THE NEW DUNEDIN MULTIPURPOSE STADIUM

Concept Design

12 November 2007

Carisbrook Stadium Trust Mission

To capture this unique moment in Dunedin's history by demonstrating and encouraging creativity, courage, collaboration and far-sightedness. This enabling a stadium that provides a platform for a proud legacy of social, cultural sporting and educational excellence, as well as economic benefits to Dunedin and Southern New Zealand

ARROW INTERNATIONAL
Projects: Strategy and Delivery

HOK
sport architecture

Jasmax

SKM

Sports Surface
Design & Management

Beca

RAWLINSONS

Connell Wagner

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View down Leith

View across Logan Park

Executive Summary

This Concept Design Report for the Dunedin Multipurpose Stadium should be read in conjunction with the Master Plan and Feasibility Report completed February this year. This report reflects the completion of the Concept Design Phase that commenced in July 2007 through to October 2007.

From an overview perspective, there has at this stage been enough work from the project delivery team undertaken to confirm that the project continues to track to the broad objectives stated as part of the Masterplan and Feasibility. We are working systematically through the Design process unlocking the fixed roof challenges before focussing on the substructure, structure, envelope, building services and architectural finishes. Essentially we are still providing a fully roofed, multipurpose facility with a 30,000 capacity based on 20,000 permanent seats, 5,000 standing and 5,000 temporary seating. Links to the University and other potential users remain.

The overall budget challenge remains, but we are still confident of being able to satisfy the project objectives, including the design and construction of a multipurpose facility satisfying the overall project budget requirements.

There is still much to be completed throughout the upcoming Preliminary, Developed and Detailed Design stages with a diligent and disciplined approach preponderant to delivering this fantastic vision.

This report not only includes a significant level of design and project detail moving forward into the Preliminary Design phase, but also reflects the many iterations necessary to control the overall project expectations and requirements. These include different roof, structure and substructure issues due to subsurface conditions and other constraints now better understood.

We are pleased to report that although the challenges continue, we remain on track to successfully deliver this project.

1.1 Glossary

CEO	Chief Executive Officer
CST	Carisbrook Stadium Trust
DCC	Dunedin City Council
LIM	Land Information Memorandum
NZRU	New Zealand Rugby Union
NZSTI	New Zealand Sports Turf Institute
OCR	Open corporate Reserve
ORC	Otago Regional Council
ORFU	Otago Rugby Football Union
PESA	Preliminary Environmental Site Assessment
RWC 2011	Rugby World Cup 2011
SH**	State Highway **
University	University of Otago

	South Stand (Permanent Seating)	North Stand (Permanent Seating)	East Stand (Permanent Standing)	West Stand (Temporary Seating)
Lower Tiers Capacity	6903	1626	5060	5024
Lower Tiers - Wheelchair Positions / Companion Seats Cap.	40	40		40
Upper Tiers Capacity	4480	6894		
Upper Tiers - Wheelchair Positions / Companion Seats Cap.	36			
Total Capacity of each Stand	11459	8560	5060	5064

Total Capacity of South & North Stand	20019
Total Wheelchair Positions / Companion Seats Cap. (0.5%)	156
Total Capacity of entire Stadium	**30143**

1.2.A
Stadium Capacity Table

1.2 Introduction

This Concept Design Report for the Dunedin Multipurpose Stadium should be read in conjunction with the Masterplan and Feasibility Report completed in February this year. The Concept Design report also summarises the progress of the project team, in relation to the concept design phase having commenced proper on 10 July 2007.

Since the Masterplan and Feasibility Report where several options were presented, we have been instructed by the CST to proceed with option 1 and the development of the Awatea Street site. This report explores in detail the new site development and more specifically the crystallisation of the client brief into notions that inform suitably the progress of the design.

To compliment the design phase, a review of costs, programme and buildability continues in an integrated process. We are also mindful that there is a significant relationship between the current design phase and the District Plan Change process that will ultimately govern our design and construction parameters. The plan change process continues and the application is due to be lodged shortly. All going well, we are assuming a start date for construction no later than October 2008.

The client brief has been re-confirmed and continues to be interpreted in detail through both the facilities and area schedules, that although not approved by CST in detail, continue to reflect the general requirements of the CST leading into the preliminary design phase.

Although our specific focus has been the development of the Stadium element, the University is still an integral part of the Masterplan consideration. Specific future development zones have also been identified in broad context and will be incorporated in detail as the specific developer requirements are identified in the future.

The client brief summary is as follows:

- A fully roofed, natural turf, multipurpose stadium located on Awatea Street opposite Logan Park in Dunedin.
- Multipurpose - This includes a range of sports, events, exhibitions, conferences and the specific integration of the University or other similar educational institution.
- Maximum capacity for 30,000 patrons - based primarily on NZRU Category B (+) Test requirements (refer fig. 1.2.A).
- Optimal capacity for 20,000 patrons, expandable to 30,000 (refer fig. 1.2.A).
- A Design and Construct Budget of $165.4 Million
- Spectator Facilities in accordance with all necessary standards and the CST Business Plan - these include corporate, members and founders requirements.
- Permanent Merchandise outlets in accordance with the CST Business Plan
- Catering and Beverage Concessions provided in accordance with best practice and the CST Business Plan.
- The Pitch is to be designed in accordance with specified requirements
- Stadium operations to be designed in accordance with the CST Business Plan.
- Team and Officials facilities to be provided in accordance with specified requirements
- Media facilities to be provided based on broadcaster requirements
- Design requirements will be primarily budget and business plan governed
- NZ Benchmark developments include AMI (Christchurch), Rugby Park (Waikato), Ericson (Auckland), North Harbour and Westpac (Wellington)
- International Benchmarks include Telstra Dome (Melbourne), Commerzbank Arena (Germany), Millennium Stadium (Wales), Dallas Cowboys Stadium (USA) and Skill Park (Australia).
- Environmentally Sustainable Design (ESD) principles to be considered.
- Flexibility should be provided for standing areas, particularly for students

The CEO will approve the detailed area and facility schedule as part of the preliminary design phase on behalf of the CST Board.

The focus for the team during the concept stage, despite the multipurpose intent of the total development and integration of the University, has been the stadium elements only,. From a cost shares perspective it makes it easier to apportion potential costs when allocating to other potential users or project partners. Nevertheless, a whole concept view has been adopted despite the stadium only needs.

Methodology

The concept design phase benefited significantly from the consultation process undertaken as part of the Masterplan and Feasibility stage, building on the briefing taken at the start of the process.

It is expected however that further consultation to close off the user group process will continue through the preliminary design phase. Although not ideal, we acknowledge the difficulties of trying to include other users when final approval for the project to proceed is still pending.

From a more technical perspective, we have also approached our current design phase by sectionalising the elements of the development starting

with the roof, then working through the structure and substructure. The envelope, fitout and services convey CST's original intention and the design teams revised philosophy to the overall Masterplan.

Following this concept design phase we will move into the preliminary design phase before pushing into developed design and then into detailed design for construction. There is still some significant work to be completed for building services which will now move into the preliminary design phase without significant impact on our other assumptions.

Before the preliminary design phase is completed a further value management session would have been undertaken in review of the current assumptions.

Key Challenges and Risks

Section 2.7 outlines the key challenges and risks for the project utilising and building on the list developed as part of the Masterplan and Feasibility report. From a project delivery perspective our critical milestone remains the lodgement of the District Plan Change application in early to mid December 2007.

The main focus for this section differs slightly from the Masterplan and Feasibility in that it is Project Delivery based and focused on more detailed Design and Construction Risks.

Cost Plan

The construction and design budget remains at $165.4M and excludes the CST's direct costs that together re-establish the original budget for the project at $188M. We are still working through different design iterations that respond to the various current challenges of the roof and substructure.

The roof cost challenge appears to have been tamed although our next big challenges are the stadium stand structures and substructure design and assumptions, where the current geotechnical findings and Masterplan assumptions are different. Good progress has, however, already been made on this. Our new cost plans will include the potential staging of the overall development and will be included as part of our Preliminary Design report.

Our ability to access some "as built" cost plan information for AMI Stadium (previously Jade) has been invaluable in establishing regionally appropriate budget assumptions.

Buildability

A proposed construction strategy has now been developed in detail and compliments the current design assumptions. Initial and ongoing market enquiries have confirmed the availability of suitable plant and equipment with labour resource reviews ongoing. For projects of this scale it is important not to be constrained by market supply during construction so the design has been developed with some flexibility to respond accordingly..

The initial complexities in the roof are at this stage resolved. A detailed construction report has been started and will be part of the preliminary design summary to support both fundamental design assumptions as well as the forecast preliminary and general requirements. Offsite and onsite prefabrication will also be essential to reducing potential congestion on site and maintaining the necessary rates of production to meet programme.

Our initial construction strategy is based on projectising the key building blocks for the project. These elements include:

- South Stand
- North Stand
- East Stand
- West Stand
- Roof
- The Pitch and Siteworks

From a programme perspective the south stand is critical given its size and fitout requirements with all other elements being undertaken concurrently.

From a University perspective, this development could also be undertaken concurrently given the bulk of the stadium work is confined to the external building line of the stadium structure. The University and other development opportunities have been considered from an overall site development perspective.

1.3.A

1.3.B
Proposed development surrounding the new Wembley Stadium. Currently under construction.

1.3.C
Telstra Dome, Melbourne

1.3 Stadia & Urban Regeneration

We are now standing at a point where stadia are considered as valuable attributes to a city, as parts of the makeup of the civic pride of a community, a building that reflects their aspirations and passions. They are the only building type that can evoke personal and community emotions and aspirations on a massive scale.

Stadia have moved a long way in terms of design and community standing over the past 20 years and are now recognised as one of the great civic pieces of architecture, one of the essential buildings for a modern city standing proudly alongside the more traditional civic buildings such as libraries, art galleries, theatres and museums. Stadia and airport terminals are the buildings that define the 21st Century City; they are the quintessential building of our modern popular culture, the building where the hopes and aspirations of the community are witnessed during every sporting event.

Stadia design needs to reflect the aspirations of the community they serve and as such every stadium represents the city and region it plays host to. These aspirations can be represented physically and allegorically in the development of an architectural language appropriate for the building.

Sports stadiums have become the identifiable gathering places of our communities, the symbols of our contemporary culture, civic leaders and sports authorities face the dilemma of whether a city should develop new facilities or refurbish / redevelop existing stadia to cater for the developing needs of all sports. Within this dilemma a further debate rages as to the merits of building dedicated stadia for each sport against the ability to design a new state of the art multi- purpose stadium which can cater for a multitude of sports, non sporting events and the aspirations of their fan base.

The answer to this dilemma is not just about affordability, it is also a question of the strength of the individual sporting codes and that will vary from city to city, along with the ability of the design to cater for the needs of both rectangular and oval based sports. A further key issue in the development of modern stadia is the need for the facility to be seen by the community as an asset that can be used 365 days a year, not just on event days, and one that actively engages with the surrounding neighbourhood.

Sport is now a multi- billion dollar industry. Advances in technology have brought sport into our living rooms and made it come alive, every hour of the day, culminating in the extraordinary scale of an Olympic games beamed to billions of people everywhere in the world. Today, stadiums, like Wembley Stadium, Stade de France or Telstra Stadium during the Sydney 2000 Olympics, become a country's most recognisable image.

This is the climate that we now find ourselves in when considering the design of new stadia and sport venues throughout the world. The audience and people who can experience these buildings are no longer just the local community but the national or even international community - the new international multi- media audience.

As the 21st century begins, interest in sports in our society is arguably at an all-time high. This passion for sport fills our arenas and stadia. The airwaves of talk radio, and the printed pages of sports sections follow the every movement of our favourite teams with ever increasing levels of scrutiny and analytical commentary. Across the world, business and civic leaders rally around winning teams to gain public favor for plans to build new facilities.

This keen interest in sports has resulted in an unprecedented building boom in new facilities. The fan experience has undergone unprecedented change in the past decade, driven by technology and the new era of consumer choice.

Back in the 1950s, '60s and '70s, major arenas and stadia were single-purpose and utilitarian: big boxes, rectangles or ovals with tiered seating, concrete walls to delineate restrooms and concessions and little else. The word "amenities" was absent from the lexicon of sports facilities. The limitations of the fan experience were balanced by limited choices for leisure expenditures and expansive amounts of leisure time.

In the late 1970s and early 1980s however, the seeds of change were sown, firstly in the United States market, then to the rest of the world. Some of that change was grounded in the building of highways and the rise of the suburbs. Dual income families became more prominent, and pressure to provide discernible added value to capture diminishing leisure time began to grow. An era of change was on the horizon.

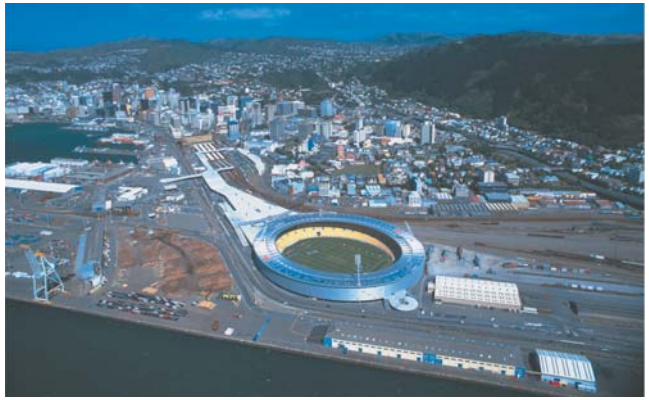
A new generation of facilities introduced the concepts of 'luxury suites' and 'club seats.' Two venues in particular in the United States, The Palace at Auburn Hills and Pro Player Stadium, set new standards for high-end amenities. Outdoor air conditioning for club seat holders and a distinct concourse in Pro Player and the close proximity and prominence of mid-level suites at The Palace broke new ground and raised expectations for future buildings.

Ironically, a watershed moment that helped transform the industry was an amateur event: the 1984 Los Angeles Olympic Games. To understand how we got to where we are today, we must first understand the impact of the Olympiad of Los Angeles. The climate at the time the Games were awarded was dramatically different to the present day desire to host the Olympic Games. The 1984 Games were awarded in 1977, just one year after the financial debacle of 1976 in Montreal. The shadow of the tragedy of the 1972 Munich Olympic Games still loomed. Quite simply, in 1977 the Olympic Games were hardly a desirable commodity. Ultimately, only two cities sought to host the Games: Los Angeles and Tehran.

With Los Angeles hosting the Games virtually by default, private sector organizers were severely challenged to raise the required money to stage the Games. Organizers focused on the corporate community. By positioning the Olympic Games as a patriotic force, the organizing committee successfully negotiated a series of unprecedented marketing partnerships with companies like American Express and Anheuser Busch. The Los Angeles Olympic Games logo began to appear on product

1.3.D
Suncorp Stadium, Brisbane

1.3.E
Emirates Stadium, Arsenal FC, London



1.3.F
Westpac Stadium, Wellington

packaging. Sponsors leveraged their rights via print and broadcast campaigns that emphasized the patriotism of the Games.

The Los Angeles Olympics were a smashing success by all accounts, and among the lasting legacies was the birth of the modern-day sports marketing industry. The Games were the first sustained, high profile manifestation of the impact sports could have on corporate imagery and sales, and as a vehicle to boost employee morale. Corporate marketers began to shift dollars from traditional advertising to event driven expenditures. Since then, for every one new dollar in traditional advertising, two new dollars have gone into event marketing.

As corporate America embraced sports marketing, pressure to provide more amenities in arenas and stadia began to grow. Corporate marketers sought more comfortable seats, suites, private entrances, special access to dedicated restaurants and hospitality, and creative ways to differentiate the game day experience. The consumer also was demanding more value for their entertainment dollar. Technology offered more choices, including cable television and the Internet. To be lured away from this increasing array of choices at home, venues had to respond with greater comfort, safety and more entertainment options.

The quality of the total experience and the need to engage patrons emerged as important factors. These trends rendered many of America's most storied venues as non-competitive dinosaurs. Venerable Chicago Stadium, with its tight seating, narrow aisles and corridors hardly seemed befitting of Michael Jordan's Bulls. High growth cities like Atlanta and Nashville, with new wealth in the hands of baby boomers, demanded more than their buildings could offer.

Another key trend emerged which fostered the new paradigm: the recognition by business and civic leaders of the perceived value of sports arenas and stadia as catalysts for urban revitalization. In a reversal of the trend of the 1970s and 1980s, teams began to return to the urban core and virtually without exception, expansion franchises elected to locate within the fabric of the city instead of the suburbs.

The stadium is a complex planning tool. If it is used wisely, it can help a city grow, especially on barren redundant brown field sites that are no longer an integrated part of the city yet are still connected to it by its location to the CBD and its transport infrastructure. All of our cities have such places, close to the city which are ripe for rejuvenation. A great deal of urban regeneration takes place in an understated unglamorous way, with people quietly moving into refurbished warehouses and industrial buildings. This is the type of city regeneration for which sporting venues can act as a catalyst as has clearly been seen in stadia developments in the USA during the past 20 years.

This regeneration will occur increasingly due to the 'emotional' acceptance of an area when it is used for sport and entertainment. People see the area in a very different light. There is an 'atmosphere' created around a sporting event, which generates powerful and intense emotions. The emotional experience of attending and participating in a major sporting event is exhilarating. It is not just the event, there is an 'afterglow' and this illuminates and activates the whole area.

A stadium alone will not transform a blighted area. A sports facility must be part of an overall plan to attract business and industry. It must be planned to integrate with a neighborhood, a district or a city.

A prime example of the potential for urban regeneration around the development of a major stadium is Denver's Coors Field.

Coors Field, opened in 1995 as home of the Colorado Rockies baseball team, changed everything in Denver. Coors Field catalyzed and accelerated the growth of its location, Denver's languishing 26-square-block lower downtown area, known as LoDo. From the attendance figures, you can see the massive amount of people Coors Field brought to the area.

Attendance

From 1995 to 1999, the Rockies have drawn 19.1 million fans, or an average of 3.8 million fans a year. 3% of season ticket holders are from out of state

What might have taken 10 to 12 years, LoDo experienced in 18 months. The revitalization is the stuff of urban textbooks: a pedestrian mall, public art, small neighbourhoods, a collection of high-end retailers and art museums.

- The Denver Convention and Visitors Bureau says one of every four tourists have attended a Rockies game.
- In 1990, the Denver Metro Chamber of Commerce put together a projected economic impact study. In 1990 dollars, the projected impact was $90.5 million. In 1994 that figure was amended to $194.22 million.
- In 1990 property in LoDo was selling for $10 a foot. In 2000, it was more than $80 a foot.
- Vacancy rates went from 40 percent to 10 percent.
- Since Coors Field opened, sales tax collections in LoDo have doubled.

Housing

- The area has become one of Denver's hottest residential neighborhoods.
- In 1994, only 549 people lived in LoDo. One year later, it had 1,500 residents who paid $650,000 for properties that had sold for $250,000 six months prior.
- In 1997, LoDo had an estimated 2,500 residents.
- Before Coors Field, LoDo had 270 housing units. In the five years

1.3.G
Oriole Park, Camden Yard, Baltimore

that followed, that number rose 408 percent to 1,374 units.

- In 1996, the 945 rental units built downtown were more than in the previous four years combined.
- Residential sales prices jumped from $100 to $220 per square foot.

Entertainment

- More than 25 restaurants opened in LoDo between 1993 and 2000.
- From 1993 to 1996, the number of restaurants in the area increased 140 percent.
- Food and beverage sales in LoDo jumped 651 percent from 1991 to 1998. Microbreweries increased from four to 10.
- Food and beverage sales tax collections for LoDo increased 651% from 1991 to 1998
- Sixty-one liquor licenses were issued within seven blocks of Coors Field between 1991 and 1997.

1.3.H
Coors Field, Denver