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memo- sustainability

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

subject: Project Approach to Sustainability

Renovation and Reuse

The reuse and sustainable renovation of existing buildings can result in fewer adverse environmental impacts than sustainable, or green, new construction. The City's decision to renovate and modify the existing Gath Pool is the first step towards sustainability.

- The project incorporates the existing building, infrastructure, and many site elements into the renovated pool complex.
- The existing fill under the pool decks from 1965 was sampled, analyzed and will be reused as fill under the new pool decks.
- The project will require the contractor to develop a waste management plan and locate facilities that will recycle construction demolition debris. The majority of demolition debris at Gath will be concrete and steel. Concrete is crushed to produce recycled aggregate for earthwork projects; steel, both ferrous and stainless, have significant recycling value.

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.

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- 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 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 even through a completely clogged filter. Without a VFD, this means 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, and 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 Renovation 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.