Sherman Manning Pool – Pool Study

Town of Hartford, Vermont
43 Highland Ave
White River Junction, VT 05001

October 4, 2018
ENGINEER’S REPORT

The Town of Hartford, Vermont (the Town) is located in Windsor County. It is roughly 45 square miles in size, with a population of 9,671 based on the 2016 census. The Town operates eighteen active parks, with amenities for the community including tennis courts, athletic fields, horse shoe pits, playgrounds, picnicking, nature trails/natural spaces, dog parks, fishing areas, outdoor theatres, fitness stations, and natural water access. This engineering report provides an evaluation of the Town’s swimming pool, the Sherman Manning Pool Facility, and an examination of a proposed facility at a future location.

The Sherman Manning Pool was not in operation during this facility review. The review occurred in July 2018.

Weston & Sampson has been retained to perform professional engineering, compliance evaluations, and planning services in connection with the Sherman Manning Pool Facility. Our scope of services includes the following:

- Review of existing pool plans and systems
- A code analysis for conformance with National Standards, as well as the new Federal Standards for ADA and Virginia Graeme Baker (VGB)
- Evaluate the field house facility building and filter building
- Examine existing piping, circulation, chemical treatment and filtration systems
- Research appropriate repairs for the swimming pool
- Prepare an Engineer’s Report that compares pool replacement costs vs. proposed repair costs, and a conclusion and summary of recommendations.

Code Review

The State of Vermont does not have a health code that pertains to public and semi-public swimming pools. The Sherman Manning Pool Facility will be evaluated by the below code standards:

- International Plumbing Code (2012) (IPC)
- United States Access Board – Accessible Swimming Pools & Spas (June 2014) (ADA code)
- Virginia Graham Baker Pool and Spa Safety Act – January 2012 (VGB code)
Report Outline

The following provides the report outline for the evaluation of the Sherman Manning Swimming Pool Facility:

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1.0 – BACKGROUND, GENERAL INFORMATION, AND CURRENT USE OF THE FACILITY

The Sherman Manning Pool Facility (the pool facility) is located at 43 Highland Avenue. The pool facility includes one swimming pool and one wading pool for water recreation and is situated southwest of the Hartford High School and northwest of the Hartford Middle School. The swimming pool wading pool and filter room were constructed in 1966. In 1997, a new gutter system was installed to replace the original skimmer system on the swimming pool. In 2015, a new multipurpose athletic complex building (field house) was constructed for the use of the Hartford Athletics / School Program and the pool facility. Currently the pool facility utilizes the field house for restrooms, showers, changing areas and drinking fountains during the majority of their open season which is typically late June to late mid-August. Once the football season begins, patrons of the pool use the Hartford High School’s restroom facilities on the opposite side of the pool. When ADA access or family use is required, patrons use the family restroom within the field house.

The Town utilizes the pools for community involvement, including seasonal memberships, swimming lessons, summer camps, and open swim usage.

The swimming pool facility has seen minor upgrades during its life span such as the gutter system previously mentioned, and adding additional drains. Annual maintenance items consist of replacement of filter media with perlite, pumps, chemical feed systems, recoating of the pools, and other safety and compliance items.

The filter building was constructed at the same time as the pools. Maintenance renovations have been regularly performed by the Town throughout its lifetime. This includes painting, fixture upgrades, and new roofing. Figure A below shows a view of the existing filter building.
1.10 Description of Current Facilities

1.11 Bathhouse and Field House Facility

The entrance to the pool facility is through the newly constructed, three-year-old athletic field house. The building is a mason brick and steel fabricated building. The building includes men’s and women’s locker rooms with bathrooms, showers, and changing areas and a family/ADA accessible bathroom. At the building entrance there is a station where patrons pay an entry fee to gain access to the locker rooms and the pool deck. Other rooms within the building are not used for the pool facility. The building is multi-seasonal with central air regulating the indoor temperature.

The entire pool facility is enclosed by a 6-foot high galvanized chain link perimeter fence with service gates on both sides of the High School and an entry/exit point southwest of the swimming pool. The only pedestrian access to the pool facility is through the field house. Patrons make their way to the entrance via a bituminous sidewalk, which connects the field house to the parking lot. The main parking lot is shared with the Hartford School system. The field house exits onto the pool deck. The aerial photograph (Figure B) to the right shows a general layout of the existing pool facility.
1.12 Swimming Pool

The swimming pool layout configuration is an “L” shaped pool. The swimming pool is made up of lap lanes and a designated shallow end. The lap lane portion of the swimming pool is approximately 35-feet (ft) 2-inches (in) wide by 75-ft 1-in long with depths from 5-feet 0-inches on the northeast side of the lap lanes sloping to a depth of 10-ft 0-in on the northwest side of the swimming pool. This portion of the swimming pool contains eight non-standard swimming lanes and is used for general activity, swim lessons, and lap swim. A photo of the swimming lanes can be seen in Figure C.

The shallow end section of the swimming pool is approximately 47-ft 0-in wide by 42-ft 2-in long, with depths ranging from 3-ft 0-in to 5-ft 0-in deep.

The swimming pool has six entry ladders found along the perimeter of the pool and two portable battery powered handicap lifts. There is one diving board and one slide feature in the deep end of the lap lane portion of the swimming pool.

1.13 Filtration Building & Recirculation System

The filtration building is a single wythe concrete masonry building. The façade consists of a painted block surface. The roof is a wood truss roof with three tab roof shingles. The filtration building houses the mechanical and electrical components of the swimming pool’s recirculation systems.

The first floor of the building is used for pool storage, first aid, staff office space, electrical panels and CO₂ storage. The recirculation system, chemicals and additional pool equipment is housed on the basement floor.

The swimming pool recirculation system consists of one large Diatomaceous Earth filter (DE filter), one centrifugal pump, chemical feed injectors, chemical analyzer, and various electrical motor starters.
Recirculated water is delivered to the swimming pool through a network of return inlets in the pool gutter, which creates movement in the water. The water then recirculates back to the filter system through the perimeter gutter at the surface of the water and through the main drains found in the deep end of the swimming pool. Water is skimmed off the top of the swimming pool through the gutter and is gravity fed to the DE filter found in the filter room. The main drains also gravity feed the DE filter. The centrifugal pump moves water through the system, pulling it through the DE filter, through the network of piping to provide proper disinfection chemicals, discharging filtered and disinfected effluent back into the swimming pool through the same network of return inlets.

The wading pool recirculation system consists of one cartridge filter, one self-priming pump, chemical feed injectors, a chemical analyzer, and various electrical motor starters.

Recirculated water is delivered to the wading pool through a network of return inlets in the wading pool wall, which creates movement in the water. The water then is suctioned through the two main drains found in the center of the pool floor. The main drains feed the self-priming pump which pushes water through the filter. The pump moves water through the system, through the network of piping to provide proper disinfection chemicals, and discharges filtered and disinfected effluent back into the pool through the same network of return inlets.

### 1.20 Patron Usage

Using the International Swimming Pool Code (2012), the permissible bather load of the current pool is 464 bathers at one time.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Days open</th>
<th>Seasonal Pass</th>
<th>Daily Pass</th>
<th>Total Usage</th>
<th>Average Day Usage</th>
<th>Average camp users per day</th>
<th>Average day with campers</th>
<th>Peak Day with campers</th>
<th>Expenses</th>
<th>Revenue</th>
<th>Income/Deficit</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>63</td>
<td>2194</td>
<td>853</td>
<td>3047</td>
<td>48</td>
<td>80</td>
<td>50</td>
<td>209</td>
<td>$45,744.80</td>
<td>$22,234.79</td>
<td>-$23,510.01</td>
</tr>
<tr>
<td>2015</td>
<td>63</td>
<td>1480</td>
<td>712</td>
<td>2192</td>
<td>35</td>
<td>80</td>
<td>36</td>
<td>167</td>
<td>$46,076.48</td>
<td>$7,108.04</td>
<td>-$38,968.44</td>
</tr>
<tr>
<td>2016</td>
<td>64</td>
<td>797</td>
<td>860</td>
<td>1657</td>
<td>26</td>
<td>80</td>
<td>27</td>
<td>152</td>
<td>$48,109.49</td>
<td>$9,358.50</td>
<td>-$38,750.99</td>
</tr>
<tr>
<td>2017</td>
<td>POOL WAS NOT OPEN DUE TO CONSTRUCTION</td>
<td>797</td>
<td>860</td>
<td>1657</td>
<td>26</td>
<td>80</td>
<td>27</td>
<td>152</td>
<td>$86,718.83</td>
<td>$12,039.50</td>
<td>-$74,679.33</td>
</tr>
</tbody>
</table>

**Table 1 - Patron Use and Yearly Expenses/Revenues**
facility was open for 64 days during the 2017 season, which equates to an average patron admission of 27 individuals per day including the camp users. Attendance in the 2017 season had decreased by 535 patrons from the 2016 season. Refer to Table 1.

In addition to daily pass users, the pool facility also utilizes seasonal individual pass holders and family pass holders. Summer camps, and private parties also utilize the pools throughout the summer.

The pool facility was able to generate approximately $12,040 (2017 season revenue) of income in order to offset facility operating costs. Revenue comes from seasonal passes for families and individuals, as well as individuals paying for daily passes, lessons, private parties, pool programing, and donations. The revenue created from these activities and admission is used to offset the annual operating cost of $86,720 (2017 costs to operate). The increase in loss each year can be contributed to less attendance and increase initial yearly maintenance on the pool to keep the pool facility operation. Cost spike in 2017 can be contributed to more substantial repairs. Refer to Table 1.

1.30 Current Challenges

The pool facility is currently facing many challenges to continue safely operating. The fifty-two-year-old pools are deteriorating and no longer comply with current standards. In 2015 the filtration building was renovated, and the mechanical equipment was replaced. Section 2.0 of this report summarizes the pool facility’s deficiencies.

The current facility has exceeded its useful life and over time building and health codes have been updated, rendering this facility non-compliant. The Town is now faced with some decisions; to make repairs to this aging facility, construct a new facility or close the pools and restore the space to an active greenspace or used for future school needs. Costs will be provided later in this report for each of these alternatives.

2.0 Evaluation of the Current Swimming Pool

2.10 – Existing Design

The current swimming pool is a concrete reinforced pool with an epoxy paint finish containing three 12-in by 36-in main drains and a perimeter overflow gutter system. The pool currently has two ADA compliant lifts, six stainless steel drop-in ladders, one stair entry point, and three lifeguard towers.

The swimming pool contains eight, 25-yard lanes that traverse northwest and southeast, and a 56-ft by 25-ft deep end found at the northwestern section of the swimming lanes. The lanes that traverse north and south are used for lap swim, swimming lessons and camps.
The swimming pool has a total surface area of approximately 7,410 square feet (sq ft), retains approximately 331,400 gallons of water, and was designed to have a turn-over rate of 7.9 hours at a pumped recirculation rate of 700 gallons per minute (gpm).

The replacement of the swimming pool gutter and filter renovations has been the only major renovation during its fifty-two years of existence. The pool facility has made minor upgrades that include installation of an automatic calcium hypochlorite disinfectant tablet feeder, CO2, new chemical analyzers to automate the chemical feed process, bi-yearly to yearly painting of the pool, and replacement of pumps, strainers, pipes, and filter media/cartridges.

The swimming pool is surrounded by an impervious concrete deck that extends 10 to 20-ft from the edge of the pool. The deck drains away from the swimming pool to area deck drains.

2.11 – Structural

The swimming pool shell is constructed of a reinforced cast in place concrete structure with an epoxy paint finish on the walls and floor. The strength of the reinforced concrete shell system is unknown, but according to historical plans the walls and floors are single mat steel reinforcement. The swimming pool floor and walls are 8-in in thickness.

There were no expansion joints or construction joints found within the swimming pool shell. However, there were expansion joints found between the perimeter gutter system and pool walls. See Figure D.

2.12 – Finishes

The reinforced concrete swimming pool shell was finished with an epoxy paint coat by the installer. This type of finish is consistent with most pool finishes for that time. During its life span, to prolong the finish and to reduce abrasion hazards, a thick epoxy paint finish was annually or bi-annually applied to the swimming pool surface. This is the current finish found in the pool.
2.13 – Deck

The swimming pool has an impervious concrete deck around the perimeter of the pool extending approximately 10 to 20-feet from the pool edge in some locations. There are no expansion joints between the edge of the pool wall/gutter and the edge of the concrete deck. This has caused the deck and gutter to move as one object, resulting in a broken seal between the gutter and pool wall. With this critical joint broken, water is penetrating through to the outside of the pool wall creating large voids under the deck. As these voids are created and the deck continues to shift with the seasons, conditions worsen, and the decking has begun to settle.

The swimming pool deck primarily drains to small area drains found around the perimeter of the pool. Refer to Figure E. The remainder of the deck runoff is captured by a small grassy area between the pool filter building and the school.

It appears that during the life span of the swimming pool, the only decking that was replaced was where the old field house had resided and a section near the gutter.

Depth markers are painted on the deck surface along the edge of the swimming pool, indicating the depth of the pool at that particular location.

The pool uses two ADA compliant lifts. The lifts are battery powered and are available to patrons upon request.

2.20 – Compliance Issues

2.21 – Required by Code

This facility is considered a “Class B” facility in accordance with American National Standard for Public Swimming Pools (ANSI / NSPI – 2014). The following is a review of current requirements as they pertain to this facility.
System Turnover

Code Requirements
In accordance with Code 8.1.1 Circulation Systems, from the American National Standard for Public Swimming Pools, “The equipment shall be of adequate size to turn over the entire pool water capacity as specified in Table 8.1.1. The system shall be designed to give the proper turnover rate based on the manufacturer’s recommended maximum pressure and flow rate of the filter with clean media.”

<table>
<thead>
<tr>
<th>Swimming Pool Category</th>
<th>Turnover Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A, B, C Pools</td>
<td>1-1/2 Times average Depth in feet equals the turnover required, to a maximum of 6 hours</td>
</tr>
<tr>
<td>Wading Pools</td>
<td>1 hour</td>
</tr>
<tr>
<td>Public Spas</td>
<td>See ANSI/ APSP-2 Standard for Public Spas</td>
</tr>
</tbody>
</table>

Compliance Assessment
Currently the system does not meet the maximum turnover rate of 6 hours, as outlined above. There is one (1) large DE filter found on the filtration system with a system flow rate of 700 gpm. With the filter fully operational, the current turnover rate of the system is approximately 7.9 hours. Not achieving the proper turnover rate reduces water quality and puts bathers’ health at risk. This filter is original to the swimming pool, and with the current piping and equipment it is undersized and cannot meet the turnover rate of the current codes.
Main Drain

In accordance with Code 4.6.1 Single or Dual Outlets, from the American National Standard for Public Swimming Pools, “The flow rating for each listed cover/grate shall be greater than the maximum system flow as determined in accordance with 4.4.1.” Code 4.4.1 states that the sump, grate, and piping shall be sized for 100% of the system flow.

Issue

At the time of inspection, we were not able to inspect the sump and the age of the covers. All covers have an expiration date. Covers need to be examined to determine when they need to be replaced.

No Diving Symbols

- In accordance with ISPSC 409.3 No Diving Symbol, “Where the pool depth is 5-feet or less, the “No Diving” symbol shall be displayed. The symbol shall be placed on the deck at intervals of not more than 25 feet.”

Issue

There are “No Diving” symbols stenciled into the decking of the pool facility in accordance with ISPSC 409.4. See Figure F.

Marking of Depth

- In accordance with Code 18.3.1.2 Depth Markers, from the American National Standard for Public Swimming Pools, “Depth Markers on the vertical pool wall shall be positioned to be read from the waterside. Depth markers shall be placed in such a way that they allow as much of the numerical value to be visible above the waterline as possible”

Issue

Currently there are no depth markers found on the face of the swimming pool walls/gutter that indicate the depth of water. Depth markers shall be corrected on the deck and added on the wall above the waterline.
Signage and Emergency Phone

- In accordance with Code 18.5.2 Emergency Telephone Signs, from the American National Standard for Public Swimming Pools, “A sign shall be posted in the immediate vicinity of the pool, stating the pool’s address, the location of the nearest telephone with references that emergency telephone numbers are posted in this location.”

Issue

Currently the sign does not have the appropriate language. We recommend installing signage with the proper language indicating all the required references.

Line Markings

- In accordance with Code 18.2.1 Rope and Float Line, from the American National Standard for Public Swimming Pools, “In pools where the water depth exceeds 6 FT – 4 IN, a wide contrasting color band extending from the waterline, down the wall, across the floor, and up the opposite wall to the waterline shall be located at 5-FT of water depth. A rope and float line shall be located 1-FT to 2-FT on the shallow side of that band.”

Issue

Currently there is no line distinguishing where the swimming pool depths become greater than 5-ft. A contrasting color break line needs to be installed at the 5-ft water depth point to distinguish where the pool depth is greater than and less than 5-ft. For the swimming pool, two break lines would need to be installed; one running north to south traversing the lap lanes and another running west to east between the shallow end and the lap lanes. A rope and float line would also need to be installed in accordance with Code 18.2.1 during the season to further distinguish where the swimming pool depth is greater than and less than 5-ft.

Settling Deck:

- In accordance with the ISPSC 306.4 Slope, “A minimum slope of the deck shall be provided except where an alternate drainage method is provided that prevents the accumulation or pooling of water. The sloped deck shall be not greater than 1⁄2-inches per foot and not less than 1⁄8-inches per foot.”
Issue:

The concrete deck has settled and cracked in various locations. The concrete deck has settled between $\frac{1}{8}$ to 1-in in locations, resulting in standing water on the deck. Standing water on the deck is a health hazard and a safety hazard. Figure G and H are examples of the current conditions.

- In accordance with ISPSC 306.5.1 Maximum Gaps, “The difference in vertical elevation between the swimming pool deck and adjoining sidewalk shall be not greater than $\frac{1}{4}$-inch.”

Issue

The deck has settled or shifted around the perimeter of the swimming pool. In some locations, there is a vertical elevation change of $\frac{1}{8}$ to 1 inch. The settled deck has created trip and abrasion hazards around the perimeter of the pool. See Figure G and H.
**Pool Interior Abrasion Hazards**

- In accordance with *ISPSC 307.6 Surface Conditions*, “The surface within the public aquatic vessels intended to provide footing for users shall be slip-resistant and shall not cause injury during normal use.”

**Issue**

The interior surface of the reinforced concrete shell is breaking down and exposing concrete material. These areas have been annually maintained by filling the voids with a grout. These “temporary repairs” have surpassed their lifetime and therefore the surfaces shall be inspected, cleared of lose debris and properly re-patched. Refer to Figure I.

**Bonded Handicap Lift**

- In accordance with *NEC 680 Swimming Pools, Fountains, and Similar Installations*, all metallic items found within the 10-foot radius of the pool must be all interconnected through an equipotential bond.

**Issue**

The gutter contains large areas of rust, which could be due to incorrect bonding or not being pickled after being welded. The footing connections for the slide are rusting and splitting apart. There is an apparent bond connection showing on the deck, however it isn’t certain that it is connected to the grid due to the amount of rusting. The record drawings do not show, or callout any required bonding. Any metallic items found within a 10-ft radius of the swimming pool edge shall be incorporated into the electric equipotential bond, to be in compliance with *NEC 680*.

**Diving Equipment**

- In accordance with *Code 7.2.5.6 Deck Equipment*, from the American National Standard for Public Swimming Pools, “Diving equipment 1 meter high or higher shall be provided with a top guard rail, which shall be at least 30 in above the diving board and extend to above the edge of the pool wall.”
In accordance with Code 6.2.2 Diving Envelope, from the American National Standard for Public Swimming Pools states, “Negative construction tolerances shall not be applied to the shallow dimensions of the minimum Diving Envelope in Table 6.2.2.”

Issue

Currently the diving board railing system stops after the top step onto the board, leaving a large opening between the swimming pool wall and current railing system. The railing system needs to be updated to extend to above the edge of the pool wall to prevent accidental falls onto the deck.

The diving bowl is not compliant with the code. If diving is to be allowed, the swimming pool shell would need to be modified to allow for proper slopes and space.

Barrier Requirements

- In accordance with ISPSC 305.2.7 Chain Link Dimensions, “The maximum opening formed by a chain link fence shall be not more than 1.75 inches. Where the fence is provided with slats fastened at the top and bottom which reduces the openings, such openings shall be not more than 1.75 inches.”

Issue

The current perimeter fencing has openings of 2.5-in, making the fencing not compliant with the ISPSC 305.2.7. Openings this large creates foot holds for individuals to climb the fence. There are also larger than 4-in openings in the gate which can create a hazard for little kids to get stuck in.

2.22 – Recommend Repairs

Water Loss

The swimming pool experiences significant water loss throughout the season. Over the past couple of years, the town has lost approximately 1 to 2 million gallons of water each year. In discussions with the operators, they must fill the swimming pool daily, depending on the usage and type of weather. The Town had South Shore Gunite Pools and Spas, Inc. pressure test the gutter and found water leaks in several areas. They believe the root of the problem to be a combination of the leaking gutter and the cracked and spalling concrete of the pool shell.

Due to the manner of installation and lack of control and expansion joints within the swimming pool, the settling and shifting of the ground with the freezing and thawing of the seasons resulted in large cracks throughout the pool shell. The pool has expanded and contracted with the ground, cracking on weak points and creating openings for water loss.
Additionally, the installation of the perimeter gutter system is also contributing to large amounts of lost water. When the new gutter system was installed in 1997 it was improperly installed, lacking water stops, and an expansion joint between the deck and gutter. The current hinged connection between the deck and gutter results in movement during freeze/thaw cycles, which breaks the caulking seal. This has caused water to penetrate through a broken sealant and creates voids on the outside of the pool shell.

The excessive loss of water results in an added financial burden with extra costs to refill the swimming pool, chemicals used to balance the pool, and labor required to balance the pool.

Excessive loss of water in swimming pool also adds a public health and safety concern. The inability to bring pool water to a certain concentration of chlorine levels and pH levels could result in pathogens suspended in the water.

Replacement of the swimming pool shell shall be included as part of any anticipated repairs to the pool.

**Structural Concerns**

Loss of water can be attributed to the structural fatigue in the swimming pool shell and deficiencies in the 1997 renovations.

As previously mentioned, the current sealant between the gutter and the top of concrete wall has failed. In discussions with the maintenance staff, they had a company come replace the sealant prior to the 2017 operation. The sealant is most likely failing again due to the method of installation of the gutter system, and the freeze/thaw cycles. These issues are causing the swimming pool and decking to move and shift creating stress between the two pulling them apart.

Structural fatigue in the swimming pool can be attributed to improper construction methods. Removal of the wall, not creating a backer wall results in the water proofing to be just a single caulk joint. No water-stops were installed to prevent water from leaking out the back of the gutter. Refer to figures K and L.
A non-destructive hammer test was performed around the inside of the swimming pool slab. During this test voids were discovered where cracks were present. These cracks are most likely also contributing to a large amount of water loss.

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**Interior Surface Concerns**

The interior of the swimming pool is in poor condition, and there are many areas of the pool walls and floors where the epoxy paint has failed and cracked. These cracks have resulted in abrasions and cuts to patrons in the past. The town has spent a tremendous amount of effort repairing the cracks but over the last few years more cracks have occurred, and the surface has rapidly deteriorated.

At one point, the swimming pool may have been painted with a dissimilar paint, (latex on top of an epoxy base). This could result in paint flaking off over the seasons.

**Decking Concerns**

The pool decking is cracked, chipped and uneven. The poor condition of the deck can be attributed to four primary concerns.

The first concern is the lack of an expansion joint between the swimming pool gutter system and the pool deck. The ground surrounding the pool performs differently than the pool. The movement (control and expansion) in the materials will occur at different rates due to freeze / thaw. This movement has created a shear point that is found in the pool deck.

The second concern is the leaking gutter. Approximately 75% of the swimming pool perimeter behind the deck was found to be hollow when performing a non-destructive hammer test. Water has
infiltrated behind the gutter and created a void in the deck, resulting in the uneven elevation at the deck crack.

The third concern is a result from the first. The cracks and settling in the deck will continue to get worse because water from the deck will infiltrate into the crack and result in movement through a freeze/thaw cycle.

The fourth concern is that while the deck does contain area drains, the drains are too small and spaced too far apart to handle all the water that ends up on the deck.

Additionally, the deck drains are original to the site making the piping more than likely compromised, not allowing for proper drainage.

**Hydraulics**

The pool's current hydraulic distribution system is outdated. The perimeter gutter is rusting along a weld that travels along the length of the gutter. This is most likely due to the gutter not being pickled. This rusting is a result of a repair that occurred due to improper winterization.

**2.30 – Recommended Remediation / Replacement**

**Repairs / Renovations**

The code compliance issues stated in the above section need to be corrected in order to operate the swimming pool. The structural repairs should be a high priority as they are creating some non-compliant conditions and health and safety concerns for the patrons and the environment.

These repairs would be required to open the swimming pool. If the repairs are made, we believe the pool facility would only still have a life span of approximately 6-8 years, as opposed to a new facility which would be a 40+ year life span. Section 6.0 and Appendix A detail a cost estimate for repairs only.

**Replacement**

The current pool does not meet the needs of the Town, limiting activities, and the number of patrons it can serve at a given time. Replacement of the swimming pool is a viable option for the Town.
Weston & Sampson recommends a new pool that will have a life expectancy of 40+ years. A new pool would combine the current municipal aquatic trends as well as adding options for younger, middle-aged and elderly users.

Please see the below sections for further detail on the public’s opinion on a replacement system.

3.0 – Evaluation of the Current Wading Pool

3.10 – Existing Design

The current wading pool is a concrete reinforced pool with an epoxy paint finish containing two 9-in drains, eight return inlets, a water spray feature and a sun shade. The existing pool was constructed at the same time as the swimming pool in 1966. Refer to Figure N.

The pool is square in shape, with dimensions of 25-ft by 25-ft and an area of 625 sq ft. The pool floor is flat and has a water depth of 12-in, retaining approximately 4,675 gallons. It was initially designed with a two-hour turnover rate at a pump recirculation rate of 40 gpm. Based on the square footage of the wading pool the current bather load is 41 bathers.

The only major renovation done on the wading pool since its original construction was the replacement of the main drains in 2015. The Town also made minor upgrades to the mechanical equipment when replacing the swimming pools equipment in 2015. These include installation of an automatic calcium hypochlorite disinfectant tablet feeder, a CO$_2$ feeder, new chemical analyzers to automate the chemical feed process, bi-annual to annual painting of the pool, and replacement of pumps, strainers, pipes, and filter media/cartridges as needed.

The pool is surrounded by an impervious concrete deck that extends 6 to 10-ft from the edge of the pool. The deck is not properly sloped to drain away from the pool and there are no existing deck drains around this pool. There is a grassy area to the north and northeast where water could be directed for drainage, but the deck does not currently slope this way.

3.11 – Structural
The wading pool shell is constructed of a cast in place concrete structure with an epoxy paint finish on the walls and floor. The strength of the concrete shell system and whether it contains any reinforced steel is unknown. According to original contract documents the pool floors and walls are 8-in thick.

There were no expansion joints or construction joints found within the pool shell.

3.12 – Finishes

The concrete wading pool shell was originally finished with a thick epoxy paint coat by the installer. This type of finish is consistent with most pool finishes for that time. During its life span, to prolong the finish and to reduce abrasion hazards, a thick epoxy paint finish was annually or bi-annually applied to the pool surface. This is the current finish.

3.13 – Deck

The wading pool has an impervious concrete deck around the perimeter of the pool extending approximately 6 to 10-ft from the pool edge. There are no expansion joints between the edge of the pool wall and the edge of the concrete deck. This has caused the deck and pool wall to move, resulting in uneven settling. With this critical joint broken, water is penetrating through to the outside of the pool wall creating voids under the deck. As these voids are created and the deck continues to shift with the seasons, conditions worsen, and the decking has begun to settle. The pool deck primarily drains to a small grassy area to the north of the pool and to the pool deck drains to the south. Refer to Figure O.

It appears that during the life span of the wading pool, the only decking that was replaced was to the west of the pool by the new field house facility.
3.20 – Compliance Issues

3.21 – Required by Code

This facility is considered a “Class B” facility in accordance with American National Standard for Public Swimming Pools (ANSI / NSPI – 2014). The following is a review of current requirements as they pertain to this facility.

System Turnover

- In accordance with Code 8.1.1 Circulation Systems, from the American National Standard for Public Swimming Pools, “The equipment shall be of adequate size to turn over the entire pool water capacity as specified in table 8.1.1. The system shall be designed to give the proper turnover rate based on the manufacturer’s recommended maximum pressure and flow rate of the filter with clean media.”

<table>
<thead>
<tr>
<th>Swimming Pool Category</th>
<th>Turnover Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A, B, C Pools</td>
<td>1-1/2 Time average Depth in feet equal the turnover required, to a maximum of 6 hours</td>
</tr>
<tr>
<td>Wading Pools</td>
<td>1 hour</td>
</tr>
<tr>
<td>Public Spas</td>
<td>See ANSI/ APSP-2 Standard for Public Spas</td>
</tr>
</tbody>
</table>

Issue

Currently the system does not meet the maximum turnover rate of 1 hour. There is one (1) Cartridge filter found on the filtration system with a system flow rate of 40 gpm. With the filter fully operational, the current turnover rate of the system is approximately 1.95 hours. Not achieving the proper turnover rate degrades the water quality and puts bathers’ health at risk. This filter was replaced during the 2015 renovations/mechanical upgrades. With the current flow rate the filter is not being fully utilized and is not meeting the current code turnover. To meet code the flow rate would need to be increased to a minimum of 80 gpm. In turn multiple mechanical items would need to be replaced to accommodate this new flow rate.

Hose Bib

- In accordance with Code 7.1.16 Decks and Deck Equipment, from the American National Standard for Public Swimming Pools, “Hose bib(s), with a cross connection control to prevent
backflow, shall be provided for rinsing down the entire deck and shall be in accordance with
the authority having jurisdiction.”

Issue

There was no backflow prevention device found in the building, and no vacuum breakers found on
the hose bib during the time of the inspection. This could result in a cross connection and back
syphoning into the system.

Skimming Systems

- In accordance with Code 12.1 Surface Skimming Systems, from the American National
  Standard for Public Swimming Pools, “Suction entrapment avoidance methods for wading
  pools shall be in accordance with ANSI/APSP/ICC-7.”

- In accordance with Code 12.1 Surface Skimming Systems, from the American National
  Standard for Public Swimming Pools, “A surface skimming system shall be provided on all
  public swimming pools. The surface skimming system shall be designed and constructed to
  skim the pool surface when the water level is maintained within the operational system
  level.”

Issue

The current wading pool does not contain any skimming devices. Currently the wading pool is utilizing
the two 9-in main drains as the suction points. The wading pool needs to have a skimming device
because the dirtiest water is found at the surface of the pool. Not having a skimming device creates
a health hazard for bathers. This pool should not be operated until proper skimming methods are
implemented.
Main Drains

- In accordance with ISPSC Code 5.3.1 Blockable Outlets-dual Separation, “Dual outlets shall be separated by a minimum of 3 feet measured from center to center of the suction outlet cover/grate or located on two (2) different planes.”

Issue

The main drains are not properly spaced within the wading pool. Refer to Figure P.

Depth Markers

- In accordance with ISPSC 409.4 No Diving Symbol, “Where the pool depth is 5-feet or less, the “No Diving” symbol shall be displayed. The symbol shall be placed on the deck at intervals of not more than 25 feet.”

- In accordance with ISPSC 409.2 Depth Markers, “Depth markers shall be installed at the maximum and minimum water depths and at all points of slope change. Depth markers shall be installed at water depth increments no to exceed 2 feet. Depth markers shall be spaced at intervals not to exceed 25 feet.”

- In accordance with Code 18.3.1.2 Depth Markers, from the American National Standard for Public Swimming Pools, “Depth Markers on the vertical pool wall shall be positioned to be read from the waterside. Depth markers shall be placed in such a way that they allow as much of the numerical value to be visible above the waterline as possible.”
Issue
Currently the wading pool does not have any depth markers on the deck or vertical face of the pool wall. Depth markers shall be installed on the deck and waterline of the pool wall. In all depths less than 5-ft, a “NO DIVING” international symbol needs to be present at every point where there is a water depth marker. These are not currently found at this pool facility and should be installed on the deck in conjunction with the depth markers according to ISPSC 409.4 No Diving Symbol. See Figure Q.

Signage and Emergency Phone

- In accordance with Code 18.5.2 Emergency Telephone Signs, from the American National Standard for Public Swimming Pools states, “A sign shall be posed in the immediate vicinity of the pool, stating the pool’s address, the location of the nearest telephone with references that emergency telephone numbers are posted in this location.”

Issue
Currently there is no sign indicating where the 911 emergency phones’ is located. We recommend installing signage that indicates the location of the phone and all emergency telephone numbers.

Settling Deck

- In accordance with ISPSC 306.5 Slope, “A minimum slope of the deck shall be provided except where an alternate drainage method is provided that prevents the accumulation or pooling of water. The sloped deck shall be not greater than ½-inches per foot and not less than ⅛-inches per foot.”

Issue
The concrete deck has settled and cracked in various locations. The concrete deck settled between ⅛ to 1-in in locations, resulting in standing water on the deck. Standing water on the deck is a health hazard and a safety hazard.

- In accordance with ISPSC 306.5.1 Maximum Gaps, “The difference in vertical elevation between the pool deck and adjoining sidewalk shall be not greater than ¼-inch.”

The deck has settled or shifted around the perimeter of the pool. In some locations, there is a vertical elevation change of ⅛ to 1-in. The settled deck has created trip and abrasion hazards around the perimeter of the pool.
Pool Interior Abrasion Hazards

- In accordance with ISPSC 307.6 Surface Conditions, “The surface within the public aquatic vessels intended to provide footing for users shall be slip-resistant and shall not cause injury during normal use.”

Issue

The concrete shell of the wading pools interior surface is breaking down and exposing concrete material. These areas have been maintained annually by filling the voids with a grout. These “temporary repairs” have surpassed their lifetime and surfaces shall be inspected, cleared of lose debris and properly re-patched. Refer to figure R.

ADA Access

- In accordance with United States Access Board - Accessible Swimming Pools & Spas – “A wading pool is a pool designed for shallow depth and is used for wading. Each wading pool must provide at least one sloped entry into the deepest part. Other forms of entry may be provided as long as a sloped entry is provided. The sloped entries for wading pools are not required to have handrails.”

Issue

The pool is not currently ADA accessible. There are no points around the perimeter of the pool where a sloped entry would allow someone in a wheel chair into the pool. A sloped entry would need to be installed in order to be complaint.

Barrier Requirements

- In accordance with ISPSC 305.2.7 Chain Link Dimensions, “The maximum opening formed by a chain link fence shall be not more than 1.75 inches. Where the fence is provided with slats fastened at the top and bottom which reduces the openings, such openings shall be not more than 1.75 inches.”
Issue

The current perimeter fencing has openings on 2.5-in larger than the codes allowable limit of 1.75-in. Openings this large creates foot holds for individuals to climb the fence. There are also larger than 4-in openings in the gate which can create a hazard for little kids to get stuck in.

3.22 – Recommend Repairs

Water Loss

Due to the method of installation and lack of control and expansion joints the wading pool has settled and cracked over its lifetime. The wading pool now experiences water loss throughout the season, causing the operator to fill the pool on a regular basis. This added demand of water requires chemicals to constantly be added to the pool, making it difficult to chemically balance the pool.

Additionally, the perimeter inlets are contributing to the large amount of water loss. The inlets and piping are original to the pool and have surpassed their lifetime. The surrounding concrete has begun to spall and chip creating loose debris in the pool, and voids around the inlets leading to the additional water loss.

Decking Concerns

The wading pool decking is cracked, chipped and uneven. Deck cracks and settling can be attributed to four concerns.

The first concern is the lack of an expansion joint between the wading pool wall and deck. The ground surrounding the pool performs differently than the pool. The movement (control and expansion) in the materials will occur at different rates. This movement has created a shear point that is found in the pool deck.
The second concern is the leaking inlets. Around the wading pool deck, hollow areas were found when performing a non-destructive hammer test. Water has infiltrated behind the pool wall and created a void in the deck, resulting in the uneven elevation at the deck crack.

The third concern is a result from the first. The cracks and settling in the deck will continue to get worst because water from the deck will infiltrate into the crack and result in movement through a freeze/thaw cycle.

The fourth concern is, the deck does not contain area drains. Without area drains water ends up pooling on the deck and penetrating cracks, supplementing the void growth behind the pool walls under the deck.

The deck also contains a water spray feature that shoots from the deck into the wading pool. The footing of the spray feature sticks out above the decking creating a abrasion hazard/tripping hazard. Refer to Figure S.

3.30 – Recommended Remediation / Replacement

Repairs / Renovations

The code compliance issues stated in the above section need to be corrected in order to operate the wading pool. Installing a skimming structure and correctly spacing the main drain structures should be a high priority as they are creating non-compliant conditions for the patrons.

These repairs would be required to open the pool. Weston & Sampson recommends keeping the wading pool closed until these repairs are made.

Replacement

Weston & Sampson recommends replacement of the wading pool with a modernize wading pool. The current pool does not meet the needs of the Town. The pool offers limiting activities, and can only accommodate a small number of patrons at a given time. Given the current conditions of the wading pool the cost to repair outweighs the cost of replacement.
Weston & Sampson recommends closing the wading pool, and reprograming by installing a new wading pool.

4.0 – Evaluation of the Current Field House Facility

4.10 – Existing Building

The field house is a single-story mason brick and steel fabricated building. The building was constructed in 2015 and is a slab on grade building with frost walls with the footing extending below the frost line. The building includes men’s and women’s locker rooms with bathrooms, showers, and changing areas and, family/ADA bathroom. At the building entrance, there is a station where patrons pay an entry fee to gain access to the locker rooms and pool deck. Other rooms within the building are not used for the pool. The building is multi-seasonal with central air regulating the indoor temperature.

During the summer months the building is utilized by the patrons to the pool facility. During the school year (typically September to June) when the pool is not being operated, the High School sports teams utilize the building.

4.20 – Compliance Issues

4.21 – Required by Code

Bathroom Fixtures

- In accordance with Code 19.6.2 Dressing Facilities, from the American Nation Standard for Public Swimming Pools, “One water closet, one lavatory, and one urinal shall be provided for the first 100 male users. One additional water closet, lavatory, and urinal shall be provided for each additional 200 male users or fraction thereof.”

- In accordance with Code 19.6.3 Dressing Facilities, from the American Nation Standard for Public Swimming Pools, “Two water closets and two lavatories shall be provided for the first 100 female users. One additional water closet and lavatory shall be provided for each additional 100 female users or major fraction thereof.”

- In accordance with Code 19.6.4 Dressing Facilities, from the American Nation Standard for Public Swimming Pools, “A minimum of 2 shower heads shall be provided for the first 100 users of each sex. One additional shower head for each sex shall be added for each additional 50 male or female users or fraction thereof.”
**Issue**

The current bather load is 464 bathers (based on bather loading from ANSI – Public Pools 2014). The bathhouse must accommodate 50% of the total bather load per gender, (232 bathers per gender). This would require the following fixtures:

- **Men’s:**
  - Water Closets – (2) including an ADA accessible water closet
  - Urinals – (2)
  - Lavatories – (2) including an ADA accessible sink
  - Showers – (5) including an ADA accessible shower

- **Women’s:**
  - Water Closets – (4) including an ADA accessible water closet
  - Lavatories – (4) including an ADA accessible sink
  - Showers – (5) including an ADA accessible shower

Currently provided are the following (including the shared family restroom):

- **Men’s:**
  - Water Closets – (3) including an ADA accessible water closet
  - Urinals – (1) a water closet can be counted as an additional urinal
  - Lavatories – (4) including an ADA accessible sink
  - Showers – (3) including an ADA accessible shower

- **Women’s:**
  - Water Closets – (4) including an ADA accessible water closet
  - Lavatories – (4) including an ADA accessible sink
  - Showers – (3) including an ADA accessible shower

The field house has the correct number of water closets, urinals, and lavatories, but a sufficient number of showers, (based on a bather load of 464). To comply with code two additional showers for the men’s and women’s locker rooms, or limit number of patrons into the facility.

There were two drinking fountains found on site. No service sinks were found on site.

**Cross Connection:**

- In accordance with *IPC 608.1, General*, “A potable water supply system shall be designed, installed and maintained in such a manner so as to prevent contamination from non-potable liquids, solids or gases being introduced into the potable water supply through cross-connections or any other piping connections to the system.”
Issue
At the time of the inspection the backflow prevention was not located or evaluated at the pool facility.

4.22 – Recommended Repairs
With the current field house building being constructed so recently; Weston & Sampson recommends regular maintenance on the current building to prolong its useful life.

4.30 Challenges with Cohabiting
Currently the Sherman Manning Facility and the Hartford school system share the field house facility. For most of the year both entities coexist without any problems. During the school year, the sports teams utilize the field house building and locker rooms. Once the school year ends and the pool opens, the pool facility takes over the field house utilizing the locker rooms for patron changing areas, restrooms, and showers. During this time, pool staff occupy the field house entrance to check in patrons and collect pool use fees. The pool facility occupies the field house up until the last two weeks of the school summer vacation, when football practice starts.

At this time, patrons still access the pool through the field house, checking in with the pool staff, but are instructed to use the High School locker rooms on the east side of the pool. This is not a good practice to continue. With the bathrooms on the far east side of the pool, patrons are no longer encouraged to use the restroom facilities and showers prior to entering the pool. With un-showered patrons entering the pool, the water turbidity will increase causing an increased use of chemicals.

In addition, entering the building is not ADA accessible, requiring patrons with ADA needs to continue to use the family restroom in the Field House.
5.0 Evaluation of the Current Pool Filter Room

5.10 – Existing Design

5.11 – Recirculation System

The recirculation pump pulls the pool water through a DE filter at a rate of 700 gpm. The filtered water is pulled through the perlite media within filter elements (pouches), which add surface area to remove suspended solids and other contaminants. Refer to Figure T.

The current filter room is in a standalone building located in line with the center of the pool, set back about 10-ft from the edge of the pool. The building is a split level building with four steps entering up into the building. The first floor is used as the first aid room, office for the employees and pool storage. The clear height is approximately 8-ft. To the right of the entry door is another set of stairs to the basement that leads to the filter room where all the mechanical equipment is stored. The clear height downstairs is approximately 7-ft.

Within the filter room, there are two recirculation pumps, a DE Filter, a cartridge filter, two chlorine tablet feeders, instrumentation, and a chemical controller. Upstairs within the pool storage area, CO\textsubscript{2} tanks are strapped to the walls and Variable Frequency Drives (VFDs) and electrical panels are mounted on the wall.

There is an access gate located on the pool facility’s exterior fence that allows for chemicals to be dropped off and carted up into the building and carried down to the filter room.

5.12 – Structural

The filter building has single wythe concrete masonry block walls and a below grade foundational structure. The filter room, which is located partially below grade, contains two small 24-in x 12-in gravity air louvers. There were signs of mold and standing water within the filter room. The mold is most likely due to the damp environment, which is most likely caused by leaking pipes, filters and pumps.
5.13 – Mechanical & Pool Filtration

The filtration system components can be found listed below:

Pool DE Filter: Quantity 1

- Manufacturer: Custom
  - Filtration Rate – 1.09 GPM per SQ. FT.
  - Capacity - 700 GPM (per filter)
  - Constructed in 1966
  - Filter Area – 640 SQ. FT.
  - Model # Custom

Pool Filter Pumps: Quantity 1

- Manufacturer: Gould
  - Model # - 530SC- 5-9SC
  - Serial No – C210739-01H51
  - Motor – Baldor
  - Horse Power – 25
  - Power – 3 Phase
  - Flow – 700 GPM

Tablet Feeder: Quantity 1

- Manufacturer: Accu-Tab
  - Model # - 1030
  - Tablet storage – 30 lbs
  - Capacity – 2.8lbs/hr

CO₂ Feeder: Quantity 1

- Manufacturer: Neptune Benson
  - Model # - Trident CO2
  - Max Working Pressure – 100 psi

Chemical Controller:

- Hayward
  - CAT 2000 – ORP and pH control.
The room contains a 7-inch vent pipe with an interior electric motor, located next to the chemical feed pumps and mounted on the wall. This does provide some ventilation, but it is not properly designed to handle this size room. The only ventilation is through two vertical windows in the foundation that provide fresh air into the basement/filter space.

The system contains an auto fill system and a backwash system.

5.14 Electrical

Power for the pump is supplied by the pump service panel on the first floor within the filter building. All breakers for the pump and electrical components can be found in this location. See Figure V.

There is a main disconnect found on the opposite side of the building in the storage closet, to de-energize the building.

Current panels and devices in the room are not National Electrical Manufacturer Association (NEMA) 4x rated. This will result in an accelerated rate of decay because of the gases and environment present.

The room has fluorescent lights.

5.20 – Compliance Issues

5.21 Required by Code

This facility is considered a “Class B” facility in accordance with American National Standard for Public Swimming Pools (ANSI / NSPI – 2014). The following is a review of current requirements as they pertain to this facility:

Pressure Gauges

- In accordance with Code 8.4 Class A, Class B, Class C, and Class F Pools, from the American National Standard for Public Swimming Pools, “Class A, Class B, Class C, Class F pools shall be equipped with a pump suction (vacuum) gauge, filter inlet pressure gauge, filter outlet gauge and flow meter”.

Issue

At the time of the inspection a compound gauge was not found on the filter suction line, pump suction line or pump discharge line. Compound gauges and vacuum gauges allow the Certified Pool and
Spa Operator (CPO) to determine the pressure differential on the pump and filter, signifying if the filter needs to get backwashed.

System Turnover

- In accordance with Code 8.1.1 Circulation Systems, from the American National Standard for Public Swimming Pools, “The equipment shall be of adequate size to turn over the entire pool water capacity as specified in table 8.1.1. The system shall be designed to give the proper turnover rate based on the manufacturer’s recommended maximum pressure and flow rate of the filter with clean media.” (Refer to page 11 for table).

Issue

Currently the system does not meet the maximum turnover rate of 6 hours for the swimming pool. The existing DE filter was sized for an appropriate flow rate at the time of the filter replacement. With the recent code updates, a 6 hour turnover is required. To achieve this the recirculation rate would need to be increased passed the design flow to 925 GPM. If the flow were increased to 925 GPM the filter pump and filter would need to be increased in size to handle the increased flow, head pressure and application rate. With an increased flow rate most of the piping would need to be upsized as well to accommodate to additional flow. During the inspection the pool was not in operation and the current flow rate could not be determined.

Unfortunately, the parts for the type of filter installed are no longer available.

Air Gap

- In accordance with Code 15.2 Water Supply, from the American National Standard for Public Swimming Pools, “No direct mechanical connection shall be made between the potable water supply and the swimming pool, chlorinating equipment, or the system of piping for the pool, unless it is protected against backflow and back-siphonage in manner approved by the state or local authority, or through and air gap meeting the latest published edition of ANSI A112.1.2.”

Issue

Currently the autofill drops directly into the DE filter tub where it is then added to the system. When the system is running there is no air gap separating the potable water from the pool water.
5.22 Recommended Repairs

Pool Filtration System

The current filter is original to the pool facility and is in need of replacement. Parts of the stainless-steel body have begun to rust and due to the amount of water on the floor in the room, it's believed the tank has a small leak.

The current system takes 45 minutes to backwash and requires a submersible pump. The DE filter media is also in need of replacement. Aside from the integrity of the filter, DE filters are primarily no longer recommended due to the amount of maintenance and work in replacing the media.

The pool facility does have an auto fill system and water level controller in place, however due to the amount water lost every day the autofill is constantly running. Water loss on some days requires additional support from a secondary water feed line.

The pool uses calcium hypochlorite for disinfection. Chemicals are injected into the filtered effluent line with the Accu-tab tablet feeder. The pH is controlled using CO₂ and is fed into the filtered effluent line using a tank feeder. The CO₂ is strapped to the wall on the first floor of the filter building.

Electrical

The electrical in this building is fairly old but appears to be in adequate shape showing no signs of decay due to chloramines and/or moisture found in the space.

Mechanical

The building contains a domestic water feed outside the building and a storm sewer drain line in the basement of the building. The storm line is connected to a lift pump which feeds to the sewer. No mechanical ventilation was found in the building, resulting in a damp moldy environment.

The building would need a complete reconstruction in order to allow a proper HVAC system to be installed.

Structural

The current structure of the filter room appeared to be structurally sound. The buildings concrete masonry foundation showed no imminent signs for concern. There were signs of mold, due to the lack of properly designed ventilation in the filter room. These signs of mold could lead to future health concerns for operators and employees.
Flooding

The current configuration and capacity of the lift pump prohibits the pool operator from backwashing at a fast rate. This reduced rate causes flooding within the filter room, creating a continuously damp environment that has allowed black mold to grow.

5.30 - Recommended Remediation / Replacement

Recommended Remediation

The building would require several improvements to bring it up to code. It is recommended that the size of the filter pump is increased to handle the additional flow needed to meet the code required turnover rate. To prevent further mold growth, it is recommended that a proper HVAC system be installed. Additionally, to prevent the structure from breaking down from hydrogen sulfide a separate chemical room should be installed to house all the chemicals and open them up to the air, i.e. chlorine tablets and CO₂.

Weston and Sampson recommends replacing the current DE filter with a high rate sand filter or regenerative filter, which would help with reduce the amount of water usage.

Replacement

If the pool filter building were to be replaced, a slab on grade structure with concrete masonry block walls, and a pre-engineered truss roof is recommended. The filter building should be incorporated into the new facility, to maximize space for programing needs. The building would have an HVAC system with 10 Air Exchanges per hour for ventilation, and a safe and easy working environment.

6.0 – Repair and Replacement Costs

Based on existing conditions at the pool facility, it is estimated to cost $1,287,659.00 to upgrade and in compliance with codes. This is a preliminary estimate based on previous projects. Refer to Appendix A.

These costs would only be associated with renovating the existing pool facility. The proposed features and programmatic elements that are necessary to run a successful Aquatic Program would not be incorporated into this project.

Challenges that are presented when renovating an existing pool facility is the redundancy of construction details and methods to ensure the water tightness of the structure. The delicate selective
demolition and the time and labor-intensive practices to rebuild the pool result in a project that is more complex than constructing a new pool without the benefit of system longevity.

If the renovations for the above-mentioned number were performed, the service life of the facility would be in the 6-8-year span.

It would only modernize the pool facility, bringing it into compliance today’s codes. Weston & Sampson recommends the replacement of the filter building. The costs associated with a repair outweigh the value brought to renovate.

If the facility would be to raze, and turned into grass space, the estimated cost for demolition and replication would approximately **$413,000.00**. Please see Appendix A for a breakdown of the Cost Estimate.

**7.0 – Future Possibilities and Goals**

**7.10 – Site Evaluation**

We were asked to evaluate the existing site as well as potential other sites for a future outdoor aquatic complex. Sites were identified based on ease of access, existing space, future expansion space, and existing infrastructure to accommodate an outdoor aquatic facility. Site options identified include:

- Kilowatt Park
- Watson Park
- Dorthan Brook School
- Sherman Manning Pool (current site)

The following evaluates each of these sites.

**Kilowatt Park:**
Kilowatt Park is located on the edge of the Connecticut River at the Vermont/New Hampshire border. This Park offers a beautiful backdrop of the Connecticut River, the downstream Dam, and includes many acres for development and parking. The Park is operated and maintained by the Town but is owned by Great River Hydro, LLC. Development of an aquatic facility here would most likely require coordination and a leasing agreement with Great River Hydro, LLC.
Advantages:
- Large open space.
- Scenic views from the site.
- Within a densely populated area.

Disadvantages:
- Would most likely need to negotiate a long-term lease.
- Most of the site soil is fill and would require considerations for a special foundations.

**Watson Park:**
Watson Park is located on the eastern edge of the White River. This site is another large open space that has existing parking. It is centrally located within the Town and acts as a gathering point for the community.

Advantages:
- Large open space.
- Scenic views from the site.
- Access to the river.

Disadvantages:
- Inside the floodplain which leaves potential risk for flood damages.
- Limited utility infrastructure. These would need to be brought to the site.

**Dothan Brook School:**
Dothan Brook School is located west of Route 5, off Christian Street. The school is in a moderately populated area of the Town. Dothan Brook School is an elementary school, which currently has baseball fields, soccer fields, ample parking, and existing utility infrastructure. However, owned by the School Department, a leasing agreement would be required to use this space.

Advantages:
- Large open space.
- Existing utility infrastructure.
- Existing parking available.

Disadvantages:
- Costs required to redevelop another area of the site to replace space taken.
• Within a moderately populated area.

Sherman Manning Pool:
Sherman Manning Pool is currently located at the Town’s High School. The site offers an existing bath house facility, parking, and access for their summer camp program.

Advantages:
• Utilizes existing locker rooms in a newer building.
• Summer camp is held on this property.
• Utility infrastructure currently exists.
• Ample parking.
• Within a densely populated area.

Disadvantages:
• Limited space for future expansion.
• Co-usage of the existing bath house building when sports are in session.

7.21 - Conclusion

After reviewing all sites, we have concluded the Sherman Manning Pool (existing site) to be the most optimal site for the potential aquatic facility. The current facility offers a preexisting parking lot, existing utility infrastructure (3 Phase Power, public water, public sewer), and the use of a locker room facility. This existing infrastructure provides a significant financial benefit compared to the other sites. The parking, locker rooms and utilities bring approximately $400,000 to $500,000 of value to the site. Furthermore, ease of access for campers (currently being bused to other aquatic venues) and being close to the Town center, make this option a convenient location for Residents.
7.30 – Public Outreach

Committee Effort

The Pool Committee and the Town’s Parks and Recreation Department reached out to the town residence to understand what they would like to see in a future aquatic experience.

In June and July 2018, the Pool Committee conducted a public survey to which 752 responses were received. This included questions asking if they felt the Town needed a pool facility, and if they would support replacement of the current facility.

This survey showed support for having a pool facility. While 75% of the 753 respondents agreed that it is important for the Town to have an outdoor swimming pool or aquatic venue. However, 65% of the surveyors, did not regularly use the pool.

For Resident’s that responded not regularly using the pool, it was found that the most common reasons were for lack of shade and for the pool facility lacking amenities that are currently trending in aquatic facilities, other mentioned consideration of other locations, but 57% of the respondents favored the existing location and marked it as one of the reasons why they used the facility.

This study shows that there is still a strong desire for an outdoor aquatic facility in the Town. Results and questions from the survey can be viewed in Appendix B.

Weston & Sampson Assisted Outreach

On September 8, 2018, in conjunction with the Town’s Recreation Department and the Pool Committee, a public outreach event was held during the Town’s Glory Days of the Railroad Festival. The event was held from 11:00 am to 2:00 pm. During that time, patrons were given five (5) green stickers to provide their input on features they would like to see in a future aquatic’s facility. They were given the ability to place all the stickers on one feature or spread them out as they liked. There were approximately 150 patrons that participated in the event. Results from the event are provided in Table 2 below.
The feedback received during this event paralleled with the answers received earlier this year from the Pool Committee through their survey / public outreach. The theme of the public’s opinion is to see more of a diverse community-based pool that can provide multiple areas and multiple programs for different age groups.

### 7.40 – Future Facility Recommendations

Our recommendation is to provide a new Outdoor Aquatic Facility at the existing Pool Facility location. The Aquatic Facility would include a two-pool system that can be utilized by many different age groups and would provide shade and easy access to the facility. The following provides details for the recommended facility.

#### Pools

A two-pool system would provide redundancy in the facility in the event of fecal incidents, and the ability to provide two different temperatures for programing and extended feature of the facility. Features for each of the pools are provided below.
**Pool #1 Features:**

Pool #1 would be designed primarily for ages from 10 to 80. It would provide a separated space for older people from smaller children that would allow for diverse programming such as adult swim and elderly activities. Specific pool features include:

- 75-ft pool, with depths from 3.5-ft to 7-ft
- Minimum of three (3) lap lanes
- Zero Depth Entry
- Heated pool
- Area for Learn to Swim Programing (variable depth)
- Space in the deep end of the lap lanes for a climbing wall
- Area for a slide runout
- The 75-ft length can serve as an arena for inflatable use, while still using the zero entry for general recreation
- The shallow end of the zero entry and lap lanes could be used for water basketball or water volleyball

**Pool #2 Features:**

Pool #2 would be designed primarily for Toddlers to 12-year-olds. It would be an area where children can have inclusive play or individual play. The focus of this pool is to provide younger patrons with their own space. Specific pool features would include:

- Smaller pool, with depths from 0 to 12-inches
- Heated pool
- Spray features for individual and/or collaborative play.
- Small play structures

Pool Facility Features:

Beyond the amenities in the pool, the facility needs to offer a deck and locker rooms that are family friendly and safe.

**Deck:**

- Provide shade structure to offer relief from the sunlight and an area to cool off without having to enter the pool.
- Provide grassy areas and non-pavement space options for users
- Include cabanas to provide rental revenue and a space for families to be covered
**Bath House / Entry Building:**

The existing locker rooms have served the Pool Facility well. However, additional facilities should be considered if the current arrangement with the Athletic Department (Football Program) continues. The current arrangement eliminates the use of the field house not less than two weeks at the end of the pool season. Development of an entry building if recommended to act as an entry space for ticketing and first aid for the entire season verse changing the access point at the end of the season.

- Additional family bathrooms and showers.
- Indoor first aid station and life guard station.
- Working with the athletic department, construct an entry space for ticketing and first aid during the pool season. During the off season this structure would be used as the new ticket booth for the football facility.

This building would be used in tandem with the football field as a ticket booth and entry point to the facility.

However, the entry building is not essential to operate the facility, as the current field house is being utilized for this operation today.

Based on the above-mentioned program we estimate a facility containing the above-mentioned features to be approximately $3,611,000 Million dollars in 2018 dollars. We recommend a single phase approached as it will be more economical to the town than a phased approach.

We recommend performing preliminary engineering on the facility to fully understand all site conditions and be able to accurately predict costs prior to any municipal bond vote.

**8.0 – Conclusion**

In the above report are the findings from Weston & Sampson’s evaluation of the Sherman Manning Pool Facility and the feasibility of repairing and replacing the existing facility.

We would like to note that the staff and the Town have done an excellent job maintaining this facility throughout its life of operation.

The evaluation did not test for any contaminations such as lead, polychlorinated biphenyl (PCB’s), asbestos, and other contaminates at the existing pool location. The pool facility was constructed during a time where these contaminants could have been used in the construction industry and therefore it can only be assumed that the pool facility may contain these contaminants. In addition,
our structural evaluation was limited to a visual inspection of the pool and facilities, and review of the limited facility record drawings. Concrete testing was not required for this evaluation and was therefore not undertaken.

Weston & Sampson finds that the Sherman Manning Pool Facility has exceeded its useful life, and much of it needs to be replaced. We will continue to work with the Town to understand the most appropriate and viable option to meet the needs of the Town Residents.

This concludes our analysis of the Sherman Manning Pool Facility.
Appendix A
# Hartford Pool Rehabilitation Probable Cost Estimate

## Division 1 - General Conditions

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dumpsters</td>
<td>$2,400</td>
<td>3 Dumpsters</td>
</tr>
<tr>
<td>Porta John</td>
<td>$1,250</td>
<td>Porta John for 5 months</td>
</tr>
<tr>
<td>Temporary Water</td>
<td>$0</td>
<td>Temporary Water</td>
</tr>
<tr>
<td>Temporary Power</td>
<td>$0</td>
<td>Temporary Power</td>
</tr>
<tr>
<td>Parking</td>
<td>$0</td>
<td>Various Permits and expense to park on street</td>
</tr>
<tr>
<td>Permits</td>
<td>$1,000</td>
<td>Permit to Renovate</td>
</tr>
<tr>
<td>Supervision</td>
<td>$96,000</td>
<td>Full Time Supervision 40 hr. / week for 5 months @ $120 / hr.</td>
</tr>
<tr>
<td>Project Management</td>
<td>$64,400</td>
<td>Part Time Management 20 hr. / week for 5 Months @ $160 / hr.</td>
</tr>
<tr>
<td>Equipment Transportation &amp; Deliveries</td>
<td>$10,000</td>
<td>Mobilize Equipment in and Out</td>
</tr>
<tr>
<td>Rental Equipment</td>
<td>$3,000</td>
<td>Misc. Equipment in the Small Area</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$178,050</strong></td>
<td></td>
</tr>
</tbody>
</table>

## Division 2 - Demolition

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selective Demolition of Pool</td>
<td>$24,000</td>
<td>Gutter Removal, and top beam of the wall - Lump Sum</td>
</tr>
<tr>
<td>Selective Demolition of Pool Floor</td>
<td>$10,000</td>
<td>Saw Cut Floor and selective demo - Lump Sum</td>
</tr>
<tr>
<td>Demolition of Deck</td>
<td>$17,000</td>
<td>Approx. - 8500 SF @ $2.00</td>
</tr>
<tr>
<td>Removal Wading Pool</td>
<td>$7,000</td>
<td>2800 SF @ $2.50 / SF</td>
</tr>
<tr>
<td>Water Jet Pool</td>
<td>$32,400</td>
<td>8100 SF (surface area) @ $4.00 / SF</td>
</tr>
<tr>
<td>Removal of Existing Diving Boards</td>
<td>$4,500</td>
<td>Lump Sump</td>
</tr>
<tr>
<td>Removal of Existing Fencing</td>
<td>$6,940</td>
<td>(4) Workers @ $85 for 2 Days &amp; small tools + Disposal</td>
</tr>
<tr>
<td>Equipment Building Demolition</td>
<td>$7,000</td>
<td>2800 SF @ $2.50 / SF</td>
</tr>
<tr>
<td>Hazardous Removal</td>
<td>$50,000</td>
<td>Lump Sump Number based on unknowns</td>
</tr>
<tr>
<td>Mold Rehab</td>
<td>$4,000</td>
<td>Lump Sum</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$162,840</strong></td>
<td></td>
</tr>
<tr>
<td>Division 3 - Concrete</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Replace Deck</td>
<td>$102,000</td>
<td>Estimate 8500 SF @ $12.00 / SF</td>
</tr>
<tr>
<td>Repair Pool wall</td>
<td>$47,500</td>
<td>$950 / CU - Top Beam of Pool Wall - (50 CY)</td>
</tr>
<tr>
<td>Repair Pool Floor</td>
<td>$12,500</td>
<td>$500 / CU - Floor Slab (25 CY)</td>
</tr>
<tr>
<td>Grout Gutter</td>
<td>$4,000</td>
<td>400 LF - @ $10.00 / LF</td>
</tr>
<tr>
<td>(Does not Include any rehab to the wading pool)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$166,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Division 4 - Masonry</th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Division 5 - Metals</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Misc. Metals</td>
<td>$5,000</td>
<td>Lump Sum Allowance</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$5,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Division 7 - Thermal and Moisture Protection</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Deck Joint Sealant</td>
<td>$17,000.00</td>
<td>Allowance of 1000 LF @ $17/ LF</td>
</tr>
<tr>
<td>Repaint Pool</td>
<td>$34,000</td>
<td>8500 SQFT @ $4 / SQFT</td>
</tr>
<tr>
<td>Paint Interior / Exterior Building Walls</td>
<td>$7,500</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>$58,500.00</td>
</tr>
<tr>
<td>Division</td>
<td>Description</td>
<td>Quantity/Price</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Division 8 - Openings</td>
<td>Total</td>
<td>$0</td>
</tr>
<tr>
<td>Division 9 - Finishes</td>
<td>New Deck Depth Markers</td>
<td>$3,840 Cut into Deck &amp; install - (2) Workers (2) Days @ $120 / hr.</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>$3,840</td>
</tr>
<tr>
<td>Division 10 - Specialties</td>
<td>Total</td>
<td>$0</td>
</tr>
<tr>
<td>Division 13 - Special Construction - Pool</td>
<td>New Pool Gutter</td>
<td>$160,000 400 LF of Pool @ $400.00 / LF</td>
</tr>
<tr>
<td></td>
<td>New Diving Board</td>
<td>$30,000 Lump Sum</td>
</tr>
<tr>
<td></td>
<td>New ADA Compliance</td>
<td>$12,000 Lump Sum</td>
</tr>
<tr>
<td></td>
<td>New Buried Piping</td>
<td>$6,000 $14,000, Lump Sum, based on similar projects</td>
</tr>
<tr>
<td></td>
<td>Misc. Compliance</td>
<td>$2,000 Lump Sum</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>$210,000</td>
</tr>
<tr>
<td>Division 22 - Mechanical</td>
<td>Equipment Room ventilation</td>
<td>$4,500 Below grade room ventilation</td>
</tr>
<tr>
<td></td>
<td>Deck Drains</td>
<td>$15,000 Deck Drains</td>
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<tr>
<td></td>
<td>Total</td>
<td>$19,500</td>
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### Division 23 - Earthwork / Landscaping

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excavation from back of wall</td>
<td>$10,000</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Misc. Excavation and Backfill Behind Pool Wall</td>
<td>$15,000</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Loam and Seed Disturbed Areas</td>
<td>$3,500</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>New Fencing</td>
<td>$45,000</td>
<td>$60 / LF - Allowance of 750 LF</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$73,500.00</strong></td>
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</table>

### Division 26 - Electrical

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonding the pool</td>
<td>$15,000</td>
<td>Based on previous projects.</td>
</tr>
<tr>
<td>Misc Electrical</td>
<td>$15,000</td>
<td>Lump Sum</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$30,000</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Project Summary

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>$907,230</td>
</tr>
<tr>
<td>15% OH &amp; Profit</td>
<td>$136,085</td>
</tr>
<tr>
<td>Bond / Insurance @ 2%</td>
<td>$20,866</td>
</tr>
<tr>
<td>Engineering</td>
<td>$106,418</td>
</tr>
<tr>
<td>10% Contingency</td>
<td>$117,060</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1,287,659</strong></td>
</tr>
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</table>
## Hartford VT Future Pool - Facility Demo

### Demolition

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Removal of Concrete Pool, Deck, Building &amp; Fence</td>
<td>$85,000</td>
<td>Lump Sum Based on Previous Projects</td>
</tr>
<tr>
<td>Hazardous Material Removal</td>
<td>$100,000</td>
<td>Lump Sum</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$185,000</strong></td>
<td></td>
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</table>

### Electrical & Plumbing

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disconnect Electrical and Plumbing</td>
<td>$15,000</td>
<td>Disconnect Utility connections inside building</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$15,000</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Site Work

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loam &amp; Seed Area</td>
<td>$17,000</td>
<td>$.85 / SF, assume 20,000 SF</td>
</tr>
</tbody>
</table>

<p>| <strong>Total</strong>       | <strong>$17,000.00</strong> |                                         |</p>
<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>$217,000</td>
</tr>
<tr>
<td>General Conditions @ 13.5%</td>
<td>$29,295</td>
</tr>
<tr>
<td>15% OH &amp; Profit</td>
<td>$32,550</td>
</tr>
<tr>
<td>Permit Fees</td>
<td>$2,510</td>
</tr>
<tr>
<td>Bond / Insurance @ 2%</td>
<td>$5,627</td>
</tr>
<tr>
<td>Engineering</td>
<td>$57,396</td>
</tr>
<tr>
<td>10% Contingency</td>
<td>$68,876</td>
</tr>
<tr>
<td>Total</td>
<td>$413,254</td>
</tr>
</tbody>
</table>
Appendix B
Q1 To what extent do you agree with the following statement: “It is important that the Town provide an outdoor swimming pool.” or other aquatic venue.”

Answered: 753  Skipped: 1

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>8.90%</td>
</tr>
<tr>
<td>Disagree</td>
<td>4.91%</td>
</tr>
<tr>
<td>Neutral</td>
<td>7.97%</td>
</tr>
<tr>
<td>Agree</td>
<td>21.51%</td>
</tr>
<tr>
<td>Strongly Agree</td>
<td>56.71%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>753</td>
</tr>
</tbody>
</table>
Q2 How would you describe your overall impression of the current Hartford pool? (Sherman Manning Pool)

Answered: 751   Skipped: 3

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly Unfavorable</td>
<td>6.66%</td>
</tr>
<tr>
<td>Unfavorable</td>
<td>17.44%</td>
</tr>
<tr>
<td>Neutral</td>
<td>29.43%</td>
</tr>
<tr>
<td>Favorable</td>
<td>32.22%</td>
</tr>
<tr>
<td>Highly Favorable</td>
<td>14.25%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>751</td>
</tr>
</tbody>
</table>
Q3 How frequently have you or your family used the Hartford Sherman Manning pool in recent years?

Answered: 754  Skipped: 0

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>30.50%</td>
</tr>
<tr>
<td>Seldom (~1–2 throughout the summer)</td>
<td>18.30%</td>
</tr>
<tr>
<td>Occasionally (~1-2 times per month)</td>
<td>16.98%</td>
</tr>
<tr>
<td>Regularly (~1-2 times per week)</td>
<td>21.49%</td>
</tr>
<tr>
<td>Extensively (nearly every day)</td>
<td>12.73%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>754</td>
</tr>
</tbody>
</table>
Q4 What are the main reasons that you or your family do not use the Hartford Town Pool? (check all the reasons that apply)

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not enjoy swimming</td>
<td>5.72%</td>
</tr>
<tr>
<td>Fees were too expensive</td>
<td>9.58%</td>
</tr>
<tr>
<td>inconvenient hours of operation</td>
<td>15.46%</td>
</tr>
<tr>
<td>No splash park</td>
<td>12.52%</td>
</tr>
<tr>
<td>No concession stand or snack bar</td>
<td>15.30%</td>
</tr>
<tr>
<td>Cleanliness issues</td>
<td>10.66%</td>
</tr>
<tr>
<td>Too crowded</td>
<td>11.75%</td>
</tr>
<tr>
<td>Water was too cold</td>
<td>12.83%</td>
</tr>
<tr>
<td>Not enough shade around the pool area</td>
<td>25.81%</td>
</tr>
<tr>
<td>Public Pool Sentiment</td>
<td>SurveyMonkey</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Location is inconvenient</td>
<td>4.95%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>46.68%</td>
</tr>
<tr>
<td>Total Respondents: 647</td>
<td></td>
</tr>
</tbody>
</table>
Q5 What are the main reasons that you or your family use the Hartford Town Pool? (check all the reasons that apply)

Answered: 682  Skipped: 72

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>57.92%</td>
</tr>
<tr>
<td>Swimming lessons</td>
<td>39.15%</td>
</tr>
<tr>
<td>Affordable fees</td>
<td>50.88%</td>
</tr>
<tr>
<td>Accessible facilities</td>
<td>30.94%</td>
</tr>
<tr>
<td>Connection to summer camp program</td>
<td>33.28%</td>
</tr>
<tr>
<td>Enjoy swimming</td>
<td>56.89%</td>
</tr>
<tr>
<td>Fun and healthy outdoor activity</td>
<td>55.72%</td>
</tr>
<tr>
<td>Kiddy Pool area</td>
<td>20.97%</td>
</tr>
<tr>
<td>Socialize with others</td>
<td>43.26%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>19.06%</td>
</tr>
<tr>
<td>Total Respondents: 682</td>
<td></td>
</tr>
</tbody>
</table>
Q6 Please describe what you envision an ideal outdoor swimming or aquatic experience could be in the Town of Hartford:

Answered: 585    Skipped: 169
Q7 Are you a Town of Hartford resident?

Answered: 742  Skipped: 12

<table>
<thead>
<tr>
<th>ANSWER CHOICES</th>
<th>RESPONSES</th>
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<tbody>
<tr>
<td>Yes</td>
<td>95.28%</td>
</tr>
<tr>
<td>No</td>
<td>4.72%</td>
</tr>
<tr>
<td>TOTAL</td>
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</table>
Appendix C
<table>
<thead>
<tr>
<th>Demolition</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Demolition of Existing Facility</td>
<td>$85,000</td>
</tr>
<tr>
<td>Potential Hazardous Materials Cleanup</td>
<td>$100,000</td>
</tr>
<tr>
<td>Demo current Pool, deck, fence, and bath house</td>
<td></td>
</tr>
<tr>
<td>Remove any PCBs, Asbestos, Lead</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$185,000</strong></td>
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<table>
<thead>
<tr>
<th>Building</th>
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<tbody>
<tr>
<td>New Building @$310.00 / SF</td>
<td>$217,000</td>
</tr>
<tr>
<td>Bike &amp; Bicycle Path</td>
<td></td>
</tr>
<tr>
<td>Filter Building @ $250/SF</td>
<td>$200,000</td>
</tr>
<tr>
<td>Filter Building &amp; Storage, 800 SF</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$417,000</strong></td>
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<table>
<thead>
<tr>
<th>Pool Deck</th>
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<tbody>
<tr>
<td>New Concrete Deck</td>
<td>$150,000</td>
</tr>
<tr>
<td>10000 SF @$15/SF</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$150,000</strong></td>
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<tr>
<td>Pool</td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Family Pool (with 3 Lane lanes)</td>
<td>$910,000</td>
</tr>
<tr>
<td>Kiddie Pool (with Spray Features)</td>
<td>$325,000</td>
</tr>
<tr>
<td>Total</td>
<td>$1,235,000</td>
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<table>
<thead>
<tr>
<th>Site Work</th>
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<tbody>
<tr>
<td>Earth Work</td>
<td>$ 60,000.00</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Site Utilities</td>
<td>$ 25,000.00</td>
<td>Sewer work</td>
</tr>
<tr>
<td>Fencing</td>
<td>$ 50,000.00</td>
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<tr>
<td>Total</td>
<td>$135,000.00</td>
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<table>
<thead>
<tr>
<th>Landscaping</th>
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</thead>
<tbody>
<tr>
<td>Plantings / Grass</td>
<td>$35,000.00</td>
<td>Lump Sum</td>
</tr>
<tr>
<td>Shade Structure</td>
<td>$100,000.00</td>
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<tr>
<td>Total</td>
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<table>
<thead>
<tr>
<th>Project Summary</th>
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<tbody>
<tr>
<td>Total</td>
<td>$2,257,000</td>
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<tr>
<td>General Conditions @ 13.5%</td>
<td>$304,695</td>
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<tr>
<td>15 % OH &amp; Profit</td>
<td>$338,550</td>
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<tr>
<td>Permit Fees</td>
<td>$26,102</td>
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<tr>
<td>Bond / Insurance @ 2%</td>
<td>$58,527</td>
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<tr>
<td>Engineering</td>
<td>$298,487</td>
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<tr>
<td>10 % Contingency</td>
<td>$328,336</td>
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<tr>
<td>Total</td>
<td>$3,611,698</td>
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