



STAFF REPORT

REPORT #:	LS2010-02
DATE:	February 20, 2010
SUBMITTED TO:	Mayor and Council
SUBMITTED BY:	Peter Dunbar, Director Leisure Services
SUBJECT:	Central Park Arena – Enclosure Options

1. RECOMMENDATION:

THAT Council receive the following supplementary information relating to the construction of a roof over the Central Park Outdoor Rink;

AND FURTHER THAT Council direct staff to allocate an upset limit of \$100,000 from general reserve to undertake the appropriate site plan review including the drainage plan/stormwater management review, snow load & impact review, parking availability, heritage assessment and review of the potential impact on the YMCA expansion and current lease agreement.

**The Site Plan Review and Studies are required regardless of whether the outdoor rink expenditure is included in 2010 or 2011.*

2. SUMMARY AND BACKGROUND:

Following Council's direction on Monday February 1, 2010, Leisure Services staff undertook further investigation on the three options discussed for covering the Central Park outdoor ice surface. The options under consideration were an air-supported structure, a fabric cover system and a pre-engineered steel structure. The preliminary research and cost estimates are attached as Appendix C.

The objective of covering the outdoor ice surface at Central Park is to provide a more reliable ice surface that may be used routinely by local sporting associations. In addition to increasing the rental bookings of the facility on a daily basis, the season would be extended earlier in the fall and later in the spring if the ice surface were protected from the elements.

It should be noted that some members of the community are opposed to a change as they enjoy the nostalgia and atmosphere provided by an open outdoor rink, as well as the opportunities for

children and families who are not registered in organized sports including reduced/no charge user fees. The outdoor rink is regularly rented to families for birthday parties, gatherings, and social outings. The rental costs are half the rate of arena, with increased availability.

Air-Supported Structure (Bubble)

DESCRIPTION

- Air-supported structures are building enclosures which can be designed to meet unique requirements. Air supported structures have been used successfully to cover many recreational facilities including tennis courts, basketball courts, swimming pools, golf driving ranges, soccer fields and multi-purpose sports arenas. These structures are supported solely by a slight change in air pressure within the fabric membrane using inflation fans.¹
- The size of an air-supported structure to cover the Central Park outdoor ice surface is estimated to be 67m long, 36m wide, and 11m high at centre ice. The resulting enclosure would be approximately 2 412 m².

An air-supported structure is regulated under section 3.14.2 of the OBC

- Under OBC 3.14.2 air-supported structures are exempt from complying with Articles 3.2.2.20 to 3.2.2.83 (prescriptive regulation), except for maximum building size. Under this section the structure is restricted to a maximum size of 1,000m² facing one street.
- OBC 3.14.2.3 (Spatial Separation) air-supported structures shall not be erected closer than 3m to other structures on the same property or the property line.
- Permitted but limited in size

Fabric Cover System

DESCRIPTION

- Fabric covered structures are steel-framed engineered fabric buildings. They are designed to meet specific climate and size requirements. Examples of common uses include a riding arena, an equipment storage building, a dairy barn, a building for salt and sand storage, or a small event center.
- This type of enclosure is made out of canvas material and would be rated for the snow load in our area. Options are available to either entirely enclose or partially enclosed on any side. The estimated size of a fabric cover system for the Central Park outdoor ice surface would be 67m long by 33m wide creating an enclosed area of approximately 2,250m²
- A fabric cover system is restricted by the following:
 - Under OBC 3.2.2.33 a building is permitted to be of combustible construction provided the building is *sprinklered*, is not more than one storey in building height and has a building area not more than 7,200m².

¹ The Farley Group, <http://www.thefarleygroup.com/>

Pre-engineered Steel Roof

DESCRIPTION

- Pre-engineered steel buildings feature a structural steel framework of primary and secondary members (rigid frame, beams, purlins and girts, trusses, and columns) on to which cladding and roofing components are attached.
- The complete building system is pre-engineered to facilitate easy production and assembly on site. They can be applied to a variety of applications. Examples include aircraft hangar, auditorium, and community hall.
- The steel-roof would be designed to withstand our weather requirements, provide stable ice surface and is consistent with phase two of the original plans to develop Central Park outdoor ice surface into a fully enclosed facility.
- The estimated size of a pre-engineered steel roof structure to cover the Central Park outdoor ice surface would be 33.5m wide x 64m long = 2,144 m²
Aerial photo with site layout see Appendix A.
- This type of structure would be permitted under the OBC and may be combustible or non combustible depending on construction.

PROJECT REVIEW

A meeting was held on Wednesday February 17th, 2010 to further discuss this project. Those in attendance were:

Kim Wingrove	CAO
Peter Dunbar	Director Leisure Services
Ed Houghton	Executive Director Engineering and Public Works
Nancy Farrer	Acting Director Planning Services
Trent Elyea	Fire Chief
Brian MacDonald	Manager Engineering Services
Ron Martin	Deputy Chief Building Official
Dave McNalty	Manager Fleet Facilities and Purchasing
Dennis Seymour	Arena Supervisor
Mandy Keast	Administrative Assistant Leisure Services

The objective of covering the outdoor ice surface is to provide an interim measure for increasing the usability for various groups. The municipality remains committed to providing a permanent indoor ice facility in the future. It is not yet clear that the Central Park location is the favoured location for a permanent facility. If Central Park is favoured, no major cost savings would be realized if an interim roof structure was installed on the current rink. The longer term build out plan for Central Park along with the Town's other facilities and amenities will define the eventual location for the permanent facility.

During the review, a number of concerns with the construction of a roof were identified. These concerns included drainage/stormwater management, parking, re-development of existing amenities (such as the lawn bowling greens/shed), heritage aesthetics, snow load and impact of snow on adjacent buildings, site plan requirements, feasibility of a roof as an "interim" solution

(with respect to the long range LS facilities masterplan), and any impacts on the YMCA expansion and current lease agreement.

It was agreed that the only option that does not meet building code regulations, size and safety considerations is the construction of a bubble. In addition to the Building Code and Fire Code, restrictions on air supported and fabric systems provide the potential for vandalism and significant ongoing maintenance costs.

If Council directed proceeding with the construction of the roof, staff will solicit appropriate engineering resources to further define the remaining requirements as outlined above.

The following cost estimate is for the recommended steel roof structure over the outdoor ice surface including the additional items as noted:

CAPITAL ESTIMATE – BUILDING ONLY

- Pre-Engineered Steel Building \$610,000 (GST Extra)
Barill Engineering Ltd. has provided a cost estimate for the supply and erection of a pre-engineered steel building / roof enclosure over existing outdoor rink. Cost breakdown provided in Appendix B.

Additional Costs:

- Pre-Finished metal siding at north and west end \$10,000
Metal siding along portion of north and west end would provide wind break. We propose less area then cost estimate provided by Dan Barill.
- Arena mesh fencing off boards \$16,000
Installing glass along boards would provide an additional wind break for players, however, the boards with glass may not be structurally capable of withstanding the winds. Continuing the mesh arena fencing that is currently located on the south and north ends is recommended. The open mesh would also ensure sufficient airflow to remove humidity from the ice surface.
- Players boxes \$5,000
- Flooring for players boxes \$1,000
- Heat trace \$10,000
In order to prevent icicles from forming along west & east eaves and creating a safety hazard, heat tracing will be required.
- Re locate Lighting \$5,000
The current light poles for outdoor rink surface will be require removal
- Exterior Lighting \$10,000
Exterior lighting for change rooms, viewing area and ice resurfacers area
- Allowance for Bird/Pest Deterrence \$50,000

In order to prevent nesting of birds and potentially other small animals under the roof, an engineered solution would be required that would not interfere with the lighting, sprinklers or combustibility of the structure.

• Sub Total	\$717,000
• Contingency at 15%	\$107,550
• TOTAL CAPITAL COST IDENTIFIED	\$824,550

As noted, in order for this project to move forward, staff will require time and budget resources to investigate further and retain detailed engineering and site design for an accurate cost analysis. Items we have not allowed for include parking, site drainage and any consequential changes to the surrounding Central Park area. This project would be subject to site development process.

OPERATIONAL EXPENSE

It is anticipated that a roof over the outdoor rink will make the ice surface reliable so that rentals will increase on a daily basis. Additionally, the season might optimistically be extended by three weeks at either end. Protection of the ice surface from the elements should extend the season for the outdoor rink from approximately 12 to 18 weeks.

- Staffing

The season and hours of operation for the outdoor ice surface would be extended. Assuming the length of the season increased by approximately 6 weeks and part-time staff hours increase from 35hrs/week to 40hrs/week, the additional labour cost would be approximately \$20,500.

- Electricity and Water

The Curling Club and the Outdoor Ice Surface utilize the same ice making equipment. Therefore, the electricity and water used to maintain the ice in each facility is proportioned based on documented trends and operational knowledge.

The roof over the outdoor ice surface will reduce energy consumption during warm, rainy or sunny weather. Increased rentals would increase energy costs due to additional flooding, and the extended season would increase energy costs proportionally. A conservative estimate of the net change in energy costs would be an increase of less than \$5,000. During the entire season for the outdoor ice surface, the ice making equipment is already operational for the curling club which minimizes the net impact.

It would also be expected that there may be additional electricity costs for lighting over the ice surface, but there are existing sports lights over the area that are used each evening now, so the difference would be minimal. The heat tracing along the eaves would also increase electricity use marginally.

- Revenue

Over the current 12 week season, the outdoor ice surface is rented approximately 20 hours per week at a rate of \$86 per hour. It is anticipated that the weekly rentals would increase by approximately 20 hours per week if the ice were reliable. This would still allow for scheduled

free programming for the community. Revenues could increase from approximately \$20,000 over the 12 week season to approximately \$60,000 over the optimistic 18 week season. This does not take into account the potential for increasing the hourly rental rate due to improved ice conditions.

3. SUSTAINABILITY CONSIDERATIONS:

Sustainability Check List:

1. Is this item currently identified in the SCP or Strategic Plan? Yes No
2. Does it fulfill the sustainability mission/vision of the Town of Collingwood? Yes No
3. Is regulatory compliance mandatory? Yes No If yes, proceed to #1 next section.
4. Negative impacts on any of the four (4) sustainability pillars (economic, social, environmental, cultural)?

Social Yes No Explain: A permanent roof structure over the outdoor ice surface will improve the reliability of the ice for rentals by sporting associations as well as private groups. Scheduled programming of public skating, shinny and other public events will continue in order to encourage community use and active living. Further development of the facility will encourage the growth of year round activities.

Cultural Yes No Explain: Covering the outdoor facility creates a four season venue for cultural and sporting events and an additional community space. Creation of an additional venue would enhance the Town's competitiveness as a destination for cultural activities.

Environmental Yes No Explain: A roof over the outdoor ice surface will reduce energy required to maintain the ice quality in all weather conditions. Ice maintenance activities for snow removal will be reduced which will reduce fuel consumption. There will be increased energy costs for lighting.

Economic Yes No Explain: Marginal increases in energy and staffing costs will be offset by increased revenues from ice rentals. Additionally, year round rentals of the covered facility for social, sporting and cultural events will increase revenues over time. The community benefits economically through the attraction of tourists, residents and business to an area that features unique and practical amenities.

5. Is funding available from external source(s)? Or is funding committed from internal source(s)? Yes No If yes, proceed to next section # 1.
6. Does it advance other initiatives? Yes No

Total Score:

1. Regulatory compliance is mandatory or funding is available (If so, action will automatically receive 6 points): 0
2. Positive impacts on sustainability pillars (up to 4 points): 4

3. Action advances other initiatives (1 point): 0

Total Score: 4

4. CONCLUSIONS:

For actions that score 4 points, or higher it is recommended that they proceed.

- Action to proceed
- Action not to proceed at this time

5. DISCUSSION:

As previously identified, staff investigated a fabric covered system, an air-supported system, and the original concept of a steel roof similar to the Feversham or Creemore arena structures.

It is important to note the Heritage Committee has retained Su Murdoch Consulting to research and prepare a “statement of cultural heritage value” for the existing Curling Club building. It is anticipated that based on the report the Heritage Committee will recommend to Council that the building be considered for designation under the Ontario Heritage Act. If approved and designated any permanent additions or structures adjacent to the existing building must complement and enhance the qualities of the designated building under the Ontario Government Policy 2.63. A steel roof structure using an appropriate colour scheme may satisfy the heritage aspect.

A roof would provide additional special event opportunities, extend the ice season, provide more stable ice conditions and increase programming options. These benefits must be balanced against the cost of the necessary work at the site, on-going operating costs, and reduced opportunities for non-organized skating in an outdoor atmosphere.

6. DEPARTMENT HEAD REVIEW:

Department Heads identified a number of issues related to the construction of a roof over the existing ice surface and potential higher utilization of the site. These issues include:

- Drainage capacity and storm water management.
- Limited parking at the site. A parking study will be required.
- Snow load from an ice surface roof will impact on the roof of the lawn bowling club house.

Further investigation of these issues and identification of potential remediation costs is recommended prior to making a decision on whether to proceed.

7. EFFECT ON TOWN FINANCES:

- Building costs are estimated to be \$1M. The cost of necessary studies and resulting site works are unknown at this time. Staff are recommending allocating \$100,000 from general reserve to undertake the site plan review.

8. DISPOSITION:

- Leisure Services would take the lead on further development of this initiative, should it be approved.

9. APPENDICES:

- None
- Attached

Appendix A	Aerial Diagram and Photos
Appendix B	Cost Estimate Barill Engineering Ltd.
Appendix C	Preliminary research and cost estimates

SIGNATURE

Peter Dunbar
Director, Leisure Services
Town of Collingwood



NO.	REVISION	APPR'D	DATE	TOWN OF COLLINGWOOD	APPR'D:	DATE: 2010
					DRAWN:	SCALE: 1:500
				ENGINEERING AND PUBLIC WORKS	Outdoor Rink - 200 Hume Street	

Central Park Outdoor Rink





50 TRAILS END
COLLINGWOOD, ONTARIO, L9Y 5B2

Telephone: (705) 445-4905
Facsimile: (705) 445-6107

February 15, 2010

File No. 09-025

Town of Collingwood
97 Hurontario Street
P.O. Box 157
Collingwood, Ontario
L9Y 5B2

Attention: Mr. Peter Dunbar – Director of Leisure Services

**Re: Central Park Outdoor Skating Rink – Proposed Building / Roof Enclosure
Revised Construction Cost Estimate**

Further to our meeting on Friday, February 112, 2010 and in response to your request, the revised construction cost estimate for the supply and erection of a pre-engineered steel building / roof enclosure over the existing outdoor skating rink is as follows:

Work to be Included:

- pre-engineered steel building (rigid-frame) – 115 ft wide x 215 ft long (24,750 ft²);
- “screw-down” type roof system (no insulation);
- eavestrough and downspouts along east and west sides;
- rink lighting (32 – 400 watt metal halide fixtures);
- column piers / column footing pads for support of pre-engineered steel building;
- site servicing allowance (hydro service, water service for sprinkler system)

NOT Included:

- no pre-finished metal siding on any exterior walls (complete “open air” concept);
- no perimeter foundation walls;
- no interior perimeter slab-on-grade around rink surface;
- no Ice Resurfacers Machine Room (North Side)
- no Washroom Facilities

Breakdown of Cost:

• Building Foundations (includes Excavation & Backfill)	\$45,000
• Supply & Erection of Pre-Engineered Steel Building	\$400,000
• Rink Lighting (32 – 400 Watt Metal Halide Fixtures)	\$50,000
• Sprinkler System	\$60,000
• Site Servicing Allowance (Hydro Service, Water)	\$20,000
• Project Management Fees (3.5%)	\$20,000
• Engineering Fees (2.5%)	\$15,000

Total Estimated Cost	\$610,000 (GST Extra)

Separate Prices (Not Included in above breakdown):

- | | |
|--|----------|
| 1. Standing Seam Roof c/w R20 Roof Insulation | \$49,500 |
| • 24,725 sq. ft @ \$2.00 / sq. ft | |
| 2. Pre-finished Metal Siding @ North End, Portion of West Side | \$19,000 |
| • 5500 sq. ft. @ \$3.00 / sq. ft | |

As discussed during our meeting, the above construction cost figures are based on going with the Project Management Approach.

I trust the above is the information that you require. Should you have any questions regarding the above, please do not hesitate to contact the undersigned.

Yours Truly

DAN BARILL ENGINEERING LIMITED

Dan A. Barill, P.Eng.
President, Senior Structural Engineer

c.c Dave McNalty – Manager - Fleet, Facilities & Purchasing
 Mandy Keast – Administrative Assistant, Department of Leisure Services

1. Air-Supported Structure (Bubble)

DESCRIPTION

- Air-supported structures are building structures which can be designed to meet unique requirements. Air supported structures have been used successfully to cover many recreational facilities including tennis courts, basketball courts, swimming pools, golf driving ranges, soccer fields and multi-purpose sports arenas. These structures are supported solely by a slight change in air pressure within the fabric membrane using inflation fans.¹
- The size of an air-supported structure for Central Park outdoor surface is estimated to be 220' long, 118' wide, and 36' high at centre ice. The resulting enclosure would be approximately 26,000 square feet (2,400 m²).
- Unable to find a current example of an ice rink using the air-supported structure within Canada. The Waterloo Memorial Arena operated with a bubble from 1987 – 2001.

CAPITAL COST ESTIMATE

- Purchase Price \$20,000.00 down payment & installation
- Lease Option \$60,000.00 per annum 10 year lease
\$69,000.00 per annum 5 year lease
Buy out option available for 15, 20, 25 year terms

Additional Costs

- Lights
- Furnace
- Auxiliary power
- Interior fixtures e.g. reinforced boards, glass, benches, stands, enclosed area for dressing rooms, washrooms, etc.

OPERATIONAL IMPLICATIONS

- Hydro and Gas

Dome at Blue Mountain cost \$80,000.00 a year for gas and hydro. This dome is being used for tennis and needs to be kept warm in the winter. Operating costs for an arena, and a structure that is much newer, are presumed to be less. When lights are used for 2hrs/day in summer season, it costs Blue \$3,000.00 a month.

- Additional expense to lower or raise air structure

Over the past 20 years, Blue Mountain has had the unit fall at least a dozen times due to snow load. When air structure collapses, it increases the risk for damage to the structure.

¹ The Farley Group, <http://www.thefarleygroup.com/>

2. Cover-All System

DESCRIPTION

- Cover-all structures are steel-framed engineered fabric buildings. They are designed to meet specific climate and size requirements. Examples of common uses include a riding arena, an equipment storage building, a dairy barn, a building for salt and sand storage, or a small event center.
- This type of enclosure is made out of canvas material and may be rated for the snow load in our area. Options are available to either entirely enclose or partially enclosed on any side. The estimated size of a fabric cover system for the Central Park outdoor ice surface would be 220' long by 110' wide creating an enclosed area of approximately 24,200 square feet (2 250m²).

CAPITAL COST ESTIMATE

- Estimate for 110' x 220' Cover-All Titan² \$599,313.00

Additional Costs

- Lights
- Interior fixtures e.g. reinforced boards, glass, benches, etc.

OPERATIONAL IMPLICATIONS

- Hydro and Gas

Lighting costs. Not heated.

3. Pre-engineered Steel Roof

DESCRIPTION

- Pre-engineered buildings are compatible to modern demands and may be applied to a variety of applications. Examples include aircraft hangar, auditorium, and community hall.
- The steel-roof is designed to withstand our weather requirements, provide stable ice surface and is phase two of the original plans to develop Central Park Arena into a fully enclosed facility. Future phase includes dressing rooms, referee room, mezzanine

² Cover-All Building Systems of Ontario, quotation dated February 3, 2010 see appendix D

viewing, main entrance and attachment to existing canteen and public washroom building.

- Pre-engineered steel building – 110ft wide x 210 ft long = 23,100 sq. ft

CAPITAL COST ESTIMATE

- \$925,000 for cost breakdown see appendix D

Additional Expenses

- Lights
- Interior fixtures e.g. reinforced boards, glass, benches, etc.

OPERATIONAL IMPLICATIONS

- Hydro and Gas

Lighting costs. Not heated.