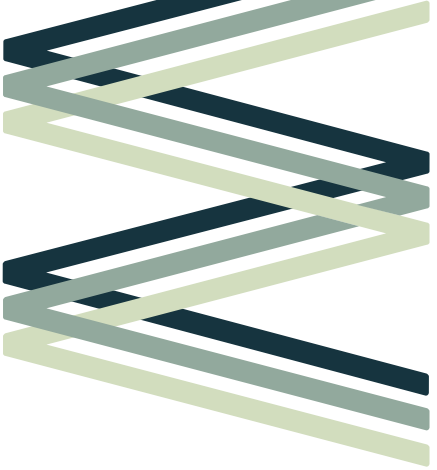


Attachment B7(i)

**Urban Design and Public Domain Study
Appendix 6 Case Studies – Waterloo Estate
(South) – Land and Housing Corporation**



WATERLOO ESTATE WATERLOO SOUTH

URBAN DESIGN & PUBLIC DOMAIN STUDY

08 APRIL 2020

APPENDICES VOLUME 2
PLANNING PROPOSAL

QUALITY ASSURANCE

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QUALITY CONTROL

This document is for discussion purposes only unless signed and dated by a Director of Turner

Reviewed by:

Karl May

28.03.2020

Dan Swzaj

20.03.2020

REPORT DETAILS

Job No

17018

Version:

Planning Proposal Submission

File Name:

17018 Waterloo South: Urban Design & Public Domain Study

Date:

08 April 2020

Client /

NSW Land & Housing Corporation

Team /

TURNER **tribe** **RD** **TRIBE** **BREATHE**
ARCHITECTURE



Fig. 0.01 Family & Culture Day, October 2015
Source: Counterpoint Community Services Facebook Page, 2018





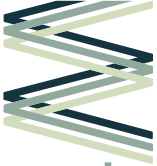
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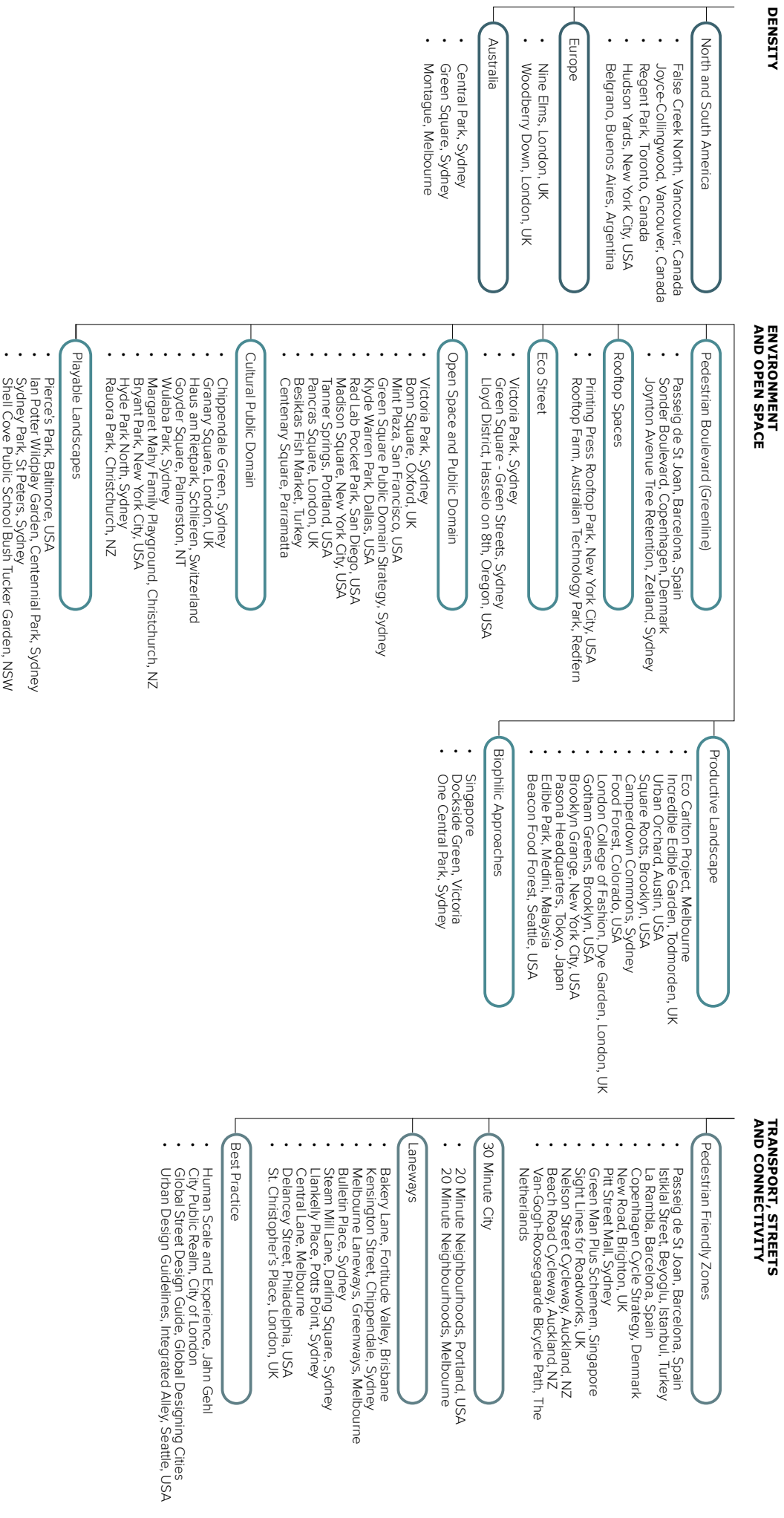
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7.6.1 CASE STUDIES



HOUSING DIVERSITY AND LIVABILITY

- Liveability
 - Vienna, Austria
- Safety
 - ACT Crime Prevention and Urban Design Resource Manual, ACT
 - Cities Safer by Design, v1.0, World Resources Institute
 - Safe Streets, Safe City, Calgary
 - CPTEd, Queensland

EMPLOYMENT, SERVICES, RETAIL, ARTS AND CULTURE

- 24/7 Activities and Experiences
 - Kings Cross Masterplan, London, UK
 - Brickbottom Artists Co-operative, Boston, USA
 - Fitzroy Community Food Centre, Melbourne
 - One Love City, Copenhagen, Denmark
- Modern Social Infrastructure
 - Idea Store, London, UK
 - East Sydney Early Learning Centre, Sydney
 - Brickbottom Artists Co-Operative, Boston, USA
 - Bromley-by-Bow Centre, London, UK
 - Public Space Booking, Helsinki, Finland
 - Library at the Dock, Melbourne
- Co-location and Vertical Mixed Use (Unexpected Connections)
 - Chophouse Row, Seattle, USA
- Education
 - South Lake Union Discovery Centre, Seattle, USA
- Cultural Precincts
 - Second Street District, Austin, USA
 - NULL, Louisville, USA
 - Distillery Historic District, Toronto, Canada
 - Wynwood Arts District, Miami, USA
 - Muru Mltitgar, Penrith
 - Arcola Theatre, London
 - Collingwood Arts Precinct, Melbourne
 - Holtzmarkt, Berlin, Germany
 - Chippendale, Sydney
- Art
 - Valparaiso Street Art Initiative, Chile
 - Malta Festival, Poznan, Poland
 - POW WOW, Worldwide
 - Walk the Streets, Sydney
 - Indigenous Portraits by Matt Andate, Australia
 - Parramatta Lanes, Sydney
 - Sydney Public Art, Sydney
 - Sydney Laneway Art Program 2009
 - Lata 65, Covilha, Portugal
 - Festa Christchurch, NZ
 - Beams Festival, Chippendale
 - Pink Street, Lisbon, Portugal
 - First Nation Dance Rites, Sydney

SUSTAINABILITY AND INFRASTRUCTURE

- Cultural Integration
 - Noarlunga Downs Wetland Trail, Adelaide
 - Standing by Tyrnminnervait and Maulbooyheener, Melbourne
 - Reconciliation Place, Canberra
 - Wellington Gateway Sculpture Upoko O Te Ika a Maui, Wellington, NZ
 - Kopuruka Park, Auckland, NZ
 - Ngatarara Place, Melbourne
 - Barrangal Dyara, Sydney
 - Gathering Circle Spirit Garden, Thunder Bay, Canada
- Resilient Infrastructure
 - Enghaveparken, Copenhagen, Denmark
 - Delta District, City of Vinde, Denmark
 - Rebuild By Design, New York City, USA
 - 111 Lincoln Rd, Miami, USA
- Flooding
 - Bentheplein Water Square, Rotterdam, The Netherlands
 - Enghaveparken, Copenhagen, Denmark
 - Copenhagen Strategic Flood Masterplan, Denmark
 - Saint Kjelds District, Copenhagen, Denmark
 - HUS-H - Harmonisation of Urban noise reduction Strategies for Homogeneous actions plans, Florence, Italy

7.6.2 DENSITY

MANAGING FUTURE GROWTH

The renewal of Waterloo South provides an opportunity to make sure that as the city gets bigger, it will also get better, through a design led approach to create a great place that embodies and reflects “density done well” principles

Sydney is growing. New housing, employment and the services and facilities that create liveable environments will be required to support the growing population. New infrastructure is currently being built to meet the increasing demand in the future, including the new Sydney Metro. These services will enable greater access to jobs and services but will need to be supported by collocated density through transit-oriented development to create a more compact city. New developments will need to be ‘great urban places’ where the people who live, work or play flourish and succeed because of the opportunities and interactions afforded by their environment.

THE BENEFITS OF DENSITY

Social Well Being and Equity



Fig. 7.6.1 'Big Yard' housing, Berlin
A Distinct Private Realm
 Places that allows people to retreat to a comfortable, private space.

Urban Efficiency and Environment



Fig. 7.6.4 Melbourne CBD
High Public Transport Usage, Low Car Usage
 Places that promote active transport modes (cycling and walking) and use of public transport through integrated land uses and transport.

Economic Agglomeration



Fig. 7.6.7 Bosco Verticale, Milan
Better Built Form
 Improves the perception and value of a place to the new community and off-sets the reduction in private space associated with increased density.



Fig. 7.6.2 'Locally Made' markets at COMMUNE in Waterloo
A Sense of Belonging
 Places that foster social relations, a sense of community and provide safe socially integrated environments.



Fig. 7.6.5 Singapore rooftop farming
Efficient Use of Land and Services
 Places with defined street edges and intensively used land uses to create the vibrancy associated with mixed use neighbourhoods.



Fig. 7.6.3 13th Street, Philadelphia
A Mixed Neighbourhood
 Places that recognise not everyone is the same and provide a range of dwelling types and sizes to allow best fit to the existing community as well as transition over time.



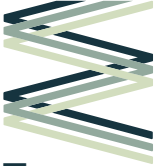
Fig. 7.6.6 Waterloo Resident in the community garden
Green Space and Environmental Quality
 Places where the open space works harder because greater amenity is needed where there's increased density, to offset the challenges and because they will be used more intensively.



Fig. 7.6.9 Tech Start Up
Connection to a Diversity Of Jobs
 Increased connectivity through embedding sustainable travel patterns from the outset for reduced car use and ownership.



Fig. 7.6.8 Residential Aged Care
A Range of Amenities
 Providing a range of services within walking distance that is curated to support the needs of the future community, including everyday needs.



PRINCIPLES FOR GOOD DENSITY OUTCOMES

Renewing Waterloo South as a 'great urban place' will require a mix that includes total design, memorable experience and good governance

TOTAL DESIGN

Everyone feels welcome
Design for diversity, equality and variety.



Fig. 7.6:10 Jewell Station pop-up event, Melbourne

MEMORABLE EXPERIENCE

Know your community
Understand the users and what they need.



Fig. 7.6:13 Aboriginal Reference Group

GOOD GOVERNANCE

Work collaboratively
Room for new partnerships and collaboration in the management of place.



Fig. 7.6:16 Bread and Butter Project
Source Fig. 7.6:15 - 7.6:24, Atup, 2018

Keep it flexible
Renewal takes time and passes through many hands.



Fig. 7.6:11 Borneo Sprenburg, Amsterdam

Start with the spaces
"First life, then spaces, then buildings"
Jan Gehl



Fig. 7.6:14 Pitt Street, Sydney

Evaluate what's working or not
and then act.



Fig. 7.6:17 Residential Aged Care

Mix it up
Allow for a range of uses, typologies, tenures and site densities.



Fig. 7.6:12 Children's Play Space

The eye level view
Density is perceived through the human scale.



Fig. 7.6:15 Melbourne Laneways

Design with management in mind
Make places affordable by design.



Fig. 7.6:18 107 Projects, Redfern

The government's commitment to ensure that any government enabled development in Sydney exemplifies high quality design and placemaking is reflected in the 'Design-led planning' approach to the renewal of Waterloo South.

The primary aim of this approach is to create great urban places informed by the factors that lead to successful high quality developments in dense urban environments, i.e. design, experience and governance.

Good things come in small packages
Successful urban environments are complex places made of simple elements.



Fig. 76.19 Chophouse Row, Seattle

Celebrate the past and the present
Respond to the unique qualities of the place.



Fig. 76.21 Bush Traders

It's as much process as outcome
Inclusive design processes engage and build trust.



Fig. 76.23 Passeig de St Joan, Barcelona

Connected green infrastructure network
Integrate biophilic design.



Fig. 76.20 Chippendale Green, Sydney

Lead with public benefits
Build trust and livability from the outset.



Fig. 76.22 Bryant Park, NYC

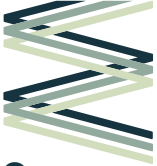
Integrate sustainability into economic decision making
To ensure long-term benefits survive value-engineering.



Fig. 76.24 Central Park, Sydney



Fig. 76.25a The High Line, New York



COMPARATIVE DENSITY CASE STUDIES - INTERNATIONAL

Comparative projects provide an understanding of the factors that lead to ‘great urban places’

REGENT PARK, TORONTO



Fig. 7.6.25 Regent Park waterplay
Source: Atup, 2018

Key Lessons:

The case studies analysed have been selected based on the following factors:

- Located in places with a similar planning system to NSW
- Located in major areas of renewal
- Were planned and/or developed in the post-modern period (prior to 1980)
- Places with access to high quality public transport
- Contain a large proportion of social housing
- Proximity to city centres (jobs, services)
- Do not have high amenity (i.e. waterfront), where possible

Each case study was analysed using several metrics in order to understand density in different contexts. Each case study was also subject to a qualitative analysis using the three good density outcomes:

Total Design

The open space typologies, dominant built form and common building typologies used.

A Memorable Experience

How the street level experience feels and looks like for users.

Good Governance

The key aspects of delivery and management.

FALSE CREEK NORTH, VANCOUVER



Fig. 7.6.26 False Creek North open space
Source: Atup, 2018

Key Lessons:

Social Housing with a Right to Return
The delivery of social facilities in the first stage has enabled the master plan to flexibly adapt to deliver this promised right to return.

Keep It Flexible: Lead With Public Benefits
Designing without sufficient community engagement and goodwill resulted in significant ire from the local community despite the intent to deliver a mixed-tenure community from the outset.

Incremental Urbanism
Vancouver’s regeneration and densification success has been built up through a series of stages, each learning from the last, over the last 30 years.

Good Things Come In Small Parcels
False Creek North exemplifies incremental urbanism. While Concord Pacific Place was delivered by one developer in one project, the area and the adjacent South East False Creek and North East False Creek are undergoing revitalization little by little.

Mix It Up
False Creek North is a predominantly residential area. Passive frontages are common throughout the precinct, while activated frontages are concentrated on the intersection of two major roads that divide the area. The waterfront promenade has some activation, however the frontage is mostly passive, providing a peaceful and quiet area for recreation.

The Eye Level View
The slim residential towers, podium-level courtyards, and human-scaled street walls result in a built environment that is sensitive to the eye level view.

JOYCE COLLINGWOOD, VANCOUVER



Fig. 7.6.27 Joyce Collingwood public transport
Source: Atup, 2018

Key Lessons:

Keep It Flexible
During the engagement process, a key insight that emerged was the need for higher densities closer to the train station. This idea came from the community, who were vocal about their support for higher densities closer to transport.

Know Your Community
The community living in and around Joyce-Collingwood are multicultural and diverse and the engagement process reflected this. Brochures and questionnaires were handed out in both English and Mandarin in order to reach the wider community.

Work Collaboratively

The City of Vancouver led the original planning strategy, in collaboration with the Vancouver Land Corporation.

BELGRANO, ARGENTINA

Fig. 7.6.28 Belgrano open space
Source: Arup, 2018

Key Lessons:**High Density, High Amenity**

The eye level view in Belgrano is characterised by high-rise towers coupled with open space and tree-lined streets. The lush greenery of city parks and tree-lined streets help to temper the intensity of the built form.

Fine Grain Uses

Belgrano exemplifies concentrated fine grain development of blocks with little open space. This pattern can be seen in the neighbourhood, which at 350 dwellings / Ha is more than twice the average density of the city (94 dwellings / Ha) as its open space entirely consists of streets.

HUDSON YARDS, NEW YORK

Fig. 7.6.29 Hudsons Yard gardens
Source: Arup, 2018

Key Lessons:**(Even More) Transit Oriented**

To support the very high densities proposed, an additional metro line is being built, though the site already has good connectivity, a linear park borders the High Line and Hudson Bay River Park, and a mandated land use mix.

Mix it Up

As density rises to its limits of 'success', the offering must be intensified, including transport, open space, mix of uses. Schools, community facilities and an expanded exhibition centre area all planned as part of the larger area redevelopment. Ground level activation in Hudson Yards will be focused in the central pavilion in the Eastern Rail yard. There will also be a retail pavilion in the open space in the Eastern Rail Yard.

Connected Green Infrastructure Network

The precinct will have a connected green infrastructure network that links up the open spaces within Hudson Yards to the High Line, an important pedestrian walkway in the area.

Integrate Sustainability into Economic Decision-Making

Hudson Yards will have on-site power generation and monitoring, as well as a 230,000 litre tank where stormwater will be stored and used for irrigation. Cooling is a particular concern for the precinct, due to the heat produced from the train station. There is a network of tubing in slab to circulate cooling liquids that protect plant roots from heat generated by trains.

NINE ELMS, LONDON

Fig. 7.6.30 Nine Elms public space
Source: Arup, 2018

Key Lessons:**Design for All Modes**

The redevelopment of Nine Elms is not just being led by one new transport mode, the Northern Line Extension, but also a Cycle Strategy for Nine Elms on the Southbank, a major linear park that permits walking and cycling, the Thames Path, bus services and existing rail links at Battersea.

Mix It Up: Connected Green Infrastructure Network

The Linear Park goes through the whole site and serves as a focal point for the various developments within Nine Elms. Active frontages are commonly located on the corners of buildings that face the Linear Park; however, there are buildings that directly face the Park with passive frontages. The concentration of activation on building corners creates an interface between buildings of different developments.

Lead With Public Benefits

Key public domain contributions will be provided among the first phases of development. The Linear Park is a major factor in all of the developments in Nine Elms and a key public benefit for the whole precinct.

Work Collaboratively

The Nine Elms Vauxhall Partnership is responsible for delivering the strategic vision. The Partnership is co-chaired by the leaders of Wandsworth and Lambeth Council and includes developers, the Mayor of London, Transport for London and the Greater London Authority.

WOODBERRY DOWN, LONDON

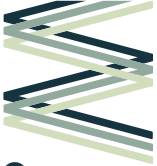
Fig. 7.6.31 Woodberry Down open space
Source: Arup, 2018

Key Lessons:**Start with the Spaces**

The masterplan reflects a careful framing of spaces to which the built form responds, with the effect of changing the character of the place.

The Eye Level View

The placement of the towers that act as gateway elements, and the layering of mid-rise buildings to reduce the perceived density of the towers, allow the site to assume a neighbourhood character despite densification.



COMPARATIVE DENSITY CASE STUDIES - INTERNATIONAL



Fig. 7.6.32
Source: Arup, 2018



Comparative size of Waterloo South

① REGENT PARK, TORONTO



Fig. 7.6.33 Footprint comparison, Regent Park
Source: Arup, 2018

SITE AREA 31.4 Ha Gross Site Area, 24.3 Ha Developable Site Area

NO. OF DWELLINGS 7,365 dwellings

SOCIAL and AFFORDABLE HOUSING 2,002 dwellings (27%)

DWELLING DENSITY 235 dwellings / hectare

POPULATION DENSITY 541 people / hectare

EMPLOYMENT DENSITY 35 workers / hectare

PUBLIC OPEN SPACE 15%

FLOOR SPACE RATIO (FSR) FSR 3.05 : 1, 35% site coverage, 958,071m² GFA

LAND USE 88% Residential : 8% Retail : 4% Other

BUILDING HEIGHT 32 storeys

TRANSPORT CONNECTIVITY 2 light rail lines
Planned expansion of existing road network
0.83 car spaces / dwelling

② FALSE CREEK NORTH, VANCOUVER



Fig. 7.6.34 Footprint comparison, False Creek North
Source: Arup, 2018

SITE AREA 98.8 Ha Gross Site Area, 50.7 Ha Developable Site Area

NO. OF DWELLINGS 9,843 dwellings

SOCIAL and AFFORDABLE HOUSING 1,380 dwellings (14%)

DWELLING DENSITY 104 dwellings / hectare

POPULATION DENSITY 212 people / hectare

EMPLOYMENT DENSITY 70 workers / hectare

PUBLIC OPEN SPACE 17%

FLOOR SPACE RATIO (FSR) FSR 1.2 : 1, 35% site coverage, 1,133,687m² GFA

LAND USE 81% Residential : 13% Commercial : 5% Retail : 1% Other

BUILDING HEIGHT 32 storeys

TRANSPORT CONNECTIVITY 1 rail station (56% residents use public transport)
2,400 bicycle spaces
1.04 car spaces / dwelling

③ JOYCE COLLINGWOOD, VANCOUVER



Fig. 7.6.35 Footprint comparison, Joyce Collingwood
Source: Arup, 2018

SITE AREA 29.04 Ha Gross Site Area, 22.30 Ha Developable Site Area

NO. OF DWELLINGS 6,350 dwellings

SOCIAL and AFFORDABLE HOUSING 1,520 dwellings (24%)

DWELLING DENSITY 219 dwellings / hectare

POPULATION DENSITY 316 people / hectare

EMPLOYMENT DENSITY 2 workers / hectare

PUBLIC OPEN SPACE 10%

FLOOR SPACE RATIO (FSR) FSR 0.74 : 1, 25% site coverage, 2,13,838m² GFA

LAND USE 99% Residential : 1% Retail

BUILDING HEIGHT 25 storeys

TRANSPORT CONNECTIVITY 1 skytrain station (55% residents use public transport)
5 bus routes
0.94 car spaces / dwelling

④ BELGRANO, ARGENTINA



Fig. 7.6.36 Footprint comparison, Belgrano
Source: Arup, 2018

26.4 Ha Gross Site Area, 20.4 Ha Developable Site Area	9,247 dwellings	-	350 dwellings / hectare	1,493 people / hectare	Figures not available	23%
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FSR 3.84 : 1.59% site coverage, 1,012,833m² GFA
54% Residential : 45% Mixed-use : 1% Other
26 storeys
Metro line runs through Belgrano
Access to 2 commuter rail lines

⑤ HUDSON YARDS, NEW YORK



Fig. 7.6.37 Footprint comparison, Hudson Yards
Source: Arup, 2018

69.8 Ha Gross Site Area, 40.8 Ha Developable Site Area	13,346 dwellings	2,669 dwellings (20%)	191 dwellings / hectare	219 people / hectare	799 workers / hectare	6%
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FSR 2.21 : 1.14% site coverage, 1,539,285m² GFA
50% Commercial : 36% Residential : 5% Mixed-use : 10% Other
101 storeys
1 rail station
New subway extension opened in 2015
Gateway Tunnel will support new tracks in the future

⑥ NINE ELMS, LONDON



Fig. 7.6.38 Nine Elms Footprint comparison,
Source: Arup, 2018

61.0 Ha Gross Site Area, 46.1 Ha Developable Site Area	13,207 dwellings	1,940 dwellings (15%)	263 dwellings / hectare	631 people / hectare	968 workers / hectare	10% (excludes waterfront)
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FSR 4.88 : 1.35% site coverage, 2,450,234m² GFA
55% Residential : 20% Other : 14% Commercial : 11% Retail
58 storeys
New bus, tube and rail interchange and pedestrian and cycle network
0.75 car spaces / dwelling

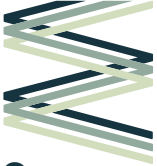
⑦ WOODBERRY DOWN, LONDON



Fig. 7.6.39 Footprint comparison, Woodberry Down
Source: Arup, 2018

52.5 Ha Gross Site Area, 20.3 Ha Developable Site Area	5,557 dwellings	2,265 dwellings (41%)	166 dwellings / hectare	459 people / hectare	20 workers / hectare	16%
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FSR 1.41 : 1.37% site coverage, 472,589m² GFA
96% Residential : 2% Commercial and Retail : 2% Other
31 storeys
Underground station at edge of site
Key bus routes through the site
0.37 car spaces / dwelling



COMPARATIVE DENSITY CASE STUDIES - LOCAL

Comparative local projects provide an understanding of the factors that lead to ‘great urban places’ within Australia

CENTRAL PARK, SYDNEY



Fig. 76.40 Revitalised Spice Alley
Source: Arup, 2018

Key Lessons:

Good Things Come In Small Parcels

The success of Central Park can be attributed to the various elements that come together and work with one another. The distinct architecture, use of green elements, provision of open space and of areas of activity create a vibrant mixed-use precinct.

Connected Green Infrastructure Network

The Chippendale Green is a key feature of Central Park and is connected to the rest of the public domain through landscape elements.

Celebrate Stories of the Past and Present

The adaptive reuse of heritage items such as the Australia Hotel and Carlton Brewery lend a cultural richness to the site. This effect is further promoted by the terrace-style architecture in Kensington Street and the incorporation of the art-deco Old Clare Hotel.

Work Collaboratively

During the design development process, the Chippendale Residents Interest Group expressed concern over the orientation of the Chippendale Green. The original orientation of the park would run north to south on the site; however, after consultation with the community, the orientation was changed from east to west in order to open the park to the wider area.

Integrate Sustainability into Economic Decision Making

Central Park has its own on-site tri-generation power plant and water recycling plant. The aim of the development is to achieve a 5 Green Star rating for each building. Each building on site has a smart-metering system.

GREEN SQUARE TOWN CENTRE, SYDNEY



Fig. 76.41 Aerial image of Green Square development
Source: Arup, 2018

Key Lessons:

Start with the Spaces

The early commitment to providing and delivering community infrastructure facilities is a highlight in the planning process of the Town Centre. These facilities, along with open spaces, will be delivered in the first phases of development.

Mix it Up

The City of Sydney has sought to maintain and improve the provision of services and infrastructure, even as residential development increases around the area. The City of Sydney has acknowledged the need to prepare to address the needs of future residents by retaining a mix of uses, especially industrial, mixed business and services.

Lead with Public Benefits

The early commitment to providing community facilities and public domain contributions allowed the relevant authorities to promote the benefits of the renewal to existing residents and avoid community resistance to the project.

Integrate Sustainability into Economic Decision-Making

Integrated sustainability initiatives such as a new stormwater treatment and management scheme, the development of a “private wire” system and installation of photovoltaic panels on buildings in the development.

It’s as Much Process as Outcome

There are regular updates to the planning and development process of the Town Centre and the larger renewal area on the City of Sydney website and newsletters distributed to local residents and community groups. A community and cultural precinct site tour was conducted in order to show progress on the developments in the Town Centre.

MONTAGUE, MELBOURNE



Fig. 76.42 Massing vision of Montague, Melbourne
Source: Arup, 2018

Key Lessons:

Keep it Flexible

The Montague Structure Plan sets out the strategic framework for the future of Montague. However, the Plan allows room for flexibility, rather than setting strict and prescriptive requirements.

Mix it up

The precinct will be home to a mix of uses. Business uses are further categorised into traditional office uses, creative cluster uses and other business uses.

The eye level view

The Structure Plan sets out a plan that will maintain a street wall of five storeys throughout the precinct in order to maintain a built form that is sensitive to the eye level view.

Work collaboratively

The planning is led by the Fishermans Bend Taskforce, and will be done in collaboration with government agencies such as the Department of Environment Land, Water and Planning, as well as the Cities of Port Phillip and Melbourne. Integrate sustainability into economic decision-making The Structure Plan sets out the ambition for Montague to be a fully integrated sustainable precinct.

The case studies analysed have been selected based on the following factors:

- Proximity to city centres (jobs, services)
- Were planned and/or developed in the post-modern period (prior to 1980)
- Places with access to high quality public transport

Each case study was analysed using several metrics in order to understand density in different contexts. Each case study was also subject to a qualitative analysis using the three good density outcomes:

Total Design

The open space typologies, dominant built form and common building typologies used.

A Memorable Experience

How the street level experience feels and looks like for users.

Good Governance

The key aspects of delivery and management.

COMPARATIVE DENSITY CASE STUDIES - LOCAL



Comparative size of Waterloo South

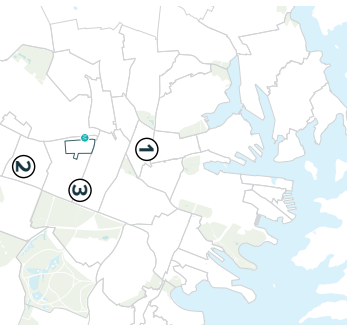


Fig. 76.43 Source: Arup, 2018



Fig. 76.44 Footprint comparison, Central Park Source: Arup, 2018



Fig. 76.45 Footprint comparison, Green Square Source: Arup, 2018



Fig. 4.6.46 Footprint comparison, Crown Square Source: Arup, 2018

① CENTRAL PARK, SYDNEY

② GREEN SQUARE TOWN CENTRE, SYDNEY

③ CROWN SQUARE, SYDNEY

SITE AREA 6.20 Ha Gross Site Area, 4.90 Ha Developable Site Area 13.74 Ha Gross Site Area, 11.20 Ha Developable Site Area 50.0 Ha Gross Site Area, 36.5 Ha Developable Site Area

NO. OF DWELLINGS 2,200 dwellings 3,308 dwellings 13,412 dwellings

SOCIAL AND AFFORDABLE HOUSING - 104 dwellings (3%) 2,682 dwellings (20%)

DWELLING DENSITY 353 dwellings / hectare 241 dwellings / hectare 268 dwellings / hectare

POPULATION DENSITY 673 people / hectare 469 people / hectare 510 people / hectare

EMPLOYMENT DENSITY 280 workers / hectare 553 workers / hectare 284 workers / hectare

PUBLIC OPEN SPACE 21% (includes publicly accessible private open space) 16% 10%

FLOOR SPACE RATIO (FSR) FSR 3.91 : 1, 47% site coverage, 243,784 m² GFA FSR 3.57 : 1, 34% site coverage, 490,560 m² GFA FSR 2.41 : 1, 55% site coverage, 1,207,503m² GFA

LAND USE 48% Residential : 45% Commercial : 7% Retail 67% Residential : 29% Commercial : 3% Retail : 1% Other 80% Residential : 20% Mixed-use

BUILDING HEIGHT 34 storeys 28 storeys Figures not available

TRANSPORT CONNECTIVITY 650m from Central Station and Major Bus Interchange 0.8 car spaces / dwelling (includes car share) Green Square Station (nearly over capacity) New bus routes being investigated New cycle route to be provided 1 light rail stop Future integrated transport strategy includes an underground rail line, improved tram and bus connections and waterfloodways



COMPARATIVE DENSITY CASE STUDIES - BY SIMILAR SITE AREA

	WATERLOO AND ZETLAND	CHIPPENDALE, REDFERN AND ULTIMO	DARLINGHURST, POTTS POINT, KINGS CROSS, RUSHCUTTER BAY AND ELIZABETH BAY	DARLINGTON, CHIPPENDALE AND REDFERN
SITE AREA	195 Ha	219 Ha	189 Ha	201 Ha
POPULATION	27,905 people (existing) 48,235 people (future)	34,295 people (existing) 50,254 people (future)	31,674 people (existing) 46,413 people (future)	27,901 people (existing) 40,884 people (future)
POPULATION DENSITY (Residential)	143 people / hectare (existing) 247 people / hectare (future)	157 people / hectare (existing) 230 people / hectare (future)	168 people / hectare (existing) 246 people / hectare (future)	139 people / hectare (existing) 203 people / hectare (future)
Legend	<ul style="list-style-type: none"> Waterloo Estate Green Square Central Park 			
	<p>Fig. 4.6.47 District comparison, Waterloo and Zetland</p>	<p>Fig. 4.6.48 District comparison, Chippendale, Redfern and Ultimo</p>	<p>Fig. 4.6.49 District comparison, Darlinghurst, Potts Point, Kings Cross, Rushcutter Bay and Elizabeth Bay</p>	<p>Fig. 4.6.50 District comparison, Darlington, Chippendale and Redfern</p>

COMPARATIVE DENSITY CASE STUDIES - BY PROJECT

① CITY QUARTER, CAMPERDOWN

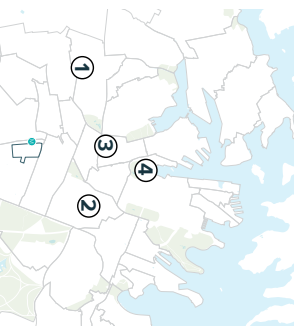


Fig. 4.6.51



Fig. 4.6.52 Project comparison, City Quarter
Source: Googlemaps, 2019

② ST MARGARET'S, SURRY HILLS



Fig. 4.6.54 Project comparison, St Margaret's
Source: Googlemaps, 2019

③ QUADRANT, BROADWAY



Fig. 4.6.56 Project comparison, Quadrant
Source: Googlemaps, 2019

④ DARLING SQUARE, SYDNEY



Fig. 4.6.60 Project comparison, Darling Square
Source: Googlemaps, 2019

	①	②	③	④
SITE AREA	5.6 Ha Developable Site Area	0.75 Ha Developable Site Area	1.0 Ha Developable Site Area	3.77 Ha Developable Site Area
NO. OF DWELLINGS	1,041 dwellings	216 dwellings	297 dwellings	1,893 dwellings
DWELLING DENSITY	186 dwellings / hectare	288 dwellings / hectare	297 dwellings / hectare	502 dwellings / hectare
POPULATION DENSITY	353 people / hectare	547 people / hectare	698 people / hectare	1228 people / hectare
EMPLOYMENT DENSITY	20 workers / hectare	123 workers / hectare	400 workers / hectare	289 workers / hectare
FLOOR SPACE RATIO (FSR)	FSR 1.51 : 1, 84,560 m ² GFA	FSR 3.18 : 1, 23,881 m ² GFA	FSR 3.5 : 1, 35,000 m ² GFA	FSR 5.23 : 1, 197,236 m ² GFA
LAND USE	96% Residential / 4% Commercial / Retail	88% Residential / 12% Commercial / Retail	66% Residential / 34% Commercial / Retail	83% Residential / 17% Commercial / Retail



Fig. 4.6.53 City Quarter Development
Source: Cox, 2016



Fig. 4.6.55 St Margaret's Development
Source: Cox, 2016



Fig. 4.6.57 Quadrant Development
Source: Cox, 2016

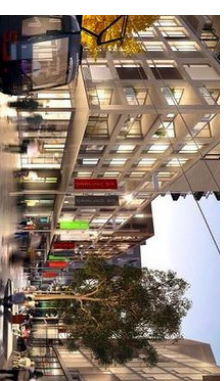


Fig. 4.6.61 Darling Square Development
Source: Cox, 2016

7.6.3 ENVIRONMENT AND OPEN SPACE

Pedestrian Boulevard (Greenline)

Eco Street

Open Spaces and Public Domain

Cultural Public Domain

Biophilic Approaches

Edible Parks

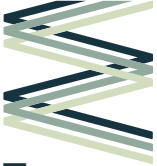
Playable Landscape

Rooftop Spaces

Productive Landscape

As the world continues to rapidly urbanise, cities now more than ever are integrating natural capital into the built environment to deliver more resilient infrastructure and improve people's connection to nature

From urban agriculture and bio-filtration swales to vegetative roofs and walls, 'greening' our cities has become a defining element in 21st century urban design. Led by cities like Singapore with its 'City in a Garden' concept, greening our urban environments and re-introducing ecosystem services back into our urban cores has become a primary solution to addressing the impacts of climate change, and improving the health and wellbeing of urban residents, and Waterloo is poised to deliver world-class environment and open space outcomes.



PEDESTRIAN BOULEVARD (GREENLINE)

A heavily vegetated pedestrianised street or boulevard with very high percentage of tree canopy and landscaped ground cover

PASSEIG DE ST JOAN, BARCELONA, SPAIN



Fig. 7.6.62 Social spaces along a key pedestrian route
Source: Meticulous Magazine

Promotes the street as a sustainable urban open space, with tree plantings to create natural shade, and introduces native species to increase biodiversity.

Adopting multi-use open spaces along the pedestrian prioritised street as a new urban green zone that activities building frontages and neighbourhoods.

Vehicle carriageway has been reduced from 25m to 16.5m giving 8.5m back to public domain and streetscape.

SONDER BOULEVARD, COPENHAGEN, DENMARK

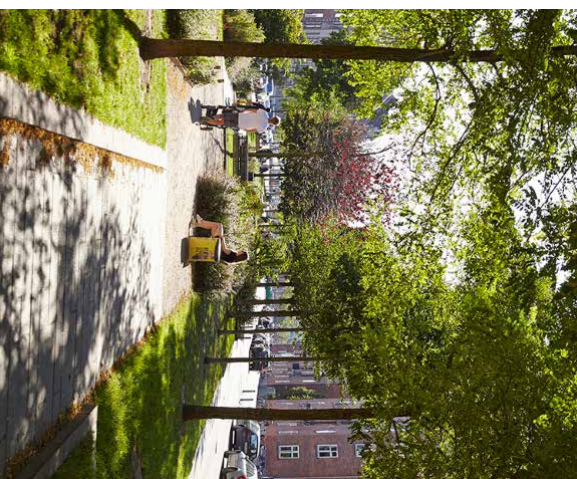


Fig. 7.6.63 Varied vegetation softens the urban landscape
Source: SLA

Programmed spaces are enhanced by being distributed among less programmed spaces and through dispersal of people, sound and congestion on site.

Attracts event holders by including power outlets along the boulevard. Canopy coverage is important in making the active and gathering spaces comfortable during warmer days. Linear parks can have practical and variable functions, despite typically being smaller in width. Provides flexible spaces that respond to local needs and wants of open space.

The immediate roadways have been narrowed from two lanes to one. 17m of road has been given back to the public domain (central boulevard).

JOYNTON AVENUE TREE RETENTION, SYDNEY, AUSTRALIA



Fig. 7.6.64 Natural shading from mature trees
Source: City of Sydney

Maintaining significant existing trees within the public domain as Victoria Park's future green urban setting. A 36m wide tree lined boulevard is created.

The urban heat island effect is lowered through the shade provided by the existing fig trees and new planting, as well as the soft landscaping of the bio-swale systems.

The future George Street Pedestrian Boulevard will create a comfortable, safe and enjoyable pedestrian-only boulevard that traverses through the entire precinct creating a highly walkable central spine for commerce, food and recreational activity.

ECO STREET

A multi-functional street for urban mobility which includes green infrastructure elements such as bio-filtration swales, rain gardens, and high tree canopy cover to naturally manage and treat urban storm water flows

Waterloo is prone to flooding during heavy storm events. Eco Streets use nature to store and treat storm water flows creating a beautiful, safe and resilient public domain.

VICTORIA PARK, ZETLAND, AUSTRALIA



Fig. 7.6.65 Integrated bio-drainage
Source: Architecture Au

Conventional kerb gutter drainage system is inverted so that dual carriageways drain inwards from the footpath edge, to a saw tooth permeable kerb, then to a bio-remediation swale located in the median

Water flows into the swales and is filtered by sand beds, grasses and groundcovers. Plantings selected are drought and flood tolerant, assisting in the uptake of nitrogenous wastes, and creating a root mat to keep sand filters free draining. Swale systems are designed to treat first flush stormwater, whilst the excess of a one-in-five-year event is captured by a system of weirs and inlets set beneath pedestrian bridges.

GREEN SQUARE - GREEN STREETS, SYDNEY, AUSTRALIA



Fig. 7.6.66 Dedicated cycle-ways promote active transport
Source: SydneyCycleWays.net

Green streets in Green Square are designed with key considerations of WSUD and active transport methods

Dedicated cycle ways, planting and furniture buffers, bike parking facilities and WSUD initiatives are guiding design principles. Contributes to CoS target of 50% increased canopy coverage over a 20 year period.

LLOYD DISTRICT, HASSELO ON 8TH, PORTLAND, USA

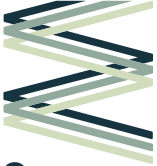


Fig. 7.6.67 Street furniture and planting
Source: ReCodeNow.org

A small mixed-conifer forest woven into the urban infrastructure

Additional open space and habitat connectivity through a 1 acre public park, green streets and bio-swales. Off-site habitat mitigation in the adjacent Sullivan's Gulch area. 60% of water is conserved, and 100% of non-potable water supplied, through the use of highly efficient fixtures, blackwater treatment and rainwater harvesting. All stormwater is treated in public space through bio-swales at each street intersection.

Hasselo on Eighth sets a benchmark for urban water systems, using ecologically passive treatment for grey, black and storm water in the public domain, and reintroduction of ecosystem services into the urban core of Portland.



OPEN SPACE AND PUBLIC DOMAIN

Urban environments such as streets, parks and sidewalks that are publicly accessible and typically maintained by local government authorities such as a Council

TANNER SPRINGS, PORTLAND, USA



Fig. 76.68 Using landscape and design to articulate heritage
Source: Ramboll

Site includes important references to the previous heritage and form

There is integration between nature and movement, with the wetlands serving as an important visual and practical feature for the site. WSUD does not have to be duplicated; it can work as a feature within the site, combined with public art and boardwalks.

Achieves 260m³ retention within 0.48ha site.

PANCRAS SQUARE, LONDON, UK

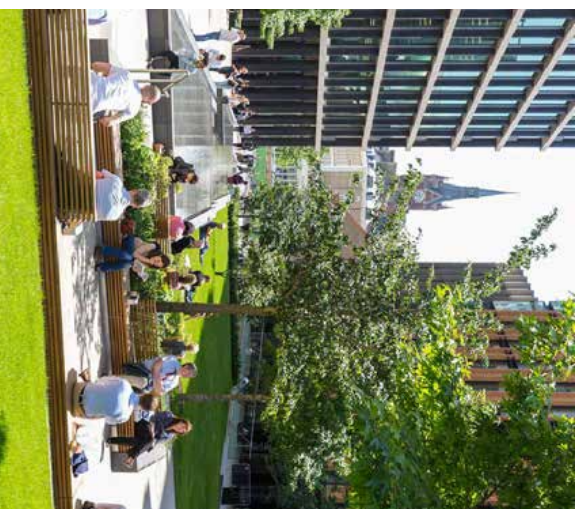


Fig. 76.69 A mix of landscaping creates interest and relief
Source: Townsend Landscape Architects

Designed as an 'outdoor room' to provide respite from the surrounding city with areas of lawn, planting and cascading water features

A variety of tree species introduce scale and filter views. Seating is located on the edges of water features and lawn areas. Spatial arrangement of elements designed to frame principal views.

VICTORIA PARK, SYDNEY, AUSTRALIA



Fig. 76.70 Using public space for performance and ceremony
Source: Sydney.com Destination NSW

The park combines free programs, and greenspace with shade amenity, with choreographed spaces (playgrounds, dog parks, event space)

Community events take place throughout the year, many of which celebrate indigenous cultures (Yabun Festival). Upgrades to the park saw new bio-retention zones and wetlands to filter and clean stormwater runoff before it enters the lake. WSUD increases biodiversity, offers visual softening and improves general ecological conditions relative to without.

GREEN SQUARE PUBLIC DOMAIN STRATEGY, SYDNEY, AUSTRALIA



Fig. 7.6.71 Integrating civic uses as space and urban anchors
Source: City of Sydney

Green Square Urban Renewal Project aims for a more sustainable and functional city

Green Square covers 278ha of Sydney's oldest industrial landscape. The vision for the project is guided by the City of Sydney's Sustainable Sydney 2030 Vision. Community facilities are developed in alignment with public open space. This arrangement increases program and activation across both areas. Public domain strategy is designed to support pedestrian activity.

It incorporates a 40km/hr town centre speed limit. Understorey planting is 100% native flora to secure endemic ecosystems. Stretch targets are set to supply 100% of non-potable water to Green Square Town Centre from non-mains sources.

KLYDE WARREN PARK, DALLAS, USA



Fig. 7.6.72 Open space active with all age groups
Source: Office of James Burnett

Combining both passive and active spaces within a single park to offer a selection of activities for the wide range of users

Parkland does not come at the expense of functional connectivity. These corridors are well considered for both the immediate park passage and the passage between park and context. Connectivity to public transport is important, with the major attractions within walking distance and easily recognised from all locations.

RAD LAB POCKET PARK, SAN DIEGO, USA



Fig. 7.6.73 Pocket park activation for local communities
Source: Rad Lab

Creating various uses, that people have been seeking, in the vacant spaces, in order to bring Waterloo South alive and create a unique 'urban room'

Variety of sizes, purposes and users: understanding different needs and demands from all ages to encourage social interaction and engagement. Successful community consultation to create more community based space.

MADISON SQUARE, NEW YORK, USA

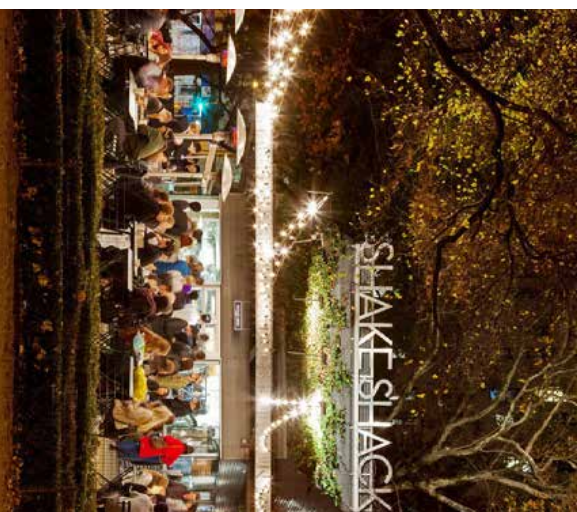
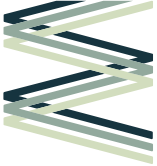


Fig. 7.8.74 Dispersed activation promoting new businesses
Source: Matthew Gindlesperger

Madison Square Park is a single large destination that reduces the 'overwhelming' space sensations by introducing a selection of activation means, with consideration of all times and seasons

There is a functional and appropriate balance between commercial space and public space, with each space extending the use of the other, in both time occupied and purpose for occupation.

Excellent benchmark for passive recreation and food and beverage offering (e.g. the first shake shack started here and is now a global chain).



MINT PLAZA, SAN FRANCISCO, USA



Fig. 76.75
Source: Friends of Mint Plaza

The plaza is considered as being foremost a community gathering spot, with greenspace accompanying a series of café breakout spaces, seating and shade

The plaza is host to daily food trucks and a flower cart. Live music, art events and dance festivals are common place and it has become a popular lunch time retreat for local workers.

BONN SQUARE, OXFORD, UK



Fig. 76.76
Source: Groeme Massie Architects

Bonn Square is a quadrangle that is regularly inhabited by university staff and students from the surrounding region

A single pavement condition defines the square from its context and is intended to wear away with the regular foot traffic. Planting species have been chosen for seasonal variation, providing shade in summer and sunlight in winter. It has since become a flexible civic space for informal civic events.

CENTENARY SQUARE, PARRAMATTA, AUSTRALIA



Fig. 76.77
Source: Landzine.com

The civic space between Parramatta Westfield, Church Street and Parramatta Station was redeveloped in 2014 to accommodate a growing population

The space is now able to host smokers, festivals, water play, rest and leisure, and serve as a key transit corridor towards the station. Large trees and permanent shelters are scattered across the square to provide ample shade to those visiting, especially during the warmer months. The water play is surrounded by considered seating arrangements to allow for passive surveillance during its use. A large shaded lawn space offers a soft scape alternative to lunch time users.

BESIKTAS FISH MARKET, ISTANBUL, TURKEY



Fig. 76.78
Source: GAD Architecture

The construction of the Besiktas Fish Market Pavilion was an effort by the community of Besiktas to revive their neighbourhood

The small, triangular plaza had been used for generations to sell fresh fish to the local people, however had suffered with a lack of atmosphere over the years. The Pavilion has no columns, making it permeable from the surrounding shops and laneways. It's now regularly bustling with locals and visitors throughout the day.

CULTURAL PUBLIC DOMAIN

Urban environments that incorporate locally sourced and culturally-influenced design features such as architecture, art, naming conventions, events and activities that express the cultural heritage and evolution of a place

GRANARY SQUARE, LONDON, UK



Fig. 7.6.79

Source: Townshend Landscape Architects

Public space at the heart of the site, that has become a new destination for London, playing host to cultural activities and music festivals including Traction, Africa Express and an ice cream festival. An event space features a large screen for major sporting events such as the Olympics and Rugby World Cup

Water features reflect the historic canal basin and can be programmed so that movement can be created across the square and, temporary spaces and routes can be formed as required making the space flexible and adjustable to any event or day to day activity. There is space for 2000 people in the main square.

HAUS AM RIETPARK, ZURICH, SWITZERLAND



Fig. 7.6.80

Source: Atelier WW

A new, dynamic quarter right next to the Schlieren train station. Development offers 125,000m² of surface area

Precinct drivers are: living, shopping, enjoying, working, walking. This is a great precedent for equitable public space and cultural/retail offering inclusive of a food co-op. A 600 meter long park as the green heart.

WULABA PARK, SYDNEY, AUSTRALIA

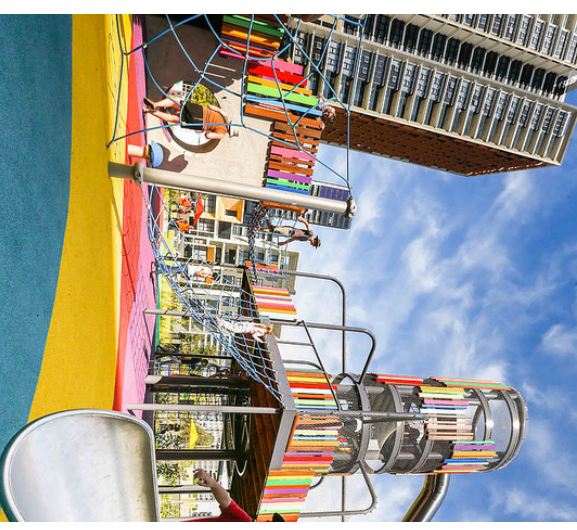


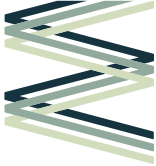
Fig. 7.6.81

Source: City of Sydney

Integrates public art by Sydney artist Nuha Saad to create recreation opportunities in an area traditionally lacking playspace

Designed to be stimulating and visually appealing, while activating a range of senses, including accessible elements with play designs providing for the development of agility, balance, co-ordination and strength. Inclusion of informal play spaces, and sustainable approaches with the use of re-cycled bricks, mulch and stone. Primarily native species and low water requirements.

Waterloo has a distinctive and sensitive past influenced by both Aboriginal and European cultures. Today, an incredibly diverse mix of cultures call Waterloo home. People representing Southeast Asia, Turkey, Russia, the Ukraine, China, Aboriginal Australia, Torres Strait Islands, New Zealand and the United Kingdom make Waterloo a cultural melting pot for Sydney and offer an exceptional opportunity to further influence the design and experience of Waterloo's future.



CHIPPENDALE GREEN, SYDNEY, AUSTRALIA



Fig: 76,82
Source: ALL A NSW

A new park at the core: Chippendale Green serves locals and visitors with a range of uses

MARGARET MAHY FAMILY PLAYGROUND, CHRISTCHURCH, NEW ZEALAND



Fig: 76,83
Source: Christchurch City Libraries

Following the 2011 Christchurch earthquake, the government's Recovery Plan included a "city-wide family playground." The playground, opened on 22 December 2015, is the largest playground in the Southern Hemisphere

The concept for the playground is based on deliberate but managed risk: it is a great mix of open space and equipment for all ages (including adults) to enjoy, creating an 'all-ages' recreation zone using this concept of 'safe-danger' to offer thrills to all users.

BRYANT PARK, NEW YORK, USA



Fig: 76,84
Source: BryantPark.org

Multi-use Park: Bryant Park is a place to stretch out, dine and relax. It also provides a multitude of free and engaging activities

Creates social opportunities at the centre of the city. To make Waterloo a highly liveable place, the public domain can offer a place for community interaction, cooperation and participation. The community-driven park can be an active, integral public space.

HYDE PARK NORTH, SYDNEY, AUSTRALIA



Fig: 76,85
Source: Time Out Sydney

The program does not always have to be fixed; flexible spaces are community builders. Events offer a commercial benefit and provide social amenity. They are able to activate spaces at almost all times of the year/day and encourages those from beyond the immediate community to visit the park as a destination

Pedestrian and cycle facilities promote a more sustainable method of movement. Future transportation means are moving towards sustainable transport systems, and providing adequate cycle and pedestrian facilities can support this transition.

**GOYDER SQUARE, PALMERSTON, NT,
AUSTRALIA**



Fig. 7.6.86
Source: Byrne Consultants

A new civic landscape for the growing community of Palmerston in the Northern Territory. The square forms part of the larger civic redevelopment masterplan to reinvigorate the city and renew connections between community, history and heritage

Improved pedestrian and cycle accessibility was a primary concern for the redevelopment. Civic space was developed to be flexible for temporary events and activities, such as markets and concerts.

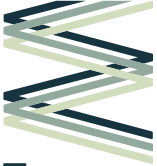
**RAUORA PARK, CHRISTCHURCH, NEW
ZEALAND**



Fig. 7.6.87
Source: Park Life

A developer and community innovator partnership to create a new park, that forms an east-west open space connection within the city, and provides linear activation space for placemaking

A series of multi-use lawns and paved areas to be used for events and community facilities. Current placemaking initiatives include a community run carpark, a mini golf course, street art space, office space for youth, a basketball half court, a café and cookery school, ping pong tables and a bike track.



BIOPHILIC APPROACHES

A concept used within the design and building industry to increase occupant connectivity to the natural environment

This is done through the use of direct nature (e.g. vegetative roofs and walls, indoor plantings), indirect nature (e.g. paint colours, carpet patterns, biologically inspired architectural forms), and space conditions. Increased connection to nature and natural forms through all five senses (sight, hearing, touch, smell and taste) are proven to have a positive impact on human neurobiology by reducing stress and improving overall health and wellbeing. Biologically-inspired urban, architectural and interior design approaches have given rise to a new era in ecological design to improve human connection to nature in the urban age and Waterloo represents a prime opportunity to apply biophilic design approaches.

SINGAPORE



Fig. 76.88
Source: WOHA Architects

Home to 5.4 million people, Singapore's efforts at fusing population density and nature began back in the 1960s when the city's motto was "Singapore – Garden City". Recently, the city has put forth a new motto, "Singapore – City in a Garden"

Singapore has an impressive network of trails and pathways that connect parks and green spaces to one another. These park connectors allow people to walk, bike, and jog between various green spaces without leaving vegetated areas.

The city-state has also made considerable efforts to integrate nature into its vertical spaces. A number of high-rise apartments, office buildings, and hotels, have installed green roofs, and indoor hanging gardens, to help reduce the effects of urban heat island. The city manages biophilic design through its Landscaping for Urban Spaces and High-Rises (LUSH) Programme.

DOCKSIDE GREEN, VICTORIA, CANADA

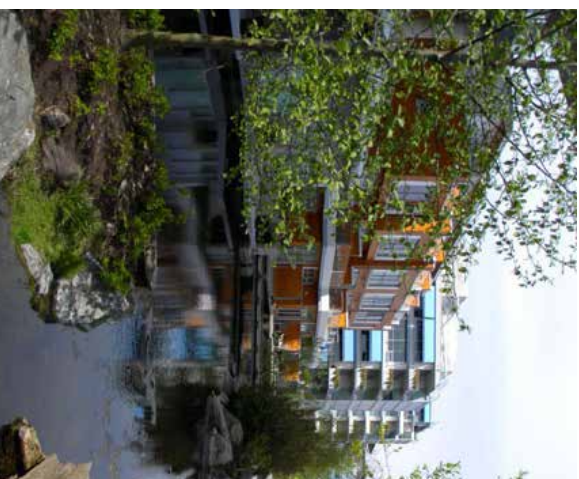


Fig. 76.89
Source: Toronto Star Newspapers

The Dockside Green development in British Columbia is one of the most sustainable communities in North America situated along the edge of the city's Inner Harbour

Each precinct creatively responds to the marine environment in an appropriate manner. Waterfront Precinct embraces the native shoreline in its design response, whilst the Landing Precinct, hosting the area's primary commercial plaza, strategically emphasizes the harbour and shipyard as an ever-changing backdrop.

The developers invested heavily into the ground-plane landscaping and water features to support a biophilic environment, and the community's district energy and water treatment plants. This investment provided a stronger return for the developer as the ground floor units adjacent to the water actually outperformed sales prices for the penthouses.

ONE CENTRAL PARK, SYDNEY, AUSTRALIA



Fig. 76.90
Source: Arcspace.com

Green walls contributed to the buildings 5 out of 6 green star rating by lowering energy consumption both in winter, by protecting the building from the cold, and in summer by providing a natural cooling system

Irrigation supplied by the sites blackwater recycling infrastructure to reuse waste water generated by the development.

EDIBLE PARKS

Publicly accessible urban environments which combine fruit and nut trees, berry bushes, vegetables, herbs, edible flowers, etc. in conjunction with ornamental plants into well designed landscape treatments

INCREDIBLE EDIBLE FARM, CITY OF IRVINE



Fig. 7.6.91
Source: Incredible Edible Farm Facebook

Volunteer run programs can be successful when implemented with the right guidelines and outcomes

Urban farming has the capacity to provide for more people than initially presumed. The farm is an effective way to educate people about nutrition, agriculture and fresh food. Urban farms have the potential to bring agricultural education to those who would otherwise not experience it.

The urban farm has the capacity to feed around 200,000 people every month on a 4.5 acre lot.

EDIBLE PARK, MEDINI, MALAYSIA



Fig. 7.6.92
Source: Medini Green Parks Facebook

This park is the first of its kind in Malaysia. Within the park is an urban farm, studio cafe, market structures and an assortment of edible plant species

Since completion the park has hosted large events including sustainability workshops and cooking demonstrations. The park is connected to the public via a 22km cycle lane which spreads across Medini from north to south.

BEACON FOOD FOREST, SEATTLE

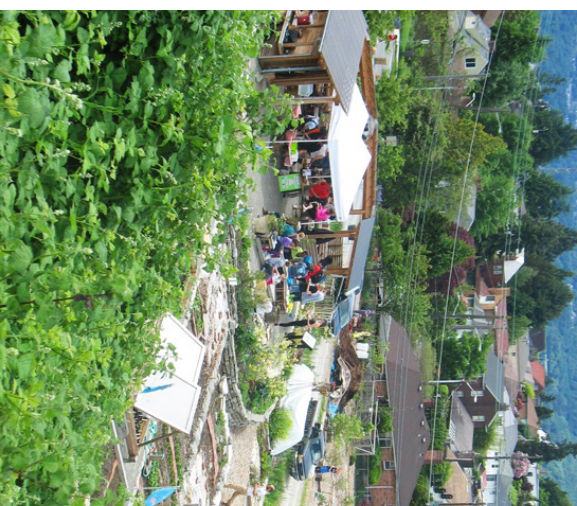
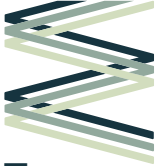


Fig. 7.6.93
Source: Inhabitat

Aim of the Beacon Food Forest is to regenerate public land into an edible forest ecosystem

Assortment of native and non-native species to encourage biodiversity as part of the regeneration process.



PLAYABLE LANDSCAPES

Urban environments (open space, public/private domains) which offer active recreation space and elements for people of all ages and abilities to play

Keeping urban citizens active has direct links to health and happiness. With increased demand for urban housing from young families and downsizers, Waterloo presents an opportunity to include recreation and play spaces throughout Waterloo South for young kids, teenagers, adults and elderly to enjoy throughout the year.

PIERCE'S PARK, BALTIMORE, USA



Fig. 76:94
Source: Mahron Rykiel Associated Inc

This park works to combine art, play and sustainability within a single site

The 'urban oasis' focuses on using many methods of storm water management to control issues of pollution occurring in the Inner Harbour. The site was previously heavily paved and used only as a thoroughfare for locals. There was a lack of children's play facilities in the Baltimore area and a lack of sustainable approaches to design and urban thinking. The incorporation of bio-swales and rain-gardens was included alongside more traditional urban elements constructed from recycled materials. The WSUD offers an alternative play element to the traditional, and works to enhance the more sculptural elements of play found on site.

IAN POTTER WILDPLAY GARDEN, SYDNEY, AUSTRALIA



Fig. 76:95
Source: Aspect Studios

Built to provide a place where children can get muddy and dirty, climb and fall, within a safe, fenced, and controlled area

An opportunity to engage in freeplay within natural or semi-natural spaces to help children grow, and develop an emotional connection to nature, which can potentially lead to environmental stewardship in the future. Gives families who are growing up within a high density area a chance to play in a 'backyard'.

SYDNEY PARK, ST PETERS, SYDNEY, AUSTRALIA



Fig. 76:96
Source: Architecture AU

Sydney Park conveys the parks water story through its visible processes; educating the community about the importance of urban water management

Sydney Park encourages the interaction of children and adults with the water story, providing the opportunity to engage in freeplay within a natural environment.

SHELL COVE PUBLIC SCHOOL BUSH TUCKER GARDEN, SHELLHARBOUR, AUSTRALIA



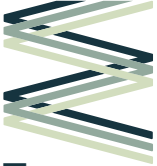
Fig: 7.6.97

Source: Illawarra Mercury

The Bush Tucker Garden at Shell Cove Public School is a joint initiative between the school and Shellharbour Council. Other contributors to the project included Kildalea State Park who assisted in building the garden

The garden project was opened with a traditional Indigenous smoking ceremony.

The delivered space intends to serve as a productive garden and an education space. The learning lessons are focused on the principles of environment and Indigenous culture. The garden is designed to be as interactive as possible, increasing the learning potential on offer. Texture, taste, scent and sight are all focused areas within the garden.



PRODUCTIVE LANDSCAPE

Highly landscaped areas integrated within urban environments primarily planted with food producing crops which are edible to humans

ECO CARLTON PROJECT, MELBOURNE, AUSTRALIA



Fig. 76.98
Source: Carlton Community Website

Making sustainability practical: on-the-ground projects included the establishment of a community garden, and a coffee grounds collection and composting scheme with local businesses.

Tailored Teaching to Tenure Type: the project delivered 10 workshops specifically directed at renters in the Carlton redevelopment offering advice on simple things they could do at home for environmental savings.

Orient new communities: by bringing together a diverse mix of residents (age, ethnicity, housing tenure) in a safe and small-scale environment, they bonded with their neighbours and established a socially-inclusive united front in advocating environmentally-friendly living practices.

Beyond the incorporation of environmentally efficient design this project encouraged sustainable lifestyles and behaviours, by recruiting residents to train as 'Eco Champions' to spread practical examples to tenants of the public and private housing estates.

INCREDIBLE EDIBLE GARDEN, TODMODERN, UK



Fig. 76.99
Source: Incredible Edible Network

Suburb wide strategies, spreading urban gardening interventions throughout a neighbourhood or area, can potentially help maximise the use of spaces throughout an area, and create a distinctive network of agriculture, that is an attraction for the area.

'Free to harvest'. All of the produce grown on the streets and public places around Todmorden are free to be harvested by the general public. This has the potential to make urban agriculture significantly more accessible to the general public.

URBAN ORCHARD PROGRAM, AUSTIN



Fig. 76.100
Source: CultureMap.com

Urban Orchard Program strengthens communities by providing materials and information to support the establishment of publicly accessible fruit and nut tree plantings.

Encourages communities to grow fresh food for themselves and their community. Urban orchard program has overseen the planting of 30 small fruit tree orchards in parks, schools and other public spaces throughout Austin.

CAMPERDOWN COMMONS, SYDNEY, AUSTRALIA



Fig. 7.6:101
Source: Time Out Sydney

Large scale learning centre: creating an urban space that showcases large scale farming practices has the unique opportunity of engaging urban residents with traditional market garden farming practices that are commonly used for the majority of produce that is available to consumers.

Supply and demand collaboration - collaboration between an eatery and an agricultural farm to engage and educate urban residents and connect back to traditional practices.

LONDON COLLEGE OF FASHION DYE GARDEN, LONDON, UK



Fig. 7.6:102
Source: Cordwainers Garden Blog

As part of the London College of Fashion's Natural Dye course, the Dye Garden allows students to see the full process from plant to fashion.

Crops are maintained and harvested by students, with the harvest providing natural dyes and materials to be fabricated into fashion items throughout the duration of study. The dye garden continues to serve the students of the college and has won finalist positions in sustainability competitions. The nomination recognises the role the program plays in promoting sustainability methods and programs undertaken by universities and colleges across the wider UK.

NATURAL DYE GARDEN, UNIVERSITY OF NORTH TEXAS, USA

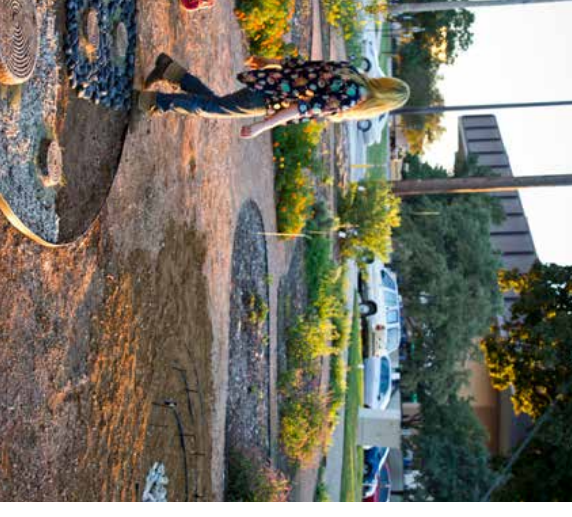


Fig. 7.6:103
Source: University of North Texas

The Natural DYE Garden was started by students on campus following their desire to create a garden to create natural dyes for arts projects.

The garden is maintained by students who work with other faculties to improve the gardens conditions and continue a high level of production and maintenance. The park continues to be an active part of the universities arts program, though its future is uncertain. The garden runs workshops on fabric dying with local school students, opening up the potential of plants to those who would otherwise not be exposed to.

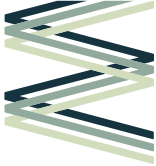
GOTHAM GREENS, BROOKLYN



Fig. 7.6:104
Source: Gotham Greens Farms LLC

Gotham Greens is an urban agricultural company that grows produce inside large rooftop greenhouses ranging from 1,200 to 7,000m2.

The Gotham Greens greenhouse in Gowanus, Brooklyn is situated above the whole foods market where the produce is sold. The rooftop/supermarket combination allows produce to be delivered to the supermarket shelves below via an elevator instead of freight. The farm produces 200 tonnes of produce, the usual output for a farm 20 times its size.



SQUARE ROOTS, BROOKLYN, USA



Fig: 76:105
Source: 6sqft.com

Square Roots is a high-tech indoor farming accelerator in the heart of Brooklyn, New York, working to ensure that city residents can source fresh, sustainable produce twelve months a year.

Over the course of a 13-month program, ten Resident Entrepreneurs run businesses while taking part in a curriculum of skill-based training, professional development, and experiential business learning. They work with hydroponic growing systems housed in repurposed shipping containers. Each container can yield up to 50 pounds of leafy greens per week while using only eight gallons of water a day.

The entrepreneurs deliver fresh greens to consumers at 80 office locations in the city, sell specialty items through a number of retail channels, and work in direct partnership with restaurants.

Square Roots shares 30 percent of the total revenue with the farmers, amounting to between US\$30,000 and US\$40,000. The urban farm is no longer restricted to purely farming practices. The farm is private, though reaches the public through its produce. The educational attachment to the farm expands its importance within the community.

BROOKLYN GRANGE, NEW YORK, USA



Fig: 76:106
Source: Brooklyn Grange Farm

Brooklyn Grange is a series of rooftop urban farms spread across two roofs in New York City.

It is considered one of the most intense urban farming projects in the US. The farms produce over 22,000 kg of organic produce a year. Brooklyn Grange has educational partnerships with local universities, non-profit organisations and others. The rooftop farms are also inclusive of an apiary, keeping bees in over 30 rooftops across New York. Alongside the urban farm, the rooftops host private events including weddings, outdoor yoga and team retreats. The site is also loaned for filming and photography, due to its uninterrupted views of the Manhattan skyline.

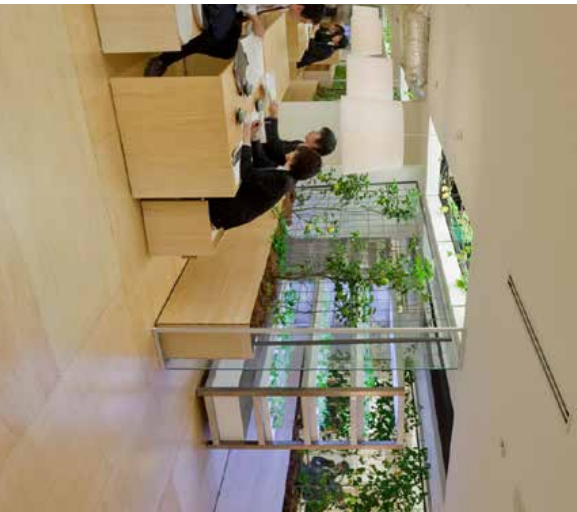
PASONA HEADQUARTERS, TOKYO, JAPAN

Fig. 7.6:107
Source: Inhabitat.com

The Pasona Headquarters takes the concept of an urban farm and pushes its potential. The farm becomes a facade treatment for the skin of the building and is internalised in courtyard spaces, green walls and hanging planters, throughout the building.

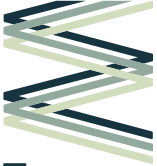
The hydroponic set up within the internal building allows over 200 species of plantings to be grown and harvested throughout the year. The harvest are taken directly to internal cafeterias, making it one of the most primary examples of the paddock to plate principle. Automatic irrigation systems, climate control and seasonal plantings, help to maximise production. All of the plants are maintained and harvested by employees, with agricultural specialists guiding their method.

FOOD FOREST, COLORADO, USA

Fig. 7.6:108
Source: FallingFruit.com

The Colorado Food Forest promotes permaculture in the urban area of Colorado. The forest intends to mimic a woodland system, by substituting the typical woodland planting for edible trees, shrubs, perennials and annuuls.

It's community driven and maintained. Involving the community in the production of edible plants and food networks intends to instill a greater awareness for climate issues and the benefits of sustainable living.



ROOFTOP SPACES

Private and semi-private building podiums and roof tops spaces designed with amenity features such as gardens, BBQ pits, wellness spaces and other forms of entertainment

With increasing competition for urban space, inventive ways to activate roof tops offers an effective solution to increase livability and diversity of communal space within dense urban environments such as Waterloo.

PRINTING PRESS ROOFTOP PARK, BROOKLYN, USA



Fig. 7.6.109
Source: Terrain NYC Landscape Architecture

A flexible rooftop space designed for the immediate residential community that live below the previously uninhabited 1400m² rooftop

The final design includes an outdoor kitchen, garden space, seating and playground, all for use by the residents of the area. Planting is responsive to all seasons and adds colour to the otherwise 'dull' rooftop.

ROOFTOP FARM, AUSTRALIAN TECHNOLOGY PARK, SYDNEY, AUSTRALIA

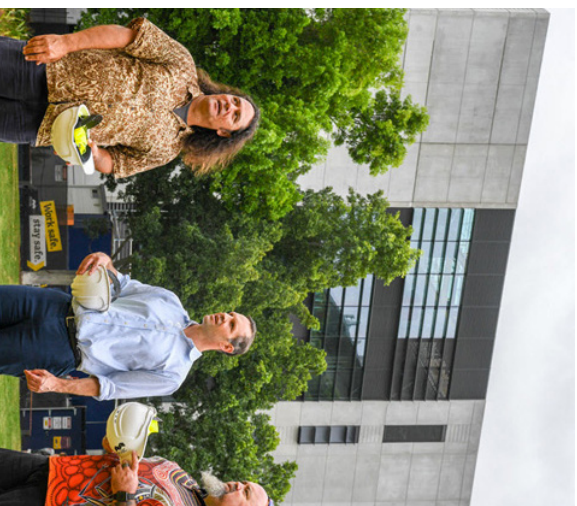


Fig. 7.6.110
Source: CommercialRealEstate.com.au

Currently under development, the farm intends to showcase Indigenous permaculture on the rooftop of the Australian Technology Park

The rooftop will grow native plants with medicinal and bush tucker uses. The plants will be available for sale as a commercial enterprise and to teach people about Indigenous culture. The design will showcase Indigenous permaculture and knowledge through regular workshops, classes and talks for visitors. The farm will be self-funded through the running of workshops and sale of plants. Due for completion in April 2019, 1500 plants are being cultivated for the project.

7.6.4 TRANSPORT, STREETS AND CONNECTIVITY

Best Practice

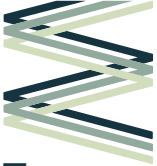
Pedestrian Friendly Zones

30 Minute City

Laneways

In many ways, convenient and reliable transport, engaging streets and abundant connectivity are the essential ingredients of great cities and places

Mobility is the life force of liveable cities enabling fluid movement of people and goods while the streets and spaces in between the buildings create the outdoor 'rooms' which define our urban experience. A strategic hierarchy of activated streets and laneways adjacent to major transport nodes improves opportunity for jobs to be closer to homes and can connect neighbourhoods to the broader city and region around them.



BEST PRACTICE

Best practice and case studies from around the world have informed the design process

Detailed learnings from major cities provide insight into how to design long term enjoyable, safe and inclusive places. Jan Gehl is a leading urban designer based in Copenhagen who has carried out extensive studies for the City of Sydney. Internationally, policies are emerging to capture the learning of successful places and encourage further positive development.

Analysis of street widths, ratios and heights alongside density and identity have built up a wealth of knowledge. Key learnings include the importance of variety in built form, scale relative to human height and ease of navigation through a combination of passive and active means, which all help to create character and positive interest.

HUMAN SCALE AND EXPERIENCE

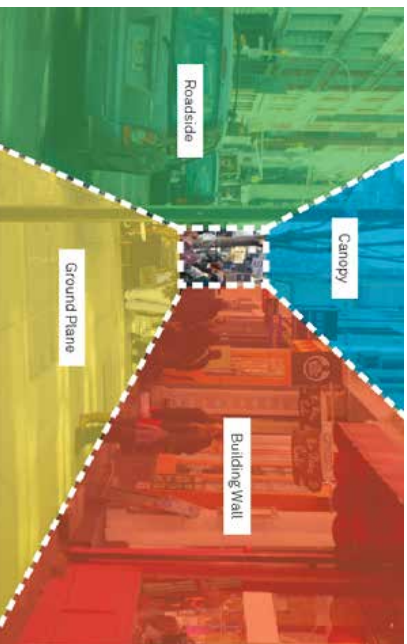


Fig. 7.6.111
Source: issuu.com

Understanding the human experience as we move through an urban environment is a driving consideration in designing the streetscape.

The visual experience often guides how we interact with a space. Gehl notes the first two stories of a building are the most important in creating attractiveness and interest. Beyond this, around 6 stories appears as the limit to peripheral understanding and above that is the background to the street. Variation in material, depth and articulation are important and valuable tools for the establishment of interest.

CITY PUBLIC REALM, CITY OF LONDON



Fig. 7.6.112
Source: cityoflondon.gov.uk

Recognising streets as both connections and places in their own right, the public realm is a diverse and vital element of the city, hosting formal and informal activities

As part of a long-term economic, social and environmental strategy, the public realm policy incorporates active use of streets of all scales, but in particular the smaller, fine grain.

With a dense historic environment, all opportunities are examined. This includes streets as part of a historic backdrop, as informal venues where active frontages spill out and as efficient pedestrian movement routes, connecting public transport hubs to local residents and businesses.

**GLOBAL STREET DESIGN GUIDE,
GLOBAL DESIGNING CITIES INITIATIVE**



Fig. 7.6.113
Source: globaldesigningcities.org

The design guide emerged out of a need to support pedestrian movement and reverse the decades long domination of traffic and vehicular movement.

Safety and inclusivity are fundamental to a successful street network that can support local businesses and a walkable, enjoyable environment.

Urban design has favoured vehicular movement by providing wide streets and junctions, long waiting times for pedestrian crossings and roadsides cluttered with parking and signage. The design guide works to re-prioritise human activity, with vehicular use taking a secondary role through active and passive means.

The approach serves a range of objectives, from reducing emissions to encouraging a walkable neighbourhood and supporting a vibrant local economy.

**URBAN DESIGN GUIDELINES,
INTEGRATED ALLEY HANDBOOK, SEATTLE**

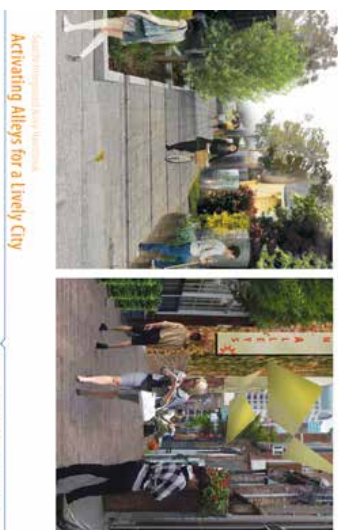
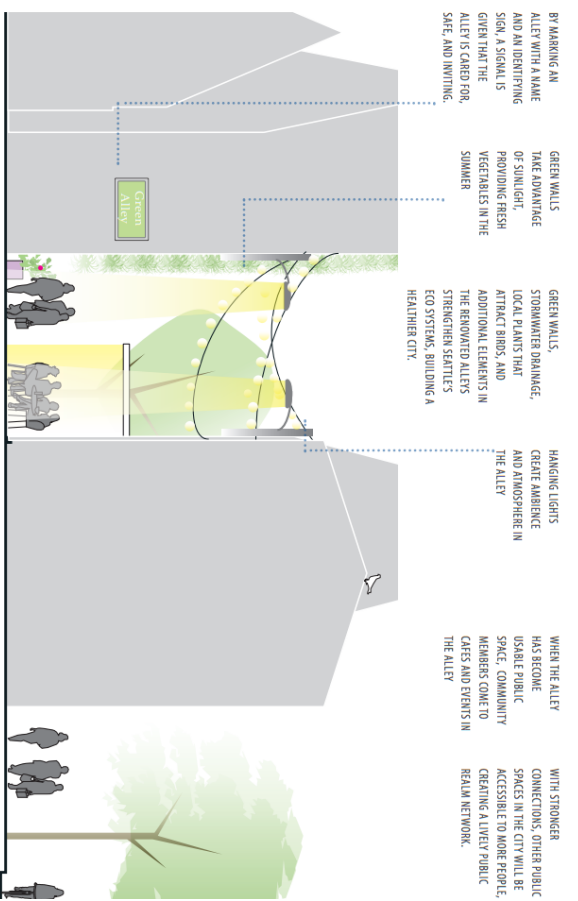


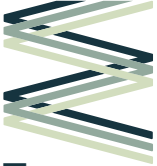
Fig. 7.6.114
Source: nacto.org

Valuing the vibrancy and life that laneways bring to a city, Seattle adopted policies that encourage the regeneration of existing street forms.

Seen primarily as a place of movement, whether by foot, bicycle or vehicles, it's the interaction of the human scale with active uses that creates excitement. The outdoor experience, from the shade and movement of planting, to the exposure to changing weather, makes laneways unique environments.

Quality of public space, health and identity, and a safe environment must all be balance in the design of a welcoming, valued place that can grow to become a destination.





PEDESTRIAN FRIENDLY ZONES

Open space and public domain areas like streets, plazas, laneways or parks that are either prioritised for pedestrian use (limited vehicle use) or are only accessible to pedestrians

Urban areas that prioritise pedestrian uses or are pedestrian only environments improve peoples' perception of safety and quality of place. People will naturally gravitate to areas where they know they don't have to contend with car or bike crossings. Offering pedestrian-oriented areas within Waterloo with significantly improve livability and social cohesion within Waterloo South.

VAN-GOGH-ROOSEGAARDE BICYCLE PATH

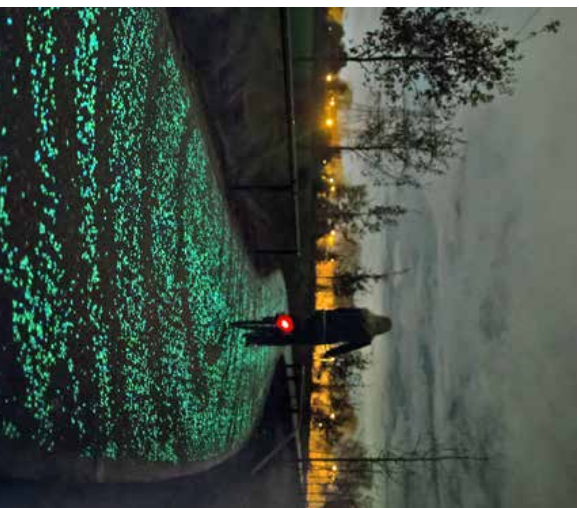


Fig. 76:115
Source: Studio Roosegaarde

The cycle path near Eindhoven celebrates the work of artist Vincent van Gogh. The project illuminates 600m of cycle path through thousands of twinkling stones.

The patterns created are a reference to van Gogh's 'Starry Night' painting. It is considered a contemporary ode to an old master. Cycling is a common and popular method of transport throughout the Netherlands. The illumination of the path ignites interest and conversation among locals and tourists alike. This unusual public art experience is well connected to public transport facilities, creating an ease of experience for visitors from further beyond. The pathway is a visual connection to the cultural history of the region.

PITT STREET MALL, SYDNEY

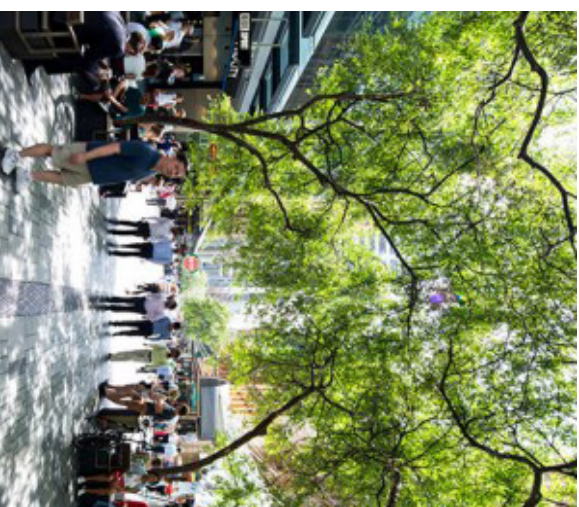


Fig. 76:116
Source: Architecture AU

Pitt Street Mall is a high traffic pedestrian link within the Sydney CBD. Around 60,000 people will pass through this area on an average summer day.

The redevelopment prioritised public amenity, improved environmental qualities and urban design. Design elements, such as the central drainage channel, draw on the expressions and textures of historical elements. Public lighting systems can be adapted to suit different public events, to increase the activation possibilities of the mall during day and night. Ample seating, shade and clear walkway are all present in the final design.

COPENHAGEN CYCLE STRATEGY



Fig. 76:117
Source: Dissing and Weiting Architecture

Good, Better, Best: City of Copenhagen Bicycle Strategy 2011-2025 is a comprehensive policy to support infrastructure and growth of bicycle use as an everyday means of transport.

According to this strategy, by 2025 the city aims to:

- Increase the percentage of commuters that cycle to work or education to 50%
- Increase number of cycle tracks by 80%
- Reduce cyclist average travel time by 15 min.
- Decrease the number of seriously injured cyclists by 70%
- Increase the share of cyclists who find bike tracks well maintained to 80%
- Increase the number of citizens who think that cycle culture affects the cities atmosphere positively to 80%.

PASSEIG DE ST JOAN, BARCELONA, SPAIN

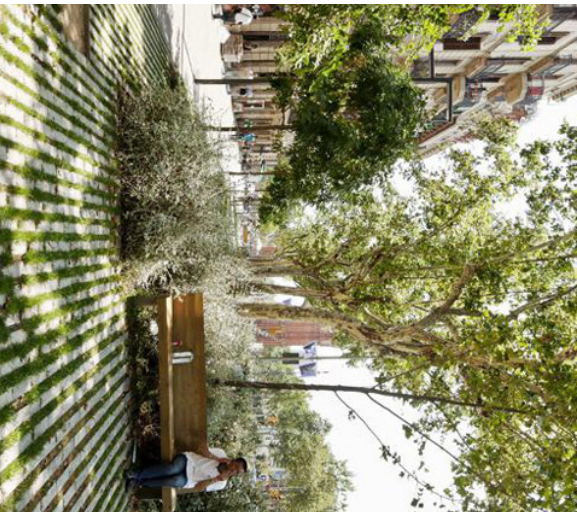


Fig. 7.6:118
Source: *Meticulous Magazine*

Promotes the street as a sustainable urban open space, with tree plantings to create natural shade, and introduces native species to increase the biodiversity.

Adopting multi-use open spaces along the pedestrian prioritised street as a new urban green zone that activates building frontage and neighbourhoods.

Reduction of vehicle carriageway from 25m to 16.5m giving 8.5m back to public domain and streetscape.

ISTIKLAL STREET, BEYOGLU, ISTANBUL

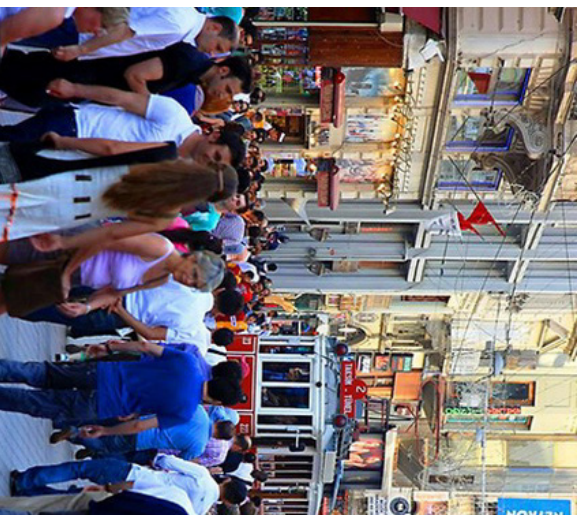


Fig. 7.6:119
Source: *GlobalBlue.com*

A multi-modal street designed to accommodate walkers, cyclists, cars and a streetcar. Istiklal operates like an ‘ancient woonerf’.

Provides a safe, highly attractive and activated pedestrian street for meandering, shopping and meeting friends. Offers a rich diversity of retail, food, office and hospitality offerings.

LA RAMBLA, BARCELONA, SPAIN



Fig. 7.6:120
Source: *Deposit Photos*

A tremendous variety of eateries, shops, markets and cultural institutions, with ample public seating make this a highly walkable street.

Highly landscaped with mature tree lined edges providing great canopy cover. Width and heights of buildings, and quality architecture, creates a human-scale and inviting atmosphere.

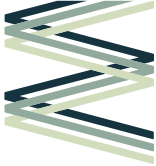
NEW ROAD, BRIGHTON, UK



Fig. 7.6:121
Source: *Gehl*

Closure of New Road, which was previously dominated by vehicles, enabled the street to be reclaimed and a pedestrian linear square created, flanked by surrounding theatres, restaurants and the Grade 1 listed Brighton Royal Pavilion and its gardens.

Design of the street emphasised pedestrian priority and encouraged defensive driving and low speeds.



SIGHT LINES FOR ROADWORKS, UK



Fig: 76:122
Source: Ross Atkin Associates

Many people with visual and dual impairment rely on familiarity of the streetscape in order to navigate. Roadworks and similar construction can impair this familiarity.

Sight Lines employs new tactile technology to the surfaces of existing construction components, links roadwork signage to notification apps, and increases the colour variability and presence of roadwork signs, to ease the journey of the impaired and elderly. Sight Lines and StreetWorks into (partnering app) have been deployed in five UK towns and cities by numerous construction companies, thereby easing the journey for residents and communities exposed to ongoing construction.

NELSON STREET CYCLEWAY, AUCKLAND, NEW ZEALAND



Fig: 76:123
Source: Alamy Stock Photo

The Nelson Street Cycleway forms a crucial part of the cycle network in Auckland, serving as a connection between the off road shared paths around the city.

The cycleway shifts between dedicated cycle paths, shared paths and one-way / dual carriage. The cycleway is lifted, separating it from general traffic. The cycleway has been designed with consideration of cyclists of all ages and skills, with colourful pavements, neon lighting and other artistic endeavours supporting the route.

BEACH ROAD CYCLEWAY, AUCKLAND, NEW ZEALAND

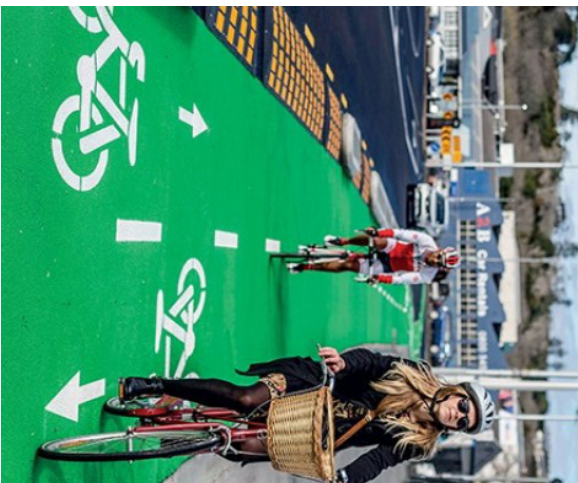


Fig: 76:124
Source: Contractor Magazine

The Beach Road Cycleway was the first completed separated cycleway in Auckland. The 1.5km cycleway is part of a greater 28km long cycleway that will allow safe and uninterrupted cycling from Henderson to St Heliers.

There are a series of new traffic lights along the stretch to ease the movement of pedestrians and cyclists. At 3m wide the dual cycleway offers a sustainable alternative to movement around the city. Cycle facilities including bike parking, bins and water fountains, are provided along the stretch.

GREEN MAN PLUS SCHEME, SINGAPORE



Fig: 76:125
Source: LTA Singapore

This road safety measure allows elderly or disabled pedestrians a longer time to cross at the 'green man'.

An electronic card is provided to those needing extended times, that is tapped at the crossing pole, alerting the signal that a longer crossing time is required.

30 MINUTE CITY

A time concept linked to qualitative urban planning whereby residents, no matter where they live, can meet 80% or more of their daily needs within 30 minutes of their home either by walking, cycling, driving or riding public transit

Mixed-use communities that offer a rich diversity of uses from residential, retail, office, cultural and civic space within a short distance from one another can dramatically improve quality of life and economic productivity of a place.

20 MINUTE NEIGHBOURHOODS, PORTLAND, USA

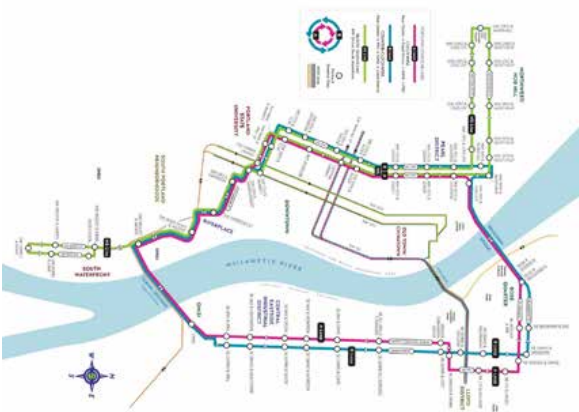


Fig. 7/6.126
Source: City of Portland

A 20-minute neighbourhood is one in which residents can walk or bike to places and services people visit on a daily basis: transit, shopping, quality food, school, parks, and entertainment.

The 20-minute neighbourhood plan is a part of Portland's long-term strategy to manage the challenges that face many urban environments across the country, including rising energy costs, population growth, roadway congestion, and demand for expensive public transit to connect more and more distant suburbs.

PLAN MELBOURNE 20 MINUTE NEIGHBOURHOODS, MELBOURNE, AUSTRALIA



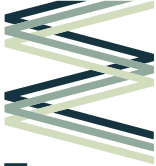
Fig. 7/6.127
Source: Department of Environment, Land, Water, and Planning

As part of Plan Melbourne 2017 – 2050 the Victorian government is partnering with the Heart Foundation, Victoria Walks, local governments, the private sector and communities to deliver a pilot program to develop a series of 20-minute neighbourhoods across Melbourne.

This project involves the development of further guidance, case studies, and web-based resources including a 'neighbourhood index' to measure success of the plan.

A 20-minute neighbourhood must:

- Be safe, accessible and well connected, for pedestrians and cyclists to optimise active transport
- Offer high-quality public realm and open space
- Provide services and destinations that support local living
- Facilitate access to quality public transport that connects people to jobs and higher-order services
- Deliver housing/population at densities making local services and transport viable
- Facilitate thriving local economies



LANEWAYS

Narrow roads or pathways connecting two streets or open space

A fine grain network of narrow and intimate streets can improve people's experience of place and offer greater choice of wayfinding through a community. Laneways also offer greater potential to support small local businesses and incubation spaces for start-ups.

BAKERY LANE, FORTITUDE VALLEY, BRISBANE



Fig. 76.128
Source: Bakery Lane

Provides a creative hub in the heart of Fortitude Valley, developing a strong daytime economy that flows seamlessly into the night and back again

Designed to attract individuals and small groups in the innovative design industry. Features boutique design incubator studios and a mixture of retail such as restaurants, bars and cafes. Allows for short and long term residential accommodation and business within one space.

KENSINGTON STREET, CHIPPENDALE, SYDNEY



Fig. 76.129
Source: Kensington Street

Pedestrian focused environment presenting motorists with a succession of subtle physical and visual restraints designed to encourage slow driving

Original trachyte kerbing was reinstated to original alignment paying homage to its local heritage. This adaptive reuse strategy of existing terraces creates a vibrant new public place as a hive of activity, from morning until late at night, providing offerings for people of all ages and backgrounds.

GREENING LANEWAYS, MELBOURNE



Fig. 76.130
Source: City of Melbourne

Melbourne City is greening its existing laneways to be more liveable

Greening laneways reduces the heat island effect, mitigates and filters stormwater, whilst providing habitat. Where greening is not achievable, invited world-class street artists complement laneway greening with murals chosen by the community.

BULLETIN PLACE, SYDNEY



Fig. 76.131
Source: cushwkdreproperty.com.au

Balancing heritage and new build elements creates a break in the busy CBD environment, balancing heritage with modern insertions and contemporary needs.

The smaller scale heritage frontages have been retained and populated with active frontages as part of a human-scale pedestrianised side street. Above the modern commercial towers are stepped back to reduce their visual impact.

STEAM MILL LANE, DARLING SQUARE, SYDNEY



Fig. 76.132
Source: www.aspect-studios.com

A key east-west link connecting into the existing urban fabric and breaking up the surrounding massing.

Active frontages, quality materials and street furniture create interest to animate a link route between major destinations as part of the Darling Square regeneration. Buildings fronting on to the laneway vary in height with setbacks and articulation breaking down the overall form.

LLANKELLY PLACE, POTTS POINT, SYDNEY



Fig. 76.133
Source: thesignconnection.com.au

Human scaled, intimate and bustling. Small scale design interventions such as lighting and paving encourage patronage and build upon the laneway's reputation.

Re-animating an existing laneway brings life to the wider area that it is already part of. Small interventions work with the established uses to form a safe and enjoyable destination.

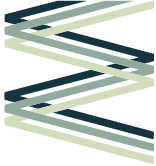
CENTRAL LANE, MELBOURNE



Fig. 76.134
Source: timeout.com

The Melbourne Laneways are part of an established street network with a distinct hierarchy, favouring pedestrians and variety

Covering a broad area in the heart of the city, primary vehicular routes concentrate traffic. Passive and active measures then reserve the narrower laneways for pedestrian movement. Street width, furniture and general activity work together to discourage vehicular use passively, whilst other areas are formally pedestrianised. Active uses spill out here creating a street theatre while planting provides shading and softens the physical environment.



DELANCEY STREET, PHILADELPHIA, USA



Fig. 7.6.135
Source: visitphilly.com

Historic streets demonstrate effective long term success from scale to form

Single direction laneways with planting balances the residential use of the street, shading the buildings and street while bringing colour and subtle animation through the seasonal changes of the year.

ST. CHRISTOPHER'S PLACE, LONDON, UK



Fig. 7.6.136
Source: cherrynwards.com

The street provides a valuable flexible space to accommodate the theatre of a busy street

Restaurants, passersby, retail displays and street decoration are all part of the drama of a vibrant street, changing with seasonal and cultural needs. Pedestrian priority spaces encourages the ease of interaction and spontaneous activity. Establishing a clear street life strategy that allows local character to flourish in this way is part of building a successful place.

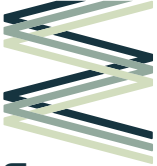
7.6.5 HOUSING DIVERSITY AND LIVEABILITY

Urban Safety

Liveability

Liveability has become a defining challenge of our time

For any new development, a proper balance and thoughtful integration of housing can lead to a thriving mixed-income community which improves liveability and opportunity for all residents.



URBAN SAFETY

The extent to which a city's inhabitants are able to live, work and participate in urban life without fear of bodily harm or intimidation

It should be viewed as a complex set of ever-changing and interconnected problems related to the physical built environment, socioeconomic practices as well as systems (governmental, service provision, environmental).

A sense of safety and security is a primary concern of individuals. People's collective perceptions of safety or insecurity can have a physical influence on the city's streets. In turn, the characteristics of urban spaces can create a sense in people's minds that a street, a neighbourhood, or even an entire city is safe or unsafe.

CRIME PREVENTION AND URBAN DESIGN RESOURCE MANUAL, ACT, AUSTRALIA

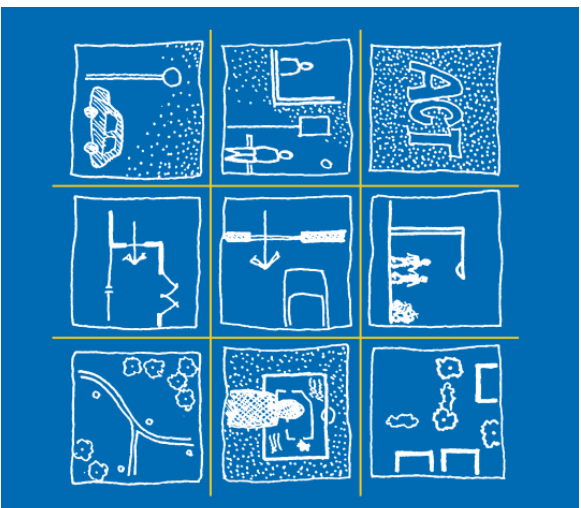


Fig. 76.137
Source: ACT Department of Urban Services

The Crime Prevention and Urban Design Resource Manual is an advisory document to assist in incorporating crime prevention, through environmental design principles, into planning and development activities in the Australian Capital Territory (ACT)

It outlines the type of safety issues, and possible design or management responses, that need to be addressed in the planning and development of public places.

While its focus is on public places the principles of crime prevention through environmental design outlined can also be applied to residential, commercial and community developments.

Places that feel safe offer these attributes:

- It feels safe and secure, even at night or on your own
- There aren't signs of decay such as graffiti, rubbish, weeds or derelict places
- Roads and paths are safe for adults and children to walk or ride their bikes

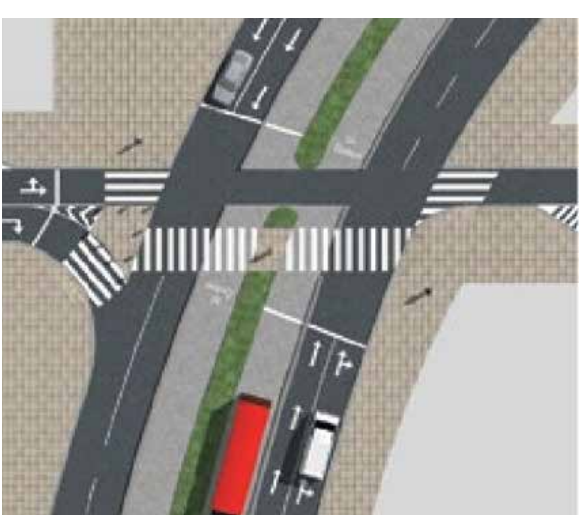
CITIES SAFER BY DESIGN, V1.0, WORLD RESOURCES INSTITUTE



Fig. 76.138
Source: World Resources Institute

Cities Safer by Design is a global reference guide to help cities save lives from traffic fatalities through improved street design and smart urban development

It emphasises two ways to improve traffic safety in cities. First, by building and retrofitting urban environments to reduce the need for individual vehicle trips; and second, by reducing vehicle speeds in areas where cars, pedestrians and cyclists mix. The report focuses on improving infrastructure for pedestrians, bicycling, and mass transport.



The report includes illustrated recommendations for specific design elements proven to improve traffic safety

The elements include:

- Urban design that includes smaller block sizes, frequent street connections, narrower streets, and access to destinations, in compact urban environments that alleviate vehicle travel;
- Traffic calming measures such as speed humps, chicanes, curb extensions, raised pedestrian crossings and other elements;
- Arterials and intersections that reduce conflicts between road users by providing clear crossings, medians and refuge islands;
- Pedestrian facilities ranging from pedestrian-only areas to basic, consistent sidewalks;
- Cycling networks that feature protected cycle lanes and special attention to design at intersections; and
- Safety improvements near mass transport stations and corridors.

SAFE STREETS, SAFE CITY, CALGARY, CANADA



Fig. 7.6.139
Source: Calgary Safety Council

A pioneering report published in 2007 to recommend actions to address public safety and social issues which negatively affect the Calgary community

Recommendations are offered to improve the general situation in Calgary. They range from short-term policing-oriented actions to long-term community revitalisation actions. Some of the recommendations may be implemented at the local level. Others require action at the municipal, provincial, national or even societal levels.

Both Crime Severity and Crime Incidents have reduced significantly since the issue of this report and implementation of many of the recommendations particularly violent and drug crimes.

CPTED, QUEENSLAND, AUSTRALIA

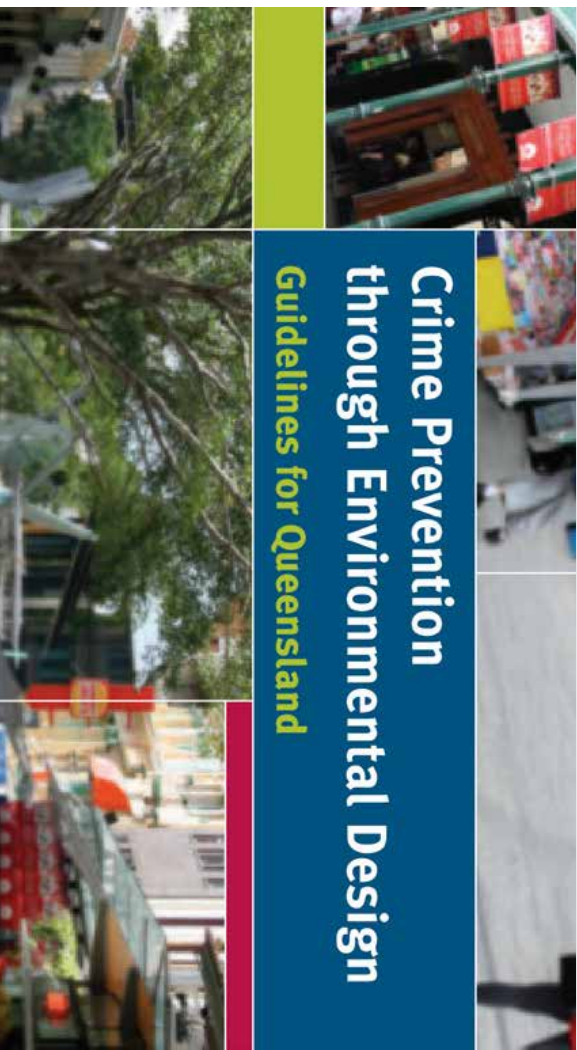


Fig. 7.6.140
Source: Queensland Government

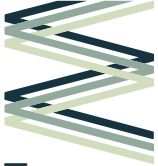
The CPTED Guidelines for Queensland seek to promote the incorporation of Crime Prevention Through Environmental Design (CPTED) Principles into the planning, design and management of development in Queensland

- They aim to:
- Guide and encourage public and private developers to design with CPTED in mind
 - Guide and encourage local councils to incorporate the principles of CPTED in the preparation, review and implementation of planning schemes and policies
 - Inform and encourage the community to participate in creating and maintaining safe environments.

The Guidelines are presented in two parts.

Part A: Essential features of safer places outlines the idea of CPTED, introduces important concepts, identifies principles and introduces actions to implement the principles. It is offered to all in the community with an interest in, and responsibility for, the environments we create.

Part B: Implementation Guide is particularly offered to local councils. It aims to encourage and assist them to incorporate the principles of CPTED in their communities.



LIVEABILITY

An assessment of what a place is like to live in using particular criteria for example, environmental quality, crime and safety, education and health provision, access to shops and services, recreational facilities and cultural activities

In the 21st Century, how a city improves liveability and quality of life of its citizens has become a primary means of their ability to attract talent and capital. Australia has done well in this regard as past global city rankings have included several capital cities in Australia. While Sydney has been consistently ranked within the top ten most liveable cities in the past, it has dropped down the list in more recent years due to affordability and traffic congestion issues. Waterloo represents an opportunity to reverse this trend by providing a transit-oriented and equitable new precinct for the region.

VIENNA



Fig. 7.6.141
Source: Business Insider

Vienna has been named the world's most liveable city 7 years in a row through the Mercer Quality of Life Index. Many believe this is as result of Vienna being one of the most progressively governed cities on earth

Vienna's Strategic Plan outlines a series of policies around equity, inclusion, climate change, transport, commerce, food, and culture, all geared to improve the quality of life and liveability of all residents. The Vienna Model, the program addressing housing needs for the city, is one of the most diverse and innovative housing schemes in any global city. Over 60% of Viennese residents live in subsidized housing, from social and affordable through to intermediate and market rate, so a majority of citizens have less housing stress and can spend money in other areas to improve their quality of life.

The city also has a strong gender equality program deemed Gender Mainstreaming which requires review of any and all planning proposals to ensure gender equality in planning

The city has a thriving art and culture program, offering affordable access for everyone, and a robust public transport system.

7.6.6 EMPLOYMENT, SERVICES, RETAIL, ARTS AND CULTURE

24/7 Activities and Experiences

Modern Social Infrastructure

Cultural Precincts

Co-location and Vertical Mixed Use

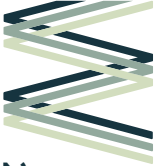
Art

Cultural Integration

Indigenous

If thoughtfully curated and planned for, employment, services, retail, arts and culture can all work together to form the pulse of a city

These aspects of a city, coupled with place-based architecture, can have a significant impact on a city's brand and identity and improve its ability to compete for talent and private sector investment. Importantly, taking a hyper-local approach with these aspects can significantly improve the desirability of a place by making it a distinctive and unique experience to visit. Providing local job opportunities, limiting chain retailers, and implementing authentic art and cultural expression throughout Waterloo South, can all lead to successful place outcomes.



24/7 ACTIVITIES AND EXPERIENCES

Places and space within a community that enable activity to occur 24 hours a day, 7 days a week

KINGS CROSS MASTERPLAN, LONDON, UK



Fig. 7.6.142
Source: TravelAndLeisure.com

King's Cross is a mixed-use, urban regeneration project in central London that is also a major transport hub for the city

Located on the site of former rail and industrial facilities, the 67-acre (27 ha) redevelopment is ongoing and involves restoration of historic buildings, as well as new construction, with the entire plan organised around internal streets, and 26 acres (10.5 ha) of open space, to form a new public realm for the area.

Principal uses include 3.4 million square feet (316,000 sq m) of office space, 2,000 residential units, 500,000 square feet (46,400 sq m) of retail and leisure space, a hotel, and educational facilities

The site is served directly by six London Underground lines, two national mainline train stations, and an international high-speed rail connecting to Paris.

Considered a very successful urban regeneration project, Kings Cross has a mix of arts, culture, shopping and night time economy that keeps it active 24 hours a day.

ONE LOVE CITY, AARHUS, DENMARK



Fig. 7.6.143
Source: SunshineSeeker.com

Established in an empty wind-swept lot in the city of Aarhus Denmark, One Love City was a micro-village set up to support and celebrate World Out Day

Integrated in One Love City were art exhibitions, a stage for music and performances, a coffee bar, small shops and a 15 meter tall tower.

FITZROY COMMUNITY FOOD CENTRE, MELBOURNE, AUSTRALIA



Fig. 7.6.144
Source: LocalFoodConnect.org

The Fitzroy Community Food Centre brings people together around food. The projects offered through the centre help people to access fresh food, learn about growing and preparing food and also provide opportunities to share food, in a spirit of conviviality

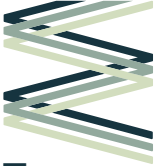
The Centre addresses issues of food security, healthy food education and skill building, social isolation, multicultural understanding, food waste and community connectedness.

Cultivating Community, with funding from the Lord Mayors Charitable Trust and the Fitzroy Office of Housing, coordinates the management of the kitchen, supports and encourages a variety of groups to use the kitchen, including social enterprises, and also runs weekly cooking programs in the space. The kitchen has two wicking beds in the community garden, for herbs and seasonal vegetables, and composts all food scraps through the community garden.

The Centre will be an enormous asset to both the residents of the Atherton Gardens Social Housing Estate and the wider Fitzroy community

The centre will provide access to fresh food, opportunities for skill and knowledge development, contribute to behaviour change around healthy and sustainable food, reduce social isolation, boost the local economy, increase community connectedness and wellbeing, and play a key role in the regeneration of the estate.

This innovative concept will create the first centre of its kind in Australia, and is consistent with the area's Master Plan imperatives, including providing opportunities for social renewal and reducing the stigma of public housing.



MODERN SOCIAL INFRASTRUCTURE

Community assets, programs and platforms that accommodate generational social trends, emerging technologies and digital communities as well as conventional social and public amenity spaces

BRICKBOTTOM ARTISTS CO-OPERATIVE, BOSTON, USA



Fig. 76.145

Source: Brickbottom Artists Association

The Brickbottom Artists Association was founded in 1984, by residents of the Brickbottom Artists Building, one of the oldest living and working artists communities in the country

The community has become a well-known model for other artists' live/work developments throughout the U.S. Today the nearly 150

Artists came together in search of a stable and affordable working and living environment. They eventually purchased two semi-abandoned buildings which were originally erected in the 1920's as the cannery and bakery of AandP stores.

Year-round the Brickbottom Gallery presents thoughtful and professionally curated art exhibitions, as Somerville's premiere not-for-profit contemporary art gallery, as well as events and classes open to the community. The Gallery has operated for 20 years, bringing established artists from all over the world, and showcasing both established and emerging artists from the community.

IDEA STORE, LONDON, UK



Fig. 76.146

Source: Adjuqe Associates

The Idea Store of London is a type of educational community centre that offers a library, along with adult learning courses and activities, and events programmes. More than just a library or a place of learning, they offer a wide range of adult classes, career support, training, meeting areas, cafés, and arts and leisure pursuits

Services are brought together in easily accessible spaces, which are modelled on retail environments. They are places where individuals and families come together informally to socialise and they act as venues for community clubs. The centres present public programmes such as dance classes, computer classes, libraries, and medical clinics. The spaces are usually located on blocks with high foot traffic. It was initiated in 1999 by the Borough of Tower Hamlets. Since the first "idea store" opened in 2002 in Bow, several others have opened also in London: Chrisp Street (2004), Whitechapel (2005), Canary Wharf (2006), and Watney Market (2013). The group also publishes a local directory.

BROMLEY BY BOW CENTRE, LONDON, UK



Fig. 76.147

Source: CitySeeker.com

The Bromley by Bow Centre is a pioneering charity that combines an extensive neighbourhood hub with a medical practice and a community research project

The Centre supports people with a wide variety of integrated services, based on their individual needs, on the understanding that health is primarily driven by social factors, not medical ones. The Centre has strategic partnerships, with a wide range of organisations and funders, who together design and deliver highly effective programmes that transform peoples' lives. They offer classes on creative arts, horticulture, sports and job skill training. The centre is visited by 2000 people per week.

The digital age has brought entirely new meaning to the work community and people are now more connected than ever. Technology has given rise to new forms of community assets, such as Libraries of the Future, that cater to all generations and interests from reading a book, making a film or a musical recording, attending lectures to simply playing table tennis with some friends. Waterloo will accommodate several such assets to bring communities of interest together within Waterloo South.

EAST SYDNEY EARLY LEARNING CENTRE, SYDNEY, AUSTRALIA



Fig. 76.148
Source: Andrew Burges Architects

Located in Darlinghurst, the learning centre co-locates a 60-child childcare facility with a community centre, in a heritage 1920 industrial building

The brief called for the adaptive re-use of an existing 4 storey 1920's warehouse building into a multi-level childcare centre, with a community space on the top level, and the closure of Berwick Lane to create a unified link to the existing playground across the lane. Following extensive urban studies and community consultation an alternative, more imaginative urban design solution was developed.

Berwick lane remained open and was embellished with a generous new sandstone stair; a tree house bridge above the laneway connected the building and outdoor playground, and the community space was positioned to connect, and help activate, the laneway

Drawing inspiration from the tight knit urban texture of the inner city, and the wonder and exploration urban life offers, the childcare centre program was re-imagined as a mini-city at a child's scale – circulation as streets and laneways, gardens and recreational space within the building footprint, a sandpit as a central plaza open to the sky, and infrastructure revealed in the yellow pipes of the ceiling.

LIBRARY AT THE DOCK, MELBOURNE, AUSTRALIA



Fig. 76.149
Source: City of Melbourne

Library at The Dock is a community hub, in the Melbourne district of Docklands, enabling people to come together to create, explore, connect, belong, learn and participate. Library at The Dock offers interactive learning environments and multi-purpose community spaces.

In addition to the traditional library collection there is a recording studio, creative editing suites, community spaces, and a performance venue to hold up to 120 people. A gallery and exhibition space celebrates Docklands' rich heritage. Key Features of the Library include:

- Interactive, high-digital learning environment
- Quiet study area
- Reading lounges
- Community meeting rooms
- Heritage exhibitions
- Technology hub

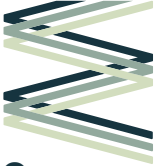
PUBLIC SPACE BOOKING, HELSINKI, FINLAND



Fig. 76.150
Source: Oodi Helsinki

Nearly every Helsinki City Library has space which can be rented for many different purposes such as meetings, activities, exhibitions, team work, sports, making and lectures

The meeting rooms are specifically designed for holding meetings and gatherings. Multi-purpose facilities and team work spaces are suitable for team work, meetings, gatherings, and other such purposes. There is also a lecture hall for 90 people available for rent.



CO-LOCATION AND VERTICAL MIXED USE (UNEXPECTED CONNECTIONS)

Urban developments that incorporate a broad mix of use typologies that support each other

CHOPHOUSE ROW, SEATTLE, USA

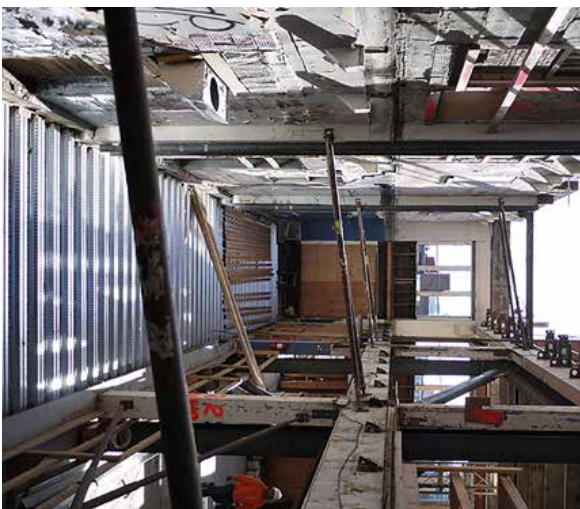


Fig. 7.6.151
Source: skarchitects.com

Chophouse Row is the last phase of a multi-year redevelopment of a cluster of properties in the Pike-Pine neighbourhood of Seattle

Completed in spring 2015, Chophouse Row is a small-scale, mixed-use project that includes 25,317 square feet of office space, 6,379 square feet of retail space, and three penthouse apartments totalling 4,795 square feet; total gross building area is 43,543 square feet.

The development includes a mix of vintage and modern structures, a pedestrian alley/news that provides a walk-through connection from 12th to 11th Avenue, and a courtyard and pedestrian plaza, at the centre of the block, that ties together Chophouse Row and the other properties on the block.



Fig. 7.6.152
Source: skarchitects.com

Chophouse Row is an infill development project in the Pike-Pine neighbourhood of Capitol Hill. The project is part of a larger redevelopment effort the 12th Avenue Marketplace that consists of six separate parcels that have been acquired, redeveloped, and knitted together over a 15-year period by the firm Dunn and Hobbes LLC

The Chophouse Row portion includes a mix of loft office space, a retail marketplace, public space, and residential penthouses. The project combines a two-story former auto parts store building, built in 1924, with a new seven-story steel-and-concrete tower that features five levels of open-plan office workspaces, along with floor-to-ceiling windows, and exposed steel framing. Three residential penthouses are located on the top floor of the tower. A pedestrian alley and mid-block plaza provide frontage for retailers and for pedestrian strolling and gathering areas; they also connect Chophouse Row to other 12th Avenue Marketplace properties.

CULTURAL PRECINCTS

A clearly defined geographical area that contains facilities and services related to artistic and intellectual activity

SECOND STREET DISTRICT, AUSTIN, USA

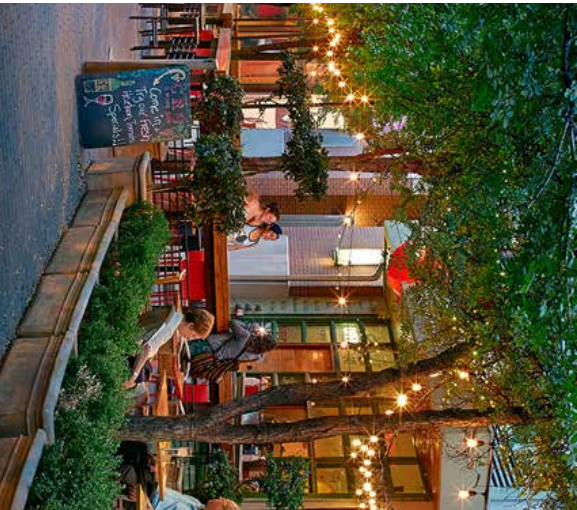


Fig. 7.6.153
Source: www.austintcityguide.com

Austin's Second Street District is a six-block infill and redevelopment project, located north of Town Lake and along the south edge of downtown Austin, Texas

The city's vision for the project was broad: "to enhance the identity and image of downtown Austin as a civic and cultural destination for residents, visitors, and businesses while preserving and enlivening Austin's sense of place." More specifically, the Second Street Streetscape Improvement Project (SSDSIP) calls for "the inclusion of a critical mass of retail (and other pedestrian-oriented uses) linked by a coherent and uniquely identified, pedestrian environment..." linking two important civic destinations—the new City Hall and the Convention Centre Complex.

NULU, LOUISVILLE, USA



Fig. 7.6.154
Source: cdn.everfest.com

The East Market District, colloquially referred to as Nulu, is an unofficial district of Louisville, Kentucky, situated along Market Street between downtown to the west and the Highlands neighbourhoods to the east

The district is home to schools, churches, large and small businesses, and some of the city's oldest homes and businesses. The district is today well known for its galleries showcasing local, regional and national artists, unique specialty stores, antique shops, and a growing number of upscale restaurants. While multiple art galleries are located in Louisville, they are especially concentrated in this district. Keeping with the sustainable culture of Nulu, many of its restaurants offer organic and locally sourced ingredients. The district also houses numerous architecture firms, antique stores, advertising and media agencies, a record label, film production group, publishing company, designers and more.

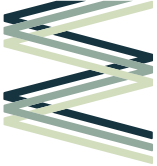
DISTILLERY HISTORIC DISTRICT, TORONTO, CANADA



Fig. 7.6.155
Source: thesustainablecity.files.wordpress.com

The Distillery District is a pedestrian-only commercial and residential district. Located east of downtown Toronto, it contains numerous cafés, restaurants, and shops housed within the heritage buildings of the former Gooderham and Worts Distillery.

The 13 acre (5.3 ha) district comprises more than forty heritage buildings and ten streets and is the largest collection of Victorian-era industrial architecture in North America. The Distillery Historic District is a neighbourhood where you can live, work and play. The identity of this neighbourhood has been focused on arts, culture, and entertainment. The many artisans, theatres, restaurants, galleries, cafés and boutique retailers, that call this area home, all share a passion for their neighbourhood.



WYNWOOD ARTS DISTRICT, MIAMI, USA



Fig. 7.6.156
Source: ipinimg.com

The Wynwood Art District is a district of Miami, Florida which has one of the largest open-air street art installations in the world

The Wynwood Art District Association was founded in early 2003 by a group of art dealers, artists and curators, and was once home to over 70 galleries, 5 museums, 3 collections, 7 art complexes, 12 art studios, 5 art fairs and the Wynwood Walls. Gentrification and rising rent prices have pushed out most of the smaller galleries. In 2018, less than ten galleries remained.

MURU MITTIGAR, PENRITH, AUSTRALIA



Fig. 7.6.157
Source: <https://muru mittigar.com.au>

Small scale learning centre. Having a space directed at showcasing small scale urban gardening techniques helps to teach the general public how to better participate in existing projects or instigate their own urban agricultural projects

Gardens which highlight the value of produce, that can be collected from native species, could potentially have environmental and cultural benefits. Having a central hub for Indigenous communities within the urban environment helps keep the city connected to the isolated communities where indigenous cultural practices are more prevalent. This could potentially improve education about indigenous culture and tradition. Native Provenance Plant Nursery is a functioning and successful native plant nursery, preserving endemic species.

COLLINGWOOD ARTS PRECINCT, MELBOURNE, AUSTRALIA



Fig. 7.6.158
Source: www.miglitcedan.com.au

The Collingwood Arts Precinct is comprised of Circus Oz and the former buildings of the Collingwood Technical School and TAFE – a soon-to-be realised working arts precinct and cultural hub

Contemporary Arts Precincts, a not-for-profit organisation tasked with delivering this project, works alongside future tenants, neighbours, supporters, specialists and government, to ensure the living legacy of the site continues to contribute to the lives of the creative and local community.

HOTZMARKT, BERLIN, GERMANY



Fig. 7.6.159
Source: allesgerman.com/

Located on the banks of the spree river within a former industrial area, Hotzmarkt is an experimental “not-for-profit” arts, culture and night club precinct being managed by a cooperative formed by the nightclub owners

Its eclectic vibe makes it a sought-after tourist destination. Money earned in for-profit ventures, such as live entertainment shows and up-scale restaurants, is channelled back into the precinct supporting all the start-ups and socially minded businesses.

CHIPPENDALE, SYDNEY, AUSTRALIA

Fig. 7.6.160
Source: Turf Design Studio, 2019

Chippendale has become a destination for artists and creatives with visions to transform Chippendale into an internationally renowned arts, food and lifestyle destination

The Creative Precinct vision was first implemented by Greenclyff Director Stanley Quek, who is a keen arts philanthropist, which led to the establishment of Chippendale Creative Precinct.

Chippendale Creative Precinct have implemented a range of initiatives that bring together economic growth and creative sustainability. It hosts a number of events throughout the year such as the BEAMS Festival, Chinese New Year Festivals, Street Art and other creative events such as the Singapore Inside Out Festival. Chippendale is now a destination with more than 15 galleries, cafes, restaurants, avant-garde businesses as well as collaborations with local Sydney institutions such as University of Sydney, Notre Dame, UTS, Sydney College of the Arts and National Art School.



ART

The expression of human creative skill and imagination, typically in a visual form such as painting or sculpture, producing works to be appreciated primarily for their beauty or emotional power

Art can ignite the soul and express the story of a place in powerful and playful ways. From the tiniest of artistic gestures from local community members to large-scale commissioned works, Waterloo is a canvas waiting to be filled with the stories of its past, present and future.

STREET ART INITIATIVE, VALPARAISO, CHILE

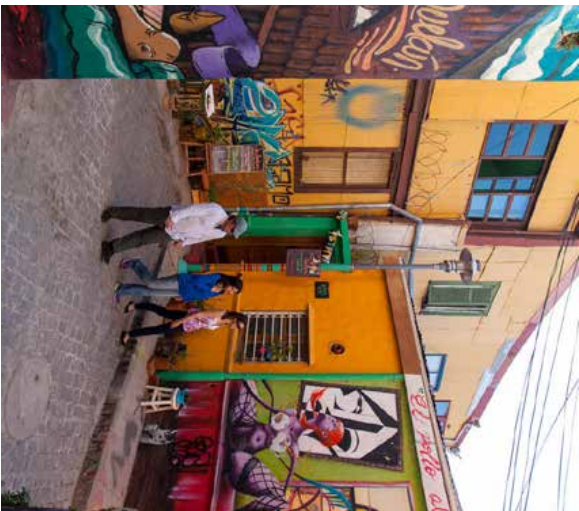


Fig. 7.6.161
Source: upscapetravel.com

The Valparaiso area contains laneways, stairways, and façades of urban graffiti art and mosaics

Murals are painted by locals and tourists. Local government and local businesses support the campaign, paying artists to produce the works. Street art movement has increased tourism, creativity and colour in the area. Murals are a form of expression and personality.

POW WOW, VARIOUS LOCATIONS



Fig. 7.6.162
Source: espncdn.com

An annual street mural festival that celebrates music, culture and art. The public domain becomes the canvases for art and activation

Forums and public speaking events are held alongside the festival to encourage discussion and education on key issues within the community.

WALK THE WALLS STREET ART FESTIVAL, SYDNEY, AUSTRALIA



Fig. 7.6.163
Source: www.theleader.com.au

Three-day event including live street art, music, free workshops, and food stalls/trucks

A local arts centre was involved in the promotion and running of the event. The art was accessible from walking distance of key public transport hubs with 1,500 square metres of walls painted within the public domain.

INDIGENOUS PORTRAITS BY MATT ADNATE, VARIOUS LOCATIONS, AUSTRALIA



Fig. 76.164
Source: welcometocountry.org

Artist Matt Adnate's street murals depict Indigenous figures, inspired by time spent in Aboriginal communities in the Northern Territory

The Indigenous portraits are painted on walls and underpass surfaces in metropolitan cities. The placement of the art work in highly visible areas is deliberate; it is a method of reminding the people in the inner city of the Indigenous heritage and the voices of those past and present. The delivery recognises that street art, and its connection to hip hop culture, can be a more appropriate method of engaging with youth.

BEAMS FESTIVAL, SYDNEY, AUSTRALIA



Fig. 76.165
Source: kensingtonstreet.com.au

In association with Art and About Sydney, and City of Sydney, the BEAMS Art Festival engages multiple visual, performative and musical artists to activate the laneways of Chippendale

Much of the public domain becomes occupied by the arts. An annual, single-night festival promotes free-style performance and events combining art, music, food and community, only possible through community engagement and re-thinking of the possibility of public domain.

PINK STREET, LISBON, PORTUGAL

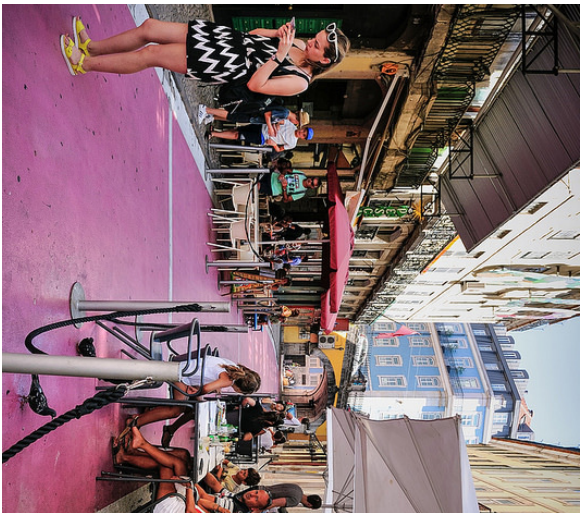


Fig. 76.166
Source: gallatlarge.com

An area once known as the 'Red light' district in Lisbon was given a colourful facelift to work alongside the vibrant nightlife

Occurs at the intersection of key public transport routes to ensure easy access for locals and tourists throughout the day and night. New cafes and bars have emerged along the street, with the enclaves of activity keeping the site active.

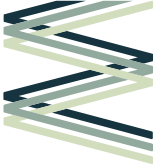
FIRST NATION DANCE RITES, SYDNEY AUSTRALIA



Fig. 76.167
Source: www.sydneioperahouse.com

Held as part of the Homeground Festival, on the Opera House Forecourt. The event is structured so that Indigenous culture is at the forefront

Curation of the event occurs through direct discussion with Indigenous people and representatives of Indigenous communities from across Australia. The 2017 event involved 300 participants from around Australia.



MALTA FESTIVAL PONZAN, POZNAN, POLAND

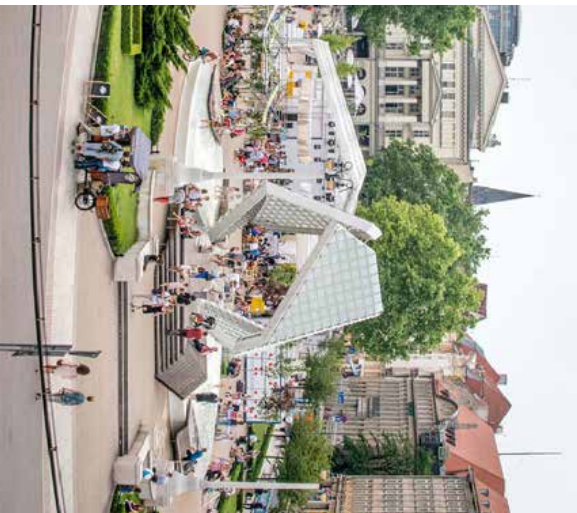


Fig. 76.168
Source: www.inyourpocket.com

The international theatre festival is held annually in Poland. The event focuses on experimental theatre and outdoor experience, with live performance and installation

The festival is not restricted to a single public space, but captures all areas of public space across the urban area of Poznan.

PARAMATTA LANES



Fig. 76.169
Source: www.parrparents.com.au

Presented by the City of Parramatta, Parramatta Lanes explores art, food and music throughout the month of October

The evening program lights up the cities streetscape, reclaiming streets and thoroughfares as public space. The event is a celebration of the culture of Western Sydney, with representatives from all backgrounds taking part in the event. The event takes on a 'green' persona, ensuring that sustainable and waste-reductive methods of art and culture are embraced.

SYDNEY PUBLIC ART



Fig. 76.170
Source: fromanarchinoshart.com.au

The City of Sydney (CoS) Public Art Program aims to showcase local and international artists to the broader community to cultivate a more culturally responsive city

The CoS has developed a Public Art Strategy and Policy document to aid the distribution and installation of public art across the city. Art takes many forms, from temporary art installations, street arts, laneway art programs to wayfinding and sculpture. There is a focus on the connection between public art and the representation of Indigenous culture, with initiatives such as the EORA Journey, which focuses on developing public art between the City and Redfern that is driven by Indigenous heritage and representation.

LATA 65, LISBON, PORTUGAL

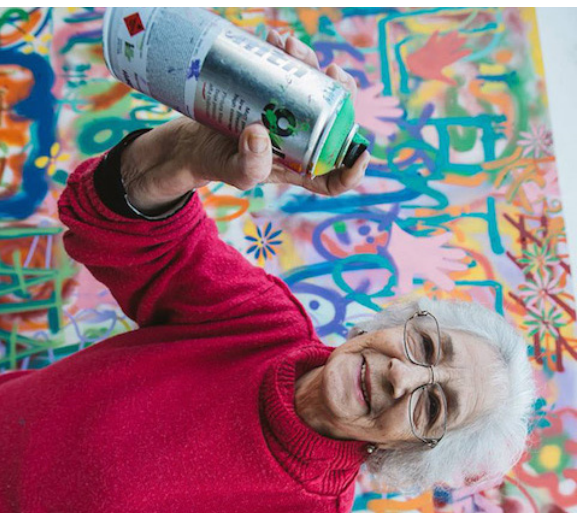


Fig. 76.171
Source: www.boredpanda.com

Portugal's gang of 'graffitiing' grandparents, Lata 65, explores alternative arts programs for the elderly that enable them to stay active, creative and engaged with the community

The group provides lessons on street art for the elderly, with engagement, participation and culture at the forefront of the movement.

FESTA, CHRISTCHURCH, NEW ZEALAND

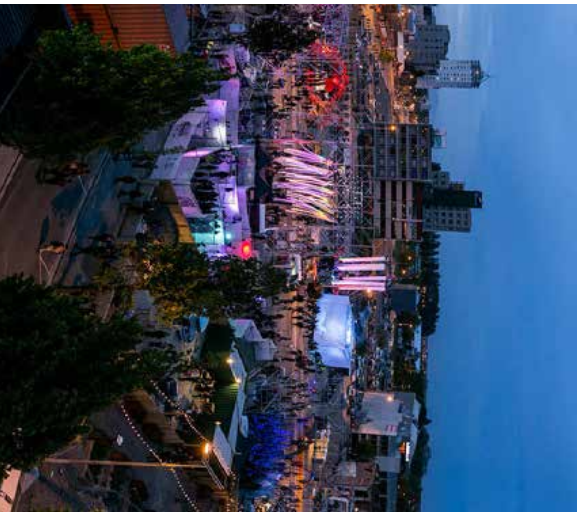


Fig. 7.6.172
Source: www.thebigidea.nz

A four day public festival of architecture, community and food, with events and workshops throughout the half rebuilt city

The many events and workshops include a children's parade, music, family events, belly dancing, weaving, food stalls, cultural performances, quick fire talks, food demonstrations, artistic projects and architectural installations, both free and paid. Provides activation to areas dominated by empty lots and underutilised public spaces.

LANEWAY ART PROGRAM, SYDNEY, AUSTRALIA

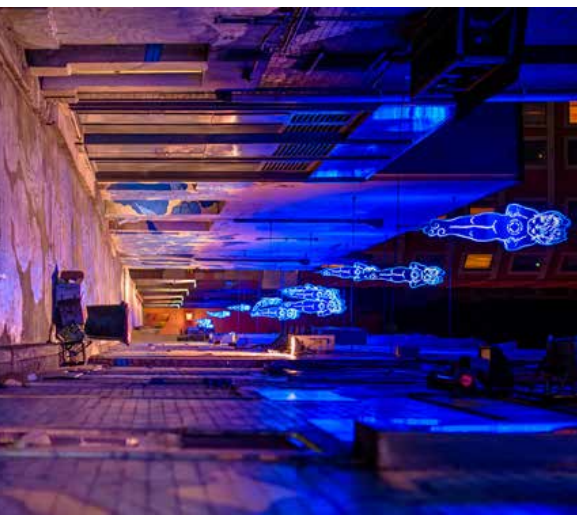
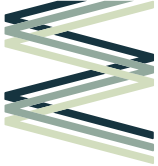


Fig. 7.6.173
Source: live.staticclick.com

The program ran from 2008 – 2013 and was an initiative by the CoS to reinvigorate the cities central laneways

Temporary art, permanent art and art associated with events were installed across the city. Whilst the initiative is officially over, some of the installations remain in the laneways as permanent works. Most works reflect the current cultural climate and are in response to events and issues that are facing the people of Sydney e.g. LGBTIQ Rights, Indigenous history and youth.



INDIGENOUS

Originating or occurring naturally in a particular place; native

Historically a swampy marsh area, Waterloo resides on land traditionally managed and stewarded by the Gadigal People of the Eora Nation. As the oldest living culture on Earth, Waterloo represents a tremendous opportunity to learn from the Indigenous past, present and future of the site in ways which inspire new thinking in design and community that can connect residents and visitors alike to country and culture.

BUSH TRADERS, DARWIN, AUSTRALIA



Fig. 7.6.174
Source: anindilugakwagarts.com.au

Indigenous hub: having a central hub for Indigenous communities within the urban environment helps keep the city connected to the isolated communities where Indigenous cultural practices are more prevalent. This could potentially improve education about Indigenous culture and tradition

CULTURAL INTEGRATION

A form of cultural exchange in which one group assumes the beliefs, practices and rituals of another group without sacrificing the characteristics of its own culture

The current population of Waterloo represents a mosaic of cultures from all over the world. Each of these groups represent a distinct set of cultural norms, practices and beliefs that can influence the architecture, programming and governance of Waterloo that enables all people, no matter where they are from, to feel welcome and accepted in the community.

NOARLUNGA DOWNS WETLAND TRAIL, ADELAIDE, AUSTRALIA



Fig. 7/6.175
Source: www.walkingsa.org.au

The 0.6km trail was opening in 2016 following a rehabilitation program led by SA Water. The walkway traces the edge of the wetland, following a series of connected pools that treat urban storm water prior to it entering the Onkaparinga River. The walk connects to a greater series of walks along the Onkaparinga River

Whilst only a small walkway, the project features the works of Indigenous artist Paul Herzich. The collaboration was born from community desire to ensure the new project reflected the importance of the area to the traditional land owners. Works included were seeds in the structure of traditional bark canoes, which are cultural icons that reflect the past, present and future.

STANDING BY TUNNERMINNERWAIT AND MAULBOUYHEENNER, MELBOURNE, AUSTRALIA



Fig. 7/6.176
Source: www.brookanddrew.com

The permanent public art piece is the product of the artists Brook Andrew and Trent Walter. It was commissioned by the City of Melbourne, following the council's research project to investigate the potential of memorialising the events of the past

The memorial commemorates the lives of Tunnerminnerwait and Maulbouyheenner, the first men hung in Melbourne. The permanent marker is intended as an artistic and educational platform for respondents. The reference to past and present are made through colour, form and placement. Six news boxes stand behind a concrete engraved seat. The news boxes contain paper with text referencing past memories and events. The surrounding planting is carefully selected to reference the Indigenous medicine plantings.

RECONCILIATION PLACE, CANBERRA, AUSTRALIA

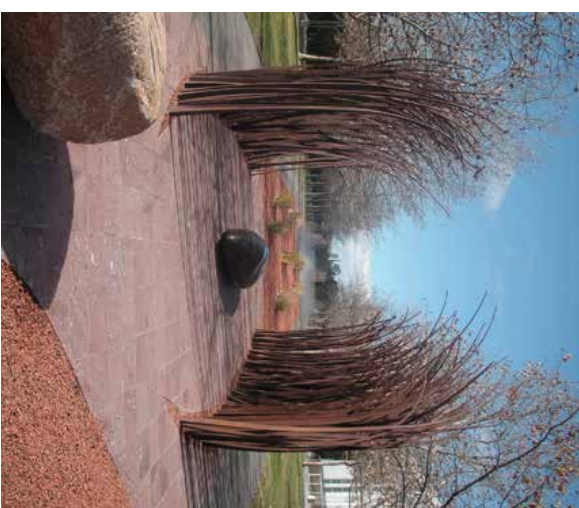
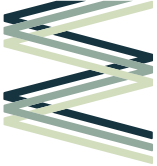


Fig. 7/6.177
Source: wikimedia.org

Reconciliation place was designed and built to commemorate Indigenous plight. The promenade stretches between the High Court of Australia and the National Library of Australia. The selection of public artworks reference a shared understanding of the history of Indigenous and non-Indigenous peoples

As a requirement of the design competition, an Indigenous Australian had to form part of the design team. The artworks were created through appreciable consultation with Indigenous families, communities, artists and representatives. The final nine works stretch the length of the promenade and offer important visual stories for those who visit.



**WELLINGTON GATEWAY SCULPTURE,
WELLINGTON, NEW ZEALAND**

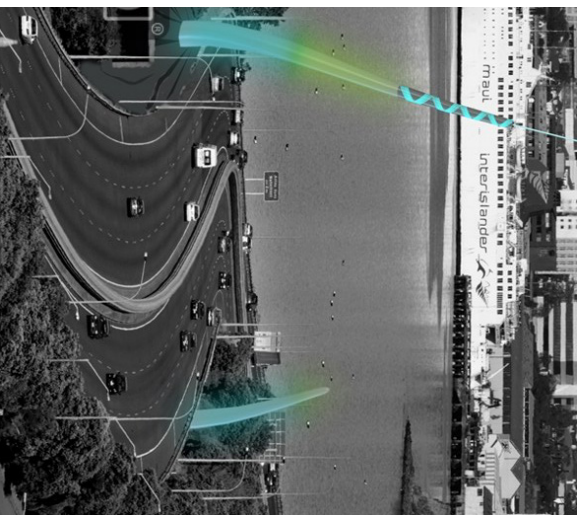


Fig. 76.178
Source: <http://www.waai.co.nz>

A series of artworks, focusing on the use of lighting and form, guide entry to Wellington. The competition required a scheme to be developed that reflected the evolution and future of Wellington. The winning design draws inspiration from the Hook of Maui, a Maori explanation about the formation of the town of Aotearoa

The form of the sculpture draws direction inspiration from the myths and legends of the Maori people.

KOPUPAKA PARK, AUCKLAND, NEW ZEALAND



Fig. 76.179
Source: isthmus.co.nz

The wetland reserve consists of five storm water wetlands. The reserve combines the importance of community, engineering and ecology. The final creation has a strong sense of place and environment, linked to the cultural aspects of the past

Recognised as a successful translation of Maori traditions, the park's form was inspired by the practice of weaving. The river walls form woven edges, allowing for silt and sediment to capture in the gaps. These sediment capture points allow for micro habitats to form and change overtime.

NGARARA PLACE, MELBOURNE, AUSTRALIA



Fig. 76.180
Source: www.greenowgarc Architects.com.au

The courtyard within the RMIT campus provides a distinguishable Indigenous presence within the greater precinct. The projects design relies on four key principles; connection to country; cultural motifs; contemporary art; and knowledge exchange

The final design provides a space for circulation, rest and respite. The hybrid of Indigenous planting, art and story, provides a rich and engaging site. The key design moves are focused on the narrative of the seven seasons of the Kulin Nations.

**BARRANGAL DYARA (SKIN AND BONES),
SYDNEY, AUSTRALIA**



Fig. 76.181
Source: www.artgallery.nsw.gov.au

As part of the 32nd Kaldor Public Art Project, Indigenous artist Jonathan Jones installed Barrangal dyara (skin and bones)

The white shields that carpeted the grounds referenced the destruction of thousands of culturally significant items lost during the Garden Palaces destruction from fire. The only Indigenous remnants of the fire were a series of shields. This particular art piece brought potentially unclear and unknown issues to the surface and was intended to represent the effort of healing and survival of the worlds oldest living culture. Presentations, performances and workshops ran alongside the installation to heighten and diversify the conversation.

GATHERING CIRCLE, SPIRIT GARDEN, THUNDER BAY, CANADA

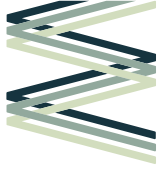


Fig. 7.6.182

Source: aasarchitecture.com

The Gathering Circle is an open pavilion in the Spirit Garden parkland. The pavilion's form is drawn from the histories of the Indigenous people and responds to the contemporary need for a communal gathering, event and exhibition space. Collaborators include an Indigenous architect from Thunder Bay and a local artist

The final form reflects the Indigenous concepts of inclusivity, co-existence and respect. These concepts reflect relations between Indigenous and non-Indigenous peoples and their environment. The form offers a site for reflection, celebration and gathering. Final construction also references and adapts traditional construction methods to the modern day.



7.6.7 SUSTAINABILITY AND INFRASTRUCTURE

Resilient Infrastructure

Climate and Comfort

It is well documented that current human development and consumption patterns have devastating impacts on land, ocean and atmospheric environments

Sustainability within the built environment is an imperative to reverse these impacts. Sustainable design, knowledge and technology advances have had dramatic growth in the past few decades, leading to positive changes within the property and construction sectors, but much more progress is still needed to shift our course toward a restorative and resilient future.

RESILIENT INFRASTRUCTURE

Infrastructure intentionally designed with the ability to reduce the magnitude and/or duration of disruptive events

111 LINCOLN ROAD, MIAMI, USA



Fig. 7.6.183
Source: Herzog and De Meuron

111 Lincoln Road is a parking garage in the South Beach section of Miami Beach, Florida, designed by the internationally known Swiss architectural firm of Herzog and de Meuron

It is an open-air structure with no exterior walls constructed around buttresses and cantilevers that features floor heights varying from 8 to 34 feet. A glassed-in high-fashion boutique, Alchemist, sits on an edge of the fifth floor.

The parking garage features retail space at the street level, with tenants such as Taschen books, Osken clothing, Nespresso coffee and MAC cosmetics, and is joined to the other structures that were part of the project. The seventh-floor doubles as an event space.

DELTA DISTRICT, CITY OF VINGE, DENMARK



Fig. 7.6.184
Source: SLA Landscape Architects

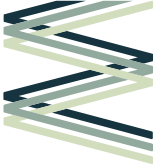
The Delta District in the future city Vinge is an example of how landscaping can create dual functions, promote better communities and prevent flooding. A man-made delta and creeks handle rainwater and provide the city district with unique qualities for residents to gather around

A former agricultural site is to become the very first green residential development area of the new city Vinge in Denmark. The Delta District will mark the starting point of a new type of urban community, with 462 houses all built according to the spatial qualities of the landscape. Here the landscape determines urban development, to achieve a community where landscape, nature and sustainability, goes hand in hand with a vibrant urban environment.

The districts name signifies the defining element of the city: the man-made delta

This delta serves the practical purpose of a rainwater management system, unique to this city, and in addition has both an ecological function, for example, amphibians and birds, and a recreative and social function for citizens and visitors.

Human-induced global warming can significantly increase localised weather events and natural disasters such as bush fires, heat waves and flooding. Our buildings and infrastructure need to adapt to these changes, and improve the safety of our communities. Waterloo has known storm water and flooding issues that can be addressed through the application of resilient green infrastructure solutions.



REBUILD BY DESIGN, NEW YORK, USA



Fig. 76.185
Source: Rebuild By Design

After Hurricane Sandy impacted 13 states, costing more than \$65 billion in damages and economic loss, President Obama's Hurricane Sandy Rebuilding Task Force launched an innovative design competition, Rebuild by Design

The competition coupled innovation and global expertise with community insight to develop implementable solutions to the region's most complex needs. The multi-stage competition guided participants through in-depth research, cross-sector, cross-professional collaboration, and iterative design. Participants collaborated with community and local government stakeholders to ensure each stage of the competition was based on the best knowledge and talent, and final proposals would be realistic and replicable.

The Rebuild by Design Hurricane Sandy Design Competition changed the way the federal government responds to disaster and became the model now used in other regions to prepare communities for future uncertainties

Its success has also inspired other efforts. The competition model's success also led to the formation of the Rebuild by Design organization, which is helping cities and communities around the globe become more resilient through collaborative research and design. Most recognizable of the design submissions was BIG U addressing disaster resilience in NYC.

ENGHAVEPARKEN, COPENHAGEN, DENMARK



Fig. 76.186
Source: Treele Natur

Copenhagen's Engshaveparken is a historic neoclassic park in the Vesterbro district that is going through a modernisation and climate adaptation upgrade

The new park design is adaptable to storing large amounts of rainwater. The main defining characteristic is the one-meter terrain drop from west to east, which basically shapes the park into a gigantic dispan. This allowed the architects to direct large amounts of water into the park without major structural changes. A dike, water channels and other features, will help direct rain water into the park where it will transform the landscape, and create a new experience for visitors, as well as relieve the sewerage system and surrounding areas from too much rainwater.

The projects show that climate change adaptation can benefit from creative thinking, design, and innovative ideas. In this case the benefit is also noticeable in financial terms

These 'green' and 'blue' upgrades will not only increase the quantity of life but are actually cheaper than focusing all efforts on upgrading 'grey' infrastructure (e.g. sewerage).

BENTHEMPELAIN WATER SQUARE, ROTTERDAM, THE NETHERLANDS



Fig. 7.6.187
Source: De Urbanisten

A multipurpose urban space: Bentheмпelain combines water storage strategy with the improvement of the urban public space quality that achieves visibility and functionality. It can generate opportunities to create environmental quality and identity to central spaces in Waterloo

The central water square retains water during peak rainfall, easing the stress on sewage systems and preventing floods in highly urbanised areas. During dry weather the lower areas are repurposed for sports and recreational use.

STRATEGIC FLOOD MASTERPLAN, COPENHAGEN, DENMARK



Fig. 7.6.188
Source: Landzine

The city has a vision of transforming into a sustainable, CO2 neutral city by 2025

A "cloudburst Concretization Masterplan" for 8 central city catchments encompassing a total area of 34km². A "cloudburst" toolbox of urban interventions, such as boulevards, parks, and plazas, provides the basis for a dynamic and multifunctional system.

SANKT KJELDS QUARTER, COPENHAGEN, DENMARK



Fig. 7.6.189
Source: Tredje Natur

Aiming to be the world's first climate adaptive district, Sankt Kjelds Quarter is an entirely new urban renewal project in Copenhagen being designed for climate adaptation

St. Kjelds is in the process of having its paved squares torn up and replaced with turf. During hot months the turf will help to cool the air. During rainstorms the squares will act as basins to collect water in the event of another flood. The sidewalks will be slightly raised in the centre to allow water to run off to the sides, and leave walkable paths. For the duration of the storm the city essentially turns into a mini-Venice.

