad. provide a stainless steel skirt on the stainless steel gutters for the compression strip to attach to. This will create a water-tight joint between the liner and gutter and not require a caulk joint.	1	$600,000 to $650,000
Recaulk the joint between the liner and the concrete curb wall in the kiddie splash pad.	1	$2,000 TO $2,500
Remove the zero depth gutter grating in the main pool and locate and repair all cracked concrete. It is recommended that a structural engineer be involved with the recommended repair methods.	1	ALLOWANCE $75,000 TO $100,000
Repalce leaking backwash valve on face piping of main pool filters.	1	$1,000 TO $1,500
Replace corrodded splash pad valves and supports as required.	2	ALLOWANCE $4,000 TO $6,000
Replace filter sand in main pool filters, dive pool/plung pool filter and splash pad filter.	2	ALLOWANCE $35,000 TO $45,000

Clean/polish and passivate the stainless steel gutters in the main pool, plunge pool and dive pool.	2	$12,000 TO $14,000
Clean the corrosion on the strainers in dive pool/plunge pool/splash pad mechanical room.	2	MAINTENANCE STAFF
Anchor sample stream pumps for the plunge pool and dive pool chemical controllers.	2	MAINTENANCE STAFF
Provide additional supports for the splash pad filtration and backwash piping.	2	MAINTENANCE STAFF