

City of Piedmont
CITY COUNCIL AGENDA REPORT

DATE: October 15, 2018

TO: Mayor and Council

FROM: Paul Benoit, City Administrator

SUBJECT: Receipt of a Presentation from Richard Young of Aquatic Commercial Consulting Regarding a Current Condition Assessment of the Piedmont Community Pool

BACKGROUND

The existing Piedmont aquatic facility opened in 1964 and operated as the private not-for-profit Piedmont Swim Club (PSC) until 2011. At that time, the City assumed responsibility for the operation of the facility and renamed it the Piedmont Community Pool (PCP).

It has long been recognized that the current size and configuration of the facility is inadequate to meet the aquatic needs of the community. Recreation swim, lap swim, learn-to-swim, therapeutic swim and competitive swim/water polo have all been vying for limited and suboptimal space for many years. The Council and community have launched many efforts over the years to chart a course to a new aquatics center including but not limited to:

- Piedmont Community Recreation Center (PCRC) 2002
- Recreation and Aquatics Cooperative (RAC) 2002-2005
- Sports Management Group Aquatic Study 2006
- Civic Center Master Plan 2006-2007

These efforts and studies, which involved a great deal of work by the community, each drew similar conclusions regarding the inadequacy of the present facility and opportunities for a new, more appropriate facility. However, for various reasons, including the projected cost of a new facility, no action has been taken beyond the transition from the PSC to City operations.

Instead, the focus has been on yearly maintenance and repairs to keep the present facility safe and operational. Due to the diligence of City staff and the PSC before them, the PCP has managed to exceed the normal lifespan for an outdoor pool of its vintage.

After acceptance by City Council of the Aquatics Master Plan Conceptual Design in November 2016 and subsequent favorable Operational Analysis of the conceptual design in June 2017, Council authorized the opinion research firm Fairbanks, Maslin, Maulin, Metz and Associates (FM3) to evaluate community interest and support for a new aquatics facility through polling.

On December 18, 2017 Council received a presentation from David Metz (FM3) regarding these polling results. Overall, the survey indicated that Piedmont residents are very pleased with the direction the community is moving in, with 71% of residents rating the City government's performance in providing services as "good to excellent". Relative to service quality, all City departments received high marks, with 86% of residents having a favorable view of the Recreation Department. Relative to aquatics, depending on phrasing of the survey question, up to 53% indicated support for a bond measure for a new facility, well short of the 2/3 majority required for passage of a municipal bond,

Given the FM3 polling results, the Aquatics Subcommittee comprised of Mayor McBain and Councilmember Andersen, spoke with several subject matter experts who advised that the City should develop a deep and thorough understanding of the current condition of the pool before moving forward with developing strategies for public outreach and communication about a new facility.

Staff was charged with answering the Piedmont Community Pool (PCP) life expectancy question. How much life do we likely have left in our current facility and/or how much will it cost to keep the facility safe and operational in its current form? It is important to note that any significant investment to keep the current facility alive must be measured against the reality that the Piedmont Community Pool does not adequately meet the needs of the various constituent groups who utilize the pool.

During the summer of 2018, Richard Young of Aquatic Commercial Consulting performed an in depth assessment of the pool decks and vessels; mechanical and chemical systems; and equipment efficiency with respect to codes, regulations, conditions and repairs. He will present his detailed findings, recommendations and cost estimates to the Council (Exhibit A).

In addition, Building Official Craig Griffin and Aquatics Coordinator Victor Rivas assessed the buildings on the PCP site together with WA Rose Construction and developed cost estimates for imminent needs. This is listed in the summary below as Building Infrastructure and totals a minimum of \$110,000. The table below is a cost summary of critical needs that must be addressed in a timely manner at the Piedmont Community Pool.

Deck Issues	\$ 72,000.00
Main Pool Issues	\$ 47,000.00
Medium Pool Issues	\$ 21,000.00
Wading Pool Issues	\$ 8,000.00
Pool Mechanical Issues	\$ 12,000.00
Chemical Issues	\$ 77,000.00
Entry Safety and Access	\$ 7,000.00
Building Infrastructure	\$ 110,000.00
	\$ 354,000.00

In combination, the safety and compliance issues identified in the Aquatics Commercial Consulting report along with identified building infrastructure needs will require in excess of \$350,000 to be expended over the next fiscal year to address immediate needs that should keep the Piedmont Community Pool safe and operational for the next three to five years.

These expenditures are in addition to the projected \$260,000 Aquatics Fund subsidy in the 2018-19 City budget. Inclusive of the projected annual subsidy to operate the pool, it will cost the City at least \$610,000 to keep the substandard PCP safe and operational for the next year, \$870,000 for two years and more than 1.1 million dollars for 3 years.

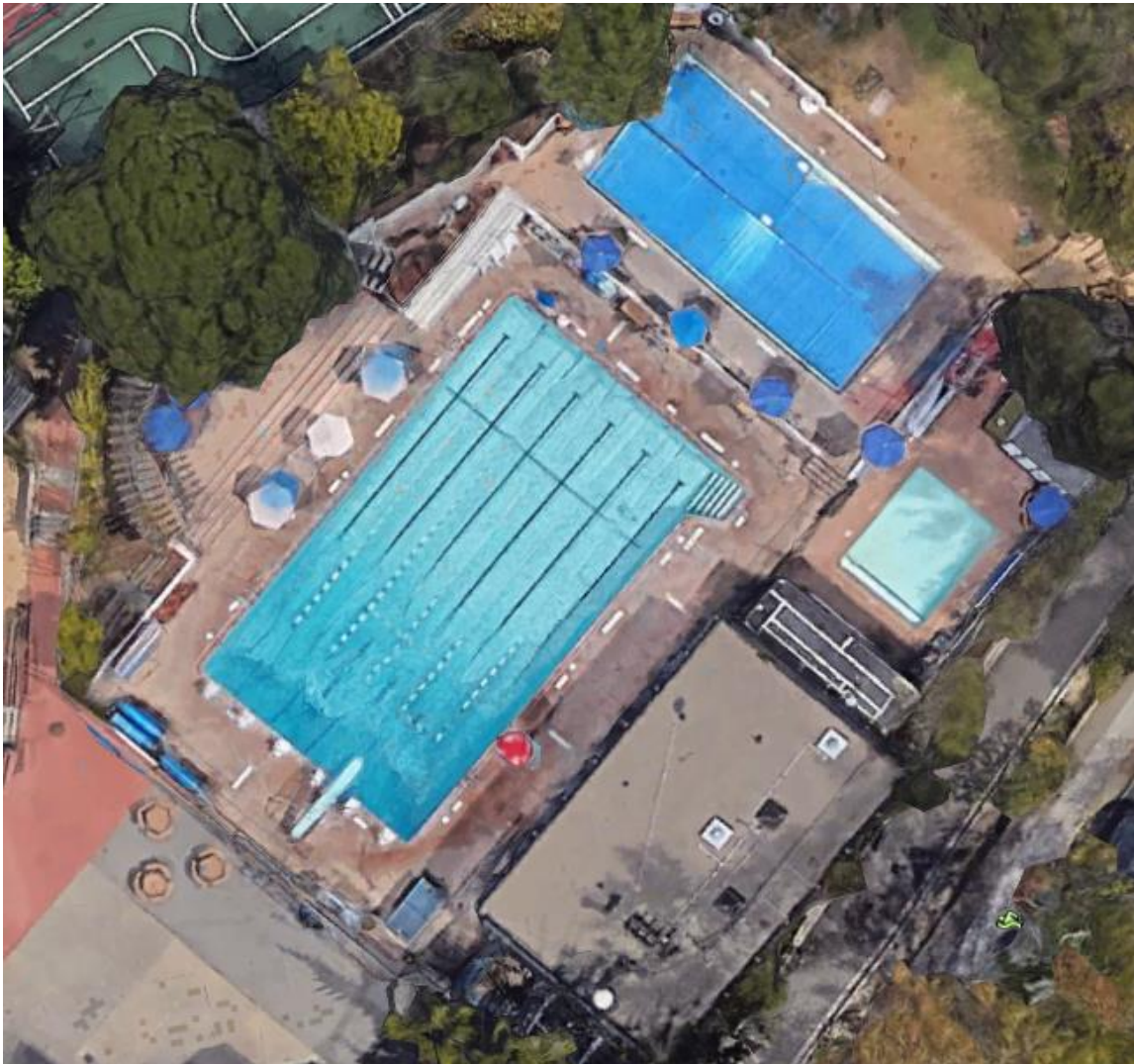
To extend the life of the pool beyond 5 five years, major renovation work would be required and the city would need to invest in excess of 1.5 million additional dollars, along with a pool closure of six months or more. While difficult to quantify a lengthy pool closure, we can assume losing a portion of our regular customer base as well as part-time staff to other local facilities.

Assuming a consistent operational deficit (a conservative assumption), altogether, over the next five years, the City would spend upwards of 1.65 million dollars to maintain status quo. Assuming no catastrophic failure of the pool vessel structures themselves, in ten years the City would spend 4.5 million dollars or more and continue to be faced with a large operational shortfall.

This level of investment in a facility that has surpassed its expected life and falls well short of meeting the needs of the Piedmont community may not be a prudent or practical allocation of the City's limited funds. Instead, we have reached the point in the life of the pool where strong consideration should be given to constructing a new facility that would better serve the community needs and require little to no annual subsidy. Alternatively, consideration should be given to transitioning out of aquatics programming as a City service.

By: Sara Lillevand, Recreation Director

City of Piedmont Community Swimming Pool Facility Pool Evaluation



September 2018

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Preface:

This report has been prepared by Aquatic Commercial Consulting to provide the City of Piedmont information regarding the overall condition of the Piedmont Community Pool facility located at 777 Magnolia Ave, Piedmont, CA 94611.

The Piedmont Community Pool evaluation included the decks, pool vessels, deck equipment, mechanical systems, chemical systems and related items with respect to: (Abbreviations are listed for the various items used in the report)

California State Health & Safety Codes: CHSC
 Federal Virginia Baker, Pool and Spa Safety Act: FPSSA
 Article 80, Uniform Fire Code: UFC-80
 National Plumbing Code: NPC
 National Electrical Codes: NEC
 Occupational Safety Regulations: OSHA
 National Swimming Institute Guidelines: (Industry Standards): IS
 National Energy Standards: ES
 American Disabilities Act: ADA
 Consumer Product Safety Commission: CPSC
 Model Aquatic Health Code: MAHC

Although this report does not address every aspect of the pool construction and operation, it does evaluate the facility with respect to the current codes and regulations listed above as well as the present condition and necessary repairs to extend the life of the facility for a minimum of five years.

This report provides information on areas that fall short of the above listed codes, regulations and guidelines. Additional information concerning areas of compliance is also provided. Some might view this as a “negative” report; however, our purpose here is to help raise awareness concerning adherence to codes; efficient and effective operations; and safe practices.

The information for this report was obtained through staff interviews, on-site inspections and diagnostic testing completed in June 2018, followed by research with local commercial swimming pool suppliers and contractors. Victor Rivas, Aquatics Coordinator, provided valuable input and a daily operations perspective of the facility. In addition, Aquatic Commercial Consulting has completed a number of mechanical repairs and equipment replacements over the past five years, which provided a unique insight into some of the issues addressed in this report.

Photos of various items and issues are included where appropriate. A “PP” is listed adjacent to the item to indicate a photo is included.

Cost Estimates:

Cost estimates are provided for repairs and improvements that are code-related or that are deemed necessary for the operation over the next five years. Item costs are rounded up to the nearest \$100. Section total costs are rounded up to the nearest \$1,000.

History:

The Piedmont Swim Club, a non-profit organization, operated the swimming pools from 1964 to July 2011. During that time, mechanical equipment was replaced, the Main Pool gutter system was remodeled, and all pools were fitted with entrapment protection drains in compliance with the VGB Pool and Safety Act. The City of Piedmont assumed management of the facility during the summer of 2011. Since then the filters, pumps, heaters and chemical systems on all pools have been replaced as well as minor cosmetic and code compliance repairs.

This seasoned facility serves the community in a number of aquatic capacities including:

Swim Lessons	Summer Camps and Clinics
Water Exercise Classes	SCUBA Lessons
Lap Swimming	Piedmont High School Swimming
Recreation Swim	Piedmont High School Water Polo
Piedmont Swim Team	Piedmont Middle School Physical Education
Water Polo Clinics	Piedmont High School Physical Education
Special Education Activities	PSUD End of School Year Celebrations
Pool Party Rentals	

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Section I. General Pool Data and Comments

Main Pool:

Perimeter:	240 linear feet
Surface Area:	3,250 Sq. Ft.
Volume:	154,000 gallons
Required flow rate:	430 GPM for a 6 hour Turnover
Pool edge:	Safety bull-nose coping
Surface water collection:	Skimmers
Filter Type:	High-rate sand
Sanitizer:	Liquid Chlorine
pH Control chemical:	Acid
Heating System:	Natural Gas

Medium Pool:

Perimeter:	150 linear feet
Surface Area:	1,250 Sq. Ft.
Volume:	25,000 gallons
Required flow rate:	104 GPM for a 4 hour Turnover
Pool edge:	Safety bull-nose coping, with a gutter
Surface water collection:	Gutters with a surge pit
Filter Type:	High-rate sand
Sanitizer:	Liquid Chlorine
pH Control chemical:	Acid
Heating System:	Natural Gas

Wading Pool:

Perimeter:	70 linear feet
Surface Area:	302 Sq. Ft.
Volume:	3,000 gallons
Required flow rate:	50 GPM for a 1 hour Turnover
Pool edge:	Safety bull-nose coping
Surface water collection:	Skimmers
Filter Type:	High-rate sand
Sanitizer:	Liquid Chlorine
pH Control chemical:	Acid
Heating System:	Natural Gas

Deck Areas:

There are over 6,000 square feet of deck area throughout the facility.

General Comments:

The Piedmont Community Pool facility has served the community well over the past fifty years, however, there are many issues that fall short of current California Health and Safety Code (CHSC), National Plumbing and Electrical Code (NPC, NEC), Uniform Fire Code Article 80 (UFC-80), Model Aquatic Health Code (MAHC) and industry standards (IS).

The pool decks are tired with many cracks, voids and stains. The Main Pool loses considerable water daily. Several of the mechanical systems have had to be upgraded in recent years, but some areas still remain far less energy efficient than industry standards. The Wading Pool configuration is of a major safety concern with the overall depth not in compliance with CHSC.

Proper placards and safety signs are absent and the chemical storage area does not comply with Uniform Fire Code Article 80 (Hazardous material storage codes).

The Main Pool falls well short of standards for a competitive venue for swim team and water polo.

On the whole, the overall amount of space is inadequate to meet the programming demands placed on this aquatic facility.

The entry is far from attractive or welcoming and does not comply with Federal ADA codes.

Parking is somewhat limited with few ADA spaces available.

Section II. Deck and Deck Equipment

General: The pool deck appears to be original and is showing areas of stains and discoloration from water deposits. In addition, there are unsightly concrete patches, numerous cracks and several abandoned deck anchors. There are several different surface textures and areas with trip hazards. Storage appears to be in short supply and the deck is somewhat cluttered with various aquatic equipment.

Deck Surface (all areas):

- A. There are number of deck areas with unsightly stains or failed concrete surfaces, cracks and uneven sections. These are especially evident around the Medium Pool deck area (see Medium Pool vessel section). These present a trip hazard and are lacking compliance with CHSC, MAHC and IS. PP-1, 2, 3, 4

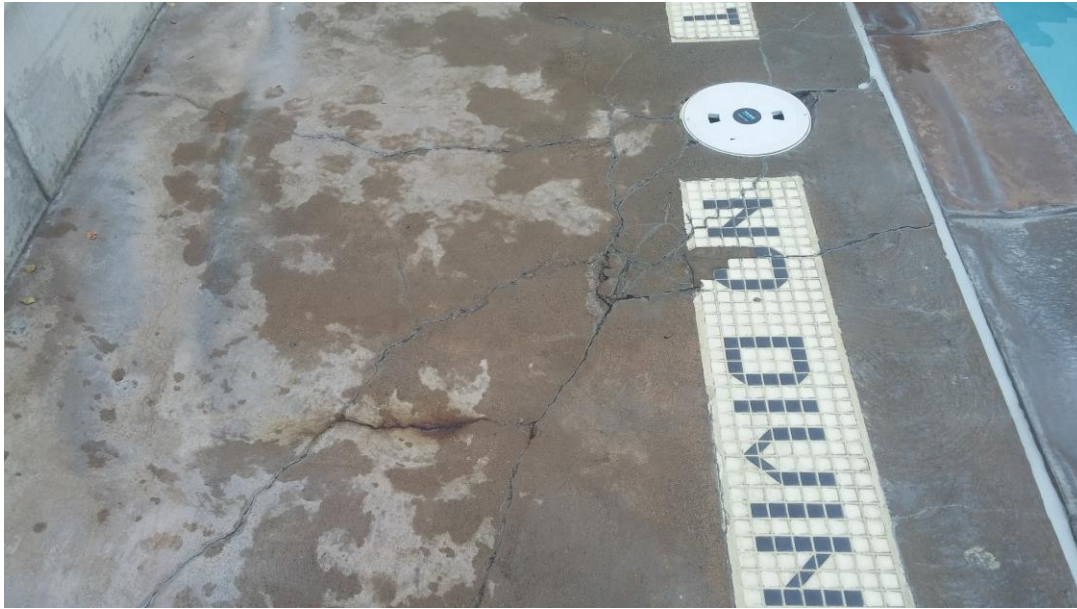
PP-1 Deck cracks, staining



PP-2 Deck cracks, sections replaced



PP-3 Deck issues



PP-4 Deck issues, edges ground down on displaced concrete sections



Recommendations:

Address those items that may cause injury.

1. Grind down any areas that present a trip hazard. (2-3 day pool closure)
2. Fill any cracks that present a toe-stub hazard.

Estimated cost: \$1200 – outside vendor

Note: City maintenance staff could potentially perform the work to absorb costs.

- B. There are abandoned in-deck anchors in several locations that present a toe-stub and trip hazard or are unsightly. PP-5

PP-5 Abandoned deck anchors



Recommendations:

1. Fill all abandoned deck anchors with concrete.
2. Place appropriate covers on all deck anchors when not in use.

Estimated cost: \$400

- C. Calcium and salt deposits around the pool indicate there has been standing water.
Staff reports not all of the deck drains work well. CHSC, MAHC and IS. PP-6, 7

Recommendation: None at this time.

The staining and calcification cannot be significantly improved without full deck replacement.

PP-6 Calcium and salt scaling



PP-7 Scaling deposits on deck



- D. The expansion joint caulking around the entire pool between the deck and the coping stones has failed allowing water to enter in behind the coping. This results in expansion and contraction and has resulted in displacement and loosening of many of the coping stones. In addition, the gaps present safety hazards. PP-8.

PP-8 Expansion joint/caulk failing



Recommendation:

Remove and replace the failed mastic (caulking) on all expansion joints and deck/coping stone cracks.

Estimated cost: \$ 4,200

- E. Many of the coping stones are cracked and have been reset and/or replaced. Cracks appear under the stones in the grout and several stones can be moved by hand. These loose stones present a safety hazard and several have had to be removed over the past two years. Many have missing grout between the stones.
PP-9, 10

PP-9 Coping stone failure



PP-10 Coping stone cracks, missing grout



Recommendation:

Remove all of the coping stones and install new safety-grip stones securely with non-shrink, waterproof grout. Attempts to save the existing coping stones is not recommended as they often crack when removed and are labor intensive to clean up for re-installation.

Estimated cost: \$25,000

- F. There are no deck depth marker signs around the Wading Pool per CHSC which presents a risk hazard. PP-11 NOTE: See also Pool Vessel section.

PP-11 Missing deck depth markers on Wading Pool



Recommendation:

Install new depth marker signage, two at each end and one on either side of the pool per CHSC. These may be “stick-on” signs.

Estimated cost: \$200

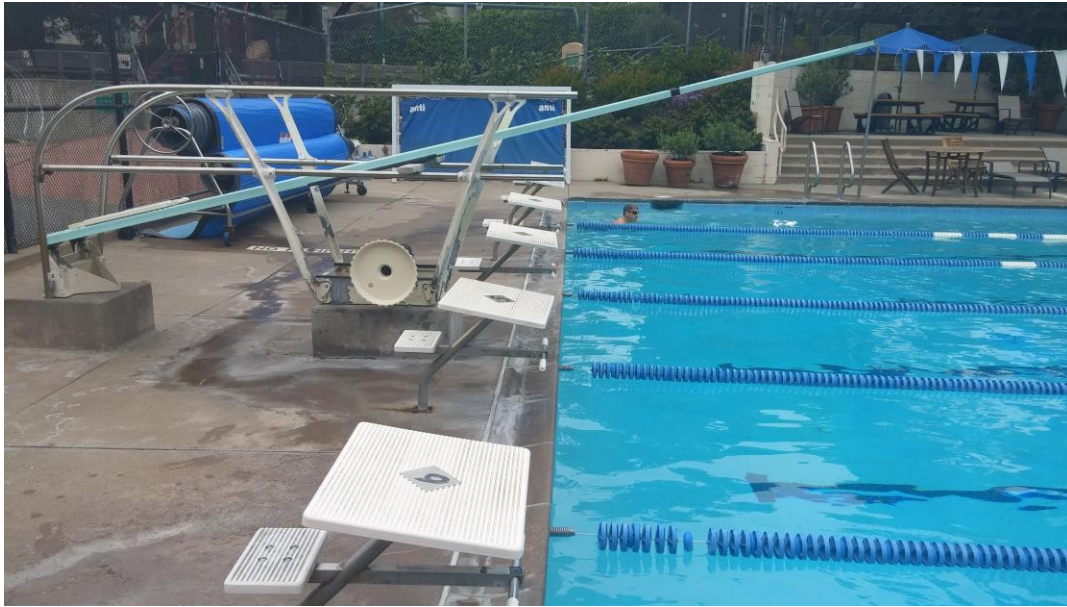
TOTAL ESTIMATE FOR POOL DECK ISSUE REPAIRS: \$31,000

Deck Equipment and Other Issues (all pools):

- A. The starting platforms are more than 15 years old and appear to have been installed poorly and are not in line (plumb) with the pool edge. Several of the anchors are corroding and staining the concrete around anchors. The steps and platforms are showing signs of deterioration.

It appears that the starting platform posts have been fastened to the deck anchors with something other than stainless steel hardware. In addition, CHSC and the MAHC call for the platforms to be covered or removed when not in use. PP-12, 13

PP-12 Starting platforms



PP-13 Starting platform anchor corroding



Recommendations:

1. Install proper starting platform safety covers or remove them after each swim team practice. Starting platforms may only be in place and used by swim team members when a coach is present. Covers are available through distribution. CHSC, MAHC

Estimated cost: \$600

2. Install new state of the art starting platforms.

Estimated cost: \$15,000

OR

3. Remove the platform posts and reinstall them with stainless steel hardware.

Parts may be available to rebuild the platforms, however, replacement parts and labor may be as expensive as new starting platforms.

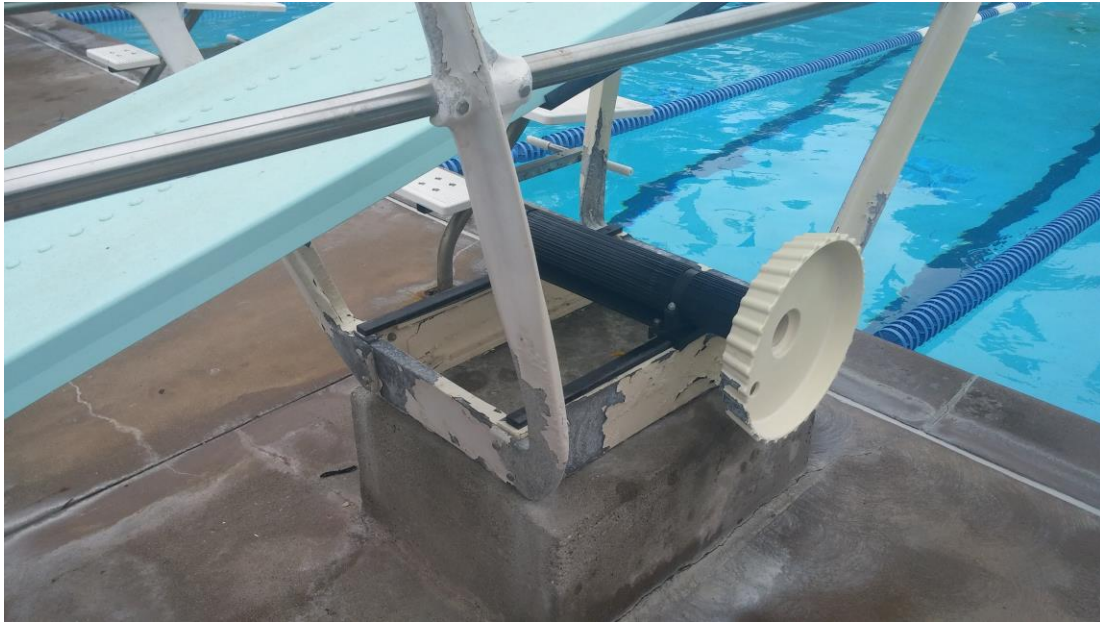
NOTE: If new anchors are installed to correct the issue of the current ones not being plumb with the pool edge, do so when the destructive testing, as described in the pool vessel section, is completed.

- B. The diving board does not comply with current CHSC or sanctioning diving agencies, as the depth of the pool is too shallow for a full 1-meter platform and board. A minimum of 11.5 feet of water depth is required. The diving board adjustable fulcrum should always be in the forward and locked position unless a diving coach or instructor is present. The diving stand coating has deteriorated considerably and the aluminum structure is exposed to the elements and is corroding. The diving board surface is worn and presents a slip hazard. PP-15, 16, 17

PP-14 Diving board is not compliant Requires 11.5 feet depth



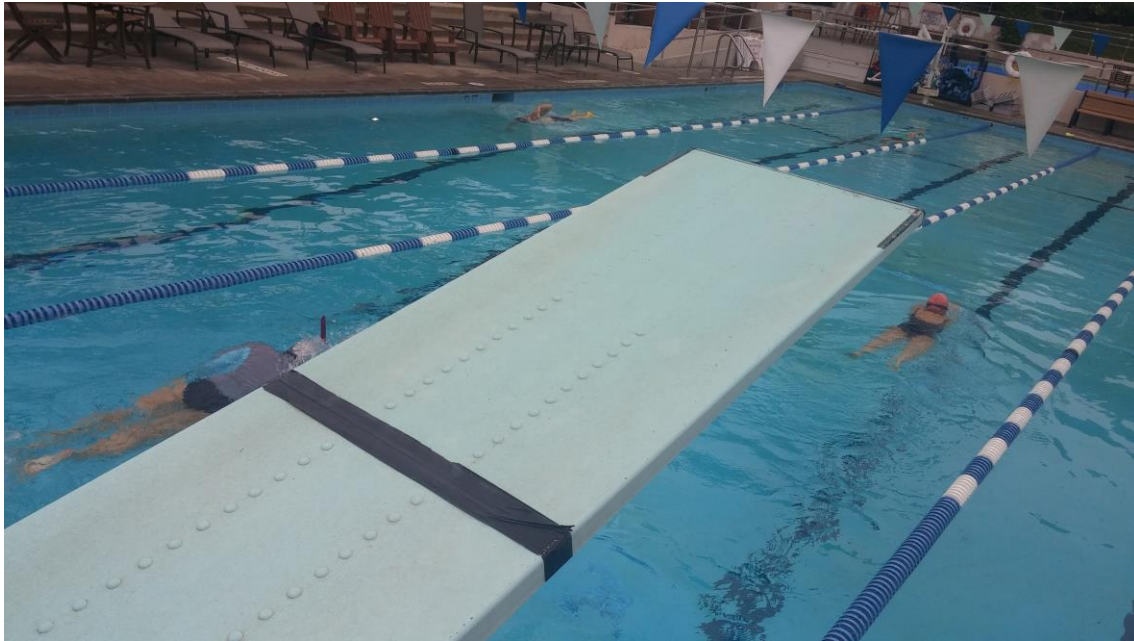
PP-15 Diving board standard coatings failing /corroding



PP-16 Fulcrum not in the forward and locked position



PP-17 Diving board slip resistant coating failing



Recommendations:

1. Remove the 1-meter stand and install a $\frac{3}{4}$ meter stand with a recreational diving board. This will require County Health Department approval.

Estimated costs: \$12,000

OR

2. Remove the dive standard, have it sand blasted and recoated with epoxy paint. Remove the concrete pedestals and install the platforms flush on the deck to create a near $\frac{3}{4}$ meter unit. This too will require County approval.

Estimated cost: \$5,000

Have the diving board evaluated and resurfaced by the manufacturer.

Estimated cost: \$2,000

OR

3. Close the diving board for use. Remove the platform and the concrete pedestals from the deck

Estimated cost: \$1,200

- C. There are several hose bibs that are not protected by anti-siphon devices as called for by the CHSC, NPC. PP-18

PP-18 Non-compliant hose bibs



Recommendation:

Install anti-siphon devices on all hose bibs located on the pool deck.

Estimated cost: \$150

- D. One of the grab rails on the Medium Pool is not compliant with the Federal ADA and is mounted too low. 32" required minimum. PP-19

PP-19 Non-complaint step handrail on Medium Pool



Recommendation:

Install a code compliant rail. The existing anchors may be used. The other rails use a 3-bend-type step rail.

Estimated cost: \$400

- E. The Wading Pool does not have any step handrails on the entry step for the pool and is not in compliance with the CHSC or MAHC. PP-20

PP-20 Handrails absent on Wading Pool steps



Recommendation:

Install at least two handrails on the wading pool steps. Bond anchors per code.

Estimated cost: \$2,200

- F. There is no ADA compliant lift on the Medium Pool. The Wading Pool is too shallow for a lift; however, Federal ADA requires a ramp or zero depth entry. At the time of the inspection, the ADA pool lift for the pool was not in operating order. PP-21, 22

PP-21 Non-working and absent ADA approved pool lifts for Main and Medium Pools
Medium Pool lift anchor has been installed



PP-22 Main Pool ADA pool lift not working



Recommendations:

1. Purchase and install a new ADA approved pool lift for the Medium Pool.

Estimated cost: \$5,000

2. Repair or replace the main pool lift.

Estimated cost: \$5200 (As per staff the replacement is on order).

- G. The Main Pool deck is cluttered with pool equipment (i.e. kick boards, exercise pedestals, etc.), as is the deck area adjacent the Wading Pool. Storage appears to be in short supply. PP-23

PP-23 Deck cluttered with pool equipment



- H. The pool covers are damaged by exposure to the direct ultra violet light from the sun. After being rolled up the same section is exposed every day. The addition of simple, inexpensive covers will extend the life of the covers measurably. The same is true for the lane line reels not pictured. PP-24

PP-24 Exposed pool covers



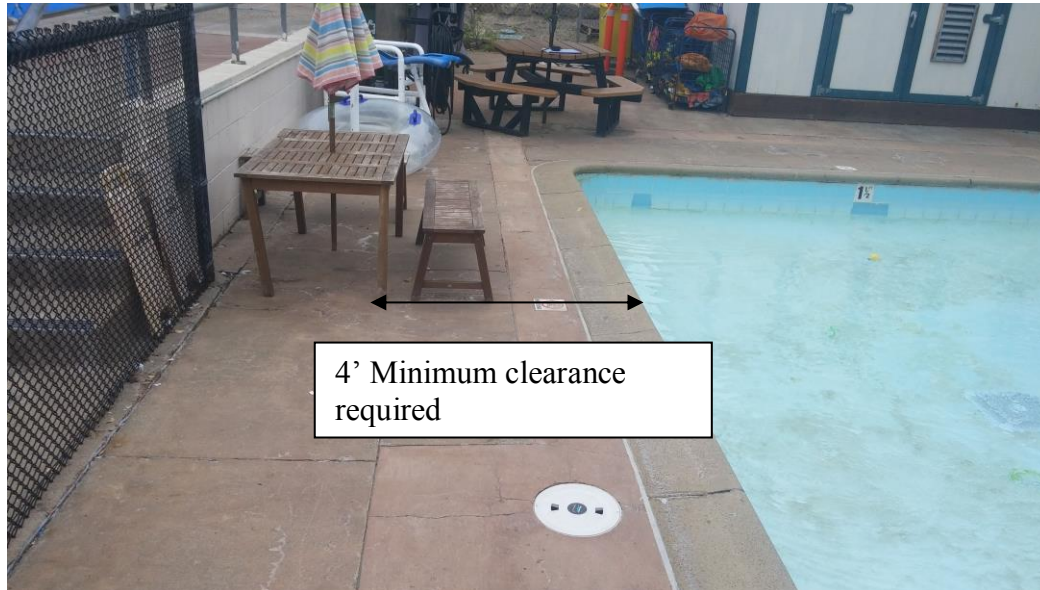
Recommendation:

Purchase covers for pool cover reels.

Estimated cost: \$100

- I. The surrounding Wading Pool deck area did not provide the minimum 4' clearance as called for by CHSC. PP-25

PP-25 Deck clearance issue



Recommendation:

Move deck furniture to comply with clearance.

- J. The deck pool lighting is minimal at best according to staff. Some lighting has been added in recent years but does still not cover all the deck areas. It is unknown if the minimum lumens required is met throughout the facility. PP-26, 27

PP-26 Deck lighting



PP-27 Deck lighting (patio)



Recommendation:

Have the deck lighting tested by a trained electrical/lighting contractor. Add additional lights as necessary to comply with code.

Estimate cost: Unknown

Other minor deck and deck equipment items:

1. The Lifeguard ring buoy near the Medium Pool is not properly stored with a rope ready for use.
2. An electrical cover near the staff office is missing a weatherproof cover.

TOTAL COST ESTIMATES FOR POOL DECK EQUIPMENT ISSUES: \$41,000

Section III. Pool Vessels

General: Overall the pool vessels appear to be structurally sound. However, part of the tile and coping near the steps was recently replaced. The plaster is failing or is stained in several areas in all the pools. The water line tile is cracked in several places and many tiles have been replaced with off-color tiles. The Main and Medium Pools continue to lose considerable amounts of water daily.

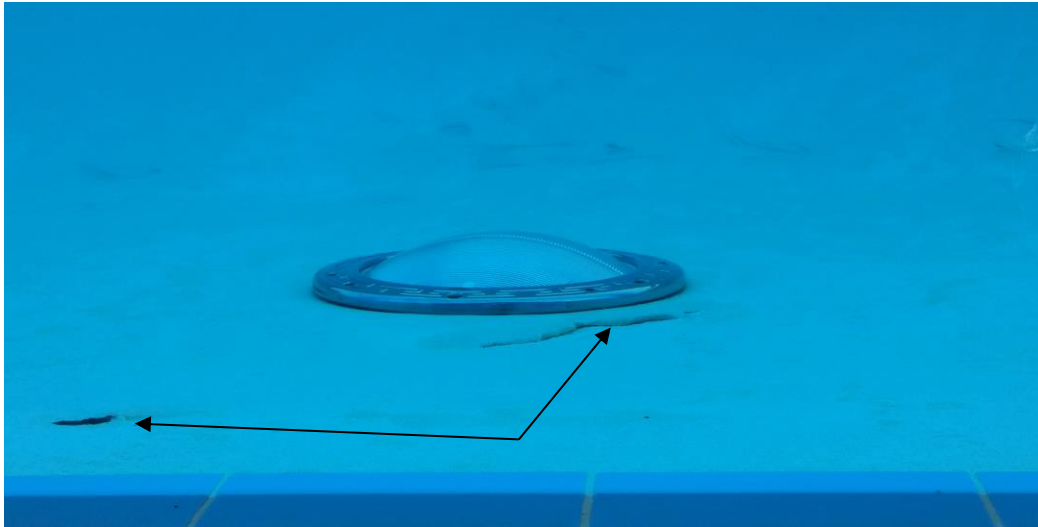
The Medium Pool gutter is of a very outdated design and staff reports the gutters flood when the pool is crowded. The drop in deck elevation around the medium pool indicates a likely water leak.

All of the pools were retrofitted with entrapment protection drains in compliance with the VGB Pool and Safety Act. The skimmers are not CPSC, and VGB compliant as they only have one equalizer port.

Main Pool:

- A. The Main Pool plaster is in fair condition except there are several areas of stains and a few plaster cracks. One particular crack that is on the office side pool wall presents a safety hazard. Several waterline tiles have been replaced over the years with a different color than the original tile, which detracts from the aesthetics of the pool. PP-28

PP-28 Plaster cracks and staining on Main Pool



Recommendation:

Complete plaster patching to eliminate the rugged edges of the exposed plaster.

Estimated cost: \$400 (with pool drained), \$600 (underwater work)

- B. Most all of the waterline depth marker tiles are well faded with several unreadable. This falls short of the CHSC. There are several tiles that are cracked. PP- 29

Recommendation:

Replace any broken or cracked tile that presents a safety hazard.

Estimated cost: \$700

PP-29 Faded waterline depth markers on Main Pool



- C. The Main Pool is fitted with two bottom drains that are VGB approved. The skimmers have VGB equalizer fitting covers but only have one equalizer, falling short of current CHSC, which requires two.

Recommendation: None: County Health will not require changes at this time.

- D. Both the Main Pool and the Medium Pool lose significant amounts of water. The Main Pool loses approximately 3,000 gallons of water daily (ten times the expected water loss), which is measured by a water meter on the fill line.

MAIN POOL: Pressure testing of the bottom drains lines and the skimmers revealed no leaks, however, dye testing indicated the pressure return lines might be compromised. The return inlets on the deep end showed the greatest amount of dye leaving the pool. This would correspond with the uneven concrete deck areas that have been displaced in that area.

MEDIUM POOL: Staff reports the medium pool loses considerable water. This pool is fitted with an automatic fill device in the surge pit, so the loss only becomes evident upon turn off of the automatic fill. No firm estimate on water loss is available, however, the deck area adjacent the pool is considerably out of level, with several concrete edges having dangerous trip hazards. PP-33, 34

Water will saturate the soil adjacent and beneath the pool. Depending upon the soils type, much of the water may be absorbed and dissipate into the surrounding soil. At the point of the leak, some soil erosion may be taking place as evidenced by the out of level deck sections. However, it appears sections of the deck, especially around the Medium Pool have become out of level, indicating soil erosion and/or expansive soil.

The loss of over a million gallons of water a year is very costly and the pool could be filled over eight times. The total cost of the water alone is approximately \$2,200. However, the cost of having to heat and chemically treat the replacement water is considerable. The heating cost is calculated at 15,000 therms or about \$8,000. The chemical costs are estimated at around \$150. Total annual cost of the leak is estimated at just over \$10,000. NOTE: this does not include the Medium Pool losses.

This water leak will also continue to dislodge the concrete and result in additional costs for deck repairs and eventually will result in structural damage to the pool.

Recommendation:

1. Complete destructive testing to expose the pool return plumbing. Separate the bottom returns from the pool wall returns and pressure test with water to determine the location of the leak. This will require considerable concrete deck removal and excavation.
2. Repair the leak; fill and compact the soil; install replacement steel reinforcement; and replace the concrete.

Estimated cost: At least \$45,000

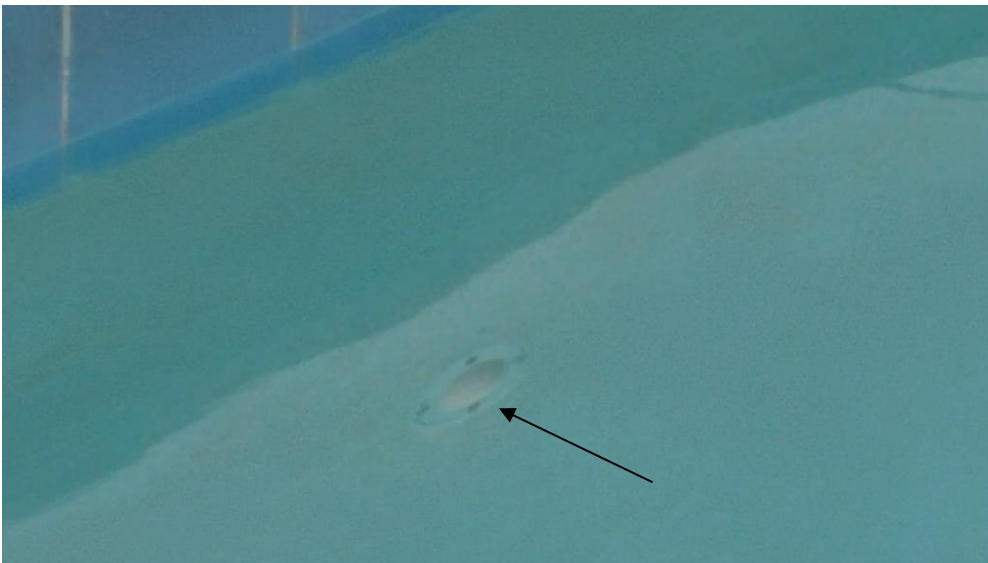
3. Pursue the services of a soils engineer to establish backfilling after exaction and plumbing repairs are completed.

Estimated cost: As per bid from soils engineer

Water loss in pools is contingent upon the temperature, humidity and wind. However the average for most pools is approximately 1/8 inch or 300 to 400 gallons per day for a 45' x 75' size pool like Piedmont Community Pool.

- E. There are several missing recessed eyeball inlet fittings in the Main Pool. These are required by CHSC to direct the flow downward from the surface. PP-30

PP-30 Missing return inlets on Main Pool



Recommendation:

Purchase and install all missing or damaged pool wall return inlets.

Estimated cost: \$300

- F. The pool steps in the Main Pool have missing tiles and cracks in the plaster that have been filled with underwater epoxy. The steps are usable but are certainly un-slightly. PP-31

Recommendation: None at this time

PP-31 Steps and tiles missing on Main Pool



TOTAL ESTIMATED COST FOR MAIN POOL VESSEL ISSUES: At least \$47,000

Medium Pool:

- A. The Medium Pool has several issues with cracked tile and gutter drains. The drains have been replaced but were not set properly in the gutter. PP- 32, 33

PP-32 Tile issues on Medium Pool



Recommendation Short Term:

Repair any tiles that may be a safety hazard. This can be completed with underwater epoxy to cover any sharp edges.

Estimated cost: \$150

Recommendation Long Term:

Make repairs only if this portion of the plumbing is proven, through the destructive testing, to be the source of the pool leak. This will require plumbing, concrete and tile work.

Cost is covered in item "D".

PP-33 Gutter drains not properly set on Medium Pool



- B. The gutter drains are small in nature with only eight drains. The gutters flood when the pool is crowded and the drains often clog with leaves and or debris.

Recommendation:

None at this time

- C. The gutters gravity flow into an adjacent surge pit that was recently re-plumbed and a new modulating float valve installed. There is an automatic fill float, that has been problematic, connected to a water line that is not protected by a CHSC and NPC required back-flow prevention device. Unfortunately, the water source could not be located outside of the surge pit and the only shut off cannot be isolated without shutting down the landscaping and other building water supplies.

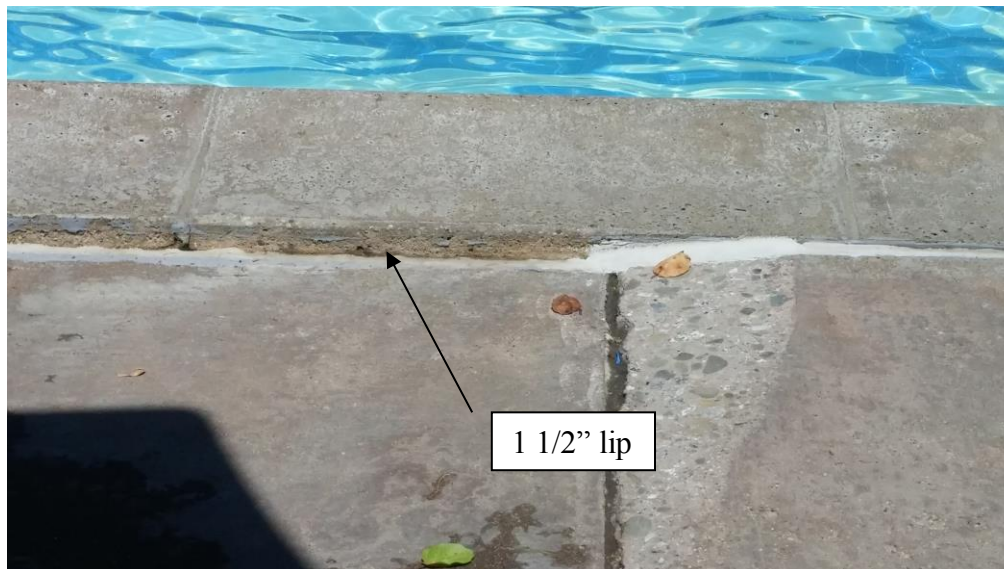
Recommendation:

Locate the supply water line just outside the surge pit; install an isolation valve and an approved back flow prevention device per code. Work should be done while the pool is closed for other repairs.

Estimated cost: \$1,000.

- D. Staff reports Medium Pool continually loses water. The automatic fill system compensates for the water loss. But the line is not equipped with a water meter to determine the amount of replacement water used on a daily basis. It is evident there are soil issues occurring as the deck has dropped and has left the pool edge/deck interface uneven which presents a trip hazard. This circulation system could not be pressure tested at it makes use of the surge tank with gravity flow lines. Destructive testing would be required to determine if the leak is in the collection or return lines. The adjacent concrete sections near the deep side of the training pool have been dislodged. PP-34

PP-34 Uneven deck sections around Medium Pool



Recommendation:

Complete the destructive testing required to pressure test and conduct leak detection. This may require replacement of the deck area on the deep side of the pool. Make repairs. NOTE: The location of this leak is unknown.

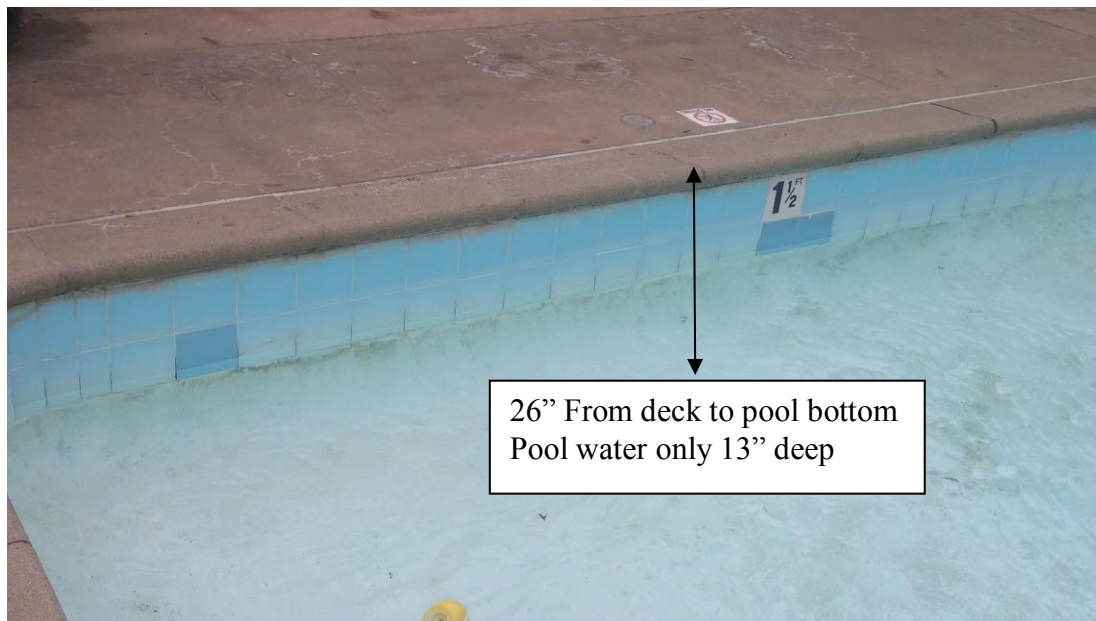
Estimated cost: At least \$20,000

TOTAL COST ESTIMATES FOR THE MEDIUM POOL DECK ISSUES: At least \$21,000

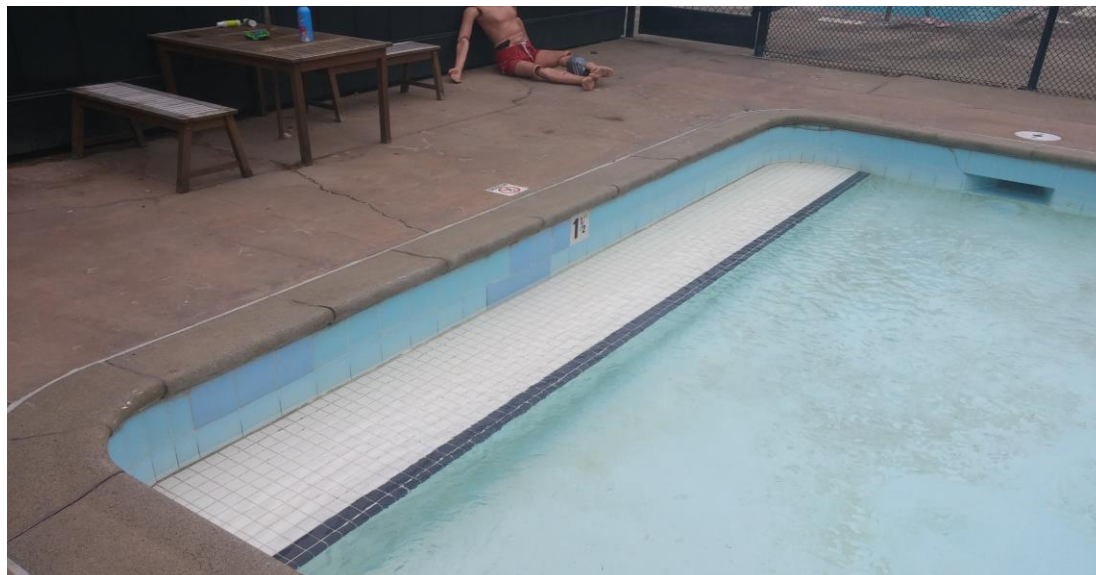
Wading Pool:

- A. The Wading Pool is 26" from the deck to the pool bottom and the water is only 13" deep. The depth markers indicate 1.5' (18") so the actual drop is 26" if someone were to step off the pool edge. With the water level being only 13" as opposed to 18" as labeled on the tile depth markers, the result could cause serious injury. PP-35, 36

PP-35 Step off from pool deck into 13" of water – Wading Pool



PP-36 Wading Pool shallow water



Recommendations: Short Term

1. Add deck signage that calls for entry to the pool at the steps only. (See also deck issues for handrails).
2. Raise the water level as far as possible to bring the depth as close to the 1.5' and still have the skimmers operate.

Estimated cost: \$400.

Recommendations: Long Term

Reconfigure the pool depth by changing the pool bottom configuration to comply with CHSC for a total of 1.5 feet depth and a 6" deck to water level dimension.

Estimated cost: \$7,800

B. The Wading Pool has several cracked waterline tiles. PP-37

Recommendation:

Replace/repair any tiles that might present a safety hazard.

Estimated cost: \$150

PP-37 Cracked waterline tiles on Wading Pool



C. The plaster is well stained and unsightly.

Recommendation Short Term: Mild acid wash (staff maintenance function)

Recommendation Long Term: New Plaster (Included in reconfiguration of pool depth)

TOTAL COST ESTIMATE FOR THE WADING POOL VESSEL ISSUES: \$8,000

Section IV. Pool Mechanical Systems

General: The pool mechanical equipment was updated on several occasions over the past seven years including:

Main Pool & Medium pools: New recirculation pump
 New chemical controller and chemical feed pumps
 New filter system (improved flow by 100 GPM)
 New pool heaters

Wading Pool: New chemical controller and feed pumps
 New recirculation pump
 New pool filter

The Main Pool pump is somewhat undersized and the system falls short of the recirculation flow rate required for a six-hour turnover.

The mechanical equipment area entry doors are not properly labeled. Only the Medium and Wading pool entry doors have Code-required fire safety NFPA placards.

Main Pool: Equipment:

General: The Main Pool equipment area is partly outdoors, with most of the system components located in a mechanical room behind the office. The space is somewhat cramped. Most of the pool electrical components are out of date and are in need of an upgrade as listed in the Renovation Recommendations on the last page of this report.

Chemicals are both stored and fed in this room in close proximity to the mechanical equipment.

The mechanical room is also used for storage of other miscellaneous items.

A. The main recirculation pump is 10 HP. This pump makes use of only a standard efficiency motor. This particular pump model PACO-3095-7 is operating at a greater than desired flow rate resulting in the pump drawing more HP and amperage than its design in an effort to achieve the 430 GPM flow rate required. This was an identical replacement of the original pump that was designed for an 8-hour turnover at a flow rate of only 320 GPM. The current code has called for a 6-hour turnover requiring 430 GPM for more than 10 years. This pump operates at an elevated temperature but continues to achieve the desired and code required flow rate. At present the flow rate falls just below 400 GPM. The pipe size (6" @ 800 GPM) and filter capacity (42 square feet @ 15 GPM/Sq. Ft 630 GPM) far exceed the pump's maximum output. PP-38, 39

The new model pump would benefit from a Variable Frequency Drive (VFD) control, as the output, even with 10 HP, is higher than needed. A VFD would allow for the

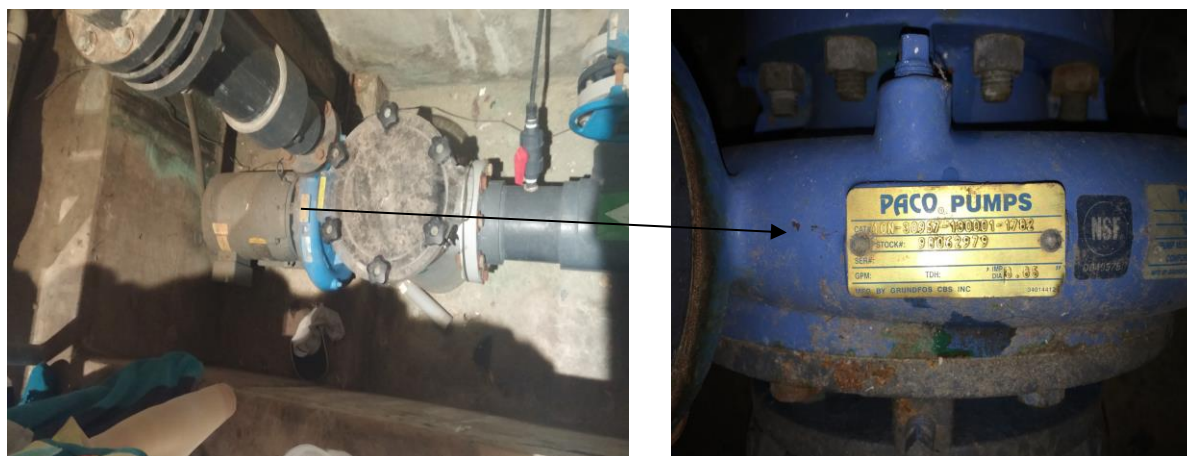
control of the 3-phase pump to precisely the HP required for the ideal recirculation flow rate.

In addition, the VFD would allow the flow to be reduced during night (off-peak) hours and considerable electrical savings could be realized. The VFD often has a ROI (return on investment) of less than 24 months. Another bonus is the VFD allows for “soft starts” which eliminates electrical spikes and wear and tear on the pump seals and bearings.

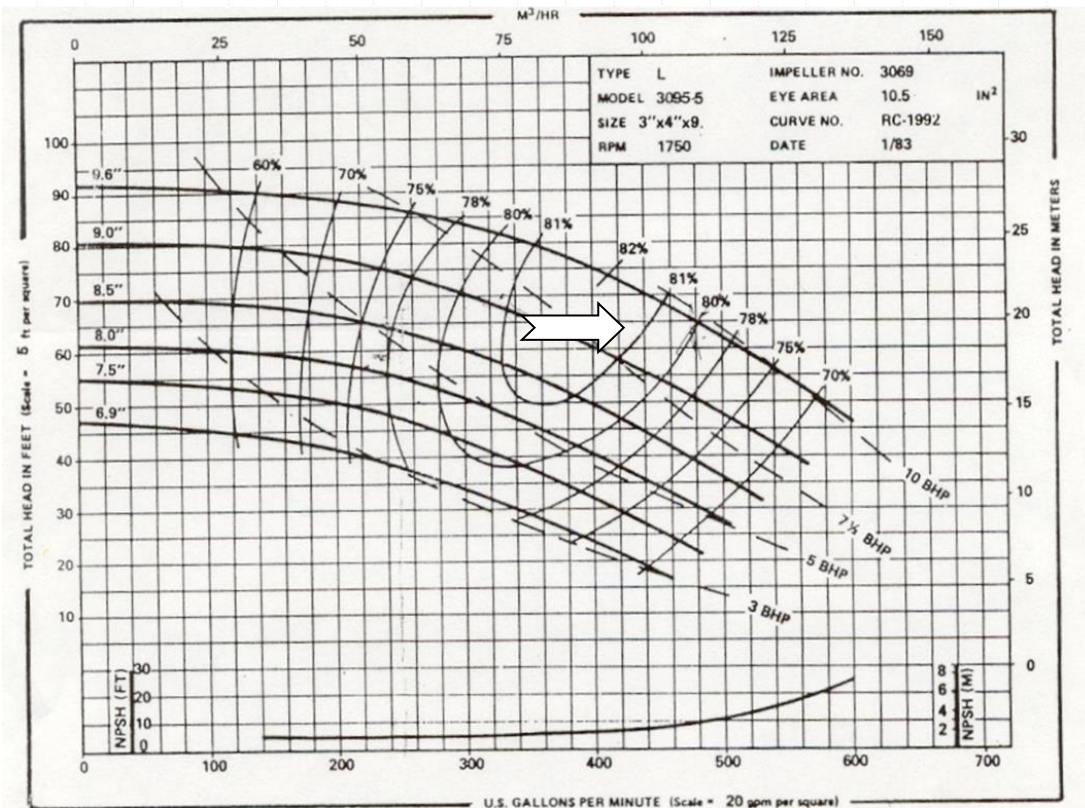
PP-38 Normal flow meter reading (should be 430 GPM)



PP-39 Main Pool pump



Pump Curve of existing unit. (Target for flow and pressure off 10 HP curve)



Recommendation:

1. Install a new PACO 4095-7 (keep 10 HP motor)

Estimated cost: \$5,000

2. Install a programmable VFD

Estimated cost: \$4,800

- B. The pool water level is maintained manually. An automatic water level control system would be ideal and easily installed if the deck is removed for the destructive testing and repairs of the recirculation plumbing. (As per page 29)

Recommendation:

Install an automatic water level device connected to an appropriate code-compliant backflow prevention device.

Estimated cost: \$700

- C. The pool heaters are somewhat undersized for winter operation. Each 400,000 BTU heater can probably maintain the pool water temperature during the summer, spring and fall; however, the loss of either heater in the winter months leaves the pool below normal operating temperatures. One of the heaters was installed on an emergency

basis and is lacking the fan driven power vent recommended for the unit. Staff reports the heater was recently serviced and cleaned. A new D-2 power vent for the oldest of the heaters would improve efficiency and prevent soot build up. PP-40

These heaters are standard efficiency (82%). Newer heating systems operate in the 95% efficiency range and have an ROI of only 24 to 30 months of operation. There are no recommendations for adding a heater or changing to high efficiency units at present time.

PP-40 Pool heater with standard flue



Recommendation:

Install a new Hayward D-2 power vent and install Type III, stainless steel flue to the exterior of the mechanical area

Estimated cost: \$1,200

TOTAL ESTIMATED COSTS FOR MAIN POOL MECHANICAL ISSUES: \$12,000

Section V. Chemical Storage, Control & Feed Systems

NOTE: The following items listed cover, for the most part, all three pools in light of the similarity of systems.

- A. All the pools are fitted with automatic chemical and monitoring systems with the Main and Medium Pools having the latest models. These units are capable of internal

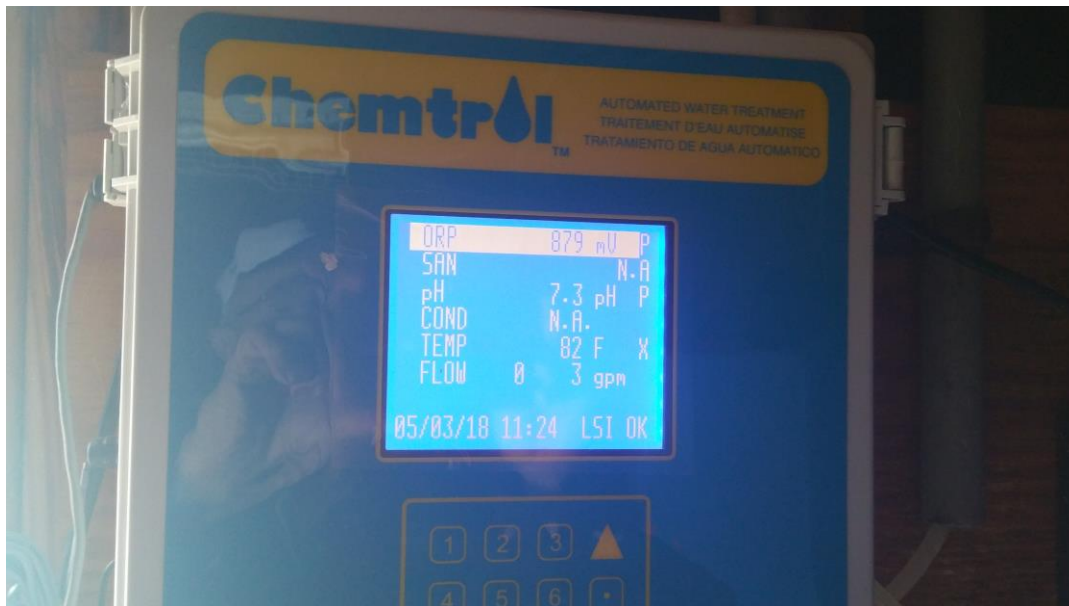
recording the water chemistry parameters, but do not comply with current Title 22, code for the capability of down loading this information. The Wading Pool makes use of an older vintage control that does not have record keeping or telemetry capabilities. All the units monitor chlorine and pH levels and are fitted with an integral flow switch. PP- 41, 42

Recommendations:

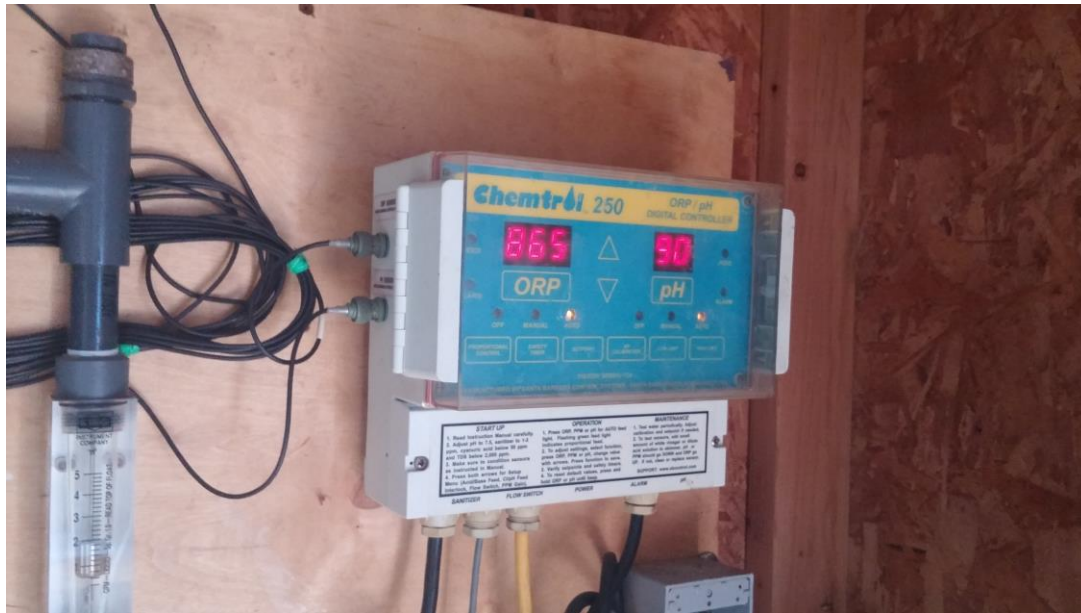
1. Install telemetry devices for the downloading of the water chemistry parameters record for the Main and Medium Pools.
2. Install a new controller on the Wading Pool capable of recording chemical parameters and also telemetry for the down loading of records.

Estimated cost: \$7,000

PP-41 Chemical monitoring and control systems



PP-42 Wading Pool monitoring and control system



- B. The chemical feed pumps are UL and NSF listed and draw chemicals from the actual shipping containers. Only some of the containers are properly double contained on containment pallets. The majority of the chlorine and acid containers stored in a fenced area adjacent to the pool office and mechanical room are without double containment per UFC, Article 80, OSHA, MAHC codes and standards. PP-43, 44

This area naturally drains down the hill onto the walk way and presents a significant safety risk.

Recommendation:

Install double containment pallets or construct a 6" high concrete curb to double contain the chemicals in storage.

Estimated cost: \$4,000

PP-43 Non-compliant chlorine storage



PP-44 Non-compliant acid storage



C. The chemical feed lines for both chlorine and acid are not double contained. PP-45

Recommendation:

Install double containment for all pressure chemical feed lines on all chemical pumps.

Estimated cost: \$1,200

PP-45 Chemical lines not double contained



- D. The staff reports that the 85-gallon per day Stenner pump on the Main Pool does not keep up with the Chlorine demand on busy summer days. This pump is of adequate size and exceeds the CHSC 40 gallon per day capacity (3 pounds or gallons of chlorine for every 10,000 gallons). The chemical controller is on proportional feed and may contribute to the problem. Partially clogged injectors may also be an issue.

The pumps are designed to pump their full capacity at 25-PSI backpressure. The main roller assembly and feed tube should be replaced before purchasing a larger pump. Staff believes a large pump is required.

Recommendation:

Troubleshoot the existing pump. Replace the feed tube, roller assembly, and feed line. Check the suction weight/strainer and the injector for clogs. This pump is of ample size and capacity for this size pool.

Estimated cost: \$200

TOTAL COST ESTIMATES FOR CHEMICAL STORAGE, CONTROL AND FEED SYSTEMS: \$12,000

- E. The disinfection systems make use of purchased 12% sodium hypochlorite (liquid chlorine). This chemical is expensive (approximately 2.10 per gallon) and has the highest pH influence of all the chlorine sources, requiring 1 gallon of acid for every 4.5 gallons of liquid chlorine fed. The delivered cost of chlorine to the pool is approximately \$2.60 per gallon. Sodium hypochlorite is a salt-based chlorine, which continually adds approximately 2.2 pounds of salt for every gallon of liquid chlorine added to the pool. Needless to say as a result, the salt and total dissolved solid concentration increases quickly.

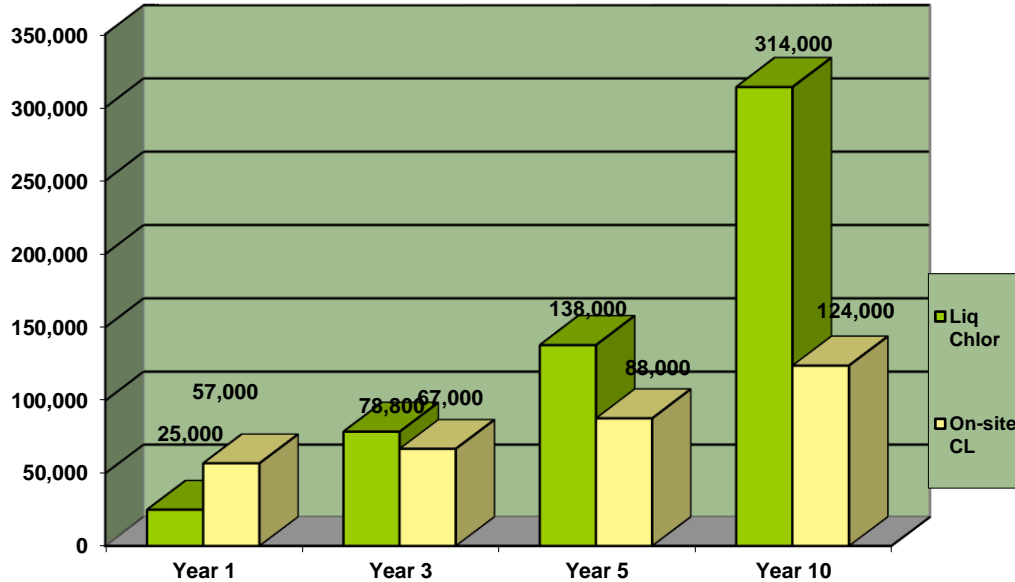
Salt concentration in excess of 5,000 ppm voids the Raypak heater warranties and contributes to decreased chlorine effectiveness and greater possibility of corrosion.

The type of chlorine being used requires many barrels of the hazardous liquid chlorine and acid to be purchased, stored (at present in violation of UFC-Art. 80 and OSHA), and then handled by operating personnel to move the 15 gallon barrels to the various pool mechanical rooms for feeding.

The industry has developed “on-site” chlorine generation systems, manufactured in the U.S. that are very dependable. The advantages would solve many of the issues facing the City with regards to the chemical storage and feed systems. This alternative also offers a significantly safer system for staff and general operation as it minimizes chemical handling procedures. Benefits of conversion to this system:

1. Makes chlorine for approximately \$0.30 per gallon vs. over \$2.00
2. Has a very low pH influence (uses less than 75% of pH chemical now being used).
3. Provides a maximum of only 4,000-4,500 PPM salt/TDS
4. Eliminates chemical storage issues and gains considerable useful square footage adjacent the office.
5. The maintenance is less than 1 hour annually.

The chart below was completed approximately two years ago illustrating the return on investment. The only thing that has changed is the price of liquid chlorine.



NOTES:

The green - left column indicates cost of operating the existing chlorine system
 The yellow - right column indicates the cost of operating an on-site chlorine generation system

Recommendation:

Further investigate installation of inline, chlorine generation systems.

Estimated cost: \$65,000

Section VI. Entry, Office and Dressing Room Issues

General: The pool is located in such a location that parking is very limited and almost non-existent when school is in session. Many of the spaces are reserved or have limited time constraints.

The pool entry is not visible from the street and there is no signage for the pool facility that can be seen from the street. The entry gate is usually closed and is not ADA compliant.

The office personnel do not have full view of the entry area and smaller children can walk by without being seen. Unless office personnel are looking out the window, patrons can enter the facility unnoticed. There is no foyer or office area to conduct business out of the weather and only a narrow outdoor counter.

The dressing rooms, toilet and shower areas are accessible through ADA compliant doors and the showers, benches toilets etc. are ADA compliant. Both dressing room areas have been renovated and are quite functional.

The staff area is not air-conditioned and provides limited visibility to the pool deck, but is functional. I observed most of the staff (lifeguards) use the pool office during their off rotations.

Entry, Office and Dressing Room Issues

- A. CHSC requires entry gates monitored at all times, or have self-closing and self-latching gates, even with lifeguards on duty. The existing gate is self-closing and self-latching, but was not operating properly at the time of the facility review.
PP-46

PP-46 Pool Entry - Does not close and is not ADA compliant.



Recommendations:

1. Make necessary adjustment to the gate hardware to insure the gate is self-closing and self-latching.

Work has been completed.

2. Install ADA compliant hardware and signage

Estimated cost: \$3,800

- B. CHSC requires a sign on the gate that reads “This Gate Must Remain Closed”

Recommendation:

Install a CHSC compliant sign.

Estimated cost: <\$50

- C. The view of the entry area is limited unless office personnel are standing or are near the window. Even with the guide rail channeling patrons by the window, not all patrons can be seen entering the facility. The solutions would require a complete renovation of the entry area and office as well as space for expansion. NOTE: There is considerable square footage now used for chlorine storage adjacent the office. PP-47

PP-47 Entry area, limited office personnel visibility



Recommendations:

No major changes in the office configuration are recommended at this time. However, office personnel seated or working on the computer looking away from the entry need to know someone has entered.

The installation of a surveillance camera with a motion-activated sensor is highly recommended.

Estimated cost: \$3,000

- D. The men's dressing room electrical receptacle at the sink area is not GFCI protected as called for in CHSC and NEC. PP-43

PP-48 Men's Dressing Room non-compliant electrical



Recommendation:
Install and test a compliant receptacle.

Estimated cost: <\$50.00

TOTAL COST ESTIMATES FOR ENTRY AND OFFICE ISSUES: \$7000

Section VII. Cost Estimate Summary

Executive Summary

All of the code issues mentioned must be addressed immediately to bring the pool into compliance and continue to be operational while the City pursues funding for a major renovation or a new facility. The other items identified in this report represent potential safety issues or significant efficiency advantages and should strongly be considered for immediate action. These include leak repairs, deck repairs, chemical control and chlorine source issues.

City staff may be able to handle some minor repairs, however, licensed contractors are required for major repairs and upgrades. Many areas will require Alameda County Health Department and City Building Department approvals.

The study of a potential dedicated Pool Maintenance position, common at public pools, is recommended to relieve the Aquatics Coordinator of the conflicting priorities of pool care and program responsibilities. Preventative maintenance that includes daily inspections, routine service functions and periodic equipment repairs preserves and protects the life of the facility systems. In house maintenance also reduces the need to contract outside vendors to perform basic jobs, minimizes pool downtime and provides cost savings.

Retaining an industry consultant is a common practice in public swimming pool operations to oversee project costs; scope of work; and plan approvals as needed. In addition, licensed engineers/architects would be required for major repairs and upgrades such as structural issues and building concerns. In this report, the costs related to planning, design, engineering and permits are included in the cost estimates. As in any major facility endeavor, a 10% contingency budget should be added to the project costs, which is not reflected in the summary items below.

As the Piedmont Community Pool continues to age, the additional recommendations noted below for renovation work are necessary to protect this valuable asset for community use. The infrastructure of the decks, pool shell, mechanical and electrical systems must be replaced and/or upgraded to maintain the facility in a sound and viable condition.

Looking Forward

1. The following list itemizes the repairs, upgrades, code compliance, cost savings recommendations and other changes that will extend the life of the pool 3-5 years.

Immediate Recommendations:

Existing pool upgrades cost estimate summary:

Deck items	31,000
Deck equipment items	41,000
Main Pool vessel items	47,000+
Medium Pool vessel items	21,000+
Wading Pool vessel items	8,000
Pool mechanical issues	12,000
Chemical storage, control and feed issues	12,000
Conversion to chlorine generation system	65,000
Entry, Office and Dressing room issues	<u>7,000</u>
TOTAL	\$244,000

2. The final list identifies necessary renovation work to extend the life of the pool 5-10 years.

Renovation Recommendations:

- **Install new gutter system for the main pool**
- **Resurface all pools**
- **Replace decks**
- **Renovate pool entry and office**
- **Upgrade mechanical and electrical systems**

The budget for such work would easily exceed \$1,500,000 along with the pool being closed for a minimum of six months.

END

10/10/18