Report

Subject:	**Alder Recreation Centre Pool Liner Replacement**
Department:	**Community Services**
Division:	**Facilities and Parks Division**
Report #:	**CMS-FP-2020-007**
Meeting Date:	**September 14, 2020**

Orangeville Forward – Strategic Plan

Priority Area:	**Sustainable Infrastructure**
Objective:	**Balance the allocation of resources between rehabilitation and maintenance.**

Sustainable Neighbourhood Action Plan

Theme:	**Corporate and Fiscal**
Strategy:	**Demonstrate municipal leadership by considering the environment, social, and economic impacts of all Town decision.**

Recommendations

That report CMS-FP-2020-007, titled Alder Recreation Centre Pool Liner Replacement dated September 14, 2020 be received;

And that Council approve capital funding in the amount of $3 million dollars for the replacement and expansion of the 6 lane 25 metre lap pool to 8 lanes and replacement of the leisure pool liner to a polished stainless steel system including replacement of the waterslide with a waterplay feature within the Alder Recreation Centre Pool facility;

And that Council direct staff to include an option to install a 200 sq. ft. therapy pool within the existing deck floor space at Alder if the cost can be covered within the $3 million allocation;

And that Council approve funding in the amount of $125,000 to prepare design specification for the tender and project management of the Liner replacement project;

And that Council approve the transfer of $500,000 from Parks and Recreation Reserves and $1.75 million from General Capital Reserves;

Background and Analysis

The Alder Recreation Centre was built in 2003 and contains a twin pad arena (200' x 85' rinks), a six lane 25 metre competition pool and separate leisure pool, an indoor walking track, branch library, multi-purpose room and five meeting rooms, the Twister's Gymnastics and Trampoline Club (leased space), food concession and leased space for a pro shop.

2014 Indoor Facility Assessment

In 2014, the Town completed an Indoor Facility Assessment which highlighted that the Town of Orangeville owns and operates two indoor multi-purpose recreation facilities, consisting of the Tony Rose Memorial Sports Centre and Alder Recreation Centre. The purpose of the Indoor Facility Assessment Study was to "establish a collective community vision for the future need for, and use of, existing and future indoor facilities".

The following is a summary of the recommendations from the facility assessment for indoor aquatic spaces:

Guiding Statement:

The Town of Orangeville should consider repurposing the aquatics centre at the Tony Rose Memorial Sports Centre to provide space for a wide range of floor-based recreational activities geared to all age groups and interests (with priority possibly assigned to youth and/or older adults). However, if the Town decides to retain the aquatic centre at Tony Rose Memorial Centre, the rationale for doing so should be on the basis that:

a. *Attendance, program participation and utilization rates continue to grow based upon sound aquatics scheduling practices at both municipal aquatic centres;*

b. *It is the intention of the Town to achieve an over-supply of facilities to increase recreational objectives by providing surplus programming capacity and geographic coverage despite there being sufficient capacity at the newer Alder Recreation Centre pool tanks;*

c. *It recognizes there will be an inability at the current location to address growing demands for warm-water uses unless undertaking a capitally intensive expansion;*

d. *The financial investment associated with $800,000 in basic capital improvements along with the average annual operating deficit of $200,000 is appropriate to provide the benefit associated with the aforementioned over-supply;*

e. *Aquatics is deemed to be a higher priority community need at Tony Rose than other possible uses such as spaces for general purpose activities, older adult and youth programming, studio-based fitness, and/or administrative use.*

The 2014 Indoor Facility Assessment is further discussed within the 2020-2030 Recreation and Parks Master Plan and will be further covered in the Community Services budget proposal for 2021, however, given the immediate operational impacts of the Alder Pool shutdown the Department is bringing forward recommendations to move forward on the Alder upgrades while maintaining Tony Rose aquatic operations for the foreseeable future.

Pool Maintenance 2018

In 2018, the Department drained the Alder Pools for needed maintenance and while in shutdown a pool liner conditional assessment identified several holes and cracks in the vinyl that were resulting in water loss. In total 260 holes and cracks were repaired in the liner. The contractor at the time advised that the liner was beyond its life expectancy and they wouldn't guarantee that the repairs would hold/leak for any length of time beyond one year. The Department highlighted and included the liner replacement in the 2019 Capital Budget process and it was subsequently moved forward to 2022 but included in the 2019 ICIP application along with other major capital recreation infrastructure initiatives.

Infrastructure Canada Investment Program (ICIP)

In 2019, the Department submitted a $35 million dollar capital project (inclusive of the pool liner replacement) to the Federal Government under the Infrastructure Canada Investment Fund (ICIP) - Community Culture and Recreation Stream based on a 73.33% (Federal/Provincial) or $25,642,035 and Town contribution of 26.67% or $9,325,965. The Town was advised on August 7, 2020 that its long-awaited funding application under ICIP was denied. However, the basis of the ICIP funding application has not changed in fact with the failure of the Alder Pool liner the proposed infrastructure improvements are critically important for the immediate and long-term viability of aquatic and cross-programming sustainability within the multiuse building, and overall programming needs within the community and region.

The ICIP application proposal for the Alder Recreation Centre which included the renovation, rehabilitation and upgrades to the Aquatic facility consisted of the following:

- Expand the existing six (6) lane lap pool to an eight (8) lane, which is to include replacement of the pool liner, 2 lane extension, and reconstruction of the accessible ramp.
- Replacement of pool liner in leisure pool.
- Removal of existing single wet slide and installation of an indoor spray pad and water play structure.
- Mechanical upgrades (new pumps/UV filters and state of the art chemical controllers. Connectivity to the heat transfer from ice surface refrigeration system.
- Aquatic accessories (Lane lines, accessibility features, timing equipment).
- Deck level seating (benches).

The estimated cost for the ICIP application of $2,000,000 was based on replacement of the two liners with another coated steel system and the installation of a waterplay feature. (Coated steel as a15 year lifespan).

Pool Liner Major Leak

On August 4, 2020 the pool liner experienced a major leak(s) which resulted in water forcing its way out through the pool south side exit door and spilling onto Alder Street, as well as into the Twister Gymnastics Centre. Fortunately, there was minimal damage and disruption to activities within the gymnastics centre. However, the Alder Pool had to be drained completely and Tony Rose Pool, which was not scheduled to open, had to be quickly refilled and mobilized to accommodate the relaunch of aquatic programming for the Otters Swim Team and the gradual reintroduction of recreation lane swimming.

From August 10 to 11, the Department attempted further repairs in an effort to get Alder Pool operational until we could consider the replacement of the pool liner under the 2021 Capital Budget. Unfortunately, the repairs failed within hours of refilling the pool and again the pool was drained to avoid any damage to the backfill material surrounding the pool tank.

A conditional assessment of the Alder Lap Pool has revealed the following issues:

- There are several holes and cracks noted in the lap pool liner;
- The race lane markers have lifted and tiles have come off;
- The basin floor (PVC/Vinyl) has disconnected from all three floor drains;
- The existing liner is two years beyond its life expectancy.

Recreation and Parks Master Plan

In July of 2020 the Department completed a comprehensive Recreation and Parks Master Plan that provided a detailed review of the 2014-2018 aquatic participation levels in the Town's recreation centres. The data indicated that participation at the Alder Pool averaged 81.4% per year over the five (5) year period and 18.6% participation at the Tony Rose Pool. Over the five-year period participation levels at Alder increased by 45% and Tony Rose showed an increase overall of 19%.

The Recreation and Parks Master Plan summarized the aquatic programming related to pool spaces as follows:

- The Tony Rose Pool is largely supplementary to the aquatic facilities at Alder. This generates considerable below capacity use of Tony Rose, the level of which is insufficient to warrant its retention from a use perspective.
- An expanded, 8-lane lap pool at Alder will provide sufficient capacity to transfer Town programming that currently occurs at the Tony Rose pool.
- Organized community use by the Orangeville Otters and Dufferin Teamworks can also be accommodated at the new facility. The potential to provide additional pool time for the Orangeville Otters will depend on the approach to scheduling the club's training program.

- In addition to the lane pool, Alder aquatic facilities will include a reconfiguration/ expansion to retain the shallow leisure tank, and add a new therapeutic pool, and a splash/ waterplay area. These four components will meet requirements for a full range in community aquatic programs and activities with state-of-the-art facilities.
- With one community pool and at a population-based provision level, Orangeville will continue to be well supplied relative to reasonably comparable Ontario communities.

The Master Plan provided the following recommendations for aquatic facilities:

- Expand the existing 6-lane lap pool at Alder Recreation Centre to an 8-lane pool. Remove the waterslide and reconfigure/expand this area to retain the existing leisure tank and accommodate a therapy pool and aquatic play area.
- When designing the new aquatic facilities consult with organized users to optimize potential use of the new 8 lane pool.
- Remove the 6-lane pool from the Tony Rose Memorial Sports Complex.
- Monitor use and confirm unmet demand for pool time.

Based on the Recreation ad Parks Master Plan the Department would recommend that all proposed Alder Pool upgrades be implemented during the shutdown to replace the lap pool liner. Completing the entire project as recommended during the shutdown will result in no further need of shutdowns unless we require a physical change to the pool basin, i.e. to add a bench, new ramp etc. Based on the recommendations of the polished stainless steel system there will be no need to shutdown or drain any of the Alder Pool for tanks for maintenance. The existing alder tank required draining for repairs and cleaning on a annual and/or bi-annual schedule depending on identified issues, (i.e. detached tiles, repair lane T's, and holes and cracks in more recent years).

The Department would further recommend that Tony Rose Pool remain operational until the newly expanded aquatic spaces are in place at Alder which is estimated to be mid to late 2021 depending on Council approval of the proposed polished stainless steel option. Following the reopening of Alder, the next steps in the decision process of Tony Rose would be determined.

Covid Pandemic Impact

It is also noted that since the above Master Plan summary and recommendations were prepared based on the pre-COVID pandemic participation numbers, the Department will be completing a further review and recommending further program model changes within the 2021 budget and beyond based on reduced predicted participation numbers resulting from Public Health guidelines that restrict participation user capacities within the pool spaces.

Pool Liner Analysis and Recommendations

The basics of a pool installation are the same for most pool system options, i.e. you have an excavation and with a concrete floor as the base and some basic piping for drains. After this point, the systems begin to vary in the timelines in which the remainder of the pool tank, piping and water filtration systems are designed and connected and cost vary with each option... The

existing Alder pool liner is a laminated vinyl on steel system wherein they use an adhesive to apply vinyl and they seal the vinyl surface joins by using heat. The pool basin/tank floor is concrete covered with a pliable PVC membrane and the area around the pool is backfilled with clean sand material. The life expectancy of this type of system is maximum 15 years, and research in recent weeks has provided examples where this type of system has leaked within the first five years of installation. Based on this research and up to date data on current technology in pool basin/tank liners the Department is recommending to invest in a high-quality environmentally sustainable polished stainless steel (uncovered) liner replacement. Although this will be a more expensive investment in the short term, it will be more economical, efficient and cost effective in the long term, both from a capital and operational expense and revenue budget outlook.

The following provides a comparative analysis of the pool liners generally within the current public a pool market.

Concrete Pool Tank:
Following the installation of the reinforced concrete pool slab, the reinforcing for the pool wall is completed and tied into the floor slab. Simultaneously, any fittings and piping for skimmers, gutters and wall returns are plumbed and multiple lines are laid out and brought to the pool surge tank (where applicable) and to the pool filtration room. Following the installation of the reinforcing and piping, the work is inspected by a structural engineer prior to forms being set and cast-in-place concrete being poured. A 28-day curing time is required before significant work can commence within the pool tank. Once the pool tank is fully cured the pool can be leak tested, typically adding 7 to 19 days to the construction schedule before touch-ups and repairs begin.

Finishes for the concrete system typically consist of paint, plaster or tile. With each finish construction sequencing and time needs to be allotted for this work and product curing, within the pool tank. Generally, this type of system is installed before you construct perimeter walls for an indoor pool facility, cost to change the current Alder system to concrete would far exceed the 3 million estimate for polished stainless steel.

Coated Steel System:
Following curing of the concrete pool slab, a PVC coated steel wall system is assembled and anchored to the concrete pool slab. Depending on the depth of the pool a concrete knee wall must be constructed for the coated steel system wall panels to sit on. If the pool depth is greater than 2.0 m, (Alder is 2.4 m) then a knee wall is required.

The PVC coated steel panels are connected every 915 mm with steel buttresses to give the system rigidity. This process involves the sorting of components on site and the mechanical fastening of individual wall panels, buttress components, stiffeners, overflow gutter channel, etc.

Similar to a concrete pool installation, all perimeter piping for a coated steel system must be fully installed and pressure tested prior to backfilling. This piping consists of multiple lines and branches to each of the overflow gutter dropouts or skimmers if applicable, for each pool wall and/or floor return, and any potential features requiring water flow. This piping network is

commonly installed after the wall panels are fully installed but must be successfully completed and inspected prior to backfilling.

The pool walls have a permanently laminated hard PVC membrane bonded to the steel panels to ensure longevity and waterproofing. This special grade PVC is resistant to UV and the aggressive nature of chemically treated pool water. Care must be taken during installation not to damage the PVC coating.

Finishes for the coated steel system can be tile above the waterline. The coated steel walls come prefinished from the manufacturer only the floor membrane is remaining to be completed within the pool tank.

Polished Stainless Steel System:
Following the curing of the concrete pool slab, the Polished Stainless system can be mounted directly to the slab, the requirements for a knee wall are not required, as the panels can be built to accommodate pool depths of 3.6 m. Minimal additional perimeter piping is required as the Polished Stainless system comes complete with an internal piping chamber for gutter and returning piping functions. Piping requirements for the main drains remains the same across all pool system installations. However, only a single gutter line and a single return line are required due to the internal chambers built into the pool walls. With reduced perimeter piping required this helps significantly reduce the construction schedule and once pool walls are erected and secured, backfilling can commence, and the pool deck poured. This technology reduces construction and curing time by approximately 8 weeks. Further costs savings are seen as the polished steel system is designed in such a manner that a surge or balance tank is not required, when coupled with their vacuum sand filtration system.

Diverging from the coated installation process, the polished steel system arrives from the manufacturer with the steel support buttress components pre-assembled with the wall panels and overflow gutter in sections up to 6.0m in length. Aside from the required main drain piping effectively only two PVC pipes are required to connect the pool to the filtration room; one gutter line and one return line. The filtration/mechanical room for a polish steel system is 1/3 the size of a traditional filtration room which would result in more useable floor space at Alder for storage of equipment, program supplies and facility maintenance.

Finishes for the polished stainless system can be tile, or the system can be left as #3 polished Stainless Steel.(uncovered polish proposed for Alder) With the polished wall finish, this further reduces the construction phase of the project as only the floor membrane is remaining to be completed within the pool tank.

Comparison Summary			
	Concrete	**Coated Steel**	**Polished Stainless**
Excavation	=	=	=
Concrete sub-base weeping tile and slab	=	=	=
Under slab piping	=	=	=
Surge Tank (where applicable)	Required	Required	Not Required
Concrete wall construction	Yes	Depending on design and pool depth (over 2m deep-knee wall required)	Not required
Perimeter piping	Yes	Yes	Not Required
Prep for finishes	Yes	Depending on Design	Depending on Design
Backfill	After Curing and piping complete	After walls and piping installed	After walls installed
Pool Finishes	4-6 weeks (depending on finish)	2-4 weeks (depending on finish)	1 week (depending on finish)
Pool Mechanical Systems	10-12 weeks	10-12 weeks	3 weeks (system pre-plumbed)

Potential Overall Project Duration based on a 25 metre pool and leisure pool	8-10 months	8-10 months	6-8 months

Advantages to Stainless Steel linings:

Hygiene:
They are more hygienic because they have a smoother, joint-free surface where bacteria and deposits do not attach easily. The smooth surface can also be cleaned easily. Because of their superior hygienic properties, stainless steels are widely used in sanitary applications such as clean rooms, hospitals, dairies and food processing plants as well as pharmaceutical and chemical plants.

Maintenance:
Due to the corrosion and weather resistance of stainless steel the maintenance is minimal. All that is required to maintain the original finish of the stainless steel is wiping or cleaning of the surfaces.

Longevity:
Stainless steel pools do not change their appearance over time. If properly maintained, they keep their original finish indefinitely. Stainless steel will remain leak free as long as the water chemistry is properly maintained. Stainless steel does not need to be retiled or patched. Stainless steel is also extremely resistant to shock and other mechanical influences. It does not crack or erode easily.

Installation:
Stainless steel pools can be prefabricated at the source company and then fit on the building site or it can be built as a freestanding, self supporting structure that does not necessarily require extensive preparation of the site. This is a big advantage in the case of retrofits (small therapy pool can be prefabricated off site). It is also possible to integrate stainless steel, stairs, jets, slides, showers, and other swimming pool equipment directly into the skin without creating discontinuities and sites for potential leaks. The walls can be curved or have any conceivable shape. A stainless-steel pool can either be built by lining the walls and floors of a pre-built basin with stainless steel sheet or it can be built as a freestanding, self supporting structure that does not necessarily require extensive preparation of the site.

Design changes:
If a pool design has to be changed, for example if the size of the pool has to be increased or decreased or if new installations have to be made, it is easy to cut and weld the stainless steel and blend any changes, so they become invisible. It is much more difficult to blend the old with the new with tile and almost impossible with vinyl or PVC liners.

Proposed Scope of Work- Alder Pool:

Remove and replace existing pool liner:

- Remove and disposal of existing coated steel 6 lane 25 metre lap pool liner.
- Remove and dispose of required existing pool decking to allow for the new larger lap pool. (2 additional lanes)
- Supply and install a new 8 lane, 25 m Polished Stainless Steel Lap Pool.
- System to include advanced integral perimeter gutter recirculation system.
- Single line suction and single line return plumbing due to the advanced design of the perimeter gutter recirculation system.
- New circulation and filtration system rated for the larger water volume including high efficiency pool pump with VFD and high efficiency Microflo vacuum sand filtration.

Estimated Cost: $1,900,000 to $2,000,000

Remove and replace existing leisure pool coated steel liner and replace with polished stainless steel, install waterplay feature and optional therapy tank:

- Remove and disposal of existing coated steel pool liner.
- Supply and install curved Polished Steel leisure pool.
- System to include advanced integral perimeter gutter recirculation system.
- Single line suction and single line return plumbing due to the advanced design of the perimeter gutter recirculation system.
- Connection to circulation and filtration system rated for the larger water volume including high efficiency pool pump with VFD and high efficiency Microflo vacuum sand filtration.
- Install PVC membrane pool lining system on the pool tank floor with delineations and coloured shapes.
- Upgrade existing water play equipment
- Remove existing wet slide and install a waterplay structure.

Estimated Cost: $850,000 to $950,000

Recommendation

Based on the analysis of the three pool liner options, the time frames required to complete the liner replacement, the cost efficiency advantages over the long term, the elimination of shutdowns for maintenance, as well as the future capacity to make physical changes without having to remove or replace the stainless steel liner the Department is recommending that the Town move forward on the supply and installation of the Polished Stainless Steel system option through a public tender process and the expansion of the Alder Lap Pool to 8 lanes. The Department further request approval to engage the services of a subject matter expert to prepare the design and tender

specifications as well as project management oversight on the pool liner and associated works process.

Financial Impact

Based on Council approval of the preferred polished stainless steel option of replacement, along with the removal and replacement of the existing fibreglass slide with a wet play structure feature the total estimated cost will be $3,000,000. In our 10-year Capital Plan, Council has approved $750,000 through taxation in 2020. The remaining $2,250,000 will be funded in 2021 and 2022 from the following Reserves:

- $500,000 from Parks and Recreation Reserves
- $1,750,000 from General Capital Reserves

Council will note that the General Capital Reserves has a current balance of $8.4 million inclusive of the $2.3 million 2019 General Surplus realized through operations. The Parks and Recreation Reserves currently has a balance of $943,000.

Respectfully submitted

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