PRESENTATION TO:

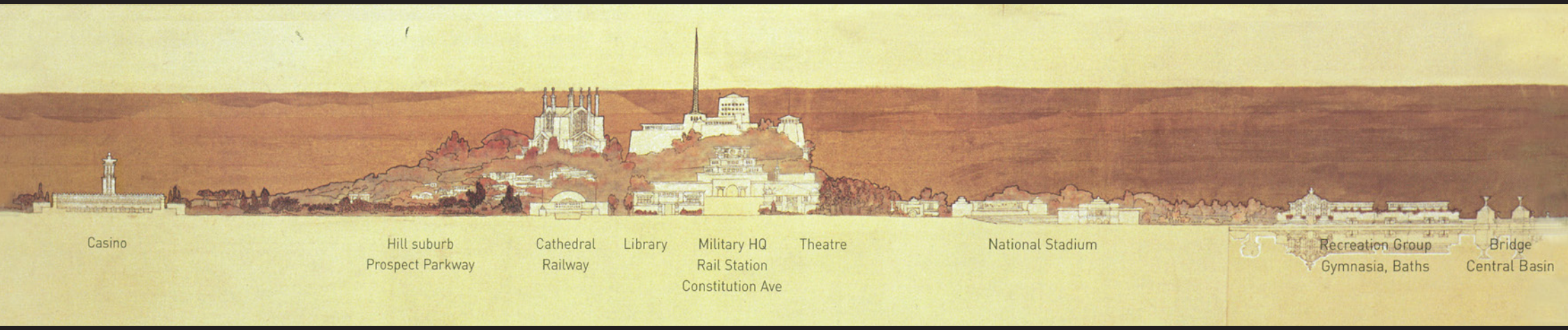
Andrew Barr MLA
Chief Minister and Treasurer
ACT Legislative Assembly
Canberra

PRESENTATION TO:

The Hon Anthony Albanese MP
Prime Minister
Parliament House
Canberra

Realising the National Capital Plan

Creating Intergenerational Infrastructure for the National Capital Region



PRESENTATION TO:

CC

Australian Capital Territory Senators and Members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Katy Gallagher

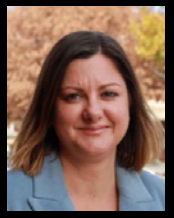

Senator
David Pocock


The Hon Dr
Andrew Leigh MP


Ms Alicia Payne MP


Mr David Smith MP

Member for Eden-Monaro


The Hon
Kristy McBain MP

ACT Legislative Assembly Members


Yvette Berry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Leanne Castley


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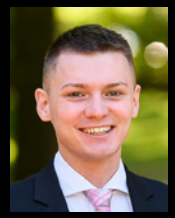
Johnathan Davis


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Jeremy Hanson


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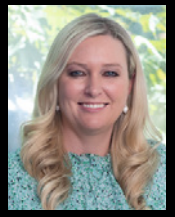
Marisa Paterson


Michael Pettersson


Shane Rattenbury


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Rachel Stephen-Smith


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Cover image: Marion Mahony Griffin, Section of Land Axis (1912 Competition Plan) *The Griffin Legacy*, National Capital Authority.

Executive Summary

This presentation seeks to garner the support of the Commonwealth and ACT Governments to deliver a replacement of aged Infrastructure, no longer fit for purpose nor operable in their current state at acceptable standards.

This Statement is obvious by simple observation and generally accepted within the community and amongst actual and potential users and indeed, as acknowledged by Agencies at both levels of Government.

The following information and suggestions have the broad support of the individuals and organisations whose logos and acknowledgments appear at the end of the document.

That little or no maintenance has been performed on the AIS Arena and Outdoor Stadium is acknowledged, however unpalatable, and for over two decades those facilities have declined to a point where, aside from the Arena being indefinitely closed, the Stadium is beyond a salvageable state.

Applying any funds to them at this point is to delay the inevitable requirement for their modernisation through replacement in a more appropriate, location.

There has been a Decade-long acknowledgment that there must be a replacement for the National Convention Centre and this proposal seeks to join the achievement of this goal within a vibrant precinct in the City East incorporating an Inverted Bowl Stadium and replacement Swimming Pool.

The Funding methodology suggested within this submission requires a Government-to-Government Agreement and in essence bypasses the impasse invariably arrived at where Individual Agencies seek to pursue their own, much narrower, agendas in such discussions.

The return of national land, unused for the purpose for which it was retained when Self Government was introduced, provides the opportunity to achieve the renewal proposed without calling on revenue streams already stretched in the Territory due to the narrow taxation base available to it and allows contemplation of a PPP methodology being adopted to further mitigate such direct revenue challenges.

This Submission acknowledges the circumstances whereby Commonwealth Agencies (or Authorities) have and are seeking to utilise this unused land for their own ongoing revenue requirements and with, some, subsequently issuing substantial “dividends” to the Commonwealth through such development instead of such revenue being available to the Territory.

This Submission seeks a Government-to-Government Agreement identifying, as a start, the land currently unused at the Bruce AIS Complex but also including the AIS Arena and Stadium, to be returned to the Territory at no cost to it and that land be available to a PPP as a partial offset to costs of delivering a New Stadium.

Additionally, as a New Convention Centre is proposed, the current Convention Centre land along with Territory Land immediately behind would also be available to the PPP Partnership for development once the existing one has been relocated.

This will allow for a **City East Entertainment Precinct** to be developed as a cohesive **Master Plan** ensuring sustainability, interoperability and integrated infrastructure development over time.

The Costs in the following pages are based on the cost of construction plus considerable contingencies to allow for other objectives to be achieved as part of the development of such a Precinct and would, irrespective of the location, be an order of Costs required to be funded to achieve comparable outcomes.

A New Convention Centre

The Business Events industry has long sought a replacement for the existing core facility and for over a decade proposed various options from a rework of the facilities on the existing site to a Nationally Leading Facility, within the City Precinct.

The Economic rationale is compelling given the opportunity for regional, national and international visitation from an appropriately sized and resourced facility. Beyond economic benefits a new centre allows a legacy platform for Canberra to become a truly global city e.g. COP31 could have been COP Canberra.

The essential inputs have been detailed in various submissions to Government/s but essentially include:

Convention centre must-haves:

- A new centre in Canberra co-located with shared amenity and shared amenity and services must retain a separate identity.
- Be able to host multiple conferences at the same time.
- Solve the issue of lack of dining spaces issue in Canberra.
- Be marketable to an international audience as a global convention centre.
- Seamless security for all, including Heads of State.
- A platform to share our brightest minds and innovation to the world and grow our knowledge economy.
- Be the national centre with adequate:
  - Exhibition space
  - Plenary room
  - Break-out spaces of varying sizes and flexibility
  - Gala dinner space (and also networking options like courtyards, foyers and rooftops)

The ideal size for Canberra is:

- Exhibition space 8,000–10,000 sqm (and divisible).
- Plenary meeting space 2,500–3,000 (tiered theatre, also divisible).
- Gala dinner space for 1,200 (also divisible as this can be part of the day use meeting spaces).
- Host 2-3 conferences simultaneously or with cross-over in the same week. E.g. 1,000, 800, 500 delegates.
- Total size allowing flexibility at least 30,000 sqm.

The current centre is:

- Overall footprint of the building approximately 10,000 sqm. Building is across two levels although the Royal Theatre and Exhibition Hall span both levels. Car park underneath is approximately 500 spaces.
- Other key dimension;
  - Lease boundary is approximately 14,000 sqm.

Convention Centre observations:

- Since the Canberra Convention Centre was built in 1989 there has been $4.47B invested in convention centres in Australia, with Albury and Geelong coming to market. This doesn't include smaller regional centres like Mackay etc.
- At the same time Canberra is the only site that has not expanded its footprint and $35M has been spent (not including end of life AC works underway).
- New Zealand will have three new centres opened by 2025 with total cost of $1.4B.
- The new ICC Sydney are already looking to expand on their 35,000 sqm of exhibition space.
- There are Australian conferences (with HQ based in the ACT) that do not meet in Canberra due to size constraints.
- Canberra is back to capacity (back to business pre-Covid December 2019). Pre-covid business events contributed over $1B annually to Canberra from $36B nationally.
- Capped infrastructure will make growing share difficult with Canberra left behind as goals are being set to grow business events to $50B nationally by 2030.

Important and positive to have:

- Sustainability and lead certified.
- Design to allow future expansion.
- Placemaking design.
- Indigenous sensitivity in design influence.
- Rooftop events access/bush capital spaces.
- Shared infrastructure on the occasion where stadium and centre spaces are required.
- Opening onto Commonwealth Park would place the centre as a unique offering within Australia.
- Sightlines to the lake, Australia's parliament and view of the mountains that ring our city will be essential marketing attributes as we compete for domestic and international business.

The Economic rationale is compelling given the opportunity for regional, national and international visitation from an appropriately sized and resourced facility.

A New Convention Centre (Continued)

Below is a snapshot of Convention and Meeting facilities developed since 1996 in Australia and New Zealand.

CITY	OPENED	COST	REFURB $	YEAR	DELEGATES	EXHIBITION SQM	FUNDED
Sydney	2016	$1.5BN	N/A	N/A	8,000	32,600	PPP
Melbourne	1996 2009 2018	$129M $413M $305M	$305M	2018	5,541	40,000	PPP
Brisbane	1995	$170M	$140M	2012	3,958	20,000	Govt. w Mgt.
Adelaide	1987	$39M	$350M	2017	3,500	10,400	Govt. w Mgt.
Cairns	1996	$80M	$11M $6.3M $179M	2005 2011 2021	5,000	4,000	Govt. w Mgt.
Canberra	1989	Unknown	$30M $5M	2007 2017	2,500	2,000	Govt. w Mgt.
Darwin	2008	$110M	N/A	N/A	1,500	4,000	PPP w Mgt.
Gold Coast	2004	$167M	$40M	2009	6,020	6,345	Govt. w Mgt.
Perth	2004	$225M	N/A	N/A	2,500	16,600	Private w Mgt.
Geelong	2025	$300M w City Deal	-	-	1,000	2,000	-
Wellington	2023	$179M	-	-	1,100	10,000	-
Christchurch	2021	$475M	-	-	1,400	3,300	-
Auckland	2025	$750M	-	-	2,850	8,100	-

Albury coming online. Hobart being considered.

A New Stadium (Inverted Bowl)

The existing Stadium at Bruce, along with the Indoor Arena, belong to the AIS and are controlled by the Australian Sports Commission.

Neither of these facilities have been maintained at a level that allows modern competitive activities to be undertaken, particularly at an International Standard, nor with acceptable spectator/performance amenity in any case.

Indeed the Indoor Arena has been closed as funds were not available to continue its operation.

The reason for this deterioration can be directly attributed to the lack of funds available to the AIS/Sports Commission and or secured through rent arrangements with the ACT sufficient to keep these Assets modernised.

One could observe that neither facility has been used by the AIS nor Sports Commission for their purposes for over two decades but that through the same period High Performance Centers for a range of Sports have been relocated, and funded, in other States.

There is also a view that the land allocated for the AIS, through the Sports Commission and ultimately the Australian Government, has been severely underutalised for Sports related activity, the reason the land was granted in the first place.

It is important to understand these issues when discussing the third stage of this I.M., HOW new facilities could be equitably funded.

The Authors of this I.M. are not aware of any competent proposal to “refurbish” the existing facilities targeting long term requirements and would, in any case, be a problematic in both the short and long term given the limited life such refurbishments achieve.

Relocation of the Indoor Arena to the University of Canberra would be a sound decision given proximity to AIS, Inhouse facilities management capacity and relationship with Arena users as well as carparking capacity during active use of the Arena. The authors note the recently announced funding for a Business Case looking at an Indoor Arena at the University of Canberra and believe that such consideration should be extended to determine if the AIS Arena’s requirements could be added to that scope of work and future funding.

Whatever the decision the creation of modern, extendable and intergenerational Assets needs to be the key that drives utilisation.

Where

Indoor Stadium

Notwithstanding the provisions of the **National Capital Plan** that explicitly places a **National Stadium** in the **City** as part of the Central National Capital Hierarchy there are additional compelling reasons to acknowledge that an integrated Precinct affords the best in utilisation, reduction in overall development costs and amenity for current and future generations of users.

The following observations relate to the choice of site, namely the area on and around the Civic Pool site adjacent to the Convention Centre on Constitution Avenue (see plan at right).

NOTE* The Costing schedule referred to is an estimate including a 15% contingency to ensure any works necessary to achieve the integrated nature of a Precinct are dealt with as a foundation issue in delivering a master planned outcome.

National Stadium Feasibility Summary

GHD was initially engaged in 2018 to explore the opportunities and constraints of a 5-sport stadium complex on the Olympic Pool site, in Canberra's Civic Centre.

The initial plan proposed a 30,000-seat stadium, a 20,000 square metre (sqm) conference centre, a 1,500-seat lyric theatre, a hotel and an well-curated sports and entertainment district surrounding the complex, hosting a sports museum, cultural venues, food and beverage, and other retail opportunities to help keep the district activated year-round.

GHD Advisory

The current proposal imagines a 30,000-seat rectangular stadium, a 30,000 sqm conference centre, a hotel and a vibrant sports and entertainment district.

As time has passed, interest in this type of development has grown. Studies by others have suggested that a stadium on this site is possible, which has been part of the City to the Lake master plan for more than a decade. This memo summarises the work GHD has completed to date and takes the proposal further to begin to demonstrate how this once-in-a-generation project could be successfully accomplished.

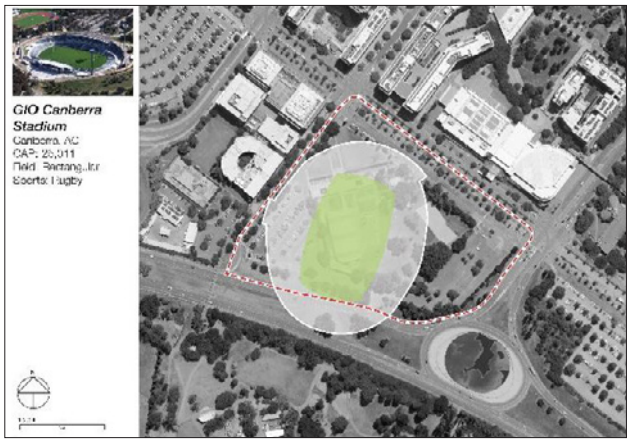
November, 2022

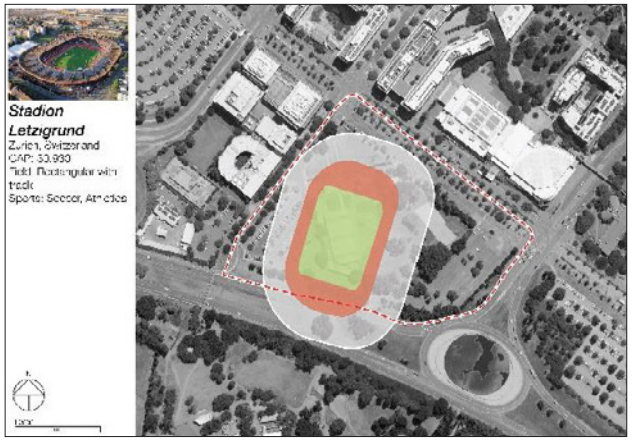
Civic Stadium artist's impressions by GHDWoodhead

Precedent Studies

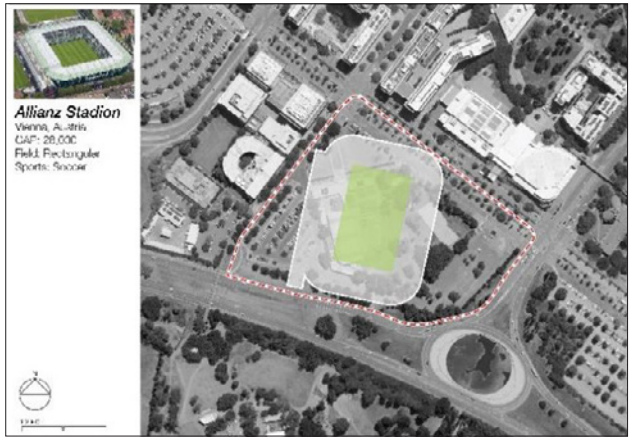
The consultant team undertook a desktop study of other stadia globally that were similar to the proposed Canberra Civic Stadium in terms of capacity or relevant as local precedents.

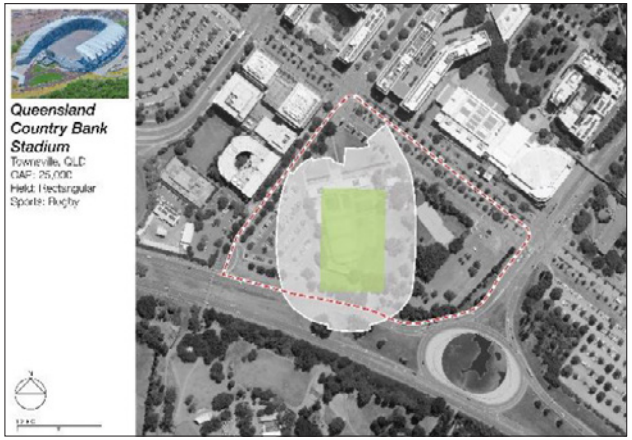
While the sizing is never too far off, the Allianz Stadion in Vienna, AAMI Park in Melbourne, and the Hypo Arena in Klagenfurt, Austria suggest that a full stadium footprint for a 30,000-seat venue can be accommodated on the Pool site. Furthermore, an “inverted bowl” strategy, discussed below, will help ensure that the prospective stadium footprint is even more efficient.

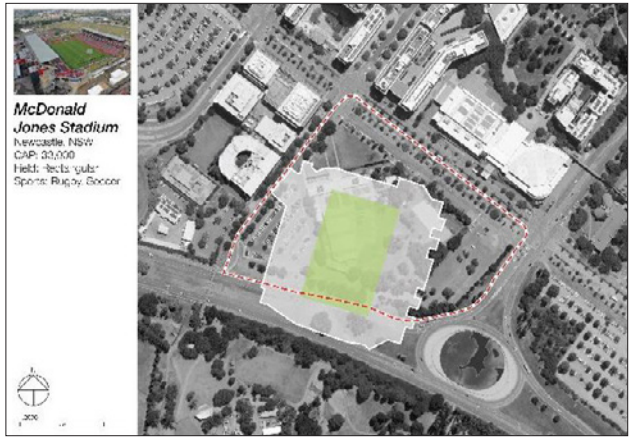





AAMI Park
Melbourne, VIC
CAP: 30,050
Field: Rectangular
Sports: Rugby, Soccer


Allianz Stadion
Vienna, Austria
CAP: 28,000
Field: Rectangular
Sports: Soccer


Queensland Country Bank Stadium
Townsville, QLD
CAP: 25,000
Field: Rectangular
Sports: Rugby

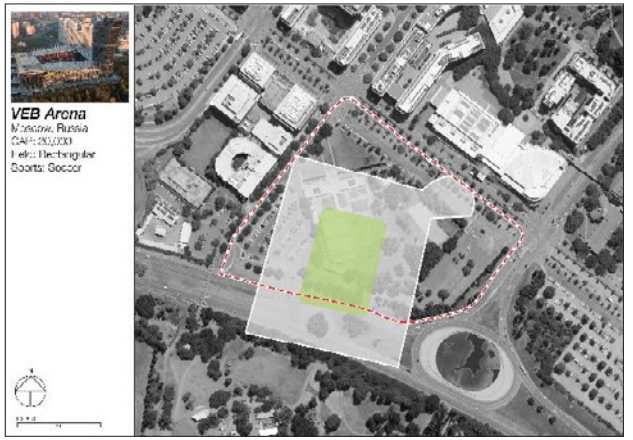

McDonald Jones Stadium
Newcastle, NSW
CAP: 30,000
Field: Rectangular
Sports: Rugby, Soccer


CommBank Stadium
Parramatta, NSW
CAP: 30,000
Field: Rectangular
Sports: Rugby, Soccer


Hypo Arena
Klagenfurt, Austria
CAP: 30,000
Field: Rectangular
Sports: Soccer


Chus Super Stadium
Gold Coast, QLD
CAP: 27,400
Field: Rectangular
Sports: Rugby


Canterbury Multi-use Arena
Christchurch, New Zeland
CAP: 30,000
Field: Rectangular
Sports: Rugby


VEB Arena
Moscow, Russia
CAP: 30,000
Field: Rectangular
Sports: Soccer

Benchmark Stadium Costs

GHD Advisory reviewed recent costs related to recent, similar-sized stadia project nationally. Applying that data to a prospective Canberra stadium led to the following initial estimated costs:

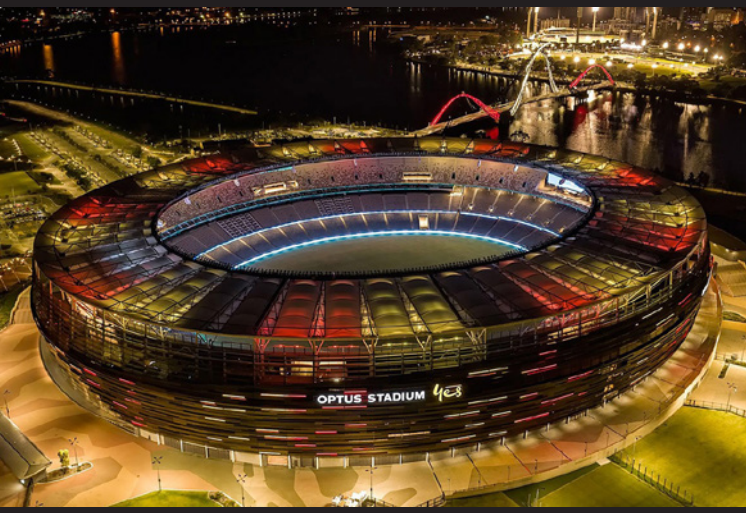
Benchmark Stadia costs

STADIUM	YEAR	BUILD COST @ 2022 LEVELS (INCLUDES DESIGN)	CAPACITY	$/SEAT
Perth Stadium	2017	$1.13b	62,000	$18,225
Sydney Stadium	2022	$800m	42,500	$18,823
Parramatta Stadium	2019	$350m	30,000	$11,667
Penrith Stadium	2022	$330	30,000	$11,000

New Canberra Stadium estimates

INCLUSIONS	30,000 SEATS	30,000 SEATS	30,000 SEATS	30,000 SEATS
	Cost at 11k per seat	Cost at 13k per seat	Cost at 15k per seat	Cost at 18k per seat
Build including Design	$330m	$390m	$450m	$540m
Contingency (15%)	$65m	$74m	$82m	$96m
Total	**$495m**	**$564m**	**$632m**	**$736m**

Notes:
1) Current day pricing (2022)
2) Additional infrastructure = Parkes Way improvements (subject to design)
3) Excludes oncosts such as DA, MPC, other direct costs and GST



A New Proposal: Innovation in Planning and Design – Inverted Bowl

A future Civic Stadium for Canberra will be able to take full advantage of advances in the planning, design, and delivery of large public infrastructure projects. The following elements of innovation, among many, will support ACT social and environmental resilience goals, as well provide the long-term economic value that a major project like this must provide.

The Inverted Bowl

First proposed by the Detroit-based sports architecture firm, Rosetti, the inverted bowl is an informed response to the criticism that modern arenas are too large and spread out to deliver the exciting critical mass that amplifies the experience of modern games and concerts. This has a material effect on the quality of experience and the ability of the facility to drive revenue.

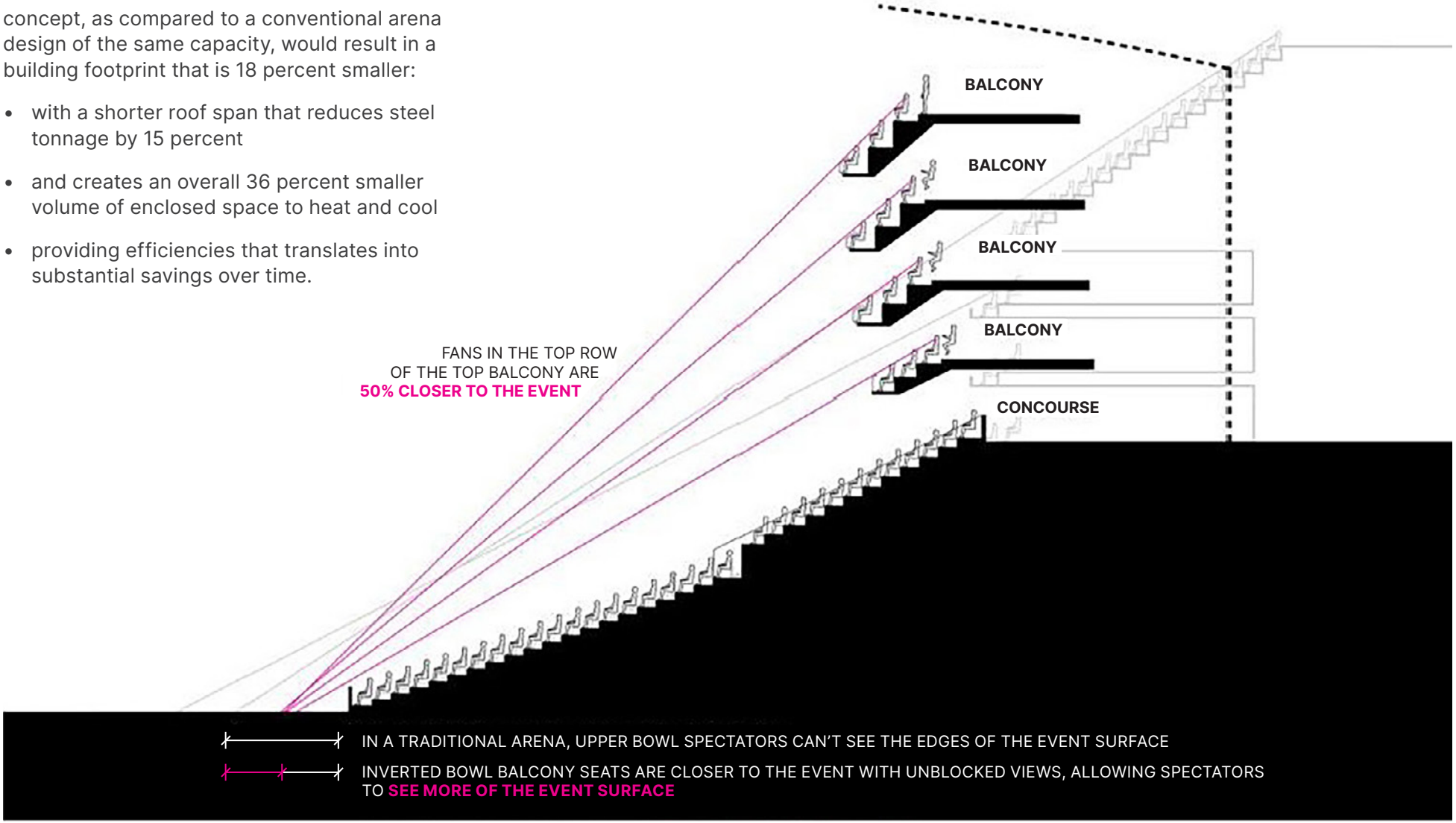
Despite the tens of thousands of spectators who fill stadium stands to watch their teams live, two-thirds of fans would prefer watching a game from home than in person, found a 2015 study by Mintel. Furthermore, according to Rossetti, a study of college students found that 43 percent of respondents said better seats would entice them to attend another game, 22 percent don't even watch the game when they go, and 13 percent said interactive mobile experiences would improve their likelihood of going to a game.

To address this disconnection with fans, instead of tiered rows of seating sloping progressively farther and higher away from the playing field, forming a concave curve in section, Rossetti proposed that the upper decks move progressively forward so that audiences in the upper sections begin to cantilever over the lower concourses—similar to the near-vertical stacking of some lyric theatres. The subsequent inverted bowl shape also breaks up the upper concourses to comprise just two to three rows of seating each, resulting in "broadcast quality views" at the top.

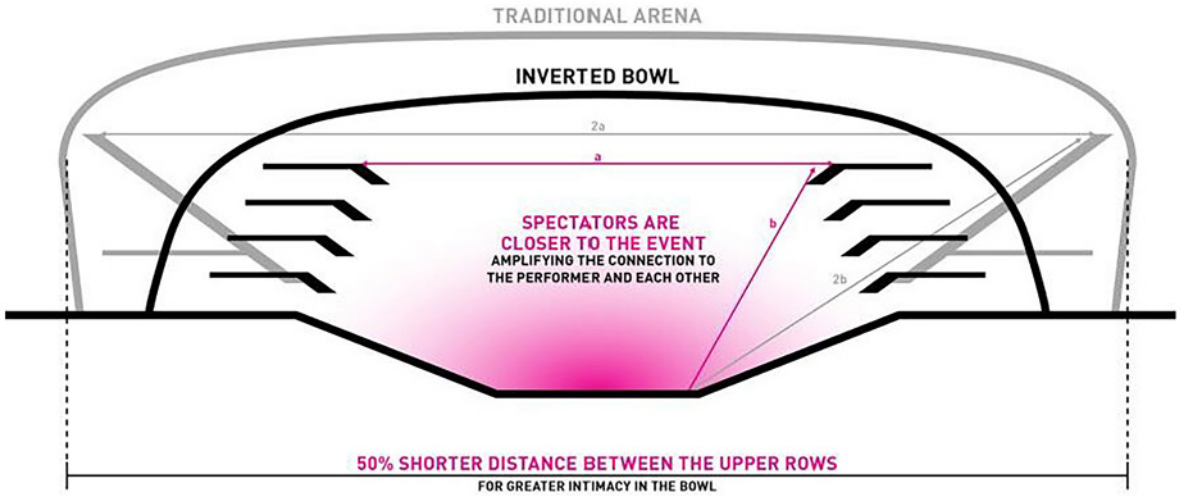
BALCONY VIEWS

Rossetti demonstrates that the Inverted Bowl concept, as compared to a conventional arena design of the same capacity, would result in a building footprint that is 18 percent smaller:

- with a shorter roof span that reduces steel tonnage by 15 percent
- and creates an overall 36 percent smaller volume of enclosed space to heat and cool
- providing efficiencies that translates into substantial savings over time.



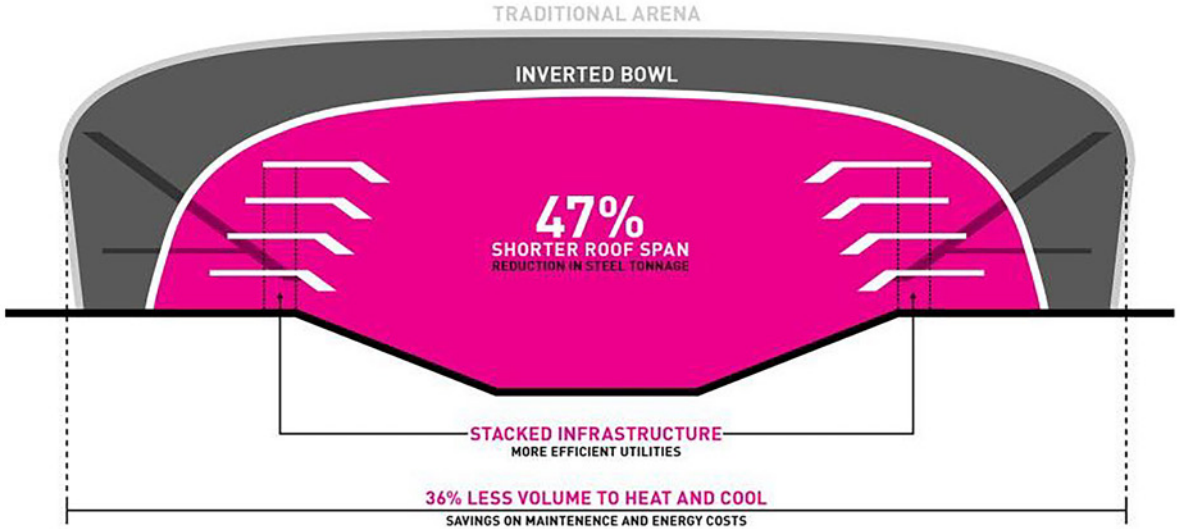
INTIMACY



COST EFFICIENCIES

18% SMALLER BUILDING FOOTPRINT
LESS LAND USE = LOWER COST

15% LESS STEEL TONNAGE
EFFICIENT STRUCTURE



The Inverted Bowl design would improve sightlines for spectators seated in the upper concourses.

Conventionally, cheaper seats experience lower concession sales due to fewer amenities as well as lacklustre audience engagement—while costing more to construct. By positioning the upper seating tiers literally on top of the action, bringing spectators 50 percent closer to the field, and turning the upper bowl into more of a socializing space, Rossetti has proposed that "the worst seats in the house become the best." In fact, based on experience in the field, the company predicts that the Inverted Bowl configuration will increase stadium revenue by 20 to 30 percent. *(Excerpted from Architect magazine, October 31, 2017.)*

ETFE

The Civic Stadium must provide the highest quality experience for fans and players. A significant part of that experience is play on natural turf. Most people assume the playing surface of an indoor stadium is artificial grass or turf. However, Forsyth Barr Stadium in Dunedin, New Zealand, constructed its roof using an ETFE (ethylene tetrafluoroethylene) membrane so they could grow natural grass and use the stadium year-round. When it opened in 2011, Forsyth Barr was the world's first permanently enclosed stadium with a natural grass pitch.

The Dunedin community faced two main challenges when it began the project: building a multipurpose facility that could be used year-round in any weather. The city's modest population of 119,000 people could not support a sole-sport arena, so the new venue would need to house a variety of local sport, cultural and entertainment events.

Forsyth Barr Stadium

To find the right material for the roof, the design team created test rigs from various roofing materials to grow grass over a two-year period. Over the course of the testing process, ETFE (ethylene tetrafluoroethylene) film emerged as the clear winner, producing the healthiest turf. In fact, the grass grown under ETFE film was healthier and greener than grass grown outdoors. This innovative film has natural ventilation and makes it possible to customize the sun strike levels.

Architects specified ETFE film to cover the roof and part of the facades. They designed the stands on the northern end lower to allow maximum sunlight onto the pitch, and they designed the end facades 5 meters above ground to allow fresh air across the pitch. Light and natural ventilation are crucial to the success of a natural pitch under a roof.

Dozens of major stadia, transport, and cultural buildings around the world use ETFE as a key building material.

Additional benefits of ETFE film:

- Light transparency up to approximately 90%.
- Extreme temperature stability.
- Lightweight (1% of the weight of glass).
- Superior durability, UV-resistance, and high-tear strength.
- Long-term (+/-50-year) weatherability.
- 100% recyclable.

A prospective Civic Stadium in Canberra would benefit from both the smaller footprint of an inverted bowl design strategy and from the enclosure of a light-filled, weather-proof roof with higher environmental performance and comfort.

The stadium, despite a more vertical seating arrangement, would still rest comfortably under the RL617 height limitation current across Canberra.

Beijing National Aquatics Centre (Water Cube), also using ETFE on a self-supporting Weaire-Phelan modular structure

Key Technical Issues

Parkes Way

The Canberra Stadium design proposal is not predicated on the relocation of Parkes Way in any way. The complex, to better connect Commonwealth Park to the District, spans Parkes Way, leaving it untouched.

Circulation

Safe, pleasant, and efficient, pedestrian movement through the site, during major venue events, local events, or no events. GHD Movement Strategies has delivered over a dozen major circulation analyses for sports and entertainments districts in the UK and in Australia, including the London Olympics and for the recent, award-winning urban stadium for Tottenham Hotspur. Strategic insight like theirs informs the work of our design teams. Similar skillsets may be held by other firms.

Acoustics

Disruption to neighbouring districts will be minimized as the stadium is enclosed. While sound attenuation panels may be used within the arena, the sounds of a sports crowd may travel. The duration of any one event is constrained, however. In addition, as part of a district-wide acoustic strategy, sound-masking technology, keyed to cancel out unwanted frequencies from the venue, will help reduce the perception of unwanted noise and excessive volume, at the perimeter of the site and in neighbouring areas. These can be incorporated into custom festival structures or unobtrusively added to streetlights themselves. A range of strategies can be incorporated addressing both low-frequency and high-frequency noise.

LA Live, sound towers lining the plaza

Next Steps

1) A detailed business case should be undertaken to provide clarity around a major city-shaping project like this. Some of those answers should include:

   a. An investment-logic analysis should be undertaken that also accounts for social and environmental costs and benefits.
   b. Given that some existing 30,000-seat conventional stadia fit on the site, it would be worthwhile to further develop a compact stadium strategy as part of a reference design for the area.
   c. A 30,000 square metre convention and exhibition space should allow for flexibility and growth, compact but allowing room for expansion and so, future-proofing the asset. Industry consultation should be undertaken to understand the ultimate layout and operational design.
   d. More detailed engineering studies to address acoustic, lighting, and other technical performance characteristics of the development should be addressed.
   e. A critical review of district-wide parking strategies and minimums should be undertaken, given the future of light rail in the area.
   f. Potential partnerships with UNSW and other major institutional stakeholders in the area should be explored.
   g. Project delivery options, such as PPPs or other special purpose vehicles should be evaluated.

Civic Stadium artist's impressions
by GHDWoodhead

SMEC and Robert Bird Group Report

Thank you for the opportunity to prepare this submission in support of the future Canberra Stadium and National Convention Centre.

The SMEC and Robert Bird Group (RBG) Team are experts in precinct scale cultural and stadium developments, including iconic projects such as over station developments and urban renewal projects with technically complex structural designs.

Canberra deserves a new facility to support the continued growth of competitive football in the region, that is of high quality to attract headline music and cultural acts, that can provide fans with a high level of amenity and enjoyment, and that support large-scale tourism and national events.

By incorporating a dual use as a convention centre and stadium, the development can overcome some of the revenue challenges of large-scale sporting infrastructure. The option to expand the site to include a structure over Parkes Way provides much needed connectivity between the City and the Lake.

In a current engagement with the ACT Government, SMEC has been exploring options to improve connectivity and reduce the severance created by Parkes Way. The option of building a land bridge to provide connectivity has been considered amongst other options such as lowering Parkes Way and reducing the width of the carriageway.

This project addresses both the shortfall in modern sporting and convention centre facilities in Canberra, whilst also overcoming the identified need to better connect the Canberra CBD with Lake Burley Griffin. The extensive economic benefits associated with this scale of investment will drive city renewal, improve Canberra's national and international tourism potential, and importantly provide better connectivity and safety for pedestrians and cyclists and enhanced public spaces for the community.

This letter supports further consideration of locating the Canberra Stadium and National Convention Centre at the site of the current Canberra Olympic Pool. Together, the SMEC and RBG Team bring extensive knowledge and experience from stadium and precinct scale development nationally and internationally. Our experience demonstrates that the constraints outlined in the previous feasibility study are not unique to this Site and can be overcome through engineering design.

SMEC
Member of the Surbana Jurong Group

RobertBirdGroup
Member of the Surbana Jurong Group

Figure 1 | SMEC has provided integral value engineering inputs into the Brisbane Live over-station development which will provide a 17,000 seat arena decked over existing rail infrastructure (source: QLD Govt)

Figure 2 | The GABBA, Brisbane with seating cantilevered over Vulture Street to maximise full site utilisation (source: Google maps, 2022)

Location

Our team have collaborated on numerous iconic stadium and events developments both nationally and throughout the world.

Modern stadium and convention centre spaces are best located where they can maximise public transport patronage and share the pre and post-game economic benefits of large events. A key aspect of attracting major sporting and non-sporting events is the fan experience, which is best supported in an inner-city location with high connectivity, access to hospitality venues, restaurant precincts and transport networks.

Stadia should always be located near public transport to encourage attendance at events and provide a sustainable and cost-effective means of travel for patrons. The Canberra Olympic Pool site (Civic Site) is situated within a short walking distance of the planned Stage 2A Light Rail Stations at Edinburgh Avenue and Commonwealth Park, and the City Bus Interchange, providing excellent public transport connectivity across suburban Canberra. This central location also provides a more equitable approach to accessing sporting and entertainment events for all sections of society, including those who do not own cars.

The location of a stadium at the Civic Site provides the opportunity to enhance connectivity between the Canberra CBD and Lake Burley Griffin, and to overcome the significant movement barrier of Parkes Way. Various concepts to improve connectivity between the CBD and the Lake have been considered in the past, however all require significant investment which can be difficult to justify as an isolated project. By incorporating a pedestrian/cyclist friendly public realm linking the commercial and entertainment hub of the new Stadium and Convention Centre, and the CBD, to Commonwealth Park and Lake Burley Griffin, this project could be transformational for Canberra.

The Acton Tunnel, which bridges the Australian National University with the Acton Peninsula, has a length of approximately 180m, and provides good precedence for the realisation of a similar structure at the Civic Site. The upper levels of the Acton Tunnel were originally designed to accommodate parking for about 500 vehicles. However, have been used as an archival repository by the ANU since the tunnel opened in 1979 (ANU, Acton Campus Site Inventory, 2011).

The ‘Brisbane Live’ Cross River Rail development is adjacent to the Roma Street Station in Brisbane and is to be decked over the existing railway tracks and infrastructure. SMEC has provided value engineering services, undertaking a review of the concept design for the over rail development including breaking the structure into three areas to improve constructability, maintain rail and road operation during construction and manage costs. SMEC proposed a series of structural optimisation measures to maximise the span over the railway to minimise the substructure and foundation construction between railway tracks, to eliminate, where possible, load transfer structures and to improve constructability to minimise disruption to railway operation during construction.

SMEC has optimised the structure of the Brisbane Live development using truss systems, cable stayed bridges and space frames. Inspiration was drawn from the Stuttgart Airport Carpark which incorporates a truss system to bridge over the A8 highway. The roof structure for Brisbane Live has been formed by cable stays in combination with arch supports which span the railway to achieve a cost-effective structure within the constraints of the site, such as the Durban Stadium in South Africa, or the Dolphinarium Volgograd in Russia.

Overcoming Site Constraints

Limited Site Area

The road reserves adjacent to the Civic site are not necessarily the hard constraints they have been assumed to be in the previous feasibility study. Reducing the width of the Parkes Way corridor to the south of the proposed stadium is a possibility that should be explored further. In the interest of improving connectivity, removing the central median in Parkes Way and a narrower road reserve could be justified. This would increase the footprint of the Civic Site, to enable redevelopment of this centrally located, underutilised site.

Equally, an option where the development partially spans or cantilevers over either Constitution Avenue or Parkes Way should be explored. There are numerous engineering solutions to the site, which the SMEC and RBG team have addressed in other similar precinct scale developments. The previous project experience we can bring to the design development of this project would be highly valuable to reconsidering the feasibility of a stadium development in the heart of Canberra, with improved connection between the City and the Lake.

The redevelopment of the site should proceed through a design excellence process, where a more detailed feasibility study can provide the ACT Government with the evidence to support the project. Whilst the co-location of stadium, hotel and convention centre uses will assist with viability and activation of the precinct, the project would benefit from a more detailed space proofing analysis. This would provide increased understanding of the complexity of the structure over Parkes Way, feasibility, constructability and ways to limit transfers to outside of the road corridor.

Constructability

Construction challenges associated with a highly connected inner-city location are well known to both SMEC and RBG. Our team is highly skilled at considering constructability during design development and construction. The form of the structure over Parkes Way and any cantilevered elements will need to be designed to minimise disruption to the road network during construction. Disruption modelling to understand the impact to public transport and the road network must form part of the feasibility of the design and consideration of the overall project by the ACT Government.

Through our combined international experience in stadia developments, we bring a unique depth of understanding to this project. Of critical importance is ensuring the construction approach is considered at project feasibility and concept design. A Construction Methodology and Erection Sequence (CMES) was a significant oversight as it did not form part of the previous feasibility study. An appropriate CMES would include a Staged Construction Analysis (SCA) to provide confidence to the ACT Government that the stadium and convention centre can be delivered on time and on budget, and without significant disruption to traffic flows on key arterial roads.

Appointed as lead traffic engineer for the Early Works Package for the 90km Suburban Rail Loop, the biggest infrastructure investment in Victorian history, SMEC are producing traffic management plans and disruption modelling at sites across Melbourne. Each of the individual sites presents a range of challenges and stakeholders that SMEC is working through

to effectively communicate the options available and the relevant duration and effect of traffic management plans, including mitigation measures such as changes to signalling and re-allocations of road-space to accommodate changed traffic levels and minimise impact to public realm users.

The traffic modelling team at SMEC has experience in a range of traffic modelling from linked SIDRA networks (i.e. CBD Disruption modelling) to large-scale microsimulation models. The locally based-SMEC Transport Planning team is working closely with the ACT Government on developing and updating their models to ensure the changing nature of movement patterns are understood as urban renewal revitalises the Canberra CBD. This understanding of the current and planned network in the ACT will be integral to confirming the feasibility of this project for the ACT Government.

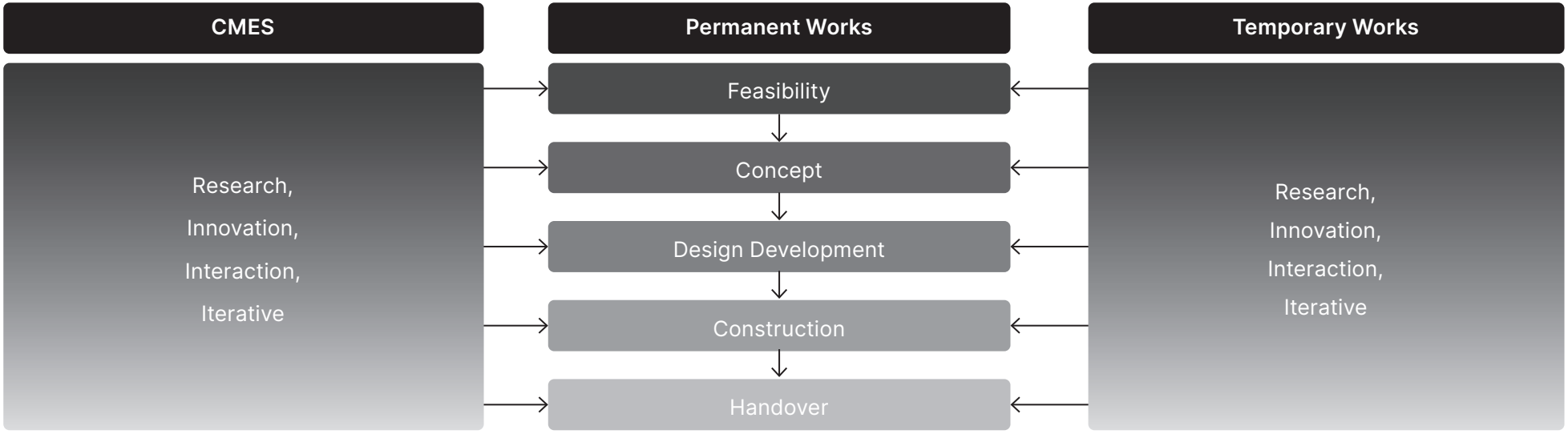


Figure 3 | Robert Bird Group Construction Methodology and Erection Sequence commences at project feasibility stage to ensure coordination in delivery

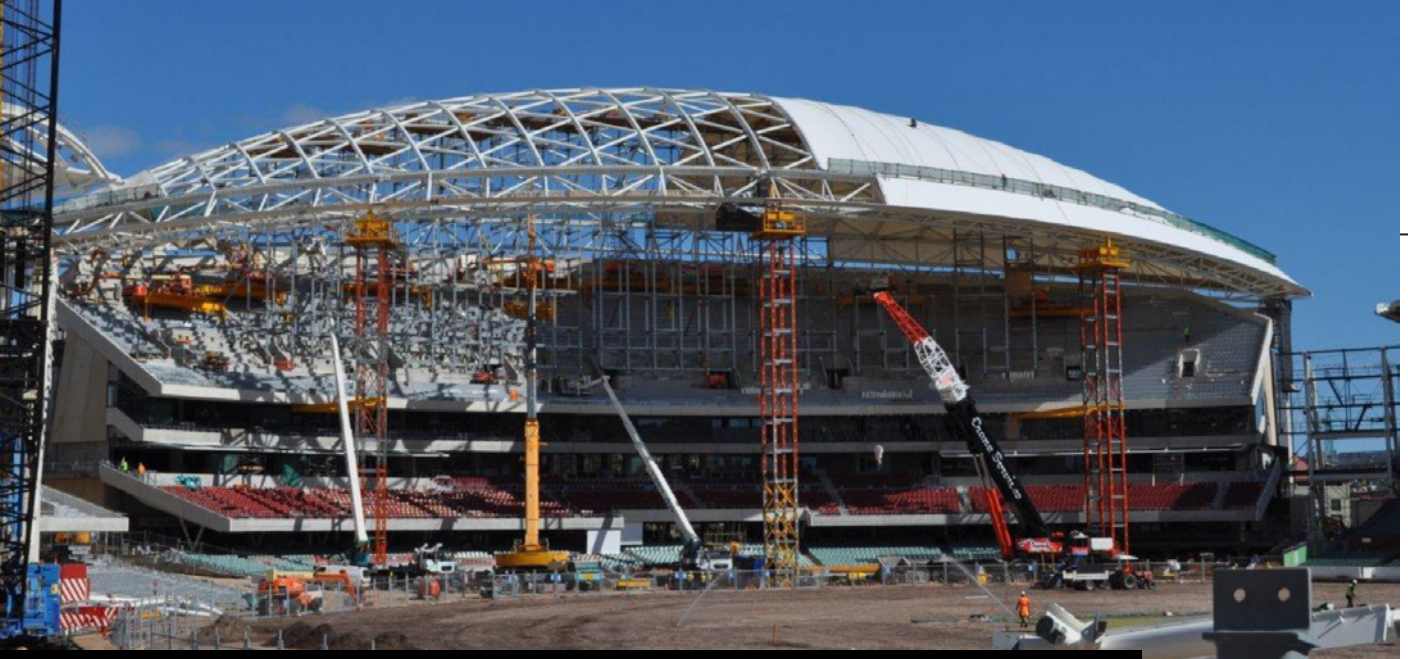


Figure 4 | Detailed planning and Staged Construction Analysis ensured the stability of the Riverbank Stand in the Adelaide Oval redevelopment (Source: Robert Bird Group)

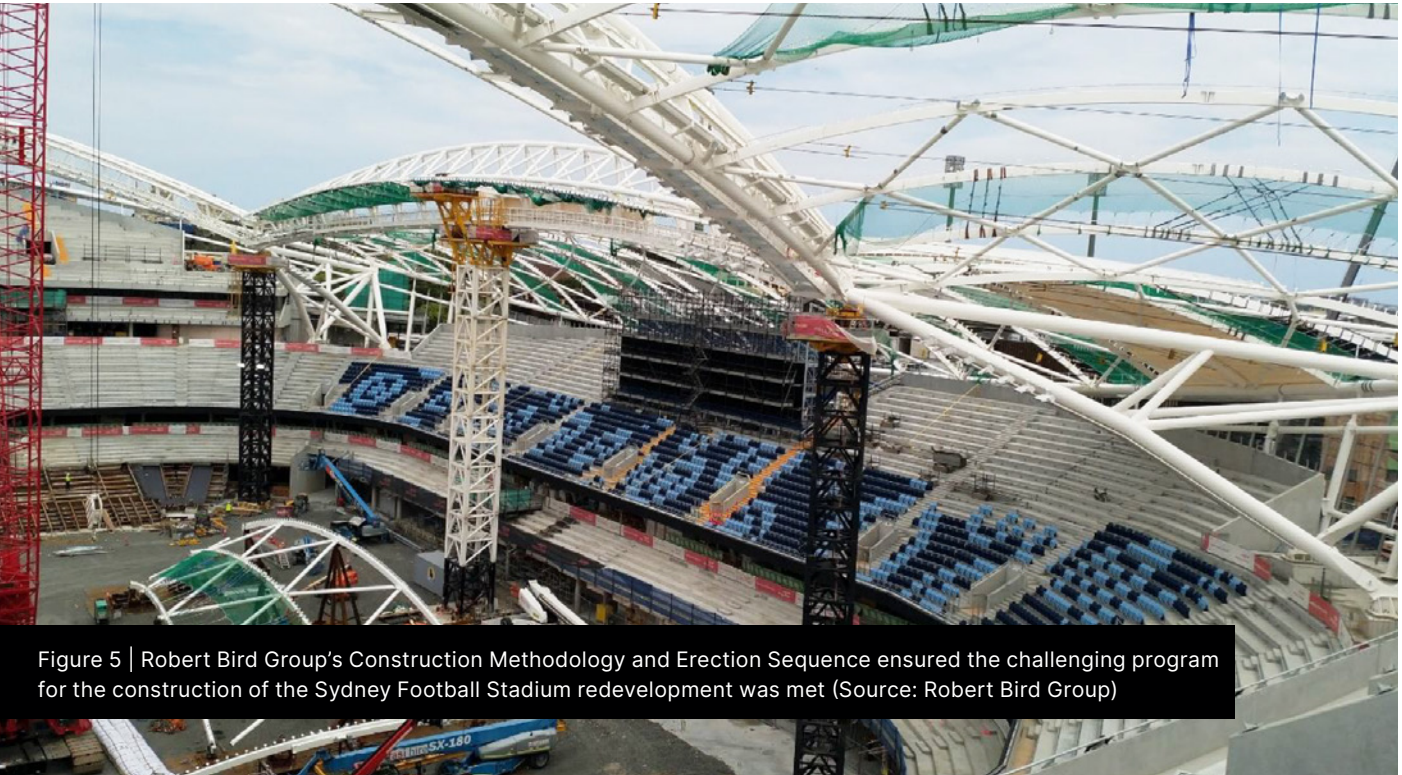


Figure 5 | Robert Bird Group's Construction Methodology and Erection Sequence ensured the challenging program for the construction of the Sydney Football Stadium redevelopment was met (Source: Robert Bird Group)

Noise, Light and Climate

A key contributor to fan experience is the viewing distance of spectators from the field of play and comfort during inclement weather. There are many examples of modern, functional stadia with seating and ancillary facilities cantilevered over the boundary and adjacent road reserves. Designing seating within the drip line and an operable roof would provide all weather protection for players and fans, opportunities for non-sporting events and management of noise and light spill from the inner-city location.

RBG have bought their expertise to the structural design of Hong Kong's Kai Tak Sports Park, including a 50,000–seat stadium which features a retractable roof. With a soundproof retractable roof, and flexible pitch surface, the Main Stadium is ideal for hosting major football and rugby games as well as hosting entertainment and community events of various scales. The precinct is to be completed in 2023 and in addition to hosting major sporting and cultural events, will provide an area for active and passive recreation by the public.

Traffic

The existing road network surrounding the Civic Site provides excellent connectivity to all destinations in the region, and has good operational capacity to accommodate movements into/out of the site. Event based traffic would require special consideration with temporary traffic management measures to overcome localised issues. As the large-scale events that are likely to be hosted at the Site would be expected to occur during the evening and on weekends, there would be limited opportunities for the CBD evening peak to coincide with stadium or event traffic.

Multiple entry and exit points to the Site would provide dispersion points for vehicles entering and exiting the precinct, and would break up movements associated with the stadium, convention centre, hotel and hospitality uses. Excellent accessibility to high frequency public transport and established active travel networks in the Canberra CBD would provide alternative options for accessing the site. Extending the precinct across Parkes Way would provide a wider catchment to parking at the Acton District Park in West Basin, Commonwealth Park and opportunities for shuttles to/from the Parliamentary Triangle.

Figure 6 | Robert Bird Group undertook the structural design for the Kai Tak Sports Precinct, Hong Kong which includes a retractable roof (Source: Robert Bird Group)

The examples within this document demonstrate that the challenges posed in placing a stadium and convention centre on the Civic Site are not unique and can be managed through advanced engineering design. The feasibility studies undertaken to date fall short of providing a complete analysis of options for the Civic Site. Through engaging in a further feasibility analysis or design excellence competition, we believe a feasible outcome can be reached that will see this significant infrastructure investment succeed.

Conclusion

How to progress this proposal:

The Authors acknowledge that Individual Stakeholders often hold unique requirements, governance and commercial objectives, so are encouraged by the unified support for resolution of these issues in the manner outlined in this submission.

The Authors also acknowledge that the Agencies that may be affected by any Government-to-Government Agreement as to Land also have their unique mandates and we recognise their diligence in seeking to further those objectives.

We propose that:

1. A Government-to-Government Agreement be entered into in recognition of joint responsibility to fund the projects in this submission that will see such land and assets, as agreed returned to the Territory, at no cost.
2. The Territory be responsible for the replacement of the Stadium and Convention Centre through a mechanism of its choosing but preferably through a Public Private Partnership process.
3. That the City Renewal Authority(CRA) be charged with delivering the Project on behalf of the Territory so as to ensure as little as possible disruption to the EPSDD general planning processes.
4. That a Reference Group be formed as part of, and seconded to, The Development Control Group set up by CRA to manage the Project.
5. That this reference Group be co chaired by Mike Kelly and Warren Snowdon.
6. That the reference Group comprise at least one Nominee of the Tourism and Hospitality Sector, One Nominee of the Sporting User Groups and one Nominee of the Business Chamber.
7. Timing: That the Intergovernmental Agreement be achieved by Budget day 2023 and announced as part thereof.


Proposed area to stay as AIS land
Proposed area to hand back to Territory

Public Private Partnership

CLAYTON UTZ

1. Public Private Partnerships Generally

   - While there are numerous ways the Stadium could be funded and developed, one potential solution is to utilise a public private partnership (PPP).
   - As you know, a PPP is a long-term contract between a private company or consortium and a government (the public and private sectors), where the government engages the private company to design, build, maintain and operate infrastructure on behalf of the government, on a 'whole-of-life' basis. PPP projects usually include a capital component and an ongoing component involving the delivery of related services.
   - Importantly, PPP projects can allow for governments to develop infrastructure without an immediate outlay of all of the capital (though the Government can contribute), while transferring much of the risk of the relevant project to the private sector.
   - Generally, PPPs have widespread support at the policy level across the Commonwealth, States and Territories.
   - There is no standard model for PPP projects. However, any of the following types of PPPs could be considered in relation to the Stadium depending on the final financial model adopted by the Government:

     (a) Design, Build, Maintain and Operate (**DBO)** – the private sector is appointed to design and build a project and then to operate the infrastructure for a period of time. DBOs typically run for a period of between 10 to 30 years. The private sector has ongoing maintenance and operation obligations in addition to design and construction of the project. This model is often used where the Government wishes to finance the project;

     (b) Design, Build, Finance and Operate (**DBFO**) – the private sector designs, builds, finances and operates the infrastructure allowing a reduction of risk for the government. This is also often known as the Availability PPP - it incorporates a fully financed service contract between the public and private sectors where Government pays the private sector bidder (typically a consortium) to deliver infrastructure and related services over the long term. Social infrastructure, such as hospitals, public transport, prisons and schools, have been delivered under this arrangement in Australia – this is a key model to consider in relation to the development of the Stadium;

     (c) Build, Own, Operate (**BOO**) – the private sector builds, owns and operates the infrastructure for the duration of the contract, however, at the end of the contract, the infrastructure is not handed back to the government; and

     (d) Build, Own, Operate, Transfer (**BOOT**) – the private sector builds, owns and operates the infrastructure for the duration of the contract and, at the end of the contract, the infrastructure is handed back to the government. Economic infrastructure, such as toll roads, utilities and telecommunications, have been delivered under this arrangement in Australia.

   - All of the above can be modified for particular circumstances — they could all be adapted for the purposes of developing the Stadium.

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Supporters

This submission recognises the inputs from SMEC, Robert Bird Group, GHD Advisory and ClaytonUtz and appreciates their time and expertise in its preparation.

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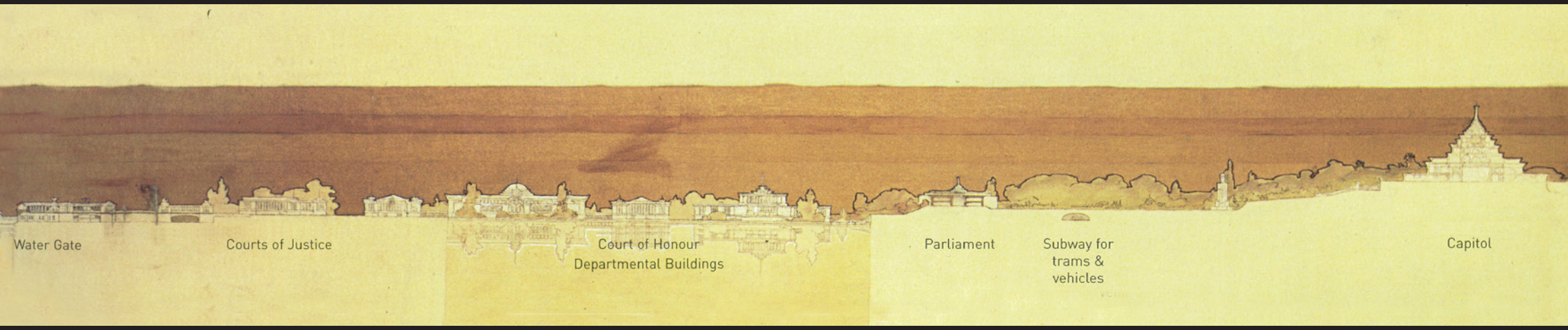
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