SUNSET PARK

AQUATIC FACILITY ASSESSMENT

11/08/05

Prepared for:
Glen Ellyn Park District
185 Spring Avenue
Glen Ellyn, Illinois
60137

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I. FACILITY REVIEW

A. General

The Glen Ellyn Park District’s outdoor aquatic facilities are located in Sunset Park in the western part of the District. The Aquatic complex occupies two of the eight acres of the Park site. Parking for ninety five cars consumes another .65 acres and the detention area is another 1.3 acres, leaving the balance of the park site at slightly over three acres for general park uses.

The current aquatic complex was significantly rebuilt in 1994 when the old facilities were demolished and the new aquatic complex, including bathhouse and mechanical equipment building, were constructed. In 2000 an additional six lane lap pool was added with it’s own separate pool mechanical support system.

The main pool consists of a 12,400 sf tank with six lap/competition lanes, a deep hopper area of 3375 sf, a splashdown pool area of 900 sf for the two flume slides and a zero depth edge of approximately 125 lf. In the remaining 8000 sf of water between zero and five feet in depth there are fixed water play features consisting of a broad water slide for tots and a “Raindrop” water umbrella.

The two water flume slides are a “Whitewater” product and are considered modest in their height and length. The starting platform is a concrete structure developed in conjunction with the pool equipment building.

B. Aquatic Facilities

1. Leisure Pool Existing Criteria:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tbody>
<tr>
<td>Volume:</td>
<td>440,000.00 Gallon Capacity</td>
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<tr>
<td>Circulation Rate:</td>
<td>2,207 GPM</td>
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<tr>
<td>Surface Area:</td>
<td>12,465 SF</td>
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<tr>
<td>Turn Over Rate:</td>
<td>0’ to 4’-0” 120 Minutes / 950 GPM</td>
</tr>
<tr>
<td></td>
<td>Plunge Pool 60 Minutes / 302 GPM</td>
</tr>
<tr>
<td></td>
<td>Comp Pool 240 Minutes/ 955 GPM</td>
</tr>
<tr>
<td>Filter Rate:</td>
<td>7.3 GPM/SF</td>
</tr>
<tr>
<td>Pool Finish:</td>
<td>Paint</td>
</tr>
<tr>
<td>Gutter Type:</td>
<td>S.S Perimeter Overflow. W/out integral wall inlets.</td>
</tr>
</tbody>
</table>
2. Filters:

The Paddock vertical steel filters appear to be in physically good shape and based on the Park being opened in 1994, WTI would expect an additional 10 years of good service life under normal operating and maintenance conditions.

3. Backwash:

Backwashing is the process of reversing the flow thru the filters to flush out the contaminants. The backwash water is piped thru an air gap to the sanitary sewer system. The rate of flow for the backwash cycle is the same as the filtration rate and lasts for five to seven minutes.

It appears the backwash rate exceeds the sewer capacity as not all the filters can be backwashed in one time frame. Currently it takes two people to backwash requiring one man with radio communication at the sewer manhole and the pool operator to monitor proper capacity to avoid flooding basements near by. It is reported by staff not to be a real problem for the operator and they have been doing that procedure for some time. However WTI recommends that a backwash basin, capable of holding a backwash cycle, be installed so that the backwash could occur whenever needed and simply released at a slow rate that would not affect the neighboring residential areas.

4. Pumps:

All pumps appear to be in good physical shape and in proper working order; however there is some cavitation present in the two filtration pumps. It was reported by Jim Rafferty that impellers and deflector plates with in the filter pumps are replaced on a yearly basis. Jim noted that apparently elbows and fittings not reflected on the drawings were added on the suction piping from the pumps to the surge tank during the installation. The “in deck” surge tank was opened in efforts to find areas where air entrainment may be evident and no abnormalities were observed that would cause such cavitations to the pumps.

Upon further review it was noted that the suction side of the pump is designed and installed incorrectly. In general, cavitation indicates insufficient available N. P.S.H. (Net Positive Suction), pipe friction for the pump.

1) A cast iron 90 degree elbow and valves are installed too close to the pump on the suction side, typically as a rule of thumb there should be at least 5 times the pipe diameter of uninterrupted straight run to reduce turbulence of the water on the suction side of the pump that will potentially cause cavitation.
2) A concentric reducer was used between the pump and strainer even though an eccentric reducer was shown on the plans. A concentric reducer will collect and trap air, therefore creating a large air bubble that will further reduce flow to the pump. An eccentric reducer should be used so the air can travel through the system rather than being collected and trapped.

3) The design of the long suction run and elbows to the suction side of the pump is also an issue that adds to the cavitation problem.

It is WTI’s opinion with observation and discussions with the ITT Marlow Pump Company that the cavitation problem can be reduced to an acceptable level with the following corrections.

1) Re-locate the pumps in a fashion that would allow as long of an uninterrupted straight run as possible (min 5 pipe diameters).

2) Replace the concentric reducer with an eccentric reducer.

3) Replace above grade cast iron fittings with sch 80 PVC and reduce fittings and joints.

5. Skimming:

It is evident from observation that the North East corner of the plunge pool wall gutter lip is lower than the remainder of the pool causing the gutter to flood, reducing the efficiency of the skimming action of the entire pool. Jim reported that the main drain float valve has also been removed to help accommodate the problem. The remainder of the pool is skimming adequately however the pool is not properly balanced due to the modified main drain and gutter lip issue on the N.E. side of the plunge pool. WTI suspects this could be the reason for the slightly cloudy water observed. To correct this problem the settled area would have to be raised or adjusted upward to the level of the balance of the pool rim. The main drain valaes could then be re-adjusted to the proper settings

6. Pool Finish:

The pool vessel is a poured concrete material that has been painted with an epoxy paint. The paint surface must have a sand aggregate broadcast on the surface to prevent slipping in the shallow water. The epoxy surfaces have been developing a chalked finish that can be rubbed off and produce turbidity in the pool water. Special aggregate finishes have replaced painting in recent years. The aggregate finishes are more slip resistant and do not require periodic replacement like the painted surfaces do. However, to install the special aggregate finish, the entire pool would have to be sandblasted down to the original concrete and special terminations for the aggregate materials would have to be developed. There are no known pool paints that would resolve the issue. A vinyl liner for the pool is a second option, although this is usually reserved for leaking pools.
7. Leakage:

It was reported by Jim Rafferty that currently there is water consumption of approximately 20,000 gallons per day. The normal water consumption for evaporation and splash-out is estimated to be approximately 1,200 gallons per day. This would indicate that there is an unknown loss of 18,800 gallons (2500cf) per day. It is undetermined if the pool has been leaking since it was built.

Below grade pipe leaks have been developing with cracked couplings and fittings which is somewhat unusual for the Schedule 80 pipe that was used. The Park District is currently investigating those leaks.

Upon observation of an exposed gutter section WTI found that the original design did not include appropriate water stops for the/stainless steel gutter interface. The actual wall construction revealed that a water stop was attempted to be installed, however it was installed incorrectly giving no benefit to retain pool water. It is unclear if the remainder of the pool is installed this way. WTI recommends exposing several areas of the pool wall similarly to determine the extent of this problem.

The options for correcting or mitigating this condition are to remove and replace the stainless steel gutters in an approved manner that would resolve the leaking or to attempt to epoxy inject the interfaces between the pool wall and the gutter grout and the gutter grout and the stainless steel gutter or to attempt to caulk the joints described above.
Exposed water stop, the water stop needs to be fully encapsulated to serve any benefit. Water is observed readily seeping along entire joint that is exposed.
It is WTI's recommendation that more investigative research be done to determine the extent of the leakage of the gutter system. If the remainder of the pool is determined to be installed as was observed the following are options to consider from most to least desirable.
1) Saw cut back on the deck 12” or first joint around the entire perimeter and replace all the stainless steel gutters with adequate installation methods.

2) Epoxy inject both grout joints, recommend drilling holes 6” on center around the entire pool and pressure injecting epoxy.

3) Rely on caulk on the inside of the pool to prevent from water getting into the joints

8. Gutter Grating:

The gutter grating is observed to have been retro fitted and currently presents a potential hazard where toes could get entrapped. WTI recommends that this be an item of replacement and the gutters be fitted with appropriate grating as offered by Grate Ideas or Great technologies.

Large gaps in grating

9. Lap Pool Existing Criteria:

Volume: 114,000.00 Gallon Capacity
Circulation Rate: 316 GPM
Turn Over Rate: 360 Minutes
Pool Finish: Paint
Water Clarity: Cloudy
Gutter Type: Concrete Perimeter Overflow.
Pool Construction: Concrete

10. General Observation:

This pool has been recently built with in the last 3-4 years. Upon observation the pool water was cloudy even with no bather load. The pool was about 3 inches low with no skimming at the gutters which is against the Illinois Pool Code and does not provide a healthy environment for users. The “Rimflow” precast gutter stones were also noted to be badly stained. The pool equipment looks to be in good shape except that there are several design issues present. The turnover rate is currently at 6 hours which meets the IDPH code requirements. However, WTI recommends a 4 hour turnover at a minimum for more desirable results.

11. Design Deficiencies:

a). The turn over rate is set at 6 hours. While this meet the minimum standards set by IDPH, WTI would recommend a 4 hour turnover for more desirable results.

b). The pump and piping system for the backwash holding tank is sized too small and requires excessive time to empty the pool. This condition should be upgraded to permit proper backwash procedures.

c). The EPD filter automatic valves are dis-functioning causing backwash to go back into the pool. This condition should be immediately corrected.

d). The filtration pump is a vertical turbine pump and there is no reasonable way to install a strainer. A large plate strainer has been designed in but it is impractical and cumbersome for the operator. A solution to this problem is unknown with the exception of a total reconstruction and re-plumbing of the filtration recirculating system.

12. Staining of Coping Stones:

The “Rimflow” Coping Stones are discolored and stained. Attempts to clean the surface has not been successful. The condition is primarily cosmetic but no resonable solution to the problem is known. Replacement of all the stones would be extremely expensive and any painting or staining of the stones would create an on-going maintenance cost and may not adequately address the issue.
C. Aquatic Site Facilities

1. General:

In addition to the pools, the site portion of the aquatic complex consists of approximately 33,000 sf of decks and walkways, 30,000 sf of turf and landscape buffers, 7,000 sf of buildings and a 2,000 sf sand play area.

2. Decks & Walkways:

The total area of decks and walkways within the aquatic complex is approximately 33,000 sf. The majority of the paving is in good condition. The exceptions are those decks adjacent to areas where there has been pool or piping problems. In these areas the decks have settled and/or cracked due to the pool ad piping problems. These areas should be removed and replaced to maintain a good level of quality facilities.

3. Sand Play:

The sand play area is adequate in size and scheduled for an upgrade in equipment to revitalize its aesthetic appeal and function. There are also commercial shower units available from “Shower Tower” or “Most Dependable Fountains” that could replace the custom built units and reduce the winterization effort. Expansion of the area is not readily feasible nor needed.

4. Turf Decks:

The primary turf area is north of the pool and has excellent orientation to the afternoon sun. the overall area is sufficient for the current size of the facility. The turf zone is located on the south facing slope of an eight to ten foot grade change up to Fairview Avenue. This slope provides for an elevated viewing of the balance of the aquatic facility and should be retained as is. Landscape buffers are adequate throughout the complex. The buffer to the single family residential areas to the south are well developed and maintained.

5. Fencing & Barriers:

Fencing to the south is an eight foot high board on board fence which, in conjunction with the landscape plantings, provides an excellent buffer to the single family homes adjacent to the park property. Chain link fencing constitutes the balance of the perimeter enclosure. The black PVC coatings on the framework and the fabric make this fencing less visible and eliminates the adverse connotations of chain link fencing. Ornamental fencing is used in conjunction with the building forms where the public is in close proximity to the fencing. The perimeter fencing is in good condition and should last indefinitely with reasonable maintenance.
D. Support Buildings & Facilities

1. General:

The support buildings for the aquatic facility consist of the Bather Prep Facilities which also house the Admissions and Office functions, the concession Building and the two Pool Mechanical Equipment Buildings. All of these buildings, with the exception of the pool mechanical for the newer lap pool, were constructed in the 1994 renovation of the aquatic complex.

2. Bather Prep Facilities:

The Bather Prep Facilities are in very good condition and should continue to provide their function for the next ten to fifteen years without any unusual repairs or replacements. The fixture counts, toilets, urinals, lavatories and showers, are based on the codes in place at the time of construction and may not meet more recent interpretations of the ADA requirements or interpretations of these requirements over the expected lifetime of the building. The current fixture counts permit a bather capacity for the aquatic complex of 1000 bathers at any point in time. Even if the calculated bather capacity were to be expanded by the addition of water surface and/or deck area expansion, the capacity would be capped at 1000 unless additional fixtures were added. Family change facilities are a more recent concept being used at similar facilities. These would also require an expansion of the bather prep area if desired.

3. Concessions:

The Concession Building and operation were not evaluated as a part of this study. However the building and the concession patio were observed and no apparent irregularities were noted. The importance of food and beverage service to a successful operation are well understood and these features should be maintained or even improved for the continued success of the Aquatic Complex.

4. Pool Mechanical Equipment Building(s):

The Pool Mechanical Buildings were both well maintained and should be expected to continue to provide for the operational needs of the current facility for the next ten to fifteen years without any unusual repairs or replacements. The space is substantially used however and the opportunity to support any significant expansion might require additions to accommodate the additional needs.

5. Parking:

The on-site parking capacity of 95 cars is considered inadequate for a facility with a 1000 bather capacity. Two hundred cars would be the recommended count. This is not possible unless the detention area could be re-developed to accommodate both functions. The
effect of the overflow parking on the residential neighborhood was not evaluated in this
assessment, but we would expect that there is some adverse reaction to the condition.

E. Summary of Conclusions

The Leisure Pool is mechanically in good condition with reputable components such as
Strantrol system 4 chemical controller (slightly outdated), Stenner peristaltic chemical
feed pumps, Marlow pumps and strainers, Paddock vertical steel filters, and Lochinvar
pool heaters (slightly outdated). With the recommended modifications to the pump piping
to eliminate the cavitation issues with the filtration pumps, WTI would expect an
additional 10 years before any major equipment replacement would be necessary under
normal operating and maintenance conditions.

WTI has also recommended that a backwash holding tank be installed to detain the
backwash waters and permit backwashing to occur when necessary without any adverse
effect on the adjacent properties.

The southeast corner of the splashdown area needs to be adjusted to provide constant
skimming around the entire pool. The main drain level controls need to be adjusted back
to a normal setting.

Additional testing is recommended to verify the leakage and to determine the extent of
the problem. One of the three options should then be implemented to correct or mitigate
the problem. The leakage may be contributing to other problems with the pool.

The gutter grating should be changed to a PVC grate with smaller openings and
perpendicular bars such as manufactured by “Grate Technologies” or “Grate Ideas”.

The Lap Pool needs some modifications to the backwash system to permit better flow and
the filter piping needs to be modified to eliminate the dis-functioning automatic valve
arrangement.

Portions of the deck should be removed and replaced where excessive cracking and/or
settlement has occurred. The remainder of the site and buildings are all in reasonable
condition and should provide good service for at least ten years with normal operations
and maintenance.

The support facilities are in good condition and meet the current IDPH requirements,
however they are not adequate to support an expansion of the bather capacity of the
facility. The parking is already considered to be inadequate for the current capacity but
the site does not permit the expansion of this function.
II. PROGRAMMING & NEEDS ASSESSMENT

A. Bather Capacity

The calculated bather capacity and the support facilities place the current facilities at a 1000 bather limit. A rule of thumb generally accepted in the Aquatic Planning Community is that the bather capacity should be between 3% and 5% of the population served. Based on a population served of approximately 34,000, that would calculate out to a 1020 to 1700 capacity need for the Glen Ellyn Park District.

The Illinois Department of Public health (IDPH) has established plateaus of bather capacity as it relates to the fixture counts in their Minimum Standards for Swimming Pools and Bathing Beaches. A substantial jump occurs when the capacity exceeds 1000 and the next category goes from 1001 to 1500 bathers, therefore once 1000 is exceeded, the facility might as well expand to 1500. Based on the current population served, the IDPH regulations and the fact that the Park Districts surrounding Glen Ellyn all have developed aquatic facilities in recent years, WTI would recommend a bather capacity in the 1001 to 1500 for the Glen Ellyn Park District. This would provide for some population growth within the District as well as some increased usage generated by an improved entertainment value of the facilities.

An increase in capacity would require the addition of pool surface and/or deck area as well as expanded support facilities including additional toilets, showers and lavatories. The expandability of the existing facility is limited by the space available within the Park. As previously noted, the number of on site parking spaces needed to support the current facilities are inadequate and any expansion will be difficult to support. Therefore Water Technology Inc. does not recommend expanding the current facilities beyond the 1000 bather capacity within the existing park.

B. Entertainment Value

1. General:

The entertainment value of an aquatic facility is the combined value of all the features and facilities provided for the public to use. The quantification is somewhat subjective but the principle is that the greater the number and the more interesting the features available are, the greater the attendance at the facility will be and thus the greater the entertainment value of the facility. As an example, a pool of 7500 sf could have a bather capacity of 500. If this were a rectangular pool with water depths of 3 to 5 feet and limited other features, it would be difficult to attract 500 users except on the hottest of days. However, if this same 7500 sf of water had a zero depth edge, shallow water, water play features and a flume slide, the entertainment value would be significantly higher and the 500 users would be more likely to use this facility.

The measure of the “Entertainment Value” is in the sustained attendance at the Aquatic Complex. The weather, understandably has an effect on the attendance from year to year,
however if the annual attendance shows a continued decline, when adjusted to consider the effects of the weather, then the entertainment value of the facility has diminished. This may be a combination of age of the attractions, physical condition and/or the effect of competition from surrounding facilities that may be newer or have features not available at the complex. The following features might be considered to enhance the entertainment value of the Sunset Pool Complex.

2. Water Play Features:

The greatest area of growth in the aquatics industry in recent years has been in water play apparatus, flume slides and associated water features. All of these improvements provide entertainment value to the facilities but do not necessarily relate to an increase in the capacity. The features located at Sunset Pool were all specified in 1994 and are somewhat dated, in comparison to the options available in the 2005 marketplace.

For the Water Play Features, the Raindrop could be replaced with a newer interactive apparatus with the same or lesser water flow requirements. The installation would have to include some pressure regulation valves to prevent fluctuations in the geysers and slide flows when the interactive features were implemented. There are many single component units that could be used or a modified Watercolors unit with up to two levels could be customized for the facility. Larger, more expansive features could be installed but would require under-pool piping changes and increased pump capacities. These would be significantly more expensive and disruptive to the existing pool environment.

An alternative or addition to the in-pool features would be the development of a Spray Play Pad adjacent to the water play area of the existing pool. The Spray Play Pad could have above ground and/or in ground features but should not have any climbing elements. The surface under the equipment would be broom finished concrete. Color could be added to the concrete thru shake on or stain processes.

3. Water Flume Slides:

The existing flume slides are in good condition but also are considered very conservative by 2005 standards. Replacement of the slides using the same starting platform would not significantly increase the entertainment value of the rides since the height would control the length and time of the ride that would be similar to the existing rides. One or both of the slides could be replaced with taller, longer and more interesting rides that would utilize the same splashdown pool area. If only one slide were replaced, an additional starting guard would be required if the platform heights were not the same.

An optional, but more expensive alternative would be to replace one of the slides with a Bowl Slide. This feature would have to have its own separate tower and stairway but utilize the existing splashdown pool area. This option would add a feature with significant entertainment value for the complex.
4. Diving & Drop Slides:

The existing pool has three diving boards. Two of these are 1M boards and the third is a 3M board. The boards are more than adequately spaced at 15' O.C. and the hopper depth meets current code for both 1 and 3M diving. WTI would recommend a depth of 13'-6" for a new installation of a 3M board but the 12' to 12'-6" is within the parameters of the IDPH code. Since the use of the diving boards requires the restriction of the entire deep hopper which is 75' x 45', it would be reasonable to add additional features to maximize the use of this area. PDERMA has recommended that a fall attenuation surface be installed around the 3M board and ladder in the event that a fall from the ladder or board should occur. WTI would concur with this recommendation and advise the District to install the padding.

A drop slide could be added to the east of the diving boards or the easternmost 1M board could be relocated to the west of the other 1M board and a double drop slide configuration could be installed. The drop slide(s) will require the addition of a feature pump capable of delivering 200 GPM per slide.

5. Water Walk:

The addition of a water walk feature will require a pool addition of 400 to 600 sf. This would most likely be added to the east side of the lap pool and probably at the southern end. The additional water volume will necessitate an expansion of the filtration system or a secondary support filter to accommodate the increased water volume.

6. Shade:

The Park District has added some shade structures to the facility since its reconstruction in 1994. In today's market, shade is an increasingly demanded item. The new level of awareness of the damaging effects of the sun's rays has created a demand for umbrellas and shade structures to increase the comfort of the pool users and to support the opportunity for extended stays. Water Technology Inc. recommends the addition of shade features throughout the Aquatic Complex.

The large umbrella structures in 12' or 20' diameter sizes can easily be added thru the installation of a ground sleeve to support the single post. Other semi-permanent structures can also be installed. These structures have a permanent post and frame system with removable fabric. Sizes and shapes can be varied depending on the locations.

7. Additional Features:

Additional features considered for possible enhancement of the entertainment value include the addition of a lazy river, spas and programmable elements such as water basketball, water volleyball and floatables.

The addition of a lazy river would add both capacity and entertainment value to the facility, however, as previously noted, the space is inadequate for this expansion and the
required support facilities. Spas likewise require additional space and are generally recommended as “adult only” features. The Sunset Pool site does not have a good location for these features.

Water basketball, water volleyball and floatable features are more program oriented. They do add entertainment value but are not considered permanent additions to the pools. Removable backboards and volleyball standards are required for basketball and volleyball. Anchorage is required to keep the floatable units in position and guard staff must consider monitoring of the areas beneath the units when they are in the pool.

C. Summary of Recommendations

An increase in bather capacity, while statistically desirable, cannot be supported by the limited site and the limited parking in particular. The facility could however use some improved features to give the aquatic facility a face lift and to provide more options and entertainment for the pool users.

Water Play features should be modified and/or expanded. The “Raindrop” could be replaced by an interactive component of equal gpm flow. The installation of some valve protection to prevent excessive pressure in the geysers might be required. An “SCS Watercolors” unit or small “Aqua Play” feature might also be substituted for the raindrop.

The replacement of at least one of the water flume slides would give that activity some fresh enthusiasm. Other options would be to replace both flume slides with new, taller and longer rides or replace one flume with a Bowl Type Flume Slide.

The addition of a drop slide or two would help maximize the use of the deep water hopper. One drop slide could be added without any changes to the diving, or one 1M board could be removed and a dual drop slide installed.

A water walk feature could be added but will require a 400 to 600 sf pool expansion of the lap pool.

An increase in the shade features throughout the facility will enhance the appeal of the pool and provide the users with additional sun protection.

The programming of floatables, water volleyball and/or water basketball should be investigated in an attempt to create the maximum entertainment value for the Park District residents and guests.
III. PROBABLE CONSTRUCTION COSTS ESTIMATES

A. Existing Facilities Repair & Renovation

The costs below are based on the anticipated scope of repairs and/or renovations outlined in the facility review section of the report. Actual costs may vary as the detailed scope of work is defined in the design/engineering phase of the work.

1. Reposition and repipe the two filtration pumps to reduce the cavitation levels to an acceptable range. $10 – 15,000.00

2. Install a backwash holding tank to detain the backwash flow and protect the residential neighbors from sewer backups. $20 – 25,000.00

3. *Re-Construct a portion of the splashdown pool to correct the settlement issue and re-level the gutter system $30 – 50,000.00

4. Perform additional testing to verify the extent of leakage at the SS Gutters.
   - Additional testing $5 – 10,000.00
   - Option 1 - Remove & Replace SS Gutters $225 – 250,000.00
   - Option 2 – Epoxy inject the grout seams $30 – 40,000.00
   - Option 3 – Caulk gutter grout seams $10 – 15,000.00

5. *Replace the gutter grating to a PVC grate with smaller openings and perpendicular bars. $10 – 15,000.00

6. Modify backwash and filtration piping and increase the line and pump capacity for the backwash water discharge. $18 – 24,000.00

*Indicates items that would be reduced in scope or eliminated if the entire SS gutter system were removed and replaced. (see Item 4, option 1)
B. NEW PROGRAM OPTIONS

The programming and needs assessment identified a variety of areas where improvements could be made to increase the entertainment value of the facility. Options within each recommendation vary by the scope of improvement proposed.

1. Modification and replacement of the water play features in the shallow water portion of the leisure pool. $15 – 120,000.00

2. Replacement of one or more flume slides
   a. Replace one slide with a new slide/tower/stairway $150 – 200,000.00
   b. Replace both slides with new flumes/tower/stairway $350 – 400,000.00
   c. Replace one slide with a Bowl Flume Slide/tower/stairway $500 – 650,000.00

3. Add one or two drop slides to the diving hopper
   a. Add one Drop slide/tower/stairway $100 – 120,000.00
   b. Relocate (1)-1M diving board and add 2 drop slides/tower/stairway $150 – 200,000.00

4. Install fall attenuation matting around 3M diving board and ladder $8 – 10,000.00

5. Expand pool and add a water walk activity $130 – 150,000.00

6. Provide additional shade structures throughout the Park $15 – 20.00/sf

7. Furnish and install backboards, volleyball nets and anchorage for floatable units. Develop programs for scheduled use. $ variable
DOUBLE FLUME REPLACEMENT

DOUBLE FLUME REPLACEMENT
BOWL SLIDE REPLACEMENT
WATER WALK ADDITION