Feasibility Study

Silverton Community Pool

City of Silverton

June 2012

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Silverton Community Pool
Feasibility Study Summary Report

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SECTION 1

Introduction / Background

Introduction

The original Silverton Pool was constructed as a seasonal outdoor swimming pool in 1939 and available records show it underwent various renovations in 1959, 1978 and 2004 (refer to Section 4 for historical summary). The pool originally circulated water taken from Silver Creek, with provisions for only chlorine treatment of the water. Original drawings indicate space for future filtration and heating equipment, but none appears to have been installed. The pool was set up to drain to either Silver Creek or the City sanitary sewer system. In 1959 new filtration and chlorination equipment, and additional circulation piping to the pool were installed (again with provisions for future heating), though the connections to Silver Creek remained. Due to pool operational conditions and deterioration the pool was closed between 1973 and 1978. Beginning in 1977 a rehabilitation effort was undertaken, resulting in another round of filtration and cirulation equipment replacement and the addition of a boiler to heat the pool, and elimination of the connections to Silver Creek. In addition a waterproof "crystalline"coating was installed on the inside surface of the pool. In 2004, the waterproof coating in the pool was in need of replacement, piping was leaking, and the bathhouse had reached the end of its useful life.

The 2004 Silverton Community Pool improvement project included renovation and expansion of the pool structure and finishes, replacement of piping and pool circulation, heating and chemical treatment systems, and an entirely new bathhouse. The project was also intended to include the erection of an enclosure for the then outdoor pool.

A brief conceptual design study was conducted as part of the work in 2004 in order to determine the best means of covering the pool with the funds available. It was determined that a permanent aluminum frame structure with a seasonal fabric covering was the best way to provide seasonal outdoor swimming and marginally comfortable indoor swimming to serve the citizens year-round. It was noted at the time that the fabric would require occasional replacement and that time has arrived some seven years after completion of the project in 2004.

The purpose of this current study is to determine whether to purchase a new set of fabric panels for erection on the existing aluminum frame or to move the future of the Silverton Community Pool in other directions. A number of scenarios are presented and analyzed in this study and a brief comparison of potential construction costs and operating cost scenarios are evaluated as well. It will be up to the Silverton City Council, with feedback from the citizens of Silverton, to determine the future of Silverton Community Pool.

Process

Generally this study is built upon the same conceptual design alternatives that were briefly evaluated in 2004. These are augmented by additional scenarios that were not considered at that time. In order to begin the work of evaluation, it was necessary to assess the overall condition of the existing facility. This was accomplished at an initial kick-off meeting with Architects and Engineers present in discussions with both operational and maintenance personnel to understand the current operation and maintenance opportunities and challenges that the existing facility is currently working under.

This initial meeting revealed that the pool is being operated at a net loss in both operations and maintenance and utility services, with a General Fund budget of approximately $215,000/FY2011-12. This is not uncommon for municipally operated facilities. Generally, public facilities are operated as a service to the community, fulfilling some essential needs to provide water safety training for citizens, as well as providing health and fitness opportunities as a service to the community. This facility is currently owned and maintained by the City of Silverton (providing all utility services and costs of maintenance), but is operated under contact with the YMCA for programs and services. Details of each of these operational arrangements are outlined below.

Once the facility assessment was completed, the various scenarios were identified and vetted with both operational and maintenance perspectives and narrowed down to the scenarios presented in this report. A draft of the report is being presented to the City Council on June 4, 2012 whereupon any revisions will be made to the report with the final report completed in June of 2012. Under the current conditions, if no action is taken following the issuance of this report, the existing Silverton Community Pool will be operated in its seasonal form through the Summer and part of the Fall of 2012 and then be shut down until the Summer of 2013 as no fabric covering exists to allow for Winter 2012/2013 operations. The scenarios presented within this report offer the most viable alternatives to this given situation.

Operations/Programs

For a number of years the Silverton Community Pool has been operated and managed under contract with the Family YMCA of Marion and Polk Counties. Whereas the City provides all water and utility services to the facility the staffing and program offerings are under the direction of the YMCA. Despite the fact that the city pays $75,000 to the YMCA to operate the facility, Paul Manning, Chief Executive Officer of the Family YMCA of Marion and Polk Counties reports that the services to the citizens of Silverton are offered at a net operating loss. In essence, the costs of staffing the programs and operation of the Silverton Community Pool exceeds the revenues generated by user fees to access these programs, and the city subsidy of $75,000 (included in the General Fund budget).

As with all public swimming pools, use patterns vary through the course of the year. In the late Fall, Winter and early Spring months, the facility with its cover on is used by dedicated lap swimmers, exercise classes and local swim team and age group swim

programs. Peak loads are typically in the Summer months with late Spring and early Fall being the shoulder seasons where, depending on the weather, use can also increase. In recent years, records of uses have been kept. 2011 patron use numbers (not including rentals) are as follows:

Facility Users

Month	*Open/Family*	*Lap Swim*	*Classes*	*Swim Team*	*Lessons*	*Total*
Jan 2011	*188*	*368*	*180*	*344*	*194*	*1274*
Apr 2011	*474*	*491*	*191*	*32*	*459*	*1615*
Jul 2011	*2917*	*493*	*328*	*2084*	*1237*	*7199*
Sep 2011	*669*	*585*	*444*	*6*	*172*	*1916*

For all of 2011 the facility served 29, 742 users. Of the total users 17,339 (58%) were served during June – August, with the remainder spread fairly evenly over the remaining nine months. It is also interesting that the records over the past two years indicate a significant increase at all times of the year. Consider these comparisons:

Month	*Open/Family*	*Lap Swim*	*Classes*	*Swim Team*	*Lessons*	*Total*
Jul 2010	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*	*4784*
Jul 2011	*2917*	*493*	*328*	*2084*	*1237*	*7199* *50% increase*
Jan 2011	*188*	*368*	*180*	*344*	*194*	*1274*
Jan 2012	*175*	*505*	*314*	*1146*	*179*	*2319* *82% increase*

The fact that the YMCA offers these programs and services at a net loss should not go unnoticed. This means that some other aspect of the YMCA organization, in addition to the city, is assisting to subsidize the operation of this facility, which is a benefit to the community. Typically, municipal facilities are operated by the local municipal government which would be very likely facing the same dilemma with regard to a net operating loss however small or large it may be. Dedicated staff and creative programming are necessary to draw as many fee paying users as possible in order to assure the maximum revenue generation to offset staffing and program development costs. Currently fee rates distinguish between Silverton residents and other users.

The YMCA is able to staff the operation of the facility on a year-round basis and has developed a fairly stable employee base to work with. Moving to a seasonal operation would create more difficulty in maintaining access to experienced operation and program personnel. Even so, a seasonal operation, with a higher number of users would result in a greater source of revenue to offset the net staffing costs in the Summer months, making it more likely that operations could break even. Generally, outdoor seasonal facilities are able to cover costs if they are well managed.

Each of the scenarios presented within this study will have some impact on the operational aspects of the facility and it may cause need for renegotiating the contractual relationships that have been established with the YMCA and potentially other groups using the facility.

Maintenance

As noted earlier, the City of Silverton provides all maintenance and utility services to operate the Silverton Community Pool. This includes paying all utility bills and providing all water, water treatment and heating system maintenance and operations, providing natural gas for heating both the bathhouse and the pool and maintaining all structures and finishes. City staff doubling with their duties at the water department provide the necessary review of maintenance of water quality at the pool, working in concert with the YMCA personnel. The City of Silverton does not assign any personnel solely dedicated to this facility, it is only part of their total duties. In addition to the City's personnel, occasionally contractors will be called in to complete the erection and take down and storage of the swimming pool fabric cover (currently budgeted at about $14,000 per year) as well as maintain certain equipment such as the heating and ventilating units serving the bathhouse and natatorium facilities. The primary utility usage for Winter and Summer of 2011 are reported as follows:

Month	*PGE*	*Electrical Use*	*NWNG*	*Gas Use*
Dec 2011	*629.3*	*Kwh used*	*205*	*Cu/ft daily avg.*
Jan 2011	*616.4*	*Kwh used*	*226*	*Cu/ft daily avg.*
Apr 2011	*606.0*	*Kwh used*	*213*	*Cu/ft daily avg.*
July 2011	*430.9*	*Kwh used*	*107*	*Cu/ft daily avg.*
Aug 2011	*440.0*	*Kwh used*	*87*	*Cu/ft daily avg.*
Sep 2011	*442.5*	*Kwh used*	*85*	*Cu/ft daily avg.*

The costs for maintenance and payment of all utility services is a net loss to the City of Silverton funded directly from the General Fund budget, as there are currently no offsetting revenue sources. The cost of these maintenance and utility services, particularly the utilities, is highest in the Winter months when heating of both the pool and the bathhouse is required. In addition, when the cover over the Natatorium is in place, the ventilation system must be in operation 24 hours per day to avoid condensation within the structure. These costs are significantly lessened when the cover is removed and the pool area is open to the elements, requiring no ventilation or heating. However, heating costs for the pool water may rise during the fall and spring portions of this period when outside air temperatures are low and there is no buffering indoor environment. During these conditions, evaporation and heat loss may be at its yearly peak.

As with operations, each of the scenarios presented within this report have different implications for the maintenance and operation of the facility. Clearly, outdoor seasonal only operation of the facility would have much lower total yearly cost than

would a fully enclosed heated and ventilated year-round facility. These and many scenarios in between these extremes are explored within the body of this report.

Feasibility Study Findings

The details of the facility assessment work are included in Section 2 to follow. In summary, the existing facility is in relatively good condition with a few fairly minor exceptions. Recommendations to deal with these particular issues are included in the assessment and do not have a significant bearing on the scenarios presented in Section 3. While Scenarios 5A and 5B do contemplate the potential costs of entirely replacing the facility either on the current site or a new site, each of the other scenarios are based on the assumption that the facility is indeed, a viable community resource. The only question is in the required new and continuing investments necessary to move towards any one of these scenarios as compared to replacing the facility entirely.

Development Scenarios

Scenario 1 – Maintain Current Facility
Scenario 2a – Summer Only – Temporary Status
Scenario 2b – Summer Only – Permanent Status
Scenario 3 – Partial Year-Round Cover
Scenario 4a – Permanent Replacement – Conventional Construction
Scenario 4b – Permanent Replacement – Polycarbonate Glazing
Scenario 5a – Replace Entire Facility – Current Site
Scenario 5b – Replace Entire Facility – New Site

Next Steps

Any of the Scenarios require some level of funding and commitment, some quite significant. The course of action to follow after this report is discussed by the City Council will be driven by the decision to implement any one of the scenarios outlined in this report.

SECTION 2

Facility Assessment

In April 2012 a tour of the Silverton Pool facility was conducted to review and record observations regarding the condition of the various systems and components of the facility and their capacity for continued use and maintenance. Where appropriate these observations suggest solutions or future action to address problems related to conditions of the structure, finishes, mechanical and electrical systems, and site. During the course of the field observations, the review team met with maintenance and operational personnel in order to gather specific information relative to existing conditions and operational issues.

The review team consisted of Robertson/Sherwood/Architects pc and Systems West Engineers, Inc..

In order to organize the review, observations were directed at the following general building systems:

Site Systems
Structural Systems
Building Envelope
Interior Finishes
Mechanical Systems
Plumbing Systems
Electrical Systems

The following observation report includes a summary of recommendations concerning maintenance and repair of facilities or systems for continued long-term use.

This report does not include detailed design or engineering recommendations to address specific observed conditions or issues, but does identify where such further design or engineering would be advisable. Specific attention is called to any issues requiring immediate or short-term action.

SITE SYSTEMS

The Silverton Pool site was improved in 2004 as part of the reconstruction of the pool bathhouse and renovations to the pool. Serving utilities were improved and undergrounded to the site and the parking area was enlarged and repaved. Landscape repairs were completed and new lawn areas were placed.

All site systems appear to be in good condition at this time.

ARCHITECTURAL / STRUCTURAL SYSTEMS

The bathhouse/pool mechanical building was replaced, and the pool tank was renovated and enlarged in 2004, thus systems are relatively new. Therefore the following assessment will focus primarily on observed issues that need to be addressed.

Structural Systems

Bathhouse
The existing bathhouse is constructed of concrete masonry units (CMU) and wood frame and truss construction. The structural systems appear to be in good condition. Though most of the wood framing is concealed by interior and exterior finishes, the walls and ceilings appear to be straight and true. The CMU is in very good condition, with only minor imperfections.

Natatorium
The natatorium is constructed of an aluminum frame with fabric coating. The fabric covers the aluminum frame for the winter and spring months, but is otherwise exposed both inside and out. The aluminum frame appears to be in good condition, though the fabric has reached the end of its life. Close inspection of the frame anchors at the concrete slab revealed that the bolts connecting the frame to the anchors are not long enough for full engagement of the bolt threads with the nuts.

Recommendations:

1. *For continued use of the existing aluminum frame and fabric enclosure for the winter months the fabric must be replaced (thus this study).*
2. *Replace frame to anchor bolts with length of bolt suitable for full engagement of the tightening nuts, or verify with manufacturer that degree of exiting engagement meets calculated structural tolerances.*

Building Envelope

Bathhouse
As noted above the existing bathhouse is constructed of concrete masonry units (CMU) and wood frame and truss construction. The CMU serves at the exterior finish

up to approximately 8 feet eight inches high. Vertical CMU cells are either fully grouted or filled with insulating material. Wood framed walls above the CMU are insulated with fiberglass batting, and finished with painted plywood and vertical batten siding. This construction was fully compliant with the energy codes in place in 2003/2004. The exterior siding appears to be in good condition and has been re-painted fairly recently. The lowest edge of plywood siding appears to be contact with wall flashing in some locations, potentially allowing for the wicking of water into the plywood.

Roofing systems at the bathhouse are comprised of three-tab asphalt fiberglass shingles at high-sloped roofs, and a single-ply membrane over rigid insulation at low-sloped roofs. Both systems appear to be in good condition. However, leaks have been reported through the roof area over the lobby, and damage to the gypsum board finishes below is apparent. No obvious problems or damage to the roof membrane was visible upon a brief inspection, though the eastern edge of this area is slightly raised, creating a shallow ponding of water against the eastern edge. HVAC units penetrate the roof at several locations above the lobby area, but are mounted on curbs that the roofing covers. Damage to the membrane or leaks through edge flashing assemblies or through the HVAC units themselves (especially in windy conditions) are both possible explanations for the leaks and should be investigated by a roofer experienced in low-slope membrane systems.

Recommendations:

1. *Before next exterior painting, cut back edge of plywood siding to eliminate surface contact with the flashing (without cutting through flashing behind the siding). Prime exposed raw wood before painting.*
2. *Locate and address roof leaks through the roofing assembly over the lobby. Secure the services of the original roofer or a roofer experienced in low-slope membrane systems.*

Natatorium

As noted above the existing natatorium is constructed of an aluminum frame with fabric cover. The fabric had a five-year manufacturers warranty, and has exceeded its useful life. In recent years, the city has contracted with a local temporary structure erection company to remove, store and reinstall the fabric panels. Some panels have been difficult to erect and remove, and two became stuck in 2010. The city received a temporary waiver to allow these to panels to remain over the summer/fall of 2011. Otherwise the fabric panels are not permitted to be in place for more than 6 months at a time, unless an approved fire sprinkler system is installed within the assembly. As of this report, the fabric panels will be completely removed and the decision regarding whether to purchase and install new fabric is pending completion and review of this report.

Recommendations:

1. *Completely remove the existing fabric panels. Manufacture and install new fabric panels for continued year-round use of the current facility. (Subject to findings from this Feasibility Study report.)*

Interior Finishes

Bathhouse

As noted above the existing bathhouse is constructed of CMU, which are painted on the interior surface. Ceramic tile covers the CMU in wet areas. All other wall and ceiling finishes are painted gypsum board. All interior finishes are in generally good condition. It is apparent that paint issues and damage to interior finishes have been addressed as they have appeared. The lobby ceiling is currently being repaired from the aforementioned water damage. The gypsum board surfaces in particular will require continued attention, as they are the most vulnerable in the bathhouse environment.

The base at walls throughout the bathhouse is a concrete curb (to lift the gypsum board off of the floor). The curb behind the water closets in the family change rooms was grouted in place, in order to allow for the water closet carrier assembly. This grout is failing and should be repaired.

Recommendations:

1. *Complete water damage repairs in lobby and office area.*
2. *Repair grout base behind water closets in family change rooms.*

Natatorium

As noted above the existing natatorium is constructed of an aluminum frame with fabric cover. The aluminum and the fabric are the primary interior finishes when the cover is on. The aluminum appears to be in fine condition but the fabric must be replaced. In addition, the access doors are in need of repair or replacement.

Recommendations:

1. *Completely remove the existing fabric panels. Manufacture and install new fabric panels and door assemblies for continued year-round use of the current facility. (Subject to findings from this Feasibility Study report.)*

Pool Construction

Pool Structure

The existing pool and the addition to the pool completed in 2004, are constructed of poured-in-place reinforced concrete. The original pool structure is well detailed in the original drawings and its quality of construction is evidenced by the lack of indications of any significant structural problems with the pool. Minor cracking can be found in a few areas along the gutter handhold, and a very few minor shrinkage cracks are evident in a few floor panels and one of two wall locations.

Expansion joints exist between the pool floor slabs and at the joint where the floor meets the wall. In the original construction these joints are underlain by a footing strip and the joints are filled with a tar-like bitumen joint material, intended both for

expansion and waterproofing. These joints were cleaned and capped with a backer material and sealant in 1978, and again in 2004. A few years later, apparently where the sealant did not completely seal the joints, the bitumen rose through the joint as a sticky, tar-like substance. This prompted the city to install a flexible joint cover system, which utilizes a flexible hypalon membrane across the joint, bedded in epoxy on either side. What appear to be air bubbles in the joint is actually the membrane doing its job. Currently, where this membrane has been punctured in a few places, the same tar-like substance has risen to the surface. Steps are underway to repairs these areas prior to the 2012 summer season.

City personnel have provided conflicting information regarding the possibility of leaks in the pool. Most recently, the pool held water under a test situation, indicating that no leaks in the pool shell currently exist. Earlier information seemed to indicate that the pool lost a significant amount of water during a recent unscheduled and unmonitored shutdown. Since there were no visible indications of failure in the pool shell, it is not likely a source of significant leaks. Additional testing of the pool shell and piping systems are recommended to verify this conclusion.

Recommendations:

1. *Complete immediate repairs to pool expansion joints prior to opening for the 2012 summer season.*
2. *For long-term use of the pool, investigate the cause of the tar-like substance emanating from the pool joints, in order to determine the best method of encapsulating the bitumen based expansion joint materials.*
3. *Conduct conclusive testing and evaluation to verify whether leaks in the pool or pool systems exist.*

Pool Finishes

The concrete surfaces of the pool have been, and continue to be painted. Painted surfaces in pools generally have a life of 2 – 5 years depending on UV and chemical exposure, and use. Areas subject to foot traffic and wear may require more frequent application. Repainting is underway as of this report in preparation for the 2012 summer season, and the pool is either touched up or fully repainted yearly.

Preparations for painting in 2004 were extensive and removed much of the 1978 built-up 'crystalline' material down to bare concrete. For the most part the painted finish is holding up well, but wears thin first in traffic areas as would be expected. The removal of this built-up material did not extend to the interior surfaces of the perimeter gutter. These gutters are in need of refinishing in the near future to assure long-term performance as part of the pool circulation system.

The edge of the pool deck has been refinished with ceramic tile and is performing well. The enclosure has protected the tile from freeze/thaw cycles that can sometimes cause problems with tile finishes. If the pool is not covered in the winter, steps should be taken to protect the tile during periods of long-term shutdown.

If the pool is considered for continued long-long tem use (and there is no reason to think it can't) other finish possibilities exist. The gutters could be refinished with ceramic tile, or completely replaced with a stainless steel gutter system. The pool could be renovated with a pvc or fiberglass lining system. However, for the foreseeable future the existing finishes are capable of being maintained.

Recommendations:

1. *Complete repainting of the pool prior to the 2012 summer season.*
2. *For long-term use of the pool, consider alternatives for more extensive repairs to the pool painted finish, including various lining and gutter system alternatives.*
3. *If returned to seasonal operation, install a pool safety cover for the pool and to protect the tile edge.*

MECHANICAL SYSTEMS

In general, mechanical systems appear to be in good condition and, with few exceptions, are providing satisfactory performance. Equipment should have significant remaining life. Following is a brief description of existing systems with comments where appropriate.

Pool Equipment

Boiler

A dedicated, gas-fired boiler heats the pool. The boiler appears to be in good condition, and staff reports no significant issues with performance.

Circulation Pump

A single circulation pump with integral strainer circulates water from the pool, through filters, and back into the pool. The pump appears to be good condition and operating satisfactorily. A variable frequency drive has been added since the 2004 facility upgrade to save pump energy. The following comments regard the drive installation:

- The pool systems were designed to meet peak bather loads. This typically occurs in the summer on a sunny day. During non-peak times, a variable frequency drive can be used to reduce pool turnover during non-peak times when a lower pool turnover rate will maintain water quality. The approach provides significant energy savings and is becoming more common in the pool industry. However, from discussions with pool operations staff, it appears that flows are being maintained at the lower rate at all times. This may affect pool water quality during peak load periods, and it may be appropriate to set up an operating routine that increases flow during times of high bather load.

- Variable frequency drives will reduce the life of standard motors. If the original pump motor was not replaced with an "inverter rated" motor, pump motor

reliability may be questionable, and it may be appropriate to stock a spare inverter rated motor to ensure system reliability.

Filters

A dual tank, high rate sand filter is installed for pool filtration. The equipment appears to be in good condition, and operators noted no issues with performance.

Chemical Treatment

The facility is equipped with an automated chemical treatment system including a calcium hypochlorite feeder, CO_2 storage tank and feeder, and chemical controller. Reportedly, the chemical controller is not operational, and chemical treatment is provided on a daily basis by adding chemicals to the surge tank by hand.

- The Oregon Administrative Rules for swimming pools (OAR 333-060-0150) require "automatic disinfection equipment" with "controls capable of fine feed rate adjustment." The current approach to disinfection control does not meet this code requirement.

- The current manual feed approach may provide satisfactory performance during low load conditions. However, during periods of high bather load, fluctuations in chlorine demand can be very large and can occur very quickly. In our experience, an automated feed system that properly tracks oxidation-reduction potential and pH demand and reacts quickly to changes in bather load is essential to maintaining safe, clear pool water.

Recommendation:

1. *Given these issues, immediate repair of the chemical controller and re-implementation of automatic feed is highly recommended.*

Pool Makeup

The pool system is equipped with an automatic makeup water controller that maintains a minimum water level in the mechanical room surge tank. Reportedly, the controller has stuck open in the past and flooded the pump pit. The pit has been modified to prevent a reoccurrence, but the pool operator indicated that the makeup water valve might still be sticking open occasionally.

During the walkthrough, it was noted that the pool fill was active during the majority of the time that the team was in the mechanical room. In addition, considerable condensation was noted on the makeup water piping indicating that cold water is flowing in the piping often enough that the piping never warms above dew point. In our experience, this level of condensation is unusual and may point to a considerably higher makeup rate than normal. The high makeup rate may point to a pool leak, which may give the appearance of a faulty makeup water valve.

Recommendation:

1. *Installation of a meter on the make-up water line is recommended In order to monitor water use more accurately. This could result in earlier detection of system performance issues or leaks if they were to occur.*

Heating, Ventilation, and Air-Conditioning Systems

Building Systems
The bathhouse is served by rooftop; gas-fired, heating and ventilating units and several exhaust fans. Maintenance staff noted no performance issues, and equipment should have significant remaining life.

Pool Enclosure Heating Systems
The pool enclosure heating system is a gas-fired, heating and ventilating unit that provides heated 100% outside air for heating and ventilation. Given that the enclosure is not very airtight and the system provides 100% outside air, energy consumption is very high but normal for this type of application. Reportedly, temperature control within the enclosure is acceptable, and condensation issues are moderate, which can be expected due to the high outside air rate. The unit appears to be in reasonable condition, and additional life can be expected.

Recommendations:

1. *Filters were dirty and, in a few cases, had collapsed and were no longer functional. Filters should be replaced to preserve unit life.*
2. *The discharge grille located inside of the enclosure is of generally low quality and in poor condition. Higher quality grilles are available that can better withstand the environment.*

PLUMBING SYSTEMS

Fixtures
Plumbing fixtures were of initial high quality and appear to be in good condition. No issues were reported by operating staff.

Domestic Hot Water System
A natural gas-fired water heater provides domestic hot water. The heater appears to be in good condition, and staff reported no issues except that it takes a long time for hot water to get to showers.

A review of the 2004 bathhouse construction documents shows that a hot water recirculation system was installed as part of the domestic hot water system. The recirculation piping runs parallel to supply piping under the floor slab and connects back to the supply near the showers at the women's locker area. If the system is operating, hot water should be maintained in the under-floor supply piping immediately adjacent to showers in the building, and a significant delay in service should not be encountered.

Recommendation:

1. *Check to see if the recirculation pump located next to the water heater is operating correctly or a related valve is closed.*

ELECTRICAL SYSTEMS

Lighting

The bathhouse interior is primarily illuminated by architectural, rough service luminaires equipped with 2 or 3 4-foot linear T8 fluorescent lamps and electronic ballasts. Exterior lights have been replaced with LED lights for energy savings.

Recommendation:

1. *Given the eventual phase out of T8 lamps, planning for future replacement of these fixtures is recommended.*

Power Distribution

A 600-amp, 480/277-volt main distribution panel located in the electric room serves the facility. There are two branch circuit distribution panels and a 5 kVA uninterruptible power supply also located in the electrical room.

Fire Alarm

The facility is equipped with a fire alarm system that met all fire protection codes at the time of construction.

No electrical problems were evident on site and facilities staff reported no issues.

SECTION 3

Feasibility Study Analysis

Commentary

A range of possible Development Scenarios are presented on the pages to follow – exploring the gamut from maintaining the facility in its present configuration, to reverting to a seasonal operation, to complete replacement of the facility. Each scenario is illustrated in some form, followed by a listing of the pro's and con's, a summary of steps to implement the scenario, and finally an analysis of the compartative cost impact for each. A brief description of each scenario is as follows

Development Scenarios

Scenario 1 – Maintain Current Facility
This scenario maintains the facility as currently designed with a seasonal, removable fabric cover.

Scenario 2a – Summer Only – Temporary Status
This scenario envisions seasonal operation with the cover removed for the foreseeable future, by deferring the replacement of the fabric cover until a future date.

Scenario 2b – Summer Only – Permanent Status
This scenario envisions moving the entire facility to a seasonal operation, eliminating the cover and its structure permanently.

Scenario 3 – Partial Year-Round Cover
This scenario maintains the facility as currently designed with a seasonal, removable fabric cover, but envisions some of the roof remaining in place year-round.

Scenario 4a – Permanent Replacement – Conventional Construction
This scenario envisions replacing the entire aluminum frame and fabric structure with a conventional natatorium structure, creating a year-round indoor facility.

Scenario 4b – Permanent Replacement – Polycarbonate Glazing
This scenario envisions replacing the entire aluminum frame and fabric structure with a polycarbonate glazed structure, with movable roof panels, creating a year-round indoor facility.

Scenario 5a – Replace Entire Facility – Current Site
This scenario envisions entirely replacing the the facility on the current site, with all new pools and broader programming, as a year-round indoor facility.

Scenario 5b – Replace Entire Facility – New Site
This scenario envisions entirely replacing the the facility on a new site, with all new pools and broader programming, as a year-round indoor facility.

Cost Comparisons

Cost implications are explored for each scenario in three distinct areas: Capital/Construction Costs, Energy Costs and Operational Costs

Capital/Construction Costs

These are the easiest to identify and evaluate because they address the needs of the physical plant required to meet the requirements of each scenario. These needs can be identified by task or budget line item and tend to be finite and easy to compare. They include to some degree the cost of maintaining and planning for replacement of facility components. **The costs in this evaluation do not represent all yearly budgeted costs – only those that may be variable from one scenario to another.**

For the purposes of this study these costs are presented as if the work were completed by a general contractor and include possible additional project costs such as design fees, permits, testing, etc. Some of the tasks involving repair and replacement can be accomplished differently (such as with City personnel), and these costs could be significantly reduced. Details for these costs can be found in Section 4 – Supporting Information.

Energy / Utility Costs

These are costs that tend to be variable by climate, equipment age and efficiency and use patterns of the facility. These costs are best addressed as a comparison to the current facility (e.g., costs will tend to be higher or lower than existing as the operation of the facility is changed). Differences for each scenario relative to the current conditions are presented as a percentage rather than an estimated cost. Currently the cost of energy and utility services, (including pool chemicals) is covered by the City of Silverton.

Operational Costs

These are also costs that tend to be variable by numbers of users, programs offered, management, hours of operation, and required staffing. These are also best addressed as a comparison to the current facility (e.g., costs will tend to be higher or lower than existing as the operation of the facility is changed). Differences for each scenario relative to the current conditions are presented as a percentage rather than an estimated cost. Currently the cost of operations and programs is managed by the YMCA and paid for from program/user fee revenues.

Next Steps

As noted earlier in this report, any of the Scenarios require some level of funding and commitment, some quite significant. The course of action to follow after this report is discussed by the City Council, will be driven by the decision to implement any one of the scenarios outlined in this report.

Scenario 1 – Maintain Current Facility

Pros

- No interruption of service to the community
- No loss of operational staffing/personnel
- Enjoyment of outdoor pool in summer/fall
- No summer/fall heating and ventilating costs
- No fire sprinkler requirements if 6-month schedule is maintained
-

Cons

- Cost and time to replace existing fabric
- Twice yearly costs to erect and remove
- Budgeting for fabric replacement costs
- Budgeting for HV system replacement costs
- Cost of energy to heat/ventilate in winter/spring
- Cost of new connector to bathhouse

Steps

1. Replace and erect fabric (roof only) for roof structure in Fall 2012
    a. Replace short bolts with proper length bolts
2. Make repairs to pool for long term use
    a. Repair/replace all pool joints
    b. Resurface all pool edge gutters/drains
3. Provide new connection to bathhouse for winter use
4. Maintain HV system as needed, plan for replacement

Comparative Costs

Capital / Construction:	$83,505 for steps noted above, $27,800 for annual/replacement costs
Energy / Utility:	Will maintain the status quo
Operations:	Will maintain the status quo

Scenario 2a – Summer Only - Temporary

Pros

- Maintains service to community in summer/fall
- Reduces year round costs to city for utilities and some maintenance staffing costs
- Maintains aluminum frame structure for future winter/spring cover
- Defers cost of a new cover to a later date (don't need cash now)
- Buys time for decisions on future of entire facility

Cons

- Temporarily eliminates service to community
- Temporary layoff of operational personnel impacts retention
- Cost to secure and winterize/reopen the pool and bathhouse
- Defers cost of a new cover to a later date
- (potentially higher costs later)
- Loss of pool space/activities for year-round users and groups
- Cost to mothball/protect HV system for future

Steps

1. Remove existing cover and make no plans to reinstall for Winter/Spring 2012/2013
2. Winterize pool and bathhouse on selected date for winter shutdown, install pool and tile edge safety cover
3. Repair only to pool shell components until future decisions are made (no 'permanent' repairs)
    a. Repair pool joints as needed
    b. Repaint pool as needed

Comparative Costs

Capital / Construction:	Minor repairs already completed, $31,060 to winterize/dewinterize ($3,000-annual), add pool safety cover ($25,560 purchase), and mothball/protect HV unit serving Natatorium($2,500)
Energy / Utility:	Reduced by 75% or more from current yearly total
Operations:	Reduced by 33% or more from current yearly total

Scenario 2b – Summer Only – Permanently

Pros

- Maintains service to community in summer/fall
- Eliminates year round costs to city for some utilities and maintenance staffing costs
- Permanently removes aluminum structure, eliminates yearly erection/removal costs
- Maintains options for future year-round indoor facility or long-term seasonal use
- Eliminates need for replacement cost planning

Cons

- Eliminates pool space/activities for year-round users and groups
- Operational personnel are seasonal only, could impact operational contracts
- Twice yearly cost to secure and winterize/reopen the pool and bathhouse
- Defers cost of a new permanent cover to a later potentially higher cost
-

Steps

1. Remove aluminum structure in the Fall of 2012
    a. Make provisions for pool and pool deck lighting and sound systems for seasonal use, currently attached to aluminum structure
2. Winterize pool and bathhouse on selected date for winter shutdown, install pool and tile edge safety cover
3. Make repairs to pool for long term use
    a. Replace/repair all pool joints
    b. Resurface all pool edge gutters/drains

Comparative Costs

Capital / Construction:	$80,680 for steps noted above, $28,560 to winterize/dewinterize ($3,000 annually), add pool safety cover ($25,560 purchase)
Energy / Utility:	Costs reduced by 75% or more from current yearly total
Operations:	Costs reduced by 33% or more from current yearly total

Scenario 3 – Partial Year-Round Cover

Pros

- No interruption of year-round service to the community
- No loss of year-round operational staffing/personnel
- Enjoyment of outdoor pool in summer/fall
- No summer/fall heating and ventilating costs
- Benefit of partial shade over pool area
-
-

Cons

- Cost and time to replace existing fabric
- Slightly reduced twice yearly costs to erect and remove fabric
- Budgeting for fabric replacement costs
- Budgeting for HV system replacement costs
- Cost of energy to heat/ventilate in winter/spring
- Cost of fire sprinkler system for year-round portion of structure
-

Steps

1. Replace (roof, plus side/end panels, and doors) and erect fabric for roof structure in Fall 2012
    a. Add fire sprinkler system to portion of fabric structure to be year-round
2. Make repairs to pool for long term use
    a. Replace all pool joints
    b. Resurface all pool edge gutters/drains
3. Maintain HV system as needed, plan for replacement

Comparative Costs

Capital / Construction: $161,580 for steps noted above, $27,800 for annual/replacement costs
Energy / Utility: Will maintain the status quo
Operations: Will maintain the status quo

Scenario 4a – Permanent Replacement – Conventional Construction

Pros

- Provides for permanent, year-round indoor aquatic programming
- Provides permanent indoor connection to existing year-round bathhouse
- Possible reduction in energy costs in winter/spring due more energy efficient building envelope
- Conventional construction opens bidding to greater number of qualified contractors
-
-

Cons

- Permanently eliminates outdoor swimming in the summer/fall season
- Cost of added lighting, heating and ventilation costs in summer/fall
- Possible same or added costs for larger and more complex HV systems to maintain higher level of humidity and temperature control
- High cost of construction due to design for long-span, and humid, caustic environment
- Loss of all winter/spring services during course of seasonal operation and construction
- Possible loss of year-round staff due to interim seasonal operation and construction

Steps

1. Operate as a seasonal facility until funding secured and ready to construct
2. Prepare design and construction documents, and bid project (6-10 months)
    a. Construct natatorium beginning in Fall (no earlier than 2013)
3. Make repairs to pool for long term use
    a. Replace all pool joints
    b. Resurface all pool edge gutters/drains

Comparative Costs

Capital / Construction:	$2,298,923 for steps noted above, $28,560 to winterize/dewinterize ($3,000 annually), add pool safety cover ($25,560) to use seasonally until construction
Energy / Utility:	Costs increased by 20% or less from current yearly total
Operations:	Will maintain the status quo, may have more winter users, less summer users

Scenario 4b – Permanent Replacement – Polycarbonate Glazing System

Pros

- Provides for permanent, year-round indoor programming with view to outdoors
- Provides permanent indoor connection to existing year-round bathhouse
- Possible reduction in energy costs in winter/spring due more energy efficient building envelope
- Operable portions of structure allow for natural ventilation when appropriate
-
-

Cons

- Permanently eliminates true outdoor swimming in the summer/fall season
- Slight added cost of lighting, heating and ventilation costs in summer/fall
- Possible same or added costs for larger and more complex HV systems to maintain higher level of humidity and temperature control
- High cost of construction due to proprietary design – fewer bidders
- Loss of all winter/spring services during course of seasonal operation and construction
- Possible loss of year-round staff due to interim seasonal operation and construction

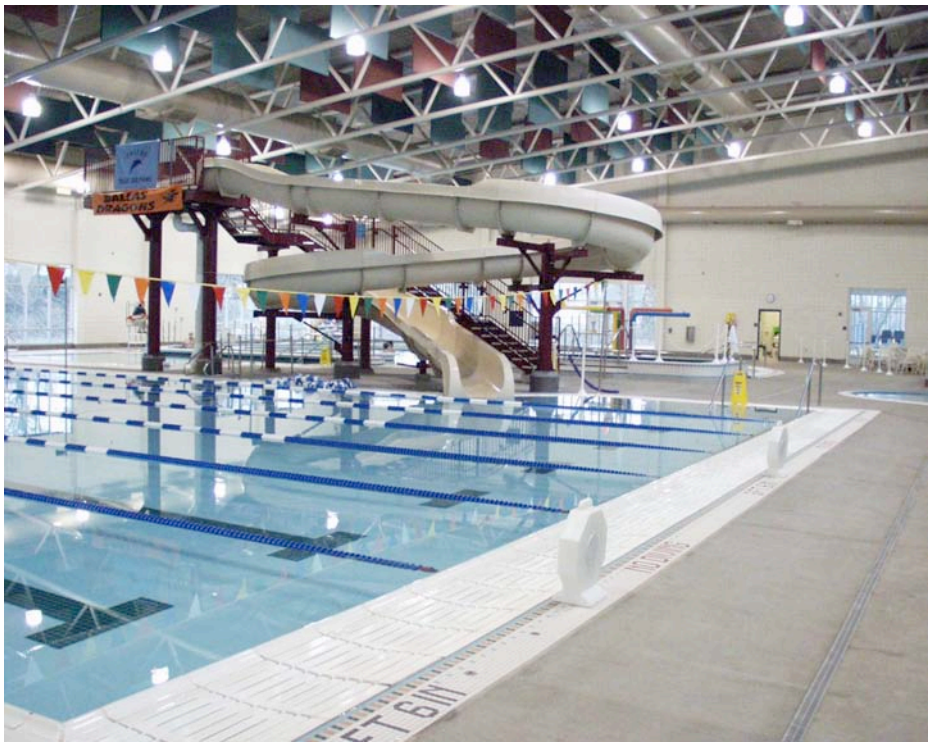
Steps

1. Operate as a seasonal facility until funding secured and ready to construct
2. Prepare design and construction documents, and bid project (6-10 months)
    a. Construct natatorium beginning in Fall (no earlier than 2013)
3. Make repairs to pool for long term use
    a. Replace all pool joints
    b. Resurface all pool edge gutters/drains

Comparative Costs

Capital / Construction:	$3,022,301 for steps noted above, $28,560 to winterize/dewinterize ($3,000 annually), add pool safety cover ($25,560) to use seasonally until construction
Energy / Utility:	Costs increased by 10% or less from current yearly total
Operations:	Will maintain the status quo, may have more winter users

Scenario 5a – Replace Entire Facility - Current Site



Dallas Aquatic Center

Pros

- Provides long term community commitment to aquatic programming
- Allows for reconfiguration of pool design to better serve program needs
- Some newer pool and boiler equipment may be salvaged to reduce construction costs
- Allows for seasonal use of the current facility until construction begins
-
-

Cons

- High cost of construction to replace pool, bathhouse and natatorium
- Interruption of service to community for the duration of construction (12-14 months)
- Possible loss of year-round staff due to interim seasonal operation and construction
- Net loss of investments made in existing facility in recent years
-
-

Steps

1. Operate as a seasonal facility until funding secured and ready to construct
2. Prepare design (assumes 15,000 sf) and construction documents, and bid project (6-10 months)
    a. Plan for construction to begin in Fall (no earlier than 2013)

Comparative Costs

Capital / Construction:	$5,886,534 for steps noted above, $28,560 to winterize/dewinterize ($3,000 annually), add pool safety cover ($25,560) to use seasonally until construction
Energy / Utility:	Costs increased by 10% or less from current yearly total
Operations:	Could improve operational cost recovery with different pool mix

Scenario 5a – Replace Entire Facility - New Site

Glaze Meadow Pool @ Black Butte Ranch

Pros

- Provides long term community commitment to aquatic programming
- Allows for reconfiguration of pool design to better serve program needs
- Some newer pool and boiler equipment may be salvaged to reduce construction costs
- Allows for seasonal use of the current facility throughout the construction period
-

Cons

- High cost of construction to replace pool, bathhouse and natatorium, and develop new site and parking
- Interruption of service to community for the duration of construction (12-14 months)
- Possible loss of year-round staffing due to interim seasonal operation
- Net loss of investments made in existing facility in recent years
-

Steps

1. Operate as a seasonal facility until funding secured and construction is complete
2. Prepare design (assumes 15,000 sf) and construction documents, and bid project (6-10 months)
    a. Plan for construction to begin in Fall (no earlier than 2013)

Comparative Costs

Capital / Construction:	$6,024,320 for steps noted above (no land costs), $28,560 to winterize/dewinterize ($3,000 annually), add pool safety cover ($25,560) to use seasonally until construction
Energy / Utility:	Costs increased by 10% or less from current yearly total
Operations:	Could improve operational cost recovery with different pool mix

Robertson | Sherwood | Architects PC

Silverton Community Pool

The proposed range of changes that may be included in a possible project to repair or replace Silverton Pool are quite varied, suggesting a range of possible scenarios. Eight possible scenarios are presented in the matrix below, and are detailed in the Cost Comparison pages which follow. **These estimates should be considered as comparative for the purpose of assisting in understanding the scenarios. Once a clear alternative is selected, more detailed and considered cost estimates would need to be developed.**

Scenario Cost Comparisons	1	2a	2b	3	4a	4b	5a	5b
Components								
Repairs to Frame and Fabric	✔			✔				
Remove Frame			✔		✔	✔		
Pool Repairs	✔		✔	✔	✔	✔		
Pool Deck Lighting			✔					
Add Fire Sprinkler				✔				
New Conventional Natatorium					✔			
New Glazed Natatorium						✔		
New Facility - Existing Site							✔	
New Facility - New Site								✔
Comparative Totals	$83,505	$0	$80,608	$161,579	$2,291,268	$2,934,271	$4,876,101	$5,013,887
Differential Maintenance and Replacement Cost Items								
Yearly Fabric Erection Budget	✔			✔				
Fabric Replacement Fund	✔			✔				
HV Unit Replacement Fund	✔			✔				
Winterize/Dewinterize Pool & Bathhouse		✔	✔		✔	✔		
Add Pool / Tile Edge Safety Cover		✔	✔		✔	✔		
Mothball/Protect HV Unit		✔						
Comparative Totals	$27,800	$31,061	$28,561	$27,800	$28,561	$28,561	NA	NA

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Silverton Community Pool

The Comparative Costs presented belwo offer a simple and brief comparative analysis of total costs over a 20-year period. Most cost items are projected with a %5 per year cost escalation as a basis. While this may seem conservative, it is the same for all scenarios and thus equally right or wrong. Bond costs are assumed at 4% per year, and apply to new major construction assuming this source of funding. In addition these costs assume no offsetting revenues will be realized.

20-Year Cost Comparisons

		1	2a	2b	3	4a	4b	5a	5b
Capital Cost Components									
Replace Fabric (new + 3 times in 20 years)		281,613			281,613				
Remove Frame (one time cost)				12,269		12,269	12,269		
Mothball/Protect HV Unit (one time cost)			2,500						
Add Pool / Tile Edge Safety Cover (one time cost)			25,561	25,561		25,561	25,561		
Pool Repairs - Initial		43,801	48,290	43,801	43,801	43,801	43,801		
Pool Deck Lighting				24,538					
Add Fire Sprinkler					58,074				
New Conventional Natatorium (20 year bond @ 4%)						3,332,312			
New Glazed Natatorium (20 year bond @ 4%)							4,267,465		
New Facility - Existing Site (20 year bond @ 4%)								7,091,571	
New Facility - New Site (20 year bond @ 4%)									7,291,960
Comparative Totals		$325,414	$76,351	$106,168	$383,487	$3,413,942	$4,349,095	$7,091,571	$7,291,960
Differential Maintenance and Replacement Cost Items									
Yearly Fabric Erection Budget		495,989			396,791				
Fabric Replacement Fund		in above			in above				
HV Unit Replacement Fund (Every 12 years)		96,325			96,325				
Pool Repairs/Paint - Ongoing ($5,000/yr @5% inflation)		165,330	165,330	165,330	165,330	165,330	165,330		
Winterize/Dewinterize Pool & Bathhouse (20 years)			99,198	99,198					
Winterize/Dewinterize Pool & Bathhouse (2 years)						6,150	6,150		
Comparative Totals		$757,644	$264,528	$264,528	$658,446	$171,480	$171,480	$0	$0
Operational Costs*	**11-12 Budget**								
Gas / Electric	$ 79,000.00	2,612,210	653,053	653,053	2,612,210	3,134,652	2,873,431	2,873,431	2,873,431
Building/Grounds Maintenance	$ 11,500.00	380,258	190,129	190,129	380,258	380,258	380,258	380,258	380,258
Pool Chemicals	$ 10,000.00	330,660	198,396	198,396	330,660	330,660	330,660	330,660	330,660
Equip. Maint./Repairs/Supplies	$ 6,500.00	214,929	128,957	128,957	214,929	214,929	214,929	214,929	214,929
YMCA Management Contract	$ 75,000.00	2,479,947	1,661,564	1,661,564	2,479,947	2,479,947	2,479,947	2,479,947	2,479,947
All Others	$ 15,950.00	527,402	316,441	316,441	527,402	527,402	527,402	527,402	527,402
Comparative Totals		$6,545,406	$3,148,540	$3,148,540	$6,545,406	$7,067,848	$6,806,627	$6,806,627	$6,806,627
Capital and Maintenance TOTALS		$7,628,463	$3,489,418	$3,519,236	$7,587,339	$10,653,270	$11,327,202	$13,898,198	$14,098,587

*** based on 2011-12 FY Budget, excluding items in Capital and Maintenance Items above.**

SECTION 4

Supporting Information

The following supporting information was developed in the preparation of this report. It is provided herein as reference material for the body of the report and is not intended to be used as standalone information or to draw conclusions out of context.

Letter from Fire Marshall
Facility History (Complied by City of Silverton Public Works Department)
Fabric Structure Experience from Others
Polycarbonate Glazed Structures
Cost Comparison Spreadsheets

Oregon
John A. Kitzhaber, MD, Governor

Department of State Police
Office of State Fire Marshal
4760 Portland Road NE
Salem, OR 97305-1760
(503) 378-3473
FAX (503) 373-1825
TTY (503) 390-4661
Oregon.sfm@state.or.us
www.oregon.gov/osp/sfm

April 26, 2012

City of Silverton
Attn: Gerald Fisher, Public Works Director
306 S. Water St.
Silverton OR 97381

RE: Swimming Pool Cover

Dear Mr. Fisher,

This letter is in response to our meeting on April 23, 2012 regarding the issue involving the swimming pool cover and its installation as a temporary structure. During those conversations, the following were discussed;

- The cover was originally installed approximately nine years ago.
- In its original configuration as a temporary structure (as defined in the 1997 Oregon Fire Code, Chapter 32), the maximum length of time the cover was originally allowed to be in place and was limited to six months with a single 30 day extension as allowed by Silverton Fire District in a letter to Daryl Jones, Building Official for the City of Silverton dated August 5, 2003.
- The conditions outlined in the original letter was reconfirmed in a letter to Rob Charles, Public Works Director dated June 21, 2010.
- As an interim measure, Silverton Fire District allowed only portions of the cover to be removed during the 2010 and 2011 summers with the understanding this was a temporary allowance until the City of Silverton resolved the cover issues on a permanent basis.
- There is a request to allow the cover to remain in place through the summer of 2012 which is why the State Fire Marshal was asked to become involved in this issue. The reason was due to improper installation of the sections in the structural framework which would cause irreparable damage to the cover if removed.
- The description of the cover and its associated attachment system indicates visible fraying where the cover is held in the channel and that holds the cover to the framework. In checking with the manufacturer, the City of Silverton was advised be them that this damage indicated the system as beyond its serviceable life which was indicated as approximately five years.

Based upon the information included in this letter, the decision of the Oregon State Fire Marshal is as follows;

1. The existing pool cover is deemed unsafe as specified in OAR 837-040-0010; OFC 110.1 (If during the inspection of a premises, a building or structure or any building system, in whole or in part, constitutes a clear and inimical threat to human life, safety or health, the fire code official shall issue such notice or orders to remove or remedy the conditions as shall be deemed necessary and shall refer the building to the building department for any repairs, alterations, remodeling, removing or demolition. Structures or existing equipment that are or hereafter become unsafe or deficient because of inadequate means of egress or which constitute a fire hazard, or are otherwise dangerous to human life or the public welfare, or which involve illegal or improper occupancy or inadequate maintenance shall be deemed unsafe and shall be remedied in accordance with ORS 479.160, 479.170 and 479.195.)
2. The existing pool cover shall be removed on or before May 26, 2012 as specified in OAR 837-040-0010; OFC 110.4 (The owner, operator, or occupant of a building or premises deemed unsafe as specified in OFC section 110.1 as determined by the fire code official, shall abate or cause to be abated or corrected such unsafe conditions either by repair, rehabilitation, demolition or other approved corrective action.)
3. In addition, the existing pool cover shall not be reinstalled unless confirmed in writing by a Fire Code Official approved third-party technical specialist as structurally safe in accordance with OAR 837-040-0010; OFC 107.1 (Whenever or wherever any device, equipment, system, condition, arrangement, level of protection or any other feature required for compliance with the provisions of this code, or otherwise installed, such device, equipment, system, condition, arrangement, level of protection, or other feature shall thereafter be continuously maintained in accordance with this code and applicable referenced standards.)

If the City of Silverton wants to install a pool cover for more than 180 days, it will be deemed permanent as specified in OAR 837-040-0010; OFC 2403.5 (Temporary tents, air-supported, air-inflated or tensioned membrane structures shall not be erected for a period of more than 180 days within a 12-month period on a single premises.) and shall be required to comply with the requirements for a Group A occupancy as specified within the Building Code (Oregon Structural Specialty Code).

If you have further questions regarding this decision, please contact me.

Cordially,

s/

George A. Crosiar
Deputy State Fire Marshal
3400 Spicer Rd.
Albany OR 97322
541-967-2043
george.crosiar@state.or.us

c: Silverton Fire District
file

Facility History – SILVERTON COMMUNITY POOL

History	• 1939 Swimming pool and bathhouse were designed and constructed – opened in 1940 (W.P.A. projected) • 1959 The filter and recirculation systems were partially upgraded • 1960 Pool parking lot was improved • 1973-1978 Pool was closed as the result of deterioration and the inability to meet State Health standards. • 1977 a Rehabilitation Study was conducted by KCM Environmental Associates • 1978 RMD Constructors, Inc. was contracted to perform the pool rehabilitation • 1985 Thermal pool blanket purchased to help with energy costs • 1994 Heater replaced • 1999 Pool bank stability study conducted by Foundation Engineering – Geotech Firm • 2001 Bathhouse replacement and Pool Cover cost report by Scott Edwards Architecture • 2003 Conceptual Design Study – Silverton Community Pool Improvements by Robertson/Sherwood/Architects • 2003 Pool Improvements contract awarded to 2KG Contractors • 2004 Pool improvements completed • 2005 Bulkhead added • 2006 Pool edge repaired • 2010 Swimming Pool joint repair – tar seepage • 2012 Feasibility Study awarded to Robertson/Sherwood/Architects		
Project Files			
101	Filtration and Chlorination Equipment '39, '59, '77	1939	
154	Parking Lot Improvement	1960	
321a	Swimming Pool Rehabilitation Study Engineering Consultant Contract and Construction Contract	1978	
321b	Swimming Pool Rehabilitation Study		
321c	Swimming Pool Rehabilitation Study		
321d	Swimming Pool Rehabilitation Study PT 1 Feasibility Study	1977	
321d	Swimming Pool Rehabilitation Study PT 2		
335	Footbridge Access from Coolidge McClaine Park to Pool	1978	
399	Swimming Pool Blanket	1984	
697	Pool Improvements	2003	
749	Pool Edge Repair	2006	
844	Feasibility Study	2012	

General Files			
154	Pool Fees Study	1992	Archived 2000
176	Swimming Pool Bath House Study	1989	Not in file
177	Pool Enclosure Study	1987	Not in file
178	Swimming Pool Enclosure Study	1987	Not in file
440	Swimming Pool Permits and Rules	1998	
555	Litigation RDM v City Pool	1998	
595	Pool Use Survey and Report	1991	
597	Pool Correspondence	1989	Not in file
647	Pool Correspondence 1982-1997	1982	Not in file
648	Pool Correspondence M. Callahan	1982	Not in file
664	Wading Pool Removal	1990	Archived 2000
695	Pool Chemical Controller	1990	
882	Pool Report & Swim Center Proposal Plan	1994	Archived 2000
884	Winter Pool Usage – SUHS	1994	Archived 2000
888	Pool Staff 1994	1994	Archived 2000
916	Pool Heater – Temporary Operation Permit	1994	
934	Pool Park Fees – original information from Council minutes	1995	
961	Winter Pool Usage – SUHS	1994	Archived 2000
964	Silver Falls Park & Recreation District, Pool	1995	
1016	Pool Job Descriptions	1997	
1029	Municipal Pool Report 1992, 1995, 1997	1997	Archived 2000
1050	Pool Project	1997	
1075	YMCA Pool Reports	1999	
1141	Pool Bank Stability	1999	
1229	Marion County Health Pool Inspection Report	2000	
1233	New Pool Bath House and Cover Study	2001	
1243	Winter Pool Usage – High School Swim Team	2001	
1368	Pool Signage	2004	
1387	Bath House Study	1989	Not in File
1399	Pool Tent Cover maintenance	2005	
1525	YMCA Aquatics Policies Director Correspondence	2008	
1573	Public Swimming Pool Accident/Drowning Reports DHS	2009	
1595	Swimming Pool Joint Repair, Tar Seepage	2010	
WWTP	Water Quality Supervisor, Steve Starner, has complete files on pool repairs, replacements, and upgrades		

Fabric Structure Experience from Others

Hood River Valley Aquatic Center - Hood River, Oregon
Scott Baker, Assistant Director at Hood River Valley Parks and Recreation shared information regarding the use and maintenance of their fabric covered structure.

- It was erected in 2001 over an existing pool, consisting of a semi-permanent fabric structure. Only 4 panels are removed in the summer months, and the entire Natatorium has fire sprinklers.
- A portion of the cover has been replaced almost every year since construction, due to wind damage or damage from assembly/disassembly.
- The fabric is double walled (19oz. outer, 13oz. liner), increasing the energy efficiency to some degree, but adding to the cost of replacement. The permanent panels have lasted up to eight years.
- Issues with assembly/disassembly include panels sticking and tearing of the fabric. Experience, taught them to order slightly wider replacement panels,(more wind movement, but less prone to assembly damage). They would be happy to share specific strategies on assembly/disassembly issues.
- They are considering other alternatives for the future as well, including polycarbonate glazing systems. They have higher energy efficiency (R14 vs. R3) and yet can be opened for natural ventilation in the summer months.

Juniper Aquatic Center – Bend, Oregon
…….

AWAITING CALL BACK

Polycarbonate Glazed Structures

Open Aire, Inc.
Manufacturers information:

When compared with traditional construction, OpenAire structures offer tremendous long-term value costing less to maintain and operate.

A recent study was conducted by an independent committee appointed by Cheshire, Connecticut, to determine the viability of a retractable glass structure for their own municipal pool. Their study concluded that an OpenAire building dramatically outperforms a traditional structure AND results in a lower lifetime cost.

Here's why:

- *Not having to light the pool during daylight hours offers significant electricity savings, which can be realized year-round (as opposed to heat, which is only a cost consideration in colder months). In the summer months, when daylight lasts until 9pm or later, those costs are negligible.*
- *In the summer months, being able to open up the roof means avoiding the cost of running air conditioning and dehumidification systems. For a closed structure, these are significant year-round costs. For an OpenAire structure, they are used only when the roof is closed.*
- *OpenAire's exclusive maintenance-free aluminum truss system offers significant long-term savings; unlike traditional buildings, it won't incur costs associated with caustic chlorine degradation. Plus, traditional buildings use steel, which needs to be repainted every six years, and replaced every thirty. OpenAire systems never need painting or replacing.*

OpenAire systems offer health benefits, too. Caustic chlorine environments can be unhealthy for staff and patrons; opening up the building keeps air circulating.

More available at www.openaire.com

Robertson | Sherwood | Architects PC

Silverton Community Pool

Feasibility Study Scenarios - Cost Comparisons

April 18, 2011

Scenario 1

	Quantity	Unit - SF, LF, EA or CY	Unit Cost	Subtotal	Contingency @ 10%	General Conditions @ 8%	Profit and Overhead @ 8%	Bond @2%	Direct Construction Costs	Project Costs 25%	Project Total
Project Components											
CAPITAL CONSTRUCTION ITEMS											
Repairs to Frame and Fabric											
Replace Anchor Bolts	32	EA	$50.00	$1,600.00	160	141	152	41	**$2,094**	523	**$2,617**
Replace Fabric Top Panels	1	Set	$24,000.00	$24,000.00					**$24,000**		**$24,000**
Replace Fabric End Panels	1	Set	$6,000.00	$6,000.00					**$6,000**		**$6,000**
Replace Fabric Side Panels		Set	$8,000.00	$8,000.00					**$8,000**		**$8,000**
Replace Door Assemblies	2	Sets	$3,000.00	$6,000.00					**$6,000**		**$6,000**
New Custom Fabric Connector to Bathhouse	200	sf	$40.00	$8,000.00	800	704	760	205	**$10,470**	2,617	**$13,087**
Remove Frame Entirely	1	LS	$5,000.00	$5,000.00	500	440	475	128	**$6,544**	1,636	**$8,179**
Pool Repairs											
Replace Pool Joints	660	LF	$15.00	$9,900.00	990	871	941	254	**$12,956**	3,239	**$16,195**
Resurface Pool Edge Gutters and Drains	375	LF	$45.00	$16,875.00	1,688	1,485	1,604	433	**$22,084**	5,521	**$27,605**
Pool Safety Cover	6250	sf	$2.50	$15,625.00	1,563	1,375	1,485	401	**$20,448**	5,112	**$25,561**
Pool Deck Lighting (Scenario 2B Only)											
Six new Light poles, lights and speakers	6	EA	$2,500.00	$15,000.00	1,500	1,320	1,426	385	**$19,631**	4,908	**$24,539**
Fire Sprinkler											
Add Service, vault, riser piping, notifications, etc.	1	LS	$25,000.00	$25,000.00	2,500	2,200	2,376	642	**$32,718**	8,179	**$40,897**
Fire Sprinkler for permanent portion of Fabric Cover	4200	SF	$2.50	$10,500.00	1,050	924	998	269	**$13,741**	3,435	**$17,177**
Fire Sprinkler for full size fabric cover	10500	SF	$2.50	$26,250.00	2,625	2,310	2,495	674	**$34,353**	8,588	**$42,942**
	Markup Adjustments for larger scale projects					6%	4%	1%			
Conventional Natatorium Construction											
Demo/Excavate Portion of Perimeter Deck for footing construction	500	CY	$150.00	$75,000.00	7,500	4,950	3,498	909	**$91,857**	22,964	**$114,822**
Reinstall Perimeter Deck	2500	SF	$10.00	$25,000.00	2,500	1,650	1,166	303	**$30,619**	7,655	**$38,274**
New Natatorium - Pre-Engineered Steel Structure anchored to Concrete Footings, Fully Grouted Masonry Walls, Metal Roofing over Rigid Insulation, Aluminum Frame Windows, Doors and Skylight, Intumescing Paint at Steel Structure, Fire Sprinkler System, Heating/Ventilating System with Heat Recovery, Lighting and Sound Systems	10500	SF	$130.00	$1,365,000.00	136,500	90,090	63,664	16,553	**$1,671,806**	417,952	**$2,089,758**
Polycarbonate Glazing Natatorium Construction											
Demo/Excavate Portion of Perimeter Deck for footing construction	500	CY	$150.00	$75,000.00	7,500	4,950	3,498	909	**$91,857**	22,964	**$114,822**
Reinstall Perimeter Deck	2500	SF	$10.00	$25,000.00	2,500	1,650	1,166	303	**$30,619**	7,655	**$38,274**
New Natatorium - Pre-Engineered Aluminum Frame Structure anchored to Concrete Footings, Aluminum Frame Polycarbonate glazed Roof, Walls, Windows, and Doors, Fire Sprinkler System, Heating/Ventilating System with Heat Recovery, Lighting and Sound Systems	10500	SF	$175.00	$1,837,500.00	183,750	121,275	85,701	22,282	**$2,250,508**	562,627	**$2,813,135**
All New Facility (Conventional Construction) - Existing Site											
Demo Existing	15,000	SF	$2.00	$30,000.00	3,000	1,980	1,399	364	**$36,743**	9,186	**$45,929**
New Natatorium and Bathhouse	15,000	SF	$250.00	$3,750,000.00	375,000	247,500	174,900	45,474	**$4,592,874**	1,148,219	**$5,741,093**
Utility Services Upgrade	1	LS	$25,000.00	$25,000.00	2,500	1,650	1,166	303	**$30,619**	7,655	**$38,274**
Repairs to Sitework/Parking Lot	1	LS	$40,000.00	$40,000.00	4,000	2,640	1,866	485	**$48,991**	12,248	**$61,238**
All New Facility (Conventional Construction) - New Site											
New Natatorium and Bathhouse	15,000	SF	$250.00	$3,750,000.00	375,000	247,500	174,900	45,474	**$4,592,874**	1,148,219	**$5,741,093**
New Utility Services	1	LS	$50,000.00	$50,000.00	5,000	3,300	2,332	606	**$61,238**	15,310	**$76,548**
New Parking Area (50 Spaces)/Landscaping	30000	SF	$4.50	$135,000.00	13,500	8,910	6,296	1,637	**$165,343**	41,336	**$206,679**
Maintenace and Replacement Cost Items											
Yearly Fabric Erection Budget	1	LS	$14,000.00	**$14,000.00**							
Fabric Replacement Fund - Yearly Budget Set Aside *	1	LS	$8,200.00	**$8,200.00**							
HVAC Unit/Fan Replacement Costs - Yearly Budget Set Aside **	1	LS	$5,600.00	**$5,600.00**							
Cost to Winterize/Dewinterize Pool and Bathhouse	1	LS	$3,000.00	$3,000.00							
Mothball/Protect HV Unit	1	LS	$2,500.00	$2,500.00							

*Assumes full replacement every seven years($45,000@ 5%/yr escalation, 7 year Amortized - assumes it is replaced this year)
**Assumes full replacement every twelve years($22,000@ 5%/yr escalation, 5 year Amortized - assumes unit is replaced in 5 years, next unit replacement is twelve years thereafter)

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Silverton Community Pool

Feasibility Study Scenarios - Cost Comparisons

April 18, 2011

Scenario 2a

	Quantity	Unit - SF, LF, EA or CY	Unit Cost	Subtotal	Contingency @ 10%	General Conditions @ 8%	Profit and Overhead @ 8%	Bond @2%	Direct Construction Costs	Project Costs @25%	Project Total
Project Components											
CAPITAL CONSTRUCTION ITEMS											
Repairs to Frame and Fabric											
Replace Anchor Bolts	32	EA	$50.00	$1,600.00	160	141	152	41	$2,094	523	$2,617
Replace Fabric Top Panels	1	Set	$24,000.00	$24,000.00					$24,000		$24,000
Replace Fabric End Panels	1	Set	$6,000.00	$6,000.00					$6,000		$6,000
Replace Fabric Side Panels	1	Set	$8,000.00	$8,000.00					$8,000		$8,000
Replace Door Assemblies	2	Sets	$3,000.00	$6,000.00					$6,000		$6,000
New Custom Fabric Connector to Bathhouse	200	sf	$40.00	$8,000.00	800	704	760	203	$10,470	2,617	$13,087
Remove Frame Entirely	1	LS	$5,000.00	$5,000.00	440	475	128	$6,544	1,636	$8,179	
Pool Repairs											
Replace Pool Joints	660	LF	$15.00	$9,900.00	990	871	941	254	$12,956	3,239	$16,195
Resurface Pool Edge Gutters and Drains	375	LF	$45.00	$16,875.00	1,688	1,485	1,604	433	$22,084	5,521	$27,605
Pool Safety Cover	6250	sf	$2.50	$15,625.00	1,563	1,375	1,485	401	$20,448	5,112	$25,561
Pool Deck Lighting (Scenario 2B Only)											
Six new Light poles, lights and speakers	6	EA	$2,500.00	$15,000.00	1,500	1,320	1,426	385	$19,631	4,908	$24,538
Fire Sprinkler											
Add Service, vault, riser piping, notifications, etc.	1	LS	$25,000.00	$25,000.00	2,500	2,200	2,376	642	$32,718	8,179	$40,897
Fire Sprinkler for permanent portion of Fabric Cover	4200	SF	$2.50	$10,500.00	1,050	924	998	269	$13,741	3,435	$17,177
Fire Sprinkler for full size fabric cover	10500	SF	$2.50	$26,250.00	2,625	2,310	2,495	674	$34,353	8,588	$42,942
	Markup Adujstments for larger scale projects					6%	4%	1%			
Conventional Natatorium Construction											
Demo/Excavate Portion of Perimeter Deck for footing construction	500	CY	$150.00	$75,000.00	7,500	4,950	3,498	909	$91,857	22,964	$114,822
Reinstall Perimeter Deck	2500	SF	$10.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
New Natatorium - Pre-Engineered Steel Structure anchored to Concrete Footings, Fully Grouted Masonry Walls, Metal Roofing over Rigid Insulation, Aluminum Frame Windows, Doors and Skylight, Intumescing Paint at Steel Structure, Fire Sprinkler System, Heating/Ventilating System with Heat Recovery, Lighting and Sound Systems	10500	SF	$130.00	$1,365,000.00	136,500	90,090	63,664	16,553	$1,671,806	417,952	$2,089,758
Polycarbonate Glazing Natatorium Construction											
Demo/Excavate Portion of Perimeter Deck for footing construction	500	CY	$150.00	$75,000.00	7,500	4,950	3,498	909	$91,857	22,964	$114,822
Reinstall Perimeter Deck	2500	SF	$10.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
New Natatorium - Pre-Engineered Aluminum Frame Structure anchored to Concrete Footings, Aluminum Frame Polycarbonate glazed Roof, Walls, Windows, and Doors, Fire Sprinkler System, Heating/Ventilating System with Heat Recovery, Lighting and Sound Systems	10500	SF	$175.00	$1,837,500.00	183,750	121,275	85,701	22,282	$2,250,508	562,627	$2,813,135
All New Facility (Conventional Construction) - Existing Site											
Demo Existing	15,000	SF	$2.00	$30,000.00	3,000	1,980	1,399	364	$36,743	9,186	$45,929
New Natatorium and Bathhouse	15,000	SF	$250.00	$3,750,000.00	375,000	247,500	174,900	45,474	$4,592,874	1,148,219	$5,741,093
Utility Services Upgrade	1	LS	$25,000.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
Repairs to Sitework/Parking Lot	1	LS	$40,000.00	$40,000.00	4,000	2,640	1,866	485	$48,991	12,248	$61,238
All New Facility (Conventional Construction) - New Site											
New Natatorium and Bathhouse	15,000	SF	$250.00	$3,750,000.00	375,000	247,500	174,900	45,474	$4,592,874	1,148,219	$5,741,093
New Utility Services	1	LS	$50,000.00	$50,000.00	5,000	3,300	2,332	606	$61,238	15,310	$76,548
New Parking Area (50 Spaces)/Landscaping	30000	SF	$4.50	$135,000.00	13,500	8,910	6,296	1,637	$165,343	41,336	$206,679
Maintenace and Replacement Cost Items											
Yearly Fabric Erection Budget	1	LS	$14,000.00	$14,000.00							
Fabric Replacement Fund - Yearly Budget Set Aside *	1	LS	$8,200.00	$8,200.00							
HVAC Unit/Fan Replacement Costs - Yearly Budget Set Aside **	1	LS	$5,600.00	$5,600.00							
Cost to Winterize/Dewinterize Pool and Bathhouse	1	LS	$3,000.00	$3,000.00							
Mothball/Protect HV Unit	1	LS	$2,500.00	$2,500.00							

*Assumes full replacement every seven years($45,000@ 5%/yr escalation, 7 year Amortized - assumes it is replaced this year)
**Assumes full replacement every twelve years($22,000@ 5%/yr escalation, 5 year Amortized - assumes unit is replaced in 5 years, next unit replacement is twelve years thereafter)

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Silverton Community Pool

Feasibility Study Scenarios - Cost Comparisons

April 18, 2011

Scenario 2b

	Quantity	Unit - SF, LF, EA or CY	Unit Cost	Subtotal	Contingency @ 10%	General Conditions @ 8%	Profit and Overhead @ 8%	Bond @2%	Direct Construction Costs	Project Costs @25%	Project Total
Project Components											
CAPITAL CONSTRUCTION ITEMS											
Repairs to Frame and Fabric											
Replace Anchor Bolts	32	EA	$50.00	$1,600.00	160	141	152	41	$2,094	523	$2,617
Replace Fabric Top Panels	1	Set	$24,000.00	$24,000.00					$24,000		$24,000
Replace Fabric End Panels	1	Set	$6,000.00	$6,000.00					$6,000		$6,000
Replace Fabric Side Panels	1	Set	$8,000.00	$8,000.00					$8,000		$8,000
Replace Door Assemblies	2	Sets	$3,000.00	$6,000.00					$6,000		$6,000
New Custom Fabric Connector to Bathhouse	200	sf	$40.00	$8,000.00	800	704	760	201	$10,470	2,617	$13,087
Remove Frame / HV unit Entirely	1	LS	$7,500.00	$7,500.00	750	660	713	192	**$9,815**	2,454	**$12,269**
Pool Repairs											
Replace Pool Joints	660	LF	$15.00	$9,900.00	990	871	941	254	**$12,956**	3,239	**$16,195**
Resurface Pool Edge Gutters and Drains	375	LF	$45.00	$16,875.00	1,688	1,485	1,604	433	**$22,084**	5,521	**$27,605**
Pool Safety Cover	6250	sf	$2.50	$15,625.00	1,563	1,375	1,485	401	**$20,448**	5,112	**$25,561**
Pool Deck Lighting (Scenario 2B Only)											
Six new Light poles, lights and speakers	6	EA	$2,500.00	$15,000.00	1,500	1,320	1,426	385	**$19,631**	4,908	**$24,538**
Fire Sprinkler											
Add Service, vault, riser piping, notifications, etc.	1	LS	$25,000.00	$25,000.00	2,500	2,200	2,376	642	$32,718	8,179	$40,897
Fire Sprinkler for permanent portion of Fabric Cover	4200	SF	$2.50	$10,500.00	1,050	924	998	269	$13,741	3,435	$17,177
Fire Sprinkler for full size fabric cover	10500	SF	$2.50	$26,250.00	2,625	2,310	2,495	674	$34,353	8,588	$42,942
	Markup Adujstments for larger scale projects					6%	4%	1%			
Conventional Natatorium Construction											
Demo/Excavate Portion of Perimeter Deck for footing construction	500	CY	$150.00	$75,000.00	7,500	4,950	3,498	909	$91,857	22,964	$114,822
Reinstall Perimeter Deck	2500	SF	$10.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
New Natatorium - Pre-Engineered Steel Structure anchored to Concrete Footings, Fully Grouted Masonry Walls, Metal Roofing over Rigid Insulation, Aluminum Frame Windows, Doors and Skylight, Intumescing Paint at Steel Structure, Fire Sprinkler System, Heating/Ventilating System with Heat Recovery, Lighting and Sound Systems	10500	SF	$130.00	$1,365,000.00	136,500	90,090	63,664	16,553	$1,671,806	417,952	$2,089,758
Polycarbonate Glazing Natatorium Construction											
Demo/Excavate Portion of Perimeter Deck for footing construction	500	CY	$150.00	$75,000.00	7,500	4,950	3,498	909	$91,857	22,964	$114,822
Reinstall Perimeter Deck	2500	SF	$10.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
New Natatorium - Pre-Engineered Aluminum Frame Structure anchored to Concrete Footings, Aluminum Frame Polycarbonate glazed Roof, Walls, Windows, and Doors, Fire Sprinkler System, Heating/Ventilating System with Heat Recovery, Lighting and Sound Systems	10500	SF	$175.00	$1,837,500.00	183,750	121,275	85,701	22,282	$2,250,508	562,627	$2,813,135
All New Facility (Conventional Construction) - Existing Site											
Demo Existing	15,000	SF	$2.00	$30,000.00	3,000	1,980	1,399	364	$36,743	9,186	$45,929
New Natatorium and Bathhouse	15,000	SF	$250.00	$3,750,000.00	375,000	247,500	174,900	45,474	$4,592,874	1,148,219	$5,741,093
Utility Services Upgrade	1	LS	$25,000.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
Repairs to Sitework/Parking Lot	1	LS	$40,000.00	$40,000.00	4,000	2,640	1,866	485	$48,991	12,248	$61,238
All New Facility (Conventional Construction) - New Site											
New Natatorium and Bathhouse	15,000	SF	$250.00	$3,750,000.00	375,000	247,500	174,900	45,474	$4,592,874	1,148,219	$5,741,093
New Utility Services	1	LS	$50,000.00	$50,000.00	5,000	3,300	2,332	606	$61,238	15,310	$76,548
New Parking Area (50 Spaces)/Landscaping	30000	SF	$4.50	$135,000.00	13,500	8,910	6,296	1,637	$165,343	41,336	$206,679
Maintenace and Replacement Cost Items											
Yearly Fabric Erection Budget	1	LS	$14,000.00	**$14,000.00**							
Fabric Replacement Fund - Yearly Budget Set Aside *	1	LS	$8,200.00	**$8,200.00**							
HVAC Unit/Fan Replacement Costs - Yearly Budget Set Aside **	1	LS	$5,600.00	**$5,600.00**							
Cost to Winterize/Dewinterize Pool and Bathhouse	1	LS	$3,000.00	**$3,000.00**							
Mothball/Protect HV Unit	1	LS	$2,500.00	**$2,500.00**							

*Assumes full replacement every seven years($45,000@ 5%/yr escalation, 7 year Amortized - assumes it is replaced this year)
**Assumes full replacement every twelve years($22,000@ 5%/yr escalation, 5 year Amortized - assumes unit is replaced in 5 years, next unit replacement is twelve years thereafter)

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Silverton Community Pool

Feasibility Study Scenarios - Cost Comparisons

April 18, 2011

Scenario 3

	Quantity	Unit - SF, LF, EA or CY	Unit Cost	Subtotal	Contingency @ 10%	General Conditions @ 8%	Profit and Overhead @ 8%	Bond @2%	Direct Construction Costs	Project Costs @25%	Project Total
Project Components											
CAPITAL CONSTRUCTION ITEMS											
Repairs to Frame and Fabric											
Replace Anchor Bolts	32	EA	$50.00	$1,600.00	160	141	152	41	**$2,094**	523	**$2,617**
Replace Fabric Top Panels	1	Set	$24,000.00	$24,000.00					**$24,000**		**$24,000**
Replace Fabric End Panels	1	Set	$6,000.00	$6,000.00					**$6,000**		**$6,000**
Replace Fabric Side Panels	1	Set	$8,000.00	$8,000.00					**$8,000**		**$8,000**
Replace Door Assemblies	2	Sets	$3,000.00	$6,000.00					**$6,000**		**$6,000**
New Custom Fabric Connector to Bathhouse	200	sf	$40.00	$8,000.00	800	704	760	205	**$10,470**	2,617	**$13,087**
Remove Frame / HV unit Entirely	1	LS	$7,500.00	$7,500.00	750	660	712	192	$9,815	2,454	$12,269
Pool Repairs											
Replace Pool Joints	660	LF	$15.00	$9,900.00	990	871	941	254	**$12,956**	3,239	**$16,195**
Resurface Pool Edge Gutters and Drains	375	LF	$45.00	$16,875.00	1,688	1,485	1,604	433	**$22,084**	5,521	**$27,605**
Pool Safety Cover	6250	sf	$2.50	$15,625.00	1,563	1,375	1,485	401	$20,448	5,112	$25,561
Pool Deck Lighting (Scenario 2B Only)											
Six new Light poles, lights and speakers	6	EA	$2,500.00	$15,000.00	1,500	1,320	1,426	385	$19,631	4,908	$24,538
Fire Sprinkler											
Add Service, vault, riser piping, notifications, etc.	1	LS	$25,000.00	$25,000.00	2,500	2,200	2,376	642	**$32,718**	8,179	**$40,897**
Fire Sprinkler for permanent portion of Fabric Cover	4200	SF	$2.50	$10,500.00	1,050	924	998	269	**$13,741**	3,435	**$17,177**
Fire Sprinkler for full size fabric cover	10500	SF	$2.50	$26,250.00	2,625	2,310	2,495	674	$34,353	8,588	$42,942
	Markup Adjustments for larger scale projects					6%	4%	1%			
Conventional Natatorium Construction											
Demo/Excavate Portion of Perimeter Deck for footing construction	500	CY	$150.00	$75,000.00	7,500	4,950	3,498	909	$91,857	22,964	$114,822
Reinstall Perimeter Deck	2500	SF	$10.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
New Natatorium - Pre-Engineered Steel Structure anchored to Concrete Footings, Fully Grouted Masonry Walls, Metal Roofing over Rigid Insulation, Aluminum Frame Windows, Doors and Skylight, Intumescing Paint at Steel Structure, Fire Sprinkler System, Heating/Ventilating System with Heat Recovery, Lighting and Sound Systems	10500	SF	$130.00	$1,365,000.00	136,500	90,090	63,664	16,553	$1,671,806	417,952	$2,089,758
Polycarbonate Glazing Natatorium Construction											
Demo/Excavate Portion of Perimeter Deck for footing construction	500	CY	$150.00	$75,000.00	7,500	4,950	3,498	909	$91,857	22,964	$114,822
Reinstall Perimeter Deck	2500	SF	$10.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
New Natatorium - Pre-Engineered Aluminum Frame Structure anchored to Concrete Footings, Aluminum Frame Polycarbonate glazed Roof, Walls, Windows, and Doors, Fire Sprinkler System, Heating/Ventilating System with Heat Recovery, Lighting and Sound Systems	10500	SF	$175.00	$1,837,500.00	183,750	121,275	85,701	22,282	$2,250,508	562,627	$2,813,135
All New Facility (Conventional Construction) - Existing Site											
Demo Existing	15,000	SF	$2.00	$30,000.00	3,000	1,980	1,399	364	$36,743	9,186	$45,929
New Natatorium and Bathhouse	15,000	SF	$250.00	$3,750,000.00	375,000	247,500	174,900	45,474	$4,592,874	1,148,219	$5,741,093
Utility Services Upgrade	1	LS	$25,000.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
Repairs to Sitework/Parking Lot	1	LS	$40,000.00	$40,000.00	4,000	2,640	1,865	485	$48,991	12,248	$61,238
All New Facility (Conventional Construction) - New Site											
New Natatorium and Bathhouse	15,000	SF	$250.00	$3,750,000.00	375,000	247,500	174,900	45,474	$4,592,874	1,148,219	$5,741,093
New Utility Services	1	LS	$50,000.00	$50,000.00	5,000	3,300	2,332	606	$61,238	15,310	$76,548
New Parking Area (50 Spaces)/Landscaping	30000	SF	$4.50	$135,000.00	13,500	8,910	6,296	1,637	$165,343	41,336	$206,679
Maintenace and Replacement Cost Items											
Yearly Fabric Erection Budget	1	LS	$14,000.00	**$14,000.00**							
Fabric Replacement Fund - Yearly Budget Set Aside *	1	LS	$8,200.00	**$8,200.00**							
HVAC Unit/Fan Replacement Costs - Yearly Budget Set Aside **	1	LS	$5,600.00	**$5,600.00**							
Cost to Winterize/Dewinterize Pool and Bathhouse	1	LS	$3,000.00	$3,000.00							
Mothball/Protect HV Unit	1	LS	$2,500.00	$2,500.00							

*Assumes full replacement every seven years($45,000@ 5%/yr escalation, 7 year Amortized - assumes it is replaced this year)

**Assumes full replacement every twelve years($22,000@ 5%/yr escalation, 5 year Amortized - assumes unit is replaced in 5 years, next unit replacement is twelve years thereafter)

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Silverton Community Pool

Feasibility Study Scenarios - Cost Comparisons

April 18, 2011

Scenario 4a

	Quantity	Unit - SF, LF, EA or CY	Unit Cost	Subtotal	Contingency @ 10%	General Conditions @ 8%	Profit and Overhead @ 8%	Bond @2%	Direct Construction Costs	Project Costs @25%	Project Total
Project Components											
CAPITAL CONSTRUCTION ITEMS											
Repairs to Frame and Fabric											
Replace Anchor Bolts	32	EA	$50.00	$1,600.00	160	141	157	41	$2,094	523	$2,617
Replace Fabric Top Panels	1	Set	$24,000.00	$24,000.00					$24,000		$24,000
Replace Fabric End Panels	1	Set	$6,000.00	$6,000.00					$6,000		$6,000
Replace Fabric Side Panels	1	Set	$8,000.00	$8,000.00					$8,000		$8,000
Replace Door Assemblies	2	Sets	$3,000.00	$6,000.00					$6,000		$6,000
New Custom Fabric Connector to Bathhouse	200	sf	$40.00	$8,000.00	800	704	760	205	$10,470	2,617	$13,087
Remove Frame / HV unit Entirely	1	LS	$7,500.00	$7,500.00	750	660	713	192	**$9,815**	2,454	**$12,269**
Pool Repairs											
Replace Pool Joints	660	LF	$15.00	$9,900.00	990	871	941	254	**$12,956**	3,239	**$16,195**
Resurface Pool Edge Gutters and Drains	375	LF	$45.00	$16,875.00	1,688	1,485	1,604	433	**$22,084**	5,521	**$27,605**
Pool Safety Cover	6250	sf	$2.50	$15,625.00	1,563	1,375	1,485	401	**$20,448**	5,112	**$25,561**
Pool Deck Lighting (Scenario 2B Only)											
Six new Light poles, lights and speakers	6	EA	$2,500.00	$15,000.00	1,500	1,320	1,426	385	$19,631	4,908	$24,538
Fire Sprinkler											
Add Service, vault, riser piping, notifications, etc.	1	LS	$25,000.00	$25,000.00	2,500	2,200	2,376	642	$32,718	8,179	$40,897
Fire Sprinkler for permanent portion of Fabric Cover	4200	SF	$2.50	$10,500.00	1,050	924	998	269	$13,741	3,435	$17,177
Fire Sprinkler for full size fabric cover	10500	SF	$2.50	$26,250.00	2,625	2,310	2,495	674	$34,353	8,588	$42,942
	Markup Adujstments for larger scale projects					6%	4%	1%			
Conventional Natatorium Construction											
Demo/Excavate Portion of Perimeter Deck for footing construction	500	CY	$150.00	$75,000.00	7,500	4,950	3,498	909	**$91,857**	22,964	**$114,822**
Reinstall Perimeter Deck	2500	SF	$8.00	$20,000.00	2,000	1,320	933	243	**$24,495**	6,124	**$30,619**
New Natatorium - Pre-Engineered Steel Structure anchored to Concrete Footings, Fully Grouted Masonry Walls, Metal Roofing over Rigid Insulation, Aluminum Frame Windows, Doors and Skylight, Intumescing Paint at Steel Structure, Fire Sprinkler System, Heating/Ventilating System with Heat Recovery, Lighting and Sound Systems	10500	SF	$130.00	$1,365,000.00	136,500	90,090	63,664	16,553	**$1,671,806**	417,952	**$2,089,758**
Polycarbonate Glazing Natatorium Construction											
Demo/Excavate Portion of Perimeter Deck for footing construction	500	CY	$150.00	$75,000.00	7,500	4,950	3,498	909	$91,857	22,964	$114,822
Reinstall Perimeter Deck	2500	SF	$10.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
New Natatorium - Pre-Engineered Aluminum Frame Structure anchored to Concrete Footings, Aluminum Frame Polycarbonate glazed Roof, Walls, Windows, and Doors, Fire Sprinkler System, Heating/Ventilating System with Heat Recovery, Lighting and Sound Systems	10500	SF	$175.00	$1,837,500.00	183,750	121,275	85,701	22,282	$2,250,508	562,627	$2,813,135
All New Facility (Conventional Construction) - Existing Site											
Demo Existing	15,000	SF	$2.00	$30,000.00	3,000	1,980	1,399	364	$36,743	9,186	$45,929
New Natatorium and Bathhouse	15,000	SF	$250.00	$3,750,000.00	375,000	247,500	174,900	45,474	$4,592,874	1,148,219	$5,741,093
Utility Services Upgrade	1	LS	$25,000.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
Repairs to Sitework/Parking Lot	1	LS	$40,000.00	$40,000.00	4,000	2,640	1,865	485	$48,991	12,248	$61,238
All New Facility (Conventional Construction) - New Site											
New Natatorium and Bathhouse	15,000	SF	$250.00	$3,750,000.00	375,000	247,500	174,900	45,474	$4,592,874	1,148,219	$5,741,093
New Utility Services	1	LS	$50,000.00	$50,000.00	5,000	3,300	2,332	606	$61,238	15,310	$76,548
New Parking Area (50 Spaces)/Landscaping	30000	SF	$4.50	$135,000.00	13,500	8,910	6,296	1,637	$165,343	41,336	$206,679
Maintenace and Replacement Cost Items											
Yearly Fabric Erection Budget	1	LS	$14,000.00	$14,000.00							
Fabric Replacement Fund - Yearly Budget Set Aside *	1	LS	$8,200.00	$8,200.00							
HVAC Unit/Fan Replacement Costs - Yearly Budget Set Aside **	1	LS	$5,600.00	$5,600.00							
Cost to Winterize/Dewinterize Pool and Bathhouse	1	LS	$3,000.00	**$3,000.00**							
Mothball/Protect HV Unit	1	LS	$2,500.00	$2,500.00							

*Assumes full replacement every seven years($45,000@ 5%/yr escalation, 7 year Amortized - assumes it is replaced this year)

**Assumes full replacement every twelve years($22,000@ 5%/yr escalation, 5 year Amortized - assumes unit is replaced in 5 years, next unit replacement is twelve years thereafter)

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Silverton Community Pool

Feasibility Study Scenarios - Cost Comparisons

April 18, 2011

Scenario 4b

	Quantity	Unit - SF, LF, EA or CY	Unit Cost	Subtotal	Contingency @ 10%	General Conditions @ 8%	Profit and Overhead @ 8%	Bond @2%	Direct Construction Costs	Project Costs @25%	Project Total
Project Components											
CAPITAL CONSTRUCTION ITEMS											
Repairs to Frame and Fabric											
Replace Anchor Bolts	32	EA	$50.00	$1,600.00	160	141	157	41	$2,094	523	$2,617
Replace Fabric Top Panels	1	Set	$24,000.00	$24,000.00					$24,000		$24,000
Replace Fabric End Panels	1	Set	$6,000.00	$6,000.00					$6,000		$6,000
Replace Fabric Side Panels	1	Set	$8,000.00	$8,000.00					$8,000		$8,000
Replace Door Assemblies	2	Sets	$3,000.00	$6,000.00					$6,000		$6,000
New Custom Fabric Connector to Bathhouse	200	sf	$40.00	$8,000.00	800	704	760	205	$10,470	2,617	$13,087
Remove Frame / HV unit Entirely	1	LS	$7,500.00	$7,500.00	750	660	713	192	**$9,815**	2,454	**$12,269**
Pool Repairs											
Replace Pool Joints	660	LF	$15.00	$9,900.00	990	871	941	254	**$12,956**	3,239	**$16,195**
Resurface Pool Edge Gutters and Drains	375	LF	$45.00	$16,875.00	1,688	1,485	1,604	433	**$22,084**	5,521	**$27,605**
Pool Safety Cover	6250	sf	$2.50	$15,625.00	1,563	1,375	1,485	401	**$20,448**	5,112	**$25,561**
Pool Deck Lighting (Scenario 2B Only)											
Six new Light poles, lights and speakers	6	EA	$2,500.00	$15,000.00	1,500	1,320	1,426	385	$19,631	4,908	$24,538
Fire Sprinkler											
Add Service, vault, riser piping, notifications, etc.	1	LS	$25,000.00	$25,000.00	2,500	2,200	2,376	642	$32,718	8,179	$40,897
Fire Sprinkler for permanent portion of Fabric Cover	4200	SF	$2.50	$10,500.00	1,050	924	998	269	$13,741	3,435	$17,177
Fire Sprinkler for full size fabric cover	10500	SF	$2.50	$26,250.00	2,625	2,310	2,495	674	$34,353	8,588	$42,942
	Markup Adujstments for larger scale projects					6%	4%	1%			
Conventional Natatorium Construction											
Demo/Excavate Portion of Perimeter Deck for footing construction	500	CY	$150.00	$75,000.00	7,500	4,950	3,498	909	$91,857	22,964	$114,822
Reinstall Perimeter Deck	2500	SF	$10.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
New Natatorium - Pre-Engineered Steel Structure anchored to Concrete Footings, Fully Grouted Masonry Walls, Metal Roofing over Rigid Insulation, Aluminum Frame Windows, Doors and Skylight, Intumescing Paint at Steel Structure, Fire Sprinkler System, Heating/Ventilating System with Heat Recovery, Lighting and Sound Systems	10500	SF	$130.00	$1,365,000.00	136,500	90,090	63,664	16,553	$1,671,806	417,952	$2,089,758
Polycarbonate Glazing Natatorium Construction											
Demo/Excavate Portion of Perimeter Deck for footing construction	500	CY	$150.00	$75,000.00	7,500	4,950	3,498	909	**$91,857**	22,964	**$114,822**
Reinstall Perimeter Deck	2500	SF	$8.00	$20,000.00	2,000	1,320	933	243	**$24,495**	6,124	**$30,619**
New Natatorium - Pre-Engineered Aluminum Frame Structure anchored to Concrete Footings, Aluminum Frame Polycarbonate glazed Roof, Walls, Windows, and Doors, Fire Sprinkler System, Heating/Ventilating System with Heat Recovery, Lighting and Sound Systems	10500	SF	$170.00	$1,785,000.00	178,500	117,810	83,252	21,646	**$2,186,208**	546,552	**$2,732,760**
All New Facility (Conventional Construction) - Existing Site											
Demo Existing	15,000	SF	$2.00	$30,000.00	3,000	1,980	1,399	364	$36,743	9,186	$45,929
New Natatorium and Bathhouse	15,000	SF	$250.00	$3,750,000.00	375,000	247,500	174,900	45,474	$4,592,874	1,148,219	$5,741,093
Utility Services Upgrade	1	LS	$25,000.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
Repairs to Sitework/Parking Lot	1	LS	$40,000.00	$40,000.00	4,000	2,640	1,865	485	$48,991	12,248	$61,238
All New Facility (Conventional Construction) - New Site											
New Natatorium and Bathhouse	15,000	SF	$250.00	$3,750,000.00	375,000	247,500	174,900	45,474	$4,592,874	1,148,219	$5,741,093
New Utility Services	1	LS	$50,000.00	$50,000.00	5,000	3,300	2,332	606	$61,238	15,310	$76,548
New Parking Area (50 Spaces)/Landscaping	30000	SF	$4.50	$135,000.00	13,500	8,910	6,296	1,637	$165,343	41,336	$206,679
Maintenace and Replacement Cost Items											
Yearly Fabric Erection Budget	1	LS	$14,000.00	$14,000.00							
Fabric Replacement Fund - Yearly Budget Set Aside *	1	LS	$8,200.00	$8,200.00							
HVAC Unit/Fan Replacement Costs - Yearly Budget Set Aside **	1	LS	$5,600.00	$5,600.00							
Cost to Winterize/Dewinterize Pool and Bathhouse	1	LS	$3,000.00	**$3,000.00**							
Mothball/Protect HV Unit	1	LS	$2,500.00	$2,500.00							

*Assumes full replacement every seven years($45,000@ 5%/yr escalation, 7 year Amortized - assumes it is replaced this year)

**Assumes full replacement every twelve years($22,000@ 5%/yr escalation, 5 year Amortized - assumes unit is replaced in 5 years, next unit replacement is twelve years thereafter)

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Silverton Community Pool

Feasibility Study Scenarios - Cost Comparisons

April 18, 2011

Scenario 5a

Project Components	Quantity	Unit - SF, LF, EA or CY	Unit Cost	Subtotal	Contingency @ 10%	General Conditions @ 8%	Profit and Overhead @ 8%	Bond @2%	Direct Construction Costs	Project Costs @25%	Project Total
CAPITAL CONSTRUCTION ITEMS											
Repairs to Frame and Fabric											
Replace Anchor Bolts	32	EA	$50.00	$1,600.00	160	141	152	41	$2,094	523	$2,617
Replace Fabric Top Panels	1	Set	$24,000.00	$24,000.00					$24,000		$24,000
Replace Fabric End Panels	1	Set	$6,000.00	$6,000.00					$6,000		$6,000
Replace Fabric Side Panels	1	Set	$8,000.00	$8,000.00					$8,000		$8,000
Replace Door Assemblies	2	Sets	$3,000.00	$6,000.00					$6,000		$6,000
New Custom Fabric Connector to Bathhouse	200	sf	$40.00	$8,000.00	800	704	760	205	$10,470	2,617	$13,087
Remove Frame / HV unit Entirely	1	LS	$7,500.00	$7,500.00	750	660	713	192	$9,815	2,454	$12,269
Pool Repairs											
Replace Pool Joints	660	LF	$15.00	$9,900.00	990	871	941	254	$12,956	3,239	$16,195
Resurface Pool Edge Gutters and Drains	375	LF	$45.00	$16,875.00	1,688	1,485	1,604	433	$22,084	5,521	$27,605
Pool Safety Cover	6250	sf	$2.50	$15,625.00	1,563	1,375	1,485	401	$20,448	5,112	$25,561
Pool Deck Lighting (Scenario 2B Only)											
Six new Light poles, lights and speakers	6	EA	$2,500.00	$15,000.00	1,500	1,320	1,426	385	$19,631	4,908	$24,538
Fire Sprinkler											
Add Service, vault, riser piping, notifications, etc.	1	LS	$25,000.00	$25,000.00	2,500	2,200	2,376	642	$32,718	8,179	$40,897
Fire Sprinkler for permanent portion of Fabric Cover	4200	SF	$2.50	$10,500.00	1,050	924	998	269	$13,741	3,435	$17,177
Fire Sprinkler for full size fabric cover	10500	SF	$2.50	$26,250.00	2,625	2,310	2,495	674	$34,353	8,588	$42,942
	Markup Adujstments for larger scale projects					6%	4%	1%			
Conventional Natatorium Construction											
Demo/Excavate Portion of Perimeter Deck for footing construction	500	CY	$150.00	$75,000.00	7,500	4,950	3,498	909	$91,857	22,964	$114,822
Reinstall Perimeter Deck	2500	SF	$10.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
New Natatorium - Pre-Engineered Steel Structure anchored to Concrete Footings, Fully Grouted Masonry Walls, Metal Roofing over Rigid Insulation, Aluminum Frame Windows, Doors and Skylight, Intumescing Paint at Steel Structure, Fire Sprinkler System, Heating/Ventilating System with Heat Recovery, Lighting and Sound Systems	10500	SF	$130.00	$1,365,000.00	136,500	90,090	63,664	16,553	$1,671,806	417,952	$2,089,758
Polycarbonate Glazing Natatorium Construction											
Demo/Excavate Portion of Perimeter Deck for footing construction	500	CY	$150.00	$75,000.00	7,500	4,950	3,498	909	$91,857	22,964	$114,822
Reinstall Perimeter Deck	2500	SF	$10.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
New Natatorium - Pre-Engineered Aluminum Frame Structure anchored to Concrete Footings, Aluminum Frame Polycarbonate glazed Roof, Walls, Windows, and Doors, Fire Sprinkler System, Heating/Ventilating System with Heat Recovery, Lighting and Sound Systems	10500	SF	$175.00	$1,837,500.00	183,750	121,275	85,701	22,282	$2,250,508	562,627	$2,813,135
All New Facility (Conventional Construction) - Existing Site											
Demo Existing	15,000	SF	$2.00	$30,000.00	3,000	1,980	1,399	364	**$36,743**	9,186	**$45,929**
New Natatorium and Bathhouse	15,000	SF	$206.00	$3,090,000.00	309,000	203,940	144,118	37,471	**$3,784,528**	946,132	**$4,730,660**
Utility Services Upgrade	1	LS	$25,000.00	$25,000.00	2,500	1,650	1,166	303	**$30,619**	7,655	**$38,274**
Repairs to Sitework/Parking Lot	1	LS	$40,000.00	$40,000.00	4,000	2,640	1,866	485	**$48,991**	12,248	**$61,238**
All New Facility (Conventional Construction) - New Site											
New Natatorium and Bathhouse	15,000	SF	$250.00	$3,750,000.00	375,000	247,500	174,900	45,474	$4,592,874	1,148,219	$5,741,093
New Utility Services	1	LS	$50,000.00	$50,000.00	5,000	3,300	2,332	606	$61,238	15,310	$76,548
New Parking Area (50 Spaces)/Landscaping	30000	SF	$4.50	$135,000.00	13,500	8,910	6,296	1,637	$165,343	41,336	$206,679
Maintenace and Replacement Cost Items											
Yearly Fabric Erection Budget	1	LS	$14,000.00	$14,000.00							
Fabric Replacement Fund - Yearly Budget Set Aside *	1	LS	$8,200.00	$8,200.00							
HVAC Unit/Fan Replacement Costs - Yearly Budget Set Aside **	1	LS	$5,600.00	$5,600.00							
Cost to Winterize/Dewinterize Pool and Bathhouse	1	LS	$3,000.00	$3,000.00							
Mothball/Protect HV Unit	1	LS	$2,500.00	$2,500.00							

*Assumes full replacement every seven years($45,000@ 5%/yr escalation, 7 year Amortized - assumes it is replaced this year)

**Assumes full replacement every twelve years($22,000@ 5%/yr escalation, 5 year Amortized - assumes unit is replaced in 5 years, next unit replacement is twelve years thereafter)

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Silverton Community Pool

Feasibility Study Scenarios - Cost Comparisons

April 18, 2011

Scenario 5b

	Quantity	Unit - SF, LF, EA or CY	Unit Cost	Subtotal	Contingency @ 10%	General Conditions @ 8%	Profit and Overhead @ 8%	Bond @2%	Direct Construction Costs	Project Costs @25%	Project Total
Project Components											
CAPITAL CONSTRUCTION ITEMS											
Repairs to Frame and Fabric											
Replace Anchor Bolts	32	EA	$50.00	$1,600.00	160	141	152	41	$2,094	523	$2,617
Replace Fabric Top Panels	1	Set	$24,000.00	$24,000.00					$24,000		$24,000
Replace Fabric End Panels	1	Set	$6,000.00	$6,000.00					$6,000		$6,000
Replace Fabric Side Panels	1	Set	$8,000.00	$8,000.00					$8,000		$8,000
Replace Door Assemblies	2	Sets	$3,000.00	$6,000.00					$6,000		$6,000
New Custom Fabric Connector to Bathhouse	200	sf	$40.00	$8,000.00	800	704	760	205	$10,470	2,617	$13,087
Remove Frame / HV unit Entirely	1	LS	$7,500.00	$7,500.00	750	660	713	192	$9,815	2,454	$12,269
Pool Repairs											
Replace Pool Joints	660	LF	$15.00	$9,900.00	990	871	941	254	$12,956	3,239	$16,195
Resurface Pool Edge Gutters and Drains	375	LF	$45.00	$16,875.00	1,688	1,485	1,604	433	$22,084	5,521	$27,605
Pool Safety Cover	6250	sf	$2.50	$15,625.00	1,563	1,375	1,485	401	$20,448	5,112	$25,561
Pool Deck Lighting (Scenario 2B Only)											
Six new Light poles, lights and speakers	6	EA	$2,500.00	$15,000.00	1,500	1,320	1,426	385	$19,631	4,908	$24,538
Fire Sprinkler											
Add Service, vault, riser piping, notifications, etc.	1	LS	$25,000.00	$25,000.00	2,500	2,200	2,376	642	$32,718	8,179	$40,897
Fire Sprinkler for permanent portion of Fabric Cover	4200	SF	$2.50	$10,500.00	1,050	924	998	269	$13,741	3,435	$17,177
Fire Sprinkler for full size fabric cover	10500	SF	$2.50	$26,250.00	2,625	2,310	2,495	674	$34,353	8,588	$42,942
	Markup Adujstments for larger scale projects					6%	4%	1%			
Conventional Natatorium Construction											
Demo/Excavate Portion of Perimeter Deck for footing construction	500	CY	$150.00	$75,000.00	7,500	4,950	3,498	909	$91,857	22,964	$114,822
Reinstall Perimeter Deck	2500	SF	$10.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
New Natatorium - Pre-Engineered Steel Structure anchored to Concrete Footings, Fully Grouted Masonry Walls, Metal Roofing over Rigid Insulation, Aluminum Frame Windows, Doors and Skylight, Intumescing Paint at Steel Structure, Fire Sprinkler System, Heating/Ventilating System with Heat Recovery, Lighting and Sound Systems	10500	SF	$130.00	$1,365,000.00	136,500	90,090	63,664	16,553	$1,671,806	417,952	$2,089,758
Polycarbonate Glazing Natatorium Construction											
Demo/Excavate Portion of Perimeter Deck for footing construction	500	CY	$150.00	$75,000.00	7,500	4,950	3,498	909	$91,857	22,964	$114,822
Reinstall Perimeter Deck	2500	SF	$10.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
New Natatorium - Pre-Engineered Aluminum Frame Structure anchored to Concrete Footings, Aluminum Frame Polycarbonate glazed Roof, Walls, Windows, and Doors, Fire Sprinkler System, Heating/Ventilating System with Heat Recovery, Lighting and Sound Systems	10500	SF	$175.00	$1,837,500.00	183,750	121,275	85,701	22,282	$2,250,508	562,627	$2,813,135
All New Facility (Conventional Construction) - Existing Site											
Demo Existing	15,000	SF	$2.00	$30,000.00	3,000	1,980	1,399	364	$36,743	9,186	$45,929
New Natatorium and Bathhouse	15,000	SF	$250.00	$3,750,000.00	375,000	247,500	174,900	45,474	$4,592,874	1,148,219	$5,741,093
Utility Services Upgrade	1	LS	$25,000.00	$25,000.00	2,500	1,650	1,166	303	$30,619	7,655	$38,274
Repairs to Sitework/Parking Lot	1	LS	$40,000.00	$40,000.00	4,000	2,640	1,865	485	$48,991	12,248	$61,238
All New Facility (Conventional Construction) - New Site											
New Natatorium and Bathhouse	15,000	SF	$206.00	$3,090,000.00	309,000	203,940	144,118	37,471	**$3,784,528**	946,132	**$4,730,660**
New Utility Services	1	LS	$50,000.00	$50,000.00	5,000	3,300	2,332	606	**$61,238**	15,310	**$76,548**
New Parking Area (50 Spaces)/Landscaping	30000	SF	$4.50	$135,000.00	13,500	8,910	6,296	1,637	**$165,343**	41,336	**$206,679**
Maintenace and Replacement Cost Items											
Yearly Fabric Erection Budget	1	LS	$14,000.00	$14,000.00							
Fabric Replacement Fund - Yearly Budget Set Aside *	1	LS	$8,200.00	$8,200.00							
HVAC Unit/Fan Replacement Costs - Yearly Budget Set Aside **	1	LS	$5,600.00	$5,600.00							
Cost to Winterize/Dewinterize Pool and Bathhouse	1	LS	$3,000.00	$3,000.00							
Mothball/Protect HV Unit	1	LS	$2,500.00	$2,500.00							

*Assumes full replacement every seven years($45,000@ 5%/yr escalation, 7 year Amortized - assumes it is replaced this year)

**Assumes full replacement every twelve years($22,000@ 5%/yr escalation, 5 year Amortized - assumes unit is replaced in 5 years, next unit replacement is twelve years thereafter)