Assessment and Project Study

- For -

Sunset Park Aquatic Facility
Glen Ellyn, IL

April 7, 2014

- By -

USAQUATICS
AQUATIC CONSULTING & DESIGN
Executive Summary

Statement of Understanding
The Glen Ellyn Park District owns and operates an existing municipal pool facility that is aging, has a number of operational concerns, code and ADA compliance issues. The current facility generated a modest profit in 2012 and for 2013’s estimated year end. A study of this existing facility is clearly warranted to determine its condition and to recommend renovation and/or upgrades. A study will also provide alternative options such as expansion to serve the aquatic needs of the community. The goal of this study is to aid in the making of important decisions concerning the facility and its future.

Assessment Process
USAquatics and Isaac Sports Group staff completed an onsite evaluation of the existing aquatic facility on October 1st, 2013 to determine its condition and the feasibility for repair/renovation. The pool operator and facility manager from the City was also on site during the assessment to assist with operational questions as the facility was already closed for the season. Additional meetings with GEPD and Sunset Pool management and operations staff took place in mid-November, 2013 and March 18, 2014 to review findings with pool management.

Scope of Study
The scope of this study covers the following areas of the facility:

- Leisure pool structure, recirculation, filtration, and sanitation equipment
- Lap pool structure, recirculation, filtration, and sanitation equipment
- Pool deck area, diving boards, play features, etc.
- Compliance with new Federal and State Main Drain Laws
- Compliance with new Americans with Disabilities Act Laws
- Attendance, revenues and expenses
- Aquatic programming
- Provide recommended options for repair/renovation
- Provide probable cost estimates associated with repair/renovation recommendations
- Provide recommendations for upgrades and added amenities

Study Criteria
The criteria used in our assessment include:

- Facility condition and other observable conditions
- Facility code requirements and compliance
- An understanding of cause and effect associated with various aquatic designs and operating procedures as presented to us through the assessment, review, and design of several thousand aquatic facilities
- Study area demographics used in determining community aquatic needs
- Programs at comparable area facilities

Intent of Report
The intent is to present a summary of recommended improvements and added amenities including factors affecting patron safety, usage, revenue potentials, and expenses associated with the operation and management of the aquatic facility.
Summary

Based on discussions with staff and committee, a physical assessment of the existing facility, analysis of the existing conditions, USAquatics, Inc. has determined that the facility requires a number of improvements to better serve the aquatic needs of the community.

Several amenity options for the expansion of the pool facility have been provided for consideration, as well as a list of fixes and repairs or replacement that should be taken into consideration for more efficient and sustainable operations. These amenity options provide a wide range of facility improvements and enhancements.

The leisure pool was built in 1991 and currently offers two 1-meter diving boards, one 3-meter diving board, two waterslides, a climbable SCS structure in the shallow water area, and room for lap swimming.

The lap pool was constructed in the location of the original sand volleyball area.

It should be noted that in the review of the operations budget and revenues from the current and previous year, the majority of the revenue came from recreation and leisure use while swim teams and swim lessons accounted for a much smaller portion of the total. These all point to a facility that focuses repairs, updates and improvements geared toward the recreation and leisure areas.

The recommend list of repairs/modifications is broken down into four categories (Safety & Code Compliance, Operational/Cost Savings, End of Life Expectancy and Aquatic Program Enhancements). The list provided is prioritized based on recommended order of repair/replacement with Safety and Code Compliance issues being the first priority. It should be assumed that any renovation to either pool would require any and all code issues be addressed and corrected at the same time. The attached list also provides information on probable estimated costs, annual cost savings, payback timeframe and estimated life expectancy of new equipment.

It would be important to balance renovations between operational/cost saving areas with aquatic programming enhancements as the majority of operational/cost saving repairs would go unnoticed by patrons.

This facility is important to the community and is worth the effort and money to keep up to date and functional. If the recommended renovations and replacements are completed, the life expectancy of the pool structure(s) increases to 30-40 years (with proper maintenance, balanced water, etc). With these changes and enhancements to the Aquatic Programming, as well as, operational items – this facility can truly continue to be sustainable.
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SECTION ONE: ASSESSMENT

Leisure Pool

The leisure pool consists of a deep water lap swim area with an attached diving well, attached plunge area with dual waterslides and a large zero depth beach type entry shallow water area. The diving well has two 1-meter duraflex diving boards and a 3-meter duraflex diving board. The 3-meter diving board has a ladder style entry and poses a number of safety concerns. The existing safety mat underneath the 3-meter diving board is also in need of replacement; however, would only require replacement if the option to replace the ladder with a stair case is not chosen.

The leisure pool has a cast in place shell that has served the community well for 20+ years. The pool has an epoxy paint finish with paint accents and was repainted in the fall of 2012. There are areas of spalling failure around the main drains. Some of the expansion joints around the pool are in need of replacement. There are also areas of questionable conditions near the 5ft. break, around the underwater lights, by the side wall suction and evidence of water leakage in the grout under the stainless steel gutter.

The leisure pool has an existing ADA lift; however, it does not meet Federal requirements as it is not a “fixed” lift. The leisure pool zero depth entry counts as one means of ingress/egress to the pool. In order to be in compliance with Federal requirements for accessibility a second means of ingress/egress is required.

The attached plunge area is too shallow for waterslides. The plunge area is 3’-4” deep where the waterslides enter the water, 3’-2” at 15ft. out from the slide exits, and 3’-0” at 22ft. from the slide exit. This is a safety concern as the depth of 3’-6” should be maintained from the slide exit out 25 feet. Staff also reported the plunge area needs to be deeper to allow for lessons as well. We recommend this area be deepened to meet necessary depth requirements for safe slide entry into the pool. This would also include deepening some of the shallower areas to provide more programmable space.

Due to the existing conditions of the leisure pool finish we recommend sand blasting the shell to sound concrete, and troweling of quartz aggregate plaster with ceramic tile accents. This would also be a longer lasting pool finish than epoxy paint and requires less maintenance. The life expectancy of a quartz aggregate finish is approximately 20 years when properly maintained vs. epoxy paint that is typically re-painted every 3-5 years. Seasonal cleaning to remove stains may be required but no painting is necessary.

We recommend the addition of a stair tower made from coated galvanized steel and extruded fiberglass treads, risers and platform to replace the existing ladder entry. In order to meet accessibility requirements we recommend modifying the existing stairs to make them ADA compliant. We further recommend select demolition of the plunge area as needed to meet minimum depth requirements.
3M board with ladder access

Hole in side wall near grate

3M ladder and safety mat

Paint spalling and evidence of water seepage

Safety mat deterioration

View of zero depth entry from lap area
Concrete spalling and deterioration

Separation of expansion joint

Floor cracking

Entry/egress area

Recirculation System

The leisure pool has a semi-recessed Paddock rim flow stainless steel gutter with fiberglass grating. The gutter itself is in good condition; however, the non-slip coating on the grating is deteriorating and has come off in a number of areas. We recommend replacing the grating as the areas of deterioration will continue to spread. The main drains are Virginia Graeme Baker (VGB) compliant and stamped.

Grating non-slip coating deterioration

Failed caulking at gutter
Pool Pump/Strainer

The existing horizontal pump is located above water level, meaning it does not have flooded suction and poses priming concerns. The pump is likely original to the facility and due to its age and condition is very inefficient and being a horizontal pump, it is more difficult to service. The strainer is cast-iron, in poor condition and has exceeded its life expectancy. A pump installed below water level would solve priming difficulties and provide higher efficiency in operation. We recommend a new strainer and high-efficiency vertical pump located in a pump pit below water level, and the addition of variable frequency drives on all pumps. Variable frequency drives save considerable energy and reduce maintenance issues, lengthening the lifespan of equipment. VFD’s may also qualify for energy savings incentives from your utility company.

Pool Heater

The leisure pool has two gas fired Lochinvar heaters that are positioned side-by-side. Both heaters are in fair to poor condition. Due to their age, condition and life expectancy, we recommend replacing the heaters with a newer, more efficient model. A new single heater could be sized to handle the required output. Dual replacement heaters can be stacked and require less space and allow for the heaters to be staged. One heater will continue to provide heat if the other is down for maintenance issues. Dual heaters would also require both heaters to be vented, maintained and two gas lines hooked up. Our recommendation is the choice to be determined by the pool operators.

Pool Filter

There are currently three existing Paddock sand filters that are original to the facility. Backwashing is performed weekly using 30,000 gallons of water. According to staff, backwashing must be controlled to prevent the backwash sump from overflowing and flooding the street. The sand media in filter #1 was replaced within the past two years; however, the sand media in filters #2 and #3 was not replaced at that time and it is unknown when it was last replaced. The filters are in poor condition and are in need of replacement. We recommend the installation of new regenerative media filters that are more efficient, have a smaller footprint, and are green friendly using 1/50th of the water used by traditional sand filters. See exhibit #1 at the back of this report with regards to regenerative media filters for which points out the sustainable aspects of this type of filter media.
Chemical Control

The chemical control system is a Chemtrol 2100 that appears to be in fair condition for its age. Newer user-friendly technology is available, but we recommend using the current system until it merits replacement.

Water Slides/Features

An open 36” waterslide and an enclosed 32” waterslide are original to the facility. The gel coating is failing and both water slides have areas of spider cracking and are in need of resurfacing. The slide tower has several areas of severe oxidation and the stairs are spalling. The 32” enclosed slide, in our opinion, is too small of a radius. The facility manager reported that many users hit the top rim of the entrance section when initiating their ride down the slide. A soft padding has been added as a temporary fix to this safety concern. We have heard this same concern at other facilities with 32” diameter slides. Due to the condition of the slides, supports, and slide tower, we strongly recommend replacement of both slides and tower structure/stairs. The climbable SCS structure is in fair to poor condition. The structure has several areas of fading and staining, in addition to base pieces that are coming apart.
Slide support oxidation

Pad/tape added to prevent patron injury

Concrete spalling at slide tower handrail

Concrete spalling at slide tower handrail

Slide condition/cracking

Slide tower stair conditions
Concrete spalling at corner post of guardrail

Concrete spalling

Discoloration on existing climbable feature

Tape holding feature corner/gap

Faded paint on feature

Exposed grounding wire at kiddie slide
Lap Pool

The lap pool was constructed in the location of the original sand volleyball area. The lap pool is 25 yards long x 45 ft. wide and varies in depth from 3’-6” to 5’-0” in depth. The finish is epoxy paint with paint accents for lane markers, end wall targets and stair accents. The existing finish is in good condition. An ingress/egress stairway is located at the shallow end of the lap pool.

Staff reported the lap pool gets “cloudy” at times. This issue is likely due to the filtration and chemical control systems being ineffective due to their age and condition. New filters and chemical controllers would remedy this issue. We recommend the addition of ADA style safety handrails at the stairs for additional access into the pool. We recommend budgeting for the installation of a quartz aggregate plaster finish with ceramic accent tiles within the next 2-4 years for a longer lasting finish that requires less maintenance.

Lap Pool Recirculation

The gutter is a rim flow coping made of pre-cast concrete. The majority of the coping is in good condition. We recommend the replacement of select damaged coping with new coping to match the existing. The wall inlets are in good condition and have appropriate covers. The main drains are VGB compliant and stamped.
**Lap Pool Pump/Strainer**

The lap pool is serviced by an older turbine pump located above water level. The pump is very inefficient and in poor condition. A pump installed below water level would solve potential priming difficulties and provide higher efficiency in operation. The strainer screen is located in the surge tank and is very inefficient. We recommend a new strainer and high-efficiency vertical pump located in a pump pit below water level, and the addition of variable frequency drives on all pumps. Variable frequency drives save considerable energy and reduce maintenance issues, lengthening the lifespan of equipment.

**Lap Pool Heater**

The existing lap pool heater is a Laars that is in fair to poor condition. Due to its age, condition and life expectancy, we recommend replacing the heater with a newer, more efficient model.

**Lap Pool Filter**

The sand filters dedicated to the lap pool are horizontal EPD filters. The existing filters are backwashed two times per week. The sand was last replaced in the spring of 2013. These filters were originally equipped with auto backwash that has completely failed, as is typical of these filters. The filters are in poor condition and are in need of replacement. Again, we recommend the installation of new regenerative media filters that are more efficient, have a smaller footprint, and are green friendly using 1/50th of the water used by traditional sand filters. Please see exhibit #1 of this report with regards to regenerative media filters.
Lap Pool Chemical Control

The chemical control system is a Strantrol System 4 that is outdated technology and inadequate to serve the needs of the facility. The equipment requires frequent attention and adjustment to balance water chemistry. Staff reported the system is unable to keep up and the lap pool begins to look dull or cloudy during the afternoon hours. We recommend a new, user-friendly, web-based chemical controller that reduces operation and maintenance issues.

Bathhouse

The existing bathhouse lacks a dedicated lifeguard restroom, family change room and a lounge area. There is currently a 3ft. wide door with a side light from the change rooms to the pool deck. We recommend removal of the narrow door and the installation of a 5ft. wide x 8ft. high roll-up style door. The men’s locker room has 3 urinals, 2 toilets + an ADA toilet, 2 lavatories and 6 showers. The women’s locker room has 5 toilets + an ADA toilet, 2 lavatories and 6 showers. Both locker rooms have ample lockers for patron use. The bathhouse includes a full concession stand with a seating area. Due to the growing demand for family change areas to allow a parent(s) to keep older children with them, we recommend the minimum addition of 2 family change areas.
**Mechanical Building - General**

The existing mechanical building is in good condition. Poor ventilation has caused oxidation to the gas line piping. We recommend the relocation of the powered vent exhaust to prevent further oxidation.

**Pool Equipment - General**

Several of the existing valves are cast-iron lever operated valves. Some of the valves are in fair to poor condition. We recommend the replacement of select valves for better functionality.

**Deck Area**

The deck area surrounding the pool and lap pool are in fair condition. The fencing around the facility is black, vinyl coated and 8ft. high with 2” mesh. The gates around the facility are self-closing and lockable. The deck area entrance to the waterslide tower is only 4ft. wide. We recommend a minimum of 5ft. clear walkways throughout the facility. The remaining decks around the facility are in good condition and appear to have proper drainage.

**Dry Sand Play Area**

According to facility staff, this area is very under-utilized and requires a high level of maintenance with the sand. We recommend the removal of the dry sand play area and the installation of a spray deck that is most desirable for small children up to approximately 5 years of age. The addition of a spray deck would complement the splash pad at Mary Knoll Park that drew an estimated 33,000 users.
SECTION TWO: RECOMMENDATIONS

Safety/Code Compliance

Based on our review and analysis, it is our recommendation that the following prioritized list of repair work be completed to further prevent possibility for patron injury or to bring the facility up to code compliance. Again, these renovations are the highest priority and it should be assumed that these items would be required to be completed with any work done at the facility:

- Modify existing leisure pool ingress/egress stairs to make ADA compliant
  Probable cost estimate: $3,500
- Installation of ADA style handrails at existing lap pool stair location
  Probable cost estimate: $3,500
- Addition of a stair tower to the existing 3-meter board to replace the ladder
  Probable cost estimate: $35,000
- Select demolition of plunge area and new construction as needed to meet depth requirements for code includes the deepening of area of shallow water to provide increased program space.
  Probable cost estimate: $35,000
- Install powered vent exhaust to mechanical building
  Probable cost estimate: $2,500
- Install new fiberglass non-slip grating in existing leisure pool gutters
  Probable cost estimate: $15,000
- Select Demolition of surrounding decks
  Probable cost estimate: $17,000
- Create two family change rooms attached to bathhouse
  Probable cost estimate: $160,000

Subtotal: $296,500
Soft Costs (20%) $59,300

Estimated Safety/Code Compliance Renovation Total: $355,800

Operational/Cost Savings

Based on our review and analysis, it is our recommendation that the following repair work be completed to increase efficiency and move the facility closer to being sustainable. Many of these systems or equipment are also nearing the end their effective life. These updates can be prioritized based on equipment failure or be proactively completed based on cost savings and availability of resources. The % calculation indicates the projected annual operational cost savings over existing equipment and systems.

- Sandblast existing leisure pool finish - apply quartz aggregate plaster finish with ceramic tile accents
  Probable cost estimate: $65,000
  Life Expectancy: 20 years
- Replacement of existing lap pool finish with quartz aggregate finish and ceramic tile accents
  Probable cost estimate: $50,500
  Life Expectancy: 20 years
- *Replace leisure pool strainer and pump. Install new strainer and high-efficiency pump with VFD
  Probable cost estimate: $14,000
  Annual Cost Savings: $4,800, 5.6%
  Payback: 6.5 years
  Life Expectancy: 20 years
• *Replace leisure pool heaters with new high-efficiency heater
  Probable cost estimate: $40,000
  Annual Cost Savings: $3,000, 5%
  Payback: 13.3 years
  Life Expectancy: 20 years

• *Replace leisure pool filters with green-friendly regenerative media filters
  Probable cost estimate: $110,000
  Annual Cost Savings: $19,000, 90%
  Payback: 5.7 years
  Life Expectancy: 25-30 years

• Create pump pit within existing mechanical room to allow pumps to sit below existing water level
  Probable cost estimate: $30,000

• *Replace lap pool strainer and pump. Install new strainer and high-efficiency pump with VFD
  Probable cost estimate: $10,000
  Annual Cost Savings: $1,600, 5.4%
  Payback: 6.25 years
  Life Expectancy: 20 years

• *Replace lap pool heaters with new high-efficiency heater
  Probable cost estimate: $20,000
  Annual Cost Savings: $1,500, 2.5%
  Payback: 13.3 years
  Life Expectancy: 20 years

• *Replace lap pool filters with green-friendly regenerative media filters
  Probable cost estimate: $65,000
  Annual Cost Savings: $5,700, 90%
  Payback: 11.4 years
  Life Expectancy: 25-30 years

• *Replace outdated lap pool chemical controllers with new web-based controllers
  Probable cost estimate: $8,000
  Annual Cost Savings: $1,200, 10%
  Payback: 6.6 years
  Life Expectancy: 10 years

• Lower pH in both pools with CO2/lower alkalinity in both pools with acid
  Annual Cost Savings: $8,125, 25%

*Denotes energy saving items

Subtotal: $412,500
Soft Costs (20%) $ 82,500

Estimated Operational/Cost Savings Renovation Total: $495,000

Average Chemical/Utility Costs: $ 99,500
Projected Annual Cost Savings: ($ 40,125)
Projected Operational Expense: $ 59,375
End of Life Expectancy

Based on our review and analysis, it is our recommendation that the following repair work be completed as the following features/amenities/equipment have likely outlived their estimated life expectancy or any significant expenditures become necessary to maintain.

- Removal and replacement of existing waterslides, tower and stairs – Installation of a new dual waterslide configuration complete with new tower and stairs
  
  **Probable cost estimate:** $280,000

- Select replacement of damaged coping with new coping to match existing
  
  **Probable cost estimate:** $7,500

- Select replacement of cast-iron valves
  
  **Probable cost estimate:** $10,500

- Demolition of existing climbable water play structure and replacement with interactive shallow water play features
  
  **Probable cost estimate:** $85,000

\[
\text{Subtotal:} \quad $383,000 \\
\text{Soft Costs (20\%)} \quad $ 76,600
\]

**Estimated End of Life Expectancy Renovation Total:** $459,600

Aquatic Program Enhancements

Based on our review and analysis, it is our recommendation that the following repair work be completed to further enhance the Aquatic Programs offered, better serve the needs of the community and increase overall patron enjoyment.

- Install single portable basketball hoop
  
  **Probable cost estimate:** $ 800

- Install 2x3 clear panel aquatic climbing wall, rope and floats, anchors, etc.
  
  **Probable cost estimate:** $30,000

- Removal of existing 2,800-3,000 sq. ft. sand play area
  
  **Probable cost estimate:** $10,000
  
  **Soft Cost (20\%)** \quad $2,000

- Installation of new 2,800-3,000 sq. ft. spray deck, complete with recirculation system & spray features at location of existing sand play
  
  **Probable cost estimate:** $310,000
  
  **Soft Cost (20\%)** \quad $ 62,000

- New Wibits AquArena inflatable structure
  
  **Probable cost estimate:** $15,000

\[
\text{Subtotal:} \quad $429,800
\]

**Estimated Aquatic Program Enhancement Renovation Total:** $429,800

Probable Total Cost Estimate: $1,740,200

Projected Annual Operational Savings: $ 40,125
Aquatic Program Enhancement - Examples

Aquatic Climbing Wall

Water Basketball
Wibit Floating AquArena Feature

Spray Deck
3M Stair Tower

Dual Waterslides with Stairs & Tower
SECTION THREE: PROGRAM OVERVIEW

In addition to the facility upgrades that add to programming and pool usage, there are several key program changes that are recommended. These do not require capital cost investment in excess of previously mentioned costs.

Swim Lessons
- Lesson revenue constitutes only 10% of current pool operating revenue, which is the lowest among comparable facilities.
  - The recommendations below can double lesson revenue, resulting in increases of over $50,000/year in revenue
- Current lesson rates are at the very low end of public lesson rates in suburban Chicago. It is recommended that lesson rates are increased, allowing to enhance instructor training and experience, improve student/teacher ratios, and increase total lesson revenue.
  - See comparison swim lessons rates in the surrounding market in Exhibit #2
- Lessons are limited to a short time window in the morning due to the available space and other swim team (the Gators) and general pool use. This restricted time and space is a significant limiting factor to swim lesson growth. Recommendation:
  - Add afternoon lessons to provide options for today’s active children and families that are relatively over programmed in the summer. Many kids have other sport or educational activities in the mornings. Afternoon lessons would provide another time option that can significantly increase potential participation
  - The large zero entry area is ineffective for any real programming. As mentioned in the safety section, it is important to deepen the plunge area of the main pool. When deepening the plunge area the gradual deepening of the zero entry beach area to create more usable water depths is also recommended. This will greatly increase space available for learn to swim programs
- The lesson program also needs to increase the number and type of classes available, including:
  - Adult lessons
  - Private and semi-private lessons (private lessons are becoming an increasing larger percentage of total lesson revenue)
  - Include private stroke/technique lessons for swimmers on the Glen Ellyn Gators Swim Team (This type enhancement program linking the team and lessons has been effectively used in many public rec team programs and can generate revenue for both the facility and the team coaching staff, helping attract stronger coaches).

Swim Team
- Late afternoon practice session option
  - Similar to lessons, an afternoon practice option is very attractive to busy kids and parents
  - Late afternoon practice can also help expand the available space in the morning for other programming
  - Provides more time/space for continued growth of the swim team
New programs/classes

- Diving: The 1 & 3 meter boards are popular recreation activities, but diving is not included as part of the Gators program and lessons are only offered in August. This is an opportunity to increase programming

- Recreation activities: Based on some of the added recreational enhancements recommended in this report there are organized programming options that present themselves
  - Aquatic Climbing session
  - Basketball
  - Wibit obstacle course races (could also be used in future indoor pool)

Integration with potential Glen Ellyn Aquatic Center

The possibility of an indoor aquatic center in Glen Ellyn would also allow for greater programming diversity and more effective use of the time and space at the Sunset Pool. Programs at Sunset Pool and a potential Glen Ellyn Aquatic Center can be integrated to conduct programs during the summer at the indoor or outdoor facility best suited for the specific program or activity. It also allows some of the high demand activities, such as the Gators Swim Team, to be spread out between the two facilities, allowing more participation and creating easier access and proximity to a pool close to home. This would also open up time at Sunset for more family and program pool time and space.

Sunset Pool would also benefit as part of a year round aquatic programming and management team at the Glen Ellyn Park District.

Specific programming and benefits include the following:

- Some lap lane availability during morning swim team as lanes are opened up with team practices shared between Sunset and the Aquatic Center
- Opening up of more lesson time in morning and afternoon
- Expanded time available for family swim times
- Upgrade of swim lesson instructors as year round instructors bring consistency and experience to the swim lesson program
- Year round team and coaching staff can enhance coaching and provide a basis for enhanced individualized and personal technique work for Gator swimmers, adult masters swimmers, and triathletes (significant revenue and participation upside in overall lesson program)
- As the indoor and outdoor program usage patterns balance, it is likely that the recreational components of Sunset Pool will get greater use
SECTION FOUR: EXISTING FACILITY
SECTION FIVE: EXISTING STATISTICS AND CENSUS INFORMATION

Operational Budget Revenue vs. Expenses 2011

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<th>Result</th>
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<td>Expenses:</td>
<td>$496,856</td>
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<td>Operating Revenue (Loss):</td>
<td>($9,237) *</td>
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*Note: During the 2011 season water/sewer costs were up approximately $22,000 over the 2012 and 2013 seasons. Increased bather loads, watering of the grounds due to the hot, dry weather and a pressure washing project were all cited as reasons for the increased expenses.

Operational Budget Revenue vs. Expenses 2012

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<td>Expenses:</td>
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<td>Operating Revenue (Loss):</td>
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Estimated Year End Revenue vs. Expenses 2013

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<td>Revenue:</td>
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<td>Expenses:</td>
<td>$468,492</td>
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<td>Operating Revenue (Loss):</td>
<td>$21,762</td>
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2013 Revenue (Passes)

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<td>Total Passes Sold:</td>
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<td>$256,573</td>
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<tr>
<td>Daily Admissions:</td>
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<td>$44,129</td>
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</tbody>
</table>

*Membership passes represent 50% of revenue, daily passes 11%, swim teams 10%, swim lessons 10% 61% of revenue is from recreational/leisure use 20% of revenue from programmed use  *Expenses – 47% of expense is from staffing/wages
Glen Ellyn Census Information (2010):

- Total Population: 36,000
- Families with children under 18 = 36.7%
- Population distribution by age:
  - Under 18: 28.4%
  - 18-24: 06.2%
  - 25-44: 30.0%
  - 45-64: 24.1%
  - 65+: 11.4%

When analyzing the estimated 2010 Glen Ellyn Census information the following information was determined:

- The highest percentage of the population is those between the ages of 25-44 at 30.0%. The second highest age range is under 18 years of age which accounts for 28.4% of the population while the third largest population distribution is the age range of 45-64 at 24.1%.
- This suggests an aquatic facility and added amenities that services the needs young families, as well as children.
- The aquatic need is for a facility that offers a wide range of aquatic activities and amenities.
### APPENDIX: POOL DATA

<table>
<thead>
<tr>
<th></th>
<th>LEISURE POOL</th>
<th>LAP POOL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SURFACE AREA:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shallow Water (&lt;5 ft)</td>
<td>9,465 sq. ft.</td>
<td>3,690 sq.ft.</td>
</tr>
<tr>
<td>Deep Water (&gt;5 ft)</td>
<td>3,000 sq. ft.</td>
<td>---</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td>12,465 sq. ft.</td>
<td>3,690 sq.ft.</td>
</tr>
<tr>
<td><strong>SURGE CAPACITY:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required (in gal.)</td>
<td>12,465 gallons</td>
<td>3,690 sq.ft.</td>
</tr>
<tr>
<td>Supplied (in gal.)</td>
<td>25,000 gallons</td>
<td>3,690 sq. ft. (in pool)</td>
</tr>
<tr>
<td><strong>POOL CAPACITY:</strong></td>
<td>365,103 gallons</td>
<td>130,000 gallons</td>
</tr>
<tr>
<td><strong>RATE OF FLOW:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow Rate Required</td>
<td>1,900 gpm</td>
<td>360 gpm</td>
</tr>
<tr>
<td>Actual Rate of Flow</td>
<td>~1700-2000 gpm</td>
<td>estimate: 316 gpm</td>
</tr>
<tr>
<td><strong>TURNOVER:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varies by zone</td>
<td>~6.8 hr.</td>
<td></td>
</tr>
<tr>
<td>(3.3 hour max requ.)</td>
<td>(6 hours max. requ.)</td>
<td></td>
</tr>
<tr>
<td><strong>FILTER SIZE:</strong></td>
<td>300 sq. ft.</td>
<td>25 sq. ft.</td>
</tr>
<tr>
<td><strong>FILTER FLOW RATE:</strong></td>
<td>7.33 gpm / s.f.</td>
<td>14.4 gpm / s.f.</td>
</tr>
<tr>
<td><strong>BATHER LOAD:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shallow Water</td>
<td>631</td>
<td>147</td>
</tr>
<tr>
<td>Deep Water</td>
<td>84</td>
<td>---</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>715 persons</td>
<td>147 persons</td>
</tr>
</tbody>
</table>

Bather load limited by fixture count to 200 patrons.
POOL LOG DATA:

<table>
<thead>
<tr>
<th></th>
<th>LEISURE POOL</th>
<th></th>
<th>LAP POOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free CL2:</td>
<td>2.8 – 4.0</td>
<td></td>
<td>2.5 – 3.8</td>
</tr>
<tr>
<td>Combined CL2:</td>
<td>0.2 – 0.5</td>
<td></td>
<td>0.2 – 0.5</td>
</tr>
<tr>
<td>pH:</td>
<td>7.6 – 8.0</td>
<td></td>
<td>7.5 – 8.0</td>
</tr>
<tr>
<td>Alkalinity:</td>
<td>130 – 180</td>
<td></td>
<td>180 – 240</td>
</tr>
<tr>
<td>Calcium Hardness:</td>
<td>230 – 280</td>
<td></td>
<td>210 – 260</td>
</tr>
</tbody>
</table>

*Sighted for high pH and high alkalinity. CO2 is very inefficient when pH is over 7.7 and alkalinity is over 100.

*Annual chemical costs are around $32,500 which is significantly higher than comparable pools. Chemical expenses for this facility should be closer to $25,000.

**Recommendation** – Lower pH to 7.2 to 7.3 on both pools with CO2 and lowering alkalinity with acid to below 100 ppm. Following this recommendation will result in higher bather comfort and lower chemical cost by approximately 20-25%.
EXHIBIT 1: REGENERATIVE MEDIA FILTRATION

*Today’s Technology for Sustainability*

Features, Advantages & Benefits

- **Water & Waste**
  - Save 90%

- **Fuel & Chemicals**
  - 30% Reduction

- **Mechanical Room**
  - ¼ the size

- **Power**
  - Cut electrical costs in half

- **Water Quality**
  - Removes up to 99.9% of Crypto

- Earn LEED Points
EXHIBIT 2: QUARTZ AGGREGATE FINISH COLOR EXAMPLES

See what happens to your pool when you use each of these finishes.