



Proposed Culture & Recreation Capital Projects 2019 – 2020

This document was assembled by municipal staff to present the proposed capital projects for the Jasper Arena, Activity Centre and Aquatic Centre for 2019 and 2020. The majority of the content originates from the Group2 [Recreation Facility Assessment report](#) presented to Council in 2016.

Items presented as “Group2 Recommendations” can be found as-is in the Recreation Facility Assessment document. “Department notes” are observations from staff on any changes or updates since the formal assessment was completed in 2016.

Please note that the proposed budget is presented based on estimates from Group2; final construction costs will be confirmed during the design phase. Design for both phases of the project is proposed for 2019 to ensure consistency and realize economies of scale. Budget approval for the 2020 (phase 2) part of the project will be requested during the 2020 capital budget process.

Jasper Arena – 2019

Ice Plant Replacement and Relocation to Achieve Code Compliance – \$3,000,000

The refrigeration plant was built as part of the original arena in 1961 and located at the SW corner of the arena. When the Activity Centre was added in 1977, the main entry doors to the facility were placed immediately adjacent to the refrigeration room’s exterior exit door.

The refrigeration plant contains all the compressors, ammonia and heat exchangers that are required for the refrigeration system for the ice slab. A room with this equipment requires separation from the rest of the building with a one-hour fire separation. It is also required to have a vestibule entry from within the building and a direct exterior exit. The vestibule entry is a requirement due to the possibility of an ammonia leak in the refrigeration room and the resulting need to contain the leak should it occur. The direct exterior exit is a requirement for the same reason.

The vestibule entry that exists is too small to be functional as a vestibule. In addition, the doors, while rated, do not adequately seal. The location of the direct exterior exit door adjacent to the main entry to the facility is also a significant concern.

In the event of an ammonia leak, the likelihood of ammonia impacting the entry area of the Jasper Activity Centre and Wildflowers Childcare (and any occupants passing by) is high. While not strictly a building code issue, this setup creates difficult and potentially dangerous operational conditions.

Group2 Recommendation: This mechanical room should be relocated away from frequently occupied areas of the building and rebuilt with a proper vestibule.

At this point a likely location is on the Pyramid Lake Road side of the arena. This will be explored further in the conceptual designs that are being developed. As the mechanical review recommends replacement or refurbishing of much of the equipment in this room, this provides a timely opportunity to install this equipment in a more appropriate location.

Items of note on the refrigeration system are as follows:

1. The vestibule into the refrigeration room is very restrictive and does not allow easy access, but more importantly, easy egress from the room in the event of an emergency.
2. The existing ventilation system is not in compliance with mechanical refrigeration code B-52. There is no minimum ventilation or make-up air into the room and the exhaust system does not adequately exhaust the room.
3. The exit door that opens directly to the outside is adjacent to the Activity Centre and Wildflowers Childcare main entrances which, in the event of an ammonia leak, makes for a dangerous situation.
4. The room and doors are not well sealed.

The refrigeration system has reached the end of its useful life. The new plant would also include a new or rebuilt condenser housed on a stand rather than the roof to prevent the potential for ice build-up in the future.

Department note: The goal is to install and use less hazardous equipment and less refrigerant.

Heating, Ventilation, and Air Conditioning (HVAC)

The arena seating area HVAC consists of gas fired infrared heaters. There are hot water unit heaters in place in the building but Operations and Maintenance personnel indicated they are no longer utilized and have been abandoned in place. Other than a couple of small high level propeller type wall fans (four in total, two of which don't work properly) there is no ventilation in the arena, which does not meet building code, and will cause structural rusting and premature mechanical deterioration. There is also no dehumidification in place which results in high levels of humidity and condensation during the shoulder seasons. The arena HVAC should be upgraded with the addition of a package gas fired desiccant dehumidifier which can serve 3 purposes:

1. provide dehumidification into the arena space;
2. provide ventilation into the arena space based on feedback from CO2 sensors; and
3. provide carbon monoxide (CO) evacuation in the event of a high-level CO measurement.

Department note: high humidity levels cause structural rusting, premature wear and rusting on mechanical systems, and a high probability of mold forming. The dehumidification system will lighten the load on the compressor system, and in turn reduce run time and provide better quality of ice. The 2019 project focuses on dehumidification and ventilation in the Arena itself.

Arena Motor Control Centre (MCC)

The motor control centre that services the ice plant is in poor condition. The starters in the MCC can no longer be serviced due to discontinued parts. The ice plant does not comply with the current B-52 codes. Some items to consider are the location of the ammonia detection panel and emergency purging exhaust switch, which should be relocated.

Group2 Recommendation: A replacement of the original ice plant MCC is recommended. The ice plant should be upgraded as required to meet B-52 code requirements. This would be completed with the relocation of the plant room.

Refrigeration Condenser Relocate and Repair Leaks

The Vilter roof mounted condenser was installed in 2000. The condenser is leaking and creating a significant build-up of ice on the sloped roof. Due to leaking (which is hard to control with any condenser), the unit should be replaced and relocated to a separate stand, off the roof.

Department note: Water leaking from the condenser has already damaged the roof over the entrance of the Activity Centre and Arena.

Jasper Arena, Activity Centre and Aquatic Centre Project – 2019

Including design (for phase 1 and phase 2), permitting, tendering and project management;

phase 1 budget – \$4,350,000

(phase 2 planned for 2020)

New Universal and Accessible Change Rooms (Arena)

The existing arena change rooms are located under the west bleachers and are approximately 22m² in area with two change rooms sharing a single washroom and shower room. User groups have reported that the existing change rooms are too small and that the number and layout of change rooms do not meet their needs.

Contemporary change rooms for ice arenas are typically designed to accommodate 23 players and have their own internal washroom and shower facilities. Based on the number of players being accommodated, the washroom fixture counts should provide one toilet and one urinal, and based on the showering requirements for pools, one shower per 50 or contemporary standards of four shower heads. This meets the Building Code requirement of one stall for 25 occupants (male or female) if it is assumed that each change room is used by one gender only at any given time. There is no code requirement to make all these facilities barrier free as long as some provision is made somewhere to provide barrier free change room space. It is good practice to apply barrier free standards within at least two of the four change rooms. A standard area requirement for change rooms is 55m² to 70m².

Group2 Recommendation: Four expanded and reconfigured change rooms are required to meet the needs of the user groups that currently are booking the arena for their tournaments and events. These

rooms should be located in an area that is adjacent to the arena playing surface or the Bonhomme Street side of the arena.

Department note: Hockey Alberta changes require half ice play for initiation and novice groups, thus requiring additional dressing rooms to meet this need. In the past we have also sent players to the basement and arena lobby to change during large tournaments.

Emergency Exits from Upper Level (Arena seating)

The arena seating is a combination of individual seats with backs (on the East side) and bench seating with no backs (on the West side). Seating is provided on a concrete cast in place seating rake with circulation and egress aisles accessed from the main floor up to the seats. At the top of the seating there is a standing room and circulation space. The total seating capacity of the arena is 776m². None of the spectator seating is accessible for persons with disabilities, which should be rectified.

Department note: The emergency exits are required by the building code to egress from the upper mezzanine. One on each side of the arena is required if the seating area is at capacity. Our facility is currently grandfathered-in but once we renovate, we will be required to include additional emergency exits to meet building code.

Zamboni Room

Zamboni rooms are being treated as storage garages in the Alberta Building Code and must be separated from the rest of the facility with a 1-hour fire separation. Zamboni rooms should have direct access to the exterior with an overhead door to facilitate movement of the Zamboni in and out of the facility as needed. Ice melt pits are also required for the dumping of ice resurfacing shavings.

The existing Zamboni room is located in the NW corner of the arena adjacent to a facility storage and work room. The room appears to be properly separated from the existing facility with a 1-hour fire separation. The room has an ice melt pit but the capacity of the pit is roughly 6.5m³ and contemporary standards call for a capacity of 12.5m³.

Group2 Recommendation: The Zamboni room should be renovated to allow full access to the playing surface and to the exterior the building. Increasing the capacity of the snow melt pit is desirable but not critical for the ongoing operation of the arena.

Department Note: The Zamboni room is too small to do maintenance on the Zamboni. Staff must take the Zamboni out of the room to change blades and perform mechanical repairs, which means they are either blocking a fire exit or doing maintenance work on the ice surface. This is a health and safety concern.

Activity Centre Fire Spray Basement Dorm Rooms

Group2 Recommendation: No fire spray was observed on neither the main floor's metal deck nor the open web steel joists and steel structure. The Architect should confirm if a fire rating assembly is

required, and if so, this portion of the structure would not meet the Alberta Building Code and application of fire resistance spray would be required.

Activity Centre Multipurpose Hall Flooring/Upgrades

The multi-purpose room is the primary large gathering space in the facility. It is served by a commercial kitchen and has a raised stage. Access to the multipurpose room is from the main lobby. A portion of the multipurpose room serves as a lobby to the arena. The finishes in the multipurpose room are showing a great deal of wear. The floor has exceeded its life span. Matching flooring stock is not available for future repairs. The operable wall that divides this space from the arena lobby is very worn and becoming difficult to operate. The multipurpose room has no windows or any other connection to the outdoors. The kitchen facilities seem to be large enough for their current needs but do have significant mechanical deficiencies.

Group2 Recommendation: New flooring, ceiling, and wall finishes should be considered and the operable wall should be replaced. Reconfiguration and possibly expansion of the multipurpose room should be considered to provide views to the mountains and better serve large gatherings. The kitchen should be renovated to meet current mechanical building code requirements. Investigating appropriate dance flooring to ensure the flexibility of the space should be part of the scope of this room.

Department note: The flooring is popping in several locations and replacement material is no longer available. Presently there are leaks coming from the arena lobby roof which are causing wall and floor damage in the multipurpose hall. Further consideration should be given to roof repairs, which became an issue after the completion of the Group2 report.

Administration Side Parking Lot Paving and Drains

The parking lot is in bad shape especially with regards to proper drainage and degrading asphalt. The parking area slopes towards the Activity Centre, creating pools of water in the winter and spring that cause severe slip hazards. Asphalt is also failing and drainage from the curling rink roof has nowhere to go, causing flooding in the curling rink (presently controlled with sump pumps every spring).

Aquatic Centre Main Mechanical Room Boilers, Burner x1

The aquatic and fitness facility were built in numerous phases. The facility started as an outdoor pool in the 1950's. It was then enclosed in 1988 at which time the hot tub, wading pool and slide were added. Lastly in 2011, the fitness facility was added on. There are two heating boilers that feed the facility, with the heating plant located in the aquatic facility, which appears to be from the 1988 addition.

The Aquatic Centre has a boiler plant that serves three functions:

1. provide hot water heating for the conducted load;
2. provide glycol heating for the ventilation load; and
3. provide hot water heating for the pools.

The plant consists of two Gas Master boilers with 1500 MBH input each. The boilers are steel tube with Riello forced draft burners (fuel efficient burners) providing an efficiency of 85%. All the piping within

the pool mechanical room is Victaulic (grooved pipe coupling joining system) and shows signs of leaking. One boiler is scheduled for replacement.

Aquatic Centre Locker Replacement

Locker replacement is required in all dressing rooms. The lockers are rusting out and coin mechanisms are always in repair. Continued maintenance has occurred over the past 15 years and they are now at a point of requiring complete replacement. The lockers are a good revenue source, bringing in an average of \$3,000 to \$4,000 a year when the coin operation system on the lockers is working properly. Locker rental rates would also go up with new lockers.

Aquatic Centre Universal and Accessible Change Room

Two family change rooms are currently available for use and are accessed directly from the pool deck. This location presents an operational challenge since lifeguards are required to be on duty until the pool deck can be secured from the public and this can't happen until after the family change rooms are empty. This often constitutes an additional 15 minutes of on duty lifeguard time at the end of pool open times and is strain on the operations. Additionally, pool operators report that water from the shower in the family dressing rooms is leaking under the walls and into the communal dressing rooms behind.

Group2 Recommendation: A reconfiguration of the existing change rooms should be developed that provides better access. Universal (gender neutral) change rooms would be the preferred solution to maximize flexibility. Renovating this area should also rectify water damage issues (not visible but anticipated upon demolition). The inside walls are water damaged and need to be replaced.

Other Capital Items for 2019 *not included in the overall project budget (see capital budget list)*

Replace Curling Rink Slab and Brine Lines \$600,000

The curling slab is original from 1972, making it over 40 years old. The curling rink doesn't appear to have an underfloor heating system. Both the arena slab and the curling slab have reached their life expectancy and complete replacement should be considered. Additionally, the headers in the curling rink are very fragile and are beyond repair, and brine lines are subject to cracks and breaks. Community Facility Enhancement Program (CFEP) funding in the amount of \$300,000 has been obtained by the Curling Club to go towards this project in 2019.

Department note: Brine lines have been leaking on occasion, with potential of losing the curling ice for good as the lines are beyond repair. A significant leak occurred in 2018.

Arena Kickplates \$30,000

The kickplates around the base of the boards are very fragile, and replacement will likely be required. If these break, they would need to be replaced in their entirety.

Arena Planter Replacement \$5,000

The planters alongside the arena serve two benefits: they enhance the entrance way to the Activity Centre, but they also help to prevent water from the roof to enter into the Arena hallway in the spring time and during heavy rains. The planters have rotted out and need replacement.

Log Cabin \$25,000

Planter replacement is required as the planter boxes are rotten, this is a safety concern as children play on and around the planters.

Fitness & Aquatic Centre Roof Beams \$53,000

The new fitness centre roof beams are in need of refinishing, they are also missing the water shield flashing so rain water and snow melt continues to run down the beams and leak into the facility. If not taken care of this will contribute to larger maintenance issues, not unlike what happened at the firehall.

Aquatic Centre Dressing Room Walls Recoated \$25,000

It was noted during an inspection with the health inspector that the epoxy coating on many of the exterior dressing room walls is peeling off. The walls need to be recoated with an epoxy coating (not just painted) as regular paint does not hold up in the high humidity levels.

Wade Pool Resurfacing \$11,000

The wade pool is in need of resurfacing as the existing coating is starting to peel. This coating usually has a life expectancy of 5 years and it has exceeded its recommended life span. This refinishing is also required to meet Health regulations.

Activity Centre Fridge Replacement (commercial kitchen) \$7,500

Computer Upgrades \$4,000

This is a yearly replacement of outdated computers throughout the building, usually one or two are upgraded per year.

Jasper Arena, Activity Centre and Aquatic Centre – 2020

Including permitting, tendering and project management; phase 2 budget – \$6,384,270

Main Electrical Distribution

The main distribution board is a Federal Pioneer main distribution panel type assembly with moulded case circuit breakers and a main fused disconnect switch. The main distribution board is fed from the electrical utility transformer via underground secondary feeder. The main electrical service is 277/480 volt, 1,200 ampere, 3 phase, 4 wire. The main distribution board currently has adequate available space for additional breakers. The facility operators mentioned that they cannot run all three of their compressors in the ice plant out of fear they will trip the main breaker. The system was installed new at building opening in 1976 and has breakers that are not available for parts or servicing any longer. In front of the main board is a distribution transformer which infringes on the CEC required distance of 1m clear working space.

Group2 Recommendation: the board appears to be servicing the needs of the site however it is passed the expected life of the equipment and should be considered for replacement. The transformer proximity to the main board is causing a code violation which should be rectified. The recommendation is to review the overall demand of the building through utility bills to determine future spare capacity of the system.

Sub Distribution Equipment

The sub distribution system comprises of 277/480 volt feeders to sub electrical panels, splitters, and motor control centres located throughout the facility. The major sub distribution exists in electrical rooms on the main floor in the ice rink area and an electrical room next to the gymnastics gym. Some of the distribution in each room is newer while the majority is original construction. The branch circuit 120/208 volt panel boards located throughout the facility range in age from 5 to 7 years old to original construction period. The recently installed panel boards are in good condition with adequate space for future expansion. The branch circuit panel boards installed at or near original construction are nearing the end of their life cycle. Solar photovoltaic panels are mounted at roof level facing south. These panels are not currently integrated into the building electrical system and are not producing usable electricity.

Group2 Recommendation: Complete thermal scan analysis, cleaning and maintenance of all sub distribution components. Replace the original branch circuit panel board and sub distribution boards. Connect solar panels to building electrical system.

Activity Centre Sound System Upgrade

There are three localized sound systems in the facility: one in the hockey rink; one in the multipurpose hall; and one in the fitness studio in the basement. All three sound systems appear to be in good working condition and are achieving the users' needs. The systems do not appear to be tied into the fire alarm system. The existing TOA intercom system appears to be in good working condition.

Group2 Recommendation: Consider tying the sound system into the fire alarm system to shut the speakers off during an alarm.

Facility Heating, Ventilation and Air Conditioning (HVAC)

The facility was built in phases over the past 50 years and due to the varied usage throughout and the phased construction there is not a central HVAC system in place. The bulk of the facility is fed from packaged roof-top gas fired units with some of the areas housed with perimeter hot water heating. In total there are 10 roof top units, most of which have air conditioning. Operating in conjunction with the roof-top units are approximately 60 exhaust fans and a number of unit heaters, cabinet unit heaters, etc. Of note is the squash courts HVAC unit, which is in need of replacement (included as a separate item below).

The basement area HVAC consists of perimeter hot water heating operating in conjunction with a constant volume ventilation unit located within the main basement mechanical room. The boiler plant feeds portions of the entire Activity Centre including the basement area. The boilers in place are atmospheric fired Lochinvar Copper Fin boilers with 1800 MBH input each. The boilers appear to be approximately 15 years old. There are four pumps tied into the hot water heating, two duty and two standby, which feed the building load. The ventilation unit is original from 1972, it is approximately 6500 cfm capacity. The return air from the adjacent studio spaces has been blocked off due to noise issues and there is not a defined path for the return air back to the ventilation unit. The ventilation unit is over 40 years old and has reached the end of its service life.

Group2 recommendation: This item is captured in a variety of recommendations on p. 35-36 of the *Recreation Facility Assessment*. As detailed above, the system is spread across the facility and has multiple components. This includes basement ventilation, arena lobby roof top unit, squash court heat and kitchen make-up air unit.

Upgrade Basement Finishes

Rooms in the basement are used for a variety of functions including additional meeting space, fitness space, storage and dormitory space for visiting youth groups and summer camp programs. Sleeping functions in this area are not conforming and additional safety provisions may be necessary to ensure this activity can continue. As residential occupancies are a C occupancy and the building is an A2 therefore there should be a one-hour fire rating between the spaces used as dormitories. The basement rooms have been renovated and reorganized many times creating a mixture of finishes. There is no barrier free access to the basement. Article 3.7.2.2 of the 2014 Alberta Building Code requires that one plumbing fixture (toilet) be provided for every 10 persons of each sex in a residential occupancy.

Group2 Recommendation: Updating the finishes in the basement rooms could be considered as an efficient way to improve the available meeting space of the facility and upgrade the space used for dormitories. Adequate plumbing fixture counts should be provided for all dormitory beds. Life safety aspects in terms of ratings and travel paths should be investigated further.

Increase Accessibility

Many areas of the building are not accessible by persons with disabilities. There is no elevator to provide access to the basement facilities or to the mezzanine area (curling lounge). The arena also has many areas not accessible by person with disabilities. Barrier free access and barrier free washrooms should also be provided for the basement dorm and conference rooms.

Group2 Recommendation: A review of the facility with current guidelines for access by persons with disabilities should be performed. Additions and renovations will require updated areas to conform to current codes and guidelines. Future events and hosted programs will benefit from complete access to the services of the facility by all user groups.

Department note: We have held conferences in the past where we have had to rearrange room allocations to ensure delegates with disabilities could access the facilities.

Squash Court Heating

The squash courts are fed from a roof-top heat only unit. The unit is original from 1972. The unit has reached its life expectancy and complete replacement is recommended.

Main Entrance Upgrades: Doors, Canopy, Lighting, Sidewalk & Walkway Replacement

The main entry to the facility is on the west side of the building and is set back from the street by over 60m. It is pinched between two wings of the building with an overhang at the entrance that is low and finished with a dark wood material providing very little light into the area in front of the entrance. The ground surface is a recycled rubber tile finish and is difficult to maintain in winter conditions. Several tiles were missing at the time of the Group2 evaluation. The doors are solid and also contribute to the dark and unwelcoming entrance to the building. The distance of the main door to the street, combined with the narrow access route, does not conform with current firefighting access design (ABC 3.2.5.5)

Group2 Recommendation: A careful redesign of the entrance, approach and overhang area should be undertaken to improve the appearance of the entry and address the operational concerns related to snow clearing on the rubber tiles. Sidewalks and turf stone should be removed and replaced with proper surfaces. Draining issues require attention to keep the water from ponding and freezing at the front entrance. Changes must be made to provide a conforming firefighting access route.

Department note: The entrance overhang now leaks on a regular basis in the winter and spring and water damage has been noticed on the inside of the overhang. Water damage has also been noted on the outside of the Arena. This should also be addressed with the upgrades.

Exit Signs

The exit lighting presently is supplied by incandescent and LED illuminated exit signs located above all exit doors and along exit routes. The present coverage appears adequate. A few of the exit lights within the facility are damaged. The exit lighting is fed from the emergency distribution connected to the generator.

Group2 Recommendation: Replace remaining existing exit signs with LED lamp technology and test all exit lighting circuitry. Further review of exit sign locations and routing should be completed by an architectural consultant.

Meeting Room and Office Space

The facility currently hosts many conventions and events that require meeting space. Users and facility staff have reported that they are often lacking meeting rooms for these events. Additional meeting spaces could improve the range of events the facility could host.

Group2 Recommendation: Consideration should be given to the creation of additional meeting space. Proximity to existing facility assets such as the multipurpose room could be a benefit.

Department note: Office space is also required, as we presently have people working out of lunch rooms and home office space.

Storage Room in New Multipurpose Space

Storage is always an issue. Storage of tables and mats is presently located at the end of the multipurpose space, which creates a potential hazard for groups such as gymnastics and rentals. This space should be turned into a storage area to properly contain all the equipment.

Replacement of Arena Slab

The 200' x 85' standard NHL size arena ice slab was replaced in 1996, making it 19 years old. The hockey slab ice thickness varies from 20 mm to 65mm (3/4" to 2 1/2") due to heaving. There have been problems reported with the underfloor heating system on the hockey rink.

Department note: Due to the uneven cement slab, ice making usually takes a minimum of 14 days; with a level arena slab, this should take approximately seven days. The high spots also cause operational challenges in keeping the ice thick enough to avoid bare spots, which can lead to serious injuries.

Replacement of Arena Boards

The existing dasher boards surrounding the hockey playing surface are fixed in place, steel framed boards with related gates and glass. The dasher boards are in good working condition but they are not the impact absorbing type that is consistent with contemporary NHL sized hockey rinks. Contemporary impact absorbing dasher boards help to prevent injuries by flexing to absorb much of the impact and therefore reduce injury. While there is no building code or other requirement to install this type of dasher board we were told onsite that some user groups of the Jasper Activity Centre (notably the Edmonton Oilers) have expressed a preference for facilities with the flexible boards. Flexible impact absorbing dasher boards are financially important for professional athletes and their teams as injuries that result in downtime have a significant impact on their professional careers.

Group2 Recommendation: Reduce the finished size of the playing surface and replace the existing dasher boards with an impact absorbing type.

Installation of upgraded dasher boards will not be possible without reducing the overall rink size. The cast in place concrete of the arena seating effectively restricts the area available for a flexible dasher board system and reconfiguring the arena seating to create the space required would entail complete demolition of the cast in place concrete seating which is not considered viable at this time. A more likely scenario is to reduce the width of the playing surface from +/-85' to +/-84'. This would provide the room needed for the upgraded dashers and we suspect that this compromise would be welcomed by the rink users.

Department note: The boards are no longer in good condition. Constant abuse with hockey, the rodeo and moisture have caused the deterioration of the wood inside the boards. This is a safety concern and the boards are in need of replacement.

Arena Showers Retiled and Plumbing Repaired

The arena shower tiles are showing signs of aging. Cracking tiles and plumbing fixtures that were installed back in the 1960's are in need of upgrades.

Aquatic Centre Chemical Feed System – Upgrade to cL2 System

Overall the aquatic pool hydraulics are in moderate to good working order. The facility is maintaining good water quality with no visible or reported problems. There are two recommendations to improve the current operations:

1. Change the gas chlorine to a sodium hypochlorite (liquid chlorine) system. There are inherent dangers associated with using gas chlorine for pools. The dangers of using gas include delivery problems, improper connections of tanks, and failure of equipment or PVC tubing. All of these could lead to a significant injury or death. The most common option for a new chlorination system is a liquid chlorine (sodium hypochlorite) system. A large bulk storage tank with secondary containment would be placed in the existing gas chlorine room. A chemical pump would be added for each of the pools that would be controlled directly by the chemical controllers. The issue that needs to be handled is how to get the chemicals delivered. The preferred method of delivery is to have the chemical supplier deliver in bulk or to have them transfer the liquid chlorine from 50 gallon drums to the bulk storage tank. This prevents the Aquatic Centre from handling the chemicals. This system requires minimal maintenance to operate and is much safer.
2. Another recommendation to consider is the medium pressure UV systems for the pools. These systems have been found to greatly improve the pool water quality and natatorium air quality. A UV system destroys pool chloramines, which are the major cause of poor air quality and a corrosive environment. UV also destroys other harmful contaminants that chlorine cannot

destroy. It is important that these be put on all the pools in the natatorium to ensure proper air and water quality.

LED Lighting

Replace any lighting around Fitness and Aquatic Centre, Activity Centre and Arena with LED dark sky friendly fixtures or LED fixtures.

Sound System

The existing sound systems in the pool area are not operational. Maintenance staff mentioned it has not worked since the renovation and that a wire was likely cut. The intercom communication from the pool to the front desk is also not operational.

Group2 Recommendation: Review existing sound system wiring, find the source of the issue and commission the system.

Department note: There is no way for the front desk to communicate to the public in the pool area presently, which is a health and safety concern in the event of an emergency.

Computer upgrades \$4,000

This is a yearly replacement of outdated computers throughout the building usually one or two are upgraded per year.

Weight Room Benches \$12,000

Replacement of weight room benches throughout the Fitness Centre. These are in need of replacement due to age and wear and tear.