Building Transformation Through Housing Expos: A multi-pronged strategy to help address the wicked problem of affordable housing.

Clare Newton[1], Ian Gilzean[2], Sarah Backhouse[1], Tom Alves[3], Carolyn Whitzman[1] and Alan Pert[1]
[1]Faculty of Architecture, Building & Planning, The University of Melbourne
[2]The Scottish Government—Government Architect
[3]The Office of the Victorian Government Architect

Abstract: We begin with a provocation. Australia has some of the best housing research in the world and yet we are trailing behind many countries that have more proactive and coordinated approaches to the provision of affordable housing. The affordable housing industry in Australia is both underfunded and risk averse yet pockets of innovation in planning, design and construction are occurring in many states. In this paper we suggest that housing expositions (housing expos) are a useful strategy for building partnerships across developer, design, real estate and consumer sectors. Housing expos have developed and promoted innovation in the design and delivery of housing in Germany, Scandinavia, Japan and Scotland. We argue that housing expos have the potential to demonstrate alternative living environments as viable options to the current housing choices which are largely limited to new apartments for singles and couples and detached suburban housing designed for families. Housing expos can also demonstrate new construction strategies such as prefabrication. Key themes which could be usefully explored within Australian housing expos include higher density living for families, place-making for health and community, life-cycle costing and sustainability, green urbanism, prefabrication and design for an ageing population.

Introduction

Australia's population is both expanding and ageing with most growth occurring in capital cities (Australian Bureau of Statistics 2013). Melbourne's current housing context is one where significant household growth combined with poor and declining housing affordability is putting pressure on urban systems and exacerbating social and environmental problems. A useful definition of affordable housing is where rent or mortgage payments do not exceed thirty percent of lower to middle gross household income. Currently more than one-third of renters and one-fifth of buyers pay more than thirty percent of their household income in gross rent or mortgage repayments. This has increased dramatically from 1982 when only a little over a fifth of renters and less that ten percent of buyers were in this position (Wood *et al.* 2014).

Within this context, the two dominant models of housing supply: suburban detached housing and high density inner urban apartment development (Australian Bureau of Statistics 2012), are failing to address key aspects of housing need or a metropolitan transition to sustainable urbanism.

Housing Expos have been utilised to promote, develop and showcase innovation in design and to engage the public in new ideas on housing (Darian-Smith *et al.* 2008). Germany has a long tradition of using housing exhibitions to test new ideas in housing design and urban living. Housing Expos in Sweden and Finland have demonstrated how ideas on sustainability have influenced new approaches to housing in a wider city-regional context. This paper considers international precedents to explore the potential of Housing Expos to be transformation agents, drawing together a range of stakeholders to address the wicked problem of affordable housing and to inspire industry, investor and consumer confidence in innovation particularly for affordable housing.

The paper begins by reiterating the challenges facing Australia in terms of affordable housing with the provocation that Australia is trailing behind many other countries with more proactive and coordinated approaches to the provision of affordable housing. The body of the paper is structured into three parts. We first look to the ***past*** to explore local and international case studies. An international horizon scan considers the impact of ***recent*** Housing Expos and demonstration projects. We then look to the ***future*** to explore what role a Housing Expo might play, in particular for the context of Melbourne. The key message in the paper is that Housing Expos are not just a mechanism for public dissemination of new ideas but are a means for developing the necessary conversations and consensus between key industry, not-for-profit and government stakeholders in affordable housing (Berger 2012).

Melbourne's big housing issues

Access to quality affordable housing is increasingly difficult. Australia's population is expected to increase from 22 to 36 million by 2050, with most of this growth projected to occur in capital cities (Australian Government, 2010 p. 27). ABS (2011) data projects over four million extra households will be required by 2036.

The need for affordable housing, with easy access to public transport, jobs, and services, will increase in an ageing society with fewer households in the labour force, and consequent lower income and health status (McDonald 2003). An increasing percentage of our population will be post retirement age. In Australia most people over 65 still live in private dwellings. In 2006, over 80% of Australians aged over 85 and older live in private dwellings (Davy *et al.* 2010).

The lack of affordable housing cannot be explained by lack of supply only, even though population growth is outpacing new home approvals in many Australian cities (Dalton *et al.* 2011; Flood and Baker 2009). Australian tax structures have encouraged high investment in housing through negative gearing which feeds into high purchase prices (Palmer and Jeyaratnam 2014). Although designed to stimulate new house construction, 80% of investment purchases has been for existing houses. Palmer and Jeyaratnam also argue that record low interest rates have tended to result in increased house prices rather than more affordable homes. Most house construction is still for detached housing although the percentage dropped from around 75% in the 1980s to under 50% in 2011 (Dalton et al. 2011). Roughly one third of Australian homes are fully owned, one third mortgaged and occupied and one third rented (McCrindle 2013).

Part One - Looking Back

Temporary Exhibitions, Expositions and World Fairs

The Great Exhibition in London of 1851 began a series of international expositions that have explored the intersection between manufacturing, design and culture, promoting new understanding, more sophisticated consumer expectations, and enduring legacies. Australia's participation in Expo 1967 in Montreal was significant due it to being the first international exposition that Australia had attended since 1939 New York World's Fair. The featured exhibits of the Australian Pavilion composed a revised self-representation of our nation as advanced and independent in front of an international audience (Darian-Smith et al 2008). Modern architecture and interior design were elements of the exhibit, with the pavilion designed by architect James Maccormick, and futuristic 'sound chairs' designed by Grant and Mary Featherston where visitors could sit back and listen to audio discussions about Australia's future.

Temporary events such as these international Expos feature high attendance together with media exposure. They may, for example, profile a country's expertise in manufacturing, engineering or agriculture and are frequently positioned to encourage public sentiment to move with changed economic or political times (Roche 2000, pp. 8-11).

Permanent Demonstration Housing Projects

There are also significant international precedents of permanent demonstration housing projects. Two of the most famous are in Germany. The first, known as the Weisssenhofsiedlung, was built in 1927 for the Deutscher Werkbund exhibition with land and financing provided by the City of Stuttgart. Twenty-one buildings, designed by seventeen European architects, housed sixty dwellings. Approximately half a million visitors came to see the Werkbund Exhbition over a three-month period. The exhibition aimed to showcase "Neues Wohnen" (New Living) in terms of economy, functionality, construction and technical fittings and furnishings and was built in 21 weeks using innovative construction techniques. Although relatively modest in scale, the Wiessenhof Estate was the antecedent for a new wave of housing typologies which were adopted internationally and heavily influenced by modernism. International connections resulting from the exhibition led to the formation of CIAM (Congrès Internationaux d'Architecture) in 1928 (Barbieri 1989, Sherwood 1981).

During the early 1950s, in a divided Berlin, West Berliners were appalled by the rise of the large-scale socialist-style apartment buildings of East Berlin. As a clear point of differentiation between the two sides of Berlin, the West decided to host a permanent housing exposition that was both visionary and political in its agenda. 'As in the Weissenhof of 1927, the variety of types—tall, medium or small blocks, some

detached and some terraced—served to exemplify the alternatives at the disposal of a modern city' (Benevolo 1977, p. 738). Perhaps most relevant aspect of this 1957 International Building Exhibition (IBA) to any future Melbourne projects is that the collection of buildings displayed a rich variety of responses to the brief allowing both visitors and residents to experience new ways of living. Both projects also informed the design of many subsequent housing projects across the world.

Melbourne Modern: Robyn Boyd and the Small Homes Service

In addition to such noteworthy international Exhibitions and Fairs, it is important to note innovations close to home. Among the most successful exponents of modern domestic architecture in Australia was Robin Boyd. His contribution was not only to interpret European modernism to the Australian urban context but also to communicate architectural ideas effectively to a broad public. From 1947 to 1953 Boyd was Director of the Royal Victorian Institute of Architects' Small Homes Service and used this as a vehicle to disseminate modern ideas about the home to a wide audience. The Small Homes Service allowed people to purchase, for a modest fee, working drawings and specifications for a small home, the construction of which they would need to arrange themselves. The designs were modern and their public acceptance was supported by Boyd writing a weekly column in *The Age* newspaper, which extolled their benefits. The plans were on display at a public venue in central Melbourne. This constantly evolving public exhibition of modern home designs proved very popular, with 1000 people visiting during the first nine days (Serle 1996). The plans were on display at a public venue in central Melbourne. As the homes were built (ten per cent of new homes built in metropolitan Melbourne just before 1950) this effected a transformation of public acceptance, expectations and the capacity of the building industry. Also highly influential were two full-scale demonstration houses that Boyd designed for display in the Royal Exhibition Building. The 'House of', exhibited as part of the Modern Home Exhibition of 1949, and the Small Homes Service 'Sunshine House', displayed at the *Better Homes and Housekeeping Exhibition* of 1951, were both well-visited and challenged public opinion.

Postmodern Melbourne: The Ministry of Housing's Infill Housing Program

Another important development in the local conversation about architecture and urban housing was precipitated in the early 1980s by the Victorian Ministry of Housing. Prior to this time, public housing had been delivered either as detached suburban housing or through the deliberate demolition of whole blocks of inner urban housing and their replacement by prefabricated high-rise towers. This approach to urban renewal, along with the freeway construction programme which accompanied it, had become discredited elsewhere in the world and was the target of vigorous urban protest movement in Melbourne. In response, the Ministry of Housing switched to a policy of spot purchase and restoration of existing houses, combined with careful infill projects more sensitive to the scale, language and grain of existing urban contexts. Architect John Devenish, who had just overseen the internationally acclaimed Woolloomooloo Renewal Project in central Sydney, was appointed to lead the new programme. Younger, local architectural practices were engaged to design the infill projects and critically translated the scale, form and ornament of the historic fabric. The Berlin IBA had a profound influence on the urban and architectural ideas expressed through this local policy. The emphasis on urban integration, revaluing and reinterpreting traditional urbanism, and the pursuit of diversity and the particular rather than repetition and the universal, owe much to international debate in which the IBA was pivotal. The body of work produced by the Ministry of Housing between 1982 and 1985 functioned like a kind of open-air exhibition of revived urbanism and architectural postmodernism in Melbourne.

Part Two—Looking Around

The idea of demonstration projects exploring different themes to nurture and inspire change is not a new one. Most of these projects have left permanent, important legacies that explore innovations of their day. Government support has been an important part of these events, both politically and financially, as has the involvement of designers, inventors, the private sector and other participants. In recent decades, some of the most compelling case studies for demonstration housing projects as change agents have hailed from Europe. They have involved innovation, new typologies, and essential partnerships including government, private sector, investors, and design professionals. What now follows are themed turning points which have a particular relevance to our current situation in Melbourne.

'Green' Urbanism: Malmo, Sweden

In the 1990s and 2000s the impact of climate change began to influence both urban and housing design, and many cities developed new policies and action-plans aimed at reducing carbon footprints and minimising resource use. The emphasis is to promote walking, cycling and green infrastructure as design factors in a move towards ecologically focused urbanism (Austin 2013). Malmo's Bo01 'City of Tomorrow' Expo from 2001 has provided an internationally renowned example of ecologically based regeneration situated on Malmo's post-industrial waterfront. Bo01 demonstrated that good quality housing can be developed in partnership between public and private sectors and moreover how a strong commitment to renewable energy, green roofs and sustainable water management can be used to enhance the attractiveness and desirability of the housing and neighbourhood.

The central principle of Klas Tham's design for Bo01 was that the urgent shift to addressing the need for long-term sustainability will only be possible when the sustainable route is regarded not only as the wisest option, but also as the most attractive one. Malmo has overseen the transformation of the island from a polluted industrial zone to an environmentally-conscious district with 600 homes and associated business and recreational areas with the docklands regeneration as an internationally significant ecological quarter. Malmo's Western Harbour has become a flagship example for dense urban development with social sustainability built in. The ecological strategy was successfully integrated into market-led development processes. The private sector embraced the holistic nature of the development and met the conditions of building leases set out to meet the city's quality programme. The masterplan for Västra Hamnen successfully exploits the natural waterside advantages.

Figure 1 *Malmo* – innovative sustainable housing and masterplan regenerating a former dockland area
Source: Author—Ian Gilzean

Other Scandinavian cities such as Stockholm and Copenhagen (to which Malmo is strategically linked by the Oresund Bridge) have also achieved international recognition for setting and achieving extraordinary environmental standards and carbon reduction based around walking, cycling and regional public transport strategies. Hammerby Sjostad, originally planned to be Stockholm's Olympic Village in 2004 (Athens won the bid), has defined international best practice for 'eco-town' development, exploiting new ways of recycling energy, waste and water.

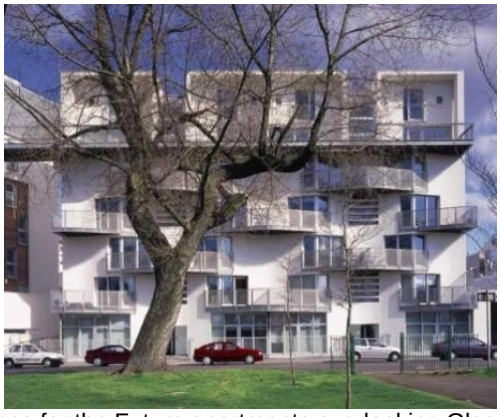
Annual self-funded housing fairs: Finland

The Finnish Fairs (Housing Fair Finland Co-op 2013) have been held in a different municipality each year since 1970 and are permanent developments consisting of a master-planned site with a series of plots containing one or more dwellings designed and constructed by different designer/constructor teams. Each year the Fairs have a different theme, exploring issues such as sustainability, place-making, and innovative construction, and comprise individual houses, townhouses, apartments, and community facilities as appropriate to the theme. Responsibility for planning, construction and organisation of the Fairs lies jointly with the Finnish Housing Fair Co-operative and the municipality which has been selected by a competitive process to hold the Fair in that year as the sites are already in the ownership of the sponsoring municipality. The general time frame for a Fair is 4 years from conception to delivery. The

Housing Fair Co-operative was initially funded by the banks that are represented on the board of the organisation, but no longer receives any external funding. It has, however, accumulated significant reserves, some of which it uses as up-front investment in facilities and attractions at the fairs. This is fully recovered in the Co-operative's share of ticket sales and income from the commercial organisations which exhibit their products at the Fairs. The Fairs are run as commercial enterprises and the financial reserves also provide protection from any unforeseen financial losses which could occur if expected visitor numbers are not achieved The Housing Fair is the best known of a series of annual Finnish fairs, and over 90% of Finns are aware of these events (Heiskanen 2014). The Fairs are initially an exhibition as up to 200,000 visitors attend over four summer weeks, then become a permanent legacy as houses are sold or rented after the Fair.

Housing as Place-Marketing: Glasgow, Scotland

Over the past 30 years, the city of Glasgow has successfully used Design Festivals to help to rebrand the city's image and post-industrial identity, for example through the Glasgow Garden Festival in 1988 which focused on landscape design. In 1999 Glasgow became the UK City of Architecture and Design. The Glasgow 1999 Festival aimed to celebrate excellence in architecture and design from around the world; to promote awareness in the people of Glasgow, its communities, organisations and business of the cultural and economic importance of the design process; and to highlight new thinking to help position Glasgow as a major European city of ideas. 'Homes for the Future' on Glasgow Green was a key legacy project from the ambitious and well-funded 1999 programme and was intended to showcase an innovative and ground-breaking approach to new build housing close to the city centre of Glasgow. The project aimed to regenerate a derelict infill site and provide innovative design and construction partnerships between developers and architects on each plot. The project was overseen by the 1999 Festival Company Ltd and masterplanned by Page and Park Architects, a Glasgow based practice. Their guidelines for the site indicated a mix of accommodations of various tenures, sizes and budgets. It specified the need to address the scale of the site, with an appropriately urban character, rather than a suburban one. It also specified that individual houses should address the issues of barrier free access, low energy and different living and working combinations. Involving seven architects (both established and emerging) and five developers, Homes for the Future provided a range of housing typologies and design approaches. The scheme has a strong sense of urban grain and was one of the most important projects to emerge from Glasgow's year as UK City of Architecture and Design. Most of the housing was sold before completion and property values on the site have increased significantly.



Figures 2 & 3 Homes for the Future apartments overlooking Glasgow Green, Glasgow, Scotland
Source: Author—Ian Gilzean

Building upon the experience of 'Homes of the Future', in 2010 Scotland ran a Housing Expo showcasing over 50 'designs of the future' to the public, inspired and informed largely by the model of the Nordic precedents. The Expo raised awareness of housing design challenges and the need for continuous innovation. At a political level, it helped sustain interest in the achievements of architecture policy, and after the 2011 election a commitment was made by the new majority government to renew Scotland's architecture policy ('Creating Places' was published in June 2013). The Expo was highlighted as a good practice model in the Scottish Government's vision for housing, bringing together both the private sector, government and not-for-profit entities for the project's delivery.

The Housing Expo highlighted the need for work to be done on creating sustainable Scottish supply chain and there has been a continued focus on this issue. The Scottish Government together with Scottish Enterprise has invested £7.5 million in setting up the Scottish Centre for Construction Innovation opened in 2014. This was established to connect industry and academia and further develop knowledge and expertise on themes such as off-site manufacture and modern methods of construction. The integration of Scottish Government policies on urban-design (e.g. Designing Streets) and green infrastructure which were tested at the Housing Expo are now becoming more mainstream and in particular were applied to full effect in the delivery of the Commonwealth Games Athlete's Village completed in 2014 in Glasgow.

Figures 4-8 Scottish Housing Expo
Source: Author—Ian Gilzean

Significant international housing expos have been held at key turning points in the recent history of urban development and these can be seen to have influenced local outcomes and practices, including in Melbourne, Australia. We now describe some Melbourne projects before considering how a Melbourne Housing Expo might have a transformative impact on local housing issues.

Green Melbourne: Some local projects

Bo01 and the other European examples are regeneration precincts on a large scale that, in addition to showcasing sustainable housing and place making, also manage energy, waste and water at the precinct scale. Substantial inner-urban, ex-industrial sites in Melbourne have also undergone regeneration but not within an over-arching educational agenda. Some individual projects, however, have sought to take on the role of demonstrating, testing and showcasing these principles at a smaller scale. The *Inkerman Oasis* project (City of Port Phillip 2001), a redevelopment of a council depot site at the City Port Phillip and run as a public private partnership, pioneered on-site water recycling and management. *Westwyck EcoVillage* (WestWyk Pty Ltd 2014), the adaptive re-use of a former Brunswick primary school site as a medium density residential community, has adhered to strict Environmentally Sustainable Design principles in pursuit of 'one planet living' and has functioned as an urban demonstration project for sustainable development and good design through regular open days and other public engagement events. Being a co-housing cooperative, it also explores alternative ownership arrangements. *Living Places,* a public housing redevelopment project in Dandenong, consists of fifteen houses with high environmental performance at both the dwelling and site scale. It was the result of an open design competition run by the Office of the Victorian Government Architect (OVGA) and the Office of Housing and had a wider ambition of demonstrating social and environmental sustainability in a suburban context. The *Sustainable Affordable Housing Initiative* (later Habitat 21) resulted from another design competition, organised this time by the OVGA and VicUrban (later Places Victoria), and sought to influence the environmental performance of detached project homes. The six winning designs were constructed as a display village called Habitat 21 on a housing estate in Dandenong developed by Places Victoria.

Part 3 - Looking Forward

The potential of Housing Expos in Australia

In the context of Australia's arguably risk-averse residential market, this paper makes a case for Australian Housing Expos as a means of stimulating and exchanging new possibilities for housing development in general and affordable housing in particular. As demonstrated by our precedents, Housing Expos help shift cultural expectations by encouraging both industry and consumers to test out new designs, construction, materials and sustainability; understanding new development and investment models; engaging a wide audience in new housing typologies, tenures and sizes; and utilising sites which might otherwise not attract a mainstream market. The testing and exploration of these through demonstration projects provides tangible, meaningful, visitable and assessable built outcomes.

In learning from precedents, we suggest there is a case for creating Housing Expos that: innovate housing typologies to support changing demographics within the context of Australia's ageing population; link design into issues of community and place-making; include examples of affordable and innovative construction; demonstrate viable examples of land-value capture and investment; demonstrate sustainability using life-cycle costing strategies; and challenge the Australian perception that medium or high density family living is undesirable.

A Housing Expo could also support innovation in Australia's construction industry through the creation of demand for construction innovation. Around three percent of Australian housing is prefabricated. In contrast over eighty percent of the Finnish Housing Expo housing is prefabricated, and in Japan, prefabricated construction is perceived as higher quality than in situ construction. Demonstration projects of prefabricated houses such as those developed in Germany and Japan have been significant in shifting the public perception of prefabrication. There is now the significant opportunity to work with Australian manufacturers of prefabricated building products to improve quality, efficiency, speed, and design adaptability while at the same time reducing costs, all of this increasing Australia's international competitiveness in an increasingly globalised construction sector. This goal is supported by a number of initiatives such as Australia's peak body for prefabrication PrefabAUS and the recently announced Australian Research Council Training Centre for Advanced Manufacturing of Prefabricated Housing (Master Builders Association 2015).

Developing 'Solutions Competitions' as a partnership process

Within the context of Housing Expos we suggest that design and construction competitions can act as change agents. We challenge the notion of competitions as linear problem-and-solution strategies with competitors simply responding to the needs of the competition sponsor. Instead we suggest that competitions can be strategically conceived to leverage knowledge between academia, consumers, government and industry using the competition brief as an educative tool aimed at shifting knowledge within our design, development and finance communities. In this sense, competitions might be less about seeking design solutions and more about driving cultural change using what is effectively a form of crowd-sourcing (Newton and Backhouse 2013). A 'design and development' solutions competition as part of the Housing Expos has several advantages. Effectively a form of crowdsourcing, the competition would ensure a broad selection of solutions. Competitions are also a way to gear knowledge and shift cultures within the design and development industries. A carefully developed brief based on international best practice would become an educative document.

More of the same is not the solution

For Australian housing, more of the same is not the solution. Housing is increasingly unaffordable, suburbs are spreading and our population is both ageing and growing. An increasing proportion of the population will be retirement age and therefore an increasing number of people are likely to have reduced health and mobility. This has urgent design implications as we are currently building houses and apartments that will still be in use in 2050.

Solutions Competitions and Housing Expos might be developed across a range of scales from small secondary dwellings associated with detached houses, to agile housing able to adapt to changing needs, to medium density and high density apartment developments. Granny flats and laneway housing have supplied thousands of housing units in Vancouver (City of Vancouver 2014). NSW has reviewed its complying development codes to provide certainty and flexibility including provisions for houses to accommodate secondary dwellings such as granny flats using as of right provisions (NSW Government

2010). This 2010 review supported the provision of secondary dwellings with a principal dwelling attached to or detached from the main house. Approvals can be gained within ten days using compliant development provisions. They cite a 2003 study that showed 6,400 secondary units in Sydney in 2001 with most being one bedroom but nearly half with two to three bedrooms. The average occupancy was 1.8 persons and the median rental was 33-50% lower than rents paid by similar households in other dwellings. The study concluded that over 26,000 Sydney dwellings had the potential to have secondary dwellings. For higher density scales, new options for family living and aged living might be explored.

Conclusion

Throughout the development and renewal of first world cities during the eras of industrial and post-industrial capitalism, Housing Expos have played an important role in proposing and promoting new visions of urban life. Initially focused on improving standards of living for a growing middle class and more equitably distributing the benefits of urban life, more recent examples have sought to respond to new awareness of the limits of urban growth and to rethink the urban condition itself. The Housing Expos briefly surveyed here have coincided with—but have also helped to precipitate—key turning points in the development of urban settlements. Crucially, they have highlighted the role of housing in urban transformation. The turning points identified chart the progress of housing in the modern city from its engagement with improving living standards and advancing the autonomy of the individual, towards more social and ecological concerns. The influence of these seminal demonstration sites can be detected in most large cities throughout the developed world, including Melbourne.

This paper welds together an interdisciplinary approach, theoretical analysis, historical study and particular case studies which help to offer a way forward. Importantly we are asking the fundamental question of, 'how do we want to live in a future Australia'? The question is not about design in isolation but about how citizens are catered for and how places are shaped through built form, open space and access to amenities. Housing Expos provide one strategy to break the mould, offer alternatives, test ideas and embrace diversity. Melbourne has attempted to address some of these issues in the past, albeit with small scale interventions, and we have a duty to recognise and learn from these important built legacies that over time have been forgotten.

We make the case for developing Housing Expos as a strategy to tackle the paralysis in action that has led to a crisis in neighbourhood development, housing design and diversity of choice underpinned by affordability and technological innovation. The conventional boundaries between organisations, departments, public and private procurement, policy makers and disciplines have for too long actively hampered progress and positive planning for a changing demographic and the time for action is now, to help overcome these problems.

The Housing Expo proposes much more than a design solution. Local and international precedents contribute to a palette of strategies that demonstrate that design alone is not the solution, and instead Housing Expos need to demonstrate new approaches to urban policy, financing and investment mechanisms, housing typologies and tenures, incentives, partnerships, and new investment models. The potential of a Housing Expo is to explore the wicked problem of affordable housing through comprehensive cross-sector and interdisciplinary partnerships

The best of our case studies recognise the importance of place-making to unlock opportunities, build vibrant communities and contribute to a flourishing economy while at the same time recognising that to achieve positive change we require new partnerships involving government, private sector, investors, and design professionals. Through these new collaborations, positive, tangible outcomes can develop.

Acknowledgements

This research was funded by the Carlton Connect Initiative at the University of Melbourne in partnership with the Cities of Melbourne and Port Philip, the Victorian State Government through the Metropolitan Planning Authority, the Property Council of Australia, Frasers Property Australia, and the Lord Mayor's Charitable Foundation.

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