



Mitchell Park Sport and Community Centre Redevelopment

Originating Officer	Registered Architect, Strategic Projects - Birgit Stroeher
Corporate Manager	Manager City Activation - Greg Salmon
General Manager	General Manager City Development - Ilia Houridis
Report Reference	GC200623F01

Confidential



Confidential Motion

That pursuant to Section 90(2) 3(b) (i) and (ii) of the Local Government Act 1999, the Council orders that all persons present, with the exception of the following persons: Adrian Skull, Ilia Houridis, Tony Lines, Sorana Dinmore, Kate McKenzie, Greg Salmon, Birgit Stroeher, Craig Clarke and Victoria Moritz, be excluded from the meeting as the Council receives and considers information relating to the report Mitchell Park Sports & Community Club Redevelopment, upon the basis that the Council is satisfied that the requirement for the meeting to be conducted in a place open to the public has been outweighed by the need to keep consideration of the matter confidential relating to matters pertaining to commercial operations of a confidential nature, the disclosure of which could reasonably be expected to prejudice the commercial position of the person who supplied the information and could reasonably be expected to confer a commercial advantage on a person with whom the council is conducting, or proposing to conduct, business, or prejudice the commercial position of the council.

REPORT OBJECTIVE

The purpose of this report is to present air conditioning and solar power options for the indoor courts and an update regarding the current project costs.

EXECUTIVE SUMMARY

The new Mitchell Park Sports and Community centre will cater for the needs of a range of outdoor sporting and community groups, provide a new community neighbourhood centre, indoor and outdoor dog training facilities as well as two indoor courts that will accommodate a range of activities. The project is in the detailed design stage and has been submitted for planning approval.

The design development phase of the project has presented several options regarding air conditioning to the multi-purpose courts that need to be decided now to progress the design. The project team seek Council endorsement of the preferred option due to the large capital cost differences and ongoing operational cost considerations of each option, and in light of the current budget pressures on the project.

Council endorsement is sought for additional budget of \$430,000 for the Climate Wizard option to air condition the indoor courts, due to the Environmentally Sustainable Design (ESD) and running cost benefits. In addition allocation from the renewable energy fund to increase the capacity of the solar panel system is also being sought.

The project team will continue to work on strategies to minimise cost pressures prior to going out to tender and through the tender and procurement process.



The project will next come to Council prior to going to tender, which is expected in September/October 2020.

RECOMMENDATION

That Council:

- 1. Endorses the Climate Wizard air conditioning option to the indoor courts at an additional budget of \$430,000.**
- 2. Endorses the allocation of \$80,000 from the renewable energy fund to increase the solar panel system from a 30kW to a 80kW capacity.**
- 3. Notes the current project budget status and the strategies to minimise current cost estimate pressures.**
- 4. Notes that the project team will come back to Council in September/October 2020 with the pre-tender estimate, prior to release to market.**
- 5. In accordance with Section 90(2) 3(b) (i) and (ii) of the Local Government Act 1999, orders that this report, the attachments and minutes arising from this report, having been considered in confidence under Section 90(2) 3(b) (i) and (ii) of the Act, except when required to effect or comply with Council's resolution(s) regarding this matter, be kept confidential and not available for public inspection for a period of 12 months from the date of this meeting. This confidentiality order will be reviewed at the General Council Meeting in December 2020.**

DISCUSSION

Natural Ventilation and Fans

The current scheme and costing are based on a naturally ventilated and fan assisted indoor court area. With natural ventilation alone the space temperature is going to be comparable to outside temperatures and it will heat up, especially after consecutive days of very hot weather. The addition of fans will mean that occupants will 'feel' like the space is a lower temperature although it technically won't be. The fans provide around 6-7 degrees of perceived cooling in a 36 degree space based on manufacturers data. This is due to the air movement and heat convection from occupants. This suggests that with natural ventilation and fans occupants would feel like it is 29 degrees when it is 36 degrees in the space and 34 degrees at 40 degrees in the space.

Naturally ventilated courts would have the lowest ongoing costs and smallest carbon footprint which can achieve a perceivable 6-7 degree cooling effect however this will diminish over extended hot periods.

Council's draft ESD check-list states to look into the widening temperature set points in order to help reduce the size of air conditioning units, however this impacts on the thermal comfort of occupants and also reduces the number of days that the courts can be hired in the summer months directly impacting the financial and community outcomes of the facility.

The design team have investigated the available artificial cooling options and the details are presented below for Council's consideration.

Indirect evaporative cooling - Climate Wizard technology

Climate Wizard by Seeley International is produced in South Australia at their Lonsdale plant. Climate Wizard is a hyper-efficient cooling technology installed for a wide range of commercial and industrial applications.



Some examples are:

- Werribee Sports Complex - Victoria
- Bendigo Stadium expansion - Victoria
- Roxby Downs Council offices, gym and leisure centre - South Australia
- Several wineries in the Barossa Valley and McLaren Vale
- Several schools and universities in South Australia and Canberra.

Indirect evaporative coolers (Climate Wizards) are a reasonable trade-off between both traditional evaporative coolers and reverse cycle. Reverse cycle air conditioning systems are cost prohibitive and have larger running costs.

This system generates 100% fresh, cool outside air, at temperatures comparable to refrigerated systems, with up to 80% lower energy costs based on reverse cycle systems. The cold air produced by the Climate Wizard technology can be similar to that produced by refrigerate systems with little added moisture to the air.

The benefit of these units are the lowest running cost of air conditioning options and eliminates humidity issues affecting building and court surfaces, that are associated with traditional evaporative cooling.

Comparison of Systems

	Traditional evaporative cooling	Climate Wizard cooling
Roof mounted units	10	3
Dimensions	(each 2200x2200x2400mm high)	(each 2500x4500x3500mm high)
Capital cost	\$285,000	\$430,000
Electrical usage per annum (kWh)	221,000	57,350
Electrical cost per annum:	\$86,500	\$22,500
Water usage per annum (kL)	667	331
Water cost per annum:	\$2,275	\$1060

Cost difference

Climate Wizard versus the traditional evaporative system is expected to be \$145,000 more expensive to install but results in a running cost saving \$65,200 per year giving a payback period of 2.2 years.

ESD outcomes

The Climate Wizard technology results in significant reductions in the use of water and electricity over the traditional evaporative system.

There is an estimated CO2 reduction of using the Climate Wizard system of the traditional evaporative system, which is in the order of 55,641kg per year.

Administration consider that the Climate Wizard is the preferred option. The Climate Wizard does have a higher capital cost, however the efficiency of the system results in a payback period of less than 2 years, no humidity issues and a much greater benefit from an ESD standpoint.

Solar panel systems to support the air conditioning model

Council's current draft ESD check-list has a target of 20%. The project budget was based on a naturally ventilated indoor court area currently allows for a 30kW system that supports approx. 25% of the buildings usage capacity.



Council's renewable energy fund currently has \$40,000 in the 2019/20 financial year budget and an additional \$40,000 sitting in the 2020/21 financial year budget with no projects identified at this time. This funding could allow an 80kW solar panel system at Mitchell Park and be delivered as part of the redevelopment works.

A comparison of the two systems is provided below:

	30kW system	80kW
	Naturally Ventilated	Climate Wizard System
Coverage of building usage	25%	60%
Budget cost	\$60,000	\$140,000
Energy production per year	30kW x 1460hrs = 43,800kWhrs	80kW x 1460hrs = 116,800kWhrs
Yearly savings	\$17,000	\$45,500
Estimated CO2 reduction kg/ear	14,892	39,700
Payback period	3.5 years	3 years

Note: both systems are battery ready with a roof mounted option identified as the preferred solution if required.

Increasing as close as possible to 100% building usage, is expected to provide the greatest benefit both from a reduction in CO2 and ongoing costs for the site and achieve Council's draft ESD Guidelines.

Project budget and costs update

At the 20th March 2020 General Council meeting the reported cost estimates indicate a cost pressure of \$1,498,000. The project team has been developing the design over the last 3 months and the current project overrun is \$790,000 which equates to 5% of total project budget.

The approved budget includes:

\$15,000,000 - Initial Funding (including \$5m from the Commonwealth Government)

\$490,000 - Additional Endorsed Scope to Facility

\$250,000 - External Tennis Courts (through Open Space Plan)

\$15,740,000 - Total Project Budget:

Factors contributing to the remaining overrun include design contingency and market risk allowances due to the pandemic.

The design team is seeking to recover the design contingency as they progress the design.

Information on the impact to tender prices in the market in light of the pandemic will become clearer over the coming months and therefore inform the market risk required.

The \$790,000 is anticipated at being the worst case scenario where all contingencies and allowances are required. The project team will continue over the coming period to close out risks and reduce the current overrun where possible without impacting on the functionality and long-term useful life of the facility.

The project team will come back to Council in September/October 2020 to report on the pre-tender estimate, prior to going to market for construction tender prices.