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University

## Urban Intensity | Urban Design

Sydney | Beijing | Hangzhou



# Master of Urban Development & Design

## Understand the role of urban design in relation to the forces which shape the city

This multidisciplinary degree links the study of urban design with the processes of urban development. You will develop theoretical grounding, practical experience and expert skills in city-making as a creative field. The program combines design studios with advanced seminars, case study investigations and international workshops, connecting with fellow universities, city agencies and urban design professionals to deepen your understanding of the 21st-century city.

In an intense three-term program, the Master of Urban Development and Design integrates three fields of urban research:

1. Spatial political economy – the manifestation in the urban form of global patterns of capital formation, investment and disinvestment
2. Urban design principles and paradigms – normative models of 'good city form' grounded in aesthetic, social and environmental concerns
3. Urban design as public policy – the intersection of public policy, design principles, urban governance and the deal-making of the property sector in defence of the public realm.

### Program of Study for full-time Candidates:

The Master of Urban Development and Design is a 1.7-year program. It consists of 9 courses. (72 Units Of Credit/UOC).

### The program includes:

- 1 International Design Studio
- 2 Australian Design Studios
- 5 Core Courses
- 1 Elective Course

### Key Areas of Study

- Urban Design Studio
- International Design Studio
- History and Theory of Urban Development and Design
- Case Studies in Urban Development and Design
- Planning and Urban Development
- Urban Landscape and Heritage
- Communication in Urban Design

### Progression Pathway

The Master of Urban Development and Design is an articulated pathway to the Master of Urban Development and Design Extension.

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2003

2005

20

Public Bay,  
Olympic Park  
Sydney  
Illongong  
NSW

Olympic Park,  
Victory Park, Kent  
Brewery, UTS,  
Central Station,  
White Bay, etc.  
Sydney

Hornsby, Burwood  
Central Coast  
Sydney

Pemberton Wilson  
Street, Rydalmere,  
Parramatta-Liverpool  
Transitway, etc.  
Sydney  
Grand Central  
Square-Caracas  
Global

Sydney Airport,  
Ryde  
Sydney

Redfern Eveleigh,  
Springfield,  
Burwood, etc.  
Sydney

Mumbai  
India  
Shanghai  
China

Bangkok  
Thailand  
Beijing  
China

Ho Chi Minh City  
Vietnam  
Suva  
Fiji

Hanoi  
Vietnam  
Taipei  
Taiwan, China

New Delhi  
India  
Beijing  
China

Buenos Aires  
Argentina  
Dubai  
United Arab Emirates

2002

2004

2006





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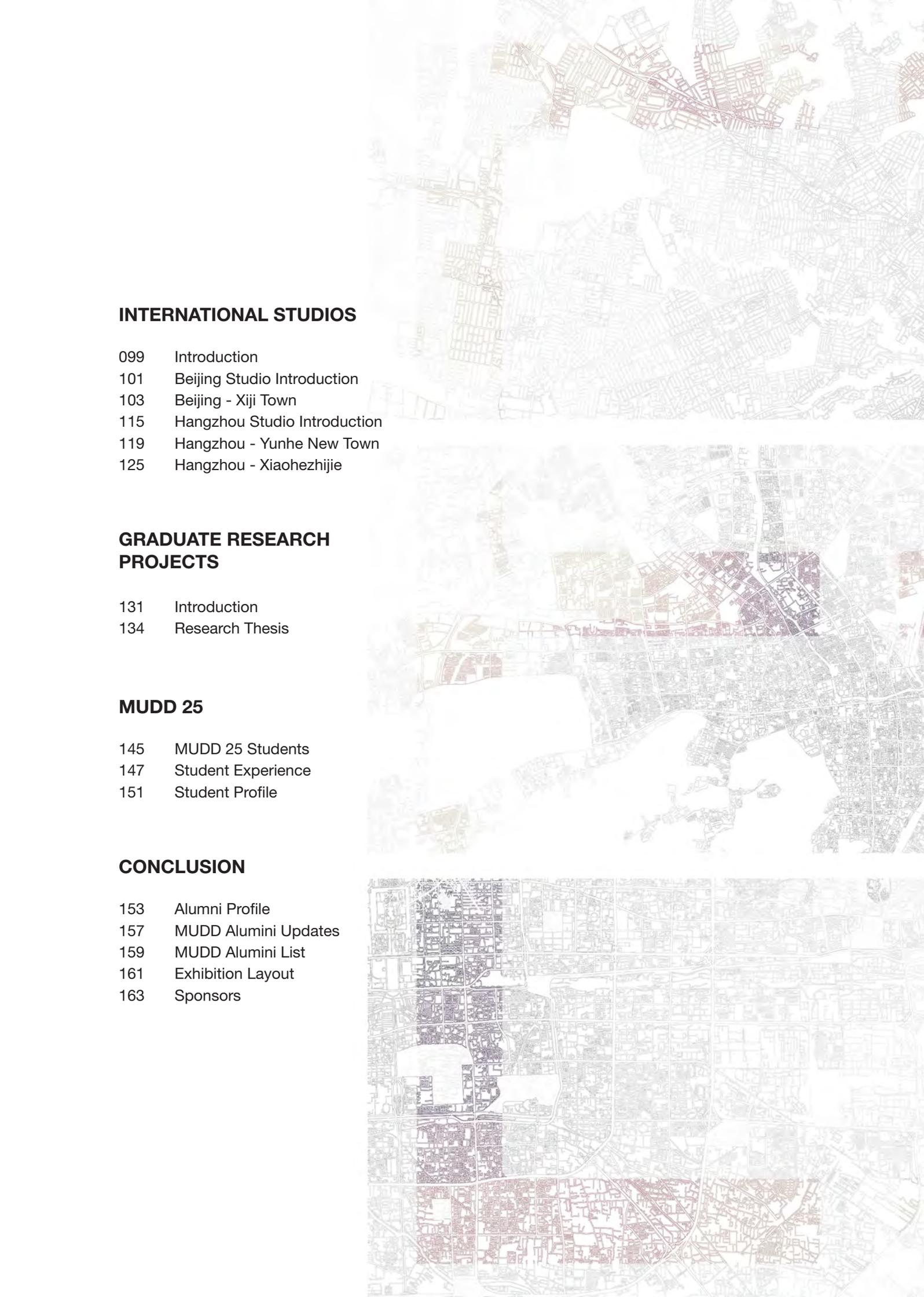
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# Urban Intensity and Urban Design – Sydney, Beijing and Hangzhou

## Message from the Dean:

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Professor  
Helen Lochhead

The UNSW Master of Urban Development & Design (MUDD) Program has celebrated its 25th anniversary in 2019-2020 with a series of critical projects in Sydney, Beijing and Hangzhou that have explored the inter-relationship of urban intensity and urban design. Our 2018 Paul Reid Lecture delivered by Professor Peter Rowe from Harvard Graduate School of Design, highlighted the nexus between urban intensity and ‘resource consumption, economic opportunity, social integration and environmental performance’ defining it in spatial terms as a measure of ‘compactness, density, diversity and connectivity’ (Guan & Rowe 2016, p.22). In this context, urban intensity can be seen as an expression of key elements of the UN Sustainable Development Goals that frame the research and curriculum agenda of the UNSW Faculty of Built Environment – in particular, the all-important imperatives for ‘Sustainable Cities and Communities’, ‘Responsible Consumption and Production’ and ‘Climate Action’.

Since 1995, the MUDD Program has attracted graduate students from Australia and overseas to a rigorous post-professional academic program structured to address these global challenges. The intensive year of inter-disciplinary study has been created to inspire and prepare our graduates to take leadership roles in the planning, design and development of complex, fast paced urban environments, wherever they may be.

Immersive studio design projects that challenge students to address both local and international urban agendas have been a key component of the program since its foundation. This studio experience creates well-rounded graduates who are able to think strategically as urban designers and appropriately adjust their design solutions to the different political, economic and social contexts of the cities in which they may operate around the world.

In the four Sydney projects undertaken this year ‘compactness, density, diversity and connectivity’ have been embraced as positive dimensions of urban consolidation, the densification of suburban Sydney which has long been contentious in local communities but must be considered essential for the sustainability of Greater Sydney in the 21st century.

On the Cooks River at Arncliffe, strategies to increase the density of the suburb and to develop the contested waterfront, were re-conceptualised in a MUDD25 Studio which took an integrated, catchment-based approach to determine the

scale and character of the intensified urban matrix as a series of eco-precincts, interwoven with green and blue infrastructure.

On Brisbane Water, north of Broken Bay, a combined MUDD and Master of Landscape Architecture studio undertook advanced GIS modelling to determine the impact of climate change-induced sea-level rise on low-lying waterfront communities. Working with the scenario planning approach of the CSIRO Futures Institute, the studio groups proposed new forms of resilient, consolidated settlements on higher ground, with the climate adaptation moves underpinned by 'transfer of development rights' principles.

In the Green Square Urban Renewal Area, a MUDD25 Studio interrogated the City of Sydney policies and controls aimed at maintaining light industrial uses immediately west and south-west of Green Square Town Centre, given the development of a Metro station at Waterloo within a 10 minutes' walk of the existing Green Square station. A new pattern of regeneration will be produced if the current wedge of low intensity 'service industry' employment lands is replaced with TOD concentrations of density around the two stations. While affecting employment diversity, introducing more compact development and connectivity to this part of Green Square, would create the opportunity to regenerate the water system of Shea's Creek extending down to the Alexandra Canal as a blue/green spine at the heart of a new community.

At North Sydney, the opportunity to transform the 'single use' 9-5 CBD, into a truly diverse 24/7 city centre has been created by the new Metro station in this key part of Sydney's Global Economic Corridor. The MUDD25 North Sydney studio re-conceptualised the over-Metro development as a catalyst for civic regeneration, injecting cultural and educational uses into a new commercial and residential mix at a level of intensification that could give the centre of North Sydney the urban vitality it currently lacks.

Further afield, in our international studios in Beijing and Hangzhou, the MUDD25 students examined the potential of new patterns of urban intensity to transform strategic sites at the southern and northern ends of the

UNESCO World Heritage-listed Grand Canal. In Beijing, the studio was hosted by Professor Yu Kongjian at the College of Architecture & Landscape Architecture, at Peking University and his practice, Turenscape, where students explored the possibility of revitalizing peri-urban villages at the eastern water-gate to Beijing, through a fusion of sustainable agriculture and high-tech spin off industries, the latter already clustering in the study area around a national cyber industry facility. In Hangzhou, hosted by Professor Wu Yue and Professor He Yong at the College of Civil Engineering & Architecture, Zhejiang University (ZJU), UNSW students worked with ZJU students to propose solutions for challenging brownfields sites in the former belt of heavy industry along the Grand Canal 10km north of the historic centre of the city.

Exploring projects of this scale and complexity in three global cities not only inspires students but also develops professionals that are adept at handling complex urban challenges. It is evident from the portfolio of urban intensification projects profiled in this 25th year of the MUDD Program that it continues to engender robust strategic thinking and critical discourse, guiding students to propose design solutions that balance competing urban agendas with vigorous analysis and objectivity. The MUDD 25 Yearbook presents a series of propositions, supported by insightful reflections by the academic staff, that demonstrate the inherent strength of urban design education set within an urban development framework. We look forward to seeing how our MUDD25 graduates use their interdisciplinary skills to transform urban environments and the lives of city dwellers in the years to come.

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# Urban Intensity & Urban design

## Message from the Program Director:

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Professor  
James Weirick

In our 25th year, we reflect on the qualities that have given the UNSW Master of Urban Development & Design Program its special identity – a commitment to the double ‘D’ integration of urban development and urban design, a critical engagement with the ‘urban project’ from a spatial political economy perspective, a creative mix of continuity and change in the exploration of our pedagogical principles over two and half decades, and above all, a championing of the design dimension of city-making.

Leading up to its launch in 1995, the MUDD Program was conceived as a response to the pace and scale of urbanisation worldwide unprecedented in human history. Although we knew that the curriculum would be engaged with Sydney as a continuing urban laboratory, we were convinced from the outset that Sydney had to be seen from a powerful international perspective. For this reason, we have welcomed students from 39 countries around the world – from Asia, the Americas, Europe, Africa, the Middle East, and Australasia – and have undertaken 53 international urban design studios, hosted by universities, city governments and major design firms from Beijing to Buenos Aires, New York to New Delhi. Embedded in this way, our engagement with urbanisation across the globe from a design perspective has been exciting, indeed exhilarating as the proportion of the world’s population in cities passed the 50% mark on its way to 70% by 2050.

The driving force behind the program has been a love of cities. For some time, however, we did not have a clear, compelling definition of ‘the city.’ We wrestled with Lewis Mumford’s portentous words, ‘a geographic plexus, an economic organization, an institutional process, a theater of social action, an aesthetic symbol of collective unity’ and the descriptive analyses of more recent scholars, ‘dense interactive locations’ where ‘knowledge is exchanged, innovations spurred and sophisticated skills developed’ (Mumford 1937, Harvey 1985, Henderson 2009). Then in 2017, ‘the city’ was defined for us in simple, direct words in a brilliant lecture given at UNSW by Pritzker Prize-winning architect Alejandro Aravena, Co-founder & Executive Director of Elemental, Chile: ‘the city is a concentration of opportunities’ (Aravena 2017).

The Aravena definition, capturing the fundamental rationale of urban life, has inspired our MUDD25 theme: Urban Intensity | Urban Design, with

'urban intensity' seen as the condition created by 'compactness, density, diversity and connectivity' in physical terms (Guan & Rowe 2016), and as a 'concentration of opportunities' in social terms, played out in the imperatives and challenges of everyday life.

In 2019-2020 we explored the theme of Urban Intensity | Urban Design in a series of Sydney Studios critically engaged with the challenge of urban consolidation and densification along a transect stretching north from the suburban setting of Arncliffe on the Cooks River, to the inner ring regeneration area of Green Square, the 'central city' business district of North Sydney, and the former 'weekender' communities on Brisbane Water, now dormitory suburbs on the urban periphery, threatened by the effect of climate change on sea-level rise.

In the MUDD25 International Studios, which were undertaken in China, we explored the Urban Intensity | Urban Design theme in Beijing, studying the recurring reality of the Chinese city expanding over rural villages on its periphery. In Hangzhou, we studied the urban transformation of industrial sites dating from the early years of the Chinese revolution, today largely obsolete and abandoned, posing formidable challenges in remediation and re-design for high-density residential, commercial and cultural uses. Both the Beijing and Hangzhou projects were charged with special significance, located at the northern and southern ends respectively of the UNESCO World Heritage listed Grand Canal, 1800 kilometres long, principally a legacy of the Ming Dynasty but with some sections formed as early as the 5th Century BC.

We returned to China for the MUDD International Studios in our 25th year for two reasons. First to meet up with and honour our largest group of graduates, our students from China, now successful, enthusiastic, interconnected as a remarkable group on digital media, and engaged with the pace and scale of urbanisation that inspired the MUDD Program in the first place. Second, to become familiar with recent city-making initiatives that have begun to integrate urban design into the formal processes of Chinese city planning (Jin 2019). These initiatives, aimed at creating more liveable, ecologically resilient urban environments, include the national commitment in 2013 to 'Sponge City' principles

of water sensitive urban design and the 2016 directive of the China State Council to create more fine-grained patterns of urban development and more human-scaled urban spaces (Kan, Forsyth & Rowe 2019; Yu & others (2015). These national policies must be considered among the most significant underpinnings of 'urban design as public policy' in the world today.

To see the emerging inter-relationship of urban design and urban development in today's China, reinforces the thinking that has formed the basis of the UNSW MUDD Program since its foundation.

First the focus on urban development in our double 'D' degree, considering development processes at urban scale essential to the theory and practice of the field. This approach embraces the overarching role of cities as engines of economic growth and change, and the specific role of property development in the 'circuit of capital', the process of investment and disinvestment in the fixed capital of the built environment.

Second, projection of the power of design, defined by Herbert Simon as 'the purposeful transformation of existing conditions into preferred ones' (Simon 1969). In this definition, design involves change, it involves directed change. It involves a deep understanding of existing conditions, an imaginative process of determining preferred ones, and a purposeful means of moving from one to the other.

Third, the integration through design of three bodies of knowledge about the city:

- spatial political economy, the manifestation in urban form of global patterns of investment and disinvestment;
- urban design principles and paradigms, normative models of 'good city form' grounded in aesthetic, social and environmental concerns; and,
- 'urban design as public policy', the intersection of public policy, design principles, the deal-making of the property sector and defence of the public realm.

In this 25th Anniversary Yearbook, two of my fellow founders of the MUDD Program – Emeritus Professor Alexander Cuthbert and Emeritus Professor Bruce





Judd – together with our ‘outside observer’, Visiting Professor Karl Fischer from Berlin, reflect on the pedagogical principles we have tested and refined since the mid-1990s. Professor Cuthbert highlights the role of spatial political economy in our critical positioning of the urban project in relation to the forces of global capital. Professor Judd sees the interdisciplinary basis of the program as the key to its engagement with urban challenges of the past and the future – the formidable challenges of demographic change, climate change and increasing urbanisation. Professor Fischer continues discussion of the interdisciplinary life of the program, seeing it as an achievement in human terms – across the academic staff and successive student cohorts – and as the intellectual basis for urban design as physical city-making in robust, defensible terms, paralleling in many ways the interdisciplinary strength of physical city-making in Germany. Here he refers to the theory and practice of *Der Städtebau*, created in the 1890s, revived in the 1980s and influential around the world since the Berlin IBA of that decade.

Reflecting more generally on the field of urban design, we have a powerful essay by a third founder of the MUDD Program, Professor Jon Lang. Revisiting Colin Rowe’s distinction between program and paradigm (Rowe 1982), Professor Lang discusses the dominance of paradigm-based design over program-based design in the world of practice, i.e. the power of seductive models over design generation from first principles. Although strongly supporting the latter, he ultimately advocates a fusion of the two, arguing that urban intensity will best be realised by rich programs based on the compact city model. John Zerby further interrogates the concept of urban intensity, critically exploring the relationship of intensification to measures of density, vitality, compactness, diversity, connectedness – and more broadly, to any move which seeks to ‘accentuate, amplify, boost, consolidate, deepen, enhance, heighten, magnify, step up and enhance’ the urban condition. In the process, he argues that the costs and benefits of intensification in social terms must be evaluated by means of the social sciences, relating the scale of the problem to recent urbanisation in China and concluding that ‘urban design will be affected less by the degree of population density and more by the way intensity works through the experiences of the

population that participates in the public realm of an area or neighbourhood.’ The oft-stated claim that urban development and design is concerned with the public realm and is pursued in the public interest is interrogated by Jeremy Dawkins in his essay, which emphasises the scale and significance of the public contribution to the value of private land to the extent that all urban projects should be seen as beholden to the public interest, with obligations to serve all or most citizens in direct, meaningful ways.

The complexity of urban design, operating ‘at the intersection of politics, finance and design’ (Washburn 2013) has been more than demonstrated by the protracted redevelopment of Green Square, the former industrial lands between Central Sydney and the airport. In the first year of the MUDD Program, back in 1995, we undertook a Studio 1 project which was submitted in the ideas competition for the Green Square Urban Renewal Area conducted by the former South Sydney Council. Our work was unplaced but we have always honoured the winning entry in that competition by Sydney architect Chris Elliott, proclaiming that it should have been implemented (Weirick 2004). This year, we took Chris Elliott’s brilliant, water sensitive scheme as the point of departure for a re-interrogation of the Green Square site, inviting Chris to co-convene our Studio 1 study with Brendan Randles. To set our MUDD25 design work in context, we publish the Chris Elliott scheme of 1995 to highlight the potential of re-capturing something of its vision in the inevitable intensification of the light industrial sites stretching down to the Alexandra Canal.

In further exploration of our MUDD25 Urban Intensity | Urban Design theme, we present in outline, the individual research projects undertaken by our students in the MUDD Extended Program this year. Set in China, Vietnam, the United States and Australia, the physical dimension of city-making is the common thread in these passionate, highly charged studies which in themselves demonstrate urban diversity and vitality. Engaged with historical, cultural, experiential, typo-morphological and technical research questions, these projects have given depth to our year of study in the program.

The theoretical basis and project work of the MUDD Program have been documented from the outset in

our yearbooks, which stand as both a record of our endeavours and a continuing teaching resource. This year, as part of our 25th anniversary preparations, we have worked through the complete set of yearbooks, and our digital files, 1995-2020 to honour the 84 projects we have undertaken across the Sydney metropolitan area; the 408 urban design case studies we have documented; the 53 international studios we have embarked upon, and the many magnificent hosts – universities, city governments, eminent design firms – who have welcomed us overseas. In this context, we express our special thanks to our MUDD25 hosts:

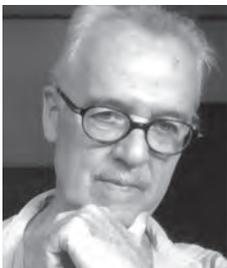
- in Beijing, Professor Yu Kongjian, Dean of the College of Architecture & Landscape Architecture, Peking University, together with his colleagues Professor Li Dihua, Associate Professor Zhang Tianxin, Professor Wang Zhifang, their graduate students, and the staff of Professor Yu Kongjian's internationally-renowned practice Turenscape, Wu Xiaodan and MUDD alumna Yue Yushan;
- in Hangzhou, Professor Wu Yue, Dean of the College of Civil Engineering & Architecture, Zhejiang University and his colleagues Professor He Yong, Associate Professor Wang Ka, Dr Liu Cui, Dr Wang Jiaqi and their graduate students.

We congratulate the MUDD25 students for the creative achievement of Urban Intensity | Urban Design - Sydney | Beijing | Hangzhou. We extend sincere appreciation to Jodi Lawton of Lawton Design and Andrew Sweeney of Palfreeman Sweeney Architects for the very special efforts that have made presentation of this work possible. Generous support for the 2020 Paul Reid Lecture in Urban Design, together with the MUDD25 Yearbook and Exhibition has been provided by the Faculty of Built Environment and our generous sponsors: Zhejiang Jiangong Real Estate Development Group, Bates Smart, Johnson Pilton Walker, Ethos Urban, Dickson Rothschild, Pascal Bobillier, Habitat Planning, LFA and Wolski Coppin Architecture; and a most loyal anonymous sponsor. For the vital support we have received from our sponsors for our 25th anniversary year we express sincere thanks.

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# Time Future in Time Past - Notes on the MUDD Experience



Professor  
Alexander Cuthbert

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In this 25th anniversary issue, I set aside my more theoretical work to ponder where we have come from and what has been achieved. To look back in this way is always to confront our place in time distilled in the peerless paradoxes of Eliot's 'Four Quartets':

*Time present and time past  
Are both perhaps present in time future,  
And time future contained in time past.*

When I left Hong Kong in 1994, I had taught in four urban design programs. With my appointment as Chair Professor of Town Planning at the University of New South Wales, I had already been grilled by the appointment board as to what I might intend to do. One of my first thoughts was that the planning program as it stood was antiquated, buried in practice and at an academic level was seriously in deficit. The belief still prevailed that 'Planning' was somehow an autonomous agent in urban development, not a reflection of state ideology and partisan politics. The name 'Town Planning' also had a medieval ring even at that time and was taught at an undergraduate level over five years, the time in most institutions to get a Masters Degree. Overall there was little innovation in what I was to inherit. I resolved to change the name and at the same time inject a theoretical base for planning action, using my commitment to Political Economy from undertaking my PhD at the London School of Economics & Political Science. Contained in this idea was the inclusion of an urban design program which reflected my interest in substantial theory. So my focus was to create two Master's degrees, based in the idea that urban development was what drove the economy, not urban planning.

The degrees would be called Master in Urban Development & Planning, the other Master in Urban Development & Design. The first still does not exist. My first call was to Dean Ray Toakley, to see if he would support the idea of an urban design program. He did, but at the same time he mentioned that the Faculty had already tried twice to start one and had failed both times. All I could say was 'third time lucky'. My intention was to include the professors from every School (the Faculty structure was yet to evolve). I talked to each in turn, and Professor James Weirick, Professor Jon Lang, Professor Paul Reid, Dr Bruce Judd, Head of the Graduate School and myself made up the core team. While

I really wanted a real estate, construction and building dimension, colleagues in the School of Building were not very enthusiastic (we ultimately went to the development industry for this expertise). We met at the late Professor Reid's home and settled all the details in an afternoon. Everyone agreed on an integrated development and design approach – the double 'D' of MUDD – engagement with Sydney as an urban laboratory, a strong international focus and the idea of a three- session program, where one whole session would focus on an international field trip built into the structure of the program. The name was agreed -Master in Urban Development & Design, and MUDD came into existence. Mutual respect dictated that each founding member would take a period as MUDD coordinator, with Professor James Weirick going well beyond any call of duty in his current and long- standing commitment.

Over the last quarter of a century, the world has inexorably changed. Urban Design awareness has also changed with it. When MUDD began, Globalisation had a relatively low profile, there was not the feeling of desperation that exists today – climate change, political détente, neo-corporate control, the weakening of nation states. Similarly, there was space to think, since software had not yet replaced imagination and creativity. Urban Design has been changed by all of these events. But it is accompanied by the demand for sustainable development (as it is simultaneously undermined by the institutions of capital – banks, insurance companies, corporations, think tanks etc, all driven by profit and an overarching neo-con ideology). Students today have good reason to be politically motivated beyond any prior era since the challenges to their future are immediate and life threatening. Tragically, all of the aggression between nation states with the war industry in the U.S. Britain and other countries bringing nuclear and other weapons into play, bacteria could easily win out – AIDS, SARS and now NCV -the Novel Corona Virus, could be more lethal without wasting one third of all planetary resources on the war machine.

The MUDD Program has always endeavoured to maintain a critical view of global development forces, describing and analysing them through the lens of spatial political economy – the manifestation in urban form of global patterns of investment and disinvestment.

Reflecting recently on another 25th anniversary in our field, a quarter century of the Journal of Urban Design, I expressed the challenge of sustaining this as follows:

Only theory constitutes the difference between professional and lay opinion. It is also the sole means of prediction that deals with reality. This does not assume that experience, practice and professional conduct are insignificant. But they are all manipulable by a diversity of interests and are collectively unable to formulate a coherent praxis of society and space - the foundation for urban design . . . Urban design projects merely manifest as rather large commodities where constellations of spaces of different sizes and locations serving different economic functions are organized, constructed, sold and exchanged like any other good . . . the answer as to future research and scholarship may have to be constituted in an intellectual collision and ultimate fusion of commodified production qua urban design (practice) and political economy (substantial theory) . . . Such integration is necessary so that urban designers cannot ignore the meaning and morality of what they do as agents of the state and capital. (Cuthbert 2020, pp.11,13)

It is now quarter of a century since the MUDD Program began, and it has educated over 650 students from 39 countries. Intake has morphed from a largely Australian and Indonesian entry in the beginning to one that is largely Chinese today, and we still have to see the wreckage that NCV could impact on university programs internationally. Over that time, technology has also changed, and the first MUDD yearbooks (folios) contain many projects that are hand-drawn (at that time architects could still draw). In addition the rise of a business model as opposed to an academic model for university education has even changed the look of covers to the yearbooks, since everything now must possess a corporate, standardised appearance, where even the colours are dictated. It is worthwhile to take a look at the first ten years of MUDD covers and compare what greater freedom allowed in design. Jodi Lawson has been a stalwart in the program for around twenty years, without whose input the yearbook would never have reached the heights it has attained. Many others too





numerous to name here are mentioned in each MUDD folio, and their commitment to the ideals of the program have had a serious impact.

It is fair to say that MUDD not only has an international reputation, former students now have key positions in Government and the private sector all around the world. They exist in the top positions with many having their own highly successful urban design practices, they are highly influential and in China in particular, retain a fierce commitment to, and respect for MUDD, and have assisted the development of the program in countless ways. MUDD is a landmark program at UNSW, and there are few urban design programs internationally that can match some 53 overseas projects MUDD has undertaken from Berlin to Beijing. No doubt MUDD has to reflect many of the changes indicated above. In making changes to academic structures, it is all too easy to forget singular accomplishments and sacrifice these to administrative expediency, personal interest and competition between academic silos. The first principle in any restructuring should be as in medicine – do no harm. The second that any change in structure should result in improvement to the program/s or subjects concerned, not their demise. It is all too easy to view history as a necessary sacrifice to advancement, and in the process ignore potential results that perhaps should not even be contemplated. In a lifetime commitment to the teaching and practice of urban design, I can only say that it has been a great privilege to work with such committed and talented people who were dedicated to a collective goal – the Globalisation of a critical urban design through the MUDD Program.

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# Global Challenges for Urban Development and Design



Professor  
Bruce Judd

Increasing urbanisation, population ageing and climate change are three important global challenges of the 21st century. How effectively these are addressed will largely shape the social, economic and physical nature of cities into the future. Though often dealt with individually within different disciplines of research, policy and practice, all three are inextricably linked and need to be addressed together. Urban development and urban design have an essential role in this endeavour. While the economics and technologies of city-making are important, it is the human focus that must always be of central concern since, after all, all built environments are a response to human needs, values and aspirations.

The agglomeration of people into cities has taken place at a staggering rate in the post WWII period. According to UN data, in 1950 there were around 1.02 billion people (33%) living in urban areas world-wide and twice that number (2.01 billion or 66%) in rural areas. By the turn of the century urban dwellers had more than doubled to 2.86 billion (47%) with 3.26 billion in rural areas (53.3%). Seven years later urban and rural populations reached parity - 3.35 billion each. In just one further decade, by 2017, urban population had increased to 4.13 billion (55%) and rural population to 3.4 billion (45%) making the 21st century the urban century (UN 2018a). This represents an enormous challenge to those involved in making and reshaping cities. At the same time, while the proportion of people living in urban slums has reduced in recent decades it still represents 30% of all urban dwellers (World Bank Group 2020). There is therefore much to be done in improving social equity in many urban areas.

At the same time world populations are ageing, most advanced in Japan (28% 65+) and some European Countries (Italy 23%, Germany 22%, Spain 20%), compared to 16% in Australia, but with the fastest trajectories in developing countries. China, the world's most populous country while estimated to be 12% 65+ in 2020 is on a steep growth path expected to reach 26% by 2050 and 32% (342 million) by the end of the century (UN2018b), just a few percentage points less than that of Japan at present. The implications of rapid population ageing are critical for cities, where with increasing urbanisation the majority of older people will live. These implications include the design of appropriate housing, public spaces and facilities, and urban infrastructure – all important to the participation of older people in urban life which is critical to their health and wellbeing. The demands of this urban challenge were recognised by the World Health Organisation in 2007 when it launched the Age Friendly Cities program and the Global Network for Age Friendly Cities as part of its emphasis on the



importance of active ageing. Its wholistic approach includes physical environment guidelines for housing, transportation, outdoor spaces and buildings (WHO 2007). The membership network of cities/municipalities has grown from 33 in 2007 to 1000 in 41 countries covering over 250 million people today (WHO 2020) indicating that population ageing is becoming a serious consideration in urban development, design and governance.

The impact of such 'super-ageing' (i.e. over 25% of the population 65+) can have other important impacts on cities. Japan, for example, has experienced depopulation since 2008 by over 2 million. This has led to the shrinking of many of its cities and regional towns and dramatic increases in housing vacancies, abandonment, and reduction in property values, thus contributing to local economic stagnation and the need for urban restructuring (Kubo & Mashita 2020). Similar problems are likely to be faced in other rapidly ageing countries by mid-century. So, population ageing, an important contributor of urbanisation, can also contribute to urban shrinkage.

Climate change is also a critical concern of the 21st century with profound implications for urban development and design. According to UNFCCC (2019) cities account for more than 70% of global CO<sub>2</sub> and given over 50% of the world's population concentrated in cities, 'cities are where the climate battle will largely be won and lost,' as UN Secretary António Guterres stated in his opening address to the 2019 C40 World Mayors Summit (Guterres 2019). If, according to the Paris Agreement (UN 2015), there is a need to stabilise global temperature increase at 1.5 degrees Celsius, there is wide agreement that this will require a 45% reduction in emissions by 2030 and net zero emissions by 2050. City design and development will have a critical role to play in achieving this. Net zero emissions by 2050 will involve stepping up the performance of urban buildings, landscape, open spaces, water systems, renewable energy sources, waste management, and transport infrastructure and will require extensive cross-disciplinary collaboration. Achieving this goal will be important to the eco system and to human health and wellbeing, including that of the ageing population who, along with young children, are most vulnerable to extreme weather events and associated natural disasters that are predicted to increase in intensity if global warming cannot be contained.

The Master of Urban Development & Design was conceived in 1994-5 as the kind of program that could address contemporary issues from a multidisciplinary perspective and with an international focus. The initial collaboration between senior academics from architecture, urban planning, landscape architecture and construction in the design of the program was intended to set the stage for this. Unlike many other post-graduate urban design programs with access limited to architecture graduates, our program welcomed a greater multi-disciplinary range. Over the 25 years of the program this has included graduates from architecture, planning, landscape architecture, engineering, construction, property development, project management, urban economics, urban geography, environmental planning, land resource management, forestry, law, journalism, fine arts and business on the understanding that effective urban development and design requires a collaboration among such disciplines. Given the challenges of an integrated approach to addressing urbanisation, population ageing and climate change through urban development and design, this is as true today as when the program was conceived.

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# Reflections on the Interdisciplinary Nature of the Program



Professor  
Karl Ficher

I am taking the occasion of the 25th anniversary of the UNSW Master of Urban Development & Design Program to reflect upon the creative, interdisciplinary controversies that have contributed such distinctive intellectual force to its teaching, research and international profile. My perspective is that of an outsider from Europe, who has also been on the inside of the course for a number of years – full-time as acting director in 2012 following my presentation of the Paul Reid Lecture on 'Learning from Europe?' in 2011,<sup>1</sup> and later as Visiting Professorial Fellow. Sharing my time between UNSW and the universities in my home cities of Kassel and Berlin has included initiating and co-convening the MUDD international studios in Berlin, Hamburg and Lisbon.

This is where my personal perspective on the program has been reinforced over almost a decade by the feedback from our European colleagues during the joint workshops that formed the core of the international excursions. Return visits to UNSW provided opportunities for them to look at the finalised studio work in the MUDD exhibitions.<sup>2</sup> My colleagues were as impressed by the quality and quantity of the student work as the German Consul General in 2013,<sup>3</sup> who not an expert in our field, reported enthusiastically on his experience of seeing students hired on the spot by professional offices on the basis of their designs displayed at the exhibition. This not only justified his generous endowment of German beer that helped lubricate the event, his observations on the transition from education to professional practice still reverberate around the Goethe Institute, which had provided financial support for the printing of the MUDD 19 exhibition, a combined display of an exhibition of 1910/2010 city plans conceived at TU Berlin and curated at UNSW, together with the students' work on 'City Visions in Sydney and Canberra.'

This year, the success of the MUDD Program as a springboard for international careers finds a convincing expression in the presentation of the Reid Lecture by MUDD alumna Zhizhe Yu, who, following her role as a Director at Kohn Pedersen Fox, has been co-founder and Managing Director of AI.SpaceFactory with offices in New York, Shanghai, and Barcelona.

Five years ago, in 2016, on the occasion of the 20th anniversary of the MUDD Program, I looked at explanations for its success. As I wrote in an essay for the MUDD 21 Yearbook,<sup>4</sup> one answer lay in the structure and method of the



program. Beyond the input by the full-time academic staff, a key underpinning of the pedagogical process is provided by the content, timing and qualities of the additional (sessional) staff that come in at appropriate points in time to teach, test and deliver the required digital and design skills. I commented on the way in which this bundle of methods had matured over 20 years and how it had contributed to the steep learning curve taken by the students.



Today, I am looking beyond those structures at the way in which the different disciplines - architecture, landscape architecture, urban design, planning, economics and political & social science - have contributed to the special qualities of the program – in the daily practice of teaching and research as well the way this has been reflected in major works on the theory and practice of urban development and design,<sup>5</sup> and provocative essays in the MUDD yearbooks. It is the very nature of interdisciplinary co-operation and education that each of the disciplines involved contributes its specific perspectives, techniques, and ways of seeing. Merging the views from different windows requires common areas of understanding in spite of contrasting approaches, different definitions of priorities, and different ‘languages.’



How does the autonomous nature of architectural design as a creative act fit with the discursive, critical narrative of the social sciences and the normative dimensions of urban planning? While architecture has its own language and narratives, follows norms, responds to social needs, and produces buildings on the basis of economic and other parameters, architects’ plans are not the same as the far-reaching urban design frameworks produced by urban designers, simply on a smaller scale. Enlarging the scale from one building to several to give form to a public square does not constitute urban design. Some of this year’s Urban Design Awards by the Australian Institute of Architects illustrate this point.<sup>6</sup>

The nature of these statements as truisms tends to overshadow their inherent complexity, their potential for controversy and the creativity needed to bring different discourses to resolution. Over time and varying in every country, in every institutional debate and educational program, interdisciplinary co-operation has to grapple

with these issues and find specific solutions. The agreements reached are often in a delicate balance.

This is what the following paragraphs try to illustrate from the viewpoint of an international perspective. A case in point is represented by the polarities of town planning with its Anglo-Saxon pedigree on the one hand, and an approach to urban design focused on ‘the architecture of the city’<sup>7</sup> and ‘the urban project’ on the other, as conceived predominantly by architects of the Mediterranean countries. Michael Hebbert’s essay on ‘town planning vs. urbanismo’<sup>8</sup> provides a clear account of the emergence of the two paradigms around the early 20th century and the aggressive fights between their respective proponents in the post-war years – a struggle between two approaches which should ideally combine as an integrated approach to urban development and design. What Hebbert describes as ‘the triumphant ascendancy of the urbanism paradigm’ over the Anglo-Saxon model of planning as process<sup>9</sup> may sound like the final judgment by the arbiter, but it is by no means the end of the story. The unproductive fights between the two continue in all countries – including Germany and Austria, where a third approach arose under the heading of Städtebau.

Städtebau is still a forte of the German approach to city making as evidenced in internationally observed model projects such as Hamburg’s HafenCity, Vauban in Freiburg, the French Quarter, Tübingen and Kassel’s Unterneustadt. Städtebau, literally ‘city building’ translates more meaningfully as ‘urban design.’ Its origins lie in the period around 1900, when it integrated the pioneering works of urban designers, architects and urban economists, legislators and mayors and universities. It was developed in local government practice and also taught in architecture faculties. However, as the long wave of modern functionalist planning began in the inter-war years and reached its climax in the 1970s, with architects and planners joined by and in fact often dominated by highway engineers, this tradition of Städtebau was, surprisingly, forgotten. Outside of Germany by contrast, and indeed mainly in the home countries of urbanismo,<sup>10</sup> - Italy and Spain - the contributions of these pioneers continued to be discussed and published in translations. Their re-discovery in the late 1970s and early 1980s at

Aachen University, which took place in cooperation with international scholars from Italy, Spain and England,<sup>11</sup> provided major impulses for the turnaround initiated by Berlin's International Building Exhibition of 1984/1987. The IBA became the signal and model for the post-modern turn in urbanism rehabilitating the historic city and also producing new forms of cooperation among different disciplines.<sup>12</sup>

Since then, the controversies between architects and planners have gone through countless ups and downs. German Städtebau is still being described as a 'battlefield between visionary architects and pragmatic planners'<sup>13</sup> in a closely regulated urban development context. Nevertheless, in the everyday practice of urban development carried out as an activity controlled by statutory authorities, Städtebau has prevailed as an integrative approach, set within the rights and obligations defined in the 1949 German Constitution to operate in the public interest, defined in clear terms through public deliberation<sup>14</sup>. While planners are, by nature of their studies, less proficient in three-dimensional design, even if educated in a multidisciplinary program of study, graduates of planning (as well as architecture) starting public service careers go through a most rigorous two-year in-practice course with tough exams. This enables them to play their role in guiding the physical dimension of urban development, be it at the metropolitan level or in mixed-use districts, in urban regeneration processes and in competitions. Thus, planners and architects share their competences in the concept-based tendering process as practiced in Hamburg and many other cities.<sup>15</sup>

Yet, at the same time, bizarre ideological controversies over urban design and Stadtbaukunst, the 'art of city building' in the tradition of Camillo Sitte, are still splitting 'the German community of architect-planners and urban planners into two camps... Architects hold urban planners in local government responsible for the ugliness of modern cities and urban planners in turn reject the unjustified criticism arguing that the critique of the community of architects lacks any sense of the reality of governance in market-led urban development in the 21st century.'<sup>16</sup> Sometimes it seems as if little has changed since the old simplifying black-and-white debates of the post-war years.

Contrasting perspectives like those in the German context referred to above tend to surface in interdisciplinary co-operation and to supply material for creative controversies in many places, including Australia. To make these processes fruitful requires respect for each other's positions – discourse rather than dogma. In the context of the MUDD program, this discourse has taken shape in the key theoretical works produced over the years and the Yearbook essays contributed by the core personalities within UNSW that have shaped the course over time and by the visitors, Paul Reid lecturers and the hosts of our urban design studios in universities, architecture offices and municipalities abroad. Seen together, these essays produced over time form an anthology of positions and thought on the complex interdisciplinary field of urban development and design, with mutually reinforcing arguments as well as contradictory positions in a creative constant delicate balance.

While this addresses the nature of interdisciplinary cooperation everywhere, it is the integrative view from the three central thematic windows of spatial political economy, urban design principles and paradigms, and urban design as public policy that makes the MUDD program unique.

Together with the elaborate teaching strategy addressed above, which merges a consistent underlying structure with the integration of new perspectives and methods, combining long-term continuity with the adoption of new approaches, these fundamental principles of the MUDD program constitute a compass for good city making.



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1. Karl Fischer, UNSW Reid Lecture, 'Learning From Europe?' 2011.
2. Those colleagues included Harald Bodenschatz from TU Berlin, one of Germany's leading planning historians, and the Director of the German Federal Foundation for Building Culture, Reiner Nagel, who presented the 2017 Reid Lecture.
3. Hubertus Legge, German Consul General, 2013.
4. Fischer 2016, p.12.
5. In particular the significant works by Emeritus Professor Alexander Cuthbert and Emeritus Professor Jon Lang.
6. Australian Institute of Architects 2020.
7. Rossi 1982.
8. Hebbert 2006.
9. Hebbert 2006, p.247.
10. I have described the adventure of the ascent, eclipse and re-discovery of these approaches at the university of Aachen in my chapter on long-term trajectories in Fischer & Altröck 2018, pp.64-76.
11. The key figures in this context were Gordon Cherry, Anthony Sutcliffe, Giorgio Piccinato and Juan Rodríguez Lores.
12. Fischer 2014, p.13.
13. Kunzmann 2020, p.26.
14. The application of a host of German planning laws and instruments requires the declaration or indeed strict proof of public interest ('Nachweis des öffentlichen Interesses'), e.g. § 136 Sec. 1 Federal Building Code. Since the public interest cannot be defined in a similar way as physical measures, it is always the result of deliberation and lastly political decision making
15. Fischer 2019, p.24.
16. Kunzmann 2020, p.26.

# Programs and Paradigms in Early Twenty-First Century Urban Designing



Professor  
Jon Lang

Urban designers design. While there is much discussion about what they create – their products – there has been an extreme reluctance to explicitly discuss the thought processes that generate designs. Few educational curricula, whether they focus on architecture, urban design or landscape architecture have courses on design methodology – the study of the design process. We, nevertheless, understand much about it (see Bazjanac 1974, Schön 1983, and Lawson 1990 for examples of the literature on the subject). The fear among many educators is that if professionals understand and are able to openly debate procedural concerns their creativity will be compromised. Designers, like test pilots and surgeons, either have the ‘right stuff’ or not (Wolfe 1981). Such an attitude results in many opportunity costs in the urban designs created. They could have been designed better; they could have served a broader range of human motivations than they do. In other words, they could have addressed more functions that the built environment (considered as part of behaviour settings) can potentially afford rather than the limited set implicit in the models that serve as paradigms for current professional work (Lang & Moleski 2010).

Colin Rowe, a leading twentieth century urban designer and architectural theorist, identified two fundamental opposing, although not mutually exclusive, approaches to urban designing (Rowe 1982). One is indeed, the paradigm-based approach. In it, clear generic models that are accepted in contemporary practice to be a representation of a good built environment are adapted to meet the instrumental function/purpose that the project at hand is to serve. The other approach, instead of relying on existing models, is based on a detailed multi-functional statement or program/brief, identifying the goals that a project is trying to attain, the patterns of built form required to achieve them and resolving the conflicts that arise among them to synthesize designs. I have argued for this latter approach (Lang & Marshall 2017), but have been told quite correctly, that designers do not want to work that way. They want to generate new designs based on what they perceive to be the correct, often contemporarily fashionable, design paradigm (Francescato 1989).

## Paradigm-driven Urban Design

Current urban design paradigms vary from the modernist to the hyper-modernist, from the parametric (a computer-based algorithmic procedural approach), to the sustainable environment model as represented in Landscape Urbanism and



Agrarian Urbanism approaches, and from these lines of action to a more generalized empiricist approach. The New Urbanist paradigm is the best representation of an empiricist approach to urban design. It is however, seen by the mainstream of the architectural profession and most of the academy as a regressive approach to urban design in a rapidly changing world. Early twentieth century rationalist designs still hold sway in many places despite their limitations being abundantly clear. Other observers and critics want cities to be smart. It is unclear at present, whether any particular built configuration is required to optimize the attainment of a smart city. All these options are carefully worked out responses to the problems requiring solutions as perceived by their proponents. They address few of the potential array of functions that the built environment can afford and were developed in and for the European and North American intellectual context.

Much urban design work, particular when dealing with housing in East Asian countries such as China and Korea, has been and is being built following the 1930s modern rationalist models. There are relatively few of them and their core characteristics are similar (Sherwood 1978). The model has been largely abandoned in Europe and North America. Much current urban design work is hyper-modern in nature. Such projects, as seen in Dubai and the central business districts of many cities in countries with developing economies, serve two fundamental functions. One is for their designers to have a free hand in expressing their ingenuity in creating built environments that are visually and often structurally deviant from the norm, and the other is for the clients/sponsors of the designs to be seen (or their cities to be seen) as avant-garde and as leaders on the global neoliberal economic scene.

Each paradigm addresses a set of urban design concerns and omits others. What it does and does not address is more often than not implicit in what is being promulgated rather than explicitly stated. Urban designers use them because they have peer group acceptance and are good enough; they are satisficing solutions provided they are structurally sound. Working with them responds to the reality that decisions have to be made in a hurry to meet tight schedules and usually within constrained budgets. What is important are the

short-term rather than long-term outcomes. Often the most important function other than providing shelter, is to catch the eye and look good in journal articles and advertising brochures.

Each of the large globally practicing architectural companies has developed a design genre that they are trying to sell to potential clients. Their designs can be bought ready-made off the shelf and with minor alterations applied from the arctic to the tropics and without any concession to local cultural norms. Some of these firms are indeed striving to get away from this approach, but it rules. It is also 'the standard model for designing' that urban design educational programs employ, although few would admit it. What after all is the alternative, and why bother when the profession generally works that way?

#### Program-driven Urban Design

All urban designs are based on some program. Often, if not almost always, it addresses only a limited set of the potential functions of the built environment for a limited set of people and focuses on the quantity rather than the quality of what is required. The model of 'a person' on which it is based is usually a limited one. The needs of children and the fragile, and songbirds let alone other animals, fall outside of its scope of concern. It does not have to be that way. Considering the environment as a set of nested often overlapping behaviour settings, private, semi-private, semi-public and public is a beginning.

A rich program in which the diverse behaviour settings of diverse people – men and women, residents and users – young and old, habitués and tourists – of a proposed scheme are elucidated becomes the basis for a problem-solving, opportunity-fulfilling approach to design. While the general goals may be relatively easy to define, tailoring them into precise objectives becomes highly argumentative and frequently, very emotional. Goal definition is always political in nature and open to debate. The power among vested interests is seldom equally distributed. Those individuals/groups holding the purse strings have disproportionately strong hands.

Refining goals into operational objectives and refining those objectives into a set of specific patterns of

built form can be a technical task as much evidence (from abstract theory and case studies) exists to support defining process. Our knowledge is however, fragmentary and incomplete and based on evidence drawn from the present and the past. Many designers find the evidence gets in the way of what they want to do to satisfy themselves. They want to get their own 'jollies.' On top of it all we are trapped by our past experiences. We are however, designing for the future. Decisions have to be made so we have to take many leaps of faith.

Our understanding of such matters as the relationship between patterns of behaviour settings and the requirements of various people, other species, the bio-diverse world of vegetation and soils is often rudimentary. We know surprisingly little about such matters as how patterns of built form shape the flow of breezes through a city and how they may also flush out pollutants. It is thus easier to fall back on paradigms that produce satisficing solutions and do well in terms of returning a profit on the capital invested by property developers and their sponsoring agencies, public or private.

#### Program versus Paradigm Revisited

While it is difficult to logically argue against a program-based approach to design being the basis for urban design, as a discipline, to move ahead, it is also highly probable, although it has not been demonstrated, that no designer approaches the design task without some preconceived notion, a paradigm, for the design in mind. In addition, identifying the goals of a design, working out the patterns required to achieve them, and synthesizing a solution takes time. Working with a variety of, and on behalf of, a range of people still needs a substantive paradigm to guide it (Rowe 1982). The question is: 'What is the nature of this paradigm?'

The compact city model is the paradigm that addresses many of the current range of difficult to define problems and issues facing urban designers (Dantzig & Saaty 1973, de Roo & Miller 2000, Bay & Lehmann 2017). These concerns include designing for swelling populations, for diverse people, other animate as well as inanimate species, sustainable natural environments, and reducing energy consumption within tight fiscal

constraints. The model presents no utopian future but appears to address more of the concerns that urban designers will have to contend with during the next twenty-five years, and with fewer negative side-effects. We can look no further ahead than that. All urban designs have to be created under uncertainty, but designs based on rich programs that are based on the compact city model will achieve much.

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# A Social Science Approach to Urban Intensification



Professor  
John Zerby

Urban intensification is often treated as a strategy for achieving compactness, based upon the notion that land can be used more effectively by increasing the density of all forms of the built environment (Jabareen 2006). In this sense it is the opposite of urban sprawl (Brueckner 1983). However, with a broader application of the urban-intensity concept, it would be associated with synonyms such as accentuate, amplify, boost, consolidate, deepen, enhance, heighten, magnify, step up and strengthen, none of which conveys either efficiency or effectiveness. It would therefore seem possible to have intensity without density (Dovey 2014, Porqueddu 2015, Stonor 2018).

We could then, if desired, separate the two concepts, but would that necessarily be desirable? We know that the urban population in many countries has been rising faster than the rural population, and this will probably continue for the foreseeable future, principally as a result of the expectation of persistently higher incomes for urban residents. For example, it can be noted from Figure 1 below that while the ratio of urban to rural per capita disposable income has been falling in the People's Republic of China, urban per capita disposable income has been nearly three times greater than that for rural per capita disposable income. Moreover, the rate of decline is relatively slow, so the attraction of urban

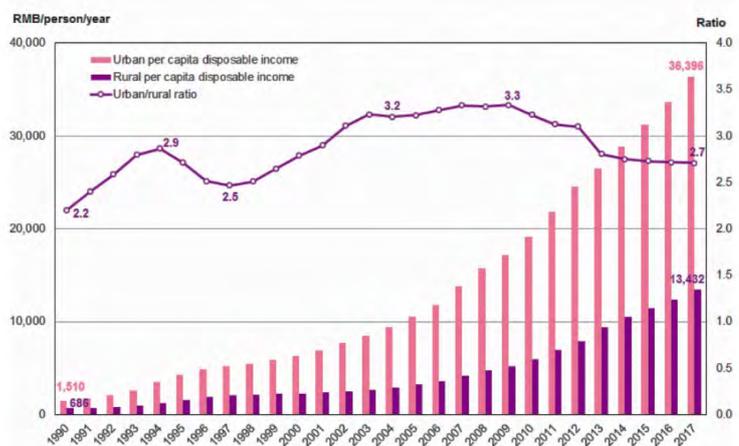


Fig. 1. Comparison of urban and rural per capita disposable income.

Source: <https://www.unicef.cn/en/figure-23-capita-disposable-income-urban-rural-19902017>

employment is likely to remain strong for an extended period. Viewed in this way, urban intensification will almost certainly continue and urban design will be affected less by the degree of population density and more by the way intensity works through the experiences of the population that participates in the public realm of an area or neighbourhood. The economic and social wellbeing of the relevant population comprise important aspects of these experiences. This is examined below in two parts, the first of which focuses on urban density and the second on the broader aspect of urban vitality.

**If Urban Intensity is Mainly Urban Density**

The decline in population density, in proceeding from the city centre to the outer suburbs, was explored during the second half of the 20th century (Clark 1951, Casetti 1967). Accordingly, let  $x$  be distance in kilometres from the centre of the city and let  $Y$  be the density of resident population in thousands per hectare. Then

$$Y = Ce^{-bx}$$

where the coefficient  $C$  is a measure of the degree of over-crowding that the population is willing to tolerate at the centre of the city and  $b$  is the rate of decline of density, for which a low value would indicate a slow decline as distance increases. Of special interest to urban planners and designers is the way in which the density gradient changes over time. It will flatten out if the suburbs absorb a greater share of the population increases and will fall more steeply if the city centre becomes regenerated (Broitman 2019).

Perhaps of greater importance than the numerical values for the components of the density function are the reasons to expect changes in their respective values. The explanation in this case begins with the supposition of two choices for households to locate at some distance from the centre. First is the minimisation of time and expense of travelling from the place of residence to the place of work which, at least in the beginning, is presumed to be near the city centre. The second is the preference for non-congested sites for residence as expressed in the form of a disutility conveyed by  $C$  in the equation above. For individual households this may be viewed as a threshold beyond which the desire to seek greater distances from the city centre becomes apparent. However, for all households

taken together these differing thresholds will display a more continuous path over time, thus reinforcing the exponential decline in the density function. Focusing on the balance over time between the minimisation of travel time and the avoidance of over-crowding allows for the possibility of shifting employment to the suburban areas, thus instituting a second phase for exponential decay in newly formed high-density urban areas.

This analytical procedure of breaking a complex process into smaller parts to gain an understanding of it by searching for answers to the question, why this or why that, forms a major part of social science and goes well beyond a search for numbers in the form of averages or estimated coefficients. The test as to how far to proceed generally emerges with the point at which little or no useful information is added. For example, Guan & Rowe (2016) developed a methodology for obtaining numerical estimates for urban (1) compactness, (2) diversity, (3) density and (4) connectedness. The first of these used Moran's coefficient of spatial correlation,  $I$  (Moran 1950):

$$I = \frac{N}{W} \frac{\sum_i \sum_j w_{ij} (x_i - \bar{x})(x_j - \bar{x})}{\sum_i (x_i - \bar{x})^2}$$

where  $N$  is the number of spatial units indexed by  $i$  and  $j$ ,  $x$  is the population in the sub-areas,  $x_{ij}$ , with  $\bar{x}$  denoting the arithmetic mean of all units,  $w_{ij}$  is the matrix of weights with the diagonal elements,  $w_{ii}$ , set equal to zero and  $W$  is the sum of all weights. Similarities between units are calculated as the product of the weighted differences between the distances,  $x_i$  (and  $x_j$ ) with the overall mean, and when divided by the variance it produces a measure of correlation between the spatial units in reference to their respective populations. A value of minus 1 would indicate a perfect clustering of dissimilar populations, while a value of plus 1 would be associated with a perfect clustering of similar populations. Consequently, this measure is somewhat more elaborate than the previously described measure of urban density, and would indeed be a better measure of actual compactness within the boundaries of  $i$  and  $j$ . As noted previously however, it is the threshold or 'tipping point' for over-crowding that may be the principal determinant for a change, so it is not obvious that elaboration is either desirable or practical.

A method of measuring *diversity* is referred to as the Shannon index of entropy, or the phylogenetic index.





Guan & Rowe (2016) apply it to various types of buildings based on local building codes or land-use regulations. The basic idea driving this application of the index is the notion that the greater the number of different buildings, and the more equal is their proportional abundance in the collection of buildings, the more difficult it will be to correctly predict what type of building will be the next in the collection. Hence, the set is considered to be diverse in the sense that it cannot be easily subjected to predictable patterns. It is not evident however, what advantages are afforded by such diversity in design and how any such advantage can factor in harmonisation of designs as well as in generating building assemblages that contribute positively to a form of urban intensification that is desired by those who populate the relevant spaces.

Biological sciences frequently ask three types of questions in reference to phylogenetic relationships: how much, how different and how regular (Tucker 2017). These questions reflect three dimensions of a phylogenetic tree: richness, divergence, and regularity. They are particularly relevant to the accumulated differences among plant species and this, in turn, opens the possibility of explaining or predicting specific biological or ecological processes. But the evolutionary path of buildings is entirely a function of the architects, working with urban planners and owners or developers. The mixture of the three dimensions therefore occurs by agreement, not by processes of nature that have not yet been fully resolved. Borrowing concepts from quite dissimilar configurations of entities may confuse to a much greater extent than it edifies. Similarly, while the four numerical measurements mentioned above (compactness, diversity, density and connectedness) may have design relevance individually, a composite score that is ultimately presented in the study by Guan & Rowe (2016) has no obvious meaning other than as a weighted average of a set of dissimilar averages, correlations and deviations from arithmetic means.

### **If Urban Intensity is Mainly Urban Vitality**

In his extensive examination of the concept of density, Churchman noted the following (1999, p. 390):

Perceived density and crowding are based on the principle that the same density can be perceived and evaluated in very different ways, by different people under different

circumstances, in different cultures and countries.

Churchman's main point, forming the title of his paper, is that the concept of density needs to be disentangled before it is made useful to planners and designers. This also applies to other density-related concepts, but in the desired disentanglement the connection to the people living in or using the area to be designed (or re-designed) must not be lost. Do neighbourhood residents feel more comfortable with a diversity of buildings or with a diversity of educational opportunities and leisure activities? He suggests that it is always easier for planners and designers to directly affect density, as well as perceived density, than to indirectly affect the subjective experiences that residents or visitors to a neighbourhood acquire as they proceed with their normal urban activities. Multiple design solutions may therefore be required to suit a multiplicity of human experiences.

Insights for such solutions can emerge from social science, as it is regarded as a systematic study of humans and their activities (McLean 2018). Much of Churchman's 1999 paper on disentangling the concept of density is devoted to a typology of broadly defined goals of urban density that effectively represents the benefits of density, including social, environmental and economic benefits. He also examines potential disadvantages, which reflect the cost of increased density. Though less formalised than the typical cost-benefit analysis of economists, it can be said to have comparable implications. Similarly, increased emphasis is being placed on social sustainability, which is a catchword for a focus on quality of life, access to public facilities and the promotion of social interaction and social cohesion (Wang 2018).

Recent literature indicates a heightened awareness of social sustainability in China's urban intensification (Wang 2018; Chen, H. 2016 and Chen, M. 2016). This presumably, can be at least partly attributed to the global financial crisis that began in early-to-mid 2007 with an adverse effect on property prices and government fiscal deficits in order to fund the stimulus package that was adopted by the central government of China. Prior to the crisis, 'urban design has been adopted by local governments and developers as place promotion or an image-building tool. In a neo-liberal context, this serves the purpose of enhancing a city's regional and

international competitiveness' (Chen, F. 2016). The slower rate of economic growth that followed – and is continuing at the present time – contributed to a substantially altered distribution of banking finance away from the private sector, relative to the public sector, and to an increase in income inequality in China (Huang 2020). Researchers are beginning to examine the potential effect of a greater amount of 'bottom-up' participation in urban design with a view to correcting the imbalances (Qiao 2019, p.36).

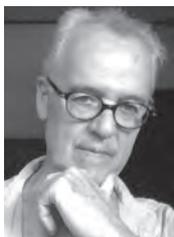
If we accept the mantra understand the past in order to design for the future, then we must also be willing to accept and agree that urban design requires a context with an historical perspective. This should be synchronised, where possible, with the contexts generated from social science, ecology and technology. This seems to be particularly important with the expected onslaught of artificial intelligence (Dewhurst 2014) and various forms of computer aided design, such as generative design systems (Quan 2019). The younger generation is rapidly becoming accustomed to giving verbal instructions to computers and smart phones. The transition to using artificial intelligence to answer questions will probably be a smooth one, but for some time in the future human confirmation will be required for the knowledge generated from artificial intelligence. We may also need human designers to explain and justify designs made by computers. New skills may therefore be required. The extent to which insights for these new skills can be provided by social science remains to be seen, but the notion of synchronising the evolving contexts mentioned above is most likely a good place to begin. The basic groundwork for this can be seen clearly from the design studio work for Sydney, Beijing and Hangzhou that is contained in this MUDD Yearbook.

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# ACADEMICS LIST

## MASTER OF URBAN DEVELOPMENT & DESIGN FOUNDING PROFESSORS



Dr Alexander Cuthbert  
Emeritus Professor



Dr Bruce Judd  
Emeritus Professor



Dr Jon Lang  
Emeritus Professor



Professor Paul Reid  
(1933-2001)



Professor James Weirick  
Discipline Director



Jodi Lawton, Professor Bruce Judd and Professor James Weirick at the MUDD12 Event, March 1907 (Photo courtesy of MUDD12 Alumni Kevin CHEN)

## VISITING PROFESSOR & ACTING DIRECTOR, 2012

Dr Karl Fischer  
Visiting Professor

## ACTING DIRECTOR, 2012

Dr Paola Favaro  
Senior Lecturer in Architecture

## SENIOR LECTURERS

Arlene Segal  
Adjunct Senior Lecturer

Dr Scott Hawken  
Senior Lecturer

## LECTURERS

Ben Driver  
Lecturer

Michael Gheorghiu  
Lecturer

Jodi Lawton  
Lecturer

**SESSIONAL ACADEMICS, 1995-2020**

**Kevin Alker**  
(Urban Planner)

**Dr Fatemeh Aminpour**  
(Architect)

**Ashley Bakelmun (MUDD 2016)**  
(Urban Designer/Urban Planner)

**Dr Carlos Bartesaghi Koc**  
(Postdoctoral Research Fellow)

**Amy Bendall**  
(Landscape Architect/Urban Designer)

**Dr Michael Bounds**  
(Urban Sociologist)

**Michael Brown**  
(Architect/Urban Planner)

**Peter John Cantrill**  
(Project Manager)

**David Chesterman AM**  
(Architect/Urban Designer)

**Dr Philip Cox AO**  
(Architect)

**Linden Crane**  
(Landscape Architect)

**Jeremy Dawkins**  
(Urban Planner)

**Jessica Dharmasiri**  
(Engineer/Business Analyst)

**Nigel Dickson**  
(Visiting Professor, Architect/Planner/Urban Designer)

**Chris Elliott**  
(Architect)

**Linda Gregoriou**  
(Property Developer)

**Geoff Hanmer**  
(Architect)

**Dr Michael Harris**  
(Lecturer in Landscape Architecture)

**Kristina Hay**  
(Architect)

**Martin Hill**  
(Property Consultant)

**Dr Matthias Irger**  
(Architect)

**Jiang Xiao (MUDD 2011)**  
(Urban Designer)

**Nick Jonmundsson (MUDD 2011)**  
(Architect/Urban Designer)

**Oliver Ju (MUDD 2016)**  
(Landscape Architect/Urban Designer)

**Dr Parisa Kalali**  
(Architect)

**Swetik Korzeniewski**  
(Architect/Artist)

**Maryam Litkouhi**  
(Development Manager)

**Dr Samir Mahmoud (MUDD 2005)**  
(Architect/Urban Designer)

**Carla Mamaril (MUDD 2007)**  
(Architect/Urban Designer)

**Kathleen McDowell (MUDD 2008)**  
(Urban Designer)

**Jesse McNicoll**  
(Architect/Urban Designer)

**Brian Melloy**  
(Property Consultant)

**Trent Middleton**  
(Architect)

**Margaret Petrykowski**  
(Architect/Urban Designer)

**Dr Sarbeswar Praharaj**  
(Urban Geographer/Urban Planner)

**Brendan Randles**  
(Architect/Urban Designer)

**Glyn Richards**  
(Landscape Architect/Property Consultant)

**Jun Sakaguchi**  
(Architect)

**Tim Schwager**  
(Architect)

**Andrew Sweeney**  
(Architect)

**Sheila Tawalo**  
(Architect/Urban Designer)

**Philip Thalix**  
(Architect/Urban Designer)

**Vanessa Trowell (MUDD 2007)**  
(Urban Geographer/Urban Designer)

**Dean Utian**  
(Architect/Educator)

**Dr Anne Warr**  
(Heritage Architect)

**Dr Michael Zanardo**  
(Architect/Urban Designer)

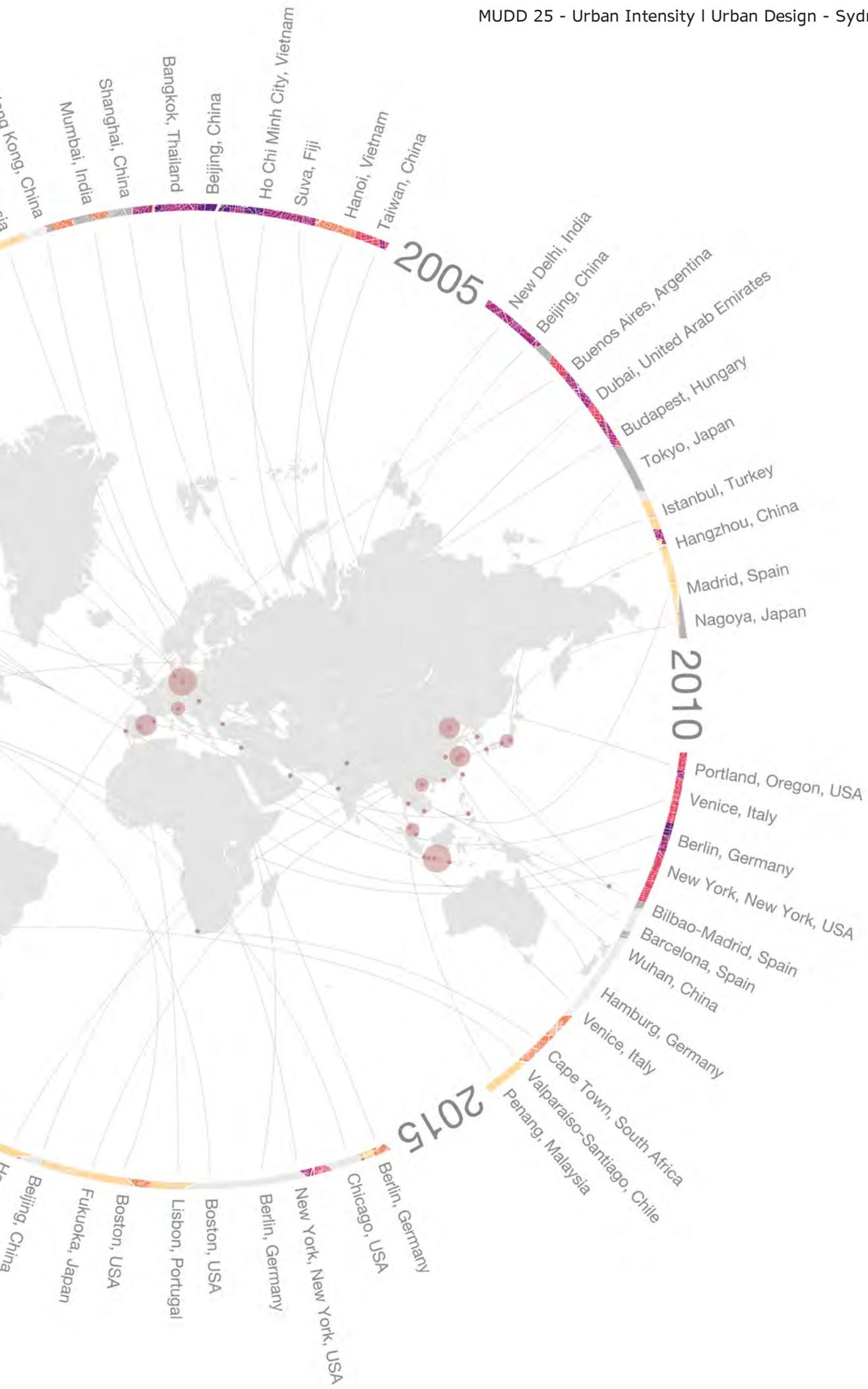
**Parisa Zare**  
(Architect/Urban Designer, UNSW Doctoral Student)

**John Zerby**  
(Urban Economist)



# INTERNATIONAL STUDIOS 25

The MUDD UDES0003 International Urban Design Studio has been conducted in 53 cities worldwide since 1995 and is strongly aligned with the UNSW Strategic Priorities of Social Engagement and Global Impact. The principal aim of the International Urban Design Studio is to engage in a creative and critical way with global patterns of urbanisation, the culture of cities and the design dimension of urban development through direct experience of an international city. The studio provides the critical test of the MUDD approach to urbanisation and change – in direct experience, or through contrast, engaging with the megacities of the world, the scale and pace of city building, the vast demographic shifts and cultural transformations involved in the urban process, the implosion and explosion of design ideas, and understanding that cities are a human construct, a complex human environment that can be theorised, conceptualised, revealed and at times, redirected.



	year	site/city	host (uni/firm gov)
MUDD 1	1995-1996	Jakarta, Indonesia	Jakarta Waterfront Implementation Board, Indonesian government, (Public Authority) and Planning Workshop International (Private Consultancy Firm)
MUDD 2	1996-1997	Jakarta, Indonesia	Indonesian government, (Public Authority) and Adj. Professor Sonja Lyneham (Planning Workshop International Pty. Ltd.)
		Hanoi, Vietnam	Planning Workshop International (Private Consultancy Firm), The Ministry of Construction, and the Centre for Research and Planning on the Urban and Rural Environment ( CRURE)
MUDD 3	1997-1998	Jatiluhur, Indonesia	Planning Workshop International and the school of Architecture, Institute Teknologi Bandung.
		Jakarta, Indonesia	Planning Workshop International (Private Consultancy Firm) and PT Bina Area Nusa Persada (Jakarta)
		Bali, Indonesia	Planning Workshop International (Private Consultancy Firm)
MUDD 4	1998-1999	Cebu, Philippines	Host by Joy and Toshi Onozawa. Projessor Jose Danilo Silvestre of the University of the Philippines
		Bandar Bahru Nusajaya, Malaysia	Renong Nusajaya Development Sdn. Bhd.
MUDD 5	1999-2000	Beirut, Lebanon	American University of Beirut, Department of Architecture (AUB)
		Seoul, South Korea	School of Architecture, Seoul National University of Technology
MUDD 6	2000-2001	Semarang, Indonesia	Department of Architecture, Soegijapranata Catholic University, and the School of Architecture, Institute Teknologi, Bandung
		Yau Ma Tei, Hong Kong	Land Development Corporation (LDC) and the Hong Kong government
MUDD 7	2001-2002	Mumbai, India	Rizvi College of Architecture, Mumbai
		Shanghai, China	Tongji University in Shanghai and Nanjing University of Technology
MUDD 8	2002-2003	Bangkok, Thailand	Departemnt of Urban Design and Planning, Faculty of Architecture Silpakorn University
		Beijing, China	School of Architecture, Tsinghua University, Beijing
MUDD 9	2003-2004	Ho Chi Minh City, Vietnam	People's Committee of Ho Chi Minh City
		Suva, Fiji	Suva City Council, Department of Planning
MUDD 10	2004-2005	Hanoi, Vietnam	
		Taipei, Taiwan	City Government; National Taipei University of Technology; National Taiwan University of Science and Technology; Tankang University.
MUDD 11	2005-2006	New Delhi, India	Graduate School of Landscape Architecture at Peking University
		Beijing, China	The School of Planning and Architecture (SPA) in the city of New Delhi
MUDD 12	2006-2007	Buenos Aires, Argentina	Facultad de Arquitectura, Diseño y Urbanismo (FADU), Universidad de Buenos Aires (UBA)
		Dubai, United Arab Emirates	Invited by the Department of Health and Medical Services of the Dubai government. Mrs. Leila Al Jassmi, Director of the Planning and Statistics Department and Mr. Bedredine Belkadi.
MUDD 13	2007-2008	Budapest, Hungary	Éva Beleznay, City Architect of Budapest
		Tokyo, Japan	Professor Hidetoshi Ohno of the Department of Architecture and the Graduate School of Frontier Sciences, The University of Tokyo.
MUDD 14	2008-2009	Istanbul, Turkey	Professor Aykut Karaman of the Faculty of Architecture at the Mimar Sinan Güzel Sanatlar Üniversitesi, Bosphorus(or Istanbul Boğaz)
		Hangzhou, China	Invited by Professor Hua Chen, Professor of Planning at Zhejiang University(ZJU), worked with Professor Wang Zhu, Director of the Architecture Program, Associate Professor Zhu Yuheng, Associate Professor He Yong

MUDD 15	2009-2010	Madrid, Spain	Dr Alfonso Vegara at the Fundación Metr�poli
		Nagoya, Japan	Nagoya University, Sugiyama Jokakuen University and Nagoya City University. Nagoya Insititute of Technology
MUDD 16	2010-2011	Portland, Oregon, USA	Invited by Portland Mayor Sam Adams and hosted by the Portland Development Commission and the School of Architecture and Allied Arts at the University of Oregon.
		Venice, Italy	Invited by Professor Enrico Fontanari of the Universit� IAUV di Venezia
MUDD 17	2011-2012	Berlin, Germany	Introduced by Professor Dr Karl Fischer of the Universit�t Kassel. Professor Dr. Angela Uttke, Tutors of Andreas Br�ck and Jana Milo�ovicova of the Technische Universit�t.
		New York, New York, USA	Professor Michael Sorkin's Graduate Urban Design Program at the Bernard and Anne Spitzer School of Architecture, City College of New York
MUDD 18	2012-2013	Bilbao-Madrid, Spain	The Environmentally innovative headquarters of the Fundaci�n Metr�poli
		Barcelona, Spain	Barcelona BAC Director, Miguel Rold�n
		Wuhan, China	Wuhan Planning Bureau; Wuhan Land and Spatial Planning departments of the Wuhan government
MUDD 19	2013-2014	Hamburg, Germany	Professor Dr Michael Koch and Professor Dipl.-Ing Jens Usadel of HafenCity University(HCU)
		Venice, Italy	Professor Enrico Fontanari of the Universit� IAUV di Venezia
MUDD 20	2014-2015	Cape Town, South Africa	Invited by Catherine Stone, Director of Spatial Planning & Urban Design, City of Cape Town. Studio was based on the offices of the Department of Spatial Planning & Urban Design, City of Cape Town.
		Valpara�so-Santiago, Chile	DUC(Pontificia Universidad Cat�lica de Chile) campus
		Penang, Malaysia	CK Mok, Khadijjah, Neoh Siew Yin, Nurliza Binti Must Amam, Rosli Bin Haron, Zamzamah, Department of Town and Country Planning, Penang; Phua Chin Eng, Landdart Design.
MUDD 21	2015-2016	Berlin, Germany	Technische Universit�t of Berlin (TU)
		Chicago, USA	Skidmore, Owings & Merrill
MUDD 22	2016-2017	New York, New York, USA	Kohn Pedersen Fox Associates (KPF) // Luc Wilson (Director, KPF Urban Interface)
		Berlin, Germany	Technische Universit�t of Berlin (TU)
MUDD 23	2017-2018	Boston, USA	Sasaki Associates
		Lisbon, Portugal	Professor Pedro Ressano Garcia from Universidade Lus�fona de Humanidades e Tecnologias(ULHT)
		Boston, USA	Sasaki Associates
MUDD 24	2018-2019	Fukuoka, Japan	Kyushu University, in particular our host, Professor Magakuzu Tani (Dean of the School of Design) and co-convenors of the Joint KU/UNSW Urban Design Studio, Associate Professor Tetsuya Ukai and Assistant Professor Masaaki Iwamoto; Fukuoka Port Authority.
MUDD 25	2019-2020	Beijing, China	School of Landscape Architecture at Peking University
		Hangzhou, China	Zhejiang University(ZJU)

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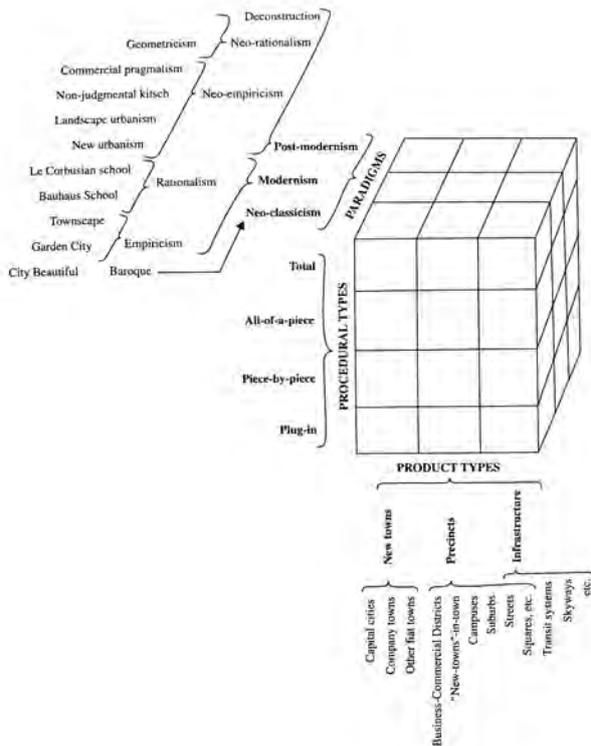
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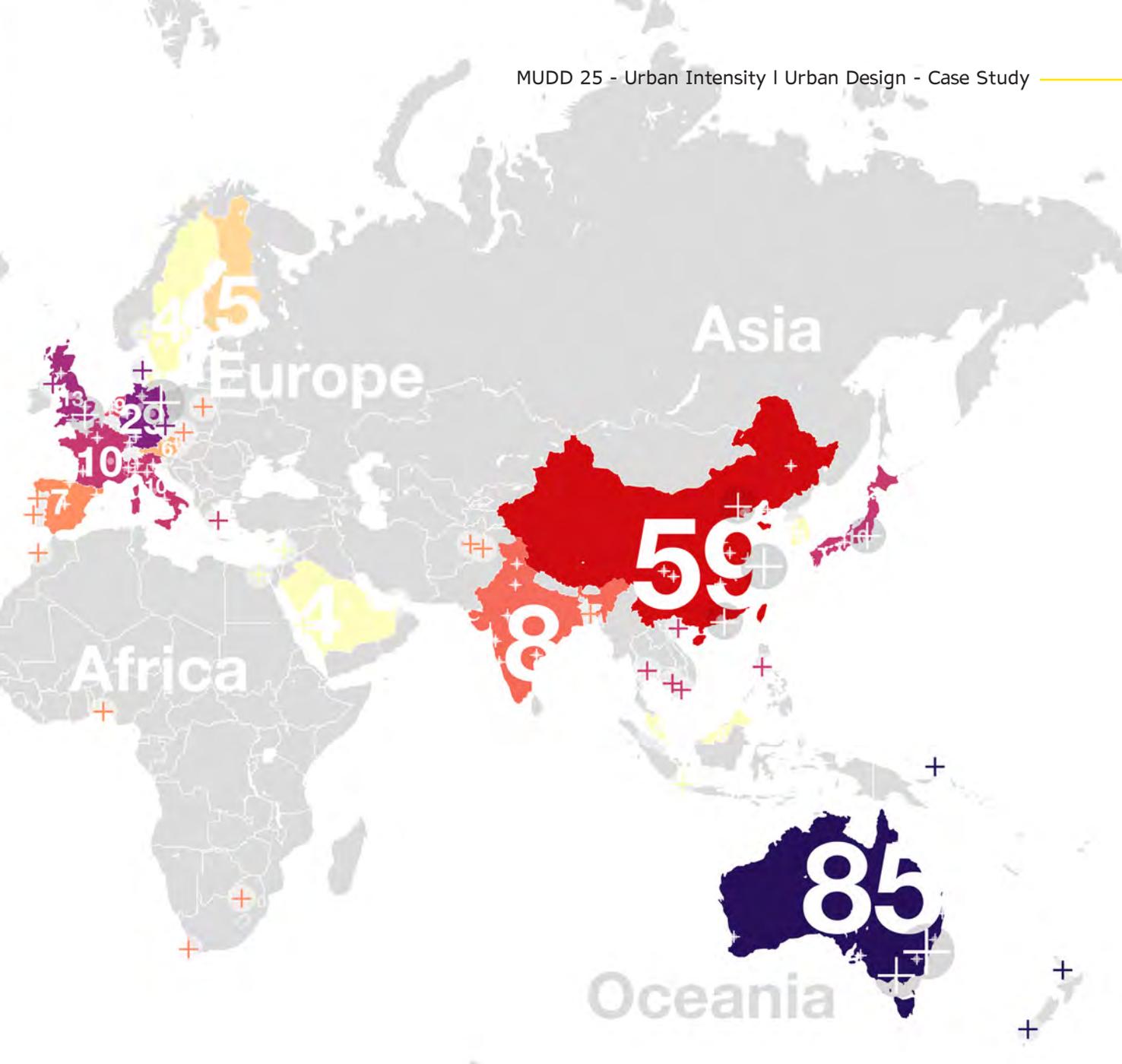
Americas

5

# 408 URBAN DESIGN CASE STUDIES (1995-2020)



From Professor Jon Lang



**THE MATERIAL AND SYMBOLIC PRODUCTION OF FORMS AND SPACES UNDER GLOBALISATION AND NEO-CORPORATISM**

	POLITICAL / ECONOMIC PROCESS	SPATIAL AND FORMAL PROCESS
1	Branding	Themed environments
2	Spectacular consumption	Collisea of various types
3	Economies of scale	Hypermarkets, malls
4	Commodification of history	Conservation districts
5	Accommodation of the New Class	Cultural/Cappuccino environments
6	Areas themed by age, association or interest	Cohort consumption areas
7	The cultural economy / luxury consumption	Specialist tourist enclaves
8	Neo Corporate architecture as GDP	Blue chip buildings and environments
9	Shifting class , ethnic and racial fractions	Gated Communities.
10	Reserve army of labour (euph='jobseekers')	Increasing alienation of public housing
11	Purchase of Symbolic capital	New Urbanist enclaves.
12	Commodified entertainment	Dysneyfication , cultural chernobyls
13	Tourism (entertainment)	Spaces of simulacra
14	Tourism (transport)	Themeports (airports as destinations)

**GLOBALISATION AND 'URBAN' IMPACTS ON LAND USE**

- New patterns of global land use resulting from the New Industrial Division of Labour, the spatial shift of manufacturing industries from advanced capitalist countries to developing countries.
- Increased competition between cities.
- Cultural facilities draw professional labour.
- The city/urban 'brand' is all important.
- Urban Planning moves to project based Urban Design.
- Themed environments become necessary.
- Sites for 'spectacles' become desirable.
- Signature (iconic) architecture can pay the bills.
- Global culture competes with the local for space.
- 3rd world exports labour, 1st world exports tourists.

From Professor Alexander Cuthbert



# AMERICAS

Canada	Montreal	Bonaventure Expressway Transformation & Downtown Gateway RESO - The Underground City (La Ville Souveraine)	
	Toronto	Central Waterfront	
		East Bayfront	
		French Quarter	
		Lawrence Heights Revitalization	
	Vancouver	Canada Place & Coal Harbour Redevelopment	
		Gastown Revitalization University of British Columbia Campus Sustainability Project Vancouver Olympic Village, Southeast False Creek	
	Mexico	Guadalajara	Distribo La Peña Master Plan
	USA	Arlington, VA	Orange Line TOD Corridor, Rosslyn-Balton
		Arvada, CO	Geos Net Zero Energy Neighborhood
Atlanta, GA		Peachtree Center	
Austin, TX		Texas Capitol Complex Master Plan	
Baltimore, MD		Baltimore Inner Harbour	
Boston, MA		Columbia Point Development	
		'Big Dig' Central Artery Project	
		Government Center & Quincy Market, 2004-2014	
		Harvard University, New Arlington Campus Seaport Square Suffolk Downs Urban Design (Amazon HQ2 Proposal)	
Cambridge, MA		MIT East Campus University Park at MIT	
Chicago, IL	53rd Street Revitalization Project, Hyde Park		
	Chicago Green Roof Policy Implementation		
	Chicago Riverwalk, River West & Wolf Point Developments Illinois Center & Millennium Park State Street Renovation Project & Block 37 Development		
Columbia, MD	Columbia, MD Downtown Revitalization		
Dallas, TX	Dallas Arts District		
Denver, CO	Denver Civic Center Denver Design District		
Detroit, MI	Lafayette Park Midtown Detroit Tech Town District		
Honolulu, HI	Ward Village, Kaka'ako		
Houston, TX	Woodlands		
Jersey City, NJ	Bayside Development		
Las Vegas, NV	CityCenter Las Vegas		
Los Angeles, CA	Grand Avenue Project		
Madison, WI	Monona Terrace, Overture Center & Judge Doyle Square		
Merced, CA	Long Range Development Plan, University of California Merced		
Minneapolis, MN	Minneapolis Riverfront Minneapolis Skyway System		
New York, NY	Atlantic Yards (Pacific Park), Brooklyn		
	Battery Park City		
	Brooklyn Academy of Music Cultural District, Brooklyn		
	DUMBO Neighborhood, Brooklyn		
	High Line & Associated Developments		
	Hudson Yards		
	Hunters Point South, Long Island City		
	Rockefeller Center		
	Terminal City & 1 Vanderbilt Avenue, Grand Central		
	Time-Warner Center & Columbus Circle Development		
World Trade Center Reconstruction Brooklyn Bridge Park Development, Brooklyn Lincoln Center Roosevelt Island - Northtown, Northtown II, Southtown Special Garment Center District, Manhattan Suyesant Town Place Cooper Village Theater District, Broadway Tudor City & Con Ed Site Upper West Side Railyards Redevelopment West Chelsea High Line Development World Trade Center (original Twin Tower project) World Trade Center Ground Zero Redevelopment Big U   Rebuild by Design Project			
Orlando, FL	Celebration		
Philadelphia, PA	30th Street Station District Plan Community Preservation, Chinatown, North Philadelphia Penn Contacts, University of Pennsylvania Campus Plan Central Portland Urban Design Policies & Projects Lloyd Crossing Sustainable Design Plan Nike World Campus South Waterfront Redevelopment		
Portland, OR	Yerba Buena Park Civic/Convention Center Development		
San Francisco, CA	Apple Campus 2, Cupertino		
	Embarcadero Redevelopment		
	Fisherman's Wharf & Ghirardelli Square		
	Presidio Redevelopment San Francisco Civic Centre Treasure Island Master Plan		
Savannah, GA	East Riverfront Expansion		
Seaside, FL	Seaside		
Seattle, WA	Olympic Sculpture Park, Seattle Art Museum Development Central Waterfront		
Washington, D.C.	Monumental Core Framework Plan Union Station Master Plan		
Argentina	Buenos Aires	Puerto Madero Waterfront Redevelopment	
Brazil	Curitiba	Transit Oriented Development, BRT System, Curitiba	
	Rio de Janeiro	Favela-Barro Project	
	Rio 2016 Olympics Master Plan, Barra de Tijuca		
	São Paulo	Paulista Smart Community Strategies for Cidade Espas	
Colombia	Medellin	MetroCable, Northeastern Urban Integration Project	

# EUROPE

Austria	Linz	solarCity Piching Eurogate
	Venna	Karl Marx Hof Kärntner Straße Pedestrianization Mariahilferstraße Neu Werktbund Sedlung
Czech Republic	Prague	Wenceslas Square Redevelopment
	Zlin	Zlin New Town
Germany	Zin	Eurocity Development, Berlin-Moabit Hansaviertel (Interbau 1957) Hufeisensiedlung, Berlin-Brick Märkisches Viertel, Neukölln Mediapres Development, Kreuzberg Neubau Project, Internationale Bauausstellung (IBA) Potsdamer Platz R50 Baugruppen Projekt & its Urban Quarter, Berlin-Kreuzberg Reconstruction of Hackescher Markt & Hackesche Höfe Reconstruction of the Museumsinsel Rummelsburger Buch/Water City Science & Technology Park, Berlin Adlershof Spreebogen Urbane am Gleisdreieck Development Project
	Duisberg	Werkbundstadt, Charlottenburg Duisberg Inner Harbour Majestätische Höhe
	Essen	Univiertel Grüne Mitte Zuiveren Masterplan
	Freiburg	Vauban
	Halle	Halle-Neustadt
	Hamburg	HafenCity
	Hannover	Wihemsburg Mitte Expo 2000 Masterplan + post-Expo redevelopment
	Hartburg	Binnenhafen
	Kassel	Untermerstadt Development
	Ruhr District	Internationale Bauausstellung Emscher Park
Stuttgart	Stuttgart 21 Redevelopment Weissenhofsiedlung	
Poland	Warsaw	Reconstruction of the Historic Centre of Warsaw
Switzerland	Basel	Novartis Campus, St Johann
Denmark	Aarhus	Ny Baneqaantsgade Masterplan, Aarhus Central Station Area
	Copenhagen	Northhavn Ørestad
Finland	Åwapolis, Vantaa	Eastern Harbour Redevelopment
	Helsinki	Jätkäsari Port Development & Low2No Block Tapiola Town Centre Vuosaari Container Port & New City District
Norway	Oslo	Tjuvholmen Waterfront Development
Sweden	Lund	Jaktråborg, Hjälpur
	Malmö	Bo01 City of Tomorrow, Västra Hamnen
Greece	Stockholm	Hammarby Sjöstad Sussen Master Plan
	Athens	Athens Olympic Village
Italy	Bologna	Historic Centre Conservation
	Genoa	Porto Antico, Ponte Parodi, Ponte dei Mille, Terminal Traghetto Fiero Milano
Portugal	Milan	Porta Nuova Development Progetto Bicocca
	Naples	Città Bassa & Port Development
	Rome	Piazza Augusto Imperatore & New Ara Pacis Museum Corso Marche Corridor
	Turin	FIAT Lingotto Complex Redevelopment
	Venice	Giudecca Development
Spain	Lisbon	Redevelopment of the Expo 98 Site Restoration of the Chiado District
	Porto	PlanIT Valley Smart City Barcelona Waterfront/Port Vell redevelopment Diagonal Mar/Universal Forum Olympic Village
France	Barcelona	Diagonal Mar/Universal Forum Olympic Village
	Bilbao	Zorrozarte Development M30 Madrid Calle 30 Project Madrid Rio Development Sancti Spiritu PAU (Programas de Actuación Urbanística)
Netherlands	Bordeaux	Le Quartier de Furgès, Pessac
	Le Havre	Le Havre Reconstruction
Belgium	Lille	Eurallille Business District
	Lyon	Le Quartier des Grands-Grands, Villeurbanne Lyon-Confluence La Defense, 2004-2014
Luxembourg	Paris	Les Halles Redevelopment Parc de la Villette Promenade Plantée, 12e Arrondissement Rive Gauche Zone d'Aménagement Concerté (ZAC) Bercy
	Amere	Almere New Town Centre
Ireland	Amsterdam	Borneo Sporenburg Cultuurpark Westergasfabriek Uburg, Amsterdam, The Netherlands Zuidas
	Rotterdam	Hollbogen Urban Regeneration Kop van Zuid Development Rotterdam Central Station Area
Scotland	Utrecht	Leidsche Rijn
	Belfast	Belfast Waterside (Sirocco Quays), East Bank
United Kingdom	Glasgow	Clyde Waterfront Cambridge Futures Project
	Cambridge	Cambridge Futures Project
Sheffield	Dorchester	Poundbury Battersea Power Station Site Redevelopment, Wandsworth Elephant & Castle Redevelopment Jubilee Line Development, Stratford London Docklands (Canary Wharf) Olympic Village, Stratford St Pancras International & King's Cross Central Development Trinity Square Transformation
	Manchester	Manchester City Centre Regeneration MediaCityUK Spinningfields
Sheffield	Sheffield	Devanshire Quarter

MUDD 25 - Urban Intensity | Urban Design - Case Study

AFRICA

Egypt	Cairo	Al-Azhar Park & Darb el-Ahmar Neighbourhood Program
Morocco	Casablanca	Anfa Airport Redevelopment
Nigeria	Lagos	Eko Atlantic City
South Africa	Cape Town	District 6 Redevelopment Project Victoria & Albert Waterfront Lion Park, Cosmo City
	Johannesburg	

China	Beijing	798 Art Zone
		Beijing CBD, Chaoyang District
		Bohai Innovation City
		Huamao Center, Chaoyang District
		Linked Hybrid Development
	Olympic Green	
	SOHO Sanlitun & The Village, Chaoyang District	
	Chengde	Meizi Lake Development
	Chengde	Riverside Cultural Park
	Chengde	Luxe Lakes Development
Chongqing	Chongqing Tiansi, Yuzheng District	
Chongqing	Shulin Central Area, Liangjiang New District	
Dalian	North Bay and Jinzhou Bay	
Foshan	Foshan Donghuali Master Plan	
Fuyang	Village Reconstruction	
Guangzhou	Guangzhou International Finance Center & Associated Developments	
	Zhujiang New Town Development	
Hangzhou	Liede Village Redevelopment	
Hangzhou	Qianjiang New City	
Hangzhou	Shan-shui Project, Former Oxygen & Boiler Plants & the Kerry Center	
Hangzhou	Xieshe Symbolic City	
Harbin	Transit Oriented Development, Harbin Metro	
	Hong Kong University Centennial Campus	
Hong Kong	Hysan Place Development	
	Kai Tak Airport Redevelopment	
	Sha Tin & Ma On Shan New Towns	
	Wanchai Waterfront Development	
	West Kowloon Waterfront Cultural Centre & ICC Centre	
Macao	Macao New Urban Zone	
Nanjing	Nanjing Xuguang Riverfront Project	
Ningbo	Cicheng Ancient Town & Cicheng New Town	
Qingdao	Qingdao Olympic Sailing Center	

China	Shanghai	Anfeng New Town
		Cambridge New Water Town, Qingpu
		Civic Redevelopment of People's Square
		Dongtan Eco City, Changming Island
		Lingang New City (Nantun New City), Pudong
		Lujiazui, Pudong, 2004-2014
		Pujiang New Town
		Rock Bund/Waitanyuan
		Shanghai World Expo Site Redevelopment
		Suzhou Creek Urban Design
Taipingqiao Redevelopment Project		
Xinlandi Redevelopment		
Shanghai World Expo 2010 Masterplan		
Shenzhen	Cheng Zhong Cun Redevelopment	
Shenzhen	Gang Xia 'Village in the City'	
Shenzhen	Qianhai CBD, Nanshan District	
Shenzhen	Shenzhen Bay Super City Masterplan	
Shenzhen	Shenzhen Citizen Center & Precinct	
Suzhou	Suzhou New Town Development	
Tangshan	Caohedian Development	
Tianjin	Binhai CBD & Transport Interchange	
Tianjin	Sino-Singapore Eco City	
Tianjin	Yujiaup Financial District, Binhai	
Wuhan	Chu River & Han Street	
Wuhan	Qianhan New City, Xian New Area	
Zhengzhou	Zhengdong New District	
Zhoushan	Zhoushan Island Masterplan, Zhejiang Province	
Kyoto	Kyoto Station Complex	

Japan	Tokyo	Central Waterfront
		Hillside Terrace, Daikanyama
Japan	Tokyo	Makuhari New City, Chiba
		OH-1 Project, Ohtaishi District
Japan	Tokyo	Olympics 2020 Athletes Village, Harumi, Chuo-ku
		Roppongi Hills
Japan	Tokyo	Tokyo International Forum
		Tokyo Midtown
Japan	Yokohama	Minato Mirai 21

South Korea	Seoul	Sejong Special Autonomous City
		New Songdo City
South Korea	Seoul	Cheonggyecheon Freeway Redevelopment
		Senul Forest Park Redevelopment, Tsukjeom

Bangladesh	Dhaka	Jalilyo Sangshad Complex
India	Chandigarh	Amaravati, New Capital of Andhra Pradesh
		Chandigarh
India	Goa	Goa 2100 Project
		Aranya Low Cost Housing
India	Mumbai	Naniman Point Area Redevelopment
		Navi Mumbai New Town
India	Mumbai	Belapur Incremental Housing Project (Artists' Village), Parsik Hill
		Shahjahanabad Urban Renewal Project
Pakistan	Islamabad	Administrative Center & Residential Quarters, Islamabad

Cambodia	Phnom Penh	CBD Redevelopment
Indonesia	Jakarta	Pantai Indah Kapuk, North Jakarta
		Pulih City

Malaysia	Kuala Lumpur	Cyberjaya
		Forest City
Malaysia	Putrajaya	Kuala Lumpur City Centre (Salingori Turf Club Racecourse redevelopment)
		Putrajaya Federal Administrative Centre

Philippines	Manila	Bonifacio Global City
Singapore	Singapore	Marina Bay
		Clarke Quay
Singapore	Singapore	One-North Biomedical Hub
		Punggol 21-Plus New Town

ASIA

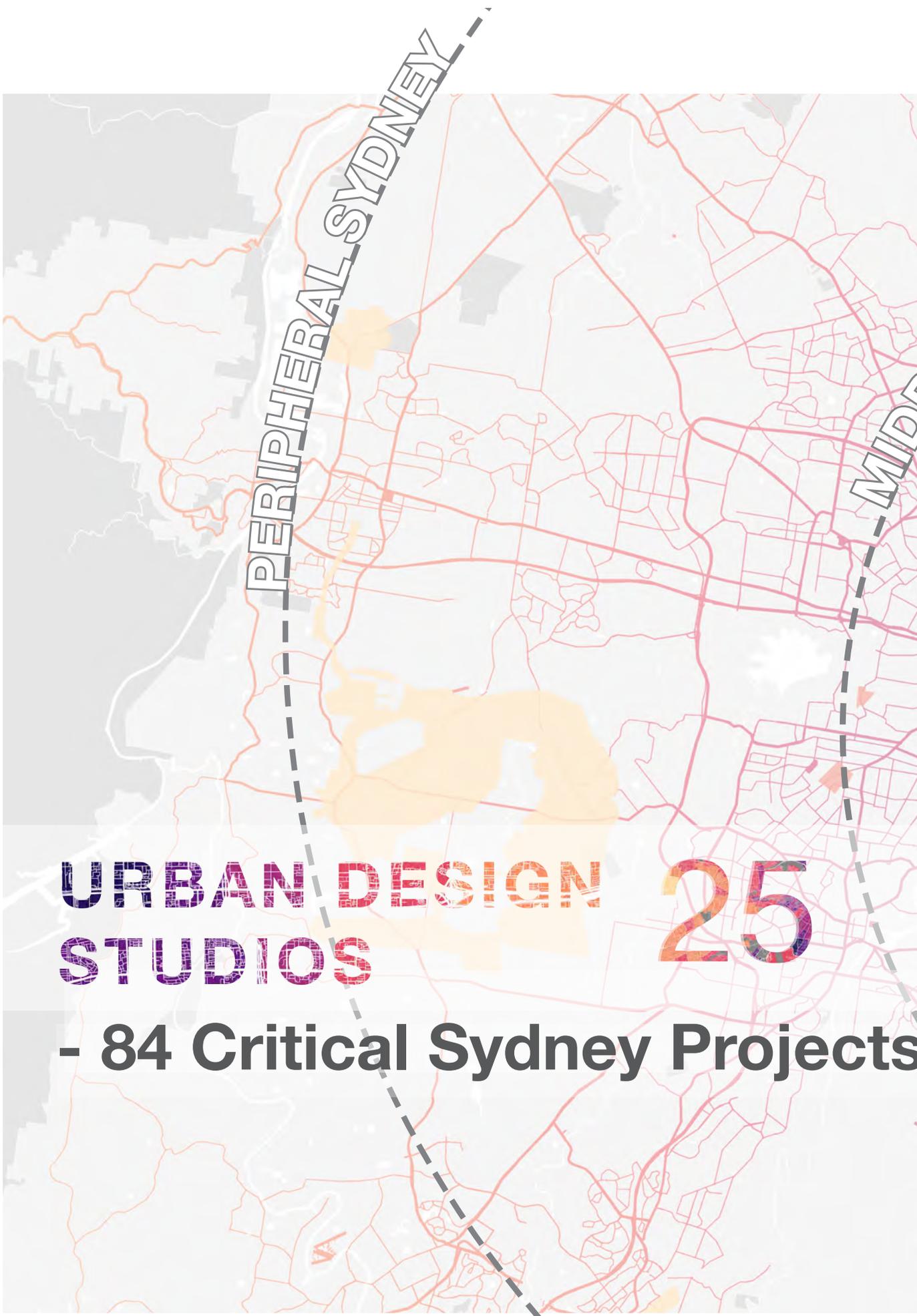
OCEANIA

Thailand	Bangkok	Siam Square
Vietnam	Hanoi	Hanoi CBD Development
		Ha Chi Minh City
Vietnam	Hanoi	Saigon South New Urban Area
		Thu Thiem City CBD
Afghanistan	Kabul	Deh Sabz, New Kabul City
Israel	Mod'in	Mod'in New Town
Lebanon	Beirut	SOLIDARE City Centre Reconstruction
Qatar	Doha	Musheirab Development
Saudi Arabia	Jeddah	King Abdulaziz Islamic Center
		Mecca
Saudi Arabia	Riyadh	Pilgrimage Project
		Wadi Hanifa Eco Project
United Arab Emirates	Abu Dhabi	Masdar City
		Dubai
United Arab Emirates	Dubai	Downtown Burj Dubai
		Ras Al Khaimah
United Arab Emirates	Ras Al Khaimah	Palms Jumeirah
		Gateway Eco-City

Australia	Adelaide	Adelaide Multi-Function Polis (MFP)
		Victoria Square/Tandanyanga Urban Regeneration
	Brisbane	Greater Springfield Development
		Kirpita Riverfront Renewal
	Brisbane	Southbank Redevelopment
		Southbank Redevelopment
	Cairns	Cairns Foreshore, Cityport & Esplanade
		City to the Lake Project
	Canberra	East Lake Urban Renewal, Kingston
		Kingston Foreshore Redevelopment, Kingston
Gold Coast	Gold Coast Light Rail Project & Associated Developments	
	A'Beckett Urban Square & Associated Developments	
Melbourne	Docklands	
	Federation Square	
Melbourne	Fishermans Bend Redevelopment	
	Melbourne CBD 'Places for People', 1994-2014	
Melbourne	Melbourne Docklands	
	Melbourne Lane Revitalisation	
Melbourne	Public Art & Urban Space in the City of Melbourne	
	QV Melbourne	
Melbourne	South Bank Redevelopment	
	Victorian Arts Centre Master Plan	
Newcastle	Newcastle Light Rail Project & Associated Developments	
Perth	Cathedral Square Precinct	
	Elizabeth Quay, Perth Waterfront	
Perth	Perth City Link Project	

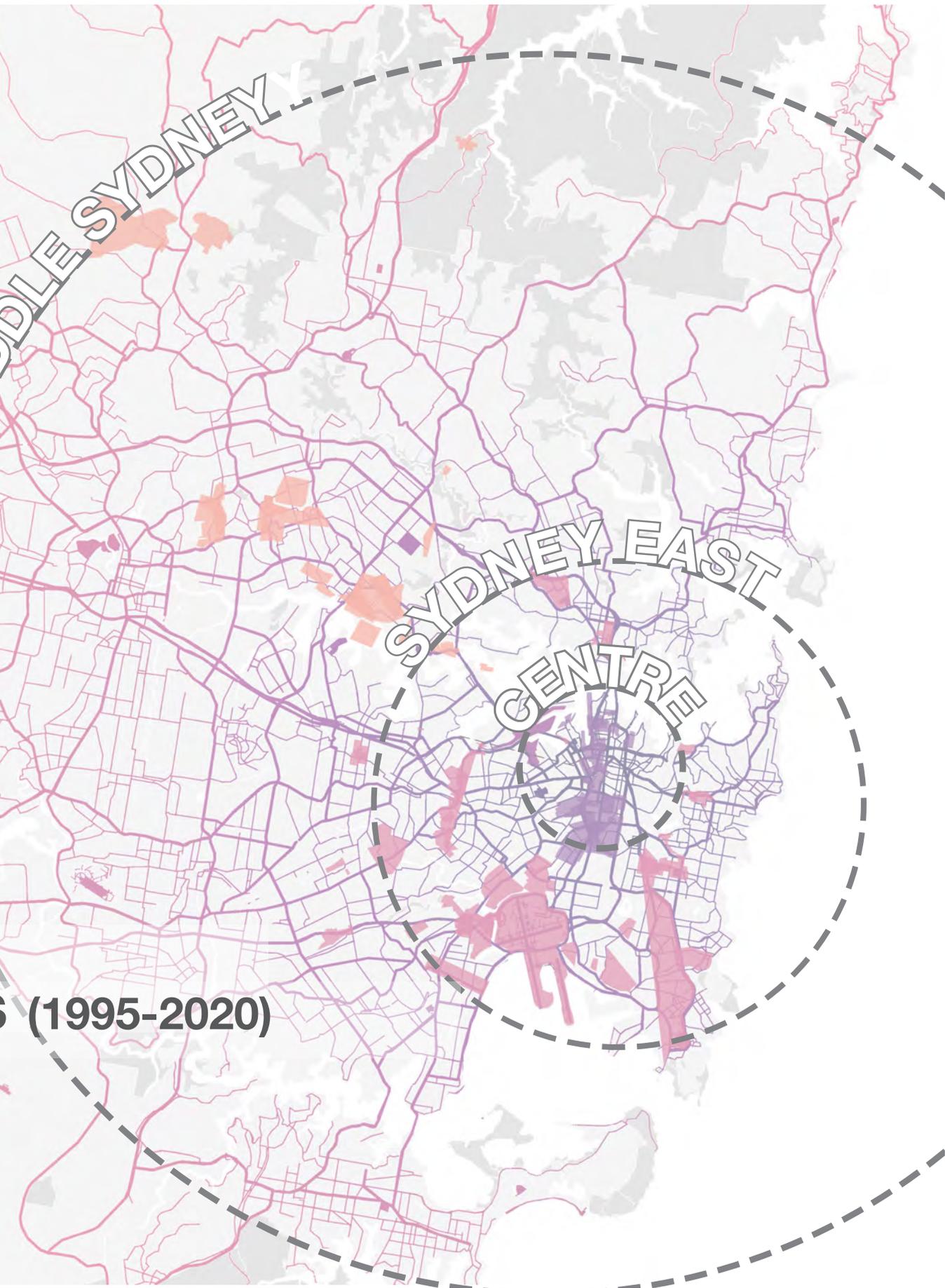
Australia	Sydney	Airport City Proposals, Western Sydney Airport
		Alfred Pte/Dalley/Gorge (APOG) Block Development
		AMP Centre, Quay Quarter Development
		Ashmore Precinct Redevelopment, Newtown
		Australia Square
		Barangaroo Central & Headland Park
		Barangaroo South
		Bella Vista TOD & Kellyville TOD, North West Rail Link
		Bolton Freight Line/Intermodal Terminals at Enfield and Moorebank
		Burwood Town Centre
Australia	Sydney	Camellia Town Centre Urban Design Study
		CBD & South East Light Rail Project
		Central Park, Broadway
		Central-Eveleigh Redevelopment
		Chatswood Centre/Transport Interchange, Chatswood
		Darling Harbour
		Darling Quarter
		Darling Square Development, Haymarket & The Goods Line
		Darlington Campus Development, University of Sydney
		Design Parramatta Projects
Australia	Sydney	East Darling Harbour
		Edmondson Park
		Epsom Park Master Plan, Green Square
		George Street Light Rail
		George Street Reconstruction
		Green Square Town Centre, Zetland
		Harbour Village North & Millers Point Conservation Plan
		Harold Park Redevelopment, Glebe
		Jackson's Landing, Elizabeth Bay, Pyrmont Point
		King Street Wharf Redevelopment
Australia	Sydney	'Kimbili Village' & Enrie Road Bays, Milsons Point
		Kogarah Town Centre
		Lachlan Precinct, Green Square
		Luna Park, Milsons Point
		Newington Olympic Village & Millennium Parklands, Homebush
		Northwest Business Centre
		Over-Metro Development & Draft Public Domain Strategy, North Sydney
		Parramatta Civic Centre
		Parramatta River Urban Design Strategy
		Pleinville Lakes Redevelopment, Pleinville
Port Hills Residential Estates, Heritage Site & Workplace Facility, Port Hills		
Australia	Sydney	Rhodes Peninsula Redevelopment
		Rouse Hill Town Centre
		Station Precinct, Sydney Olympic Park, Homebush Bay
		Stratfield-Parramatta Light Rail Project
		Sydney International Convention, Exhibition & Entertainment Precinct
		Sydney Olympic Site, Homebush Bay
		Sydney Opera House & East Circular Quay
		The Goods Line & Associated Developments, Ultimo
		University of Sydney Campus 2010 Development
		University of Technology Sydney Master Plan & Development Projects
Australia	Sydney	Victoria Park, Zetland
		Walsh Bay Redevelopment
		Wentworth Point Master Plan, Homebush Bay
		Westconnex Project & Parramatta Road Revitalisation
		Western Sydney Airport, Badgery's Creek
		Westfield Sydney (Centrepoint) Redevelopment
		Woolloomooloo Finger Wharf/Wharf 11/Cowper Wharf Road
		World Square Development
		Wynyard Station/One Carrington Street/Wynyard Walk Project
New Zealand	Auckland	Auckland City Centre Master Plan
		Five Mile New Town, Franklin
New Zealand	Queenstown	Kawarau Falls Station
Papua New Guinea	Lihir Island	Londonlivi Town Centre





# URBAN DESIGN STUDIOS 25

- 84 Critical Sydney Projects



Sydney East	Canterbury Hospital		1995-1996	MUDD1	
	Bondi Junction		1996-1997	MUDD2	
	Bondi Junction/Bondi Beach		1999-2000	MUDD5	
	Rockdale		2000-2001	MUDD6	
	Double Bay		2001-2002	MUDD7	
	Pemberton Wilson Street Precinct		2004-2005	MUDD10	
	Sydney Airport		2005-2006	MUDD11	
	Five Dock		2006-2007	MUDD12	
	Randwick		2007-2008	MUDD13	
	Anzac Parade	Bringing Back The Trams		2010-2011	MUDD16
		Transverse Connections			
		Maroubra Metro			
		Anzac Metro Line			
	New Lower Campus, UNSW		2010-2011	MUDD16	
	Inner West Light Rail	North Leichhardt Station		2010-2011	MUDD16
		Marion Street Station			
		Unlocking The Potential Of A Gridlocked Axis			
		Lewisham West Station			
		Waratah Mill Station			
		Dulwich Hill Centre Station			
	Dulwich Hill Interchange				
	Sydney's Kingsford-Smith Airport		2012-2013	MUDD18	
	Randwick		2012-2013	MUDD18	
	Metro WestConnex, M5	St. Peters Makers Precinct		2016-2017	MUDD22
Mascot Walkable Airport City					
Arncliffe Urban Village					
Bardwell Valley Park City					
Canterbury Station		2018-2019	MUDD24		
Arncliffe/Wolli Creek/Cooks Cove		2019-2020	MUDD25		
Central Sydney City Centre	King Street		1995-1996	MUDD1	
	Pyrmont Point		1995-1996	MUDD1	
	Darling Park		1995-1996	MUDD1	
	Woolloomooloo		1997-1998	MUDD3	
	Pyrmont		1997-1998	MUDD3	
	Green Square		1998-1999	MUDD4	
	Sydney CBD Edge		1999-2000	MUDD5	
	East Darling Harbour		2000-2001	MUDD6	
	Waterfront	White Bay		2002-2003	MUDD8
		Rozelle Bay			
		Blackwattle Bay			
	Gateway	Victory Park		2002-2003	MUDD8
		Kent Brewery			
		UTS			
		Central Station			
	Redfern Eveleigh		2006-2007	MUDD12	
	Central Yards		2007-2008	MUDD13	
	Darling Harbour		2008-2009	MUDD14	
	White Bay		2008-2009	MUDD14	
	CBD West		2009-2010	MUDD15	
	Barangaroo		2009-2010	MUDD15	
	Harold Park		2009-2010	MUDD15	
	George Street Light Rail	Mid-Town Market Row		2010-2011	MUDD16
		Wynyard			
Circular Quay					
Central Station					
Town Hall Square		2010-2011	MUDD16		
Redfern-Waterloo	Redfern Station		2011-2012	MUDD17	
	Redfern Street				
	Poet's Corner				
	Elizabeth Street Light Rail				
	Waterloo Green				
New Waterloo					

	Darling Harbour Railway Corridor	Powerhouse Museum	2013-2014	MUDD19	
		Transitional Space			
		Transforming Redfern			
		Bridging Boundaries			
	New Chinatown		2013-2014	MUDD19	
	Circular Quay		2014-2015	MUDD20	
	Central Station-Central Airspace		2015-2016	MUDD21	
	Bathurst Street Cross Axis		2015-2016	MUDD21	
	Wynyard		2015-2016	MUDD21	
	Green Square		2019-2020	MUDD25	
Middle Sydney Middle Sydney		Homebush Bay Olympic Park	1995-1996	MUDD1	
		HMAS Playtypus	1998-1999	MUDD4	
		Olympic Park	2001-2002	MUDD7	
		Brownfield-Olympic Park	2002-2003	MUDD8	
		Burwood	2003-2004	MUDD9	
		Hornsby	2003-2004	MUDD9	
		Rydalmere	2004-2005	MUDD10	
		Parramatta-Liverpool Transitway	2004-2005	MUDD10	
		North Sydney Centre	2004-2005	MUDD10	
		Ryde	2005-2006	MUDD11	
		Burwood	2005-2006	MUDD11	
		Ku-ring-gai Town Centre	Turrumurra Town Centre	2006-2007	MUDD12
			Pymble Town Centre		
			Gordon Town Centre		
			Lindfield Town Centre		
		Castle Hill	Castle Hill	2007-2008	MUDD13
			Hills Centre		
			Norwest Business Park		
		West Metro	Homebush Bay	2008-2009	MUDD14
			Camellia Rosehill Urban Redevelopment		
			Parramatta City Centre		
		Second Harbour Rail Crossing	Sydney CBD Rail Corridors	2013-2014	MUDD19
			North Sydney		
			Chatswood Core Hill		
		North Sydney Warringah Freeway		2014-2015	MUDD20
	Metro WestConnex, M4	Rozelle	2016-2017	MUDD22	
		Haberfield			
		Burwood			
		North Strathfield			
		Homebush			
		Carter Street			
		Newington			
	Very Fast Train	Parramatta Station	2017-2018	MUDD23	
		Camellia			
		Olympic Park			
		White Bay			
	West Sydney Airport		2018-2019	MUDD24	
	North Sydney		2019-2020	MUDD25	
	Campbelltown		1995-1996	MUDD1	
Periphery Sydney Peripheral Sydney	Central Coast	Cardiff-Glendale	2003-2004	MUDD9	
		Charlestown			
		Wyong-Tuggerah			
		Morisset			
		The Entrance			
		Gosford			
		Woy Woy			
		Penrith	2007-2008	MUDD13	
		South Creek Aerotropolis	2017-2018	MUDD23	
	Costal Resilience	Erina Bay	2019-2020	MUDD25	
		Saratoga			
		Booker Bay			
		Gosford			

# NORTH SYDNEY

## CONVENORS



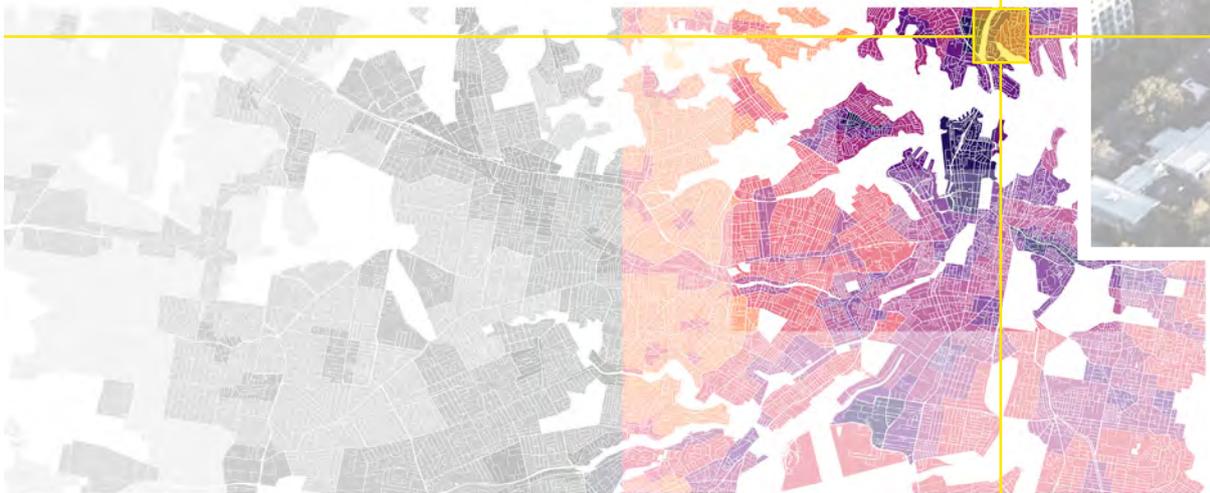
Michael Gheorghiu

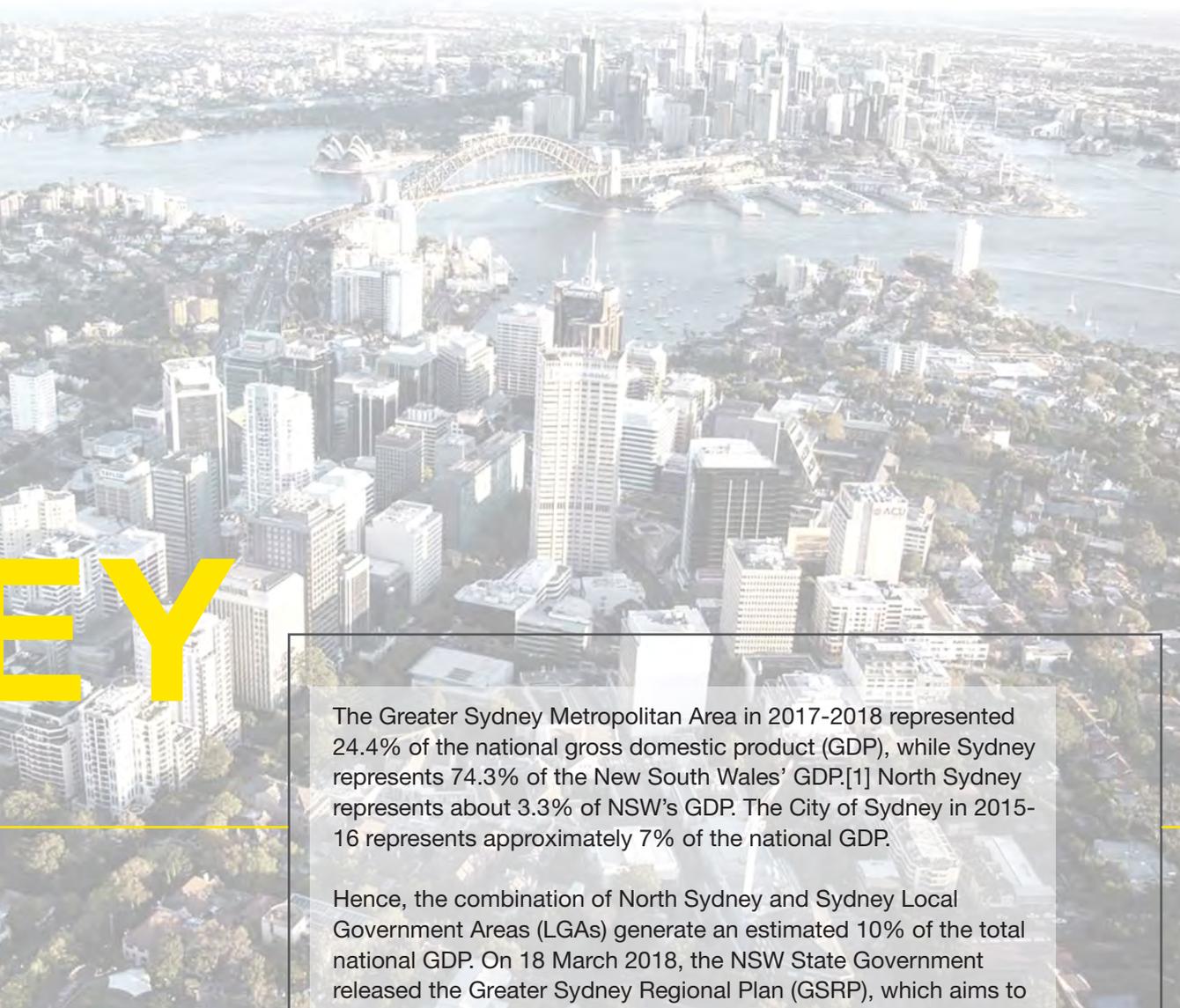


Geoff Hanmer



Andrew Sweeney





The Greater Sydney Metropolitan Area in 2017-2018 represented 24.4% of the national gross domestic product (GDP), while Sydney represents 74.3% of the New South Wales' GDP.[1] North Sydney represents about 3.3% of NSW's GDP. The City of Sydney in 2015-16 represents approximately 7% of the national GDP.

Hence, the combination of North Sydney and Sydney Local Government Areas (LGAs) generate an estimated 10% of the total national GDP. On 18 March 2018, the NSW State Government released the Greater Sydney Regional Plan (GSRP), which aims to address the growth of the Sydney Metropolitan Area. The GSRP identifies that North Sydney forms part of the Harbour CBD along with the Sydney CBD, and is located within the Global Economic Corridor.

The Global Economic Corridor (GEC) is an economic zone in the Sydney Metropolitan Area that generates a significant amount of employment and economic activity in Sydney. The GEC connects important key centres where most of the economic activity is found, including Macquarie Park, Chatswood, St. Leonards, North Sydney, Sydney CBD and the Sydney Airport.



# North Sydney - Intensifying Its Role in 'Global Sydney'



Michael Gheorghiu

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The MUDD25 North Sydney Studio undertook a strategic review of the commercial core of North Sydney in response to the controversial 'over-Metro' development pushed through by the NSW Government, the major value capture scheme of the Chatswood-Central section of the Sydney Metro scheduled for completion in 2024. This air rights development on resumed and cleared sites at Victoria Cross above the new Metro Station has been contested by the North Sydney community for its lack of community and cultural facilities, conspicuously missing from the 40-storey commercial complex approved for the site. The missed opportunity to create a meaningful public square has also been a major concern in the North Sydney community, particularly given the loss of the much-loved 'privately owned public space' of the 1980s Tower Square project, a low-rise Mediterranean-style shopping plaza demolished for the Metro station excavation (Dawkins 2019).

Instead of a commercial complex, reinforcing the single-use commercial character of the North Sydney CBD, the MUDD25 Studio proposed to re-position the 'over Metro' development – and the Metro itself – as a catalyst for change by exploring the full potential of urban intensity as a measure of 'compactness, density, diversity and connectivity' (Guan & Rowe 2016, p.22).

Despite the obvious significance of North Sydney as an employment centre second only to Central Sydney in the metropolitan structure of Sydney, it took many decades for its role to be clearly acknowledged and in critical ways, this 'CBD' is still to realise its full potential as a place of diversity and vitality. The County of Cumberland Planning Scheme of 1948 identified North Sydney as an Industrial Area and partly a Living Area. The 1968 Sydney Region Outline Plan removed the industrial zoning but failed to single out North Sydney as a significant city centre. Sydney Into Its Third Century, published by the Department of Planning in 1988 sought to change the structure of the city by promoting urban consolidation and concentrating employment in major centres. In the review of these centres, however, North Sydney was barely mentioned (NSW Department of Planning 1988, p.17). The metropolitan plans of the 1990s, Cities for the 21st Century released in 1995 and Shaping Our Cities released in 1998 made no special mention of North Sydney at all.



2005 saw the release of the City of Cities – A Plan for Sydney’s Future, which introduced the concept of Sydney’s Global Economic Corridor, the concentration of globally significant enterprises extending from high-tech industries at Macquarie Park to Sydney International Airport. In the process, the role of North Sydney was finally highlighted when the City of Cities plan linked it symbolically and economically with the City of Sydney at the centre of the corridor in a twin-city cluster termed ‘Global Sydney.’ This was defined as:

The main focus for national and international business, professional services, specialised health and education precincts, specialised shops and tourism, it is also a recreation and entertainment destination for the Sydney region and has national and international significance (NSW Department of Planning 2005, p.92).

A Plan for Growing Sydney in 2014 maintained the ‘Global Sydney’ concept, although the above definition applied more to the City of Sydney than to the commercial core that had developed at North Sydney. In 2018, the NSW Government through the Greater Sydney Commission published the Greater Sydney Region Plan, A Metropolis of Three Cities that confirmed North Sydney along with the City of Sydney as the prime centre within the greater metropolitan context. In the process, its standing was strangely downplayed by re-naming the ‘Global Sydney’ cluster as the ‘Eastern Harbour City’ (Greater Sydney Commission 2018, pp.6, 20). The setting of North Sydney on the heights above Sydney Harbour gives it a spectacular identity in combination with the waterfront

and skyline of Central Sydney. The ‘Harbour’ designation, however, downplays the need for North Sydney to measure up in international terms as a truly vital sector of a global city.

The problem with the commercial core of North Sydney is simply that it has been a commercial core, dormant for the most part outside business hours Monday to Friday. It is literally a ‘CBD’, a single-use ‘business district’ lacking the 24/7 diversity and cultural depth of a truly vital sector of a global city.

The MUDD25 North Sydney Studio took this condition as a starting point, seeing the ‘over-Metro’ development as not just another commercial complex but as a catalyst for a dramatic shift to diversity and vitality through urban intensification.

Grounded in the principles of ‘urban design as public policy’, the studio undertook three investigations – first, an historical analysis of how the North Sydney commercial core came to be built in such a limited, single-use way; second, a rigorous survey of the building stock, Council-owned property, public open space, critical sun angles, and social dynamics of the commercial core today; and third, selective analyses of the feasibility of dramatic change in property development terms.

The historical analysis yielded a cautionary note but also a mechanism for change. The transformation of North Sydney into a high-end commercial precinct was driven by the road and rail connections to Central



Sydney created by completion of the Harbour Bridge in 1932, once Australia's economic recovery from the Great Depression and World War II gathered pace in the 1950s. This was marked by construction of the elegant, modernist office building for the Mutual Life Insurance Company at Victoria Cross designed by Bates Smart & McCutcheon in 1957. The most dramatic change came in the early 1970s, when 27 commercial towers were built between 1970 and 1972. This boom set in concrete the single-use CBD, but it also created the opportunity for a 'transfer of development rights' (TDR) mechanism that rescued the North Sydney Civic Centre from a poorly-conceived high-rise project. This was a creative move conceived by community-activist councillors, including the charismatic independent architect-politician, UNSW alumnus Ted Mack (1933-2018), later to serve as Mayor carrying on the use of TDR projects in the public interest through the 1980s and early 1990s (Park 2002). The possibility for a renewed TDR process, learning from 50 years of experience with this mechanism worldwide (Barnett 1974; Nelson & others 2011), informed the major moves proposed in the MUDD25 North Sydney Studio.

The survey of the North Sydney commercial core, including a comprehensive audit of the building stock, revealed the constraints and opportunities for regeneration, and when the urban design proposals of the studio groups were developed, strategic elements were tested through feasibility analysis.

The studio projects centered on four main themes stimulated by North Sydney's new Metro connection,

- 1) opportunities for infill development within the existing built form fabric,
- 2) opportunities for development augmenting the many tertiary and secondary educational establishments in the City Centre,
- 3) opportunities for development within the largely Council-owned Ward Street Precinct - a critique of North Sydney Council's own proposals for this valuable but off-centre site, and
- 4) opportunities for development over the Warringah Freeway to deliver an air-rights development and an associated urban park, a visionary but controversial concept.

The students presented deeply researched and well thought out Urban Design Frameworks that revealed the potential for North Sydney's commercial core to be transformed through greater urban intensity into a 'global city' sector of long-needed diversity and vitality.



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# North Sydney | Global Hub

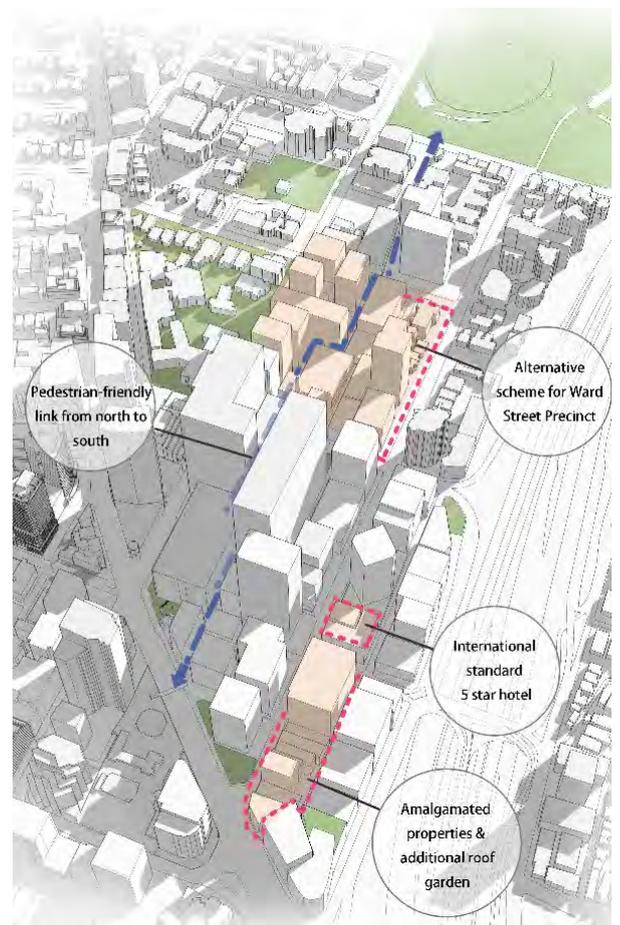
Chen Jingying  
Guo Qikai  
Kong Xiaocheng  
Zhou Junjie  
Zuo Xinye

North Sydney is strategically positioned on the global economic corridor that connects to the Airport and CBD. The purpose of this proposal is to strengthen the role of North Sydney as a global hub through new development, an enhanced public domain, new tourist/visitor accommodation and innovative land uses. Working within a design framework that accepts the reality of all currently approved developments, planning proposals and heritage restrictions, the design explores the potential for infill development to revitalize and populate the North Sydney core.

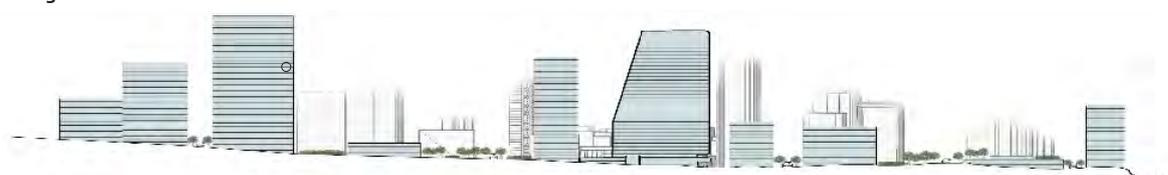
This proposal delivers a north-south pedestrian-friendly link integrated into the existing road network. Additional open space is proposed connecting into this new link creating opportunities for street activation.



Urban Design Framework

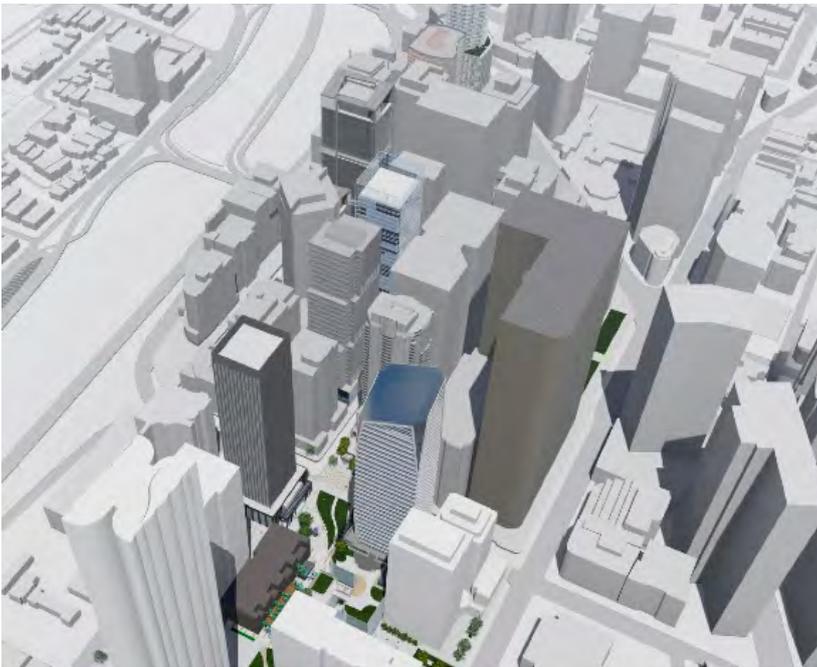


Structure Plan



Section: Substation to Mount St

New laneways are incorporated to provide more dynamic public spaces. Site amalgamation makes full use of valuable land and reduces the number of small land parcels that restrict development. In the Ward Street Precinct, this scheme develops a knowledge hub and new open spaces to act as a public heart for North Sydney. Existing open spaces with development potential are enhanced and activated, with new green spaces encouraged on the podium levels of existing buildings. These strategies will help strengthen and promote North Sydney's role as one of Australia's most important global hubs.



Perspective from above



Ward Street night view



Knowledge hub public domain



Proposed building height

Proposed land use



Proposed open space

Proposed road network



Detail plan - Ward Street Precinct



Entry of Ward Street Precinct



# North Sydney | New Civic Square

Ding Wanyi  
Liang Jiarui  
Zhang Yuhan  
Zhong Jiaxin

The establishment of a new metro station will greatly improve accessibility to North Sydney and encourage more commercial development. The vision of this proposal is to create a new civic heart for North Sydney that provides a place for people to congregate, relax and interact.

It explores the potential for the Victoria Cross Metro site to become a catalyst for development that promotes new activity throughout North Sydney and become the focus of an integrated pedestrian network that connects the important nodes and commercial buildings in the CBD.

A new underground theatre with a major new public space created on the theatre's roof is central to this scheme. A new civic square, created as part of a reimagined commercial development above the metro station connects to the theatre roof-top plaza, greatly increasing the



Urban design framework



Skyway perspective



Civic Square perspective



Theatre perspective

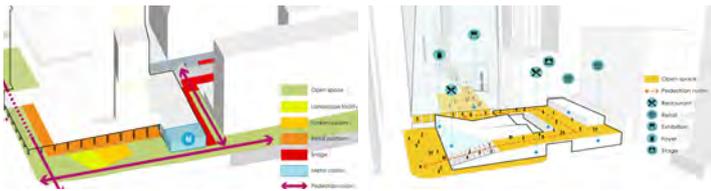
amount of quality public space provided. The design also focuses on connecting the metro station to North Sydney Station and improving the connection between the two via a landmark pedestrian skyway. This axis will be integrated across different levels to provide a safe and faster pedestrian link from south to north, thereby integrating the core commercial areas with the new civic and cultural facilities enhancing the vitality and legibility of the city.



Section-Metro



Section-Theatre



Civic Square

Rooftop plaza above theatre



Proposed skyway route



Aerial perspective



# North Sydney | 21st Century Education

Luo Junqing  
Lu Xiaofang  
Piao Qianhui  
Zhou Yanyi

Education plays an important role in North Sydney's economy and acts as one of the major land uses. Educational activities range from pre-school to tertiary. The growth of education is heavily constrained by heritage items and pressure from new developments. The existing ACU campus configuration results in the absence of a recognisable university campus. Also, North Sydney is lacking complementary uses to support and encourage the growth of education and innovation uses.

21st century education involves integration of learning with technology, opportunities, sustainability, diversity, innovation and creativity. This proposal aims to develop North Sydney as a 21st century education centre by expanding and upgrading the existing ACU campus, transforming the North Sydney Council civic area as a centre for education and innovation and connecting the education system with the surrounding complementary development and the new metro station.



Urban design framework



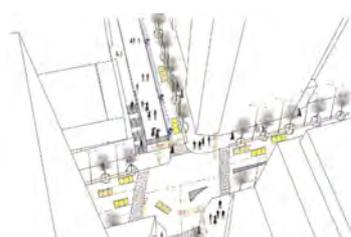
Council Civic Square viewed from Miller St



ACU Perspective from Edward St



Partly enclosed Berry St & new campus road

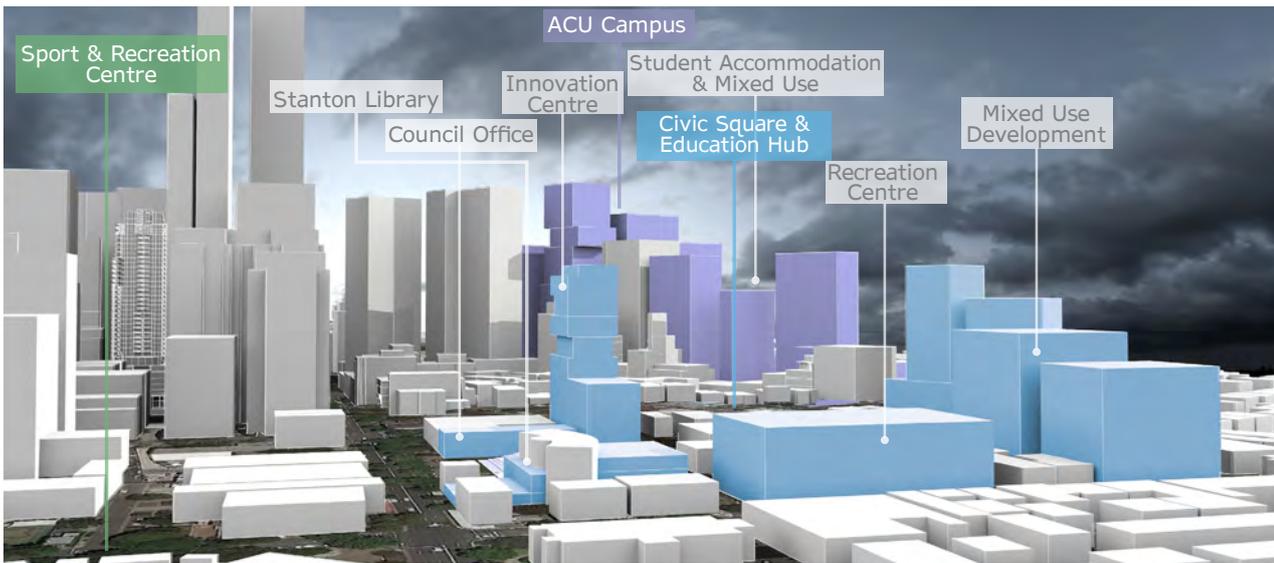


Berry St & Pacific Hwy intersection

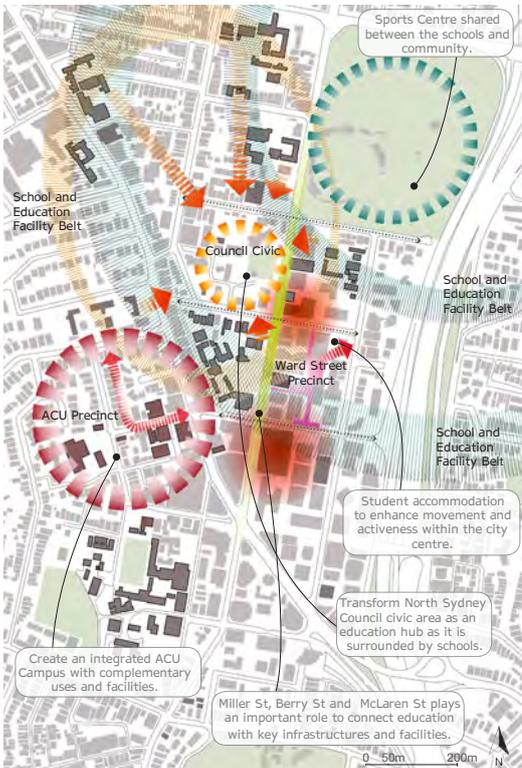


Sports centre

Urban strategies includes amalgamation of land for campus expansion, restructuring the street network and providing a new underground connection. These will provide a more cohesive pedestrian link and provide mixed use developments to support the integrated education centre. A sports centre shared with the schools and community will enhance activities outside weekdays. The proposal focuses on improving the education uses and facilities to influence the activities within the centre that will revitalise North Sydney.



Aerial perspective looking south-west



Structure Plan



ACU Campus - Berry Street elevation



Council Civic Square Section AA'

# North Sydney | Unfreeway City

Shen Ruiqi  
Xing Yutong  
Yan Lu  
Zhang Ying

This proposal creates a bold new extension of the existing urban fabric of the North Sydney CBD by extending it over and across the existing Warringah Freeway.

The design envisages three hubs that are central to the development. A new modern art gallery is located at the South Gateway; a new civic complex with housing, a concert hall and public squares in the centre; and a sports facility and community centre at the Northern Gateway. Together with a landmark 90 storey building and the other new commercial, hotel and residential buildings, these three nodes will promote street activation, urban vitality at the edges of the freeway and provide new civic/cultural facilities. Connectivity to the existing streets is achieved by a 7metre setback to buildings at ground level and human scaled frontages along the edges of the proposal.



Urban design framework



Structure plan



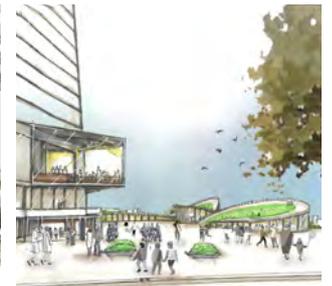
Civic Centre Square



Southern Arthur St.



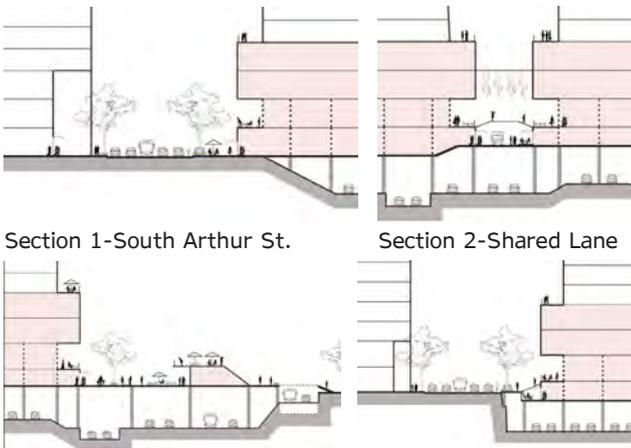
Linear Park



Southern gateway entrance

A continuous linear park will provide open spaces for access to sunlight and a series of carefully arranged views connects the various public facilities to create a permeable transition between the freeway and the residential areas to the east.

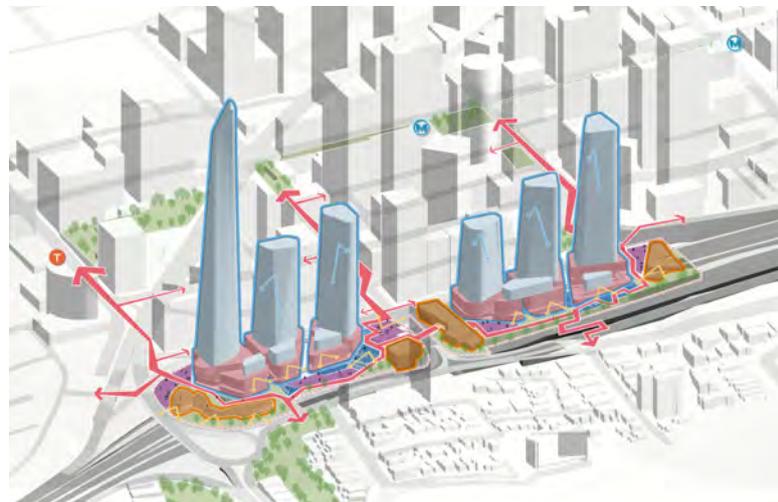
The transfer of development rights from the proposed Victoria Cross Metro Station will be the trigger mechanism for realising the project. The project delivers new opportunities for the continued growth of the CBD, reinforcing North Sydney's position in the Global Economic Corridor while emerging as a vital, diverse, interesting and dynamic CBD in its own right.



Section 1 - Section A-A from North to South



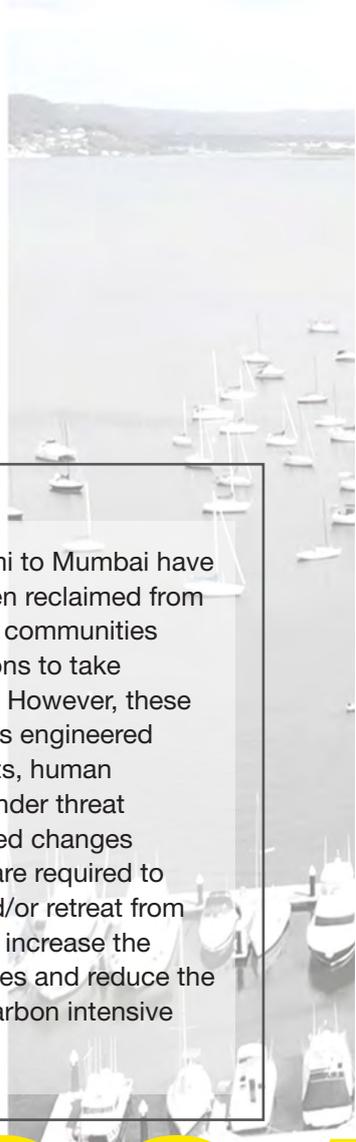
Public spaces between the various levels



Connections back to existing urban patterns



# COASTAL



## CONVENORS



Dr Scott Hawken



Mick Harris

Communities around the world from Miami to Mumbai have been built on low lying coastal areas. Often reclaimed from wetland or mangrove environments these communities have evolved in precarious coastal locations to take advantage of livelihood or lifestyle values. However, these values are more than ever at risk in today's engineered climate. Landscapes, natural environments, human settlements and current ways of life are under threat from sea level rise and other climate related changes to coastal environments. New strategies are required to help local communities adapt, defend and/or retreat from coastal hazards. Such approaches aim to increase the environmental security of local communities and reduce the biophysical stresses inherent in current carbon intensive ways of living (Plastrik & Cleveland 2018).

# COA

GOSFORD

BOOKER BAY

ERINA BAY

SARATOGA

# R



# COASTAL RESILIENCE

# Central Coast and Climate Change: designing resilient futures through scenario planning



Dr Scott Hawken

In 2019 students from the Master of Urban Development & Design Studio 2 and the Master of Landscape Architecture 'City as Site' class addressed the challenge of developing strategies for increasing the urban resilience of communities surrounding Brisbane Water on the Central Coast of NSW. Brisbane Water is an estuarine environment of ecological richness and diversity. It orientates the southern communities of the central coast. Some communities such as Woy Woy were founded one hundred years ago on precarious sand dune landscapes prone to areal flooding. Others such as Saratoga, have evolved over recent decades on low lying land through development processes that have been largely blind to the looming dangers of climate change. Such developments, precarious as they are, are symptomatic of what the contemporary writer Amitav Ghosh has called a 'great derangement' in the face of climate change realities (Ghosh 2016).

The local folklore of the Central Coast is full of stories of islands appearing, of collapsing sandbanks of floods and fires. In Ghosh's (2016, p.6) words 'this is a landscape so dynamic that . . . I do believe it to be true that the landscape here is demonstrably alive, that it does not exist solely or even incidentally, as a stage for the enactment of human history; that it is [itself] a protagonist.' Although the Central Coast local government has developed a climate resilience policy the risks at hand are unpredictable and dynamic, blindsiding local communities. In 2020 Central Coast Council was evacuated from the council office block due to smoke setting the alarms off and compromising the risk management systems of the building. Other communities within the area are regularly flooded with the stormwater systems dysfunctional with rising tidal waters and storm surges.

The recent national report on climate change risks to Australia's coastal built environment indicated that the number of 'uninsurable' addresses in Australia is projected to double by 2100 to nearly 720,000 - or 1 in 20 - if no action is taken to mitigate the increasing risks (Mallon et al 2019). Local governments in Australia are caught between managing their residents' safety in the face of increasing hazard risks, and the political and financial risk of private and public property devaluation. Increasing insurance premiums and the risk of property devaluation

are causing much angst for both local government and private property owners. This has a knock-on effect with climate change policies either being rejected or watered down due to the fear of short-term property devaluation.

The studio explored the potential for win-win outcomes (de Oliveira & others 2013; Elmqvist & others 2018) that addressed climate change and also led to urban regeneration. The future of five communities and landscapes fringing Brisbane Waters, was the focus of the studio. Linked geographically by the Brisbane Water estuary, each of the communities was studied by a mixed group of students from the two cohorts of urban design and landscape architecture. The five communities - Erina Bay, Gosford, Saratoga, Booker Bay, Woy Woy - are characterised by different landscapes and inhabited by diverse communities.

To develop the necessary spatial detail and appreciation of local suburban landscapes, communities and environments, the first studio step involved four weeks of comprehensive mapping and visualisation of social, economic and environmental data from sources such as the Australian Bureau of Statistics Census, the NSW Dept of Planning & Environment and a range of sources and maps such as the interactive Coastal Risk Dashboard, LIDAR terrain data and Open Street Map. All these sources of information are available on request or directly from open source websites.

Visualised using the open source GIS software programs QGIS in conjunction with Adobe Suite and Autodesk CAD programs, students were encouraged to produce a range of maps that were relevant to the particular communities that they were considering. These visualisations guided the second stage of the studio which involved the development of a resilience framework and strategy. Rather than resilience being considered as an abstract theoretical concept, the term was defined through mapping local exposure, sensitivity and adaptive capacity (Hawken et al 2020) through the mapping of local patterns of terrain, ecology, community and urban form.

Following this mapping each group was then required to develop local strategies and definitions of resilience in relation to a series of questions such as: What does resilience mean for the Central Coast? What does resilience mean for different communities on the Central Coast? What does resilience mean for the disciplines of Landscape Architecture and Urban Design? What data is available to define resilience for different communities and districts? How can resilience be communicated and planned for using the tools and techniques of Landscape Architecture and Urban Design? What role does the professional have in developing community resilience? How can landscape and urban design professionals help communities and government visualize and understand and implement resilience strategies? Such questions invite a deep consideration of the 'wicked' problems facing Australia's communities and socially relevant approaches to urban design and planning that go beyond knee-jerk disaster management plans that focus on symptoms rather than fundamental questions of place, sustainability and habitation.

Following the formation of strategies, students designed alternative scenarios for urban development and adaptation. The approach, called 'scenario planning' is advocated for by the CSIRO Futures institute as a method of planning and design based upon solid data and evidence. In the words of the CSIRO 'Scenario planning is based on the idea that we can't predict the future but we can manage it through effective planning' (CSIRO Futures 2016). Development of the various scenarios was based on the local resilience concepts. Some were wholly focused on climate change and socio-economic issues were given less prominence. For others such as Erina, urban form and contemporary patterns of consumption and everyday lifestyles overshadowed climate adaptation strategies. Each team visualised and communicated their concepts through an extensive series of maps, sections, graphs and perspectives. This allowed each team to spatially test their urban design framework and strategy.



The three scenarios were developed to test different courses of action. In this way the class relinquished artificial notions of designer agency and instead developed visions that provided insight on possible outcomes in an uncertain future. In such a method designers avoid becoming trapped in ‘group think’ or in a narrowing of vision, and instead test the boundaries of their own knowledge whilst at the same time developing useful knowledge for decision making by local communities. Such an approach clarifies trade-offs required and the contrasting opportunities in alternative visions. The testing occurred at the scale of the town centre and at the scale of the local urban district. These two scales were explored through different collaborative combinations in the studio. On a weekly basis both the landscape students and the urban development and design students tested the broader scale. Urban design students tested the three-dimensional implications of the larger scale strategy of one of the three scenarios in a process of validation.

Urban development and design students also experimented with the opportunities presented by urban design mechanisms such as Transfer of Development Rights (TDR), whereby vulnerable properties are able to be sold by their owners in the form of ‘development floor space’. This floor space is sold by residents to developers (via a central fund) and used in special receiving zones in dedicated urban renewal and development areas such as Gosford Town Centre. Such approaches have been considered in nearby locations such as Collaroy, which suffered from severe storm damage several years ago (Sheehan & others 2018). They have also proved effective in locations as diverse as Central Sydney through its heritage floorspace program and in Manhattan within the Theater District back in the 1970s (Barnett 1974) and the Highline Special Development Zone in recent times (Washburn 2013). TDR mechanisms are one of a range of climate adaptation methods including defence, adaptation and planned retreat. Each needs

to be considered in terms of their respective costs, effectiveness and trade-offs involved.

The studio approach, moving between the evidence base and the development of design visions, is characteristic of the geodesign method (Steiner & Shearer 2016; Steinitz 2012). Geodesign ‘is essentially the coming together of geography and design, assisted with some data-driven technology support’ (Pettit & others 2019).

The studio effectively critiqued the NSW Government’s strategic planning for the Central Coast (NSW Department of Planning & Environment 2016; Greater Sydney Commission 2018). Instead of concentrating development from Gosford to Erina in a narrow development zone, the studio took a more inclusive approach. Existing waterfront communities around Brisbane Water were linked and networked to enhance their ongoing sustainability, resilience and connection with nature. This urban landscape approach allowed the visualisation of the extreme vulnerability of some of the five communities to climate change-induced sea level rise and demonstrated the diverse and compelling alternatives available to them through careful and honest consideration of their urban futures. It also assisted in the development of new compelling identities and outcomes for the communities surrounding Brisbane Water.

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# Erina Bay | Coastal Resilience

FAN Baiwei (Bowie)  
JIN Yuxiang (Kim)  
LI Dan (Laura)  
HUANG Jun (George)  
CHEN Shi (Estelle)

The Erina Bay project is located to the east of Gosford on the Central Coast. Erina is considered as a strategic centre, servicing a vibrant community and is a regional retail destination. However, it is the only strategic centre on the Central Coast without a railway connection. As the location of this project is not severely impacted by flooding, this proposal focuses on economic and liveable impacts.

Therefore, the three strategies adapted in this scheme are slightly different from the other proposals:

- Urban Retreat: retreating the urban area, redesigning well-connected cycleways and creating flood resilient agriculture.
- Erina Junction: rezoning the TOD town centre, meeting the demands for education and creating bank stabilization and wetland parks to mitigate the impacts of flooding.
- Nature Sensitive: Water Sensitive Urban Design and proposing more public transportations.



Urban design framework



Light rail in CBD



Public centre and community square

The design principles that are incorporated into this project are:

- high accessibility,
- diverse green elements,
- flooding resilience and
- dwelling control.



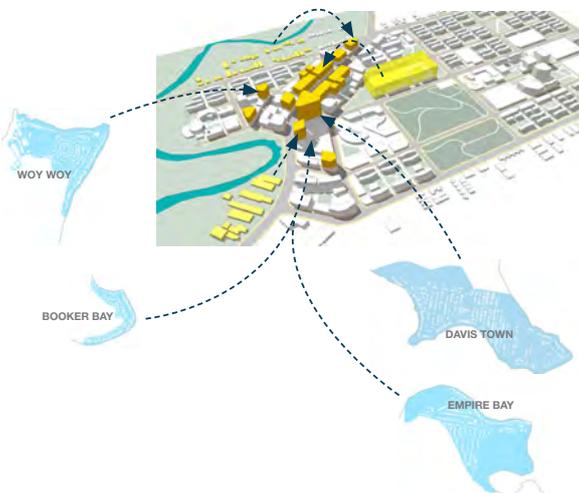
Perspective looking North East



Before and after: Central Coastal Highway



Before and after: Waterfront park



Process of development rights transfer



Wetland park



Community park



Waterfront park



Sunken park

# Saratoga | Phased Development & Retreat

Xue Jiarang  
Xiao Jiajie  
Yang Yue  
Zhang Sen  
Zhao Dai

The Central Coast area of NSW is located one-hour's drive north from Sydney and is bounded by Lake Macquarie, the Watagan Mountains and The South Pacific Ocean.

The vision of this project is to promote further “phased development” in the Saratoga town centre while solving problems caused by flooding from the nearby rivers, creeks and waterways. The proposal adopts the strategy of “phased retreat” to deal with water ingress. At the same time, upgrading the local street networks and developing a new public transport loop with ferry and BRT links to an expanded regional transport system will generate economic development and commercial activity.



Strategy 1 Landforms modification to assist with flood protection



Strategy 2 Ecological land and recreational uses



Strategy 3 Green barrier



Proposed Saratoga town centre



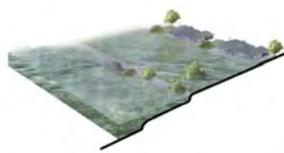
Section A-A'

A new foreshore space is also created to provide improved recreational areas for the community.

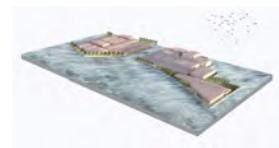
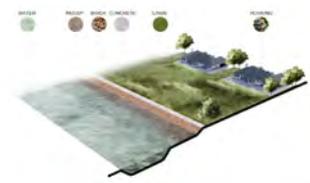
The project uses three strategies:

- Adaptable Land,
- Energetic Loop and
- Green Barrier.

The specific approaches are retreating residential areas to locations not impacted by flooding, connecting three higher areas with bridges and creating constructed wetlands and bio-systems to assist in protecting the urban area during flooding events.



Seawalls & wetlands



Bridges & walls to resist flooding



Tidal gate & green barrier

Existing embankment

Existing embankment during flood event



Road network



Public transportation



Land use



Recreational activity



Urban design framework of Saratoga and Davistown

# Gosford | The Meeting Place

Cynthia Herkrath  
 Fu Wenchan  
 Harshitha Giriypura  
 Ratikant Samal  
 Zhao Jiayi

Gosford is the major centre serving the Central Coast Region, which is strategically located between Sydney and Newcastle.

The vision of this project is to create a revitalized, integrated city centre with distinct precincts, that respond to the existing landscape, future needs of the residents and contemporary issues impacting the city. Using transfer of development rights as a tool to stimulate development through market forces and government and private investment, this scheme addresses the vulnerabilities of Gosford to coastal flooding and examines three possible scenarios:

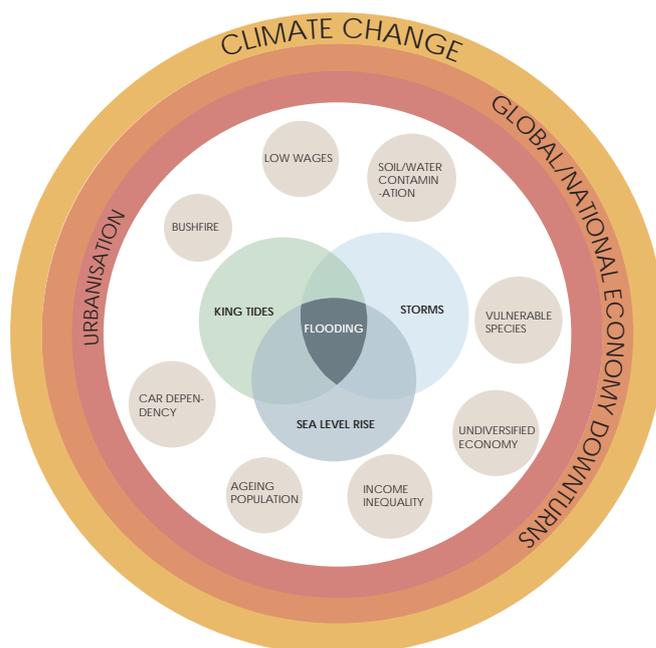
- Retreat through Eco Hydrology, applied to areas with high flooding risk.



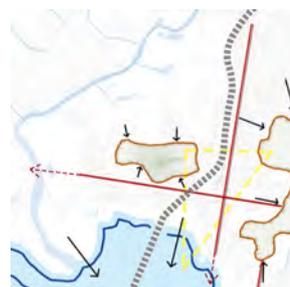
Public waterfront promenade



Urban design framework



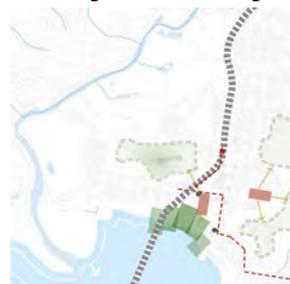
Sea level change as a challenge.



Reviving and enhancing



Retaining and relocating



Creating and adding



Precincts allocation

- Adaptive Urban Interventions as a base strategy, using Water Sensitive Urban Design (WUSD) to protect the urban areas from flooding.
- Defend and Evolve; applying man-made landforms to areas that can be protected and accepting periodic flooding as a design element in future growth.

This project represents a convergence of water and landscape with the city centre.



Strategy 1: Retreat through EcoHydrology



Strategy 2: Adaptive urban interventions



Strategy 3: Defend and evolve



Recommended hybrid strategy



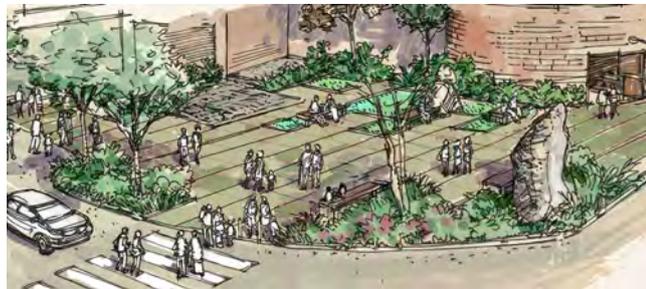
Montage for strategy 1



Montage for strategy 2



Montage for strategy 3



Public green squares



Water retained during flooding in the intertidal zone



# Booker Bay | Waterfront Eco-Village

He Jiaoyang  
Wang Chenyu  
Dai Xuepeng  
Chen Yuqiang  
Ye Yunqin  
Tsang Yuen Ting

The study area is located in the south of the Central Coast and includes Ettalong Beach and Booker Bay as well as the estuary of Brisbane Water.

To meet the future development requirements for Booker Bay as identified by the state government, this group uses strategies to protect the coast and manage the flooding issues, creating new housing choices in eco-villages centred around establishing a natural filtration and detention system.

There are three strategies adopted to solve the flooding issues: "Sponge City" principles: the use of bio-swales, permeable pavements, stormwater management and beach and channel stabilization to mitigate flood damage.



Coastal flooding



Flood depth for 2yr ARI (50%AEP)



Flood depth for 50yr ARI (20%AEP)



Flood depth for 100yr ARI (10%AEP)



Scenario 1: Sponge City adaptation



Scenario 2: Retreat and transform



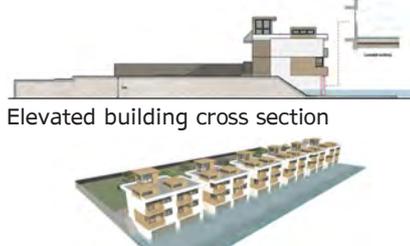
Scenario 3: Semi aquatic housing landscapes

Retreat and Transform: relocating the houses from vulnerable areas to higher grounds and creating medium to high density housing and new pocket parks in areas not impacted by flooding.

Semi Aquatic Housing Landscapes: creating an underwater tunnel and learning centre, elevating the base of buildings above the waterline and providing floating mechanisms for some buildings to assist when it is flooding.



Underwater tunnel and aquarium



Elevated building cross section

Elevated building model



Floating community centre

Floating community



Before



Before



Before



After: Bio-swale incorporated into roadways



After: Wetlands as part of new development



After: Soft landscaping introduced to assist with water absorption



Urban design framework

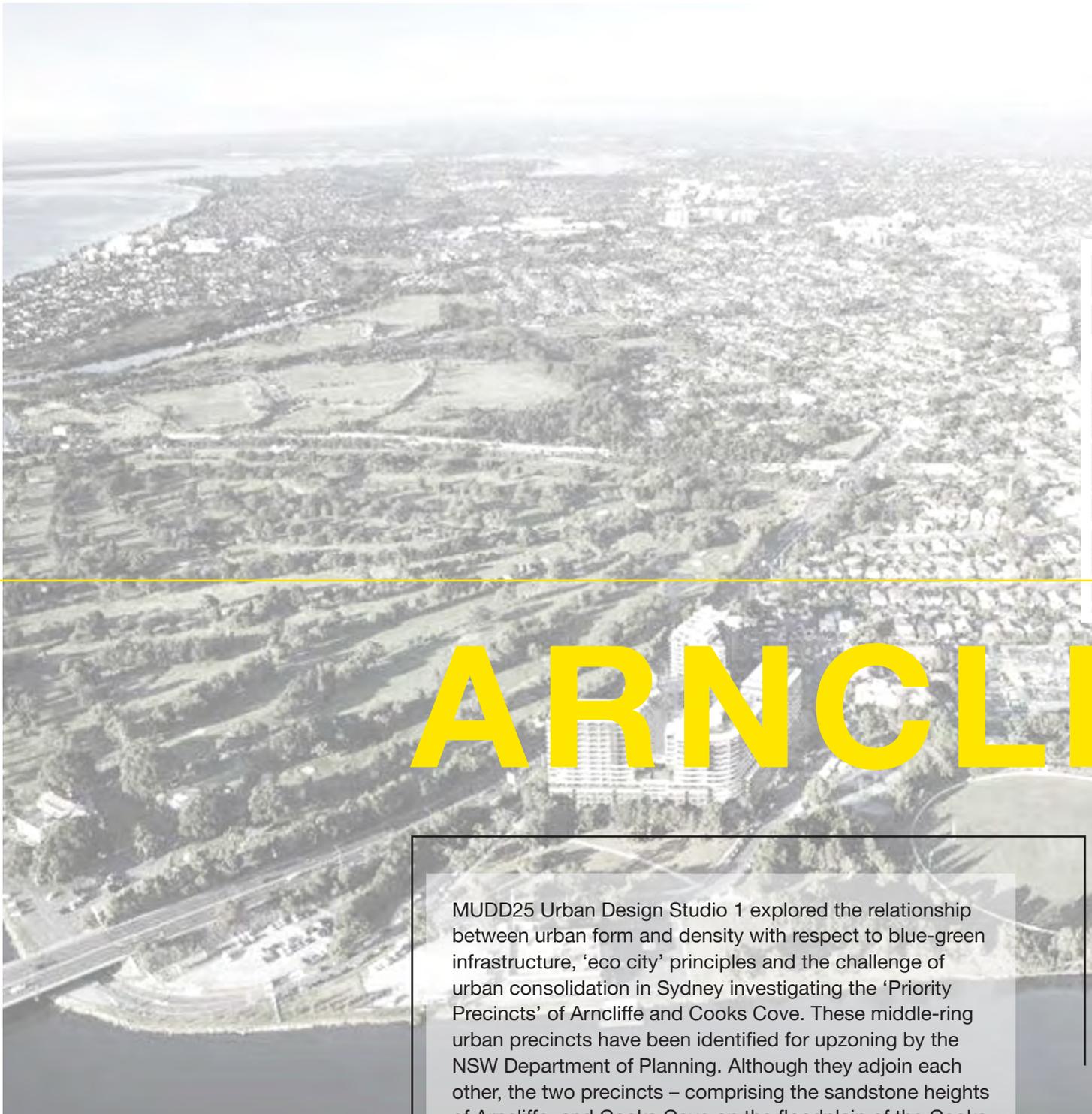


Connecting between building and park



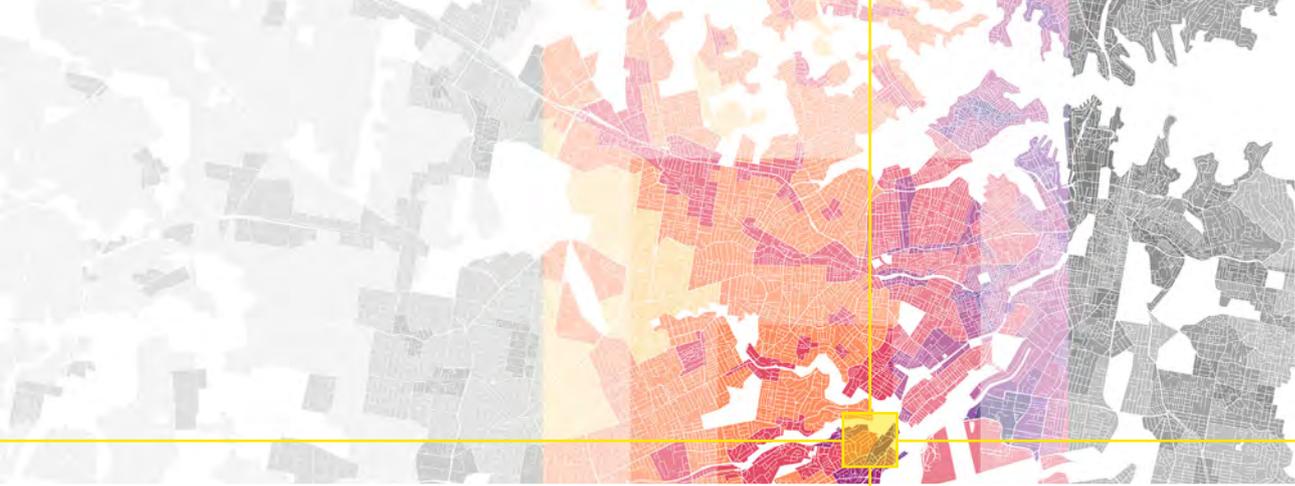
Private courtyard





# ARNCLIFFE

MUDD25 Urban Design Studio 1 explored the relationship between urban form and density with respect to blue-green infrastructure, 'eco city' principles and the challenge of urban consolidation in Sydney investigating the 'Priority Precincts' of Arncliffe and Cooks Cove. These middle-ring urban precincts have been identified for upzoning by the NSW Department of Planning. Although they adjoin each other, the two precincts – comprising the sandstone heights of Arncliffe, and Cooks Cove on the floodplain of the Cooks River – have not been investigated together.



# FFE

## CONTEXTUALISM & RATIONALISM



### CONVENORS



Professor James Weirick



Brendan-Randles



# Critical Urban Project: Studies in Urban Form - Arncliffe/Cooks Cove Precincts



Professor  
James Weirick

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Students first undertook introductory exercises analysing and representing the experience of progression through urban space in and around the Victoria Park urban renewal precinct in Zetland.

Critical precedent studies of Ecocity Principles and Practice were then carried out, particularly with reference to urban ecosystems, blue-green infrastructure, urban form, and building types. Precedents included in these studies were Dongtan, Chongming Island, Shanghai, China; Vauban Quarter, Freiburg, Germany; Kronsberg, Hannover, Germany; Hammarby Sjöstad, Stockholm, Sweden; and Newington Olympic Village, Homebush Bay, Sydney.

The studio then took a Water Sensitive Urban Design (WSUD) / 'Sponge City' approach to urban growth and change within the Eve Street/Cahill Park water catchment, which links the precincts (extending from the Princes Highway ridgeline to the Cooks River near its confluence with Botany Bay) to generate comparative urban design frameworks for the study area based on a critical analysis of urban form, 'eco city' paradigms and precedents, biophysical constraints and development challenges, factoring in the assembled research data and urban design theory.



Princes Hwy looking towards the city centre



Cooks River looking towards Sydney Airport



# Arncliffe | Sandstone Amphitheatre Precinct

Li Sida  
Liang Jiarui  
Xing Yutong  
Lena Strakian

The Sandstone Amphitheatre Precinct is located between wetlands adjacent to the Cooks River and Arncliffe Station Precinct. It suffers from high traffic volumes along the Princes Highway which creates poor pedestrian connections along Wickham Street.

Buildings vary in form and quality and lack green open space. The existing public domains are of a poor quality. Moreover, the low capacity of the existing drainage system causes flooding.

To solve these problems, this proposal isolates mixed-use development and private open space from the Princes Highway and provides active frontages and 6 metre landscape setbacks to help soften the edges of the Princes Highway.



Urban design framework



Land use



Street network



Green system network

Established mixed-use development along Wickham Street is preserved to strengthen the importance of the existing road networks. Existing parks are upgraded and new parks and green corridors are included to provide a vastly improved green system throughout the precinct.

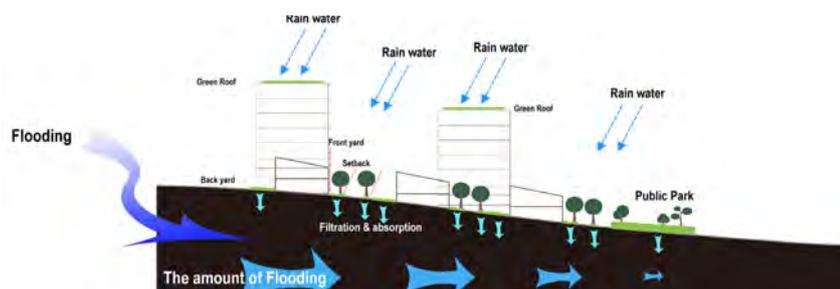
The proposal transforms the area into a network of high and medium density urban settlements separated by green spaces, with most residents living within walking distance of public transport. Urban renewal in the region will build upon unique local characteristics to improve the living environment of residents and create more job opportunities, all with a strong ecological focus.



Aerial perspective looking east



Flooding system



Street typology



Cultural buildings



Revitalised commercial development

## Arncliffe | Station Precinct

Piao Qianhui  
Shen Ruiqi  
Zang Teng  
Zhang Ying

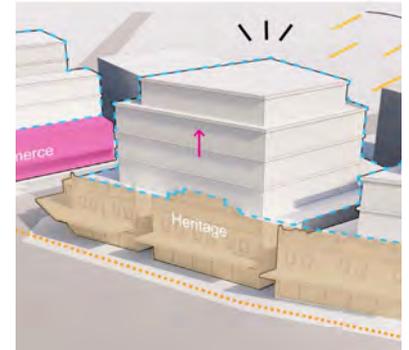
The Arncliffe Station Precinct is well serviced by public transport, being located 10 kilometres south of the Sydney CBD and adjacent to Sydney Airport.

A well-considered proposal is required to solve local issues and utilise the site. The street network is discontinuous due to the existence of the railway, and train station, the Princes Highway and M5. The lack of commerce and active public spaces and the unsystematic blue and green infrastructure lead to an inactive community. Existing heritage items also need be conserved and incorporated into new developments.

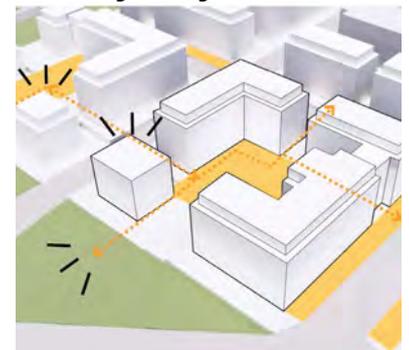
This plan seeks to build accessible and walkable street networks and create an eco-friendly precinct with multi-hierarchical open spaces with inherited regional characteristics.



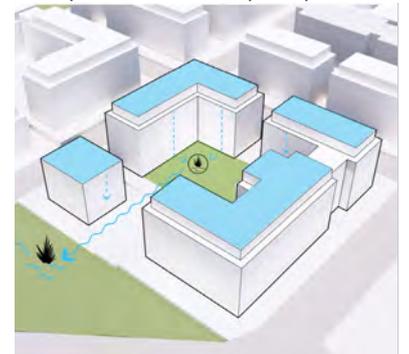
Urban design framework



Preserving heritage facades



Multiple hierarchical open space



Connecting with green infrastructure

Design strategies include connecting the internal street network and intersections; transforming the existing commercial area into a regional centre with more commercial opportunities and public facilities; expanding the central park and encouraging infill development.

By doing so, the site will be developed into a lively community with advanced accessibility with repurposed and restored heritage buildings. The promoted green infrastructure will enhance water resilience across the precinct.



Looking north across the sports centre



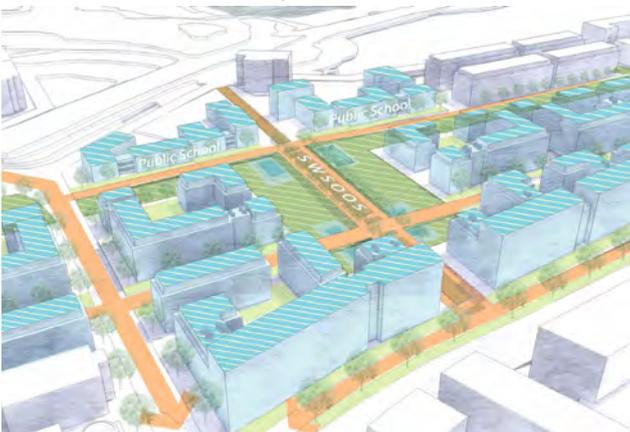
New central park to the station



Sports playground with water retention



Green corridor with new buildings



Green corridor and new eco-building blocks



Arncliffe Gateway and New Station Centre



# Arncliffe | Cooks River Precinct

Li Meng  
Yan Lu  
Zhong Jiabin  
Zuo Xinye

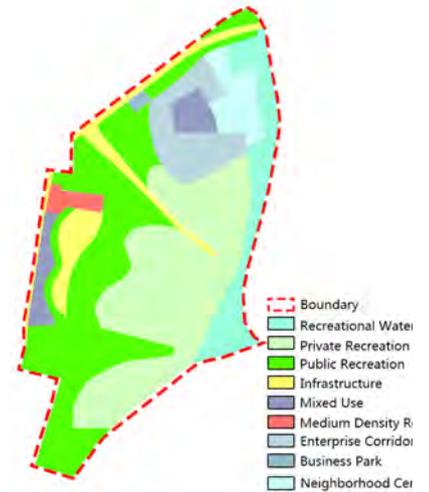
The Cooks River Precinct is located adjacent to the western foreshore of the Cooks River in the suburbs of Arncliffe and Banksia, and opposite Sydney International Airport.

Within the site, natural wetland and green spaces provide good conditions for creating an elegant ecological landscape, which when combined with the topology can assist in solving the flooding risks. By concentrating on density, the design reduces the use of public vehicles and maximizes pedestrian access.

This design contains high-tech business activities in the northern part, with commercial zoning and a high school and golf course in the south. These are interwoven with sports fields and open space. Accessibility between districts is improved with an upgraded road system and road network.



Urban design framework



Land use



Eco-corridors

To promote social integration and economic value, public open space is proposed in different districts.

The design will promote the site as an Eco-High-Tech Business Park in conjunction with the relocated golf course, a network of wetlands and a new high school that has a strong ecological focus. The introduction of business and education is aimed at increasing employment opportunities. The redesigned green space with high quality and aesthetic value will greatly improve the quality of life for the residents living nearby.



Aerial perspective looking south



Section AA' - South businesspark & Eco - High school



Section BB'- From business park to riverfront



Central wetland and open space



Cooks River riverfront



Waterfront space



Linear park



Blue & green infrastructure

# Arncliffe | Station Precinct

Ge Chenlu  
Lu Xiaofang  
Luo Junqing  
Zhou Yanyi

The Arncliffe Station Precinct is located within a 400m radius of Arncliffe Station which has direct train access to Sydney City. The precinct is in close proximity to Sydney Airport. Because of the advantages of its geographical location, the region has the potential to become a new economic development zone that utilises TOD principles and WSUD (Water Sensitive Urban Design) by injecting WSUD elements.

The site lacks connection to the surrounding area and heavy traffic on the Princes Highway causes noise and pollution problems. The inefficient and obstructed road network reduces the mobility of pedestrians and vehicles. Low-quality footpaths provide an unfriendly walking and cycling environment.



Building height

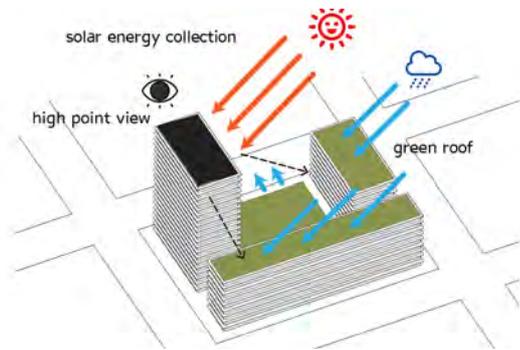


Land use

Existing green spaces are inadequate and the decline in retail activity near Arncliffe Station has reduced economic growth in the area. To improve the situation, this proposal rearranges the street network to enhance road connectivity and improves the design of walking and cycling routes. Through the integration of a new green space system and relevant infrastructure, the capacity for harvesting stormwater is improved. Also, this proposal promotes a new building type that provides cross ventilation, ample sunlight, open spaces and views. The creation of a commercial plaza next to the station provides opportunities for the development of additional retail opportunities.



Aerial perspective showing links across the site



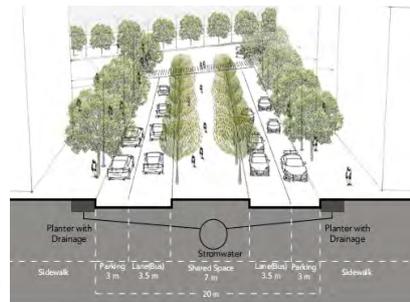
Green roof and solar roof



Section AA'- Arncliffe Station to Hill Park



Section CC'- North to East residential centre to Hill Park



Street section



'Platform' towards the railway line



New building near the station

# Arncliffe | Sandstone Amphitheatre Precinct

Chen Jingying  
Kong Xiaocheng  
Zhou Junjie  
Evan Radford

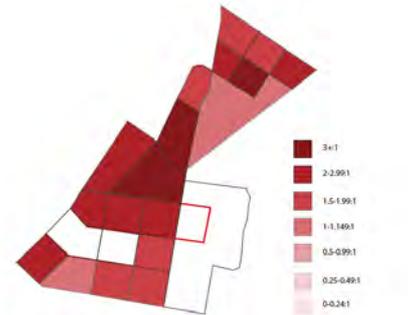
Sited between Arncliffe's urban core and extensive wetlands adjacent to the Cooks River, the Arncliffe Amphitheatre Precinct exists as a merger of two very distinct and contrasting environments.

This proposal accentuates the qualities of the site and responds to its restrictions and the requirements for urban densification to produce a new type of urban precinct for Sydney. The precinct will be developed with a diversity of public space, urban experience, and improved quality of living and will be an asset to Sydney's public realm.

Existing green space is not sufficient for existing and proposed populations and there is a decline in retail activity near Arncliffe Station resulting in reduced economic growth in the area.



Urban design framework



Proposed increased FSR



Green roof

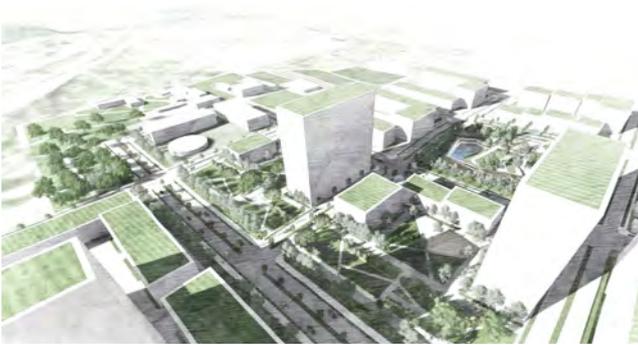


Rationalised circulation routes

This proposal sees the northern zone focusing on commercial activity as it plugs into the existing nearby commercial network.

The central zone functions as a high-density residential core and an intersection that links the other elements around it.

The major arterial road of Wickham Street is transformed into a green corridor that incorporates a water management system. The southern part of the precinct is developed as a civic axis with public and commercial services.



Aerial perspective



Civic retention basin park



Basin park



Street with rain garden



Blue infrastructure



Ecological green corridor



# Arncliffe | Cooks River Precinct

Ding Wanyi  
Guo Qikai  
Huang Runzhi  
Zhang Yuhan

Located next to the Cooks River and opposite to the airport, the precinct is currently under-utilised, with no residential or commercial buildings constructed within the site. Though the site is an ideal place for development, various issues create problems that need to be resolved.

The site is threatened by flooding and contamination from upstream pollution. The M5 and Marsh Street create noise issues. Moreover, the construction locations and heights are limited due to the proximity of the runway of the airport, the SWSOOS facilities and the multiple pipes underground.

The plan presents a landmark, self-sufficient and lively community with a variety of land uses, in conjunction with the rearrangement of the riverfront, well-considered green and blue infrastructure and promoted connections.



Urban design framework



Building height



Road hierarchy



Land use

Design strategies include reducing flood impacts through raising of the ground level and providing customised water channels. Enhancing the internal road system, promoting the amenity of residents via mix-used developments, and providing a continuous green grid are also incorporated.

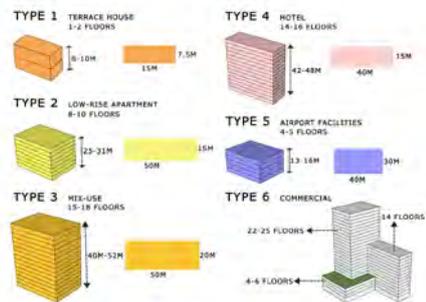
In this design, the site will be fully utilised as the gateway to the airport, enhancing the first impression of Sydney for citizens and air passengers.



Aerial view looking North-East



Site Section from North to South



Building types

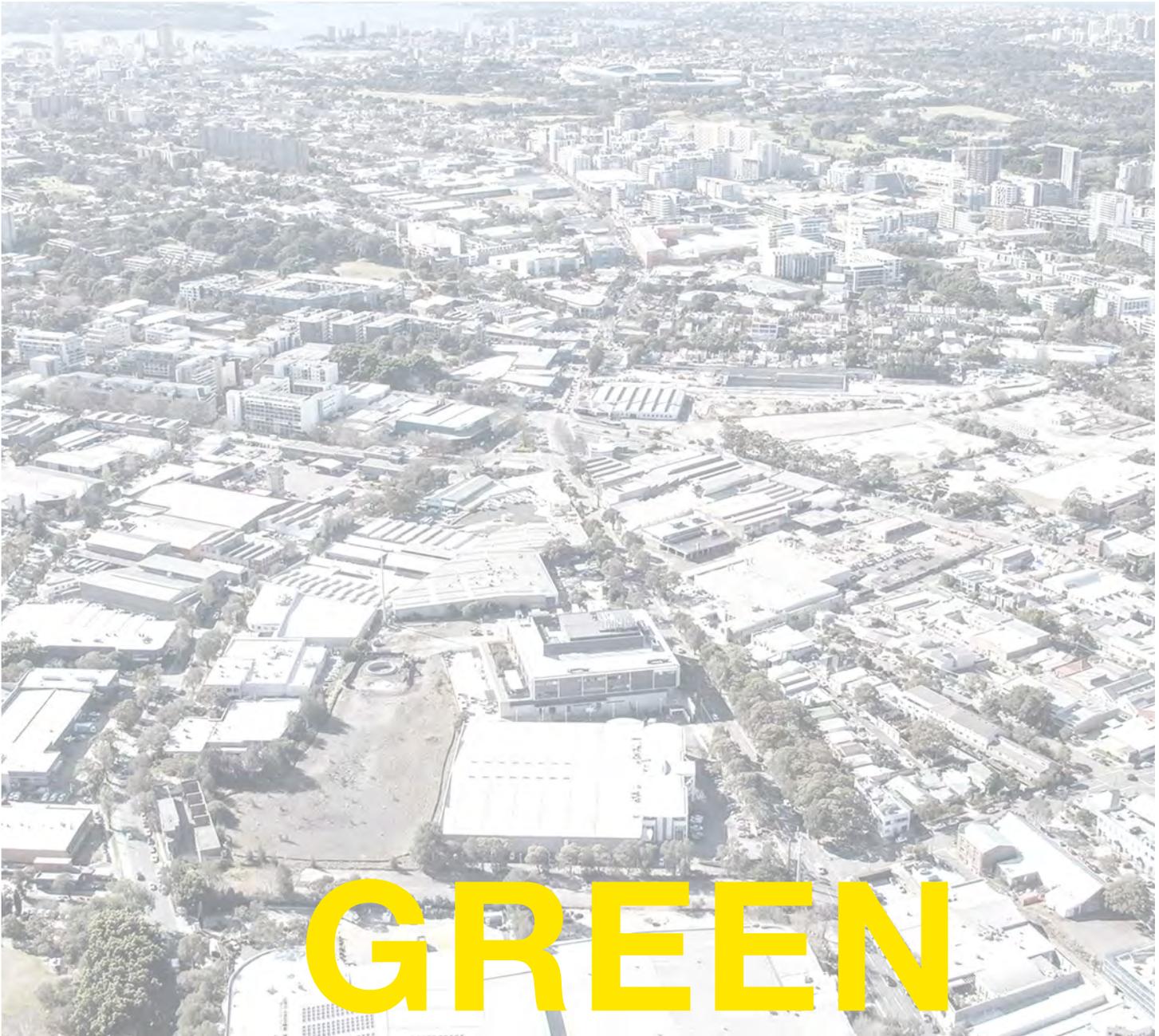


Waterfront promenade



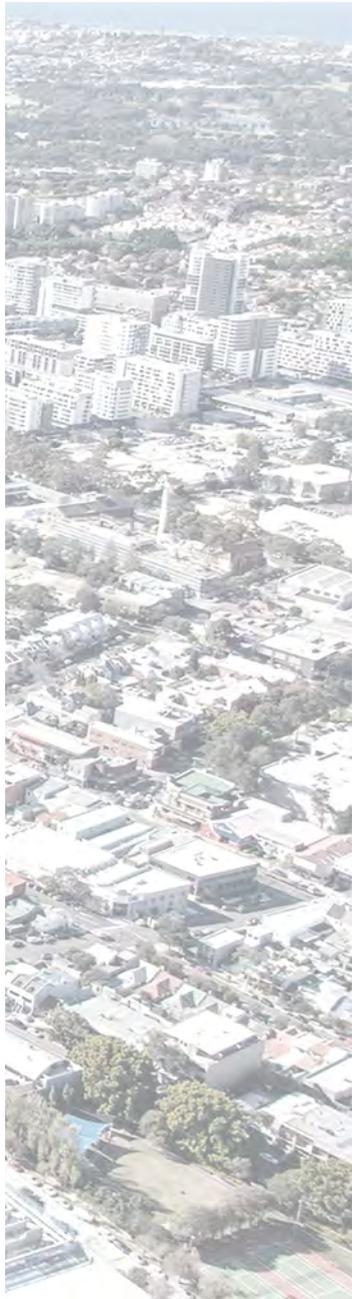
Blue & Green infrastructure

# GREEN SQUA



# GREEN SQUA



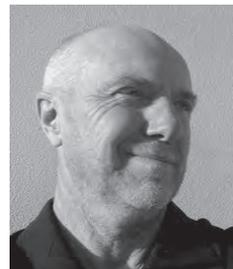


An artist spends time in a studio and emerges with a painting that is entirely their own creation, their vision untrammelled by others . An architect spends considerably more time in an office designing and orchestrating a project and at the end, if all goes well, a structure is created which, subject to the pressures of council and client, resembles their original intention. However, anyone who attempts to design a city or a part of a city will know that the realisation of their ideas will involve many players, will occur over a considerable period of time and the result is unlikely to closely match the original intention.

CONVENORS



Brendan Randles

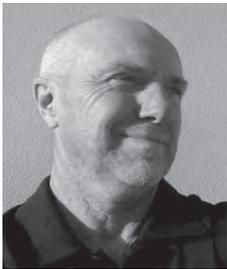


Chris Elliott



# “Visions for Green Square”

## Reflections on the Competition



Chris Elliott

Should this mismatch between objective and resolution concern us given that a city is, in the eyes of most, a very different thing from a work of art? A painting of course, has no practical use, whereas a city is used by many, so the design of cities could in some ways be regarded as a more noble endeavour, and many would consider that aesthetics is a secondary consideration, but can a city also be considered a work of art? The great Australian artist Lloyd Rees thought so. He said that “a city is the greatest work of art possible”. With all the trouble and strife, and frankly the visual chaos that besets our modern cities we may wonder whether his eyesight was beginning to fail him when he made the statement. But, when the light is failing such as in times of rain, or fog or indeed smoke even the most unsightly city can be transformed into a strangely beautiful apparition. Monet knew this and painted many beautiful sunsets affected by the famous pea-soup London fog.

When I was young decided that we ought to strive to make our cities not only useful but also beautiful. I pondered the problem of how to achieve this. It seemed to me that if a city was viewed as a work of art then it would be a collective artwork, one that would rely on the goodwill of many players. Each new element added to the city be like a new brushstroke on a painting and only after a considerable period of time could the work attain a sense of coherence and become recognised as a “city” and as a beautiful city. If so, each “brushstroke” would need to be considered very carefully. Is this too idealistic a notion?

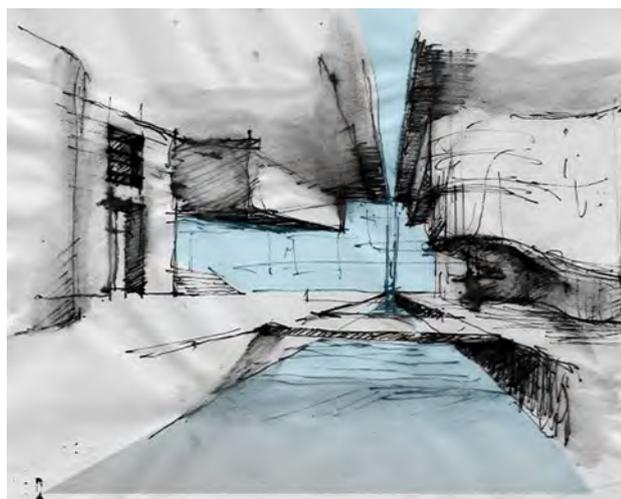
Plenty of beautiful ancient cities in Europe convince me that the answer is “yes” a city could be both beautiful and useful, but I still wondered whether it was possible that a modern city could achieve this high standard. The thinking at the time – when I was studying architecture was that it was not. The most we could hope for was functionality. The examples of modern city design that we know of consist usually of a grandiose masterstroke conceived at a single point in time –consider Chandigarh and Brasilia for example. Such cities were likely to be modern, functional, sterile and lifeless. They are impressive and deserve our respect but my colleagues and I always considered that such cities were unlikely to be the cities that one can fall in love with.

As I considered the issue further I decided that it is possible for a city to be both useful and beautiful. The proof was Venice, in my opinion the most remarkable city humans have managed to create. It is difficult to imagine a more beautiful place. It seemed to me that the way this happened was fairly simple. In the case of Venice water is the key. Around this water, the best buildings are preserved and protected and the drab is swept away. Over time we end up with a collection of fine buildings that are reflected in the canals, doubling the beauty! So, the way to create a beautiful modern city is also simple – preserve and protect the most interesting exciting and beautiful relics from the past and add to them incrementally. That which is not worth preserving can be swept away creating at least a partial “clean slate” and allowing some space for new ideas and fine architecture and urban spaces to develop.

It was with these ideas in mind that I approached the “Visions for Green Square” design competition in 1995. The competition called for a vision for the 245 Hectare area of South Sydney so it was the perfect vehicle to enable me to test out some of the ideas that had been germinating. With the mind of a dreamer I set out to discover what could be saved and what could be created. The 1995 project attempted to retain the most interesting and essential elements of the industrial landscape and to incorporate them into a new framework of canals, parks, streets and squares that could allow for the development over time of a beautiful and sustainable city. Cars were to be banished to the outskirts and local transport conducted by water, cycle, or foot, while regional transport would rely on the new railway line. The project was optimistic but also challenged the normal town-planning modus operandi in a radical way. It’s Sydney, so perhaps not surprisingly pragmatism and realpolitik soon set in. The second stage tender was won by the third prize winners who had proposed a design much more respectful of the existing street structure and the city’s ideological framework. They went on to create a masterplan for the area. Since then numerous smaller competitions for parts of the site have taken place with mixed results.

So, how did the winning project stand up in the light of what has happened? Well, the reality is that the street framework is perhaps a deeper structure and more difficult to budge than I had originally hoped. What I can say about the last two decades of development of the area is that it is basically “business as usual” with a green tinge... The idea of banishing cars may have been a little too hopeful and perhaps unnecessary as it seems that we will all be driving electric vehicles in the near future. In terms of the architecture and urban design around Green Square, there are some standout projects but the hope of a new paradigm of city design was perhaps too much to ask. I haven’t totally given up though, and for the surrounding areas there is still time!

The area to the south and the west of the original competition area is as yet largely untouched by re-development and it is with that in mind that the MUDD studio commenced work on four different paradigms of urban design, with some wonderful results. We are hopeful that the exercise and the student projects published here in the folio combined with an ongoing debate and discussion can inform and influence to a certain degree the next twenty or thirty years of re-development in a more sustainable and positive way towards a brighter future for Sydney.



Transport Interchange  
Source: Chris Elliott

# Going Public - in whose interest?



Jeremy Dawkins

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Is your project private? Let's say the developer of your project is a private entrepreneur and the lender is a private company. They are carrying out the project on a privately-owned site. The principal investor is a private entity. So it's private? Only to that limited extent.

Your project has significant impacts outside the 'private site', both positive and negative, on immediate neighbours, and on owners, occupiers, visitors and businesses in the district if not beyond; it shows impacts on public land, community spaces and social infrastructure; and for these reasons its purpose, scale and form are determined by the rules and decisions of public regulators.

In short, a 'private site' in the city is not what it seems. It is a defined area with specific property rights, but functionally it is continuous with all of the land around it.

It is true that control of the property comes with a 'bundle of rights' that allows the holder of those rights to make many decisions, such as developing or not developing the site; holding, leasing or selling it; transferring the rights in other ways, including to a lender in exchange for a mortgage.

Furthermore, these rights are not confined to capitalist or mixed economies. Many of these rights are held over comparable urban property regardless of the social system and the extent to which urban land is socialised or nationalised.

On the other hand, what you can do with these rights, and specifically how you can use and develop your site, is inherently 'public'.

You (and all those who come to your site) depend on having access to a public street and other public urban services (irrespective of who 'owns' them).

The best use of your site depends on everything around it, typically confirmed by the rules and decisions of the public regulators (whether governments or corporations).

Your site sits in a mosaic of property rights, which are interdependent and reciprocal, as defined by public regulators. Lawyers tend to say that the regulators restrict the development potential of urban land, by taking away property rights. This might reflect the view of a single owner, but does not reflect the reality facing all owners. A restriction on one is a protection for others; a

'limit' to development is just as much a permission to develop. The mosaic of property rights cannot be understood as a jumble of independent private rights: it is an integrated ensemble of rights that are socially created and publicly defined.

How well are those rights defined? They are often defined badly – as blanket rules regardless of locational differences, as vague and even unintelligible rules, as rules requiring interpretation by unreliable politicians or unskilled officials – but it is true that any rules are a lot better than none, since they establish the rules of the game and reduce the risks to the point where investment is feasible.

Wise words were written on this subject 100 years ago. British economist Edwin Cannan (1861-1935), in his work on Wealth, addressed the issue of competing interests of the kind that arise in the close confines of the city, where the positive and negative impacts on neighbours can be random and unreasonable. In his matter-of-fact way, Cannan described the problem as it might apply to urban development.

The state resolves the difficulties not always precisely in the best conceivable manner, but in a rough and ready<sup>1</sup> fashion which is vastly better than leaving them alone (Cannan 1914, p.85).

The state intervenes by necessity, and these days invests significant public revenue, and often loses substantial political capital, in creating an 'orderly market' for urban development. The very fact that development rights must be defined gives policy makers an opportunity to shape the property market in the direction of better social, economic and environmental outcomes. In the MUDD program, this is what is meant by 'urban design as public policy' (Barnett 1974).

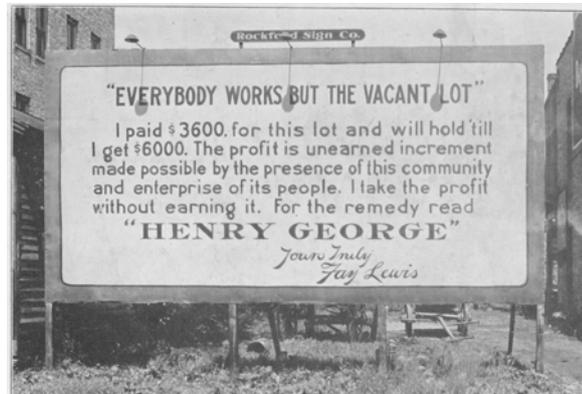
Governments continue to pretend that most of the city is 'private'

The political economist and writer Henry George (1839 –1897) had great insight into the economics of urban land, and how urban property rights affect prosperity and equality. His most famous work, Progress and Poverty, was highly influential in the decades either side of 1900 (George, 1879). In essence, he observed that economic progress of the nineteenth-century American kind led directly to greater impoverishment.

By the mid-twentieth-century, he was arguably 'the most famous American economic writer' and his book 'probably had a larger world-wide circulation than any other work on economics ever written' (Soule 1955, p.81). And as an aside, if you have ever played Monopoly you were playing a game designed in 1903 by Elizabeth Magie to teach the advantages of a single tax on land. In its commercialised form, it still demonstrates exactly the issue that George addressed: how the control of (untaxed) urban land tends towards a monopoly of wealth (the winner) and impoverishment of the rest (the losers).

In Australia, Henry George's radical ideas led to state and local property taxes being raised on the unimproved value of land rather than the market value of the land, a crucial distinction and one that is central to current debates in Australia about replacing transaction taxes with increased land taxes. Similar reasoning might apply to taxes on capital gains: for urban property, it is mainly the increase in the unimproved land value that is being taxed.<sup>2</sup>

If urban land is not taxed at all, the value of the productivity gains and investments of the entire society accrues to private land. Those private land parcels monopolise the locational value at that place – and the locational value is the entirety of the value of urban land. Alternatively, if urban property is taxed on the market value – the value of the land together with all buildings, plant and structures – there is a penalty on investment and a disincentive to use the land productively. The fairest and most efficient way to tax urban land is to tax the value of the vacant (unimproved) land, so that a proportion of the 'unearned increment' is returned to the public which created it. If the full annual value of the



'Everybody works but the vacant lot'  
Source: New York Public Library





vacant land is taxed, as George advocated, land will not be left idle or underused, but will go to those who can use it most productively, and land hoarding and speculation will end.

While many agree that much good would result from such a tax, no-one has worked out how to transition from urban land as an accelerator of private wealth and inequality to urban land as a public good (see below).



Despite the impracticality of George's policy of raising all or most public revenue by taxing, in full, the annual (rental) value of urban land, his insight was profound. Urban land parcels owned (or controlled) by private (or quasi-private) entities are the sites where most investment, innovation and risk-taking occurs – where productivity and therefore overall wealth increases. The buildings, structures and plant on the land are legitimately regarded as private, but the wealth that often continues to accrue in the form of increases in the unimproved land value is only marginally due to the owner/investor/developer: overwhelmingly, it reflects public and private investments in the city as a whole. Property taxes, especially in Australia where the principal private residence is exempt, do little to recover this shared wealth.



The value of your land – the 'unimproved' value as a vacant site, not including the value of any buildings and other structures – is an urban value, the sum of all the positive and negative influences on the site from surrounding development, near and far, as they apply to the defined development potential of the site. When your client or employer buys an urban site, the price of the land is not something intrinsic to the site. The price is the market or investment value of the regulations defining the purpose of the land, and the overall impact of all the other investments around the site if it is used for this purpose.

In sum, the value of urban land is created by 'the public'. In this sense, at least, urban land is a public good.

### **Private urban land as a public good**

The term 'public good' can be used in a relaxed way like 'public interest', or it can be technically precise, as debated by economists. If you are involved in urban development, acquiring an understanding of the term 'public good' is valuable. Here is the standard definition: a public good is both non-excludable and non-rivalrous. A traditional example was a lighthouse. It was in the

unambiguous interest of the state to use scarce resources to build a lighthouse where shipwrecks occurred. Once built, it was free to use by everyone. Of course, all shipping in the area could be charged port fees to pay for lighthouses (and it was in the interests of ship owners to pay for lighthouses) but there was no mechanism or intention to charge passing ships that also benefited from the lighthouse (it was non-excludable). Once built, the use of the lighthouse by one ship in no way reduced access to the light by another ship. It was just there, and it could not be used up (it was non-rivalrous).

National statistics are another example: when they are freely available, the intensive use of expenditure and demographic data by retailers and land developers does not rival others' use of the data. Free, open-source software would be a contemporary example.

When we think of private urban land, there are many meanings and layers. On the one hand it is the opposite of a public good: access can be excluded and charged for; the use by one will immediately limit or exclude the use by another – it's as if nothing had changed since the days of Henry George and Elizabeth Magie.

Yet conditions have changed fundamentally in the past century, in laws, concepts and norms. Urban land is intensively regulated, and taxed in ways that fall far short of the Georgist agenda but which nevertheless change the game. It now makes sense to say that, at a metropolitan scale, the development potential of urban land is a public good. A century after Cannan, it is still 'rough and ready', and somewhat 'wild west', but the developer's 'private site' is seen by politicians, regulators, partners, financiers, advisers, adjacent landowners and residents – and hopefully by designers – as an instance within a mosaic defined by the site rules and the district values.

If the source of land value were more widely understood, and if it were explicitly taken into account by governments, our cities, our infrastructure and individual projects would become more efficient, more innovative, more equitable – and less driven by rent-seeking and speculation involving exponential increases in the unimproved value of urban land. Residential prices in Sydney are becoming increasingly unaffordable not because of the cost of constructing a dwelling, but because of the publicly-created, privately-held value of the underlying land.

There is a logical and politically acceptable way to take a significant step towards understanding urban land as a public good, known as value capture. When major public investments are made that have locational impacts – for instance a new railway station or high school, rather than investments with more diffuse impacts such as new rail carriages or smaller class sizes – it is known with certainty that significant unearned increases in unimproved land values are enjoyed by identifiable property owners as a direct consequence of the large and positive externalities generated by the investment. These private gains can be estimated, and the passive beneficiaries can be mapped and identified. All that must then be done, for proper management of public funds and for equity, is for some of this ‘value’ to be ‘captured’ through simple mechanisms such as a local levy, a rate increase, or a land tax surcharge applied to those beneficiaries (Dawkins 2019).

**How are we to understand what is in the public interest?**

While developers are expected to pursue private goals – driven by the hope of maximising the profitability of the project, sometimes cruelly called ‘greed’ – governments are expected to defend and advance ‘the public interest’. That is a very loaded term, which needs to be looked into carefully.

Elizabeth Farrelly is a leading public intellectual in Australia, and she recently gave an address to the Committee for North Sydney about urban development in Sydney. She asked the appropriate question: ‘What is planning actually for?’ Her central message was this: ‘Planning has one job: to defend the public interest – and so to value and create the public spaces’ (Farrelly 2019). To those in the audience, this seemed like the right question, and the best answer.

In this context ‘the public interest’ is a broad political measure to test whether urban management, and government as a whole, is generally serving all or most citizens rather than delivering sectional benefits to particular groups or ‘special interests’. There is a long tradition of urbanists claiming support for their work on the grounds that it serves ‘the public interest’.

This idea received formal expression when zoning became widespread in the USA in the 1920s. Prior to that time, when the New York Zoning Ordinance was enacted in 1916, it was enough to say that the rules were

intended ‘to stabilise and conserve property values... and in general to make the business of the city more efficient and the life of the city more healthful’ (Hawkes 1968, p.11). Ten years later, in 1926, the Supreme Court of the US gave constitutional validity to the theory that progressive lawyers had been arguing: that regulating the use and development of urban land, through land use zoning, was a legitimate use of traditional municipal ‘police’ powers to protect ‘public safety, health, morals and welfare’ (Bettman 1924, p.839).

In Australia, lawyers, officials and governments never used the word ‘morals’ but they used the other words, along with ‘orderly and proper planning’, ‘preservation of amenity’ and ‘public interest’, as matters for consideration in determining a development application, beside compliance with plans and regulations, and impacts on others. In this context, adding ‘the public interest’ to the list of considerations was like adding ‘anything else’. That is what some current planning Acts do say: for example, ‘any other relevant matter’ (Victoria, Planning and Environment Act) and ‘any other planning consideration the local government considers appropriate’ (Western Australia, Local Planning Schemes Regulations). The NSW Environmental Planning and Assessment Act requires the consent authority to consider (i) the provisions of planning instruments, (ii) the likely impacts of the proposal, (iii) the suitability of the site, (iv) any public submissions, and, as the final consideration, (v) the ‘public interest’.

When used in these ways, ‘the public interest’ is a highly misleading concept.

The ‘public interest’ concept (or slogan) may be meaningful when used as Elizabeth Farrelly did, to frame political demands. The concept can be a useful technical tool in carefully dissecting difficult questions of public policy. When used as if the term has specific content, or shared meaning, it is empty.

In shaping cities, ‘the public interest’ is also deceptive, precisely because even private urban projects are already more public than private, being a fixed point in a shared space where value is created by ‘the public’. It remains, even in the NSW legislation, because it is a convenient short cut to a decision, allowing policy makers and regulators to avoid assessing what the private and public values actually are.

In coming to a decision on land use policies, plans and projects – the direction and extent of urban





development, the mix of transport modes, the distribution of employment centres, the provision of open space, the heights of buildings, the mix of activities in a project – urban managers would (and should) normally ignore many of the ‘public interest issues’ that a government agency might be expected to consider, such as return on investment, fiscal impact, distributive effects, effect on other policies and agencies, government commitments and public perceptions.



Nevertheless, unlike almost any other decision maker, an urban manager might consider ‘everything’ about the city to be relevant. The remit does not relate to a site or place, or a sector, or an industry, or a discipline, practice or technique, or a constituency. A decision maker in a public agency might have, more than most, a public role (however invisible). Farrelly defined it (politically) as the defence of the public interest. However, there remain fundamental differences between most public administrators delivering public services and the urban managers who help create the opportunities and constraints for developers.

- While many public administrators operate in a relatively open-ended and abstract policy context, urban managers (even if they need to consider ‘everything’) should confine their analysis to the complex but narrow concerns related to ‘urban land as a public good’.
- Whether or not they are also politically active citizens, as officials it is precisely here, and only here, that they have powerful and relevant tools to intervene (hence the next point).
- The urban landscape is an integrated ensemble of rights that are socially created and publicly defined, so that the purpose, scale and form of all urban increments are – in theory – determined by the rules and decisions of public regulators.
- It is the proper role of those regulators to understand the reciprocal impacts between all such increments and public land, community spaces, social infrastructure and all other public and private sites.
- These rules inherently capture a version of ‘the public interest’, and rule-of-law regulation itself is in the public interest, so further claims based on ‘the public interest’ must be redundant and misleading.
- Where – which is almost everywhere – the rules and procedures are ‘rough and ready’, it is incumbent on the regulators to consistently improve the rules and procedures, based on their day-to-day application (this is a learning loop) – and not rely on invoking

‘the public interest’ when it suits them.

- When refining the rules and procedures, regulators must ask themselves, in relation to the process for making a decision: Is it legal? reasonable? fair? transparent (Wheeler 2006)?
- Regulators must ask themselves In relation to the aims and outcomes: Who is the relevant public? What are the relevant public interest issues and their weightings? How should competing public interests be addressed (Wheeler. 2006)?

It is just as well that urban managers should not feel obliged to define ‘the public interest’, and still less feel empowered to claim that their actions are ‘in’ the public interest. Not only would such claims be spurious, they would also be impossible to defend.

There are many ‘publics’.

- Urban change and urban projects may have very different effects on rich, poor, healthy, sick, females, males, employer, employed, unemployed, young, old, renters, owners, big families and households of one and any number of other categories.
- Urban change and urban projects may impact differently on different cultural groups; may be positive and negative for those near and far, those in diverse industries, those who work in one place, and those whose work is mobile, and in any number of other conditions.
- This detail that could be analysed if necessary, but only to improve the transparency, fairness and effectiveness of the rules governing urban development.
- More significantly, decisions about urban policy and urban projects are fundamentally different to most public policy decisions. The results of these decisions are ‘in your face’: they are fixed in place, material, visible and therefore ‘public’, even more so if they are ‘private’ projects.

It is for these reasons that the outcomes should be tightly defined by public rules and processes (however frail, however ‘rough and ready’). It is for these reasons that the rules and procedures should be consistent, transparent and kept relevant. If this is done, to depart

from the rules on the grounds of a simple, single 'public interest' test would be to subvert the very public nature of our imperfect but socially-constructed processes of urban management.

Legislation

New South Wales. Environmental Planning and Assessment Act 1979, s 4.15 Evaluation (previously s 79C Heads of consideration)

Victoria. Planning and Environment Act 1987, s 60(1)(j).

Western Australia. Planning and Development (Local Planning Schemes) Regulations 2015, Schedule 2, cl 67(zb).

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Wheeler, C. 2006, 'The public interest: we know it's important, but do we know what it means?' *AIAL Forum*, no.48, Australian Institute of Administrative Law, Canberra, pp.12-25.

1. Or, the best is the enemy of the good. 'Rough and ready' is a vernacular or informal way of expressing an important idea. In everyday speech, describing a product or service as 'rough and ready' is to say that it should be put to use. Cannan supports the idea that practical improvements now are better than perfect improvements later (if ever). Confucius, Aristotle, Voltaire, Pareto and others have urged that we should not allow the perfect to drive out the good.

2. Since the difference in purchase price and sale price is reduced by excluding any capital expenditure on the site, the gain to be taxed is primarily the gain in land value. The tax is not levied consistently. It applies to commercial, investment and other properties (but not to the principal private residence). Even then, after 12 months of ownership, only 50% of the capital gain is taxed, and it is taxed at the taxpayer's marginal rate of tax, so if the owner is not liable for income tax the owner gets to keep all of the capital gain.



# Green Square West | Transformative Urban Morphology

Yuan Yajie  
Maxwell White  
Meng Bohan

Our vision for Green Square West captures our expectations for what great cities are. Through our Fraker force field and case study, we seek to create a transformative urban environment that responds to the economic and urban growth pressure on the area. This is achieved by creating familiar streets, new public spaces, interesting built forms that also spark joy and excitement through a mix of uses, energising the transformation of a traditional industrial precinct into part of a global city.



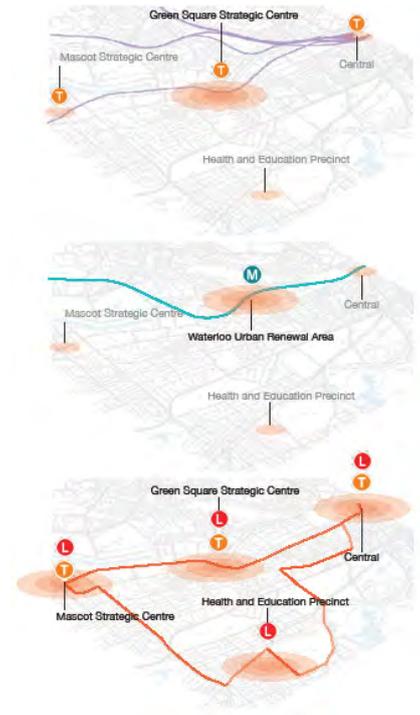
Urban design framework



Structure plan



Walking through Perry Park



Light rail strategy rationale



Water gardens at Bourke Road

The design principles are:

1. Road network: “unfunneling” and untangling the road network. Botany Road will be closed to cars and new roads opened up. Curved streets will slow traffic and be pedestrian and bike friendly environments.
2. Create a mixed-use built form: Allowing mixed-use spaces to develop across the site with office, residential, cafes, libraries and cultural facilities.
3. Create a transit oriented and connected city: Extend light rail to the harbour CBD and education and health precincts in Randwick.
4. Water Sensitive Urban Design: The footpaths will be designed to accommodate and direct flooding and a canal extension will create a larger flood basin.



Water frontage at the Creative Precinct



The park and building interface at the Perry Park Precinct



Markets in Botany Place



Activities around the local centre



Activities around the canal



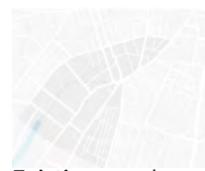
Aerial perspective



Existing roads



Existing green



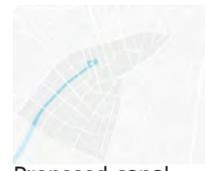
Existing canal



Proposed roads



Proposed green



Proposed canal

# Green Square West | Hyper-Modernity

Li Manyu  
Yu Zhen  
Zhang Yiding

Adapting the principles of the Fraker force field of Hyper-Modernity, this proposal denies traditional concepts of order and omnipotence and creates 'the staging of uncertainties'. It searches for 'enabling fields' or frameworks that accommodate hidden processes and recognises 'bewildering immersion' in the overwhelming forces of urbanization fuelled by the flows of global capital and consumption.

This vision delivers a precinct composed of a water-focused city that echoes the local topography while also incorporating heritage conservation and the extensive use of the existing street patterns and road networks. The expanded water body that connects two higher density town centres is the landmark or main feature of this scheme.



Urban design framework



Proposed pedestrian link



Structure plan



Perspective view of the Financial Centre waterfront square

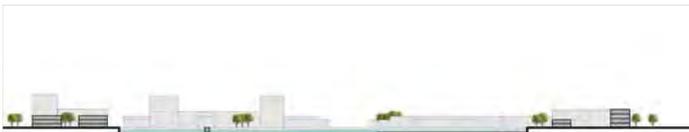


Perspective view of the active street

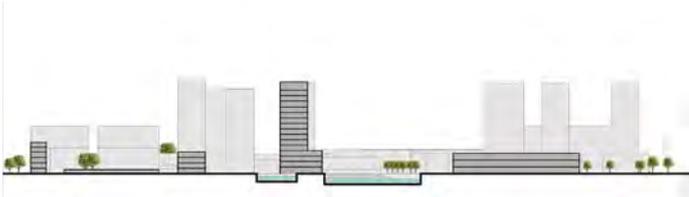
The design strategies include enabling the orderly redevelopment of this precinct with high density mixed land-use and building an east-west connection and clearly defined pedestrian links over the whole area. Creating meaningful new open spaces, new wetland parks, new plazas and new pedestrian access promotes the transfer of public benefits throughout the precinct. The redesign of the canal is also considered. Moreover, the establishment of water retention dams, wetland water treatment systems and wastewater treatment plants will be used to achieve on-site water storage, treatment and recycling.



Bird's eye view of Hyper-Modernity City (looking north)



Water City section



Financial Centre section



Building form



Relationship between buildings and waterbody

# Green Square West | Urban Ecological Restoration

Ding Liqi  
Feng Yuanxin  
Hitha Ramesh Babu

This vision for Green Square West is to create an ecological and sustainable community with a variety of land uses in conjunction with the rearrangement of the Alexandra Canal. Catalysing this proposal is well-considered green and blue infrastructure, re-organised connections and new mixed-used developments. The value of the precinct will be fully utilised by taking advantage of its role as an important employment corridor and responding to the future economic and urban growth of the precinct. The ecological restoration seeks to balance the human impact of future development with sensitive environmental measures.



Urban design framework of proposed Green Square West



Events Centre perspective

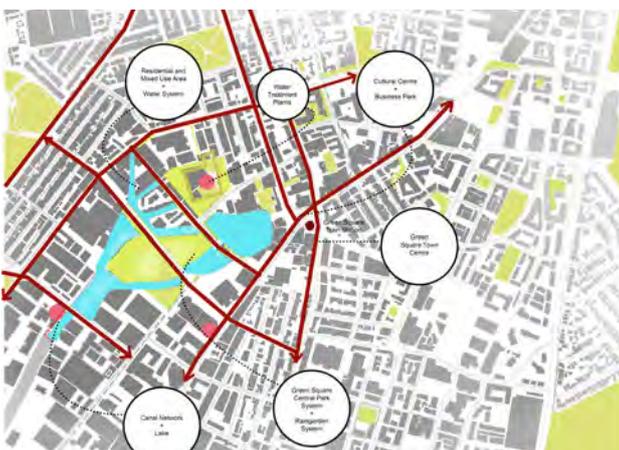


Central Island perspective

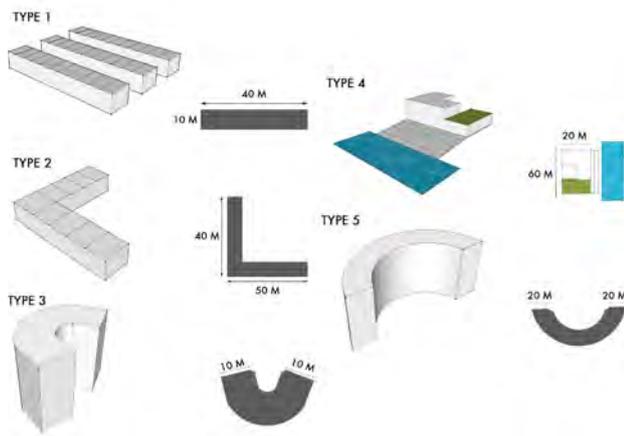
The scheme locates denser residential housing along the spine of the water system and creates a commercial corridor on Botany Road along the north-south axis. The new street network is integrated with the existing pattern of development. The previously proposed green network to regulate flooding as proposed for The City of Sydney by Chris Elliot has been adopted and refined in this proposal. Green Square West will emerge as a world class example of environmentally sustainable and commercially viable urban redevelopment.



Cross section across the reclaimed island, the Green Square train station and the town centre



Structure plan



Types of buildings



Aerial perspective showing the north-south axis

# Green Square West | Everyday urbanism

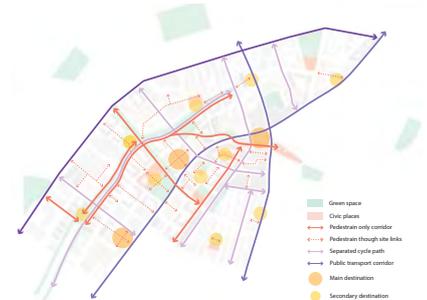
Ji Yugang  
Yan Mingya  
Yang Limeng

The vision is to create the Green Square West Precinct as a liveable and sustainable community, providing all residents and workers with a maximum ten-minute walk to public transport or key centres, based on the design principles of “Everyday Urbanism”.

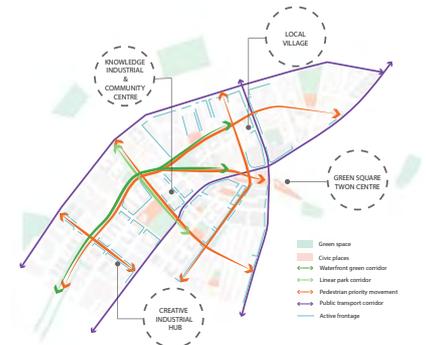
These principles include rediscovering the value of traditional industrial areas, retaining characteristic architecture and introducing knowledge and creative industries into an economically diverse, densely populated mixed-use environment. The results from such strategies attract new residents, employment and workers while maintaining the existing character of the neighbourhoods.



Urban design framework



Cycle & pedestrian movement



Structure plan



Local village



Community centre



Linear park along the canal

New sensitive in-fill development is provided and the Alexandra Canal is incorporated into the design and enhanced by the creation of open green spaces and cycle ways along its edges.

The proposal is divided into three distinct centres: a creative industrial hub, a community centre, and a local village with two new green axes that anchor the overall framework. Housing located close to workplaces and new streets are included to divide the existing large block pattern while new public spaces and parks connect the precinct.

Green Square West will emerge as a liveable, sustainable and productive urban area that remains a vital and dynamic part of the city.



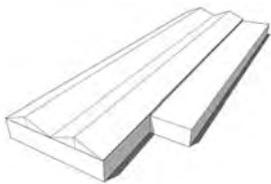
Bird's eye view (looking east)



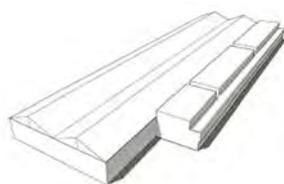
Proposed street cafe in Beaconsfield



Section across the affordable housing, factories and canal in the creative industrial hub area



Original factory building



Proposed factory building



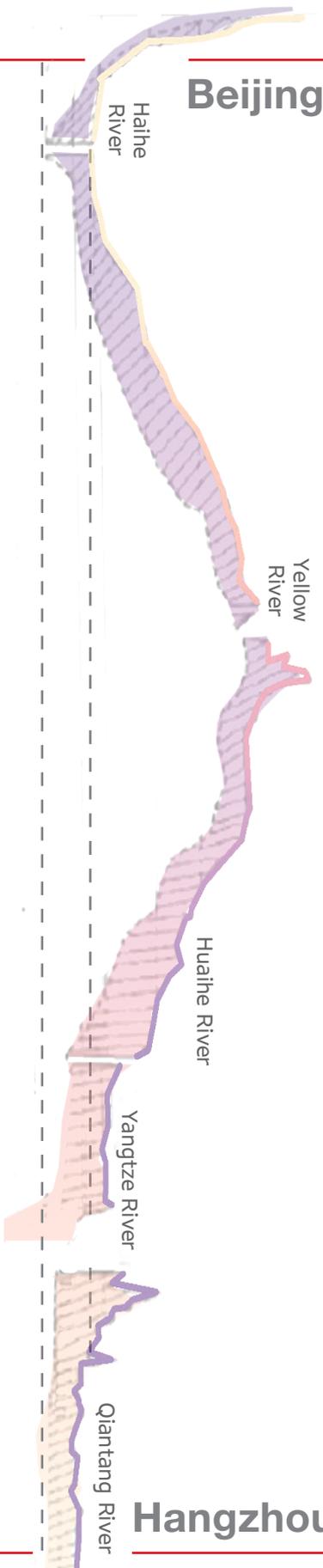
Factory building interior



Factory building exterior



Housing and employment space



**Beijing**

Haihe River

Yellow River

Huaihe River

Yangtze River

Qiantang River

**Hangzhou**

# INTERNATIONAL

The MUDD UDES0003 International Urban Design Studio has been conducted in 53 cities worldwide since 1995 and is strongly aligned with the UNSW Strategic Priorities of Social Engagement and Global Impact. The MUDD25 Beijing and Hangzhou Studios were the seventh and eighth International Urban Design Studios undertaken in China and worked jointly with two of China's most eminent tertiary institutions undertaking projects at the northern and southern ends of the Grand Canal. In Beijing, we collaborated with Peking University and Turenscape, the internationally renowned practice of Professor Yu Kongjian, to present provocative solutions for peri-urban villages at the eastern water-gate to the city. In Hangzhou we joined with staff and students from Zhejiang University to propose solutions for challenging brownfields sites in the former heavy industry belt along the Grand Canal.



北京

BEIJING

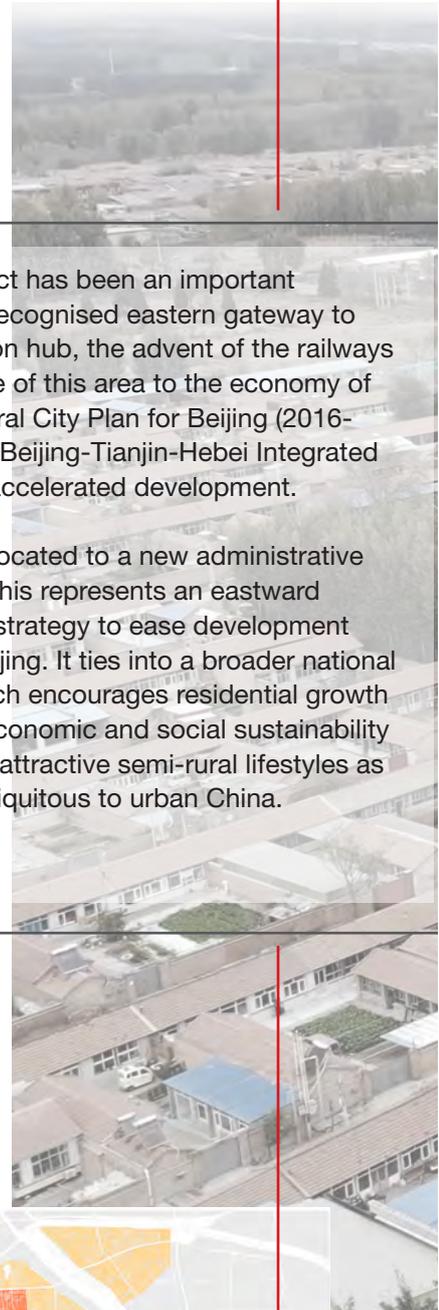
京杭大运河

Grand Canal China

AL STUDIOS

杭州

HANGZHOU



For more than 800 years, the Tongzhou District has been an important northern terminus of the Grand Canal and a recognised eastern gateway to Beijing. Once a thriving port and transportation hub, the advent of the railways in the 19th century meant that the importance of this area to the economy of China gradually declined. However, the General City Plan for Beijing (2016-2035) has identified the district as part of the Beijing-Tianjin-Hebei Integrated Economic Circle, and as such, is primed for accelerated development.

In 2019 the Beijing Municipal Government relocated to a new administrative complex in the district centre of Tongzhou. This represents an eastward shift in the future growth of the capital and a strategy to ease development pressures within the historic inner rings of Beijing. It ties into a broader national strategy called “Go to the Countryside”, which encourages residential growth in peri-urban areas, enabling the continued economic and social sustainability of rural towns near large cities and promotes attractive semi-rural lifestyles as an alternative to the high rise superblocks ubiquitous to urban China.

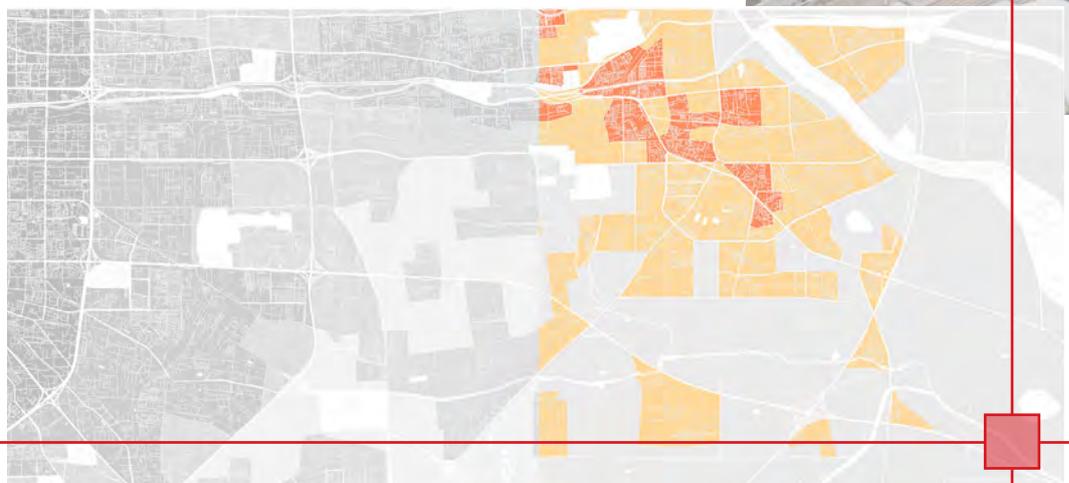
## CONVENORS



Professor James Weirick



Jodi Lawton





北京

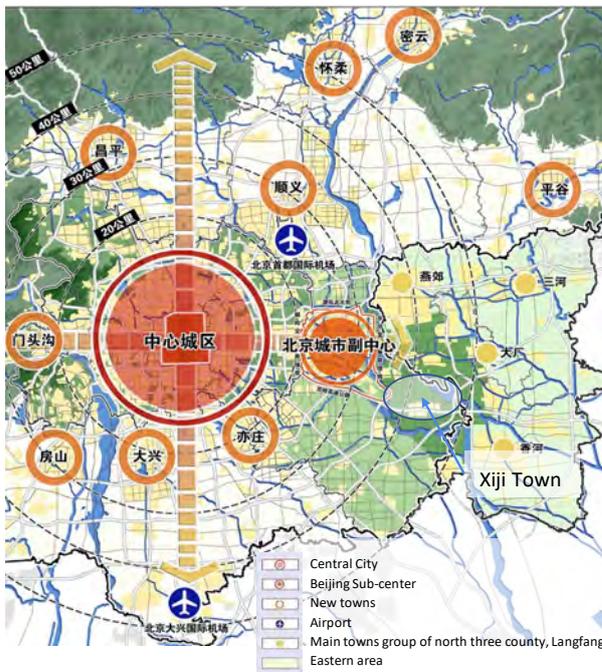
BEIJING

# Beijing | Xiji Town, Tongzhou

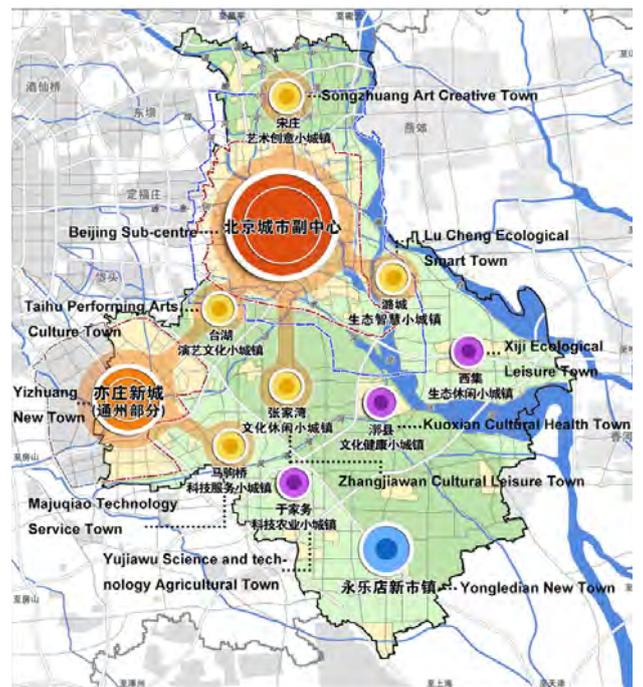
## Site Context

For more than 800 years, the Tongzhou District has been an important northern terminus of the Grand Canal and a recognised eastern gateway to Beijing. Once a thriving port and transportation hub, the advent of the railways in the 19th century meant that the importance of this area to the economy of China gradually declined. However, the General City Plan for Beijing (2016-2035) has identified the district as part of the Beijing-Tianjin-Hebei Integrated Economic Circle, and as such, is primed for accelerated development.

The future growth of this eastern gateway to Beijing promises many exciting possibilities. It also presents real challenges in managing the urbanisation of largely rural areas close to Beijing



Beijing Sub-center Regulatory Detailed Plan  
Source: Beijing Municipal Government



Structure plan of Tongzhou  
Source: Beijing Sub-Center Detailed Planning 2018



Main street in village

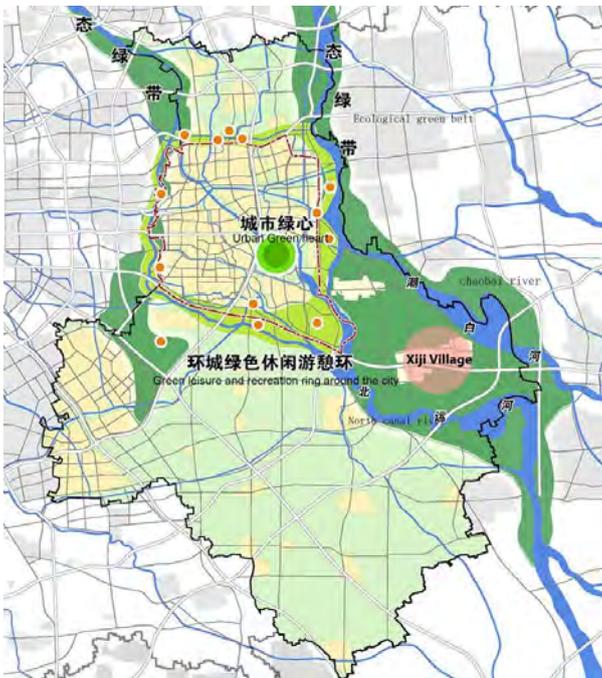


Main street in village



Landscaped lane

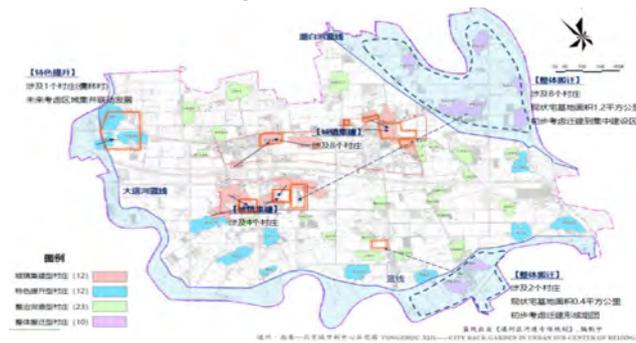
so that the ecological and historical aspects of the towns are not destroyed in the process. Also of importance is the need to consider the social change that occurs through urbanisation and the dislocation of residents from the familiar even when they are not removed from their homes.



Ecological corridor of Tongzhou  
Source: Beijing Master Plan



Five focuses sites in Xiji Town



Targeted village programming of Xiji Town (2017-2035)



House entrance



Landscaped lane



Greenway along the canal



# Beijing | Symbiotic Tech Town

Ding Liqi  
 Hitha Ramesh Babu  
 Luo Junqing  
 Lu Xiaofang

A Symbiotic City has mutually beneficial relationships with its macro and microecosystems. It produces ecosystem services that are equal or greater than its net use of those services. The transition to a symbiotic city requires a cultural and economic recognition that we are embedded in and dependent upon our ecosystems. A symbiotic city enhances the natural environment, provides sustainable economic activity and improves quality of life.

This new economy requires new models of learning, researching, working, and generating ideas that cut across disciplines and facilitate the transfer of ideas from the lab to the marketplace. While conventional mixed-use districts create good living and working environments, they primarily focus on consumption patterns. Innovation districts, on the other hand, focus on production—the production of goods, production of jobs and the production of ideas.



Urban design framework

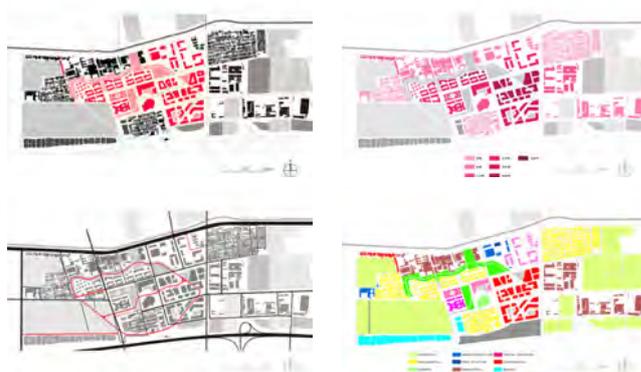
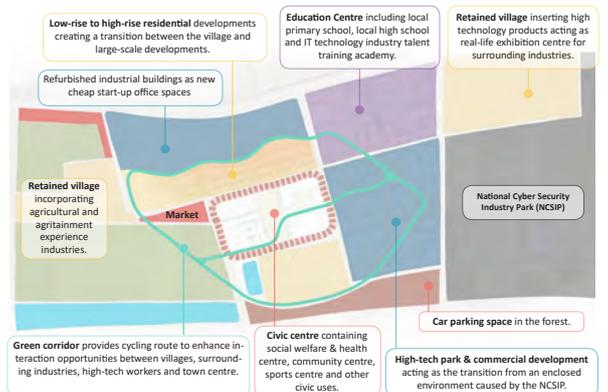


Figure grounds showing height, road network & land use



Structure plan

This new town centres around a symbiotic innovation district of learning, researching, working, living and entertaining. Within it, an innovation district provides a transition zone between the agricultural lands, the villages and the proposed Internet Security Park.

Villages are retained and connected through an active green corridor that includes residential and retail activities. A new civic centre at the corridor intersection provides learning, social, and leisure spaces for both villagers and high-tech workers. An agricultural experience park will attract visitors from outside Xiji to provide an additional economic resource for the new town.



Aerial perspective looking towards the Tech-Town centre



Elevation A-A' showing the transition of residential density and scale



Market perspective



'Vanke' Tech-park perspective

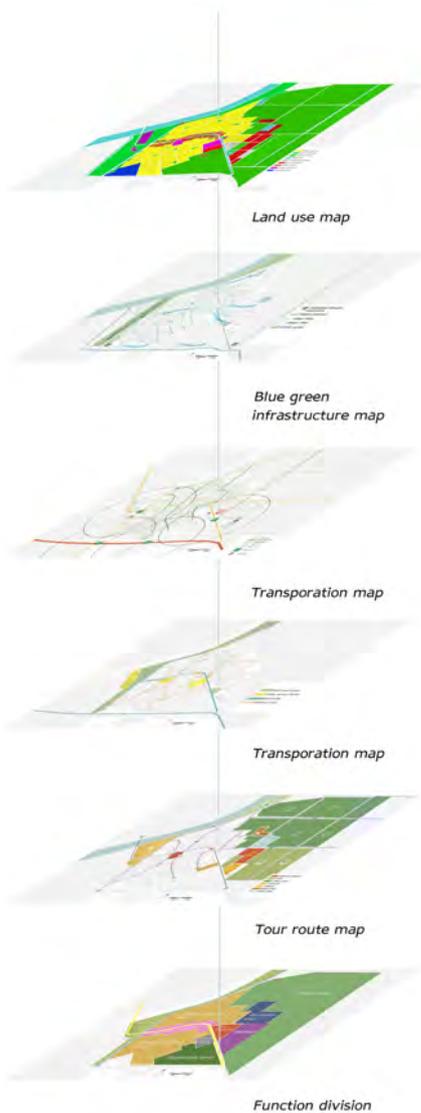


# Beijing | Organic Cherry Village

Ding Wanyi  
 Yu Zhen  
 Shen Ruiqi  
 Zhang Yuhan

The project is located in Shagudui village, which is near the leisure and recreation ring that exists around Tongzhou and an hour's drive from Beijing. Cherry growing and packaging is the main industry in this village with some tourism and a limited extent of other diversified industries. This village abuts an ecological zone along the Grand Canal, which together with the undulating terrain of its location, gives it a distinct character.

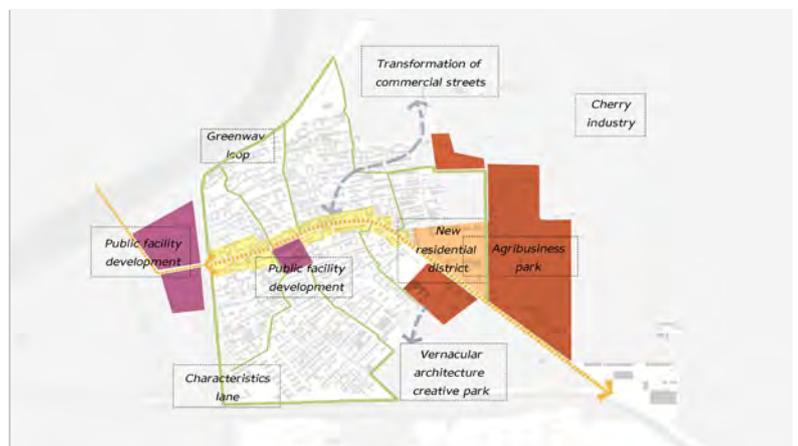
The visions and objective of Organic Cherry Village are to take advantage of the opportunities presented by the existing cherry farming and use them to create a modern and sustainable community centred on tourism, equestrian uses, agricultural experiences and expanded commercial activities.



Design principles



Urban design framework



Structure plan

A cultural and tourism complex that celebrates the life and work of Liu Shaotang is located on the Grand Canal with water as a main design element. Vernacular architectural styles are considered in development of new commercial premises on the main street and more business and tourism activities are introduced. Public transportation is improved through the introduction of new bus routes and better connected bus stops that serve all parts of the village. A series of connected pedestrian and green spaces is created that connects all neighbourhoods in the village and are also an important element in providing a sustainable and ecological waste water treatment system.

Together, these will make Organic Cherry Village an attractive, economically successful and culturally important part of the Xiji Town area.



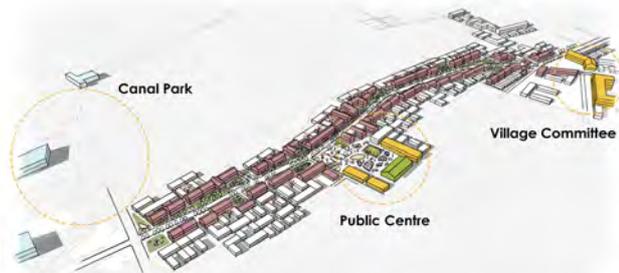
Liu Shaotang complex



Proposed lane renewal



Agribusiness and creative park



Commercial street renovation



Section-Liu Shaotang Memorial hall



Aerial view with Grand Canal on the left



# Beijing | Eco Forest Canal Villages

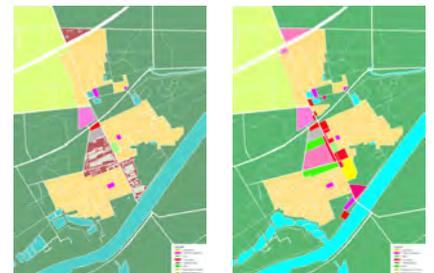
Li Manyu  
Liang Jiarui  
Yan Lu  
Zhong Jiabin

The project is located on the west bank of the Grand Canal, at the southeast corner of Xiji Town. There are three villages in the site with a market and primary school in the middle of them. Most of the agricultural land has become single species forest. These villages have declined, resulting in a corresponding reduction in services and an outflow of labour. Meanwhile, the villages have little connection to the canal, despite its close proximity.

This vision is to enrich the ecological diversity along the Grand Canal and renew the former industrial land between Xiaojialin, Xinji and Yangjiawa village in the south east of Xiji Town.



Urban design framework



Existing land use Proposed land use



Proposed blue infrastructure



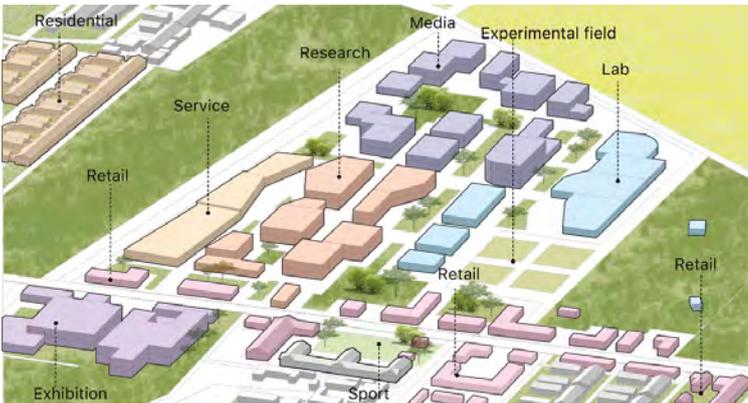
Structure plan

The Eco-Forest Canal Villages project develops new industry based on ecological research including communications technology and its extended industrial chain. The regeneration of the existing market and the integration of eco-agricultural plots will enable the continued growth of rural life by attracting new industries and residents. The project provides new opportunities for the continued growth in these villages and reinforcing Xiji Town's position as an eastern gateway to Beijing.

The principles of the design are establishing a commercial axis to connect three villages, introducing new commercial and retail activity along it; establishing an ecological park to improve the flood management capacity of the site; and reorganizing the unused space as an agricultural corridor.



Aerial perspective looking north



Aerial perspective of research centre



Perspective of the Grand Canal



Proposed market



Perspective of the vegetable garden



Section through I.T. incubator



Section through proposed market



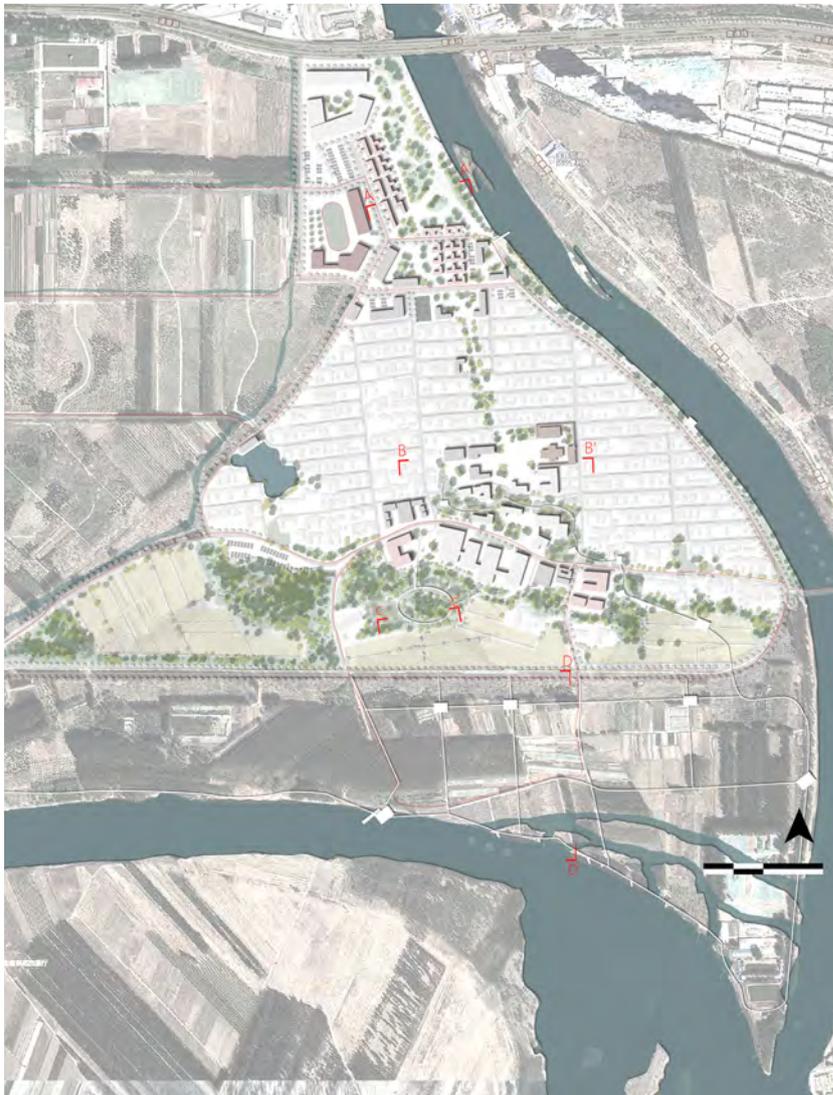
# Beijing | Interactive Revitalization

Jin Yuxiang  
Xing Yutong  
Zhou Yanyi  
Zhu Jingjing

Niumutun Village Interactive Revitalization aims to accommodate 4000 new IT workers into a gateway development that is part of Beijing's eastward expansion, while still retaining the best elements of village life.

The proposal achieves this by breaking down of development into three distinct clusters and incorporating landscaped corridors.

In addition, this proposal establishes new landscape corridors and a major ecological preservation area and improves the landscape qualities along the canal edges. The historic church is restored and becomes the focus of an improved pedestrian square.



Urban design framework



Three new centres of vitality



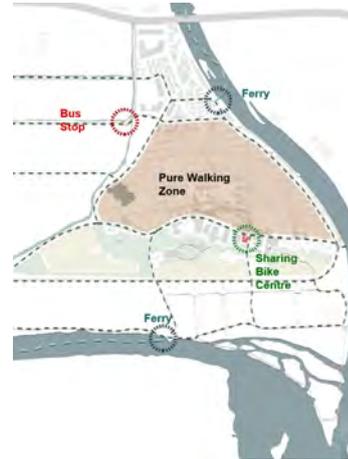
Three landscape focus areas

New employment is introduced through organic farming and commercial and service industries extend to other centres nearby.

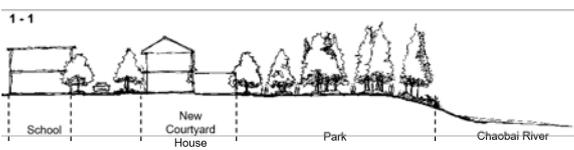
The redevelopment of Niumutun Village will create a more sensitive, vibrant and liveable precinct for villagers and the new working population. Defined by a new gateway and joined by continues landscaped corridors, it will retain its distinct identify while becoming a desirable and dynamic location for new service and IT industries along the Grand Canal.



Aerial perspective looking west



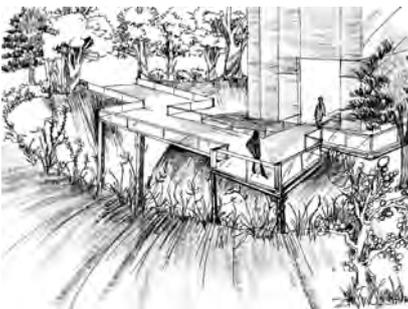
Accessibility plan



SectionAA' - From business park to riverfront



Section CC'-Forest landscape



In-town Communication Centre



Gateway mixed-use centre



Redeveloped church



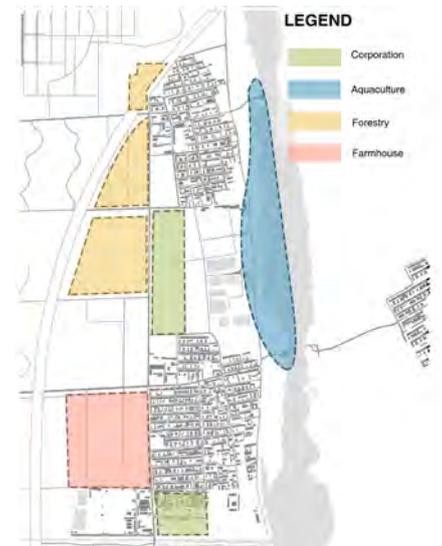
# Beijing | IT Cluster

Zhang Ying  
Guo Qikai  
Yang Limeng  
Yan Mingya

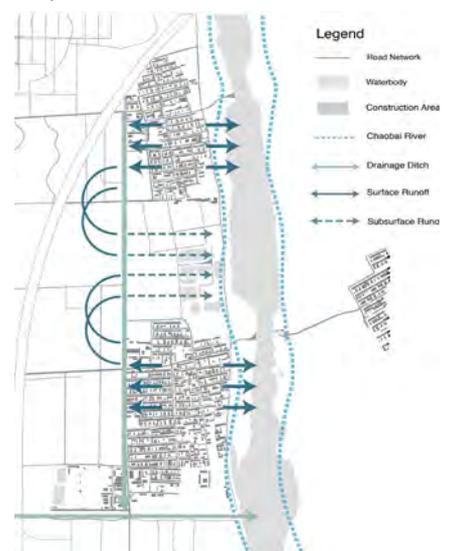
The IT Cluster proposal presents an innovative urban expansion via an eco-oriented community that combines sensitive wetland systems and space for high-tech corporations at the junction of Beijing and Hebei Provinces. New corporate headquarters, enhanced civic and cultural centres and wetland parks, open spaces and galleries will all be provided. Catalysing this proposal are well arranged spatial structures and zoning, promoted accessibility and infrastructure as well as restored local and historical elements. Through the planned development of this community, the advantages of locating at the gateway to Hebei Province will be better utilised and the potential for this site to showcase how organic agriculture, wetland eco-systems, corporate headquarters and historical villages can co-exist and thrive will be realized.



Urban design framework



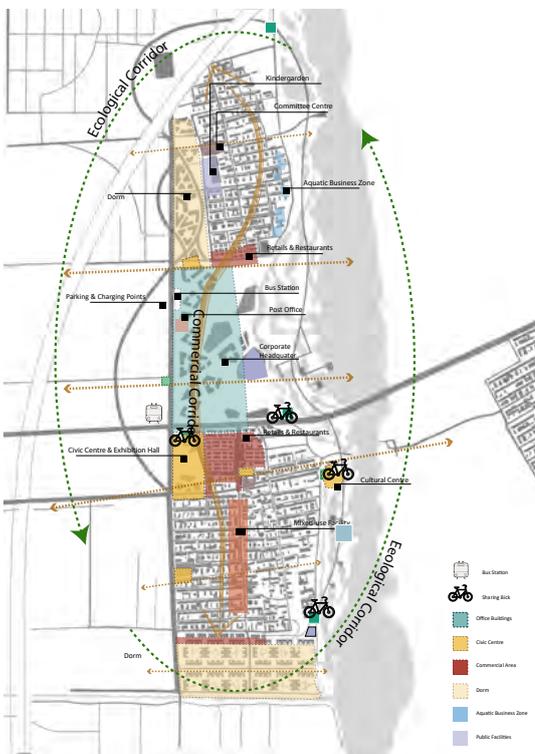
Proposed industries



Proposed drainage system

The scheme proposes to improve accessibility and leverage the potential of the site to be a transport hub. To help achieve this, an additional exit from the nearby highway is included and new pedestrian and road connection across the Chaobai River are planned.

The existing drainage networks are improved to assist during flooding events and the expanded wetlands between the two villages filters run-off before it enters the river. Moreover, a greater variety of vegetation is introduced to balance the natural ecosystem. Employment will be generated by support industries for the nearby National Cyber Security Park and from the growth in service industries for surrounding villages.



Structure Plan



Section A-A' : Office building and plaza



Section B-B' : Waterfront constructions and wetland



Aerial perspective showing the 3 district clusters



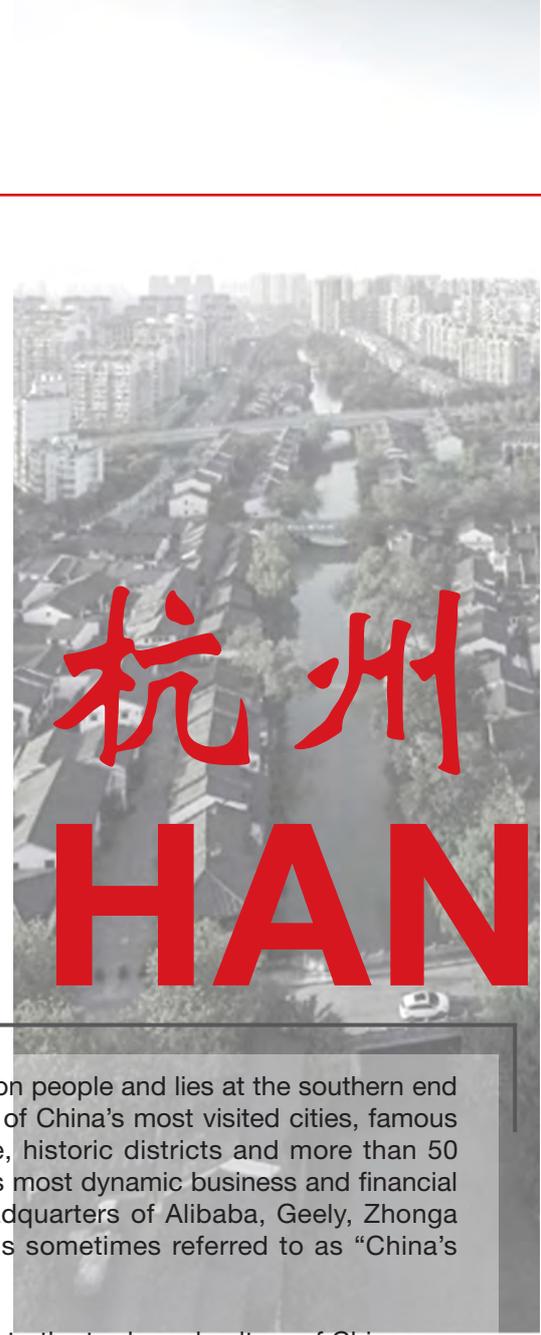
Restored water frontage



Offices and central plaza

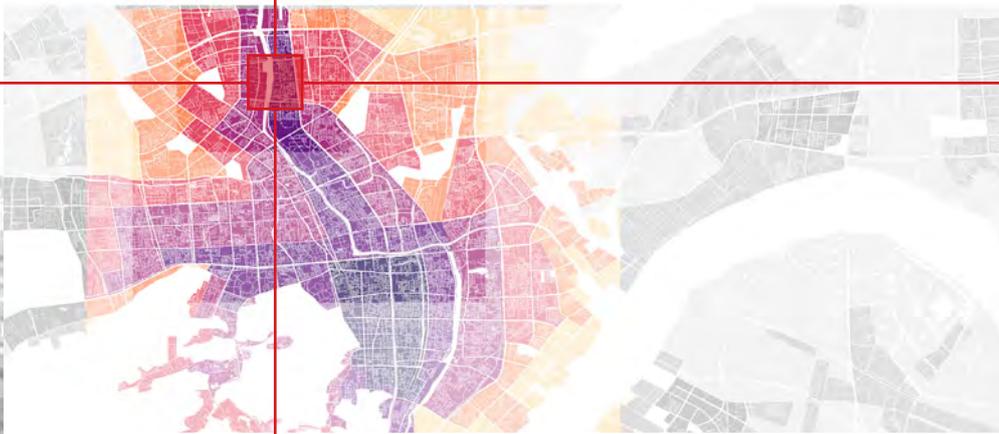


# HANGZHOU



Hangzhou is a city of 9.8million people and lies at the southern end of the Grand Canal. It is one of China's most visited cities, famous for the renowned West Lake, historic districts and more than 50 museums. It is one of China's most dynamic business and financial centres and houses the headquarters of Alibaba, Geely, Zhongta Group and many others. It is sometimes referred to as "China's Silicone Valley".

The importance of Hangzhou to the trade and culture of China was established by 609AD, when the southern gateway to the Grand Canal was completed. By 1115AD, the population had boomed and growth extended beyond the city walls. This growth continued over the centuries and by the early 20th century, Hangzhou was an important trading centre, connected to the north of China by the Grand Canal and to the south of China and the rest of the world through sea-lanes.



# G ZHOU

CONVENORS



Professor James Weirick



Andrew Sweeney

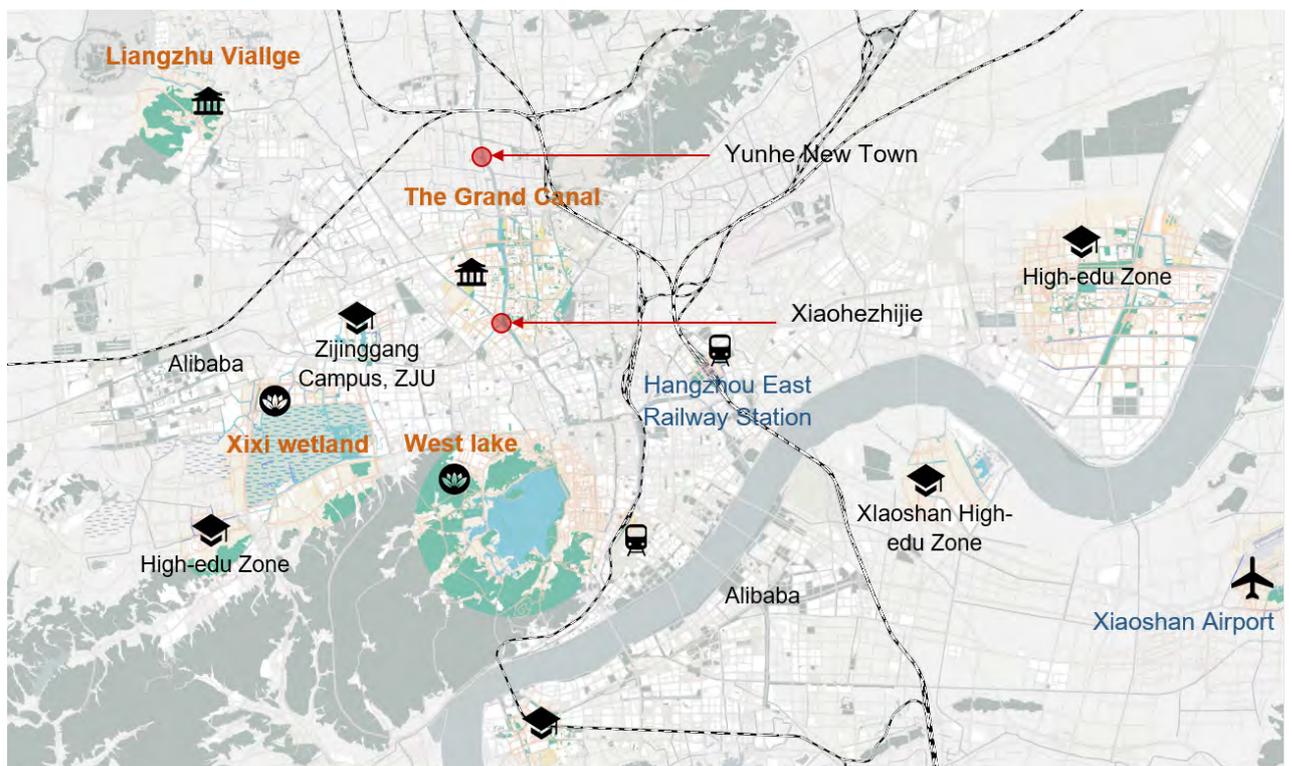
# Hangzhou | Yunhe New Town & Xiaohezhijie

Site Context

Hangzhou is a city of 9.8 million people and lies at the southern end of the Grand Canal. It is one of China's most visited cities, famous for the renowned West Lake, historic districts and more than 50 museums. It is one of China's most dynamic business and financial centres and houses the headquarters of Alibaba, Geely, Zhongta Group and many others.

After 1949, Hangzhou witnessed a change in the type and scale of industries along the canal. Oil refineries, steelworks, manufacturing complexes, raw material depots and the like were built to take advantage of the ability of the waterway to access markets and supplies in inland China.

Now, Hangzhou is one of the fastest growing metropolises in the nation and a global symbol of the rise of modern China. It is once



Sites location map in Hangzhou



Power station remains



Industrial structure remains



Industrial transport remains

again looking towards the Grand Canal to define its future and grappling with the challenge of designing for explosive growth without destroying the very characteristics that make Hangzhou such a unique and valued part of China.

Yunhe New Town is a potential development area in northern Hangzhou along the Grand Canal, which was used as an significant industrial site. The area is part of the northern New City Center proposal that is creating a dynamic new residential, cultural and high-tech core.

Xiaohezhijie is an historic old industrial area at an intersection of two rivers on the Grand Canal and adjacent to two significant historical districts. The vision is to reuse this site to meet the needs of tourism, residential and commercial development.



Existing situation of Xiaohezhijie



Three focuses of Yunhe New Town



Industrial heritage



Oil tanks remains



New commercial use along canal



# Hangzhou | Cultural Crossing

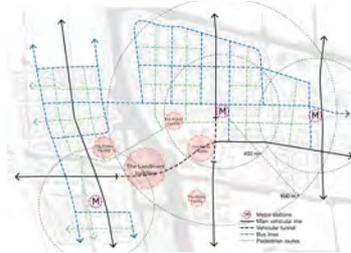
Li Manyu  
Shen Ruiqi  
Wang Wei  
Yao Heli

This urban design creates an international cultural centre as a landmark in the new north city of Hangzhou. This cultural crossing connects the proposed new city to the western side of the Grand Canal. Mixed-use buildings are combined with the cultural centre to create sustained vitality that will attract not only tourists but also high-tech industries. Through a series of strategic moves, the transport network is made central to the development, the connections across the canal are improved, and the core of the proposal is relocated to better respond to the industrial heritage of the site.

The scheme, firstly, relocates the proposed museum as a bridging structure that connects to other developments across the canal. A large and active open public space is created to define where the city axis



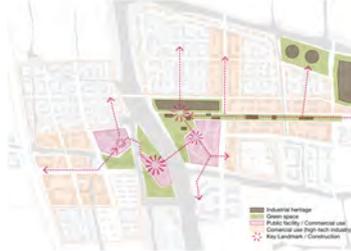
Relocate the landmark



Proposed transport network



Proposed green infrastructure



Reused industrial heritage



Urban design framework



Structure plan



Figure ground comparison

changes direction. The retained industrial structures are re-used as positive landmark elements that are part of the cultural centre. Small to medium sized block size (120m x120m) are developed to achieve a more human scaled urban morphology and a livable street environment. Additionally, relocating the proposed Line 15 Metro Station closer to the main axis will generate TOD potential. A continuous landscaped corridor along the canal is included with connections throughout the precinct. Green and blue infrastructure is also reorganised to collect and filter stormwater before it is drained to the canal.

The Cultural Crossing will be an important stage in the continuing evolution of the Grand Canal. World class cultural facilities will be the centre of a vibrant community that is built upon a character that reflects the recent industrial history of the canal. It will connect development across the canal and mark a new northern gateway to Hangzhou.



Aerial view facing southwest



Staging strategy



Section of the cultural centre



Reusing industrial structures



Water stage opposite the museum



Perspective of Pinlian Avenue

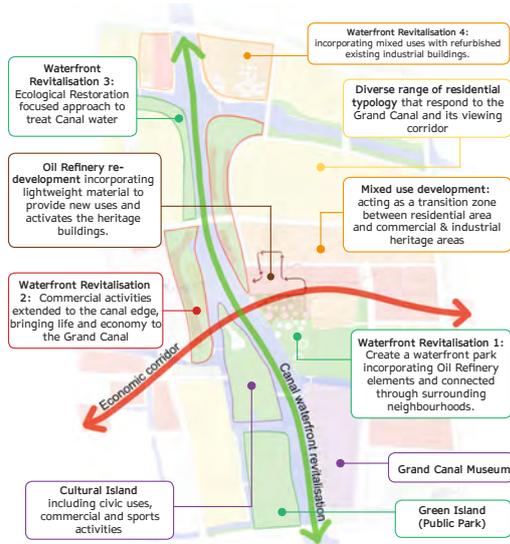


# Hangzhou | The Connected Canal

Chen Jiahui  
 Lu Xiaofang  
 Yan Lu  
 Zhu Lingqiao  
 Zhang Yunlu

The Connected Canal starts by accepting the decision to locate the Grand Canal Museum on the competition site within this precinct; adopting the current land use planning for the New City Centre Development; agreeing that the existing power station is to remain; and acknowledging that a future north-south metro line is planned to run through the site. More importantly, it recognises that any future development must have the Grand Canal as its focus.

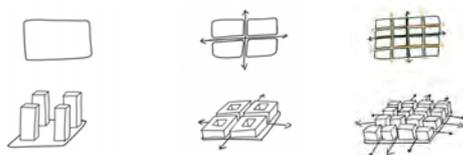
The Connected Canal considers how development can be managed across both banks of the canal. It concentrates on a walkable and human scaled community that reflects the established scale, typologies and urban patterns that are evident in Hangzhou along the canal and defines them as a new urban experience. The superblock pattern of residential development is rejected in favour of a more dense and lower scaled response that acknowledges the importance of established view corridors along the canal.



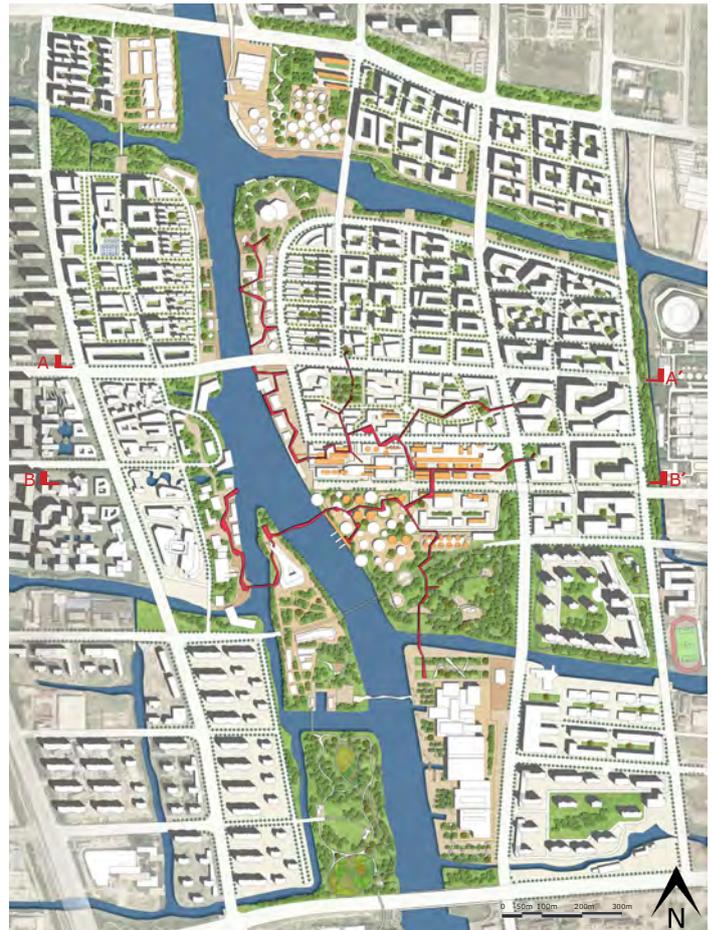
Structure plan



Oil refinery heritage conservation



Residential typology



Urban design framework



Section A-A': relationship between the canal & residential areas

Retained industrial elements are re-imagined with new uses that incorporate plug-in lightweight structures housing commercial and community activities. These then link to the main commercial corridor. A central park is structured around landscape elements that reflect and interpret the original production processes of the oil refinery. These pathways extend throughout the entire development, weaving together the various elements of the precinct. Waterfront revitalisation is achieved by the bringing together of cultural, residential and commercial uses to activate the waterfront and bring new life and economic activity to this part of the Grand Canal.

It demonstrates how new development can be promoted that allows for growth and change while still respecting the scale, character and established patterns of urban development that make the canal a World Heritage site. It provides a dynamic urban precinct that celebrates the recent industrial history of this part of the canal while also acknowledging the 2000 year long history of the waterway and its importance to Hangzhou.



Aerial perspective looking north-east



Section B-B': West to east section across the Oil Refinery redevelopment area



Landmark building to address the importance of the canal junction



Refinery repurposed & redeveloped



Street view within the oil refinery



# Hangzhou | Electric-City

Yan Xingtong  
Zhao Wenning  
Zhou Junjie  
Zhou Yanyi

Yunhe New Town takes the huge scale and imposing presence of two disused cooling towers as inspiration for the design of an urban precinct on the edge of Hangzhou's Northern New City. Adopting Transit Oriented Development principles based on the Gongkang Road Station on Metro Line 4 and a future North-South Metro Line, the Yunhe New Town will become a landmark concentration of commercial, retail and residential opportunities.

The Banshan Power Station will be reduced in scale and re-engineered to higher levels of environmental protection and efficiency to continue its function as key infrastructure but made more compatible with the new uses surrounding it. The retained cooling towers will be incorporated into a canal-front park, providing a unique identity for this precinct.



Urban design framework



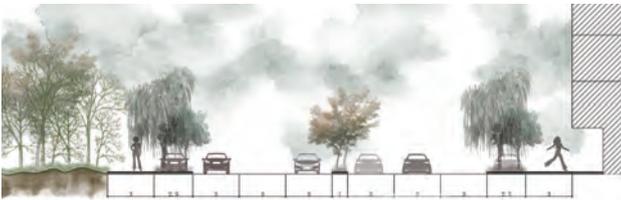
Proposed landuse



Proposed road network

Design principles:

- Relocate the proposed upgrade of the power plant into a smaller area to the north east.
- Include a landmark residential/hotel tower to anchor the precinct core and address the scale and dominance of the cooling towers.
- Align the future north-south metro line to enable a high level of transit oriented development to be achieved.
- Develop the core as a mix of campus style office buildings, street level retail and residential towers.
- Incorporate the small north-south canal as a landscaped pedestrian link within the precinct.
- Provide a north-south pedestrian axis to link the commercial core, the cooling towers and the canal.



Section through main road



Section through commercial core looking north



Commercial core looking south



Aerial Perspective looking south-east



# Hangzhou | The Hybrid Depot

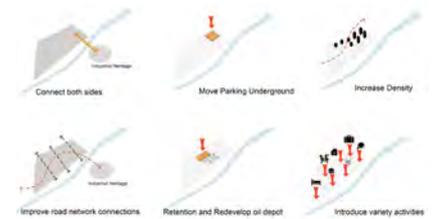
Xu Xuanchen  
Wu Xuanran  
Liang Jiarui  
Chen Jingying  
Luo Junqing

The site is located in the northern part of Hangzhou, along the Grand Canal, next to the Xiaohezhijie historical district. It is surrounded by Hexi Historic District and the Silian 166 Creative Industrial Park that has been converted from a textile mill and railway heritage area. The original site is an oil depot built in the 1950s, which is an important witness to the recent history of the canal.

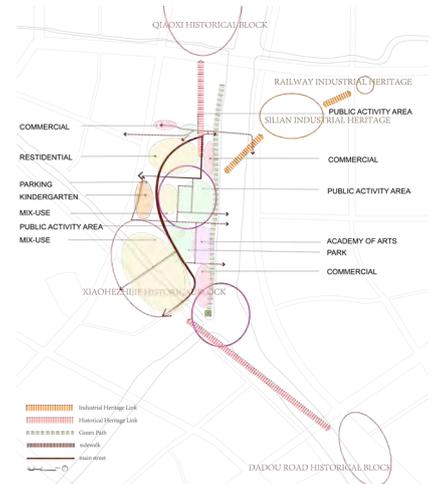
The starting point of the design is to fully integrate the surrounding neighbourhoods, provide adaptive reuse of the oil tanks, and encourage a variety of businesses to the site. This will make the project an important node of the Grand Canal, connecting Xiaohezhijie and the Hexi Historic District.



Urban design framework



Design principles



Structure plan



Government proposal      Hybrid Depot proposal  
Comparative land use

This design redefines the patterns of the streets to better respond to the surrounding street network. A new water-bus stop is introduced to provide greater connectivity to the centre of Hangzhou. In order to create an industrial heritage corridor, a new pedestrian bridge is built to connect to the Silian 166 Creative Industrial Park and Jiangsu Railway Heritage Park. As a response to the lack of sports fields in the area, two new sports areas are proposed. Space under the bridge is also designed as a public space to encourage sports activities. To strengthen the economic feasibility of the project, part of the land identified by the government as open space is transferred into residential and commercial use. In addition to the approved kindergarten, an aquarium, library and art education facility will all be built to meet the demands created by increasing the residential density.



Aerial perspective looking towards the new pedestrian bridge



Active public space extends under the pedestrian bridge



New public square incorporating the retained oil tanks



Section of the west-east axis and reused oil depots



Building typologies respond to existing built forms



Section of the construction frontage along the canal



# Hangzhou | Xi Qu Depot

Kong Xiaocheng  
Lin Junting  
Mao Yanghuan  
Yang Limeng  
Zhong Jiabing

Xiqu Depot will be a precinct that responds to the role of The Grand Canal in Hangzhou's economy and culture and its historical importance in the exchange of opera between the North and South of China. Xi Qu is the name of Chinese opera. Traditionally, there is a phrase that describes how the Xiqu follows the canal and the water - "waterway as the Xiqu Road." During the Ming and Qing Dynasties, Beijing, Yangzhou, Suzhou, Hangzhou and other cities along the Beijing-Hangzhou Grand Canal were the nation's most important Xi Qu activity centres.

Responding to this heritage, a cultural park retained industrial elements is created that houses music performance spaces, creative industries,



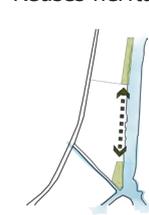
Retain heritage structure



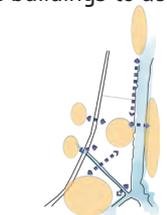
Reuses heritage buildings to activate the public spaces.



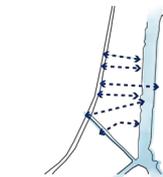
Urban Design Framework



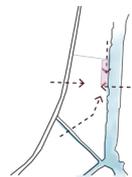
Landscape connection



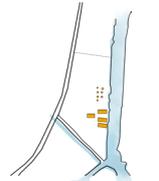
Activate the surrounding area



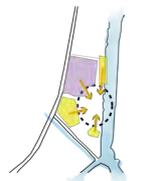
Improve accessibility and connect the site



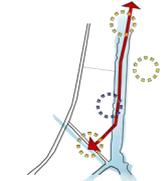
Respond to the historic built form and patterns of the Xiaohezhuje historical district.



Heritage buildings retained and reused.



Increase residential and commercial density around a new cultural core.



The site is part of the cultural and heritage corridor of the Grand Canal.



Structure Plan

library and event areas. The oil tanks become a landscape element that houses musical experiences. A new hotel is proposed at the southern edge of the site and the canal edge is opened up as a pedestrian link between Xiaoheshijie district and the site. The existing low scale architecture at the edge of the site is respected with heights and densities increasing where they respond best to surrounding residential towers. A new pedestrian bridge will strengthen the connections across the canal and a new water-bus stop is included.

The precinct will be better connected, the waterfront of the canal will be activated and revitalized, and the Xiqu Depot will be a unique portal for tourism and culture along the canal.



Aerial view looking north west



Oil tanks repoposed as music education centre



Commercial activity along the Canal



Boarding wharf



Trellis and public space



Aerial view looking north



# Hangzhou | The Green Canal

Gao Jing  
Guo Qikai  
Piao Qianhui  
Qin Xiaoying  
Zuo Xinye

Xiaohezhijie is located on one side of the Grand Canal, close to the Yunhe New City in Hangzhou. It is a key point along the canal corridor and has potential to connect and revitalize it in a model way. Various disused industrial lands, attractions and heritage items exist along the canal, which presents both opportunities and challenges.

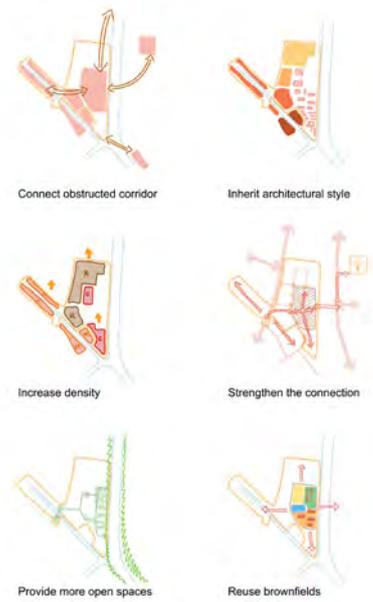
The proposal will form one of a series of connected clusters along the Grand Canal, respecting and responding to the heritage and scenic qualities of the canal but reinterpreted as a new community. This is achieved by establishing well-arranged spatial structures, a new central market by establishing well-arranged spatial structure, promoted pedestrian experience, consistent architectural style and reimagined uses for urban agriculture on a brownfield site.



Urban design framework



Structure map



Design principles

Although the site is surrounded by main roads, the internal roads are few and parking occupies large areas of surface level land. There are abandoned factory buildings and oil tanks on the site, which not only pose a threat to water, vegetation and soil, but obstruct the green, historical and art corridors. More open space is provided and existing heritage buildings are preserved and given new uses.

An industrial chain consisting of research, soilless farming, processing and retailing is established in place of the oil tanks to become a unique and vibrant part of Hangzhou's Grand Canal culture corridor.



Aerial perspective looking North-West



Section through proposed bridge



Section through redeveloped oil tanks



Market perspective



Art and exhibition space under the proposed bridge



New public space along the canal





**GRADUATE**

**RESEARCH  
PROJECTS**

## Research Supervisors & Advisors

Professor James Weirick, Dr. Scott Hawken, Andrew Sweeney, Dr. Anne Warr, Michael Gheorghiu

Title	Author
Green roofs for superblocks in China: responding to urban challenges	Han Weiyu
Qingdao Liyuan: the protection and reuse of heritage buildings	Jiang Shenqin
Analysing the light reflection of glass curtain walls and explaining the promotion and impedance to the development of urban design in Sydney	Li Sidi
Sydney aerotropolis: learning from Sydney Airport	Liu Hongqiao
The challenges and strategies for the redevelopment of Chinese railway station areas built in 1950s-1980s: Guangzhou Railway Station as an example	Xu Jiaping
Research on walkability in three surrounding areas of mass transit	Fan Baiwei
Placemaking through the urban revitalization of abandoned subterranean spaces	Harshitha Harakumar Giriypura
The role of the small bar as an urban catalyst	Jen George Sunny
Exploring the development model of the High-speed Rail New District in the periphery of China's small and medium-sized cities	Jin Yuxiang
Expression of Vietnamese culture in the sidewalk space: a comparison between Cabramatta, Sydney and District 3, Ho Chi Minh city	Thao Tien Nguyen
Improving the last mile connectivity through Bicycle Sharing System: a case study of Liverpool LGA	Ratikant Samal

# Graduate Research Project



Professor  
James Weirick

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The Graduate Research Project provides students with the opportunity to research a critical aspect of urban development and design. Students may wish to return to, and explore in more critical depth, a topic area introduced previously in the MUDD courses. Alternatively, students may have research ideas and interests inspired by current advances in practice. The result of the project must comprise an original piece of research work which answers a key question, or questions, in the field of urban development and design based on evidence systematically collected and analysed through established research methods, presented in a prescribed format and defended before an expert panel.

The range and depth of topics presented in the MUDD25 Graduate Research Projects is testament to the variety of skills, interests and capabilities that are evident in the cohort of students undertaking the MUDD Program. Research projects covered critical urban issues in the booming cities of Asia or addressed contemporary, and at times controversial, urban design outcomes in Sydney. Other students proposed new uses for redundant urban spaces, examined the impact of highly reflective glass towers or challenged us to think more critically about environmentally sustainable urban solutions and mass transit.

In presenting their Graduate Research Projects, these students have demonstrated a willingness to critically engage with the cities around them at a highly advanced level and to challenge established ways of thinking about our cities. Their research endeavours add to an impressive body of knowledge that has been amassed by the MUDD Program over twenty-five years.



# Green roofs for superblocks in China: responding to urban challenges

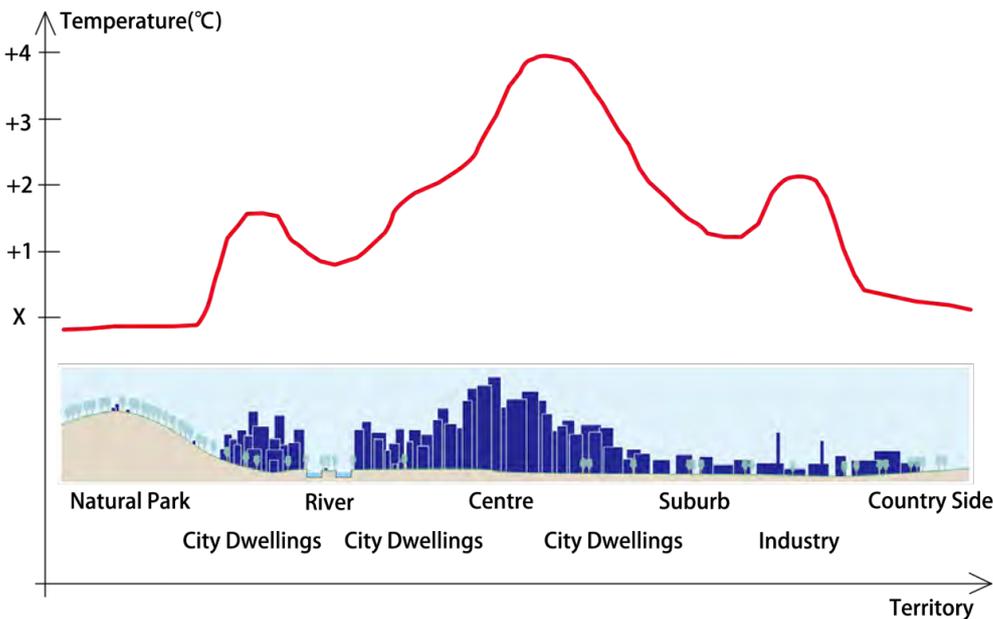
Han Weiyu

According to Fraker (2008), China is building 11 million new 'Superblock' housing units each year. With acceleration of urbanization and a subsequent deterioration of the ecological environment, Chinese metropolises face severe challenges.

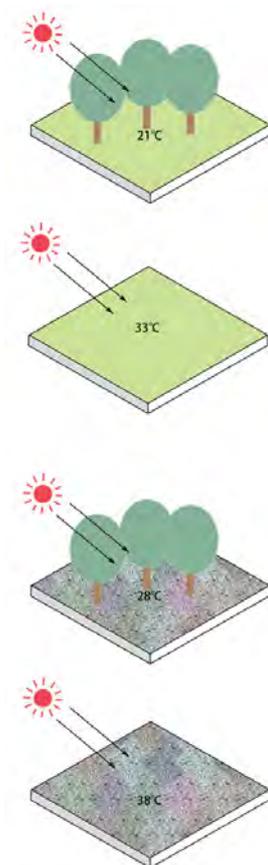
In order to achieve sustainable development with limited land resources, the development of green roofs has become one possible strategy for Chinese cities. Green roofs can help meet people's desire for nature in the city and improve the micro and macro environments. In order to promote the development of green roofs, further research on the potential of green roofs is required.

This research analyses the urban challenges of contemporary China and discusses the benefits of the

on alleviating some urban challenges. The research then identifies barriers to the application of green roofs and discusses how to promote their implementation. It examines both domestic and international precedents in green roof developments and evaluates whether they are suitable for application to Chinese superblocks.



The surface temperature changes to show the urban heat island  
Source: by author



Temperature difference caused by direct sunlight on different surfaces  
Source: by author



## Qingdao Liyuan: the protection and reuse of heritage buildings

Jiang Shenqin

Qingdao is an important coastal city in northern China with only a hundred years of history but it is an important historical and cultural city because of its unique architectural style. It was a German concession from 1897-1914. During this period, the Germans established cities, developed urban planning, and constructed buildings, roads and infrastructure. This includes Liyuan, a special form of architecture. As Qingdao developed, these buildings were not valued for their historic importance and many were demolished or altered. When the importance of Liyuan to Qingdao's style of "red tiles, green trees, blue sea and blue sky" was recognized, the extent to which these buildings were disappearing became apparent.

This research introduces the disappearing unique architectural character of Qingdao and discusses the conservation and future use of the remaining buildings. It examines the Liyuan apartment buildings constructed as a result of German settlement. It uses historical documents and field visits to form the basis for research and it is hoped that the results of this study will provide suggestions for the renovation of the old city and for the protection of old buildings, as well as promoting awareness of the need to protect Liyuan.



Location map showing the 4 case studies  
Source: Qingdao historical and cultural city conservation plan



## Analysing the light reflection of glass curtain walls and explaining the promotion and impedance to the development of urban design in Sydney

Li Sidi

In recent years, glazed building facades have become an icon of downtowns in many cities. This large area of glazing on each facade needs protection against overheating and sun glare in summer, however many buildings do not include shading elements and there has been a growing awareness of the risks posed to people and property from uncontrolled solar reflections. Although light reflection from glass curtain walls has been controversial, it can also make a contribution to the development of urban design, such as increasing light sources to dark and narrow streets. The purpose of this research was to analyse the light reflection from glass curtain walls and explain its promotion and impedance to the development of urban design.

This research thesis analysed the background, history, development, principal, cause, effect and influence of solar reflection. Literature reviews of published journals, council records and data collection formed part of the methodology. Ten existing buildings in Sydney with varying shapes and different extents of glazed facades were then observed at different times of the day to record the impact and extent of the light reflection on the surrounding streets and buildings.

Finally, one building – Gateway Plaza at Circular Quay in Sydney – was chosen for further investigation. Using ECO-tect computer modelling software, Gateway Plaza was tested to ascertain if the observations recorded on other buildings could be simulated by the software. The reflected glare from Gateway Plaza was then modelled in detail and changes made to the facade, height and configuration of the building were also modelled to compare the impacts.

The research concluded that urban designers need to be more aware of the likely glare and reflection impacts from buildings that contain large-scale glass facades. The research also demonstrated that small changes to the amount of glazing, the orientation of the glazed wall or the introduction of projecting shading devices can all help reduce the unwanted impacts of light reflection especially onto surrounding buildings and public spaces.



Crystal palace  
Source: <http://eilv.cie.co.at/termlist>



Museum tower  
Source: <https://www.pilkington.com>





# Sydney aerotropolis: learning from Sydney Airport

Liu Hongqiao

Sydney's airport, one of Australia's largest infrastructure projects, has driven economic growth in the Sydney region for decades. And as an important international aviation hub, Sydney Airport has shaped urban growth and form around it. However, with expected future growth in passenger numbers, Sydney Airport faces the challenge of carrying increased capacity and supporting services. As a result, the government is proposing to build a new airport in Western Sydney to share the burden. At present, the new airport is still in the design stage and the detailed planning has not been completed. Therefore, many problems faced by Sydney Airport can be used as reference factors for the design process of the new airport.

pedestrian spaces in an airport. Using research from the pedestrian spaces of Frankfurt Airport, a design model more suitable for the pedestrian spaces of Western Sydney Airport is obtained. This involves examination of the concepts of "The Aviation City" and provides a theoretical basis for the function and structure of the new airport. The design of successful examples of walkable environments is also studied. Conclusions are drawn from the combined analysis to present principles that should be applied to the design of walkable environments in the design of the new Western Sydney Airport.

The study discusses the importance of walkable environments for airports in the 21st century. Taking Sydney Airport as an example, this paper explores the aspects that require attention in the design of

## 100 years of aviation at Sydney Airport

**1919** The first commercial passenger flight, piloted by Nigel Love.

**1947** Qantas' 'Kangaroo Route' from Sydney to London commences.

**1953**

**1970** First stage of international terminal opens on current site. The first jumbo jet arrives at Sydney Airport (Pan Am).

**1980** Federal Government commences aviation industry reform, ultimately leading to privatisation of airports and deregulation to allow for consolidated airline operations.

**2000** International and Domestic terminals upgraded and expanded for 2000 Olympics.

**2004**

**2019**

100 years of aviation at Sydney Airport  
Source: by author



# The challenges and strategies for the redevelopment of Chinese railway station areas built in 1950s-1980s: Guangzhou Railway Station as an example

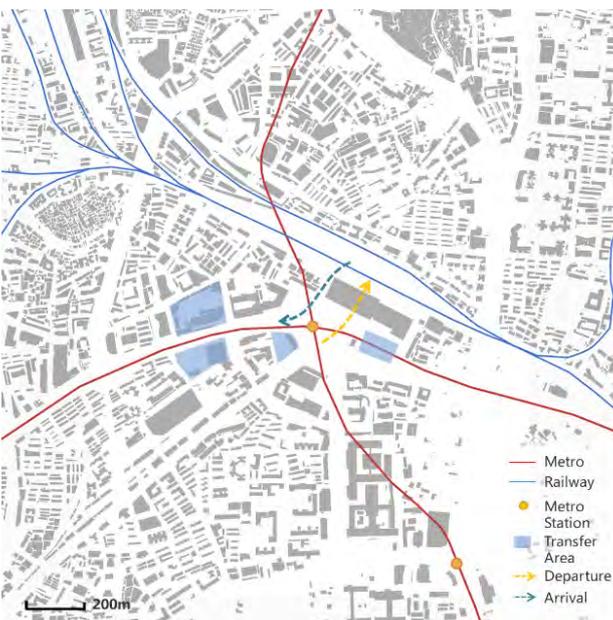
Xu Jiajing

Due to improvements in transportation, the railway station has become a catalyst for radical redevelopment plans worldwide. In China, most of the existing railway stations were built between 1950s-1980s and focus on the function of train movements. This has led to a disconnect between the station and other parts of the city. As the city grows, these old stations are consumed by the urban forms around them. This inconsistency between the old stations and the dynamic and modern contexts around them results in the necessity for the redevelopment of these major transit hubs.

This research takes the Guangzhou Railway Station as an example, and identifies the challenges of the redevelopment process and also defines redevelopment strategies by learning from precedents in Asia. The research is divided into four sections. Firstly, it studies the changing contexts of Chinese railway development and station area redevelopment through literature review.

Secondly, it analyses the situation of the Guangzhou railway station by site survey and field observation. Thirdly, it summarises some urban design principles from three case studies of successful redevelopment projects – Tokyo Station, Shenzhen Luohu Station and Guangzhou East Railway Station. Finally, it discusses whether these principles could be applied to the redevelopment of Guangzhou Railway Station. These strategies focus on the improvement of the transport interchange as well as the quality of urban space around it.

This research provides ideas to address the challenges of Guangzhou Railway Station. Moreover, the challenges analysed in this research are applicable to the urban spaces around other railway station redevelopments in China.



Current transit organisation  
Source: by author



Current road network  
Source: by author





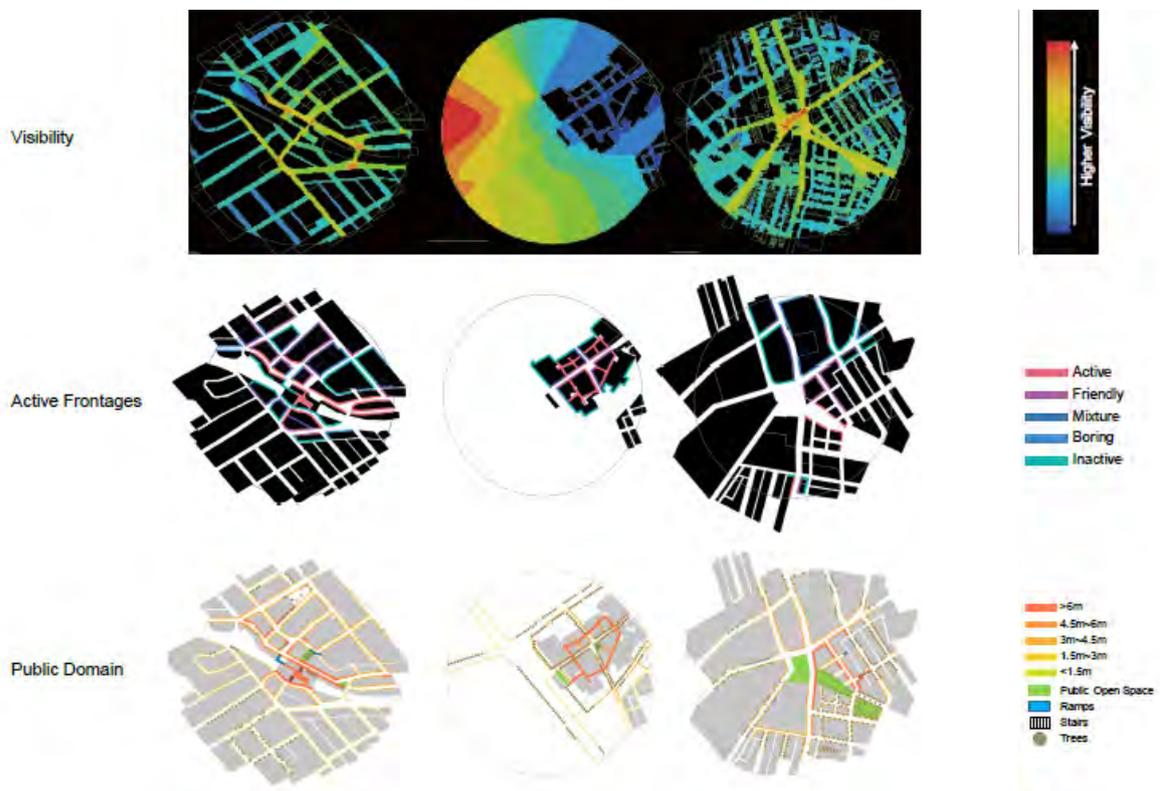
## Research on walkability in three surrounding areas of mass transit

Fan Baiwei

Transit-oriented development (TOD) aims to avoid urban sprawl and solve other urban problems. The common definitions of TOD include multiple function zoning, highly locational and related to public transport, compact development and pedestrian friendly environments. In terms of pedestrian friendly environments, the concept of walkability is increasingly focused on due to congestion and ecological problems created by car-dominant cities. In 2019, the CSIRO started promoting a plan to densify multi-centre developments with mass-transit and walking infrastructure in Australia's major cities. As a result, continuing research on the walkability of Transit Oriented Development in suburban centres is needed.

Three study areas were selected to represent three types of immediate precincts surrounding suburban rail transport stations.

A research on the selected study areas was conducted with multidimensional studies including pedestrian paths, land use, public domain, active frontages and micro-climate to produce several suggestions in order to improve the walkability in the precincts with TOD potential.



Comparative items of three areas  
Source: by author



## Placemaking through the urban revitalization of abandoned subterranean spaces

Harshitha Harakumar Giriya

Land appropriate for development is becoming increasingly scarce in many metropolitan areas. Underutilized or abandoned areas that have previously been ignored need to be realized as important assets in the urban development and regeneration process. Subterranean spaces comprise a substantial part of these lost urban voids. However they are not easily recognized as they are not as conspicuously visible as the rest of the land above ground. Finding alternative uses for these spaces to promote public well-being can be vital strategies in improving the health of growing cities. The regeneration of these spaces can also function as urban catalysts which instigate positive externalities, increase the value of the built environment and improve the quality of life.

The main objective of this paper is to examine the practical applications and explorations of different possibilities of abandoned underground urban design principles.



Delancey underground  
Source: the Lowline

The methods of research adopted to carry out the thesis involve case study research, collation of existing data, evaluation, and comparative analysis. The case studies used are The Lowline (New York City), City Hall Station (New York City), and Paddington Reservoirs (Sydney).

Through exploring concepts of urban design theory based on cognition of these concealed spaces, design principles and the role of these spaces in the urban fabric of the city, this paper concludes with possible design guidelines and recommendations, describes practical applications and identifies the economic and social impact of these developments. The paper then examines the potential of the disused tunnels of St James Station in Sydney to become a new public subterranean space.



The Lowline imagined  
Source: the Lowline





## The role of the small bar as an urban catalyst

Jen George Sunny

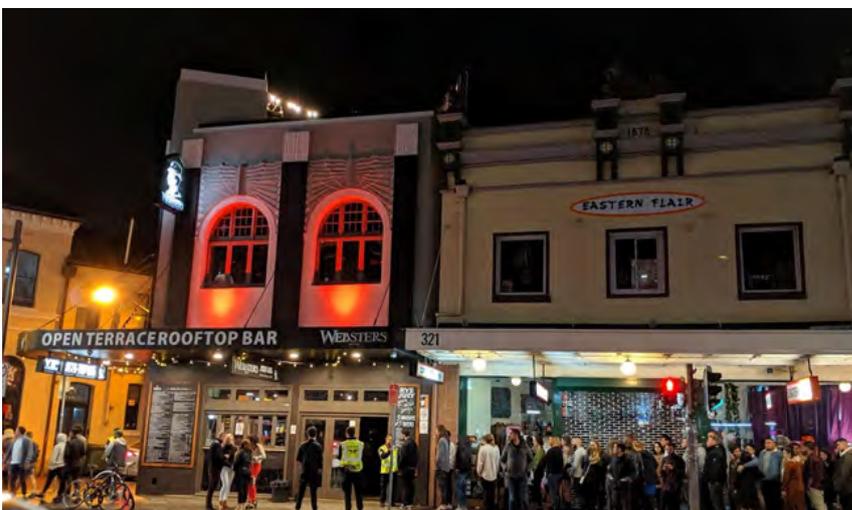
Sydney's growth of a successful night-time economy was brought down by a chain of events that relate to the rise of alcohol related crimes and the reforms that the city adopted in order to curb anti-social behaviour. While some parts of the city have witnessed a significant drop in the time time economy as a result, others have flourished as new "small-bars" have established that are not impacted by the Lock Out Laws.

This research analyses these events starting from the purpose and implementation of the Lock out Laws, where these laws impacted the night-time economy and the implications of the introduction of the Small Bar Legislation which brought about a new kind of public activity/retail use in business zones.

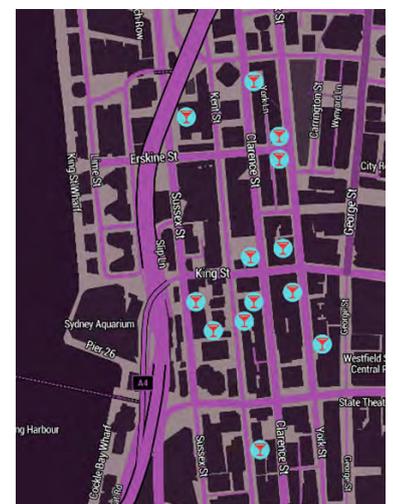
This research thesis examines the small bar as a typology to understand where they are located, what are the urban design implications of these bars and

what impact do these bars have on adjoining uses and activities. Using data collection, media reports and case studies, this research examines where small bars are concentrated and what similarities in the urban structure around help make them successful. It then examines the laneways of Melbourne to see how planning and urban design policy can encourage economic activity in small streets.

It also further produces a hypothesis on how urban designers can use this information to consider why retaining historical small laneways and service areas can be beneficial to the character and life of a city. The research concludes with principles that can be used in new urban designs to encourage the night time economy to thrive in small or concealed pedestrian spaces.



small bars in Sydney





## Exploring the development model of the High-speed Rail New District in the periphery of China's small and medium-sized cities

Jin Yuxiang

The construction period of China's new high-speed railway (HSR) has been very short and accompanied by a vigorous new city movement around the stations that have been built to serve it. For small and medium-sized cities along the line, these new stations have created a construction boom around them so are generally regarded by the local government as a new driver of growth. However, the construction of the high-speed rail network is controlled by the national railway department, and so the local government has little say in the location of the new stations which are often located in peripheral areas of small and medium-sized cities. As a result, the new HSR has failed to improve the accessibility of citizens in these cities. There has been little research carried out on the impact of new HSR stations and routes although it is clear that expected growth outcomes have not always been achieved. This paper summarizes the current situation and dilemmas of the development of HSR new towns in smaller cities.

paper discusses the developmental game relationship between large cities and small and medium-sized cities along the HSR line and introduces the 'out-of-way accessibility' of HSR stations to quantify the basic status of the relationship between stations and urban areas. Then, it explores the reason why most of the designs of the public squares that front the stations lead to difficulties in the development of the surrounding areas according to a three-layer structure theory.

After theoretical research, this paper takes the HSR new city of Zhanjiang city as an example to carry out empirical research on the core issues. From the high-speed railway new city along the western coastal high-speed railway in Guangdong Province, the industrial orientation of Xicheng New District in Zhanjiang City and the accessibility of Zhanjiang West Station are discussed in-depth and conclusions are drawn. Finally, the theory and methods of the design guidelines of the HSR public square area are analysed to provide better outcomes.

From the perspective of regional space economy, this



Distance from station to city centre of HSR cities along the Beijing-Shanghai HSR line  
Source: Tuo C, 2012





## Expression of Vietnamese culture in the sidewalk space: a comparison between Cabramatta, Sydney and District 3, Ho Chi Minh city

Nguyen Thao Tien

With increasing globalization, the emergence of many multicultural neighbourhoods in the world's cities has been a recognised consequence. Alongside a range of benefits such as employment and a valuable cultural diversity, there has also been a disconnection or even conflict between communities coming from different ethnic and cultural backgrounds. In addition, car-centric planning and economically-prioritized development in city design have made these conflicts more complicated. However, strong ethnically based communities in cities can prosper, creating strong commercial districts around them. Perhaps we need to approach a more promising catalyst?

A “sense of community” is a feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together” (McMillan & Chavis, 1986).

This research approaches the study of “a sense of community” from a range of psychological theories on multiculturalism and human diversity. The ultimate goal is to understand cultural-cohesive public spaces that are created in multicultural neighbourhoods and examine them through one urban design solution – place-making. This research starts by dissecting public space and commercial activity on the side-walks of Ho Chi Minh City. It then looks in depth at Cabramatta, a well-known Vietnamese community in Sydney and compares the use of the public spaces and side-walks. It discusses a more distinctive cultural-crossover type of public space instead of a purely Vietnamese space. The research concludes that urban designs in multicultural neighbourhoods are more successful when they focus on people-oriented design, on the making of interactive public spaces that are haptic and sensorial, and strive to cater for a solution that balances traditional activity and cultural perceptions of side-walk usage with contemporary urban forms.



The Journey to Australia  
Source: Museum of Contemporary Art Australia



# Improving the last mile connectivity through Bicycle Sharing System: a case study of Liverpool LGA

Ratikant Samal

Public transport plays a vital role in urban mobility as it allows people to commute from their home to their final destination. However the problem with public transport is that it can't provide connectivity to each and every part of city and as a result it requires a more flexible, reliable, affordable mode of transport to connect commuters to and from the transit node. In this research, the transportation situation in the south-western part of Sydney around the Liverpool local government area is examined, particularly with respect to the growing car dependencies where public transport users prefer their cars for the first and last mile connections.

The author explores the concept of bicycle sharing systems and how bicycle sharing systems can be integrated into the urban environment to provide

solutions for last mile connectivity. Bicycle sharing systems not only provide sustainable mobility, but when fully developed by planners and designers, allow the catchment area to expand further from the transit node.

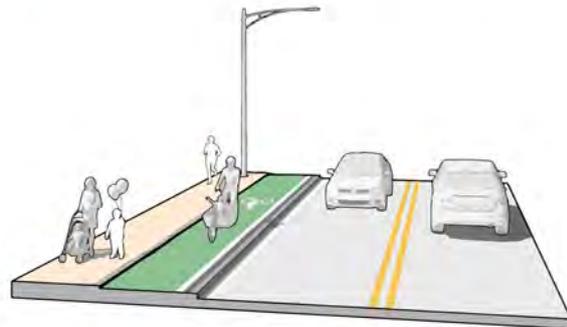
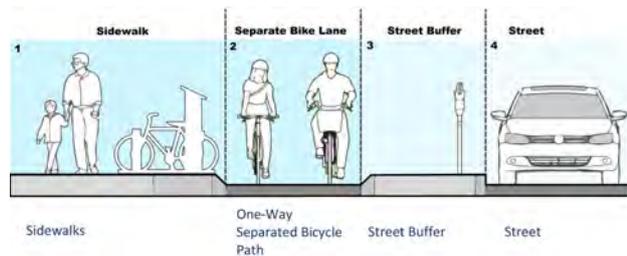
This research is based on secondary data from reports, journals, articles and documents and then develops the urban design principles and design elements needed for implementing a successful dock-based bicycle sharing system in Liverpool to provide sustainable mobility options for commuters and enhance the quality of urban spaces.



Train station and walkable catchment area around train station. Source: by author



Train station and bicycle catchment area around train station. Source: by author



Conceptual design of One-way separated bicycle path. Source: by author



# MUDD 25 STUDENTS

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**Chen Jingying**  
(Lydia)  
China



**Ding Liqi**  
(Ricky)  
China



**Ding Wanyi**  
(Joyce)  
China



**Guo Qikai**  
(William)  
China



**Hitha Ramesh Babu**  
India



**Kong Xiaocheng**  
(Nicole)  
China



**Li Manyu**  
(Lisa)  
China



**Liang Jiarui**  
(Jerry)  
China



**Lu Xiaofang**  
(Errin)  
China



**Luo Junqing**  
(Nikki)  
China



**Piao Qianhui**  
(Eva)  
China



**Shen Ruiqi**  
(Rick)  
China



 <p><b>Xing Yutong</b> (Trina) China</p>	 <p><b>Yan Lu</b> (Rita) China</p>	 <p><b>Yan Mingya</b> (Abby) China</p>
 <p><b>Yang Limeng</b> (Leemon) China</p>	 <p><b>Yu Zhen</b> (Anne) China</p>	 <p><b>Zhang Ying</b> (Ying) China</p>
 <p><b>Zhang Yuhan</b> (Demi) China</p>	 <p><b>Zhong Jiaxin</b> (Ariel) China</p>	 <p><b>Zhou Junjie</b> (Catania) China</p>
 <p><b>Zhou Yanyi</b> (Eleanor) China</p>	 <p><b>Zhu Jingjing</b> (June) China</p>	 <p><b>Zuo Xinye</b> (Doreen) China</p>

# STUDENT EXPERIENCE

## BEIJING



The Beijing Studio was a special one for our class because most of the students in MUDD25 are originally from China. It gave students an opportunity to re-evaluate and appreciate the capital city of their home country. The main focus of this studio was the Grand Canal and through the field trips and interviews with villagers who live along this impressive waterway, students learned a lot about the history, culture and development of this famous world heritage site and started to consider the future of the canal as well.



The “City Walk” was an unforgettable experience. We crossed the city axis of Beijing from Qianmen to Gulou. We visited the Beijing Planning Exhibition Hall and the Forbidden City Museum to gain an understanding of classical Chinese architecture and city planning. We also went to the Summer Palace and to the Great Wall. This trip made us feel a deep historical connection to China and its four ancient civilizations. After this, we spent a further day undertaking a field trip to our study site of Xiji Town which is in Tongzhou District, to the east of Beijing City.



In the Beijing offices of Turenscape, an internationally recognised design firm, we also had a wonderful experience. We were divided into five groups to focus on five different villages that we studied on our field trip. We encountered many challenges and interesting issues in the design process because of the differences in design approach and planning policies that exist in China compared to Australia. Fortunately, we were guided by the Turenscape staff as well as professors from Peking University who gave us valuable lectures and provided important information to assist with our design challenges.



In general, the Beijing Studio was a great experience that combined western design methods with a Chinese urban and rural construction model. Different land tenure, different street scales, different population capacities; all these differences created many fresh experiences for us. Working with Professor James Weirick and Jodi Lawton from the MUDD Program and assisted by a team of professional urban designers, academics from Peking University and government representatives was very impressive. Through our discussions with the local residents we even felt as though the projects were more real-world than a usual university project. We gained a better understanding of China's planning and design system which is a valuable asset when we as UNSW students apply to work as urban designers and planners in China in the future.

- Ding Liqi (Ricky)

When one thinks of Beijing, you would imagine skyscrapers enveloping its skies. Within its folds it holds more to itself than it seems at first glance. Tony Garcia once said “It is the people that make great cities”, and that does seem to shape this mega agglomeration. Beijing I would say, is a land of lilliputs with Gulliver’s as tourists. They then scale their grand notions of size and scale to suit the locals’ sensibilities. The skyscrapers are almost those of worship. You crane your neck for the view, bump into someone, and then feel the fast-paced city. It has people from all walks of life, living and working so close together.



The spaces change drastically from one to another. You might find yourself walking down a narrow alley only to find yourself tumbling down and into to a large street. The transition is as magical as it is sudden. It seems to have in itself, a reel like quality where you can cycle across the city while your surroundings change as if you were on a giant movie set.



The Beijing Planning Exhibition gave us an emphatic view of the city in a location where it’s scale can be appreciated. The relationships between the spaces that are hard to appreciate when you are in them can only be understood when you are in a giant exhibition hall looking at three-dimensional model of the entire city.

The Studio at Beijing was nothing like we had experienced before. Collaborating with students from Peking University, the employees of Turenscape and Professor Yu Kong Jian we learned so much from their hands-on experience of current projects happening in the city.



While we came in at 9am every morning, we wrapped up later and later each night as we inched towards our deadline. Our weekends were short and we were eager to get our ideas and designs progressed. All of us zoomed in and out the office looking like insomniac zombies.

All of it however paid off, with our work full of brilliantly different ideas and a final relief of tumbling pressure. Working on what was an intense experience, the input from locals who are designing real solutions for our studio sites helped us shape solutions that were realistically inclined to suit China and its people. The projects in this studio and the way in which we had to balance the ideas of designers, planners, officials and locals to help solve problems gave us an exhausting but valuable insight into the real life of an urban designer in China today.



- Hitha Ramesh Babu



# STUDENT EXPERIENCE

## HANGZHOU



The Hangzhou Studio was an exceptional experience for the entire class. The studio revealed the connection of Grand Canal culture to the modern transformation and developing design of Hangzhou, which was impressive.

The city walks showed students the need to balance ancient and modern designs and comfortable human-scaled streetscapes and we experienced the crowded street system full of pedestrian and vehicles. We went to West Lake, and took a boat to experience the slow pace and beauty of the water landscape. We went to the Liangzhu Culture Museum to learn of one of the world's first urban civilisations and were invited to inspect huge new urban development projects.



In the studio, MUDD students worked well with fellow students from Zhejiang University. Before the trip, we were worried that there would be fewer UNSW students in Hangzhou than were going to be in Beijing. Thanks to the strong support from Zhejiang University and willing cooperation from the students and staff, we ended up having a great experience during the whole studio.



We began the studio by undertaking a field trip to the site and then we had brain storming sessions. Each day at the Zhejiang University campus we worked hard all morning, then enjoyed lunch in the canteen chatting about daily life and fun stories, and then went back to the studio to keep working on our projects. We worked long and hard but were proud when we were finally standing in front of the jury and presenting our design to them. The International Studio is short and tough, but both of the ZJU students and UNSW students learned a lot and gained a deeper understanding of each other and from the different approaches at each university.

As a farewell celebration we went to a historic restaurant overlooking the Gongshan Bridge, expressing our gratitude to each other and using a Chinese way to express our appreciation — drinking and feasting! We all wished the time of parting could be delayed.



The Hangzhou International Studio was a truly memorable experience and very worthwhile for all the students. We were very fortunate to be able to observe the differences between China and Australia, to experience the local customs, and we will be able to utilise the lessons learned from this experience in our future design careers.

- Zhou Yanyi (Eleanor)

The Hangzhou International Studio was an inspiring trip for all Chinese and non-Chinese students as it demonstrated the historical value of the Grand Canal and illustrated the possibilities that exist to harmonize the past with the future. From this studio, we gained experience and acquired new methods that we can explore in our careers.



The activities hosted by Zhejiang University showcased a city of vitality with precious historical and industrial value. Chinese students were reintroduced to this familiar city by experiencing it through a foreigners' view-point. We could see the existing traditional awareness collide with new visions for the city. Throughout the entire studio, the most outstanding architects and famous attractions were visited and we saw how new projects were blended into the city and we were able to learn the principles of the designs. The Zhejiang City Planning Museum illustrated the evolution of the city across different periods of history and showed how the current city is formed. By visiting the various developments and neighbourhoods of the city we were inspired by bold new design concepts and ideas. All the experiences deepened our understanding and improved our professional skills.



The cooperation with the Zhejiang University students also contributed to our abilities and widened our horizons. Though most of the students shared a similar cultural background, the different education experiences in Australia and China proved to be a positive for everyone. UNSW students mainly came from urban design, landscape or city planning backgrounds, while most Zhejiang University students were majors in architecture. The different strengths lead to varying approaches and some arguments arose with contradictory opinions and priorities. MUDD students focused on the scale of design at a city size while some of the ZJU students struggled with the height of stairs. However, we all eventually realised and understood the efforts and ideas that everyone was offering. All the arguments, negotiation and lessons learned from each other not only polished our knowledge but also strengthened the relationships. The final jury presentation was proof of the success of this cooperation.



The Hangzhou International Studio and our time with Zhejiang University was a valuable and memorable part of our MUDD experience. It enhanced our knowledge and was inspirational in refining our skills and passion for making better cities.



- Guo Qikai (William)

# STUDENT PROFILE

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Hitha Ramesh Babu  
MUDD (2019 - 2020)  
India

Urban Design was for me was a portal to expand my understanding of the built environment. Working alongside SD Sharma and Sangeet Sharma, the pioneers of the city of Chandigarh in India, I already had some understanding of the functioning of cities. Growing up in a developing country allowed me to truly appreciate the value of structured design and implementation. As an architect, I also understood the impact of spatial composition on the everyday life of an individual. I believed that as we delve deep into design, we discover the fundamental cognitive impact of the discipline. It engages society with the dialogue of city, and when persuasive enough, creates a conversation that is a part of one's day-to-day life.

Progressing through the MUDD Program, the fundamental principle of liveability for our cities remained and I gradually discovered the most effective factors that contribute to the same. The Case Studies Studios as well as daily examination of the cities around me all influenced my thought processes and patterns. As a MUDD student I delved into the design and politics of cities and have been taught about public policies that require designers to channel their ideas with guidelines in mind. I looked at the various perspectives of a city, the minds behind the same and the factors that drove these individuals to come up with solutions.

I attended the Beijing International Design Studio and learned about the dispersal of the population to the

periphery and the potential to create self-sustaining suburbs. Working with Turenscape was a rewarding experience. China's Sponge City Policy was an interesting issue that was evaluated at close quarters as flooding remains at the epicentre of many urban issues in China.

The Design Studios in Sydney engaged me with pockets of Sydney that were new to me. I learned the many differing approaches to design problems. I gained an understanding about people and how they respond to design, working on short and long term solutions and reviving what are seen as stagnant or "dead" zones.

3.5 billion people currently live in the world's cities, and that number is forecast to reach 6.3 billion by 2050. The MUDD Program has provided me with a strong foundation to engage with the critical aspects of urban design that are required to deal with this reality.



Zhou Yanyi  
MUDD (2019-2020)  
China

When I was young, I was a child who would observe nature and be curious where animals would go and what their homes look like. When I grew up, I became an international student and chose to study the bachelor degree of Landscape Architecture in UNSW. In this degree, I found that changing public spaces for humans is not enough, so I expanded my interest to where people live; where are our homes? how do our environments influence us? Also, at that time, I started to consider these questions at larger and larger scales and ultimately at the scale of the city itself. This led me to enrol in the MUDD Program in 2019.

Through a logical progression of the curriculum, I gained a systematic knowledge of urban design from the history of the “-ism” to the methods used to evaluate projects, and the various theories and practice in the design studios. The further analysis really helped me to get a deeper appreciation of how my landscape degree studies fit into the wider design of our urban environments.

Then in 2019 UNSW changed to a trimester schedule which was challenging as it reduced the number of weeks that we had to complete assignments and design work. However, it was good practice for the intense international studios in Beijing and Hangzhou which were done over only two weeks. During these two weeks we absorbed an enormous amount of knowledge. Perhaps the most important thing we

learned was that, as we worked with the various academics and tutors, that a project of urban design needs to be done by a team of various experts in architecture, landscape architecture, urban planning, construction management and others. Being an urban designer is not an individual and isolated job but one that requires cooperation with others. It is a profession that relies on groupwork and that is why all of our projects in studio are carried out in groups.

The international studio trip is definitely a unique and worthwhile experience that is a real highlight of the program. Part of this is that as well as the design work, we meet students from other universities and enjoyed dinners with alumni, allowing us to share their experiences and knowledge. Working overseas we learned the many differences between each city and their policies on building forms, block sizes, design approaches. With graduation just around the corner, the international studio really has helped me become more confident about what I can offer to a prospective employer.

Looking back on the work I did in my bachelor degree, I have to say that enrolling in MUDD as my second stage of university study was a choice I will not ever regret. Thanks to everyone in the MUDD Program who shared their profound knowledge and expertise, I think I have become a better me.

# ALUMNI PROFILE

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Deepak George  
MUDD (2003-2004)  
India

It is a great pleasure and honour for me to wish the MUDD Program congratulations on its 25th anniversary year. I came to Australia to enrol in this Program, attracted by its rigorous academic structure, global reputation and the opportunity to attend the international design studio. The Program exceeded all my expectations. The UNSW and visiting professors I met and the urban design professionals I interacted with as well as the many students from different cultures I worked with helped me to refine my knowledge and realise the value of urban design in forming vibrant neighbourhoods and communities to live in. The course is so packed that you learn a lot in a short time. This really helps in developing skills that are needed in designing sustainable communities in the real world.

The Program is also a valuable pathway into careers in many different fields like sustainable transport planning and integrated land use planning that are being increasingly adopted in city design. As a graduate of the MUDD Program, I have been able to give expert advice on urban development and smart cities not only in Australia but especially in South Asia where governments are eager to adopt many of the principles the MUDD Program teaches. The most important things I learned in the Program however, are that urban design integrates the skills from many complimentary disciplines and that urban design is at the forefront of designing sustainable futures for the planet.

I thank my professors, faculty members, visiting

academics from Australia and abroad who all taught me and all my fellow graduates who helped me have a great time as a MUDD student. I wish the Program another 25 years of great service to this profession!



Alison Phillips  
MUDD (2016-2017)  
Australia

I started the MUDD Program in 2016 after completing a Bachelor of Design at the former College of Fine Arts (UNSW). Whilst working in landscape architecture and urban design as a student I became very interested in the complexity of masterplanning and the impact it has on our social, natural and built fabric. The MUDD Program facilitated the passion and aided me in further developing my skills in contextual analysis, the interplay between planning and urban design, and urban development feasibility.

In studios we undertook Water Cities and Infrastructure and the City. The International studios were underpinned by our mentors and teachers guiding and aiding us through the process as we learnt new technical skills and theories in urban design. The vast backgrounds of the students undertaking the course also enhanced my learning experience. Students had come from graphic/spatial, engineering, architecture, project management, planning and landscape architecture backgrounds. Every project undertaken in each of the studios always had an interdisciplinary approach which was essential in ensuring a considered and holistic approach to masterplanning.

The MUDD International Studio was invaluable for understanding various urban typologies and approaches to planning our cities. This lesson is something I have continued to bring into my professional practice. I participated in the International Studio in Berlin where

the focus was on sustainability through water recycling and a landscape focused approach, equity through the cooperative housing model and cultural relevance to the surrounding community and strategic planning context. The studio aided our understanding in differing social planning models and approaches to activating the water's edge once used for industrial purposes; something synonymous with what we experience here in Sydney. The course has prepared me for a career in local government in which I work across complex projects with planning, environmental and development professionals.

The MUDD Program has been the foundation for both my practical and theoretical development in the urban design profession. It is an invaluable course in highlighting the complexity of urban design and its importance as a freestanding field in the development of our Australian cities. The course has been invaluable in the networks and connections I have made, the challenges I have faced and exposure to complex issues that arise with urban renewal. It has shaped my approach and has allowed me to continually grow and challenge urban design practice as an urban design professional.

# ALUMNI PROFILE

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Wang Mengya  
MUDD (2015-2016)  
China

I grew up influenced by real estate and urban development because my family is engaged in an urban development practice. I chose however to major in civil engineering at university. In 2010 I visited Shanghai Expo and was excited by the sustainable design of the Expo Park especially the green buildings and landscape infrastructure. My initial interest in urban development and design sprouted from then, little by little.

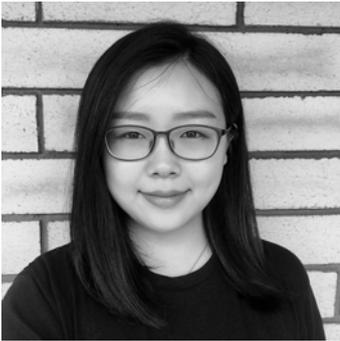
In 2016, I enrolled at UNSW and was so lucky to be accepted into the MUDD Program. I acquired advanced disciplinary knowledge and skills in urban design, learned a methodology to research urban development challenges and an ability to apply them in a range of contexts related to contemporary best practice.

After I graduated, I went back to China and became a graduate urban designer in the offices of Turenscape in Beijing. Here I worked on ecologically responsible development and the national policy named "Sponge City". I had the opportunity to participate in the design of the "sub-centre of Beijing-the detailed planning scheme for(the) green heart" with Southeast University, as well as research on the "Ecological Security Pattern as a Strategy of Resilient City of Xiong'an New Town" with Peking University.

In 2018 I became an assistant manager in Cushman & Wakefield, Wuhan. As one of the national central cities,

Wuhan has redefined its position and development direction as a city that is "internationalized, modernized and ecologicalized". I had the opportunity to be responsible for Strategic Industrial Planning at the scale of a city for the local government, planning and investment strategies for the Innovation Industrial Park for Corporate Headquarters, and participated in research for the "2019 Development Report on Metropolitan Region in China " with the National Development and Reform Commission.

Recently I have been researching territorial spatial planning with the help of new techniques like GIS and Python. I appreciate that the MUDD Program taught me the necessary research strategies, methodologies and design skills to better face the urban challenges in today's China.



Huang Yueshan  
MUDD (2017-2018)  
China

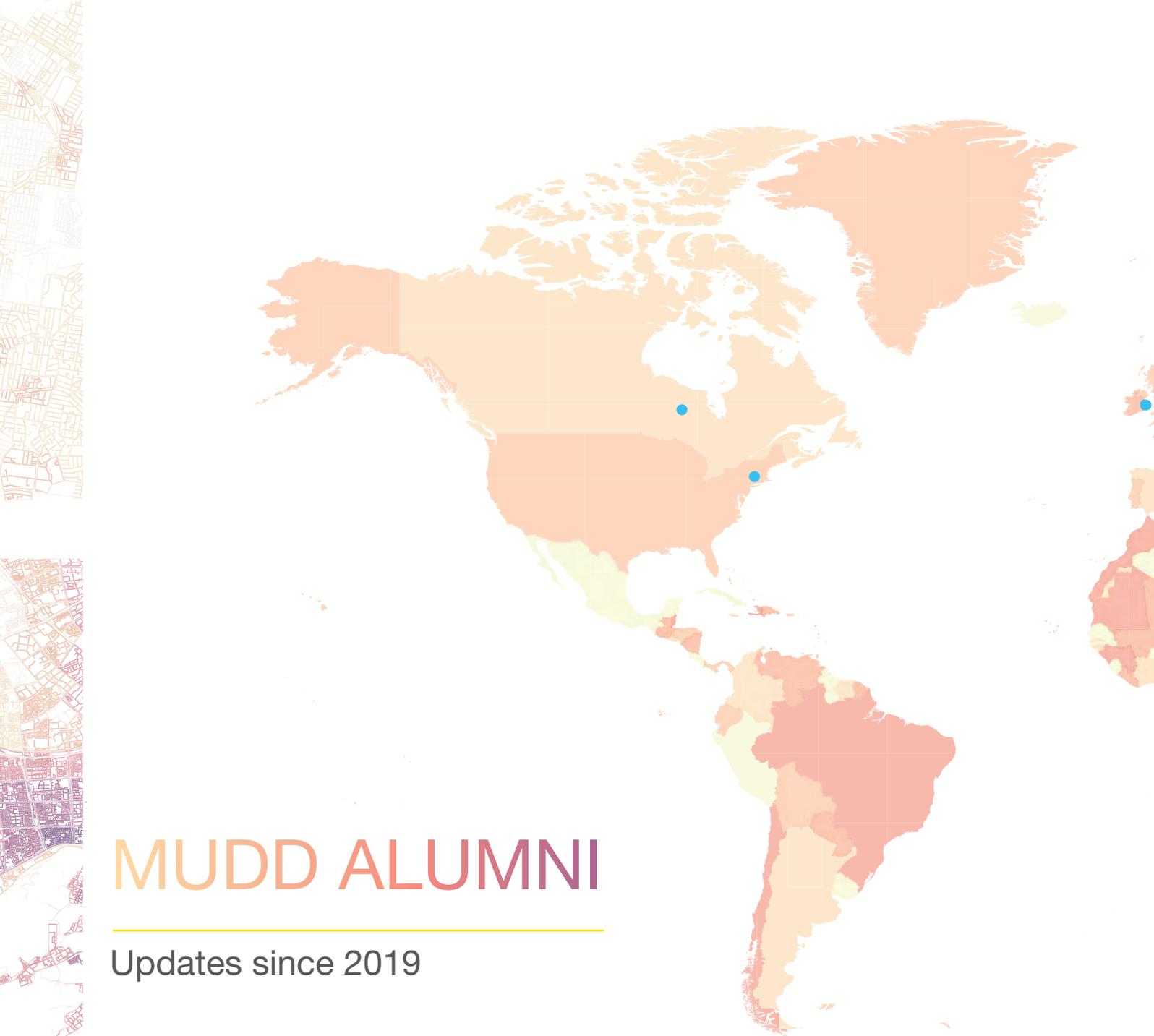
When I was a student in the Landscape Architecture degree at UNSW, I was always interested in the more urban and streetscape type projects. During the last two years of my undergraduate course, I started to deal with projects that were at a neighbourhood scale and this made me even more interested in the relationship between humans and the city. How do people use public space? How to deal with the constraints between humans, vehicles and the city? As a result, I decided to do further study in urban design and applied to become a student in the MUDD Program.

It was a really great experience in MUDD, meeting classmates from different backgrounds and discovering different perspectives of designing our environments. The MUDD Program had professors and tutors who were always supportive and willing to discuss my ideas. All the theory classes and studio classes were inspiring. Of course, it was hard to deal with the various assignments and tons of reading, but I was always being supported and inspired by my professor and tutors, so it finally worked out.

Besides the knowledge and skills in urban design, MUDD also gave me the ability to develop a deeper communication with the city. I have been working as an urban designer in a top Chinese urban design firm since graduating, and working on multiple complex projects. Theories I learned in the MUDD Program have been tested in the many real-life projects I have worked

on. Those years in the program are the foundation and pride of my career, and I am looking forward to getting more exciting professional experience in the future.

Last year, I was part of a group that founded an alumni group in China. It has proven to be a great opportunity to meet many students from past years and get to know how successful it can be as a MUDD Program Alumni. Now it is really a great honor to be here, to tell my story of the MUDD Program and to celebrate its 25th anniversary. I am really looking forward to following the next 25 years of the MUDD Program!



# MUDD ALUMNI

## Updates since 2019

Zheng Lingling  
(MUDD 24)  
Graduate Landscape  
Architect, Studio IZ, NSW,  
Australia

Kusum Lata  
(MUDD 24)  
Architectural Graduate,  
Jackson Teece, NSW,  
Australia

Xu Jiaoni  
(MUDD 17)  
Assistant Director  
CISDI, Chongqing, China

Xu Pei  
(MUDD 24)  
Urban Designer, TJAD  
Shanghai, China

Jessica Hao Chen  
(MUDD 24)  
Urban Designer, fjmt studio,  
NSW, Australia

Gu Hailing  
(MUDD 24)  
Assistant Urban Designer,  
FA Design and Consulting  
Limited, Shanghai, China

Johnson Boon Loke Tan  
(MUDD 2001)  
Lecture, Zhejiang University  
of Science and Technology,  
Hangzhou, China

Wang Weixi  
(MUDD 23)  
Planner & Urban Designer,  
Shanghai Tongji Urban  
Planning and Design Institute  
Co., LTD., Shanghai, China

Huang Yawen  
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Junior Urban Designer,  
Guangzhou Lingnan  
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Urban Designer, FJMT,  
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Research assistant,  
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of Finance and Economic,  
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Planner&Urban Designer,  
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Erica Tinio  
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Laras Primasari  
(MUDD 20)  
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(Indonesian Ministry of  
National Development  
Planning),  
Greater Jakarta Area,  
Indonesia

Dian Erliana Sari  
(MUDD 6)  
Wealth Specialists at PT  
Bank Muamalat Indonesia  
Tbk, Greater Jakarta Area,  
Indonesia

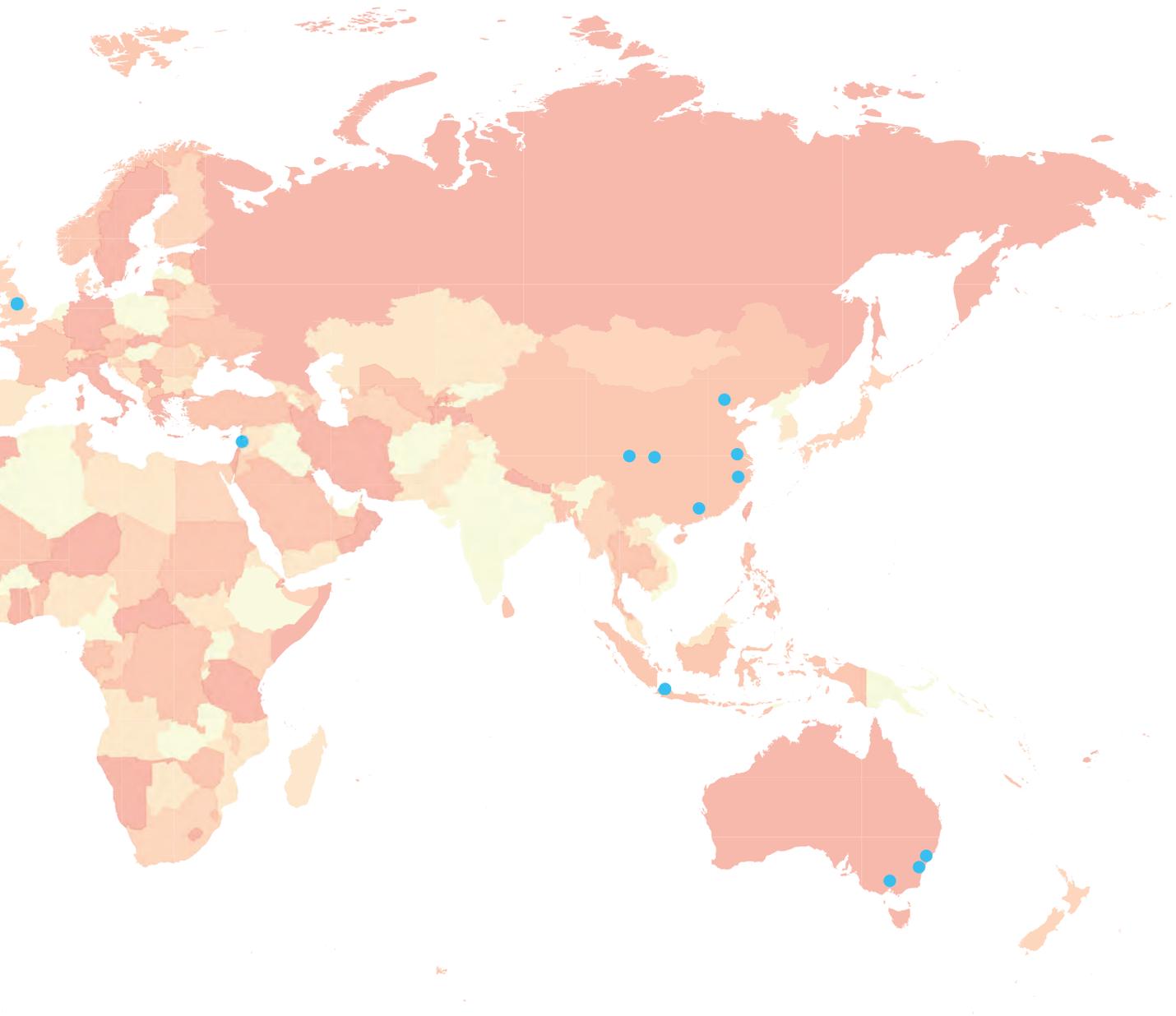
Carlos Frias  
(MUDD 3)  
Director, Urbis, NSW, Australia

Liu Jian  
(MUDD 12)  
Manager, Shunwanyuan  
Landscape Development  
Co.,Ltd., Shanghai, China

Jo Dhileepan  
(MUDD 21)  
Committee Member - UDIA  
Young Leaders  
UDIA NSW, NSW, Australia

Greg Dyson  
(MUDD 5)  
Senior Development Manager  
(Partnerships & Business  
Development), Landcom,  
NSW, Australia

Max Stember-Young  
(MUDD 17)  
Environmental Planner  
at Langan Engineering &  
Environmental Services, New  
York, USA



Jagjeet Shergill  
(MUDD 24)  
Environmental Planner, Port  
authority of NSW, NSW,  
Australia

Aranaya Sabbarwal  
(MUDD 24)  
Architect, Revit Technician,  
NSW, Australia

Jillian Bywater  
(MUDD 13)  
Manager, NSW Department  
of Planning, Industry and  
Environment, NSW Australia

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TJAD, Shanghai, China

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Senior Urban Designer, Urbis,  
NSW, Australia

Mathew Egan  
(MUDD 16)  
Principal Planner, HDB Town  
Planning & Design, NSW,  
Australia

Duncan Fraser  
(MUDD 11)  
Testing & Commissioning,  
Crossrail Ltd, Greater  
London, United Kingdom

Scott Jackson  
(MUDD 20)  
Associate, Turf Design  
Studio, NSW, Australia

Jason Taylor  
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Planning Advisor (Urban  
Policy and Design),  
Department of Housing,  
Planning and Local Government,  
County Dublin, Ireland

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NBSARC-HITECTURE,  
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Technical Advisor - Economic  
Growth and Workforce  
Development, Chemonics  
International - USAID CSP,  
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Section Manager, Lake  
Macquarie City Council,  
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Kusum Lata  
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Architectural Graduate,  
Jackson Teece, NSW,  
Australia

Munir Vahanvati  
(MUDD 10)  
City Architect, Darebin City  
Council, VIC, Australia

Amna Majeed  
(MUDD 1)  
Architect, Giovanni Tassone  
Architects Inc, Oakville,  
Ontario, Canada

Navdeep Shergill  
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Acting Senior Planner, Social  
and Other Infrastructure  
Assessments, NSW,  
Australia

Roberto Evangelio  
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Director, Transport Analysis &  
Modelling at Department of  
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VIC, Australia

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Urban Designer, Hodyl + Co,  
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Ryan Smith  
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Manager of Public Policy,  
Amazon, NSW, Australia

Zhou Yan  
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Urban Planner, CQADI,  
Chongqing, China



# MUDD ALUMNI LIST 2020

## AFGHANISTAN:

Mohammad Nadir Omar (2005-2006)

## AUSTRALIA:

Jorge Alvarez (2005-2006), Tracey Bentick (2004-2005), Genevieve Blanchett (2012-2013), Adrian Bonanni (2005-2006), Emma Booth (2010-2011), Charles Boumoussa (2017-2018), Jillian Bywater (2007-2008), Gilead Chen (2005-2006), Irene Hiu Wah Chan (2004-2005), Anthony Charlesworth (2008-2009), Laurence Cheung (2008-2009), Jacqueline Connor (2007-2008), Jaclyn Cowan (2011-2012), Monique Cowan (2016-2017), Carlo Di Giulio (2009-2010), Glenda Marie Dunn (1999-2000), Greg Dyson (1999-2000), Mathew Egan (2010-2011), Duncan Fraser (2005-2006), Sylvia Georges (1999-2000), Michael Gheorghiu (2014-2016), Andrew Giannasca (2016-2017), Shaheer Gobran (2005-2006), Stephanie Griffiths (2015-2016), Marika Hahn (2005-2006), Amanda Higgins (2006-2007), Joseph Heng (2012-2013), Abdul Ghani Hourani (2017-2018), David Hunter (2011-2012), Scott Jackson (2014-2015), Nick Jonmundsson (2010-2011), Georges Jreije (2017-2018), Leonard Kelly (1996-1997), Kuo Felix Chein Peng (2000-2001), Lai Ka Yee (2017-2018), Vincent Shie Yue Lam (2000-2001), Marc Yves Lane (2009-2010), Connie Yin Yee Lau (2013-2014), Cindy Sin Yee Lee (2008-2009), Evelyn Kin Wah Lee (2009-2010), Lei Pei (2004-2005), Louis Louis (1998-1999), **Lu Xiaofang (2019-2020)**, Amelia Lynch (2004-2005), Samir Mahmoud (2004-2005), Carla Mamaril (2006-2007), Bethany Mann (2014-2015), Peter Mann (1998-1999), Celeste Martin (2012-2013), Peter McManus (2009-2010), Sabina Miller (2012-2013), Clement Miu (2005-2006), Richard Mullane (2006-2007), Andrew Napier (2001-2002), Sally Ng (1996-1997), Carmel O'Connor (2006-2007), Salma Osman (2012-2013), Trevor Patton (1996-1997), Caroline Pembroke (2013-2014), Alison Phillips (2016-2017), Glen Rabbitt (1996-1997), Mark Raymundo (2007-2008), Brett Roantree (2008-2009), William Robertson (2011-2012), Venetin Aghostin-Sangar (2012-2013), Lorraine Sarayeldin (2003-2004), Brigitta Schyns (2014-2015), Eden Shepherd (1999-2000), Jagjeet Shergill (2018-2019), Navdeep Shergill (2015-2016), Ryan Smith (2012-2013), Felicia Sugiaman (2013-2014), Jason Taylor (2007-2008), Ludwig Tewksbury (2001-2002), Vanessa Trowell (2006-2007), Kirrily Vincer (2007-2008), Stephen White (2001-2002), David Wolski (2012-2013), Ada Wong (2005-2006), Peter Woodley (2005-2006), Howard Yu (2002-2003), Bonnie Kin Yi Yue (2011-2012), Jess Yue (2007-2008), Karen Wang (2007-2008), Zhang Qingran (2017-2018), Zhu Weijun (2006-2007)

## BANGLADESH:

Anis Uddin (2000-2001), Mohammad Omar Sharif (2009-2010), Sazia Afrin Monika (2014-2015)

## BHUTAN:

Latha Chhetri (2004-2005), Karma Dorji (2003-2004), Tshering Dorji (2011-2012), Chhado Drukpa (2008-2009), Sailesh Humagai (2006-2007), Tashi Penjor (2008-2009), Karma Wangchuck (2000-2001), Tashi Wangmo (2003-2004)

## BOTSWANA:

Nchunga Kanyenvu (2005-2006)

## BRAZIL:

Ana Cristina Lage (2000-2001)

## BRUNEI:

Sie Thung Lau (2015-2016)

## CAMBODIA:

Sok Toeur Sim (2012-2013)

## CANADA:

Anthony Ferri (2009-2010), Sean Galloway (2000-2001), Wan Gilbert Pui Ban (1999-2000), Su-Jan Yeo (2004-2005)

## CHINA:

An Jing (2008-2009), Bai Fan (2009-2010), Bai Chenyang (2016-2017), Bai Ziyi (2018-2019), Ban Lan (2017-2018), Bi Lei (2007-2008), Bu Jinbo (2009-2010), Cai Zhenbo (2008-2009), Cao Jing (2017-2018), Chang Lulu (2011-2012), **Chen Jingying (2019-2020)**, Chen Dong (2013-2014), Chen Hao (2018-2019), Chen Weilun (2001-2002), Chen Liwen (2006-2007), Chen Xiaofeng (2004-2005), Chen Haifeng (1999-2000), Chen Heying (2007-2008), Chen Jing (2010-2011), Chen Ping (2010-2011), Chen Wei (2009-2010), Chen Wei (2011-2012), Chen Xi (2010-2011), Chen Xiaodan (2016-2017), Chen Xin (2018-2019), Chen Xinyang (2016-2017), Chen Yanxi (2013-2014), Chen Yuhao (2013-2014), Chen Yujing (2017-2018), Chen Yuqiang (2018-2019), Cheng Pengfei (2004-2005), Chu Tingting (2002-2003), Cui Weitong (2015-2016), Cui Zhen (2012-2013), Dai Wen (2012-2013), Dai Xuepeng (2018-2019), Deng Jingwen (2016-2017), **Ding Wanyi (2019-2020)**, Ding Shitao (2016-2017), Du Qin (2017-2018), Du Yifeng (2014-2015), Duan Jinyi (2017-2018), Duan Yan (2010-2011), Fan Baiwei (2018-2019), Fan Yeyun (2014-2015), Feng Shengting (2017-2018), Feng Xiao (2007-2008), Fu Yuanyuan (2002-2003), Fu Xin (2011-2012), Gao Dengkeqin (2014-2015), Gao Fei (2007-2008), Gao Jie (2011-2012), Ge Tianyan (2016-2017), Ge Qiaoying (2010-2011), Gong He (2018-2019), Gong Li (2006-2007), Gu Bing (2006-2007), Gu Hailing (2018-2019), Gu Jinglin (2014-2015), Gu Yan (2003-2004), **Guo Qikai (2019-2020)**, Guo Beiyi (2012-2013), Guo Shijie (2012-2013), Han Weiyu (2018-2019), He Jun (2008-2009), Hu Min (2002-2003), Hu Qinyun (2016-2017), Hu Xiaohan (2018-2019), Hu Yunze (2014-2015), Hu Xin (2003-2004), Huang Hanlin (2015-2016), Huang Lixuan (2018-2019), Huang Luohua (2008-2009), Huang Po Chun (1999-2000), Huang Wenyung (2006-2007), Huang Yawen (2017-2018), Ji Ziyu (2012-2013), Jia Liyang (2008-2009), Jia Qiuyu (2014-2015), Jiao Tong (2011-2012), Jiang Fan (2013-2014), Jiang Shenqin (2018-2019), Jiang Xiao (2010-2011), Jin Tian (2017-2018), Jin Yuxiang (2018-2019), Ju Huangchengqi (2016-2017), **Kong Xiaocheng (2019-2020)**, Kuang Wenjie (2015-2016), Ju Xizhe (2015-2016), Lai Disi (2008-2009), Lei Gangrong (2005-2006), Lei Gao (2005-2006), Li Chengwei (2011-2012), Li Dan (2016-2017), Li Dan (2018-2019), Li Dingqing (2008-2009), Li Han (2015-2016), Li Hongxu (2017-2018), Li Jian (2001-2002), Li Jing (2011-2012), Li Li (2011-2012), Li Liling (2015-2016), Li Mengdi (2017-2018), Li Ruoyu (2017-2018), Li Shengye (2014-2015), Li Sidi (2018-2019), Li Siyan (2016-2017), Li Tang (2014-2015), Li Weiwang (2003-2004), Li Weiwei (2011-2012), Li Xiang (2010-2011), Li Xize (2016-2017), Li Yezi (2017-2018), Li Yi (2008-2009), Li Yilun (2017-2018), Li Yue (2006-2007), **Liang Jiarui (2019-2020)**, Liang Jin (2006-2007), Lin Zhijie (2006-2007), Ling Yun (2008-2009), Liu Dongyu (2016-2017), Liu Fan (2007-2008), Liu Hongqiao (2018-2019), Liu Jian (2006-2007), Liu Lingjun (2016-2017), Liu Liuji (2016-2017), Liu Liya (2011-2012), Liu Shuyi (2003-2004), Liu Ting (2006-2007), Liu Xianzheng (2017-2018), Liu Xiaofeng (2014-2015), Liu Xiaomeng (2012-2013), Liu Xinlei (2016-2017), Liu Yuxi (2016-2017), Liu Zhouqin (2011-2012), Long Jun (2012-2013), Lu Feier (2014-2015), Lu Li (2017-2018), Lu Mengyu (2015-2016), Lu Xijun (2011-2012), **Luo Junqing (2019-2020)**, Luo Hao (2014-2015), Lyu Pin (2016-2017), Ma Danni (2016-2017), Ma Jiting (2009-2010), Ma Qiao (2008-2009), Ma Xiayang (2004-2005), Ma Xinzheng (2011-2012), Ma Yuan (2017-2018), Ma Yunfei (2017-2018), Ma Zixiang (2018-2019), Ni Yun (2003-2004), Pan Junkun (2017-2018), **Piao Qianhui (2019-2020)**, Qi Zhifang (2010-2011), Qiu Xiaojing (2004-2005), Ren Jingya (2010-2011), Ren Yanfei (2015-2016), Ren Yuxi (2018-2019), Ren Zihan (2015-2016), Sang Xiaojing (2004-2005), **Shen Ruiqi (2019-2020)**, Shen Licen (2010-2011), Shen Jun (2011-2012), Sun Bing (2009-2010), Sun Mengzhen (2017-2018), Sun Wenqi (2016-2017), Sun Xiao (2013-2014), Sun Yalin (2015-2016), Su Zhi (2003-2004), Tang Hao (2008-2009), Tang Junbo (2016-2017), Tang Tian (2018-2019), Tao Yueshan (2010-2011), Wan Guyi (2012-2013), Wan Li (2015-2016), Wang Bo (2002-2003), Wang Chao (2002-2003), Wang

Chenyu (2013-2014), Wang Geng (2008-2009), Wang Hongyi (2017-2018), Wang Jian (2011-2012), Wang Jingrao (2016-2017), Wang Mengqiong (2015-2016), Wang Mengya (2010-2011), Wang Mengya (2015-2016), Wang Qi (2015-2016), Wang Ruoxi (2017-2018), Wang Sheng (2006-2007), Wang Shu (2007-2008), Wang Shuyi (2016-2017), Wang Weixi (2017-2018), Wang Xiaobo (2012-2013), Wang Xiaowei (2017-2018), Wang Xinbo (2012-2013), Wang Xiuzhu (2017-2018), Wang Yaying (2018-2019), Wang Yan (2004-2005), Wang Yan (2016-2017), Wang Yifan (2015-2016), Wang Yuyang (2015-2016), Wang Yayun (2014-2015), Wang Yilin (2014-2015), Wang Zhichao (2014-2015), Wang Zishou (2015-2016), Wen Di (2017-2018), Wen Xin (2016-2017), Wu Di (2016-2017), Wu Hanqing (2005-2006), Wu Hao (2010-2011), Wu Jihai (2017-2018), Wu Qi (2008-2009), Wu Shiyao (2014-2015), Wu Wenbin (2016-2017), Wu Xiaoxiao (2016-2017), Wu Yifei (2003-2004), Wu Yue (2004-2005), Wu Yuwei (2017-2018), Wu Zhiyong (2005-2006), Xiao Nanrong (2018-2019), Xiao Ruyu (2013-2014), Xiao Yue (2018-2019), Xie Hong (2002-2003), Xie Xiaopan (2003-2004), Xie Qinyi (2006-2007), Xie Xiaoli (2017-2018), Xie Xinling (2017-2018), Xie Yan (2004-2005), **Xing Yutong (2019-2020)**, Xing Xin (2014-2015), Xing Yan (2001-2002), Xu Bingyu (2016-2017), Xu Hanbing (2005-2006), Xu Jiaoni (2011-2012), Xu Jingwen (2015-2016), Xu Kefei (2001-2002), Xu Jiaping (2018-2019), Xu Pei (2018-2019), Xu Pianpian (2006-2007), Xu Shanshan (2009-2010), Xu Qun (2016-2017), Xu Wentong (2018-2019), Xu Xuduo (2018-2019), Xu Yi (2013-2014), Xu Ying (2010-2011), Xu Zhiyuan (2007-2008), Xue Jiajie (2018-2019), **Yan Lu (2019-2020)**, Yan Jia (2004-2005), Yan Wenxiao (2016-2017), Yang Fan (2010-2011), Yang Ke (2001-2002), Yang Lei (2002-2003), Ye Chen (2007-2008), Ye Yang (2017-2018), Ye Yunqin (2018-2019), Yin Yin (2002-2003), Yu Haiwen (2013-2014), Yu Lechuan (2003-2004), Yu Mengxue (2017-2018), Yu Rong (1996-1997), Yu Xiang (2007-2008), Yu Yehang (2010-2011), Yu Zhizhe (2001-2002), Yuan Zengcheng (2012-2013), Yuan Zhe (2001-2002), Yue Yushan (2017-2018), Zhai Xiaoling (2008-2009), **Zhang Ying (2019-2020)**, **Zhang Yuhuan (2019-2020)**, Zhang Chun (2002-2003), Zhang Detong (2003-2004), Zhang Jinxin (2017-2018), Zhang Meng (2011-2012), Zhang Minjie (2010-2011), Zhang Quan (2017-2018), Zhang Suxin (2015-2016), Zhang Wei (2010-2011), Zhang Weiyu (2016-2017), Zhang Xiaodong (2017-2018), Zhang Yanan (2011-2012), Zhang Yichao (2015-2016), Zhang Xian (2008-2009), Zhang Xiao Chen (2010-2011), Zhang Xin (2009-2010), Zhang Xinning (2016-2017), Zhao Ruyun (2009-2010), Zhao Jiuzhou (2009-2010), Zhao Ziteng (2018-2019), Zheng Lingling (2018-2019), Zheng Yawen (2015-2016), Zhao Yiming (2016-2017), Zheng Yang (2016-2017), Zheng Yufei (2011-2012), Zeng Xin (2004-2005), Zhen Bo (2004-2005), **Zhong Jiaxin (2019-2020)**, **Zhou Junjie (2019-2020)**, **Zhou Yanyi (2019-2020)**, Zhou Boying (2011-2012), Zhou Jingwen (2017-2018), Zhou Lingxiao (2014-2015), Zhou Luyang (2016-2017), Zhou Ruizhe (2012-2013), Zhou Yan (2018-2019), Zhou Yimin (2006-2007), Zhou Yufeng (2016-2017), **Zhu Jingjing (2019-2020)**, Zhu Chao (2010-2011), Zhu Jinjin (2016-2017), Zhu Shumin (2015-2016), Zhu Wen (2011-2012), Zhu Yawei (2017-2018), Zhu Zhiyi (2016-2017), **Zuo Xinye (2019-2020)**

## COLOMBIA:

Carlos Frias (1997-1998), Felipe Romero Vargas (2016-2017)

## ERITREA:

Gabriel Tzeggai (1996-1997)

## FRANCE:

Pascal Bobillier (2005-2006)

## GERMANY:

Vera Graefin Von Schwerin (2004-2005)

**HONG KONG:**

Chiu Chi Yeung (2005-2006), Louis Hok Man Lee (2002-2003), Lee Mo Yi (2004-2005), Sum Wing Sze (1999-2000), Phyllis Wong (2003-2004), Yu Lap Kei (1998-1999)

**INDIA:**

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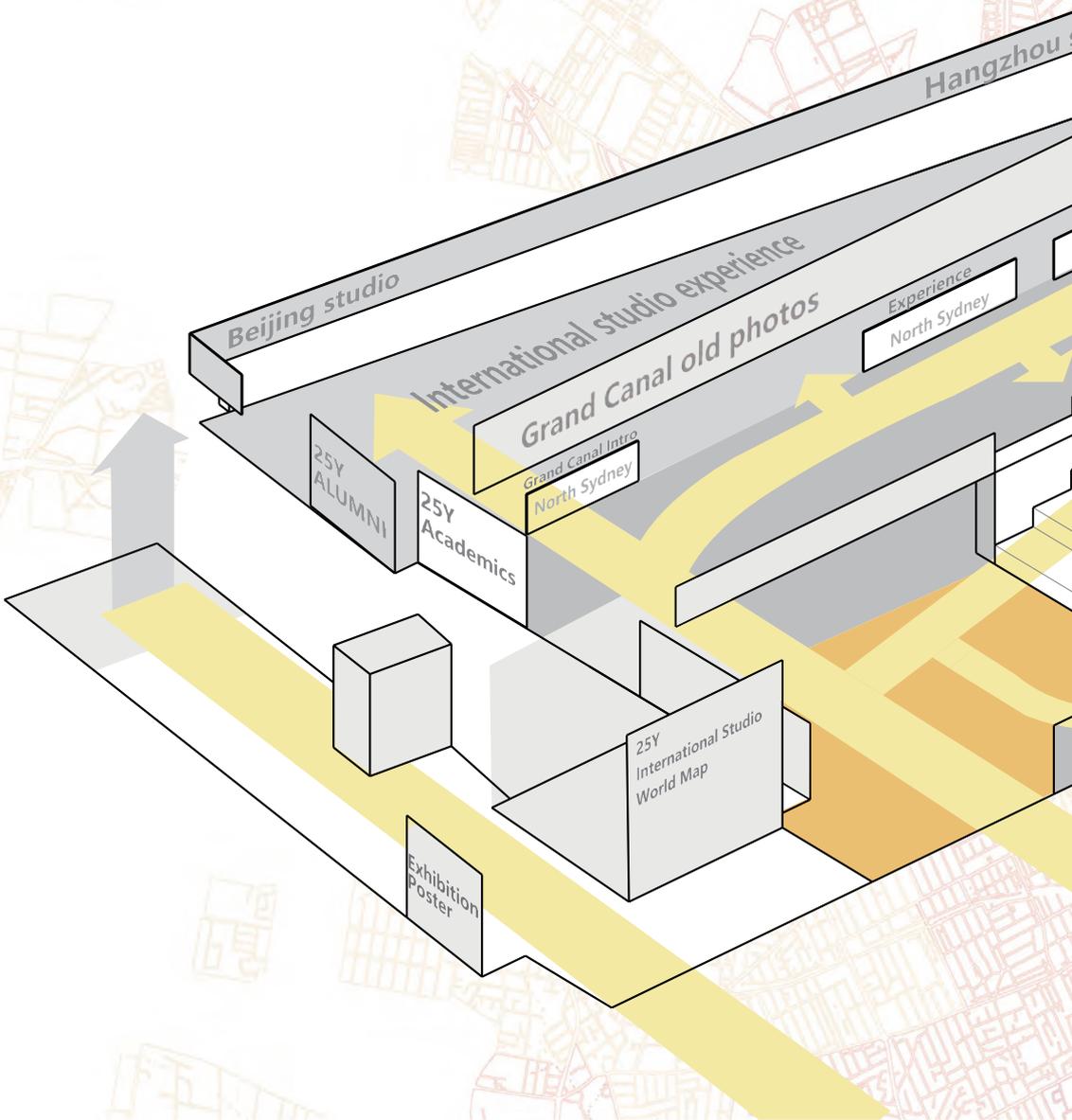
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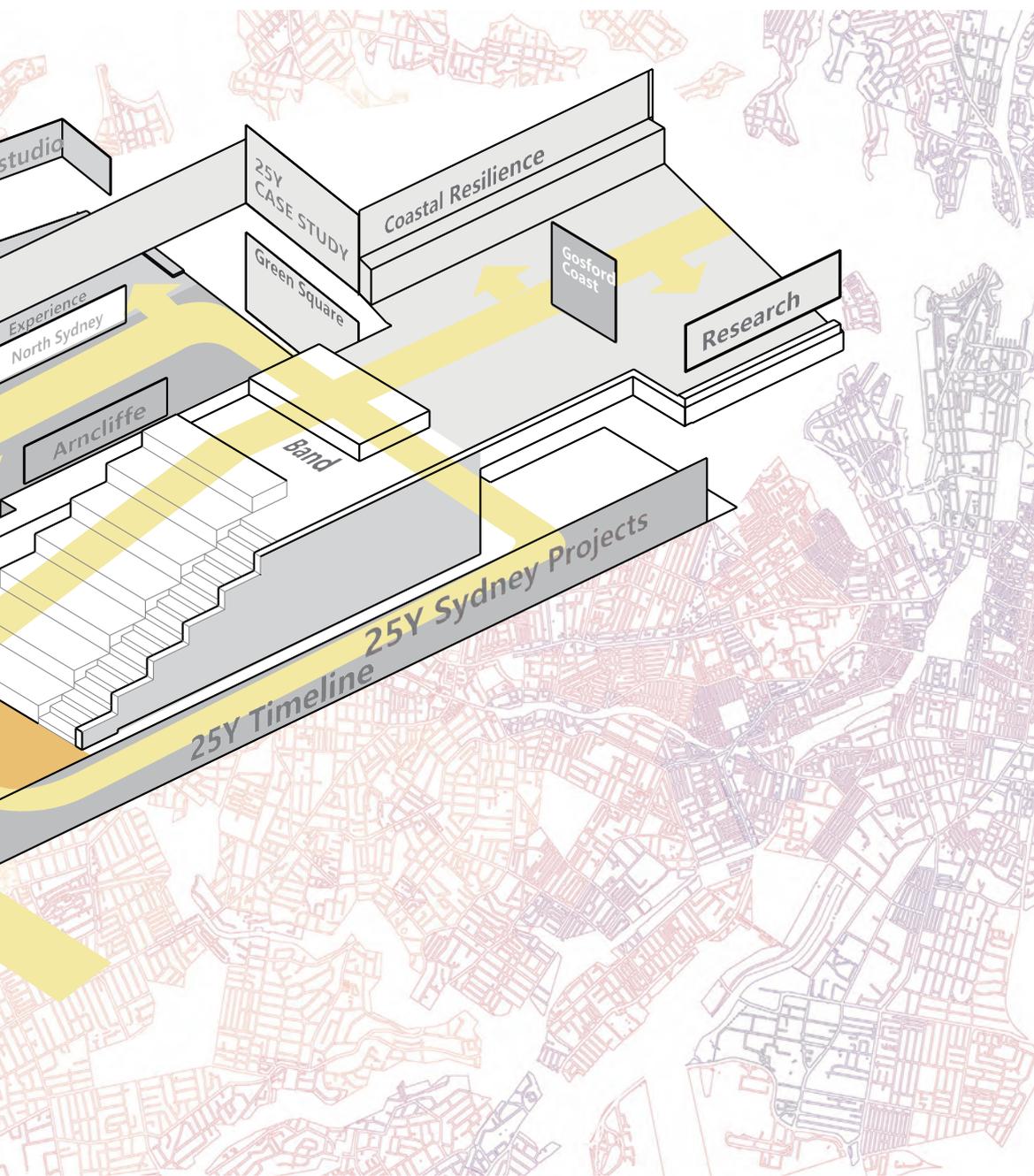
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