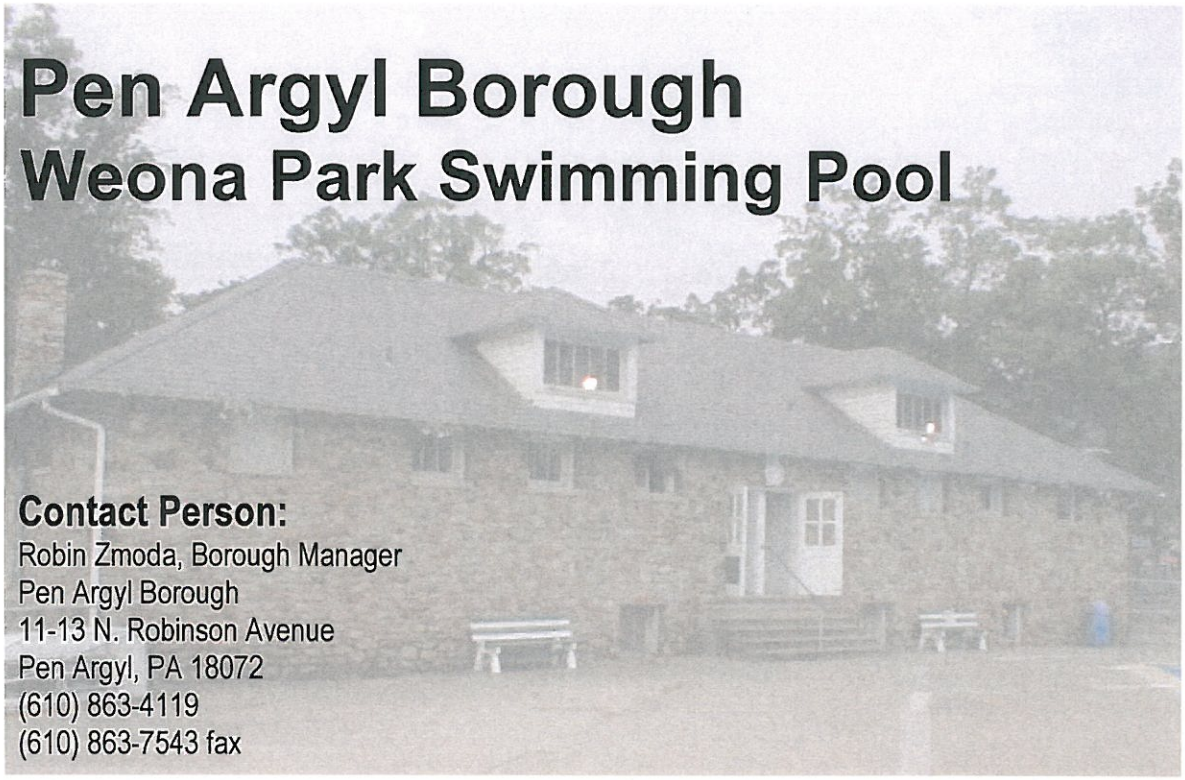
Pen Argyl Borough
Weona Park Swimming Pool



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Swimming Pool Feasibility Study
Final Report

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Pen Argyl Borough
Weona Park Swimming Pool
FEASIBLILITY STUDY

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WEONA PARK POOL, PEN ARGYL BOROUGH
Renovation Feasibility Study

Analysis of Swimming Pool Development

The following analysis of Pen Argyl Borough's need for a renovated and updated Weona Park Pool facility is intended to identify all relevant conditions that effect the redevelopment of this facility. The study will address the major aspects of the facility in detail and be followed by a series of recommendations that will provide the Borough with options for development. Specific site features and other related issues such as geographic features, access, etc., are discussed in the Weona Park Master Plan, 2002. The elements of this study are as follows:

- **Existing Swimming Facilities**
- **Identify Pool Deficiencies**
- **Technology for Renovation and Construction**
- **Existing Bathhouse Facilities and Code Review**
- **Identify Deficiencies**
- **Proposed Improvements**
- **Budget**

The existing facility continues to offer a desirable facility in which to enjoy aquatic programming and recreation. Due to the age, construction of the pool and the inability to easily meet the ADA regulations with the current bathhouse structure, the facility is in need of a major renovation to enable the Borough to continue to meet the needs of the community. Changing programming requirements coupled with new advances in technologies throughout the aquatic industry render a facility constructed in the early 1930's woefully inadequate in many areas. We are confident that a newly renovated facility can be effectively developed to minimize maintenance costs while providing a recreational resource of increased value for the residents of the Borough and surrounding communities. This study can be utilized as a catalyst to assist in the preparation of any subsequent grant-in-aid applications from either local or state funding sources. The report should also be used for the preparation of a specific scope of work for future pool and bathhouse construction.

EXISTING CONDITIONS

• FACILITY OVERVIEW

The Weona Park Pool began as a dammed up natural drainage area that was used as the Park's "swimming hole". The Borough built an unfiltered "pump and dump" concrete walled, sand bottom pool on the site in 1926. The pool was renovated including a new filtration system and piping in 1967. The original concrete walls constructed in 1926 remained in place while a gunite concrete floor and additional concrete was added to the walls. The additional gunite added to the wall thickness concealed new filtration piping, encased new skimmers and supported new concrete decks surrounding the pool. A unique, river washed stone veneer bathhouse was added to the pool complex in 1934. The pool was again the subject of a renovation study in 1987. The study identified, some areas of repair, some of

which some were performed. In 1988 the filtration system was updated with filters being replaced, some piping components replaced, limited areas of concrete repair, new floor joints installed and repaired, and drain valves replaced. The history of the surrounding park complex is well covered in the Weona Park Master Plan, 2002.

The swimming pool complex consists of a large 151' x 132' main pool and a rectangular 24'x73' tot pool. The tot pool filtration and circulation piping are connected to the main pool system via a reflecting line through a shared pool wall. The bathhouse is a distinguished two-story stone rubble structure with lifeguard locker room, lockers, toilet rooms and showers on the upper story. The lower story houses the pool filtration systems and shares space with park maintenance shops, etc. The facility also includes a small concession building located on the far side of the facility away from the entrance.

The filtration system consists of four independent dual tank, 66" diameter, vertical oriented tank, high rate sand filters. Two 15 HP pumps operate the system featuring a single lever linkage/per cell, to backwash each set of tanks. The main and tot pool filter systems are tied together as a single pool with filtered water return to the tot pool via penetrations through the shared pool wall. The sanitation medium is an original gas chlorine system. A separate venturi pump is employed to operate the discharge pump for the pool vacuum system.

The main pool shape is a rectangle with large chamfered corners defining the deep end. There is no independent diving well. The diving stands have been removed. The main pool is 18,570 square feet and has a painted finish. The depth of this pool ranges from 2'-9" deep to 8'-10". The approximate water volume is 835,702 gallons. The orientation of the long axis of the main pool is east - west. The tot pool is 1,782 square feet and also features a painted finish. The depth of this component of the pool ranges from 1'-10" deep to 2'-4". The approximate water volume is 24,443 gallons. The tot pool long axis is north – south.

There is no competitive course in the existing main pool. The pool remains a very large multi-activity general recreation pool, with a significant surface area of 5 foot or greater water depth.

The main and tot pools include precast concrete copings surrounding both pools. The painted finish is in poor condition exhibiting significant pitting where raw concrete is exposed. Skimmer outfalls (41) around the tot and main pools provide limited removal of surface water and accumulated debris. Two main drains provide the only bottom drainage in both pools. Filtered water return is via two bottom piping runs in the main pool and a piping run at the base of the wall in the tot pool. The tot pool is filtered through the main pool system, which is also in violation of current standards. Skimmer boxes for a pool of this width are not recommended in the ANSI / NSPI-1, American National Standard for Public Swimming Pools, 2003 (ANSI / NSPI), or the recently updated Pennsylvania Bathing Manual which has been replaced by the referenced ANSI / NSPI standards.

Two separate buildings support the pools, including a 2,400 square foot footprint bathhouse (4,800 square foot both floors) and a 324 square foot concession building. The bathhouse is not used as the main entrance to the pool complex. Instead, just inside a large gate in the perimeter fencing, a table provides a work station for check-in. (At the time of the architect's original observation, a one-person wood shack was used as the check-in station. This has been removed.) The first aid station consists of an open air park bench labeled as such. Entrance

may be gained to the complex via the bathhouse, but no check in station is included on its interior. The bathhouse is made more difficult to access as the lockers and changing rooms are on its second level and accessed by main stairs front and rear. The filtration system is on the lower level of the bathhouse and is directly adjacent to the deep end of the main pool. The location of the bathhouse structure near the deep end of the pool is presents a safety hazard that should be considered during renovation. Redirecting patrons from the bathhouse to exit closer to shallow water can be accomplished by various architectural and site design methods.

MAIN & TOT POOL STRUCTURES

The total volume of the main pool structure is approximately 111,725 cubic feet. The water volume of the current main pool containment structure is approximately 835,702 gallons. The recreational area from 2'-10" to 5'-0" comprises 5,588 square feet of water surface area. The 12,982 square feet of water surface area from 5'-0" to 8'-10" represents two-thirds of the main pool and indicates that the main pool is largely a deep water pool. The deep end contains no diving well and does not comply with NCAA required diving well profiles. In the former location of the diving stands the depth at the plummet is not sufficient for a 1 meter diving stand (NCAA requires 12'-0" minimum). The former orientation of the diving boards faced northwest. The assigned diving area is approximately 8'-10" deep. As the current pool does not meet current design standards ***diving from a 1-meter tower into any part of the pool is not recommended or advised***. ***(See Diagram A)***

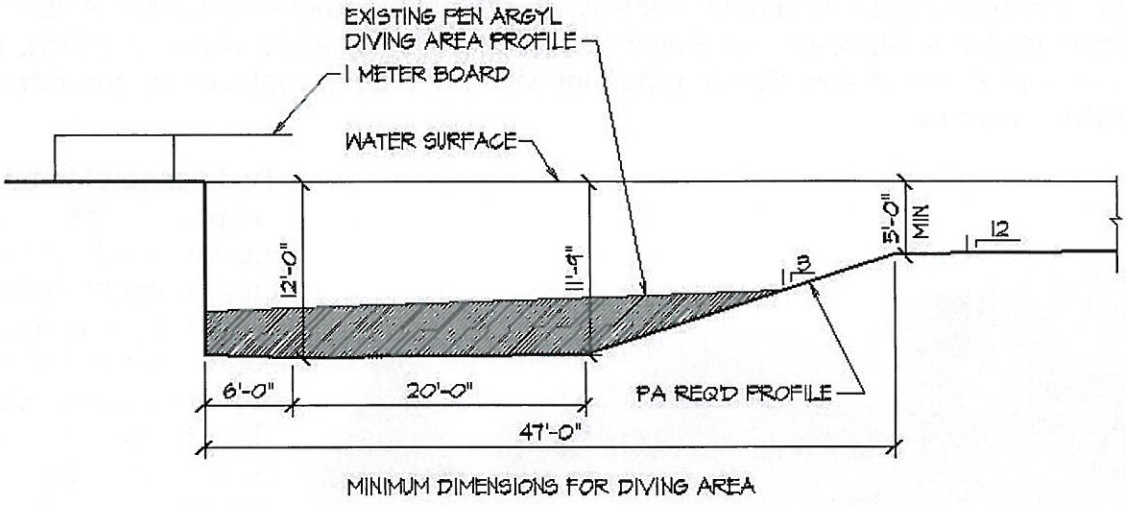


Diagram A

Walk-in steps with handrails facilitate access the main pool. The handrails are not an ADA compliant configuration. The minimum deck width is 4' around the main and tot pools with decks in excess of 20' behind the former diving board location. Decks are discontinuous around the tot pool area and as such are not in compliance with national standards. Significant cracking and tripping hazards were noted around both pool structures due to paving deterioration, etc.

Maintaining water in the containment structure has been difficult for the Borough. The pool requires the addition of 12,000 gallons per day of operation. Over a 90 day pool season in 2004, the Borough's water usage for replacement loss alone is in excess of 1,080,000 gallons. As a direct result of this situation, water chemistry is difficult to maintain due to the introduction of significant amounts of fresh water. Calcium hardness and alkalinity levels are low, which results in an aggressive environment for the pool shell and grout. The pool water leeches calcium from the concrete and grout within the containment structure in an effort to raise calcium levels in the pool.

Dye testing of the pool expansion joints has been performed by the Borough with no significant findings. The dual nature of the original shell with additional gunite layer may be defeating the intent of the dye testing as there may be no clear cracks straight through both layers. No dye testing of the piping has been performed. Pressure testing of the piping has not been performed. Pipe ruptures have already been detected in the tot pool piping. The Borough has shut off return lines and piped a connection through the shared wall. This temporary repair was performed to maintain the pool in an operational condition. The filtration system piping is a serious concern due to the age of the system and its known problems. The history of the pool indicates that neither the pool shell nor the piping is fully sound. The interconnection of the filtration and recirculation systems of the main and tot pools creates a significant problem. (Note: Aggressive pressure testing could rupture existing piping, therefore it is not recommended for this study.)

FILTRATION SYSTEM (main recreational and tot pools)

The filtration system consists of two (2) tank, high rate sand filters supplied by one flooded suction close coupled 15 HP recirculation pump for each filter tank array. The filters are connected to the main drains in the main pool and the skimmer boxes around both pools. All water from the skimmers and main drains are directly connected to the filter tanks for cleaning and recirculation. The 4 filters compose 190 SF of sand filter bed (47.5 SF /tank) capable of filtering approximately 2,445 GPM (190 SF x 12.87GPM/SF = 2,445 GPM). The exterior condition of the filter tanks is fair.

All piping, valves and containment structure elements of the filter are in fair to poor condition. Significant rust and general corrosion is evident in all areas of the filter tanks and piping within the filter room. This is not unusual for a system of this age. In addition, there are a variety of piping materials in use in the system which can cause maintenance issues.

With a total volume of 860,145 gallons for the main and tot pools, a 6-hour turnover rate requires 2,445 GPM. At an 8-hour turnover rate, the required minimum flow rate at the time the pool was renovated, 1,834 GPM is required. The filter system as sized does meet current design standards and is capable of maintaining the 6 hour turnover rate. However, based upon the number of skimmers (41) and suction and return line sizes, the system is restricted by not being able to draw enough flow for the designed filter turnover rate. Taking the stranglehold of the suction skimmers and limiting piping diameters into account (in addition to the assumed condition of the in-ground piping with the number of fittings and elbows in the piping configuration), it is highly unlikely that the filters as piped can produce the required flow rates. Indeed much of the water loss (12,000 Gal / day) may be leaking out through compromised underground piping.

A Stranco automatic water chemistry controller has been in operation since the mid 90s to maintain gas chlorine levels. The unit is operational and is maintained by *If Its Water* of Dowingtown, PA.

It should be noted, the conditions at the pool are indicative of a pool of extreme age, not of a pool that has not been well maintained. The overall maintenance of the complex has been well performed and of excellent quality based upon the age, condition and construction methodologies utilized for the original containment structure. The Borough staff should be commended for its efforts to keep this community asset in operation.

SITE CONDITIONS

The entire pool site is enclosed with a 6' high chain link fence. This fencing is in fair condition and incorporates four gates of varying widths to provide access near the four corners of the enclosed area of the pool. Adequate lawn areas are adjacent to the pool along the north and west sides of the pools. The bathhouse, located directly east of the main pool's deep end is of rough rubble stone construction with access from the second level to the pool deck level from its main exit stairs.

Parking is available throughout the park for patrons and includes approximately 26 spaces directly to the south of the pool complex. The existing parking count and planned improvements are identified in the Weona Park Master Plan, 2002. However, parking is inadequate for the potential occupancy of the pool.

In general the majority of the pool structures are in poor condition. The condition of the pool, piping and filtration system have produced a facility that does not conform to a significant portion of the ANSI / NSPI standards. In addition neither the bathhouse nor the pool structures meet the current ADA regulations. This must be resolved in any future renovations.

The major problems relate to the age of the complex. The pool facility will soon become a burden instead of the recreational amenity it should be. The size of the pool remains an attraction drawing people from the larger area outside the Borough. Unfortunately the depth of the main swimming pool structure has already caused the elimination of diving, which was an attraction while the boards were in operation. It should also be noted that the extensive water surface with a depth in excess of 5 feet makes a large portion of the pool unsuitable for the non-swimming population of the community.

The condition of the existing filtration and recirculation systems as well as the pool structure are most likely contributing to the large water loss problem. During the winter months the Borough tries to retain water in the pool shell. Due to valves that have failed, cracking in the pool and likely underground pipe leakage, the water recedes quickly. In the first six weeks since closure of the pool the water has sufficiently receded to leave a portion of the pool bottom dry. Cracking of both concrete shells was noted. ***This is not unusual for a structure that has provided up to 77 years of service, considering the normal useful life of a commercial pool is 25 years!*** With portions of the pool bottom exposed during winter, frost damage to the structure is a likely outcome. Frost heave will only cause more damage to control joints and already damaged or compromised concrete.

Although it is difficult to access the condition of the original structure underneath the 36 year old renovation, the visual inspection of the concrete containment structure(s) indicate that the swimming pool may be suitable for certain effective renovation techniques. In our professional opinion complete replacement of the containment structure and recirculation system would be the most cost effective use of available recreation dollars. By relying on the questionable quality of the existing shell, the lifespan of any renovation may be reduced and the inevitable replacement of the pool delayed. However, if sufficient funds are allocated for the repairs, an additional 25 years of useful life is, in our opinion, within reach.

OUTLINE OF EXISTING DEFICIENCIES

The following outline of deficiencies is provided to identify the extent of the deterioration of the pool and support facilities. It should be noted that age is a significant contributor to the condition of the pool. The community has utilized this facility ***as is*** for ***36 years*** with only minor renovations. The list of problem areas should not be viewed as a lack of attention by the community or its maintenance staff. The deficiencies are grouped according to ***Pool Containment Structure***, ***Recirculation, Filtration, and Sanitation Systems***, ***Pool Deck and Site Amenities***, and ***Bathhouse Structure***:

Pool Containment Structure(s)

Main Pool

- Skimmer use in side walls of the pool not permitted in pools over 30' in width. No uniform surface skimming at perimeter of pool.
- Deep water area is non-compliant for diving use by ANSI / NSPI and NCAA standards. Diving stands have already been eliminated.
- Floor water return inlets do not provide an even distribution of water throughout pool. Retrofit in-floor filtered water return source of potential leaking and extensive maintenance.
- No ADA compliant access to pool.
- Two thirds of pool water above five foot depth limits usage and recreational programming.
- Concrete shell shows significant cracking.
- Chain link fencing along tot pool shared wall presents sharp edges.
- Pool decking not continuous around perimeter.
- Pool edge conditions and coping potentially hazardous.
- Pool losing significant water due to piping and / or pool shell conditions.
- Multiple expansion / control joints and core borings present extensive maintenance issues.

Tot Pool

- Concrete shell exhibits cracking.
- No main drains. Pool drained and filled through side wall piping into main pool.
- No ADA compliant access to pool
- Pool edge presents sharp corners and chain link fencing directly at edge of water along long sides of pool.
- Pool decking not continuous around perimeter.
- Pool losing significant water due to piping and / or pool shell conditions.

Recirculation, Filtration and Sanitation Systems

- Combined filter plant for main and tot pool not permitted by code.
- Flooded suction pumps for Main Pool and Tot Pool (2-15 HP) in poor condition / will not be suitable for new required flow rates.
- Filter tank size and condition ***may*** be suitable for reuse; however the age of the tanks (15 years+) is nearing the end of a normal life cycle for unlined carbon steel filter vessels.
- Filter room schedule 80 PVC piping is acceptable. Layout of the system is complex and could be improved for ease of use. Combined dual tank-dual pump design is difficult to balance flow between the tanks.
- No surge tank to balance top and bottom suction water.
- Mixing schedule 80 PVC, galvanized steel and cast iron piping not recommended.
- Electrical service is not in compliance with the current provisions of the National Electric Code (NEC)
- Maximum flow in existing 6" skimmer piping 540 GPM @ 6 FPS under suction. 540GPM<2,445 GPM

- No automatic water level controller, manual fill via hose bibb.
- Skimmer design inadequate to produce uniform surface skimming and does not meet ANSI / NSPI.

Pool Deck and Site Amenities

- General condition of the pool decks includes cracking and some tripping hazards. No major settlement of decks around the back of the pool wall and indicates water leakage.
- Sealant joints between concrete pool copings and pool decks require maintenance. Damaged pool copings.
- Chain link fencing between tot pool and main pool unattractive and presents sharp elements to bathers.
- Many odd design conditions that present sharp fencing elements. Decks not continuous around the tot pool.
- Deck equipment is of more modern vintage including stainless steel portable guard chairs and stainless steel pool ladders (possibility of reuse).
- Insufficient number of portable lifeguard stands. 10 required (1/2,000 SF WAS)
- Stairway to bathhouse requires additional hand railings and railings that meet ADA requirements.

Bathhouse Structure

- Entry bypassed due to stairways at entrances. Users enter through fence gate.
- No identifiable sense of aesthetics between other built elements of the pool complex.
- Interior construction is dated, worn and not inviting. Most windows blocked up or cracked. Interior partitions deteriorating.
- No first aid facility.
- No ADA accessible entries.
- No ADA accessible toilet/shower facilities.
- Inadequate width of door openings and hallways.
- Concrete floor finish worn and peeling. Concrete slab cracking.
- Minimal separation of shower water migration over adjacent floors by fiberglass threshold lip at entrance to shower.
- No emergency lighting or panic hardware as required by the International Building Code, 2003 (IBC)
- Insufficient numbers of plumbing fixtures to meet ANSI / NSPI and IBC per user load.
- No impervious surfaces on floor or walls surrounding toilet and urinals.

Concession Building

- Interior finishes appear worn and in need of renovation. No cove base on walls. No impervious finished surface on floor.
- Exterior building appearance could be improved.
- Front door will not prevent entry of pests.

- Interior surfaces, shelving and accessories not suitable for the storage and display of foodstuffs and not approved for sanitary conditions.

Manager's Office

- Insufficient facility mainly providing a control point at the gate entry.
- No dedicated first aid facilities.

OUTLINE OF RECOMMENDATIONS

The following elements should be considered in the development of the renovated swimming pool facility. *(Recommendations are specific to this Project.)*

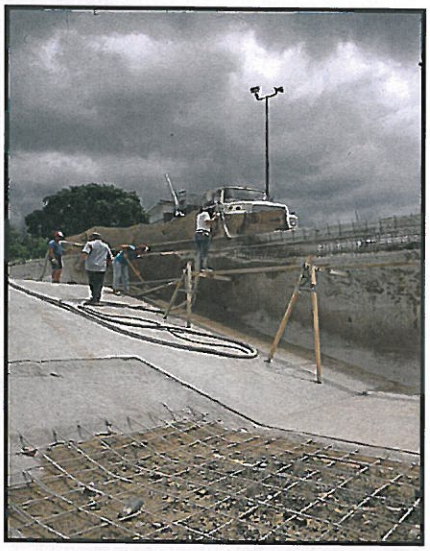
- ***Renovate main pool:*** **Renovate existing main pool (filtration and recirculation systems, interior pool finish and deck equipment)**
  (17,738 S.F. water surface area; this area is excessive for the size of the service area and community usage (NRPA standards), however, the historic significance of the pool and its relationship to Weona Park warrants maintaining the basic outline of the pool as much as renovation & maintenance budgets will allow.)
- ***Water slide or other aquatic attraction*****: to be developed in main pool to replace diving.** (phased development to be performed as funding permits)
- ***Renovate main pool to include competitive 25 yard course:*** **Renovate existing main pool including recirculation systems, interior pool finish and deck equipment** (3,196 S.F. water surface area for competition course to be contained within the overall pool water surface area defined above)
- ***Water Splashground*****: Construct new splashground in area of existing tot pool to provide new attraction for bathers and non-swimmers.** (phased development to be performed as funding permits)
- ***Zero-depth beach access tot area*****: Construct new zero depth access tot area within main pool.**
  (1,477 SF area recommended to be contained within the overall pool water surface area defined above)
- ***Renovate Bathhouse*****: including new dressing, toilets and staff space.** (Historic certification to be considered.)
- ***New ADA family changing room*****: include manager's office, first aid in addition to ADA compliant dressing, shower, and toilet.**
- ***Filter / Sanitation Systems*****: Existing filter tanks may be considered in design of new system after thorough evaluation.** (The existing filters are nearing the end of their useful operational life.) **Provide automatic water level controller, automatic water chemistry controller, surge tank and updated sanitation systems. Convert elemental Gas Chlorine to Liquid Chlorine (Sodium Hypochlorite) – gas chlorine is dangerous to operate.**

CURRENT TECHNOLOGIES FOR RENOVATION AND CONSTRUCTION

SWIMMING POOL CONTAINMENT STRUCTURES / SUPPORT SYSTEMS

One of the most widely utilized construction techniques for swimming pool containment structures is pneumatically placed concrete or "Gunite" construction. This process involves

applying concrete under pressure in a highly reinforced excavated form. The concrete can be placed wet ("Shotcrete") or dry mixed with water at the nozzle of the pump ("Gunite"). This method of placement has one major benefit over cast-in-place concrete. The need for "control joints" is eliminated or minimized (for large surface area pools). The finished concrete shell can be either painted or finished with an impervious swimming pool plaster. In the case of existing construction, a vinyl pool liner membrane may be considered as an alternative to painting or plastering.



In comparison, the cast-in-place concrete swimming pool has been the forerunner of the Gunite pool. Cast-in-place construction requires the development of extensive formwork, water stops and control joints between each successive concrete pour. This technique remains a viable option for new pool construction; however, we believe a properly reinforced pneumatically place concrete pool provides the best value in today's market. Long term maintenance costs (caulking of control joints, etc.) can be greatly reduced by utilizing pneumatically placed concrete.

Another option that is gaining momentum in the United States is the new "Myrtha" pool technology. While not a new company, (the parent firm has over 40 years of worldwide operation), the Myrtha Pool concept has been offered in the States for less than ten years. Recently the Borough of Quakertown Pennsylvania constructed a $2.8 million dollar reconstruction of its municipal pool complex utilizing this technology.

The system involves the lamination of virgin vinyl to high-grade stainless steel sheets. The sheets are then fabricated into wall panels that are bolted together and backed by a stainless steel buttress system that forms the pool walls. A simple concrete ribbon footing is placed prior to panel erection. Upon completion of the wall construction, a reinforced concrete floor slab is placed to form the pool floor. A vinyl sheet is placed in the floor and welded to the wall panels to form an impervious one-piece pool liner.

MYRTHA WALL/BUTTRESS SYSTEM

The pool system can incorporate zero depth beach access, interactive water features, competitive venues (a feature for which the Myrtha Pool has world renown reputation), diving and a limitless potential for creativity. Water distribution is provided via overflow rim-flow gutters, standard main drains and standard wall inlet fittings.

High performance recirculation systems are available for competitive venues. As the vinyl lining is an inert material, it does not add or seek to obtain any elements from the pool water or containment structure. This situation minimizes the complexity of water chemistry balancing, making an operator's life a little easier. However, when dealing with an outdoor pool, this degree of sophistication may not be advised. The affects of wind, temperature and a variety of environmental impacts can affect the outcome of a competitive event.

From all indications, this technology is a viable alternative to the traditional concrete construction. Considering the product offers an end user a 15-year warranty on the pool and liner, compared to a 1-year warranty for a concrete shell, the Myrtha Pool is a system worthy of serious consideration. Based upon the results of the survey process, all features desired by the patrons of the pool could easily be accommodated by a Myrtha pool.

In the interest of controlling the cost of renovating the existing pool, the proposed design may incorporate new construction and existing pool shell construction. To minimize the renovation of the existing pool shell the entire pool may utilize a polyvinylchloride (PVC) pool liner. The vinyl liner would minimize extensive renovation to cracks, joints and pitting exhibited in the existing shell. A vinyl liner of 60 mil thickness rests on a felt layer 150 mils thick. The layer of felt allows for the thermal movement of the liner over the existing shell. The Borough needs to consider this option relative to the risks in presenting a significant investment that can be compromised by vandalism.

If the vinyl liner option is not selected by the Borough our suggestion would be to place a new gunite shell within the existing pool shell using it as formwork. The new 6 inch layer of concrete would be reinforced with mats of No. 4 rebar @ 12" O.C. each/way for the floor. Mats of No. 4 rebar @ 6" O.C. vertically and 12" O.C. horizontally for all wall construction will provide complete integrity of the new shell. In areas of water depth greater than 5', the wall

structure may be increased to an 8" thickness with a greater density reinforcing mat. *This rebar and wall construction design must be finalized in any subsequent design phase.*

A competitive or lap swimming course based upon a 25 yard (75'-0" – PIAA/NCAA standard) or a 25 meter (82'-1-1/2" - *"Jr. Olympic-Pool"*) pool length should be incorporated in the design. Lane widths of a standard 7'-0" produce the most common pool width. This translates into a pool size of 75' x 45' or 82' x 45' for a six lane pool. As large competitive meets are not envisioned for Pen Argyl an 8-lane pool is not recommended. A 50 meter pool is also not recommended, as the cost associated with this type of competitive pool is unnecessary and the general recreational programming usage does not support such a unique function.

The depth of the lap swim / competitive course should vary from the existing 8'-10" depth to a minimum of 5'. Competitive starting blocks must be installed at the 5' depth. Kick turns can be performed in 3-1/2' to 4' depth especially in younger aged swimmers. However, constant depth competitive pools are most desirable when competition is the only function envisioned for a pool structure. Water in excess of 5' in depth does restrict the programming for non-competitive activities. There is a significant amount of water surface area in the existing pool which could be well utilized for lap swim, competitive training and competition.

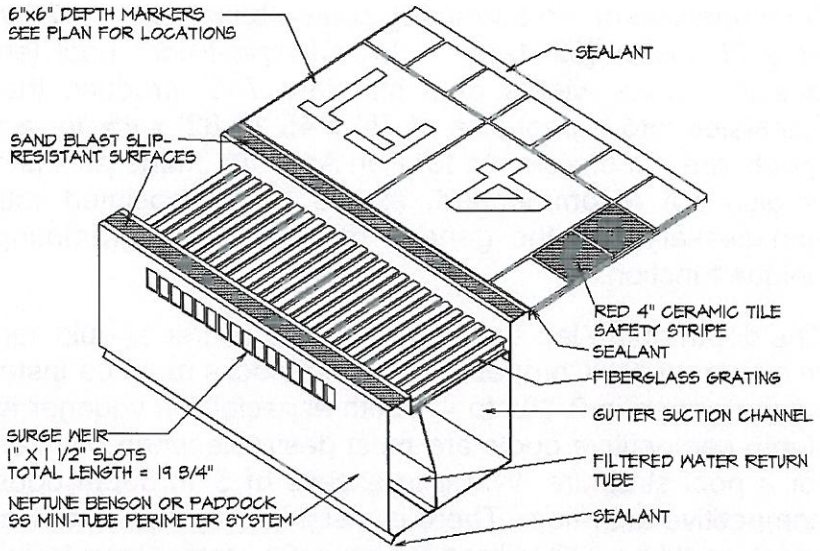
If diving was to be included in the pool renovation it could be incorporated into the main pool containment structure. For two boards an area approximately 42' x 36' would have to be demolished and reconstructed with the proper depth and profiles as required by the NCAA. The construction of a diving well as part of the main pool may prove to be cost prohibitive due to the size of the existing pool being renovated. If a new pool of reduced size were considered, then the diving well may become an attractive option. The Borough should evaluate these options keeping in mind the desired programming of the facility including teaching and training. Diving remains a highly desirable activity as expressed through other community surveys we have conducted in our work.

The depth of a diving well should maintain a depth of 11'-0" (12'-0" depth for 3 meter towers) at the plummet of the diving boards. The profile of the bottom of the diving well should comply with the NCAA design standards. The rear and side wall profiles should also be designed for the appropriate height diving stands. Any increase beyond the recommended depth is viewed by the State as a safety issue due to the inability of lifeguards to effectively view the bottom. Vision can become obscured beyond a 14-foot depth if the water becomes turbid during normal operations.

Swimming pool design should be matched to the programs and activities scheduled for the facility. As no community surveys were conducted as part of this study, minimal emphasis was placed on specific amenities to be constructed except for water slides, diving and zero-depth "beach" access. Diving in the current structure is not recommended due to the bottom profile and limited depth. In examining the competing facilities and in analyzing the potential growth of the Borough and surrounding areas, current trends in pool design should be incorporated to provide a unique draw for the newly renovated facility.

GUTTER AND RECIRCULATION PIPING

The most effective method to achieve continuous overflow skimming is to install a continuous stainless steel gutter system around the perimeter of the pool. In order to provide a recirculation system capable of providing a minimum of 25 years of service, limit ongoing maintenance and provide for an even distribution of filtered water throughout the pool, a stainless steel recirculating gutter is, in our professional opinion, the most appropriate approach for new construction, and the typed of rehabilitation involved for the Weona Park Pool.



Skimmer pool designs are not capable of providing uniform skimming during quiescent periods nor are they capable of sustaining any significant surge loads. Also, the skimmer pool design is not legal for pools greater than thirty feet in width. Skimmer pools greatly increase daily cleaning and long-term maintenance costs.

Typical skimmer / deck condition:

Stainless Steel Gutter: Installation & operational features

The installation of a single channel, stainless steel recirculating gutter system would have the following benefits for the Weona Park Pool:

1. Ease of cleaning and general maintenance is greatly enhanced with this system. The water line of the pool is in contact with stainless steel minimizing a scum ring. Cleaning is easily performed with a 3M Scotch Brite pad. A continuous grate is required for the gutter. This assembly can reduce the chance of tripping when exiting the pool and assist in keeping debris out of the gutter channel. No loose parts are exposed to minimize the potential for vandalism.

2. Constant skimming during quiescent and full load periods is maintained. Integral surge weirs allow the gutter to operate with 80% of the required flow rate in the channel (20% through the main drain) to maintain higher water quality during quiescent periods. In-pool surge capacity is achieved by allowing the main channel within the gutter to handle any sudden surge within the main pool tank reducing the potential for flooding of the gutter or the filter system. The gutter is sized to accommodate a volume of 1 gallon per square foot of water surface area. In addition, filtered water is returned to the pool at 3' intervals around the perimeter of the pool providing an even distribution of filtered water, thus increasing sanitation effectiveness.

3. The stainless steel gutter is not adversely affected by the effects of winter freeze/thaw conditions further reducing ongoing maintenance.

4. A total of two main recirculation lines from the gutter (one (1) main gutter suction, and one (1) gutter filtered water return) and one main drain line are required to operate the system. The potential for future deck removal can be minimized by installing the new gutter assembly and associated piping.

FILTRATION SYSTEMS

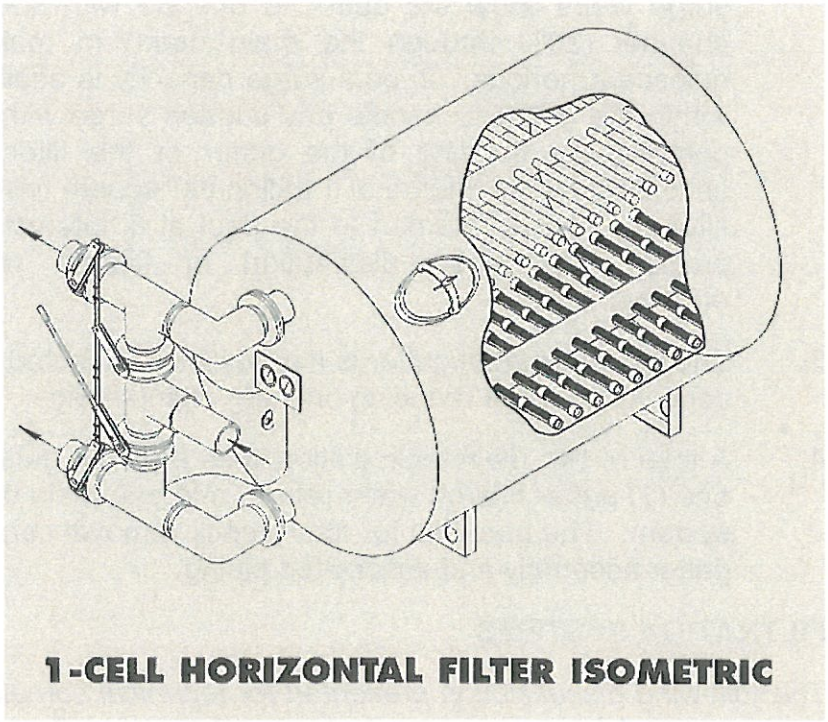
The following discussion is presented for technical completion. The existing filter tanks may be considered for reuse in the redesigned system after a thorough evaluation. Despite the possibility of reuse, the Borough may decide the most cost effective decision would be to replace the entire system. The age of the carbon steel filters in question are approximately 15 year old. The average life of an unlined steel filter vessel is approximately 20 years. When factoring the time associated with the planning and design process, phasing out of the steel vessels for new fiberglass tanks may prove to be in the Borough's best long-term interest.

New NSF approved high rate pressure sand filter plants can produce excellent results without the need for excessive maintenance time. For ease of maintenance and long life, the use of a high rate pressure sand filter system will provide the Borough excellent service. This type of system can be installed within the existing filter room to protect the unit from the elements. Most exposed elements of the filter are PVC construction and require minimal work to maintain. The filter operates at a rate of 15 to 20 GPM/SF of filter surface area and produces excellent water quality. This filter type is capable of providing water quality close to that of diatomaceous earth filtration without the problems associated with the disposal of diatomaceous earth.

It is highly recommended that the filter system selected should be sized for a minimum filtration rate of four (4) hours to a minimum of six (6) hour turnover rate (at 15 GPM/SF) to insure the highest water quality for the patrons of the pool. The filtration rates should be sized according to the programmed function, i.e.; heavy use pools should have the most rapid turnover rate. By cleaning the water at these elevated rates, it has been found that chemical consumption can be minimized because aggressive filtration reduces the need to disinfect when bathing loads increase.

The increased filtration rate is necessary due to the fact that the proposed pool design is considered a multi-use leisure facility combining shallow water area, (tot pool functions), general recreational and competitive swimming, and water attraction splash down areas.

New commercial ***horizontal*** fiberglass filters offer a cost effective alternative to carbon or stainless steel filter vessels. We have examined a number of new filters on the market and can recommend their use as the new horizontal design provides for a far more efficient distribution of filter bed and media within the filter tank. The filters can be easily grouped together, have larger influent and discharge fittings (allowing for slower water velocities within the system), and provide for efficient and simple operation. As the cost for these systems are less than the carbon steel or stainless steel high rate sand systems, the Borough of Pen Argyl should explore this option.



1-CELL HORIZONTAL FILTER ISOMETRIC

Providing a gas fired pool heater can increase season length and provide alternatives to standard operation. Heated water can enable the pool to be programmed from early morning *(lessons and therapeutic activities)* to late evenings *(parties and moonlight swims)*. Associations with local health care providers and schools can become a source of programming and income producing opportunities. Electric water heaters tend to operate at a higher cost and if available, natural gas is the preferred choice as a fuel source. Propane can also serve as a fuel source for a pool heating system.

SANITATION SYSTEMS

As more information becomes available regarding chlorination of commercial swimming facilities, alternative sanitizing systems are becoming more common. While the widely utilized Sodium Hypochlorite, NaOCl, (liquid chlorine) is relatively inexpensive at the present time, new regulations regarding the transport and delivery of liquid chlorine will increase its cost in the near future. With an available free chlorine content of 10% to 16% (12% is the most common form) and a short shelf life, Sodium Hypochlorite remains a viable option for many municipal swimming pools based upon cost and ease of delivery. Safety issues when handling liquid chlorine must not be overlooked as improper handling and mixing can cause serious injury under the right circumstances.

Calcium Hypochlorite {Ca (Ocl)}, elemental Bromine ($C_4H_4O_2N_2BrCl$) and Bromine/Ozone in combination are becoming more cost effective for use in municipal and commercial pools. Bromine used independently is more costly than liquid chlorine or table forms of chlorine, Bromine is half as reactive as chlorine as a sanitizing agent, therefore more product is required to achieve the same level of disinfection potential. When combined with ozone, bromine is chemically regenerated, greatly reducing the need for additional bromine. In fact,

bromine in its inactive form will continue to sanitize pool water. However, ozone/bromine sanitation systems have high a first cost and require excessive and ongoing maintenance, while effective, the initial cost and extensive maintenance required makes this a poor choice for the municipality.

Bromine is slightly lower in pH, and does not off-gas, as does chlorine (in all forms, gas, liquid or tablet). When used with CO_2, no corrosive effects are encountered in mechanical rooms or mechanical systems. By properly maintaining the pool chemistry, bromine can produce a quality swimming environment, with less eye irritation and reduced or eliminated odors associated with chlorinated pools. The swimming environment produced by this system is thought to be most desirable from the swimmer's viewpoint and also from the lack of deterioration that it produces in adjacent structures.

Calcium Hypochlorite provides sufficient chlorine (65% available free chlorine) to act as a sanitizing (oxidizing) agent, however, the carrier element, Calcium, does have the potential to increase the total alkalinity of the pool water over time. This problem can be addressed and should not be viewed as a sufficient reason to disregard erosion feed chlorine systems. The use of Calcium Hypochlorite has the added benefit that it will protect a marcite pool finish or ceramic tile grout as the carrier element does not etch or degrade the plaster finish. As noted, balancing the water chemistry does require careful attention to insure that the calcium does not begin to scale or accumulate on pipes or other surfaces in contact with pool water. One major disadvantage of the erosion feed systems is that regular cleaning with an acid solution is required to insure proper operation of the distribution equipment. However, if properly maintained, the system produces an economical and safe sanitation system.

The equipment for this type of system is automatically controlled to simplify general maintenance. While liquid chlorine will produce high quality pool water and the lowest first cost, new technology available to the Borough will make the operation of the Weona Park Pool far simpler and cost effective in the future. In some instances, sanitation equipment can be purchased via lease options, which eliminates up-front expenses. This option might enable the Borough to take advantage of the more expensive new technologies.

If liquid chlorine or other liquid sanitizing or buffering agents are utilized, positive displacement chemical feed pumps must be utilized to inject chemical directly into the filtered water recirculation line. An automated delivery system should be incorporated to accurately add chemicals to the pool water as needed. Microprocessor controlled units are now highly reliable and a positive addition to the mechanical equipment package. This equipment decreases the use of chemicals due to the ability to immediately provide chemical to the pool water upon demand.

Tablet feed sanitation systems normally utilize a venturi feed or positive flow assisted by low volume booster pump systems. The venturi flow system can be readily operated by automatic water chemistry control systems with equal reliability to liquid feed systems.

The process of testing pool water should follow the Pennsylvania Department of Health testing recommendations. This test provides an accurate reading of available free chlorine. It is strongly recommended that OTO (Orthotolidine) test kits not be utilized at the facility as this product is a carcinogen and its use is no longer recommended. OTO also read all chlorine compounds in the pool water and as such, it does not produce a true picture of the water chemistry at any given time.

Testing should be performed at a single location, preferably at a new flow cell in the new swimming pool filter room. As this process may be somewhat difficult for the staff on heavy attendance days, it is recommended that testing at the filter room be performed on a two hour cycle while maintaining hourly testing at the pool side. It is further recommended that the pool testing conform to the standards identified in the ***Langelier Saturation Index***.

This index accounts for five major pool water variables: (1) temperature, (2) pH, (3) calcium hardness, (4) total alkalinity, and (5) total dissolved solids. A new kit will enable the pool staff to easily monitor the pool chemistry using this system. This process is important, as a pool in proper balance will eliminate all corrosive or perceptive conditions. Chemical consumption is reduced and filtration runs are greatly improved. This process should be performed on a weekly basis. For a complete description of this process see the TAP publication, ***Swimming Pool Management Manual***, latest edition issued by the Department of Conservation and Natural Resources, Bureau of Recreation and Conservation.

POOL DECKS AND DECK EQUIPMENT

All deck areas must meet the intent of the ANSI / NSPI with deck widths in excess of 4 feet around the perimeter of the pool. If diving is incorporated, the pool decks must be in excess of four feet in width behind the diving boards. The site must maintain proper security around the perimeter of the pool area through the use of chain link fencing. Deck markers must be spaced at 25' intervals measured peripherally and incorporate proper "No Diving" markers per ANSI / NSPI. Annual maintenance may be minimized with the use of integral depth markers.

Large deck areas can provide a positive feature for a pool. Large paved surfaces provide for a number of programming and training opportunities. This feature should be considered to provide user acceptance of the facility and to enhance use of this facility over competing facilities. This design element is especially important when developing a swimming pool that is intended to host a large number of competitive meets. Large deck areas help in maintaining the pace of scheduled events and provides for competitor and spectator viewing of the competition.

ANSI / NSPI require lifeguard chairs to be spaced so the following condition can be met. The number and location of lifeguards must be able to identify an incident within ten seconds of its initiation. The lifeguard must be able to respond to and initiate appropriate protocol within twenty additional seconds. Typically the number of lifeguard chairs needed to respond to this criterion is calculated at one chair per 2,000 square feet of water surface area. The proposed Main Pool water surface area is 17,738 square feet, which would require a minimum of nine lifeguard chairs are required (17,738 / 2,000 = 8.869 or 9 units). A free standing movable guard chair is also recommended to allow for increased supervision in areas or periods of heavy use. The water surface area of the proposed zero-depth entry Tot Pool is less than 2,000 square feet, which would require a minimum of one lifeguard chair.

Programming options are enhanced by providing adequate site lighting. General site lighting around the pool should be provided by pole mounted HID floodlights. Underwater lighting is also useful in developing evening or late night programming activities. However, high ongoing maintenance costs associated with underwater lighting and the difficulty of installing this type of lighting in an existing containment structure combine to make its inclusion in

future improvements unlikely. Sufficient pole or building mounted site lighting can be provided in any subsequent design work.

PA systems are recommended for normal communication, music, and for oversight for competition at the pool site. Deck mounted connections located adjacent to the lifeguard chairs should be provided. Some facilities now are utilizing radio frequency operated PA system, which eliminates the need for excessive underground conduit.

BATHHOUSE FACILITIES

The main bathhouse facility for the complex should be constructed of building materials that can readily withstand the effects of unheated operation. The Borough has indicated that the Bathhouse is not to be utilized as a year-round facility.

The building is classified as an Assembly A-3 Occupancy by the IBC 2003.

In our professional opinion, we recommend using the actual attendance figures maintained by the Borough for planning purposes. This will reduce the actual area of new construction under consideration. This will have a profound impact upon the ultimate cost of renovation. If combined with a new unisex – ADA family restroom, the existing bathhouse facilities, properly renovated, should prove to be sufficient for the Borough's use.

Current trends indicate that patrons come to the facility dressed for swimming. However, as a large percentage of the users will access the site via automobile, incorporating a limited basket check area or some other type of temporary patron storage would be advisable.

While we suggest that restroom facilities meet the required numbers established in the study, the dressing area can be sized appropriately for the actual attendance loads the Borough experiences. Bathhouse sizing recognized by past codes is not necessary, as peak use periods would most likely never reach the total design occupancy. This is normally the case as patrons come and go continuously during operating hours. Only on rare occasions would a peak level be reached. With the costs associated with building construction, it is critical that the building reflect the actual use requirements and not a bureaucratic dictate. It is strongly suggested that the bathhouse building be evaluated to the standard of actual bather loads as recorded by the Borough. The actual peak bather load as observed by the Borough is 600 people. The male and female dressing / restroom areas should accommodate 300 patrons each sex. The community may ultimately wish to modify the actual size of the facility. However, the recommended pool and bathhouse areas defined herein are based upon the size of the service area, competing facilities, and the potential recreational services and amenities to be offered in Weona Park.

The existing Bathhouse could be made ADA compliant with the construction of extensive permanent ramps to both the park side entrance and park side exits of the building. The immediate lower cost alternative for ADA compliance may be to construct a compliant family changing building in association with the entrance to the pool complex. As the entrance has already been relocated to a gate within the fence the manager's office, first aid, and check-in should also be considered along with the family changing room. This direction does not eliminate the need to renovate the existing bathhouse into a code compliant facility nor does it preclude the need in the future to renovate the bathhouse into full ADA compliance. However, patron showering with soap prior to using the pool can have a profound impact on chlorine consumption. Providing easy access to showers is a desirable design feature.

CODE REVIEW

The American National Standard for Public Swimming Pools, ANSI / NSPI-1, 2003 and the International Building Code, 2003 (IBC) have been utilized to evaluate the current facility. The code review will define the legal occupancy of the facility and evaluate the existing facility in light of the design standards.

ALLOWABLE OCCUPANCY:

MAIN POOL (combined tot, competition, recreation):
26,637 SF Pool Deck vs. 17,738 SF water surface area

Main Pool:

Pool area less than 5ft depth = 12 SF/ patron	
(ANSI / NSPI, deck area at least = pool area)	
9,108 SF/ 12 SF/ patron =	759 occupants
Pool area greater than 5ft depth = 15 SF/ patron	
(ANSI / NSPI, deck area at least = pool area)	
8,434 SF/ 15 SF/ patron =	562 occupants
Pool diving area 300 SF/ patron	
(ANSI / NSPI, deck area at least = pool area)	
196 SF / 300 SF / patron (water slide catch area)	2 occupants
Total Maximum User Load:	**1,323 occupants ~ 1,325 occupants**

It is not recommended that the Borough of Pen Argyl utilize the maximum allowable pool occupancy, as this number of patrons would require significant increase in staffing and supervision. This figure is provided for informational purposes only. Furthermore, average attendance figures obtained from other similar sized facilities indicate that actual attendance figures are normally far below the allowable occupancy of the pool. A reasonable allowable attendance figure would be in the approximate range of 300 to 600 individuals. This is in keeping with past year's peak attendance figures and would comfortably allow for peak periods of use (holidays, competitive meets, special events, etc.), for attendance up to approximately 1,325 individuals. It should also be noted that the calculated attendance figures represent attendance over an 8 to 12 hour period depending upon hours of operation.

FIRST AID ROOM

First aid facilities including a separate room containing a cot, lavatory and telephone should be provided adjacent to the pool manager's area. Access to the first aid room must be developed to provide easy access for emergency personnel.

POOL STAFF

The pool staff should be sized to accommodate anticipated bather loads. Sufficient staff must be retained to allow for proper staffing at all hours of operation. For the Main Pool a minimum of nine (1/2000 SF) qualified lifeguards should be available per pool for each shift to allow for proper supervision of swimmers and to rotate staff for periodic breaks. The tot pool portion of the main pool should include a minimum of one lifeguard. These staffing requirements are the minimum requirements for lifeguards and additional guards may be

necessary to properly staff days with peak bather loads use (holidays, major competitive meets, special events, etc.). Guards from different areas should be cycled to provide variety of experience and maintain alert staff members.

It is strongly recommended that the pool managers and director of lifeguards obtain a current certification for pool operators and managers. While not a current requirement of the State, new regulations are pending which will require all operators of public swimming facilities to maintain the services of a Certified Pool Manager.

The Borough must consider the following seasonal staff persons depending upon the ultimate design and use of the proposed facility, based upon normal operating bather loads.

- Certified Pool Manager (1)
- Assistant Pool Managers (1-2)
- Certified Lifeguards (20 minimum to allow for several shifts)
- Aquatic Program Supervisor (1) can also be performed by Manager or Assistant Manager
- Certified Swimming Instructors (1-4) can also be lifeguards employed by the Borough
- Swimming Instructor Aides (2-8) can also be lifeguards employed by the Borough
- Program Instructors (2-8) can also be lifeguards employed by the Borough
- Program Instructor Aides (2-6+) can also be lifeguards employed by the Borough
- Admissions/Cashiers(3 – 5 to accommodate shifts)
- Concession staff (4- 8 to accommodate shifts)
- Maintenance Staff (1-2 depending upon pool knowledge could be Borough's maintenance staff)

Careful planning and hiring will actually lessen the number of employees needed. Program and swimming instructor aides may be volunteers or lifeguards. One of the Assistant Pool Mangers could also be the Aquatic Program Supervisor.

HANDICAPPED ACCESSIBILITY

New swimming pool facilities must be constructed in full compliance with currently adopted disabled accessibility standards. ANSI / ICC A117.1 standards and the ADA 2004 Guidelines requirements for new facilities should be addressed. Persons with disabilities must be able to gain access to the pool, bathhouse, concession areas, parking and all major areas of the complex as required. The main swimming pool is required to comply with ADA, Chapter 10, 1009 Swimming Pools, Wading Pools and Spas for access. Two means of access into the pool are required for a pool of this size. The zero-depth access shown in the proposed plan can incorporate the required elements for sloped entry into the water. An ADA compliant deck mounted pool lifter or pool stair will fulfill the remaining access requirements in the least obtrusive manner.

Grade access through the bathhouse should allow a person with a disability to reach the swimming pool unimpeded. Floor elevation changes within the bathhouse must be ADA compliant. Door widths, corridors and openings should be designed to accommodate wheelchair access. Walkways from parking areas or vehicular drop-off areas to the main bathhouse entry will be required to eliminate any barriers to easy access. ADA access to the existing bathhouse will be required at the time that the bathhouse is altered to bring the plumbing fixture count up to code. At the time of renovation ramps are required by the ADA to both main entrances to the building.

Community Development Block Grant funds should be available from the State to remove architectural barriers in public facilities. Other funding sources should not be overlooked in regard to this issue. While ADA expenses can be a burden to smaller communities, grants, low interest loans and foundation donations can be utilized for these necessary and important improvements.

The proposed design includes an ADA compliant family changing room near the entrance to the pool complex. This changing room should be viewed as an interim step, which does not preclude providing full compliance to the existing bathhouse. When the existing bathhouse is renovated to bring the plumbing fixture count up to code it will be required by the ADA to be brought into ADA compliance. At the time the bathhouse renovation is being considered several issues need to be considered regarding the ADA.

First, if the family changing room has already been constructed does the bathhouse need to be brought into compliance. Second, the existing bathhouse level is approximately four feet (pool side) to eight feet (park side) above grade and as such would present a significant hardship in terms of required area that ramps would represent and also the cost of ramping. In our opinion the Borough could make a case for not adding the ramps at the existing bathhouse entrances even if the plumbing fixtures were required to be constructed in an ADA compliant manner. The historic status of the park / building may also provide relief from some portions of the regulations. It will be the Borough's responsibility to explore the ultimate extent of compliance required for the support buildings and the pool.

PLUMBING FIXTURE REQUIREMENTS

The total number of plumbing fixtures required at the site is defined in the following schedules:

Occupant Load (by ANSI / NSPI) – 1,325 Bathers - 663 Male /663 Female (Based upon pool water surface area only)

Required Fixture Count

Fixture	Male	Female
Toilet	6	11
Urinal	4	0
Lavatory	4	5
Showers	13	13
Drinking Fountain	2	2
Service Sink	1	1
Hand Sink	1 (First aid room)	

Existing Fixture Count

Fixture	Male	Female
Toilet	2	4
Urinal	2	0
Lavatory	1	3

Fixture	Male	Female
Showers	2	2
Drinking Fountain	0	0
Service Sink	0	
Hand Sink	1 (in concession area)	

EXITING REGULATIONS

The PA Uniform Construction Code (including IBC 2003) will require complete interior and exit emergency lighting as well as exit hardware for all required means of egress. The bathhouse building will require review and approval prior to the start of any construction. ADA accessibility issues must also be addressed under the approval process. Appropriate numbers of ADA compliant fixtures and facilities must be included including shower, water closet, urinal, lavatory and drinking fountains, etc.

The Borough Code Review Official is the point of contact for review and approval of any proposed work. It is recommended that a preliminary meeting be held with the official upon defining the scope of work for the Project. Maintaining close contact with the appropriate offices can prove to be valuable.

RECOMMENDATIONS

PROJECT PHASING

Phasing of the Project can have a major impact of the ultimate cost of the work. By completing all aspects of the renovation in one phase, the Borough will save both time and money by eliminating a variety of overhead and initial start-up expenses normally associated with a construction project. If the Borough feels compelled to phase the work, the following prioritized list should provide a logical progression for the work to follow. The prospect of obtaining additional grant funding would be greatly enhanced if scheduled as a single application.

PHASE ONE - BASE BID CONSTRUCTION:

- **Renovate Existing Main Pool (see proposed sketch)**
- **Replace filtration & sanitation system**
- **Construct ADA changing room, manager's office, first aid, check-in building**
- **Demolish Existing Tot Pool**
- **Install New Decks and Deck Equipment**
- **Install Tot Area water features (bid as alternate)**

PHASE TWO - BASE BID CONSTRUCTION:

- **Renovate Bathhouse**
- **Renovate Concession Building**
- **Install water slide (bid as alternate)**
- **Construct splashground on former tot pool site**

If the phased options are to be undertaken consideration for all work intended to be performed should be considered during the initial phase. Planning for future improvements will allow for continued improvement without reconstructing elements that have already been built.

This schedule will also enable the Borough to renovate the existing bathhouse, after the construction of the new pool and ADA changing room. Utilizing the bathhouse in its present condition may not be the most desirable situation, but the facility will show continued improvement during the years the phased construction is taking place. After the first phase the facility will have measurable improvement in water loss, chemical usage and predictably improved attendance.

Our experience would indicate that a grant is more likely to be secured for a project that will provide a completed facility rather than a site that still requires additional funding. If seeking assistance from existing programs from Harrisburg, the impact of the timing of grant proposals and associated "paperwork" must be factored into the pending Project. It should be noted that additional review and approval time must be added to any schedule for the oversight required by the Commonwealth's grant programs. The main purpose of the DCNR Keystone grants program is to insure that recreational services will continue to be offered by the grant recipient. If it appears that the site in question cannot be assured of long term operation, the chances of securing additional funding may be reduced.

SPECIFIC RECOMMENDATIONS

In order for the Borough of Pen Argyl to meet the programmatic needs of the community, the following recommendations have been proposed. The suggested facilities will provide for general recreational, competitive swimming and teaching opportunities for the Weona Park Pool. The accompanying facility master plan will create a properly designed modern pool facility that will improve the technical aspects of the pool as well as the aesthetic aspects due to the reduced importance of the original bathhouse.

Taking advantage of the size of the existing pool will allow for the development of the required ADA zero-depth access. The size of the existing pool will also allow for the development of a new competitive course and properly circulating filtration system. The cost of developing the new circulation system will be minimized by utilizing the new concrete bulkhead for additional main drain piping in addition to the reconstruction of the existing main drains. The size of the pool will also allow for highly desirable continued community usage during competitive meets.

The desire to establish a competitive program and expand the programming offered by the facility would not be possible using the existing pool configuration. The depth of the pool will not meet diving standards without significant investment, but is more than adequate for a competitive course and water slide catch pool. Pricing for a new compliant diving well is included in this study for the Borough's consideration in adding diving to the programming offered. The proposed improvements will make this multi-use pool a model for other communities that wish to offer full programming opportunities by renovating their aging, single-use pools while complying with new ADA regulations.

The introduction of water play features, such as fountains or interactive water spray elements and water slides are all intended to draw users to the facility. The future splashground shown in the proposed design concept may be an attraction for families with younger children. Water slides are proven income-generating features. Depending upon the philosophy of the Borough's governing bodies, usage of the new features can be fee based or included as a part of the general membership of a combination of both (for daily users). The inclusion of these design elements are intended to produce an exciting atmosphere that

will entice families to stay longer at the pool, which will improve all aspects of the revenue generating components of the park (increased snack bar sales, accessory sales, i.e., printed tee shirts, towels, sun tan lotions, etc.)

The support buildings and site design are important elements of improving the overall environment and user acceptance of the facility. While the current pool maintains a loyal following, providing clean and inviting changing facilities coupled with improved supervision will make a profound impact upon the attendance of the facility. Aesthetics and functionality should be incorporated into the new project to encourage continued usage of the park on a daily basis.

The Borough currently encourages patrons to bring their own food and offers only ready-to-eat ice cream, soda, candy bars, and potato chips. The revenue generated by concessions and the overall enjoyment of patrons may still be improved by consideration of new offerings by the facility. The variety of ready-to-eat items may be increased without the need to purchase costly equipment and make costly improvements to the concession building. Other elements that could increase the duration of use may be the inclusion of pavilion or shade structures and a grill pit within the pool complex.

The pavilion may be offered for rental activities such as birthday parties, scouting events, swim club meetings, etc. In the future the Borough may want to consider providing foods requiring preparation if, for example, competitive meets are held regularly. The ability to extend programmed activities and develop new opportunities for the Borough's residents will be provided by the design as proposed.

By improving food service, re-evaluating menus and offering healthy meals, family usage can also be enhanced. Future renovations to the concession building may take place after major improvements are made to the pool. At the time of the concession building renovations the Borough may be able to see farther into the future of how expanded concession services may benefit the facility. Renovations included in the proposed design do not include consideration for expanded food service in terms of square footage or additional health department requirements.

CONCEPTUAL DESIGN

The renovation of the Weona Park Pool facility will update the pool to become a modern attraction worthy of the park's grand history. During the history of the Park the community has changed around it. In this study the Borough has expressed a desire to offer multiple programming options where the original pool had responded simply to the need for a community "swimming hole". During the last twenty years while the pool attendance has fluctuated due to outside influences other changes were taking place. With the acceptance of the ADA, plumbing code revisions and diving well requirements changes have become required in any pool renovation. Modern recreational pool design has also changed. Current thinking has come full circle from the pure recreational pool to the competitive pool and now back to the recreational pool. The obvious changes in pool design from a vintage recreational pool design are the advent of water play features, free form design, and multiple purpose design.

The Borough is not considering building a water park in this renovation nor would that be appropriate. The proposed renovations include changes required by code and changes desired by the Borough. The resulting pool will benefit the Park by creating an attraction

fitting the park that is necessary and appropriate. We are confident that this renovation will be positively received by the Borough and prompt attendance figures to much more appropriate levels. Upon completion of the proposed renovations the Weona Park Pool will become an attraction for the Borough and its surrounding communities, which is less of a burden and more like the jewel it has been in the past.

We realize that the existing pool is sufficiently over scaled for the size of the community it serves. Due to the history of the park and the importance of the pool we have proposed only minimal size reductions where it will be technically advantageous. Integrating the tot and main pool functions into a single body of water will eliminate the need for duplicate filtration systems. The zero depth entry will become a feature of the shallow, tot area more than an ADA requirement. The construction of a bulkhead will facilitate the creation of a competitive course. The bulkhead will also aid in minimizing work to the existing pool shell for new filtration piping.

In completing this study it became evident that the large body of water to be maintained will work to the community's advantage if transformed into a multi-purpose pool. The competitive course will be able to function without displacing recreational users, which is a difficulty at most public pools with a competitive course. The size of the pool will also allow for current and future features such as a water slide or diving boards.

The decision to accept or reject the proposed design will ultimately be determined by affordability. Regardless of the appropriateness or desire to maintain the large pool the Borough will be faced with the costs of renovating a pool that due to its age has become a burden rather than the amenity it once was. Again, the size of the complex is a major factor in defining the ultimate renovation costs.

Conceptual Master Plan, July 2006
Weona Park Renovations
WALLOVER ARCHITECTS ***incorporated***
941 Wheatland Ave., Suite 304
Lancaster, PA 17603

All of the following components have been identified in the Site Master Plan.

MASTER PLAN ELEMENTS:

- RENOVATED MAIN POOL INCLUDING 6-LANE, 25-YARD COMPETITIVE COURSE, ZERO-DEPTH ACCESS AND TOT AREA WITH WATER FEATURES
- WATER SLIDE UTILIZING MAIN POOL DEEP AREA
- NEW ONE STORY ADA FAMILY BATHHOUSE AND INCLUDING CHECK-IN, MANAGER'S OFFICE AND FIRST AID
- NEW FILTER AND RECIRCULATION SYSTEMS
- NEW CONCRETE DECKS
- RENOVATE BATHHOUSE
- RENOVATE CONCESSION BUILDING
- NEW SPLASHGROUND

POOL VOLUMES:

It is suggested that for the purposes of this study, the projected volumes be utilized only for the estimated capacity of filtration equipment capacities. This data is for informational purposes only and should be verified for any future facility design. The estimated volume of water for the proposed facility is as follows:

PROPOSED POOL VOLUME & FILTRATION RATE

Volumes rounded up to the nearest 10 gallons

Main Pool Structure: *(Average Depth 6'-0")*			
Size: 151' x 132'			
Total water surface area:	**17,738 Square Feet**		
Water Volume calculation:	7.48 gal. /c.f. x 106,428 CF= **796,081** Gallons		
Water Volume (total)	***796,081 Gallons***		
Main pool turnover rate, State minimums:			
Minimum Filter Rate:	***6 Hour turnover: 796,081/360***	=	***2,211.33 GPM***
Required Filter Area:			
Minimum Filter Rate:	**2,211.33/15 GPM/SF**	=	**147.42 S.F.**
Main pool turnover rate, Multi-purpose pool recommendations:			
Minimum Filter Rate:	***4 Hour turnover: 796,081/240***	=	***3,317.00 GPM***
Required Filter Area:			
Minimum Filter Rate:	**3,317.00/15 GPM/SF**	=	**221.13 S.F.**

ESTIMATE OF PROBABLE CONSTRUCTION COSTS

The following estimate of probable construction costs assumes that the Project is to be undertaken in two phases with a late summer 2008 start of construction for Phase 1. The estimate should be increased according to the cost of living index should the work not be initiated as herein assumed. The installation of new feature attractions such as water slides, fountains, and water spray features are included in the estimates of probable construction costs. The proposed design options are presented for review and consideration.

It should be noted that without a detailed schematic design package, a detailed line item estimate can not be accurately developed. The estimates developed for the study are based upon square footage evaluations from RS Means Construction Cost Data, 2006 edition, other similar projects recently bid by our office and information obtained from within the aquatics

industry. Square footage areas from the conceptual plan(s) have been utilized for the costs associated with site development.

PHASE ONE VINYL LINER OPTION

MAIN POOL:
Existing Main Pool area: 18,570 SF
Existing Tot Pool area: 1,782 SF
Total Existing Water Surface Area: 20,352 SF
Revised Water Surface Area: 17,738 SF including permanent bulkhead and vinyl lining
(Estimate rounded to the nearest $5.00)

Tot Pool demolition (1,782 SF x $17.50 / SF)	$ 31,185
Main Pool demolition (841 SF x $20.00 / SF)	$ 16,820
Main Pool haunch demolition (534 LF x $ 108/LF)	$ 57,675
Sandblasting concrete shell (21,774 SF x $2.80/SF) (Not required if vinyl option selected)	$ 60,970
Stainless Steel Gutter System including haunch forming and construction (648 LF x $375/LF)	$ 243,000
Vinyl (PVC) Liner membrane (21,774 SF x $12.50/SF-lump sum allowance)	$ 272,175
Filter tanks and media: (Based upon 6 hr turnover rate)	
Existing Filter/Pump demolition (lump sum allowance, $4,500/unit)	$ 18,000
High rate sand filter units (4 @ $30,000 each)	$ 120,000
Pumps and Piping Allowance	$ 60,000
Sanitation & Chemistry Control Allowance	$ 25,000
Filter System & Sanitation Installation Allowance (50% of hard costs)	$ 102,500
Electrical service upgrade (lump sum allowance)	$ 30,000
Deck demolition (9,751 SF x $6.50 / SF)	$ 63,385
Concrete decks (12,244 SF x $9.50 / SF)	$ 116,320
Deck Equipment (lump sum allowance)	$ 65,000
Equipment Installation Allowance (40% of hard costs)	$ 26,000
ADA Bathhouse (465 SF x $225/ SF)	$ 104,625
Retaining wall Demolition (83 SF x $25/ SF)	$ 2,075
Retaining wall construction (230 LF x $75/ LF)	$ 17,250
Subtotal:	**$ 1,431,980**
Contractor's Overhead and Profit (20%)	$ 286,400
Construction Contingency (10%)	$ 143,600
PHASE ONE CONSTRUCTION COST VINYL OPTION:	**$ 1,861,580**

ALTERNATES:

Flume slide (lump sum allowance, bid alternate)	$ 125,000
Water spray features (lump sum allowance, bid alternate)	$ 25,000
Diving well Option -demolition, 42'x36' (1,512 SF x $17.50 SF)	$ 26,460
Diving well Option -construction, 2-1M boards (1,512 SF x $240/ SF)	$ 362,880
Subtotal:	**$ 539,340**
Contractor's Overhead and Profit (20%)	$ 107,865
Construction Contingency (10%)	$ 53,930
PHASE ONE CONSTRUCTION COST VINYL OPTION - ALTERNATES:	**$ 701,135**

TOTAL PHASE ONE CONSTRUCTION COST VINYL OPTION W/ ALTERNATES: ***$ 2,562,715***

PHASE ONE GUNITE OPTION

MAIN POOL:
Existing Main Pool area: 18,570 SF
Existing Tot Pool area: 1,782 SF
Total Existing Water Surface Area: 20,352 SF
Revised Water Surface Area: 17,738 SF including permanent bulkhead and gunite lining
(Estimate rounded to the nearest $5.00)

Tot Pool demolition (1,782 SF x $17.50 / SF)	$ 31,185
Main Pool demolition (841 SF x $20.00 / SF)	$ 16,820
Main Pool haunch demolition (534 LF x $ 108/LF)	$ 57,675
Sandblasting concrete shell (21,774 SF x $2.80/SF) (Not required if vinyl option selected)	$ 60,970
Stainless Steel Gutter System including haunch forming and construction (648 LF x $375/LF)	$ 243,000
Plaster Finish Pool Construction (21,626 SF x $9.50/SF)	$ 205,450
Gunite, 6" w/No.4 rebar mat- (21,626 SF x $35/SF)	$ 756,910
Ceramic tile racing lanes and depth markers (allowance)	$ 22,500
Filter tanks and media: (Based upon 6 hr turnover rate)	
Existing Filter/Pump demolition (lump sum allowance, $4,500/unit)	$ 18,000
High rate sand filter units (4 @ $30,000 each)	$ 120,000
Pumps and Piping Allowance	$ 60,000
Sanitation & Chemistry Control Allowance	$ 25,000
Filter System & Sanitation Installation Allowance (50% of hard costs)	$ 102,500
Electrical service upgrade (lump sum allowance)	$ 30,000
Deck demolition (9,751 SF x $6.50 / SF)	$ 63,385
Concrete decks (12,244 SF x $9.50 / SF)	$ 116,320
Deck Equipment (lump sum allowance)	$ 65,000
Equipment Installation Allowance (40% of hard costs)	$ 26,000
ADA Bathhouse (465 SF x $225/ SF)	$ 104,625
Retaining wall Demolition (83 SF x $25/ SF)	$ 2,075
Retaining wall construction (230 LF x $75/ LF)	$ 17,250
Subtotal:	**$ 2,144,665**
Contractor's Overhead and Profit (20%)	$ 428,930
Construction Contingency (10%)	$ 214,465
PHASE ONE CONSTRUCTION COST GUNITE OPTION:	**$ 2,788,060**

ALTERNATES:

Flume slide (lump sum allowance, bid alternate)	$ 125,000
Water spray features (lump sum allowance, bid alternate)	$ 25,000
Diving well Option -demolition, 42'x36' (1,512 SF x $17.50 SF)	$ 26,460
Diving well Option -construction, 2-1M boards (1,512 SF x $240/ SF)	$ 362,880
Subtotal:	**$ 539,340**
Contractor's Overhead and Profit (20%)	$ 107,865
Construction Contingency (10%)	$ 53,930
PHASE ONE CONSTRUCTION COST GUNITE OPTION - ALTERNATES: (Excluding landscaping and fencing)	**$ 701,135**

TOTAL PHASE ONE CONSTRUCTION COST GUNITE OPTION W/ ALTERNATES: ***$3,489,195***

PHASE TWO DEVELOPMENT

BATHHOUSE RENOVATION:		
Existing building interior demolition (2,400 SF x $17.50/ SF)	$	42,000
Locker Area, Changing, Showers, Toilet Rooms (2,400 SF x $150/ SF)	$	360,000
CONCESSION BUILDING RENOVATION:		
Existing building interior & exterior demolition (324 SF x $17.50/ SF)	$	5,670
New interior finishes, exterior renovation, new doors, etc. (324 SF x $135/ SF)	$	43,740
NEW SPLASHGROUND:		
Filter Building (150 SF x $135/ SF)	$	20,250
Surge Tank (allowance)	$	25,000
Excavation & backfill	$	7,500
Concrete Paving (1,300 SF x $9.50 / SF)	$	12,350
Water Spray Features (allowance for 4 pieces of equipment)	$	40,000
Concrete safety surfacing (1,300 SF x $8.00 / SF)	$	10,400
Filtration & Sanitation Equipment (lump sum allowance)	$	25,000
Equipment Installation Allowance: (40% of hard costs) =	$	10,000
Subtotal:	**$**	**601,910**
Contractor's Overhead and Profit: 20% =	$	120,385
Construction Contingency: 10% =	$	60,195
TOTAL PHASE TWO CONSTRUCTION COST: (Excluding landscaping)	**$**	**782,490**

TOTAL PROPOSED DESIGN CONSTRUCTION COST w/ ALTERNATES:

Phase 1 & 2 (vinyl liner w/ss gutter system) **$3,345,205**

TOTAL PROPOSED DESIGN CONSTRUCTION COST w/ ALTERNATES:

Phase 1 & 2 (Gunite/plaster liner w/ ss gutter system, diving well and water features)
$4,271,685

Architectural and Engineering Fees: 8% of the cost of construction
(excluding contingencies)

Total Proposed Design Construction Cost: w/ alternates	**$**	**241,000**
Phase 1 & 2 (vinyl liner w/ss gutter system)		
Total Proposed Design Construction Cost: w/ alternates	**$**	**315,450**
Phase 1 & 2 (Gunite/plaster liner w/ ss gutter system, diving well and water features)		

It should be noted that the figures quoted above represent current bid pricing and should be, under a competitive bidding situation, within 15% of the actual bid price. Under the current bidding climate we have witnessed contractor's overhead and profit figures consistently in the 20% range herein indicated. However, the recent economic trends impacting the construction markets have made it somewhat difficult to accurately gauge the market for budget purposes. The amount of work available in the Eastern Pennsylvania region has created a "builder's market" which is affording the contractors to "pick and choose" specific projects. Providing a clear and accurate picture of what is desired by the Owner will help secure bidders for the Project. Recent material cost increases are also causing significant budget implications for new construction.

As indicated above, the current average cost of construction for new pool construction is approximately $200 to $210 per square foot of water surface area. To construct a new pool of 3,700 S.F. (a basic competitive pool without tot pool), the estimated construction costs without bathhouse, pool deck, or filter house construction would cost approximately $740,000 to $777,000. New construction cost for recreational building (excluding food service facilities) suitable for unheated construction is averaging approximately $140/S.F. in current prevailing wage construction dollars. A 5,000 S.F. bathhouse building including all appropriate support facilities would total $700,000. Decks, parking and site development can total an additional 20% to 25%. Professional fees and other soft costs must also be included in the overall cost of construction.

It can be clearly seen that the replacement costs associated with the renovation of the Weona Park Pool are in line with current construction costs for the development of a new swimming pool complex. There are less expensive options for the construction of pools, i.e., buried PVC recirculation piping and integral scum gutters; however these options are more subject to deterioration from winter exposure. Ongoing maintenance costs can rapidly escalate once deterioration begins, therefore the construction of a pool and support facilities that will withstand unheated winter exposure is critical to the long term success of the complex.

LIFE CYCLE COST ANALYSIS

The minimum anticipated life cycle for a new commercial swimming pool is 25 years. If properly maintained and serviced, the 25-year life standard can be easily exceeded. By constructing the new facility with high quality materials and taking proper precautions for structures exposed unheated operation, municipalities can extend the useful life of new swimming pool facilities. In order to maximize the life of the facility, certain procedures should be performed on an annual basis.

One major factor in maintaining the overall condition of a swimming pool is the practice of filling the swimming pool over the winter months. Water will maintain a non-frozen state below the swimming pool containment structure. By draining the pool, the ground beneath the pool will freeze and cause movement of the concrete structure. This movement will ultimately cause cracks and or deteriorate control joints. A winter cover will minimize the effects of debris entering the pool over the winter and potentially staining the pool finish. Reinforced nylon covers are highly recommended as a means to maintain a pool's finish surfaces but also as a safety element by eliminating the possibility of accidental entry to an unobserved pool structure. However, the site of the proposed pool may make the use of a winter cover unfeasible.

Proper winterization will save a substantial sum of money over the life of the pool complex. By draining domestic waterlines and properly installing anti-freeze agents in the plumbing system, deterioration of utilities and the surrounding building surfaces can be greatly reduced. All filter systems should be completely drained and major lines should have at least one valve removed or unbolted from the system at the lowest point in a line to eliminate the potential of damage from expanding ice. These practices cost money in man-hours, but can save substantial dollars in eliminating repairs in the spring prior to startup. It should be anticipated that two individuals would need approximately three to five working days to properly winterize a facility of the size proposed in this study.

Depending upon the pool surface, annual spring cleaning with a solution of mild detergents will greatly extend the life of the pool finish. Acid washing can significantly erode plaster surfaces. A standard plastered pool finish will proved a seven to ten year life expectancy. If the water chemistry is maintained in a neutral state and spring cleaning is not too aggressive, this period can be extended to up to twelve to fifteen years. This is not the norm, but with an aggressive maintenance policy individual facilities can provide greater performance. Most pool finish failures observed are a direct result of over aggressive cleaning and poor water quality. New quartz modified finishes can extend the life of the finish far beyond the more commonly utilized calcium based marble and cement plaster. However, these finishes are approximately 50% higher in first cost.

Pump motors should provide a minimum of ten to fifteen years of operation without the need for replacement or overhauling. The pump volute assembly should be capable of reaching the 25-year expectancy. Dual pump systems, while initially more expensive, can eliminate entirely or substantially minimize future expenses for the first 25 years of operation. Chemical feed pumps and other related support systems are more prone to more frequent replacement. Here again, with proper cleaning and normal routine maintenance, water treatment equipment has been observed operating well beyond fifteen years.

As for the term of financing of a new municipal facility, the period of 20-year amortizing period is quite common. If a community is committed to the investment in public aquatic recreation and will develop and maintain a proper policy of upkeep and regular maintenance, a 25-year bond of term for a municipal loan is not unreasonable. Communities should recognize that at the ten, twenty and thirty year mark, refinishing of the cosmetic surfaces of the pool may be warranted. If painting of the pool surface is selected, this must be undertaken on a two to four cycle. If the substrate of the pool's containment structure is allowed to deteriorate due to lack of maintenance, painting may become an annual expense.

The most important guideline to follow is the manufacturer's recommendations for upkeep and maintenance. When combined with proper winterization techniques, swimming pools can have quite a long life. There are pools built during the period of WPA construction that are still viable assets for their communities even today (although renovation has extended the life of these vessels).

The following items should be anticipated as elements that will require some form of renovation during the expected life span of the pool.

Element or system:	**Anticipated Life Span:**
Plaster finish	7 to 10 years with balanced water
Painted Finish	Annual painting
Vinyl Liner System	10 to 15 year warranty – 20 year life expectancy
Tile Grouting	7 to10 years with balanced water
Filter Media Replacement	8 to 10 years if properly backwashed
Pump Motor Windings	10 years
Water Chemistry Controller Probes	2 years with proper cleaning and storage
Chemical Feed Pumps	5 years if cleaned annually
Caulking and Sealants	3 to 5 years
Stainless Steel Gutter System	Annual cleaning and polishing–anticipated life span >25 yrs.

POSSIBLE FUNDING OPPORTUNITIES

*This section of the feasibility study report is **NOT** part of our scope of services as stated in the proposal dated July 28, 2003. The following information is provided as a benefit to assist the Borough in its efforts to renovate this facility.*

Financing the renovations for the Weona Park Pool can be a daunting task. The size and age of the pool contribute to the renovation costs. Several funding sources have been used by the Borough for projects. The intent of this section of the report is to identify some funding sources that are available. However, there is typically an application process for each of these funding sources. With the great amount of competition there is for funding, creativity becomes very important in addition to a complete application. A creative approach to grant writing may help elevate your application for consideration. Still, there are no guarantees that if you submit an application, you will receive any money.

When applying for grants it is necessary to receive as many points as possible during the evaluation process. Every question or requirement *must* be addressed completely. Each foundation or grant has a mission. Look for common threads that might help weave several grants together. Think beyond the basics for possibilities for your project and its future use. Each application should be tailored to meet the requirements of the grantor but it must still meet your community's needs.

When determining where to go for funding is it important to understand what may be eligible for funding. The following matrix breaks down the pool rehabilitation project into probable areas eligible for funding, possible funding sources, and miscellaneous notes that may help in the decision making process.

Possible Funding Areas	Possible Funding Sources	How to contact	Misc. Notes
General Pool Rehabilitation / Construction	Pennsylvania Community Conservation Partnerships Programs administered by DCNR, the Bureau of Recreation and Conservation	717-783-4734 www.dcnr.state.pa.us	• Requires 50% match
General Pool Rehabilitation / Construction	Land and Water Conservation Fund (LWCF) Administered by the U. S. Dept. of the Interior, National Park Service Apply through DCNR, the Bureau of Recreation and Conservation	717-783-4734 www.dcnr.state.pa.us	• Annual appropriations made to states • 50% match/reimbursement • Must be retained in outdoor recreation use in perpetuity • Must be properly maintained, attractive & inviting • Maintain separate project file
ADA Issues	Community Development Block Grant		• For ADA improvements
Historical or conservation	Amaranth Foundation 1825 Lehigh Parkway North Allentown, PA 18103	610-435-5570	• Might be able to base application on age of pool and /or bathhouse
General Pool Rehabilitation / Construction	Lehigh Valley Community Foundation 961 Carol Hern, Executive Dir. Marcon Boulevard, Suite 300 Allentown, PA 18109-9521 www.lehighvalleyfoundation.org	610-266-4284 610-944-6102 lvcf@lehighvalleyfoundation.org	• One of the preferred areas: programs and capital projects which stimulate or provide leverage for additional funding • Mostly local grants • Limited to non-profit, tax-exempt organizations serving Citizens of PA's Lehigh and Northampton Counties
	Kiwanis Club Foundation in Lehigh Valley P.O. Box 4355 Allentown, PA 18105-4355	**www.allentownkiwanis.org**	• Typically $2,500 grants max. • Grants recipients must be registered 501c3 organizations. Arts & Recreation (area of preference)
General Pool Rehabilitation	Kresge Foundation	WWW.KRESGE.ORG	Eligible projects

Possible Funding Areas	Possible Funding Sources	How to contact	Misc. Notes
Construction waterslide (?)			• Construction or renovation of facilities • Purchase of major equipment or an integrated system at a cost of at least $300,000. Equipment costs may include computer software expenses, if applicable. • Purchase of real estate.
Bathhouse	PA Historic and Museum Commission Keystone Historic Preservation Grant Program Keystone Historic Preservation Grant Administrator **Bryan Van Sweden**	(717) 772-5071 bvansweden@state.pa.us	• This might be a stretch • Funding under this program is available to nonprofit organizations and local governments for capital improvements on historic resources *listed in or eligible for listing* in the National Register of Historic Places. (Boro will need to determine if it is willing to go thru the eligibility process) • Competitive • Matching • Maximum Award $100,000 • Funding in the Categories of Preservation, Restoration, and Rehabilitation

Financing Municipal Recreation and Parks, a book published by the Pennsylvania Department of Conservation and Natural Resources (DCNR), Bureau of Recreation and Conservation in partnership with Pennsylvania Recreation and Park Society, Inc., offers additional information on foundations and grants in several pages in the Appendix on Financing Resources. This book is available for free by contacting DCNR.

Contacting USA Swimming may also provide some additional insight for funding and programming opportunities.