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memo

to: Josh Morse, Commissioner of Public Buildings
City of Newton

from: Thomas A. Scarlata, CSI, CCS, CCCA, AIA
Principal

date: March 10, 2023

project name & number: Gath Memorial Pool Improvement Project
BH+A Project No. 3457

subject: Site Plan Review Submission

cc: BH+A Project File

Background

The Gath Memorial Swimming Pool constructed in 1965, has been well maintained but has passed its useful service life. Repairs are becoming more difficult and frequent. Components required to properly repair the pool are no longer available. The pool in recent years has been losing significant amounts of water. The pool facility is situated within the Russell J. Halloran Sports and Recreation Complex, a.k.a. Albemarle Park.

The pool operates seasonally from the second Monday in June to third week of August each Summer. The facility is used for many programs including general family swim, lap swim, swim lessons, competitive swim team, aqua aerobics, and special events. Over the past three seasons, the pool has seen an average of 30,000 bathers use the pool each summer. Approximately 40 staff including lifeguards, swim instructors, cashiers, and supervisors are hired each season to operate the facility and programs.

The proposed design is based on a feasibility study that included evaluation of the existing conditions, programming and design discussions with City staff and public meetings.

Proposed Project

The project replaces the existing main and kiddie swimming pools with two new swimming pools, expands the deck space around the pool and increases the number of shade structures. A spray is being constructed to the north of the pools. The spray deck is designed to allow usage while the pool is closed. Accessibility improvements are being made to the bathhouse including adding gender neutral facilities.

Bathhouse Description

- The existing bathhouse is not being expanded.
- An existing lifeguard room on the north side of the manager's office is being converted into circulation space. This will provide direct access from the lobby to the pool deck.
- Two existing support spaces on the south side of the manager's office are being combined into one space to create an appropriate lifeguard/first aid space.

- Unused open area in the men's locker room is being converted into two gender neutral toilet and shower rooms.
- Work includes replacement of doors, repair, shower partitions and millwork improvements in the manager's office.
- A new areaway is being constructed to allow access directly into the basement from grade. At the south side of the building. The areaway provides convenient access for service and delivers and a second means of egress.
- Basement level work includes removal of abandoned piping, wiring, and equipment.
- New filtration equipment for the lap pool, recreation pool, and spray deck will be located in the basement level.
- Work will include relocation and addition of emergency lighting and exit signs to accommodate the new configurations.

Building Code Bath House

Under the International Existing Building Code, the project is classified as a Level 2 Alteration and will follow requirements of Level 1 and Level 2 alterations. The existing lifeguard room is 88 SF. When the two existing rooms are combined, the total area will be 220 SF. The two gender neutral facilities are 155 SF.

Swimming Pools Description

After much discussion, the project includes two separate swimming pools. The two pools provide the requirements of recreational, fitness, and competitive swimming. The design offers pool management the ability to run multiple swimming programs simultaneously.

Lap Pool

- Eight (8), seven (7) ft wide, twenty-five yard long lap lanes meeting requirements of competitive swimming organizations.
- Pool depth at the deep end of the pool is 12 feet and features two diving boards and eight competitive swimming starting platforms.
- The depth of the shallow end is four (feet) at the ramp entrance and accessible lift. The depth along the length of the shallow end is still being studied.
- An accessible ramp is located on the south side of the pool to provide access for individuals with disabilities, beginner swimmers, and adults that are looking for a comfortable dignified way to enter the pool.

Recreation Pool

- A deck level "beach type" entry is located at the northeast corner of the pool. The location was selected because of its proximity to deck and shade areas.
- The center of the pool provides a large, relatively flat area ranging in depth from 3 to 3 ½ feet for general recreation and exercise.
- An alcove on the south side of the pool provides a splash down alcove for a code compliant water slide. The slide is located on the east side of the pool in order to maintain full view of the swimming pools from the manager/lifeguard spaces in the bathhouse. Placement could not diminish supervision of the pool.
- The west end of the pool includes two defined lanes intended for water walkers and lap swimmers.

General

- The pools will be on separate filtration systems. Separate filters are required by code; it also allows use of one pool in the event the other pool must be closed for cleaning or maintenance.
- Filtration will feature multiple high rate sand filters , UV sanitation, and automatic chemical control equipment.
- Both pools will have continuous stainless steel gutters around the perimeter provide 100% surface skimming.
- Both pools are accessible via MAAB/ADA compliant ramps and lifts.
- Pool tanks will be dry or wet mix shotcrete with plaster and tile finishes.

Pool Gutter

Typical Gutter: The pool gutter will be similar to the current gutter. A stainless steel, semi-recessed design.

- Full surface skimming around 100% of the pools.
- No splash back at end walls.
- Racing line anchors are recessed flush into the face of the gutter

End Walls at Lap Pool: The semi-recessed design profile has an added deck extension to create fully recessed gutter at the ends of the racing lanes. This improves the pool for competitive swimming and does not affect other pool uses.

Spray Deck

The spray deck located at the north end of the pool area features two levels of interactive, universally accessible spray water features. The features are being selected with City staff and are targeted towards toddlers through pre-teens.

- The spray deck contains an underground reservoir that recirculates and filters the water.
- A separate filter and UV system maintains water quality.
- There is no standing water and can be operated without lifeguards.
- The fence surrounding the spray deck is configured to allow access to the spray deck while the pool is closed. The spray deck surface is a seamless rubber that is impervious and low maintenance.

Pool Deck Improvements

The design of the pool deck and elements provide improved circulation, more deck and seating areas, connection to the park and more shade.

- Pool decks are concrete slab on grade pitched to a series of trench hand spot drains that will direct the water to a stormwater management system.
- Shade structures with metal roofs are provided along the north and east sides of the pool. These structures are a cantilever design to eliminate obstructions on the pool deck.
- Metal was selected to eliminate the need for staff to remove and reinstall fabric coverings each 4th of July. Metal roof structures will also support the potential of future solar panels.
- Two hip roof structures are located on the north and south ends of the bathhouse. The north structure provides additional space as well as stroller parking. The south structure provides secure pool storage for maintenance equipment and everyday items used for swimming lessons and other programming.
- Perimeter fencing and gates are vinyl coated, 1 ¼ inch weave, chain link fencing required by code.

- Two outdoor accessible rinse stations (showers) are located outside of the bathhouse for convenience and hygiene. Additional water misting columns are being studied along the east side of the pool to provide additional cooling to patrons.

Pool Deck Utilities

- *Power:* We will incorporate above ground waterproof, lockable, electrical receptacles for the swim meet timing pads and other equipment. One will be placed on the north side beneath a lifeguard stand, one on the south side adjacent to the ramp railing. Additional boxes will be set around the perimeter for housekeeping.
- *Water:* Ground hydrants will be spaced around the pool deck for cleaning and maintenance.
- *Future Solar:* Conduit and blank boxes will be run for the bathhouse basement to the shade structures to provide a pathway for future solar panels on the shade structures.

Parking & Traffic

The project does not include modifications to the current parking, drop-off, or curb cuts. The existing no parking zone will remain opposite the entrance, accessible parking remains, and the curb cuts at the existing drive and Albemarle Fields path remain.

Construction logistics will be worked out the City staff to ensure the contractor has adequate space to work and store material while maintaining parking, parking access, and circulation around the pool complex. The anticipated construction period will be September to June. The parking and walkways along Albemarle Road are heavily used by Day Middle School staff and drop-off/pick-up of students.

Water Savings

Replacement of the existing aging pool tank and piping with a new pool structure will significantly reduce the current water loss and usage at the Gath Pool. During the 2022 season Gath Pool used over 6 million gallons of water. In addition to this obvious savings other water saving features include:

- Sand filters are selected to maximize the surface and depth of the filtering media to capture more particulates and reduce the volume of backwashing. Backwashing is the process that cleans the filters can and dumps a significant volume of water during the process. Fewer backwashes equal less volume of water sent to waste.
- Having small dual filters rather than one large single tank staggers backwashing and volume of water sent to waste.
- The two pools and spray deck each have independent filter systems, all operating at different turnover rates. The different turnover rates reflect the use of each pool and spray deck. The arrangement, which is governed by code for health reasons, has the unintended efficiency of circulating water at a rate specific to the pools use.
- The spray deck is designed with a water recirculating system that reuses and treats the water. The water flow at the features will be controlled by a minimum of 4 actuators that provide water on demand. The pumps are not running when the spray deck is not in operation. The State, and many other local municipalities have built flow through systems that take potable water and drain directly to storm after running it through the features.

Chemical Reduction

The spray deck and the two swimming pools are being equipped with additional UV sanitation. The UV chambers supplement the traditional filtering and chemical treatment and significantly reduces the amount of chlorine injected into the pool.

Energy Savings

The multiple pumps that provide recirculation for the filter systems and water feeds to the slide and water features will be multi-speed with variable frequency drives (VFD) specifically designed for aquatic applications.

Pool filtration system pumps are often oversized to prepare for a worst-case-scenario of a clogged pool filter. The pump needs to be big enough to be able to pump water through a completely clogged filter. Without a VFD, the oversized pump is constantly running at full speed which equates to wasted power, reduced lifespan of the pool filters and reduced lifespan of the pump itself. The hard starting and stopping of the pump motor also causes power surges which can be dangerous or harm equipment. Hard starting and stopping of the pool motor also causes wear and tear of the motor at an increased rate.

VFDs in pool pump applications are able to cut electricity and maintenance costs significantly. The VFD allows the pump to be run at slower speeds using less electricity. The VFD can easily change the pump speed depending on the pool's conditions. When filters get clogged and create more resistance on the pump, the VFD can ramp up the speed to maintain safe water circulation rates. The VFD will also be controlled by a timer so staff can ramp down the pump speed during off hours and when the pool is not in use on rainy days.

Solar Ready Canopies

The multiple canopy structures in the current design have been changed from fabric to metal after discussing the design with pool management and maintenance staff.

- The current fabric canopies are removed for the annual 4th of July fireworks in the park for safety. Having metal roofs provides significant labor savings and time for the City.
- The metal structures will be designed to accept lightweight solar panels in the future.
- Conduit and blank junction boxes will be installed as part of the Gath pool improvement project. This scope will provide a pathway from the shade structures to the mechanical room for the future addition of solar panels, wiring, and invertors. If solar panels are added, no concrete deck will be disturbed, no coring through building walls and slabs will be required.