



Background Report

Southbank Structure Plan

November 2009

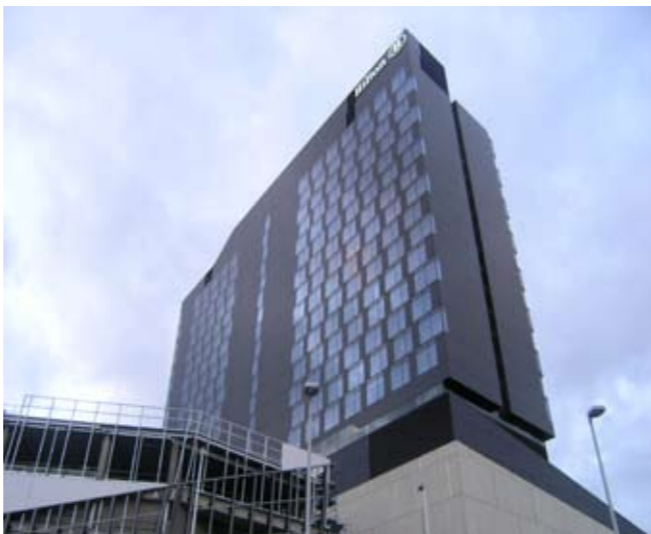


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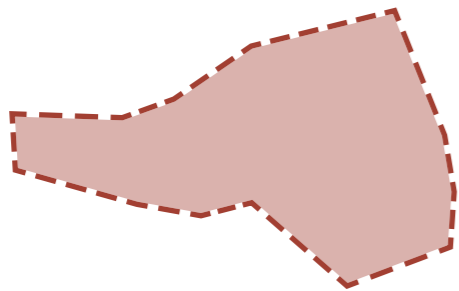
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0.1 Executive Summary

This Background Report for the Southbank Structure Plan provides a comprehensive review and analysis of Southbank from a policy and physical perspective.

It identifies that although Southbank contains nationally and regionally important facilities, at this moment it is an unsustainable suburb. The suburb has been developed to maximise the density of development and vehicles without due regard for appropriate provision of public and local amenity and infrastructure.



SOUTHBANK LAND AREA
1,576,877m²

Chapter 1 reviews and analyses the physical outcomes of the Melbourne Planning Scheme and the relevance of Design and Development Overlays (DDOs) over the last decade. The key issues identified include:

- that current strategies underway in Southbank respond mainly to public realm improvements without clarity on an overarching response to the future of Southbank in its entirety;
- that the Melbourne Planning Scheme requires updating to make specific provision for the future of Southbank to inform its emerging character and built form;
- that an active response to the issues of Climate Change Adaptation is required, in particular, the expansion of stormwater harvesting and reuse, the need for a greater proportion of green open space and an upgrade of infrastructure; and
- that a greater diversity of population demographics is required to provide a diverse community.

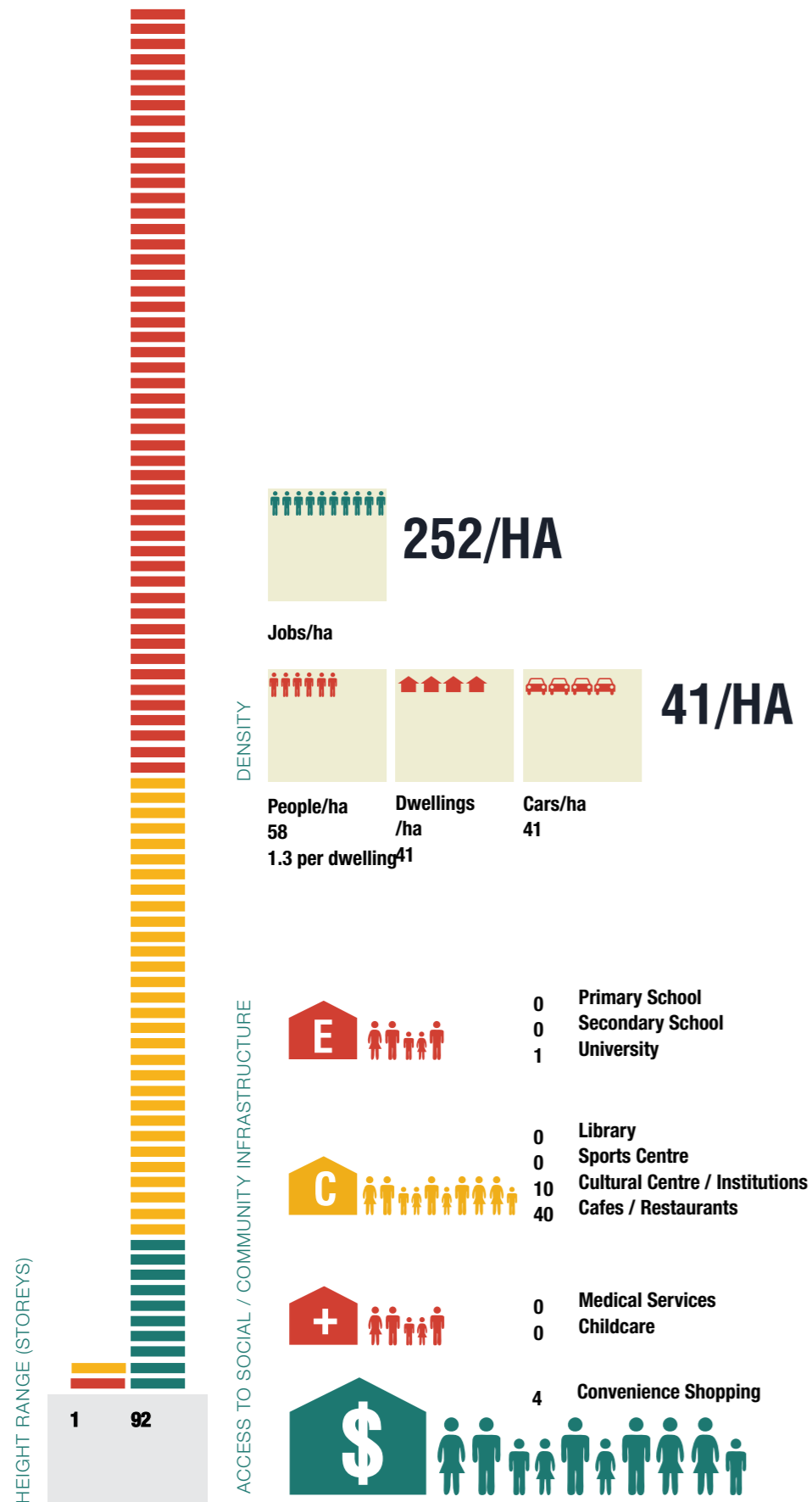
Chapter 2 analyses the physical structure of Southbank. The key issues identified include:

- the importance of Southbank as an arts and entertainment precinct;
- the eastern edges of the suburb contain significant heritage value;
- that Southbank has only recently become a residential suburb and lacks the social and community amenity to support it;
- a dominance of vehicular infrastructure throughout the suburb;
- a lack of adequate usable public open space within the suburb;
- a poor quality of streetscape and pedestrian amenity;
- an over provision of private car spaces;
- a lack of adequate parking during evenings close to entertainment venues;
- that the grain of Southbank prevents adequate permeability restricting movement and creating inflexible blocks for future development;
- that the study area is well serviced by north/south public transport routes; and
- that 3 of the 6 Future Melbourne Goals - A City of People, An Eco City, and A Connected City - are lacking in Southbank.

Chapter 3 analyses the redevelopment of blocks in other global inner urban cities. The key outcomes include:

- that residential land use only accounts for up to half the development of inner city blocks;
- that residential towers contain inflexible living spaces that cater for specific demographic types whereas edge block typologies allow for a much greater diversity; and
- that better street conditions contain overlooking at upper levels not just at the ground floor level.





Chapter 4 presents a review of the findings from the Stage 1 baseline component of the Sustainable Infrastructure Study. This baseline maps the location and capacity of the current network of water, gas and electricity systems. The key findings of this study are to be incorporated into this Background Report by December 2009 when Stage 1 of the Sustainable Infrastructure Study is complete.

Chapter 5 presents the vision for Southbank and the critical objectives specific to create a Sustainable Southbank. The vision for a Sustainable Southbank is:

“

An inclusive, diverse and resilient place that exemplifies the ecological, community and commercial prosperity of a sustainable urban district, whilst enhancing its presence as a world class cultural and arts precinct in the heart of

”

Melbourne’s parkland and riverfront.



0.2 Purpose of the Study

The purpose of the Background Report is to undertake a comprehensive review of Southbank (including South Wharf) in order to inform and guide future built form and land use options in the study area. These options will provide a base for the preparation of a preferred Structure Plan for Southbank.

This comprehensive background review intends to build on the work undertaken in Future Melbourne (prepared by the City of Melbourne) and the Southbank Plan (DSE, 2006) by focusing on the gaps left by those pieces of work. The Southbank Plan focused specifically on issues concerning the public environment, that is, the quality of the public realm or space between buildings, whereas Future Melbourne provided over-arching goals for the city as a whole, not focusing specifically on Southbank.

With the extensive building program currently underway in Southbank, this study has updated the physical analysis from the Southbank Plan and added another level of detailed assessment to the previously identified issues.

The following tasks have also been undertaken in order to compile a comprehensive understanding of the current and future direction of the suburb:

- mapping of the strategic State Government or City of Melbourne work currently underway or planned for Southbank;
- an assessment of the current provision and capacity of community and utilities infrastructure in place;
- a review of the applicability of current land use planning controls and their effectiveness in order to make recommendations for future governance and rezoning; and
- mapping of the current assumptions regarding climate change on the district;
- a precedent study of dense, liveable cities in order to understand current best practice high density sustainable development around the world.

This study has also developed a vision for a Sustainable Southbank. The vision was created by the Southbank Project Management Working Group including representatives from the City of Melbourne, the Department of Planning and Community Development, VicRoads and Sustainability Victoria together with experts from Monash University and AECOM. The vision and the recommendations formed to deliver this vision act as an important tool for testing the Structure Plan built form options work and in the future any development proposal for Southbank.

A Sustainable Infrastructure Study is being prepared in parallel to this report. The Infrastructure Study will inform the Structure Plan by identifying any excess capacity in the provision of power, water and gas supply through the area and will assess the potential for district based efficient and decentralised utility provision in order to meet the City of Melbourne's targets for a zero net emission city as identified in Zero Net Emissions by 2020.

0.3 Structure of the Reports

This Background Report comprises 5 chapters. Each chapter has been written as a standalone document focusing on a specific area of analysis.

This chapter presents an overview of the study's approach and outputs and also provides an executive summary that highlights key information and recommendations.

Chapter 1 provides an overview and analysis of the Melbourne Planning Scheme and its key components. This chapter is intended to present the reader with a clear understanding of the planning intentions for Southbank and presents an argument on its success to date. Chapter 1 concludes with a set of recommendations for potential changes to the Melbourne Planning Scheme to improve the guidance for developers and to simplify the interface between State and Local Government decision makers.

Chapter 2 analyses the physical status of the study area. It assesses the quality of key physical components such as the public realm, built form, transport and access, community and arts facilities. The conclusions from this section are delivered as a series of issues and opportunities.

Chapter 3 undertakes a review of global best practice high density urban development. It considers high density development from a number of built form outcomes such as podium and tower based development to perimeter block typologies. This analysis will inform discussion on possible future trends in Southbank and will assist in developing the built form options in the Southbank Structure Plan study.

Chapter 4 presents the Stage 1 outcomes of the Southbank Sustainable Infrastructure Study with the specific capacity and location of trunk services highlighted. It also provides a discussion on future planned projects and their impact on the capacity of each network.

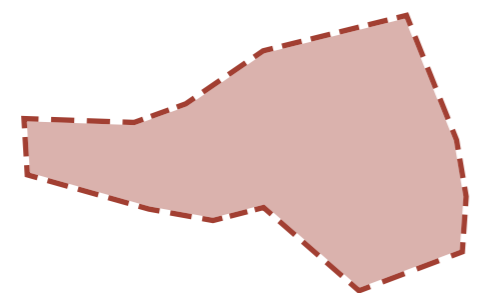
The final chapters presents the summary of all sections and combines the conclusions into an integrated set of issues. It also delivers the vision for a Sustainable Southbank, setting the objectives and criteria that will be used to test options during the Southbank Structure Plan

0.4 Overview of the Study Area

0.4.1 Location of the Study Area

The study area comprises land to the south of the Yarra River bounded by St Kilda Road to the east, Dorcas Street to the south, Kings Way to the south west and following the edge of the West Gate Freeway to the west. This area is approximately 158 hectares (389 acres). It lies directly adjacent to the Melbourne Central Business District (CBD), separated by the Yarra River and the rail corridor on the north bank.

In effect, Southbank is clearly defined by the Yarra River and rail lines to the north and by the West Gate Freeway and Dorcas Street to the south.



SOUTHBANK LAND AREA
1,576,877m²



Fig 0.4.1 Study area location plan

Not to Scale



Fig 0.4.2 Study area plan

0m 100m 200m 500m Scale 1:10,000 (At A3)



0.4.2 Southbank Suburb Profile

(Extracted in part from the City of Melbourne website)

The life and soul of Southbank is the affluent, buzzing riverside promenade stretching along the south side of the Yarra River from the popular Southgate shopping and dining complex to the glittering Crown Casino.

Packed with cafes, shops and restaurants, with a sprinkling of upmarket hotels, major offices, public art and swish new apartments, the promenade is a favourite place for locals and visitors to drink, dine and stroll, all the while taking in the splendid city views.

Southbank is an important cultural hub that includes the Melbourne Arts Centre, Concert Hall, National Gallery of Victoria, the Malthouse Theatre, the Australian Centre for Contemporary Art, the Melbourne Recital Centre and Victorian College of the Arts. It also includes the Melbourne Exhibition Centre (informally known as Jeff's Shed after a former premier) and the Polly Woodside Maritime Museum.

Significant and rapid residential development has occurred in Southbank in recent years, with the population skyrocketing. The vast majority of residents live in high rise apartments, the tallest of which is the Eureka Tower. The Eureka Tower has 92 levels, reaching 300m tall making it one of the world's tallest residential buildings.

In May, 2008 the Victorian Government created the new suburb place and name 'South Wharf', in the western end of Southbank (encompassing the Melbourne Exhibition and Convention Centre and Polly Woodside National Trust museum). South Wharf has no residential population and a small economy and business sector with some employment (estimated at around 15 businesses employing

1,200 workers). South Wharf is still an area predominantly under development which has recently included the completion of the Melbourne Convention Centre and a new hotel. For this study South Wharf has been included as part of the Southbank.

In addition, some of Melbourne's key public transport routes cross through Southbank making it an accessible suburb particularly for north/south movement..

0.4.3 Key findings from the Economic and Demographic Profile of Southbank *(undertaken by Melbourne City Research), 2008*

Southbank's central claim to fame is an Arts, Cultural and Leisure Precinct, including retail, eating, and a casino and other entertainment.

Demographics

The population of Southbank is more than 9,000 and growing faster than the municipal average. This account for 12% of the population of the City of Melbourne. It is characterised by predominantly young adults aged 20 to 34 years, usually living alone or as couples and has the third largest concentration of young people (12 to 25 year olds) in the City. The breakdown of percentage by ages group is as follows (with the City of Melbourne average in brackets):

- 0-4y.o. is 1.9% (2.8%)
- 5-14y.o. is 2% (3.8)
- 15-19y.o. is 7.4% (8.7)
- 20-24y.o is 24.5% (22.8)
- 25-34y.o. is 34.5% (27.8)
- 35-44y.o. is 11% (12.1)
- 45-64y.o. is 15% (15.5)
- 65-74y.o. is 2.2% (3.4)
- 75y.o. upwards is 1.5% (3.1)

Employment/occupations

- The population is highly educated, with workers and employed residents more often in higher status occupations.

Internet

- Residents of Southbank live in the most internet literate households in the City of Melbourne - the area has the highest proportion of dwellings connected to the internet.

Cultural diversity

- The suburb is fairly ethnically and linguistically diverse with a 500 strong Indonesian student community and almost 300 Malaysian and Chinese students; and
- In Southbank the most commonly spoken non-English language at home is Indonesian (compared to Mandarin or Cantonese in almost every other suburb).

Housing

- The vast majority of residents live in high-rise apartments, nearly two thirds of them rented and the suburb is one of the municipality's most expensive in which to rent; and
- There is no student or other low cost accommodation in Southbank despite the relatively high cost of renting in the area.

Economy

- The median household income in Southbank is one of the municipality's highest; and
- Southbank has the municipality's lowest proportion of micro businesses (employing less than five staff).

Future outlook

- The outlook for the next five years in terms of retail construction is particularly good for Southbank; and
- Current housing and population forecasts for Southbank suggest the population will grow to over 15,000 people by 2021.



Fig 0.4.3 Malthouse Theatre



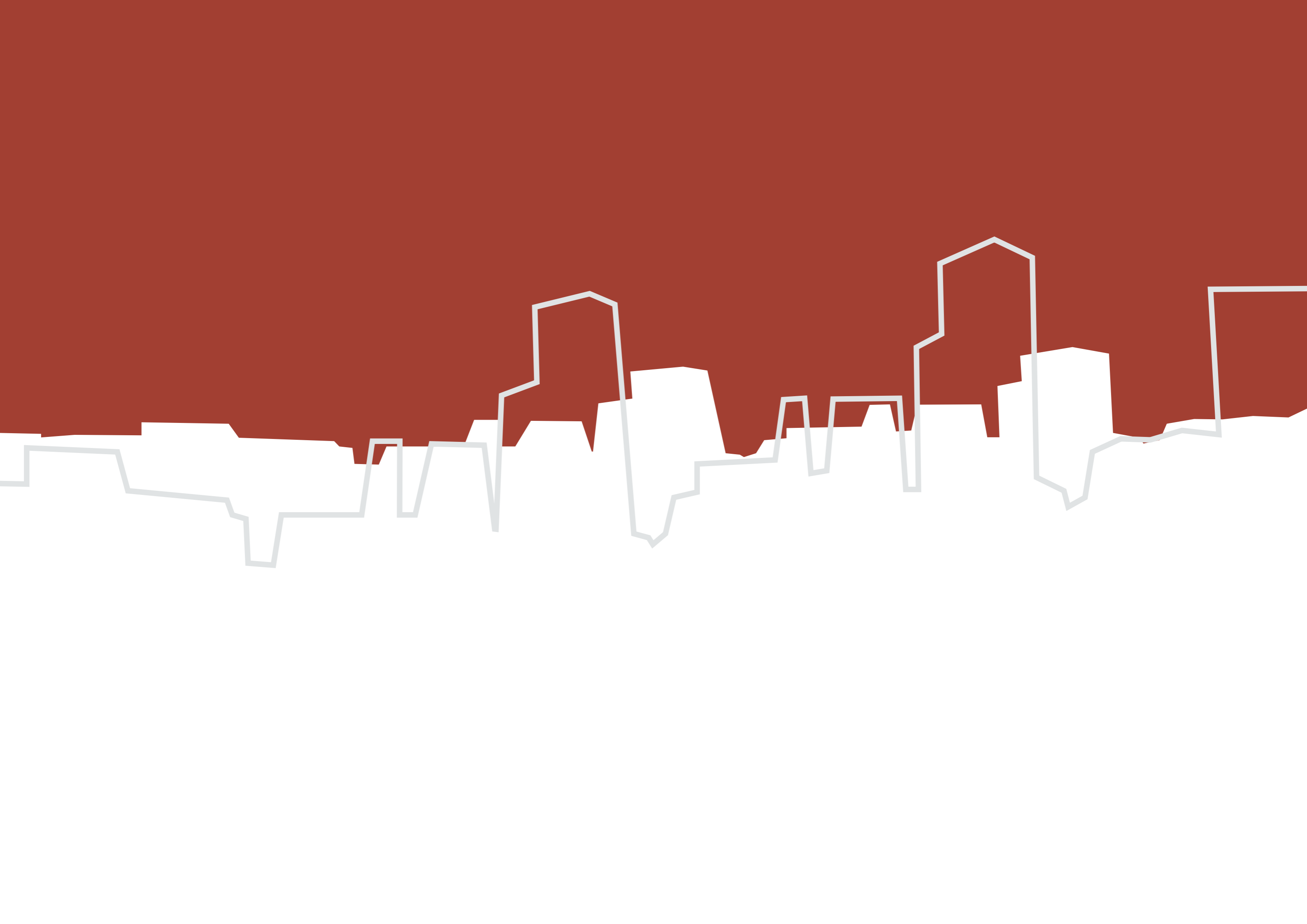
Fig 0.4.4 Southbank skyline from King's Domain





01 **Planning Review**

BACKGROUND REPORT
SOUTHBANK STRUCTURE PLAN



1.0 Contents of the Planning Review

- 1.1 Introduction to Chapter 1
- 1.2 Planning Review
- 1.3 Review of Key Strategies
- 1.4 Review of Economic and Social Indicators
- 1.5 Impact and Opportunities of Climate Change
- 1.6 Analysis of Planning Framework
- 1.7 Issues and Conclusions

1.1 Introduction to Chapter 1

This chapter of the Background Report involves the review and analysis of the Planning framework affecting Southbank.

Section 1.2 provides a summary of the key policy clauses in the Melbourne Planning Scheme (the Scheme) relevant to Southbank as part of a policy review. This provides an understanding of the strategic framework affecting the area today. This section also reviews and analyses the current range of land zonings and overlays in Southbank.

Section 1.3 reviews and analyses key strategies recently undertaken on Southbank. This section particularly focuses on project work emerging from the Southbank Plan. The intent is to understand the status of work and therefore any gaps in developing an holistic Structure Plan.

Section 1.4 reviews recent economic and social analyses of the area undertaken by the City of Melbourne in 2008.

Section 1.5 provides a review of the impacts and opportunities of Climate Change, concentrating particularly on a summary of the Climate Change Adaptation Strategy (2009). This summary will also review the adaptation challenges for Southbank so that it can better respond to climate change in the future.

Section 1.6 reviews the implementation of the controls in The Scheme by assessing the development outcomes in Southbank and appraising the decisions on all planning applications in Southbank over the last 10 years.

Section 1.7 provides a summary of key findings and conclusions.

1.2 Planning System Review

1.2.1 Introduction to the planning review

This chapter provides an overview of the Melbourne Planning Scheme (the Scheme) and key policies directly affecting development of Southbank. It is not intended to be a comprehensive description of all relevant provisions, rather more a general overview. It is structured similar to the Scheme with a state policy review followed by a review of local policy and general provisions. It concludes with a review of the current land use zonings and overlays that affect Southbank.

1.2.2 Summary of Planning Policy

This summary of the Scheme presents a review of the policy affecting the suburb of Southbank. This overview provides an understanding of the framework from which Southbank has developed over the last 10 years.

State Planning Policy Framework

The State Planning Policy Framework (SPPF) provides high level policies for all of Victoria. It sets the basis for sustainably meeting the various needs and expectations of the community with regard to settlement, the environment, economic wellbeing, social needs and the like. There are a number of policies relevant to Southbank and these are discussed below.

The objectives and strategies for Metropolitan Melbourne are contained in Clause 12 of the Scheme.

Clause 12.01 A more compact city

Clause 12.01 seeks “to facilitate sustainable development” by taking advantage of existing settlement patterns and infrastructure, and particularly by supporting the role of the Central Activities District (the CAD), by locating higher density and diverse housing options on strategic sites in or close to the CAD.

Clause 12.04 A more prosperous city

The objective of Clause 12.04 is “to create a strong and innovative economy”. This clause identifies the importance of strengthening Central Melbourne’s capital city function, including developing Southbank as mixed residential and commercial precincts.

Clause 12.05 A great place to be

The overall objective of Clause 12.05 is “to create urban environments that are of better quality, safer and more functional, provide more open space and an easily recognisable sense of place and cultural identity”. To achieve this objective Clause 12.05 identifies eight key strategies. The strategies are urban design, cultural identity and neighbourhood character, safety, heritage, neighbourhood design, open space, coastal areas and tourism. Of particular importance to Southbank’s built form are the urban design strategies. These strategies promote quality urban design to make urban environments more attractive and liveable. New developments or redevelopments should contribute to community and cultural life by improving safety, diversity, the quality of living and working environments, accessibility, and environmental sustainability. In order to achieve quality urban design, developments should also be required to respond to the context of the surrounding area, including natural features, landscape and cultural heritage. Neighbourhoods should be designed to create attractive, walkable and diverse communities by (among others) integrating diverse housing, workplaces, shopping, recreation and community services.

Structure and development planning should also recognise the critical importance of open space in the emergence of a residential suburb.

Continuing to develop Melbourne as a desirable tourist destination is also important.

Clause 12.06 A fairer city

The objective of this clause is “to provide fairer access to and distribution of social and cultural infrastructure”. Strategies to achieve this objective include increasing the supply of well-located affordable housing, planning for equitable social and physical infrastructure, and developing a strong cultural environment (including improved access to arts, recreation and other cultural facilities).

Clause 12.07 A greener city

The objective of this clause is “to minimise impacts on the environment to create a sustainable path for future growth and development”. Strategies outlined to achieve this objective include managing water resources in a sustainable way, reducing the amount of waste and encouraging reuse and recycling, reducing energy usage and greenhouse gas emissions, stormwater management, protecting groundwater and land resources, and measures to improve air quality.

Clause 12.08 Better transport links

The objective of Clause 12.08 is “to create a more sustainable transport system by integrating land-use and transport”. Key strategies to achieve this objective include upgrading the Principal Public Transport Network, transport planning (planning urban development to make it more accessible to jobs and community services), effectively managing the road network for all road users, and giving greater priority to walking and cycling.

Clause 12.09 Geographic Strategies

The objective of Clause 12.09 is to ensure key policy documents relating to transport, growth and the like, such as Melbourne 2030, are included in decision making.

Clause 14 Settlement

Simplistically, Clause 14 encourages planning to meet the needs of urban growth and the preparation of structure plans and other tools to coordinate the orderly achievement of this outcome. Consolidated growth is encouraged in areas such as Southbank.

Clause 15.01 Protection of catchments, waterways and groundwater

This clause provides for “...the protection and, where possible, restoration of catchments, waterways, water bodies, groundwater, and the marine environment”. In achieving this, planning authorities are required to have regard to relevant catchment management strategies, to liaise with catchment management authorities and to improve overall water quality.

Clause 15.02 Floodplain management

This clause seeks to protect:

- “Life, property and community infrastructure from flood hazard;
- The natural flood carrying capacity of rivers, streams and floodways;
- The flood storage function of floodplains and waterways; and
- Floodplain areas of environmental significance”.

In doing so, planning authorities are required to consider flood risk in the preparation of planning schemes and in decision making on applications, as well as to identify areas of risk.

Clause 15.05 Air Quality

This clause seeks to ensure that development is not prejudiced and community amenity is not reduced by air emissions by managing the location of conflicting land uses.

Clause 15.05 Noise abatement

This clause seeks to manage noise impacts on sensitive uses by using a range of building design, urban design and land separation techniques and by making decisions consistent with relevant environmental protection policies.

Clause 15.10 Open Space

The objective of this clause is “to assist creation of a diverse and integrated network of public open space commensurate with the needs of urban communities and rural areas”. Implementation of this objective requires responsible authorities to ensure land is set aside and developed in residential areas for local recreational use and to create pedestrian and bicycle links to commercial and community facilities and to ensure open space networks are linked through the provision of walking and cycling trails, and where possible link major parks and activity areas along waterways and natural drainage corridors.

Clause 15.11 Heritage

This clause provides for the conservation of places that have natural, environmental, aesthetic, historic, cultural, scientific or social significance. The responsible authority should protect places of natural or cultural value from inappropriate development.

Clause 15.12 Energy Efficiency

Clause 15.12 encourages land use and development that is consistent with the efficient use of energy and minimises greenhouse gas emissions. To implement this, responsible authorities should promote energy efficient buildings and consolidation of urban development.

Clause 15.14 Renewable Energy

Clause 15.14 seeks to “...promote the provision of renewable energy, including wind energy facilities, in a manner that ensures appropriate siting and design considerations are met”.

In achieving this, development is expected to include opportunities for the generation of renewable energy, and particularly wind power.

Clause 16.05 Affordable housing

Clause 16.05 promotes the provision of affordable housing close to jobs, transport and services by ensuring supply meets demand, and by encouraging greater diversity and a significant proportion of new development to be affordable for households on moderate incomes.

Clause 16.06 Residential aged care facilities

Clause 16.06 seeks the timely development of residential aged care facilities to meet existing and future needs and contributing to housing diversity and choice in communities.

Clause 17 Economic Development

Clause 17 generally seeks to protect, consolidate and stimulate development which meets the community's needs for retail, office, industry and entertainment in appropriate locations and numbers.

Of special relevance to Southbank, Clause 17.01 promotes the concentration of development in activity centres, whilst Clause 17.04 requires planning authorities are to encourage the development of a range of well designed and sited tourist facilities.

Clause 18 Infrastructure

Clause 18.01 seeks to integrate land use and transport planning to achieve the greatest overall benefit to the community and to make the best use of existing social, cultural and economic infrastructure.

Clause 18.02 provides for the provision of car parking and public transport appropriate to the particular area.

Clause 18.03 ensures bicycle travel is integrated in land use and development planning.

Clauses 18.06 and 18.07 provide for the integration of health facilities and education facilities (respectively) appropriate to the needs of local and regional communities.

Clause 18.09 require effective planning for the efficient provisions of water supply, sewerage and drainage services.

Clause 18.10 seeks to control the generation, transport and disposal of wastes so as to prevent pollution and land degradation.

Clause 18.12 facilitates the timely provision of planned infrastructure to communities through the preparation and implementation of development contributions plans.

Clause 18.13 recognises the importance of telecommunications to all aspect of modern life and the essential and beneficial contribution of modern telecommunications facilities to local communities and the State and national economy.

Clause 19.03 Design and built form

Clause 19.03 encourages high quality urban design and architecture that promotes attractiveness of cities and enhances liveability, diversity, amenity and safety. For non-residential development or residential development proposals not covered by Clause 54, Clause 55 or Clause 56, planning and responsible authorities must have regard to the following design principles:

- “The public realm, which includes main pedestrian spaces, streets, squares, parks and walkways, should be protected and enhanced;
- New development should create urban environments that enhance personal safety and property security and where people feel safe to live, work and move in at any time;
- Landmarks, views and vistas should be protected and enhanced or, where appropriate, created by new additions to the built environment;
- Design of the relationship between buildings and footpaths and other pedestrian spaces, including the arrangement of adjoining activities, entrances, windows, and architectural decoration, should enhance the visual and social experience of the observer;
- New development should respect, but not simply copy, historic precedents and create a worthy legacy for future generations;
- New development should contribute to the “complexity” and diversity of the built environment. Site consolidation should not

result in street frontages that are out of keeping with the “complexity” and “rhythm” of existing streetscapes. The development process should be managed so that sites are not in an unattractive, neglected state for excessive periods and the impacts from vacant sites are minimised;

- Enjoyment of the public realm should be enhanced by a desirable balance of sunlight and shade. This balance should not be compromised by undesirable overshadowing or exposure to the sun;
- All building, subdivision and engineering works should promote more efficient use of resources and energy efficiency;
- New development should aspire to the high standards in architecture and urban design. Any rooftop plant, lift over-runs, service entries, communication devices, and other technical attachment should be treated as part of the overall design; and
- Recognition should be given to the setting in which buildings are designed and the integrating role of landscape architecture”.

Planning authorities should emphasise urban design policies and frameworks for key locations or precincts and Planning and responsible authorities are required to have regard to, among others, the Design Guidelines for Higher Density Residential Development (2004) which applies to the design and development of residential development of four or more storeys.

1.2.3 Melbourne Planning Scheme - Municipal Strategic Statement and Local Policies.

The Municipal Strategic Statement (MSS) and Local Planning Policies (LPPs) outline the municipality's key strategic land use, planning and development objectives.

Clause 21.05 City Structure and built form

Clause 21.05 identifies objectives and strategies relating to heritage; structure and character; the public environment; sustainable built form; parks, gardens and open space; and community safety.

Southbank is noted for being an important location for high rise and campus style office development, mixed with high density residential development.

Clause 21.08-3 Southbank

This clause outlines an overall vision for Southbank. It is envisaged that Southbank will continue to develop as an inner city neighbourhood providing opportunities for a mix of housing at different densities and scales. The vision recognises that a quality public environment has been achieved in Southbank, particularly a high quality pedestrian environment. Further to this, building design and public works have made a positive contribution to the public realm. This clause also recognises that the built form north of City Link is primarily tower developments, while south of City Link and east of Moore Street, buildings of a lower scale have developed.

A range of strategies are outlined including:

- Housing and community in Southbank – residential development and residential densities north of City Link is supported. Residential development and a mix of uses in the Mixed Use Zone, south of City Link are encouraged. Medium scale residential development is encouraged in the Residential Zones of Southbank Village.
- Office and commercial use in Southbank – discourage major office development in the Mixed Use Zone, generally north of City Link and Grant Streets due to its potentially significant adverse impacts on the traffic network.

- Structure and character in Southbank – a range of design aspects are encouraged, such as ensuring tall buildings add architectural interest.

Clause 22.01 Urban Design within the Capital City Zone

This clause specifically applies to land within the Capital City Zone. The objectives of this policy are to ensure new developments respond to the underlying frameworks and fundamental characteristics of the Capital City Zone while establishing their own identity, improving the area for pedestrians, and ensuring building design meets appropriate design standards. This clause covers a range of policies relating to building design, facades, city and roof profiles, projections, wind and weather protection, public spaces, and access and safety.

The clause particularly recognises how Melbourne's buildings, streets, open spaces and landscape features combine to give the Central City its unique appearance and feeling, and how these elements have created a complex and attractive urban environment, giving Melbourne a grand and dignified city centre filled with diverse activities and possessing unique charm, character and a pleasant street level environment

Clause 22.17 Urban Design outside the Capital City Zone

This clause seeks to ensure that the valued aspects of Melbourne's character outside the Capital City Zone are not lost through redevelopment. Where the built form character of an area is established and valued, new development must respect this character and add to the overall quality of the urban environment.

Clause 22.04 Heritage Places within the Capital City Zone

Objectives of this clause include conserving and enhancing all heritage places, and promoting the identification, protection and management of aboriginal cultural heritage values, recognising the importance of these attributes within the central city as a significant part of Melbourne's attraction as a place in which to live, visit, do business and invest.

Clause 22.05 Heritage Places outside the Capital City Zone

Objectives of this clause also include conserving and enhancing all heritage places, and promoting the identification, protection and management of aboriginal cultural heritage values.

Clause 22.19 Environmentally Sustainable Office Buildings

Clause 22.19 seeks to improve the energy efficiency of new and existing buildings and to collect and use renewable energy through design and built form. The objectives:

- Discourage overshadowing of active and passive solar collection devices/elements except where the site is in a substantial change area;
- Encourage developments that minimise stormwater runoff by recycling of wastewater and reuse of rainwater;
- Encourage purpose built waste storage units; and
- Encourage innovative development, technology, processes and design to improve building sustainability.

It is policy that office developments with a gross floor area of 2,500m² or greater achieve a 4-4.5 star rating depending on their floor area, and that all developments should reduce winter heat loss, shade windows from the summer sun, install solar energy/heat pump technology, collect rainwater, and install the highest level of water efficiency appliances. It is also policy that potential active and passive solar collection consider potential future development so to avoid future overshadowing issues, and that proposed

buildings consider existing/potential active and passive solar collection except in substantial change areas.

1.2.4 Melbourne Planning Scheme – General Provisions

The following general provision is also relevant.

Clause 61 Administration of the Scheme

Clause 61.01 sets out who is the responsible authority for the administration and enforcement of the Scheme. In accordance with this clause, the Minister for Planning is the responsible authority:

- for considering and enforcing the scheme for:
 - Land at 109-111 Sturt Street and 60-66 Dodds Street, South Melbourne;
 - Land at 57 Miles Street, Southbank, described in Title Vol. 4618 Fol. 516;
 - Land at 21-37 Lorimer Street, Southbank, Title Vol 10043 Fol 053 and 054;
 - 134-144 Southbank Boulevard, 21-43 Sturt Street, & part of Southbank Boulevard; and
 - Land comprising the Melbourne Convention Centre Development Southbank and associated Northbank redevelopment Docklands, Precinct Plan area generally bounded by Wurundjeri Way, the north-south alignment of Siddeley Street and its prolongation south to the Yarra River, Charles Grimes Bridge, Montague Street, the southern alignment of the West Gate Freeway, Normanby Road and Clarendon Street, the Yarra River southbank including south wharf and Dukes Dock and Orrs Dock, and parts of the northbank of the Yarra River in the vicinity of the western end of Siddeley Street, and part of the intervening Yarra River adjacent to the northern boundary of the site, Southbank.
- within the City of Melbourne for considering and determining applications, in accordance with Divisions 1, 1A, 2, and 3 of Part 4 of the Planning and Environment Act 1987 and for approving matters required by the scheme to be done to the satisfaction of the responsible authority in relation to:
 - Developments with a gross floor area exceeding 25,000 square metres.

1.2.5 Melbourne 2030, DSE (2002)

Melbourne 2030 presents the Victorian Government's vision and long-term plan for ensuring Melbourne's growth is managed in ways that are economically, socially and environmentally sustainable. Melbourne 2030 outlines nine key directions that provide a framework to plan for the growth and management of Melbourne.

The key directions relevant to the Southbank Structure Plan are as follows.

- Direction 1: A more compact city – Melbourne's central activities district will remain as Melbourne's largest centre of activity;
- Direction 4: A more prosperous city – central Melbourne will remain as the commercial development, retail and entertainment core for Melbourne. Growth in appropriate areas of central Melbourne will be encouraged, including Southbank (i.e. mixed residential and commercial developments);
- Direction 7: A Greener City – recognises the need to manage water, energy, air quality, biodiversity and waste more sustainably, and the critical role land-use and transport planning has in this challenge; and
- Direction 8: Better transport links – the provision of safe and attractive pedestrian and cycle routes is identified in Melbourne 2030 as being in integral part of new and existing urban development.

1.2.6 Melbourne 2030 Audit Expert Group Report (March, 2008)

This report provides details and findings of the Melbourne 2030 Audit. The Audit was conducted in order to monitor the implementation of Melbourne 2030.

- Since the introduction of Melbourne 2030, much of the high rise development has occurred in the inner-city and at Docklands. The Audit suggested that this may be due to commercial viability and limited buyer interest in this type of development in activity centres;
- The Audit acknowledged that urban

consolidation is not occurring at a rate that will bring about sustainable metropolitan growth;

- The Audit recognised that more attention should be given to 'metropolitan-wide' benefits that can be realised by locating housing close to central jobs and services;
- The 2006 Census showed that there were 76,700 people living in the City of Melbourne (at the time the Census was taken). It was noted that Southbank's population has increased dramatically since the 1980s; and
- The Audit supported the provision of more diverse housing opportunities in central Melbourne and supported the proposal in the 'Inner Melbourne Action Plan' to accommodate 90,000 additional dwellings in central Melbourne by 2030.

1.2.7 Planning for all of Melbourne, Victorian Government (2008)

This document is the Victorian Government's response to the Melbourne 2030 Audit. The document addresses a range of issues including planning for all of Melbourne, transport and managing congestion, environmental sustainability and climate change, and managing urban growth and change.

The State Government's response to climate change issues is presented in this document. The Government will improve the long-term energy efficiency of homes, offices and other buildings; promote walkable and less car-dependent communities; update policies regarding the design, construction; and retrofitting of buildings to reflect climate change risks.

The State Government identified that it will work with inner city municipalities to implement the 'Inner Melbourne Action Plan' to help strengthen the liveability of inner Melbourne and accommodate 90,000 additional dwellings in inner Melbourne by 2030.

1.2.8 Melbourne @ 5 Million, DPCD (2008)

Melbourne @ 5 million is an outcome of the review of Melbourne 2030. It provides policy initiatives that should be considered together with Melbourne 2030 reflecting revised and increased expectations for Melbourne's growth.

Melbourne @ 5 million identifies the need for a polycentric city structure, whereby 'multiple major centres' are to be developed around the Melbourne CBD. The Melbourne CBD is to remain at the centre of the city structure. As a result of Melbourne's rapidly expanding population there is a stronger need for urban renewal to help assist keeping housing affordable.

Melbourne @ 5 Million also highlights the need for better connectivity between Melbourne's employment centres and corridors, and the need to increase local employment opportunities.

1.2.9 Inner Melbourne Action Plan, (December 2005)

The overarching aim of the Inner Melbourne Action Plan (IMAP) is to make the Inner Melbourne Region more liveable. The Plan sets out strategies to achieve the aims of Melbourne 2030. The IMAP was developed by VicUrban and the inner metropolitan Councils of Melbourne (including Docklands), Port Phillip, Yarra, and Stonnington.

The vision of IMAP is:

- "An Inner Melbourne Region that embodies creativity, liveability, prosperity and sustainability in a range of diverse neighbourhoods. A region where the 19th century character informs modern development to create pedestrian oriented places – places that support a tolerant and inclusive community and provide a variety of experiences and opportunities for residents, workers and visitors; a region that responds to its capital city role by supporting arts, entertainment, retail, regional facilities and the functions of the port."

To archive this vision the IMAP outlines 11 strategies including the following:

- "Celebrate the unique and concentrated 19th century heritage of the Inner Melbourne Region;
- Effectively link transport routes so that the Inner Melbourne Region is accessible throughout by walking, cycling and public transport;

- Minimise the growing impact of traffic congestion;
- Increase public transport use;
- Plan to accommodate 90,000 more dwellings by 2030;
- Support the distinct and diverse character of Activity Centres;
- Promote the Inner Melbourne Region as an investment location for knowledge rich business sectors;
- Facilitate the growing importance of the Inner Melbourne Region as south-east Australia's freight hub;
- Substantially improve the environmental performance of the Inner Melbourne Region;
- Complete the regional open space network; and
- Promote the Inner Melbourne Region as a tourism destination."

1.2.10 Future Melbourne CoM (September, 2008)

Future Melbourne is a vital community based vision, sponsored by the City of Melbourne, which embraces and articulates all aspects, aspirations and goals to maintain and enhance the liveability of Melbourne. Future Melbourne seeks to achieve:

- a city for people;
- a creative city;
- a prosperous city;
- a city of knowledge;
- an eco-city; and
- a connected city.

The following goals are key to the Southbank Structure Plan:

A city for people

To create a city for people, Melbourne will be designed for human and pedestrian scale streetscapes and buildings. Melbourne's sense of place will be strengthened by encouraging streets and spaces to retain their liveability and character. Future Melbourne promotes quality urban design (which respects heritage) and

sustainable architecture. The importance of quality public space is recognised as part of Melbourne's visions. The City's park network will be improved and expanded and created to be resilient against climate change. The importance of trees in Melbourne's streetscape and parks is also highlighted.

A creative city

A creative city is one that has a vibrant and thriving creative base by encouraging innovation and new artistic mediums. Goals to achieve a creative city include:

- Creative risk taking (tasks risk to be creative and innovative through artistic, business, social, educational or even political pursuits);
- Vibrant, creative community (support for emerging artists and new and existing arts organisations);
- Celebrating diversity (support, embrace and celebrate Melbourne's diversity and cultural, including indigenous, ethnic diversity, people at different life stages); and
- Prosperity through creativity (investigate how Melbourne's creative industries can prosper).

A prosperous city

This goal seeks greater prosperity for Melbourne through businesses embracing the triple bottom line, excellent access to financial service providers, markets and clients, engagement with the network of global cities and attracts global investment. To ensure Melbourne continues as a prosperous city Future Melbourne's goals include stimulating a safe 24 hour city, being attractive for new businesses, holding sports, cultural and business events city, and making the city a great place to visit.

A knowledge city

As a knowledge city this will lead to prosperity. Melbourne is known for its world-class universities, excellent schools and scientific institutions. The City of Melbourne will function as an educational, scientific, cultural and business environment that creates and shares knowledge. Goals to achieve this include generating

innovation from knowledge, strengthening synergies between the city and universities, continue to be a learning city, and connected broadband wireless technologies.

An eco-city

An eco-city is identified as having the following key features: compact, high-density housing; business and cultural activities that sustain the local transport network; walking and cycling being the preferred mode of transport; excellent air quality; generous open space and landscaping; zero net emissions; management of climate change risk; and sustainable water and resources management. Adapting to the risks and impacts of climate change is an important element in Future Melbourne. To maintain the City's resilience the City's parks, rooftop gardens and passive shading are to be used for cooling the ecosystem. Buildings and infrastructure are also to be designed to mitigate the impacts of projected sea-level rise, storm damage, and flooding. As part of an eco-city a higher residential density is encouraged to reduce the daily transport requirements of individuals living and working in the City.

A connected city

Being connected is vital for the effective functioning of cities. For Melbourne to be well connected Future Melbourne's goals are effective and integrated public transport, becoming a cycling and walking city, creating innovative urban freight logistics, resolving conflicts with cars in the city, and integrated and affordable regional global transport connections.

Strategic Growth Areas

Southbank is a Strategic Growth Area identified in Future Melbourne.

Future Melbourne recognises that the City of Melbourne experienced the fourth largest municipal population growth within Victoria during 2006-07. The population growth in Victoria during this period was 5.8 per cent. During the same period the Docklands and Southbank's population growth was 9.5 per cent. In 2006 the City of Melbourne had an approximate population

of 86,000 persons in 48,000 dwellings. This is projected to increase to 140,000 people and 73,000 dwellings by 2020.

Future Melbourne recognises there are several sites yet to be developed in Southbank and as such Southbank provides the City of Melbourne with significant residential development opportunities. Most recent efforts in Southbank have been improvements to the river's edge and surrounds. However greater consideration needs to be given to areas away from the river. Current issues include public amenity in areas in the vicinity of car-dominated roads, inactive streets and street frontages, discontinuous walking routes and inadequate open space. The City of Melbourne and the Department of Planning and Community Development (DPCD) are working in collaboration to implement the Southbank Plan which addresses these issues and aims to improve the overall public realm of Southbank.

1.2.11 Land Use and Development Controls

The Victorian planning system prescribes a limited range of zones and overlays which can be used by responsible authorities to deliver the policies and strategies contained in their planning schemes. Site or area specific standards can be developed in many of the overlays. One of the key drivers of planning reform in Victoria over the last decade or more has been the clarification and simplification of the planning system. This reform is generally considered to have improved the process of planning in the State.

Simplistically then, in Southbank the zones and overlays are selected/designed to deliver the particular strategic outcomes described earlier. The Southbank Study area comprises a diversity of planning zonings and overlays designed to implement particular land use and built form outcomes identified in the policy sections of the planning scheme. The summary below provides a general review each control with particular attention given to the its intention for residential, office and retail land uses, ground floor interfaces and activities and building heights and forms.

Zones

Capital City Zone (CCZ)

This zone provides for the use of land in Melbourne's central city area recognising its role as the capital of Victoria and as an area of national and international importance. The zoning enables the explicit statement of purpose and particular land use requirements, buildings and works, signage and other controls in a schedule to the zone. Southbank is affected by Schedule 1 to the CCZ (CCZ1).

Notably, the purpose of the CCZ1 zone is to provide for a range of financial, legal, administrative, recreational, tourist, entertainment and other uses that complement the capital city function of the locality. The CCZ zone provides that no planning permit is required for land uses such as accommodation, office and retail premises. Activities such as department stores, hotels, leisure and recreation premises, nightclubs, supermarkets and taverns require a planning permit.

Generally a planning permit is required for buildings and works with some limited exemptions, but notably with particular provisions protecting the solar access of public space, parks and gardens, squares, and major pedestrian routes (including streets and lanes and privately owned plazas open to the public).

Mixed Use Zone

This zone is a residential zone that also provides for a range of commercial, industrial and other uses and is often proposed for areas with or desiring a mixed use character. Notably, among other more standard provisions, the use of land for a dwelling does not require a planning permit, while retail and office are allowed with a permit, and benign industry is also allowed with a permit and subject to scrutiny of amenity impacts.

Residential 1 Zone

This is the main zone to be applied in residential areas. It provides for a range of dwelling types and dwelling densities and for a limited range of other uses commonly found in residential areas and a variety of more standard provisions

regarding buildings and works and signage.

Public Use Zone

This zone recognises the use of land for a public purpose and is the main zone for public land used for utility or community service provision.

Public Park and Recreation Zone

This is the main zone for public open space and public recreation areas.

Commonwealth Land

Land vested in the Commonwealth is generally exempt from the provisions of a planning scheme. This has created numerous situations in the past whereby commercial development of these sites has occurred, sometimes in spite of existing planning policies and controls.

Overlays

Heritage Overlay

The Heritage overlay recognises heritage places and generally requires a planning permit for demolition, alterations and additions and for new development. The overlay requires the heritage significance of a building, place or item to be considered as part of a development proposal.

Design and Development Overlay

The Design and Development Overlay (DDO) is intended to control buildings and works based on a demonstrated need to control built form and the built environment. There are a multitude of schedules to the DDO affecting land in Southbank. The more interesting and relevant DDOs are as described in Table 1.2.1

Other DDOs in the area protect the structure of operation of bridges in the area (DDO5), recognise vistas to the Shrine of Remembrance (DDO17) and manage the impacts of the City Link Exhaust Stack (DDO27) by requiring that an application is notified to the relevant body managing the exhaust.

Land Subject to Inundation Overlay

This overlay applies to land which is subject to inundation, but is not part of the primary flood way. Simplistically it requires permit applications to be considered in terms of their impact on flood flows. The views of the relevant floodplain management authority must be considered in permit applications.

Environmental Audit Overlay

This overlay recognises limited pockets of potentially contaminated land in the study area and requires an environmental audit to be undertaken for the use or development of land for a sensitive use (residential, child care, pre-school centre or primary school).

Road Closure Overlay

This overlay recognises a small sliver of road in Southbank Boulevard east of Sturt Street which is closed by an amendment to a planning scheme.

City Link Project Overlay

This overlay only applies to certain areas associated with the City Link project generally embracing the land occupied by City Link.

Schedule to the DDO	Description	Summary	Other matters of interest
1	Active Street Frontages	<p>The DDO1 identifies three types of street frontages in the broader (i.e. including Central Melbourne) Capital City Zone.</p> <p>They are Area 1- Retail core, Area 2 – Major pedestrian areas and Area 3 – Other areas.</p> <p>Southbank contains elements of Areas 2 and 3.</p> <p>In Area 2, buildings with ground level street frontages must present an attractive pedestrian frontage and; provide at least 5 metres or 80% (whichever is the greater) as an entry or display window to a shop and/or a food and drink premises, or the same amount of space as other uses, customer service areas and activities which provide pedestrian interest and interaction</p> <p>Built scale appropriate to the street and pedestrians, and clear glazing/ transparent security grilles</p> <p>In Area 3, buildings with ground level street frontages must contribute to the safety, visual interest and vitality of the street by minimising the extent and impact of blank walls, office lobbies, vehicle entrances and utilities.</p>	<p>DDO1 Area 3 generally coincides with the location of the Capital City Zone.</p> <p>Area 2 applies to Southbank Promenade from St Kilda Road to Clarendon Street, Queensbridge Street, Brown Street and a segment of the east side of Clarendon Street from the River to Whiteman Street.</p>
4	Weather Protection	DDO4 requires the provision of a verandah for weather protection over the footpath unless non-provision is agreed with the responsible authority.	DDO4 applies to the entire eastern side of Queensbridge Street and Queensbridge Square and the west side of Queensbridge Street between Whiteman Street and Kings Way
18	Southbank Plot Ratio	DDO18 encourages residential development by limiting office floor space to a maximum of 2 times the site area.	DDO18 affects land predominantly zoned Mixed Use and generally located between the CCZ1 and (including) the Westgate Freeway.
38	Southbank Central Core	<p>DDO38 is a height and bulk control.</p> <p>Simplistically, it provides for:</p> <ul style="list-style-type: none"> ▪ A height limit of 160 metres ▪ A podium height of 16-28 metres ▪ Varying boundary setbacks for towers up to and above 40 metres. 	DDO38 generally combines with land in the CCZ1 zone between DDO40 and Clarke Street and City Road.
39	Southbank Central Interface	<p>DDO39 is a height and bulk control.</p> <p>Simplistically, it provides for:</p> <ul style="list-style-type: none"> ▪ A height limit of 100 metres ▪ A podium height of 16-28 metres ▪ Varying boundary setbacks for towers up to and above 40 metres. 	DDO39 generally combines with land in the Mixed Use zone between DDO38 and the Westgate Freeway and Moore Street.
40	Arts Centre and River Environs	<p>DDO40 is a height and bulk control. Simplistically, it provides for:</p> <ul style="list-style-type: none"> ▪ A height limit of 6 storeys ▪ A setback of 13.2 metres from St Kilda Road. 	DDO40 generally combines with land in the CCZ1 zone between Normanby Road, Whiteman Street, Queensbridge Street, Queensbridge Square and Riverside and the River, also embracing the area between St Kilda Road and Fanning Street, Hanover Street, Southbank Boulevard and Dodds Street to Grant Street.
41	Southbank Village	<p>DDO41 is a height and bulk control. Simplistically, it provides for:</p> <ul style="list-style-type: none"> ▪ A mandatory height limit of 14 metres. 	DDO41 generally combines with land in the Mixed Use and Residential 1 zones Grant Street, Wells Street, Sturt Street and Coventry Street.
42	Sturt Street	<p>The DDO42 is a height and bulk control. Simplistically, it provides for:</p> <ul style="list-style-type: none"> ▪ A height limit of 8 storeys ▪ A podium height of up to 16 metres ▪ A tower setback of up to 6 metres from Sturt and Coventry Streets. 	<p>DDO42 generally combines with land:</p> <ul style="list-style-type: none"> ▪ in the Mixed Use and PUZ2 zones between DDO39 and 40 and Dodds Street, ▪ land zoned Mixed Use and bounded by Moore Street, Miles Street, Sturt Street and Kingsway, and ▪ land zoned Mixed Use and bounded by Kings Way, Dorcas Street, Coventry Street and Wells Street.
43	Dorcas Street	<p>DDO43 is a height and bulk control.</p> <p>Simplistically, it provides for:</p> <ul style="list-style-type: none"> ▪ A height limit of 60 metres 	DDO43 generally combines with land in the CCZ1 zone between DDO40 and Clarke Street and City Road.

Table1.2.1

Design & Development Overlays (Melbourne Planning Scheme)



Fig 1.2.1 Zones (Melbourne Planning Scheme)

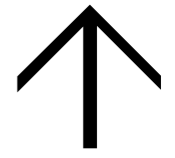
- CCZ1 - Capital City Zone
- MUZ - Mixed Use Zone
- R1Z - Residential 1 Zone
- PUZ - Public Use Zone
- PPRZ - Public Park & Recreation Zone
- CA - Commonwealth Land



Fig 1.2.2 Design & Development Overlays (Melbourne Planning Scheme)

- DD038 - Southbank Central Core
- DD039 - Southbank Central Interface
- DD040 - Centre and River Environs
- DD041 - Southbank Village
- DD042 - Sturt Street
- DD043 - Dorcas Street

0m 100m 200m 500m Scale 1:10,000 (At A3)



1.3 Review of Key Strategies

These strategies represent the major pieces of work undertaken on the Southbank over the last 5 years.

1.3.1 Southbank Plan, DSE (2006)

The Southbank Plan (The Plan) was developed in collaboration with the then Department of Sustainability and Environment (DSE). The Plan outlines key opportunities for Southbank. The Plan emphasises the importance of the public environment – a key element for enabling the social, cultural, economic and civic life of cities. A high quality public environment is recognised for being even more important in dense areas, such as Southbank. Southbank is often difficult to walk around, buildings are often disconnected and the sense of community for Southbank residents is low.

Southbank's key issues include:

Poor quality urban environments

- Southbank's public environment is dominated by traffic and self-contained developments, interface of buildings and streets generally don't support street life or safety, and infrastructure projects are poorly integrated with the urban environment (e.g. Westgate Freeway).

Poor walkability

- Southbank's poor walkability can be attributed to major physical impediments, confusing street layout, poor amenity of the walking network, and the dominance of cars.

Isolated buildings

- Much of Southbank's residential and institutional development has created self-contained and isolated buildings with unpleasant street environments. Intense car parking demand is one of the most problematic aspects of high density development. The Plan recognises that the provision of car parking is a limitation on high density developments because it reduces densities, degrades the urban environment and discourages walking.

Inadequate community infrastructure

- Southbank has limited neighbourhood facilities such as parks and meeting spaces, and community services.

Six principles proposed to address Southbank's issues are:

- Create an integrated walking network;
- Provide better public spaces;
- Encourage a complementary mix of uses;
- Encourage high quality built form;
- Improve the cycling and traffic network; and
- Coordinate parking provision and access.

The seven key projects to meet the principles are:

- The Sturt Street cultural spine;
- Southbank Boulevard open space link;
- CityLink interchange precinct;
- Kavanagh / Moray Street local link;
- West Gate Freeway undercroft conversion and Docklands - South Melbourne Link;
- Whiteman Street local centre and park; and
- Activating life in the public environment.

1.3.2 Queensbridge Precinct Draft Concept Plan (draft, not adopted), DSE/CoM (2006)

The Plan outlines the concept for the development of the Queensbridge Precinct in Southbank. It is intended for the precinct to create an urban space of local and regional significance, provide improved pedestrian linkages across the Yarra River, and create attractive social places.

The Queensbridge Precinct has three significant components – the Northbank Redevelopment, Sandridge Bridge and Queensbridge Square. Queensbridge Square is located in Southbank, whereas the Northbank and Sandridge Bridge are located outside Southbank. The Queensbridge Precinct is spatially defined by Freshwater Place, Crown Casino, No.1 Southbank Boulevard and Flinders Street Station.

The Queensbridge Square site is 9175 square metres. The design for Queensbridge Square will be a simple, elegant and robust contemporary space which will compliment the scale and design of the Southbank Promenade, while embracing the Yarra River. Shelter from weather will be provided. The re-connection of the Sandridge Bridge will provide an additional link from Queensbridge Square to Northbank. Extensive lighting and active retail frontages and a 24 hour population will support the area as a safe active urban space.

The concept plan highlights the importance of the Yarra River Precinct as link between cultural and entertainment venues, for festivals and events and providing green and shady attractive avenues for pedestrians.

Queensbridge Square will provide for a range of activities including events based activities in the open plaza, an emphasis on river based activities, connection between the square and the lower river promenade, green relief, shelter and seating and informal seating associated with alfresco dining and retail along the Freshwater Place building edge.

1.3.3 Draft Open Space Analysis: Southbank Area, (draft, not adopted), CoM (2006)

The Draft Open Space Analysis for the Southbank Area is to be used to assist the planning of open space for residents and visitors. Types of open space include neighbourhood parks, paths, gardens and playgrounds.

The Draft Open Space Analysis identifies that where ideally there should be one hectare of open space per 1,000 people, at present Southbank has 0.1 hectare of open space for every 1,000 people.

Within Southbank's open space areas, diversity of recreational activities is inadequate. This is primarily due to the low number and small size of reserves. Most open spaces are quite formal with seating and other passive recreational uses.

Areas of open space in proximity to the Yarra River, Southbank Promenade and Maritime Park

are dominated by hard surfaces. These are suited to the needs of workers but not to the needs of residents.

Increasing population densities in Southbank is decreasing the amount of open space per person.

The analysis recommends that where possible future parks should be least 500m² in size. Local open space could be increased by creating open space in conversion of roadway to green space, purchase of land or in future subdivisions.

Potential open space has been identified at Normanby Road Reserve and a potential neighbourhood park at Southbank Boulevard.

1.3.4 The Southbank Community Plan, (adopted), CoM (2004)

The Southbank Community Plan addressed current and future needs of residents, traders and key stakeholders in Southbank and identified neighbourhood strategies for strengthening the community.

The Southbank Community Plan has four priorities:

- Life Stage Service Planning – includes improving access to community activity spaces (a long-term strategy is to negotiate with private developers the inclusion of community space in new buildings and development of additional child care spaces), and provide community notice boards in the Southbank area;
- Open Space and Urban Design – improve Southbank's public environment and pedestrian safety and movement (including streetscape improvements for pedestrians and cyclists), development of neighbourhood hubs with complementary commercial activities, provide new/improved parks and open space at Grant/Sturt Streets, St Johns Square and Sandridge Bridge and provide an innovative and active children's play space;
- Community Capacity Building and Social Connection – promote facilities/services to specific age groups and plan for diverse housing stock e.g. size and affordability; and

- Planning at the neighbourhood level – traffic management and parking (including improved residential parking in St Kilda Road, Coventry Street, Dorcas Street and Armadale Street) and ensure developers provide adequate on-site car parking for residents.

1.3.5 Wheels & Heels – Southbank, CoM (Draft)

The purpose of Wheels & Heels is “to determine an appropriate suite of implementation plans to manage access and parking in Southbank”. It involves consideration of all modes of transport. Key findings of Wheels & Heels are:

- The total floor space in Southbank increased from approximately 1,500,000 metres in 2000 to approximately 2,500,000 square metres in 2004;
- Over 6,000 residents live in apartment clusters in central Southbank;
- The apartment buildings in Southbank are generally new developments of 10 or more storeys;
- Car ownership in Southbank is 0.92 per household compared to Melbourne’s average of 1.56. Car ownership in Southbank is expected to remain low;
- Cycling to Melbourne is becoming increasingly more popular;
- Local needs, particularly for pedestrians are growing due to local population growth; and
- There are competing transport impacts upon amenity and safety.

The gaps identified in Wheels & Heels are grouped into five themes: pedestrians and cyclists, public transport, traffic and parking, land use integration, and other issues.

Initiatives to improve the pedestrian and cyclist networks include:

- Improve pedestrian safety and installation of additional traffic lights and streetlights where required;
- Improve streetscape amenity;
- Install maps and signage for pedestrian and cyclists;

- Improve cyclist safety; and
- Link various cycling networks and complete north bank as an alternative to cycling trail to Southbank Promenade.

Initiatives to improve public transport include:

- Improving the general public transport network (bus and tram routes) in Southbank and east – west public transport connections.

Initiatives to improve traffic and parking include:

- Investigate changes to clearway times;
- Improving way-finding signage;
- Improve pedestrian signage to car parking;
- Review residential permit scheme to increase car parking capacity; and
- Removing mandatory parking from development to reduce car dependency.

Initiatives to improve land use integration include:

- Provide a children’s playground in Grant Street Park;
- Promote mixed land use shops and cafes and well designed street frontages along main streets;
- Develop the area underneath the West Gate in line with the Southbank plan; and
- Implementing the Southbank plan to improve amenity and liveability.

Initiatives relating to other issues are not relevant to the Southbank Structure Plan.

1.3.6 Zero Net Emissions by 2020, Update 2008, (adopted), CoM

Zero Net Emissions by 2020 sets a target of achieving zero net emissions in the municipality. The document will be used to guide the implementation of sustainability programs to keep the City of Melbourne on track for achieving this target.

From 2002 to 2005-2006 emissions in the City of Melbourne increased by 59%. This is attributed to growth in all sectors in the City of Melbourne, particularly commercial developments and increases new dwellings and residents, the use of more energy intense appliances, the inclusion of

Docklands in the City of Melbourne municipality and freight emissions.

For a targeted response to reduce emissions Zero Net Emissions by 2020 sets out strategies under the following themes:

- Commercial;
- Residential;
- Passenger transport; and
- De-carbonising the energy supply.

The commercial sector includes offices, sales, accommodation, restaurants, tourism, retail, health, education and community facilities.

Commercial focused strategies include:

- Increasing greenhouse performance standards for new office buildings;
- Retrofitting 1200 existing commercial buildings to improve water and energy efficiency;
- Retrofitting education, health and community buildings and hotels; and
- Introducing greenhouse performance standards for hotels, retail and wholesale developments.

The three main contributors to overall residential emissions are appliances, heating and cooling, and water heating. Residential strategies include:

- Retrofitting existing buildings;
- Improve thermal performance of new residential buildings (above the current 5 Star standard); and
- Behaviour change program.

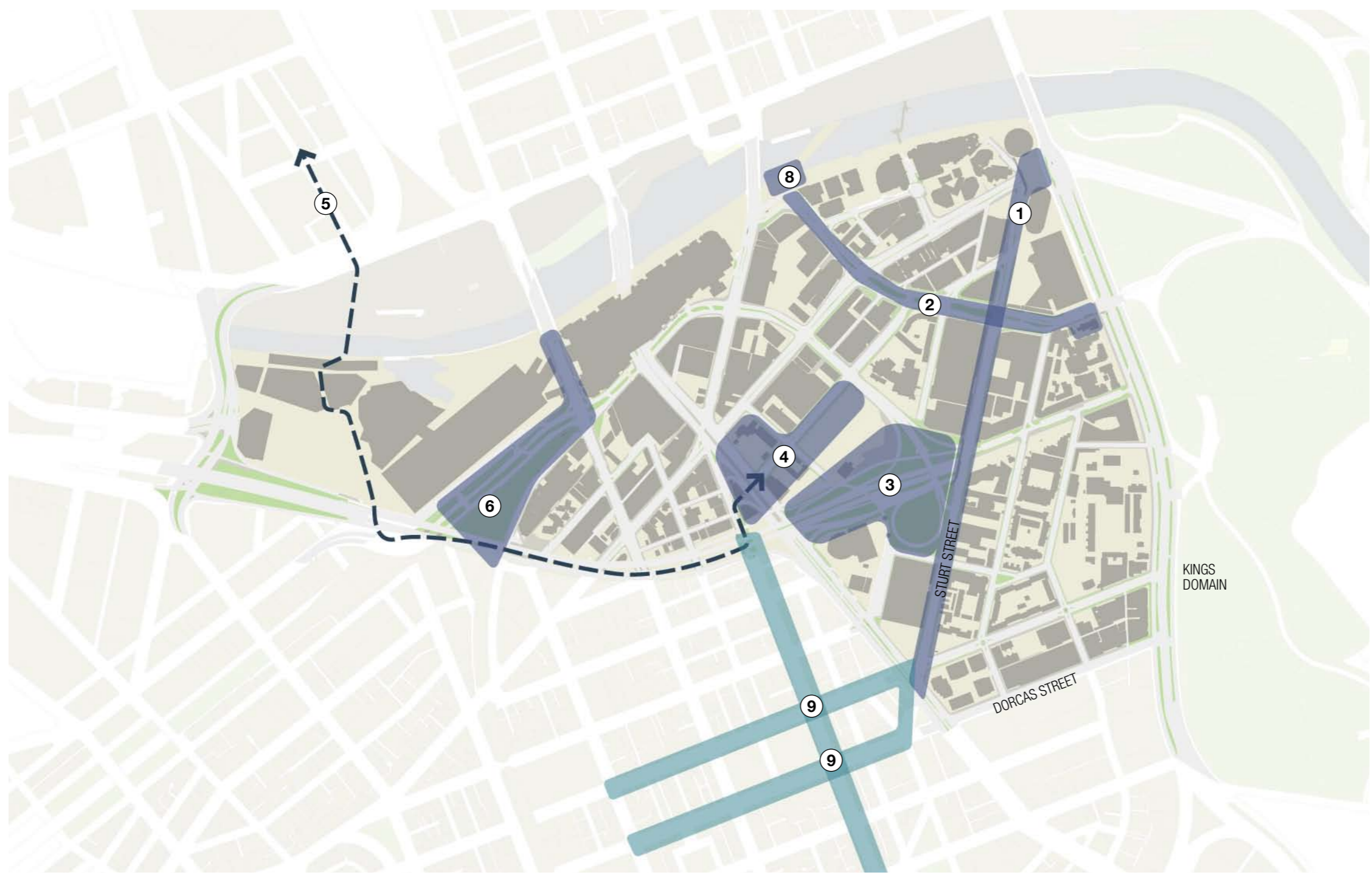
1.3.7 Conclusions/Recommendations

Southbank has established itself as a distinct part of Melbourne. However there are gaps in the finer fabric of Southbank with regard to pedestrian and cyclist amenity, open space, and community spaces and services in particular.

Southbank lacks a third dimension behind buildings and roads that is focussed around people.

Queensbridge Square may address some of these issues in one part of Southbank, however the challenges and opportunities extend across the whole of Southbank.

Future planning for Southbank needs to look at the mechanisms available and action required to respond to these deficiencies within an environmentally sustainable framework as the social, environmental and economic cost of not responding will be significant and may damage the image of Southbank and the City of Melbourne.



- ① The Sturt Street cultural spine
- ② Southbank Boulevard open space link
- ③ Citylink interchange precinct
- ④ Kavanagh/ Moray Street local link
- ⑤ West Gate Freeway undercroft conversion and Docklands - South Melbourne Links
- ⑥ Whiteman Street local centre and park
- ⑦ Activating life in the public environment
- ⑧ Queensbridge Square
- Outside Southbank**
- ⑨ Upgraded Cycle Spines (Copenhagen Lane)

Fig 1.3.1 Key Projects & Strategies Diagram

0m 100m 200m 500m Scale 1:10,000 (At A3)



1.4 Review of Economic and Social Indicators

1.4.1 Melbourne City, Suburbs Economic and Demographic Profile: Resource Material, CoM (July, 2008)

This document provides a demographic overview of the municipal suburbs in the City of Melbourne, including Southbank and South Wharf, and the small area profile boundaries, including Southbank.

There is limited cross comparative data between suburbs and the City of Melbourne as a whole.

Key demographic information for the Southbank small area is as follows:

- In 2007 Southbank had a total population of 8,656. This reflected an increase of 98% over 2001 numbers. During this time the overall population of the City of Melbourne grew by 55%;
- The largest age group in Southbank in 2006 was 25 to 34 year-olds with 3,238 people (37% of total Southbank Population). This compares to 28% proportion of the population throughout City of Melbourne;
- In Southbank (2006) the most common household type was that of couples without children (1,168 households). This equates to 22% of households compared to the City of Melbourne average of 19%;
- In 2006 55% of households in Southbank were renting. This compares closely with the City of Melbourne average of 57%;
- In 2006 98% of household dwelling structure was a flat, unit or an apartment. This figure is much greater than the City of Melbourne average of 76%;
- In 2006 Southbank had a total of 26,715 car parking spaces, equating to 3 spaces per resident (ignoring commercial land use) compares to the City of Melbourne average of 1.9 spaces per resident;
- Southbank had a total of 3,950 residential apartments being developed, which is more than the other suburbs in the City of Melbourne, the next closest being the CBD at 3,768 followed by Docklands at 1,169; and
- In 2021 it is projected that Southbank will have a population of 15,265 persons, an increase of

76%, whilst the City of Melbourne as a whole will grow by 30,000 or 35%.

1.4.2 Southbank (including South Wharf) Small Area Economic and Demographic Profile, CoM (July, 2008)

The document provides a detailed analysis of demographic information in the Southbank small area using Australia Bureau of Statistics 2006 Census data and economic information sourced from the City of Melbourne's Census of Land Use and Employment (CLUE).

Again there is limited cross comparative data between suburbs and the City of Melbourne as a whole.

Key findings from demographic analysis of the Southbank small area are as follows:

- The population of Southbank is at 8655 and is now 10% of the City of Melbourne's population and is growing faster than the rest of the municipality;
- The population is characterised by people aged 20 to 34 years. Southbank also has the third largest concentration of persons aged 12-25 years in the City of Melbourne at 37.5%;
- Southbank has a significantly lower proportion of older people aged 60+ years at 6.5% compared to the City of Melbourne as a whole at 9.5%;
- A relatively high proportion of residents are overseas born - 47% compared to the City of Melbourne average of 42%;
- A relatively low number of residents earn less than \$250/week - 20.5% compared to the City of Melbourne average of 26%;
- A relatively high number of residents earn more than \$1000/week - 29.5% compared to the City of Melbourne average of 23%;
- The population is highly educated, with 36.5% having a bachelor degree or higher compared to 33.5% for the City of Melbourne as a whole;
- The majority of residents live in high-rise apartments and approximately two-thirds of these apartments are rented;
- Southbank is one of the most expensive

suburbs to rent in within the City of Melbourne.

- There is no student or low cost accommodation in Southbank;
- It is projected that in the next five years retail construction will be strong; and
- Based on current trends it is forecast that Southbank's population will grow to over 15,000 people by 2021.

1.4.3 Conclusions/Recommendations

Southbank will continue to experience significant growth in coming years, and will grow in terms of the level of contribution it makes to the overall population of the City of Melbourne.

The level of contribution of Southbank to the economy and culture of the City of Melbourne will also grow, as will demands from Southbank for services required to support this growth. As the population ages, these demands will change.

Of some interest and concern is the relative lack of diversity in the characteristics of the emerging Southbank population at this point in time. Generally speaking, a lack of diversity can have a number of negative impacts ranging from a lack of affordability, to employment gaps (no locals providing low paid services) and a lack of creativity and activity in the community and the development of a mono-culture.

1.5 Impact and Opportunities of Climate Change

1.5.1 Climate Change Adaptation Report, (adopted), CoM (2009)

The report presents a climate change risk assessment and adaptation strategy for City of Melbourne. The report identifies potential climate change implications for Melbourne and includes the following:

Temperature

- By 2030 average annual temperatures may rise by 0.5 to 1.5°C and by 2070 Melbourne's temperature is predicted to resemble Echuca's present day temperatures. Temperature increases will decrease relative humidity levels (1% by 2030) and increase evapotranspiration. These combined effects will reduce soil moisture content and have potential implications for building design. The longevity of exterior building materials may decline, leading to increased maintenance and replacement costs. Increased costs of cooling buildings and/or retrofitting buildings for energy efficiency also need to be considered.

Extreme Temperature

- The report predicts an increased frequency of hot days and hot spells (a period of three to five consecutive days where the temperature exceeds 35°C). Night time temperatures are also projected to increase. This will create greater energy demand for cooling.

Rainfall

- Victoria is predicted to become drier. A conservative estimate is that average annual rainfall will decrease by 6% by 2070. Decline in rainfall and greater evaporation will create less run-off into water catchments. Reduced water supplies pose a significant threat to water security. Implications that need to be considered include the availability of water supplies for residents and businesses and increased costs associated with maintaining landscaped public open space, parks and playing fields.

Extreme Rainfall

- Overall rainfall is predicted to decline however extreme rainfall events are predicted to become more frequent (increase by 3% by

2030). Extreme rainfall events may increase flood frequency. Flash flooding has the potential to damage infrastructure and property. Areas near waterways are more susceptible to damage. Other implications include reduced water quality due to increased stormwater pollution.

Sea Level Rise

- Projections for the City of Melbourne include a rise in sea level of up to 59cm by 2070 and a rise in sea level of up to 80cm by 2100. These projections are in line with the Victoria Coastal Strategy. Southbank has been identified as a low lying area subject to inundation risk within the municipality. Sea level rise will increase groundwater levels and salinity. Increased salinity could damage infrastructure and buildings and cause disruptions to buildings sites; and
- The latest guidance since the Intergovernmental Panel on Climate Change. (IPCC) is contained in the Victorian Coastal Strategy which advises a revised 80cm sea level rise. This study has adopted this updated level instead of the 59cm contained in the Climate Change Adaptation Report.

Extreme Wind Speed

- Wind speeds are predicted to decrease in summer and increase in winter. Damage to physical and socioeconomic infrastructure and extra stress and damage to vegetation may result.

1.5.2 Impact of Climate Change on the Southbank

Additional to the general potential impacts as summarised above, Southbank could suffer further consequences which have been identified below:

Inundation

- The increase in sea level rise and subsequent rise in the water table will increase the land subject to inundation in Southbank. An increase directly proportional to the sea level rise may increase the 1:100 year flood level by up to 80cm over the next 90 years. This

rise will affect a larger area of land and require mitigation in almost all buildings in Southbank. The plan opposite indicates this potential increase in affected land; and

- The flood inundation could also affect the Burnley Tunnel, causing closure and increased traffic through Southbank and in particular along City Road as it forms part of the strategic network to bypass Citylink.

Urban Heat Island (UHI) Effect

- This condition is an effect of numerous different pressures on the city but is most prominent in large areas of hard surfaces such as roads and at grade car parks and in areas of tall buildings which reflect heat back into the public realm and store radiant heat which in turn radiates the city in the evening. Southbank comprises these two conditions in the majority of its land take; and
- This UHI affect in Southbank will cause even further temperature rises and for longer periods and thus causing additional stress on the utilities to temporarily mitigate these rises. The effect will also cause stress to the limited street tree coverage in the suburb. Coupled with the reduction in annual rainfall the suburb will be exposed to high temperatures in summer months without natural cooling.

1.5.3 Opportunities of Climate Change and Sustainable Initiatives on Southbank

This section is linked with Chapters 4 and 5 and will be further explored in Stage 2 of the study. The overview of opportunities can be summarised as follows:

Expansion of stormwater harvesting and re-use

The expansion of stormwater harvesting and re-use is perhaps the highest value, highest priority adaptation action that can be undertaken in Southbank.

The harvesting and re-using stormwater effectively works to reduce likelihood and consequence of many risks, and addresses impacts and implications central to controlling the

cascading effect of consequences. Harvesting and reusing stormwater:

- Reduces the likelihood of urban flash flooding in major rainfall events, which works to control multiple cascading consequences;
- Diversifies the water supply to The City of Melbourne, reducing any impacts of drought and low rainfall, most notably in the maintenance of parks, gardens and sports fields;
- Helps to cool the urban environment by the proliferation of urban water bodies, contributing to control of several extreme heat related risks (when combined with greater efforts to tackle the urban heat island affect);
- Improves water quality for rivers, contributing to greater river health and resilience of biodiversity in periods of low flow; and
- Can provide new, high quality amenity values through the creation of urban water features.

Greater proportion of green open spaces throughout Southbank

- The green spaces will help to cool the public realm when connected to stormwater harvesting and water sensitive urban design (WSUD) treatments to reduce the UHI effect and also provide reduced pollution and noise transfer from the major road corridors. The other benefits of green corridors will include improved pedestrian and cycle safety and amenity but providing for rest stops under shade in high temperatures, an increase in habitat for wildlife and reduction in ground temperature making underground utilities less exposed to huge temperature fluctuations.

Infrastructure upgrades

- The need to upgrade the aging stormwater, drainage and utilities infrastructure to cater for the effects of climate change is critical to maintaining a functioning suburb. There is clear need to introduce more contemporary technologies that mitigate the effects of climate change at a local level. These technologies include micro generation and off grid precinct wide infrastructure that minimises the pressure on the city wide utilities and reduce blackouts due to additional demand in extreme temperatures.

Planning Controls

- The City of Melbourne Climate Change Adaptation Report emphasises the problems caused by concentrated clusters of tall buildings on the temperature increases in the city centre. The UHI effect can to certain extents be mitigated by the increase in green spaces and water in the landscape however architectural responses to site also critically affect heat build up. Guidelines should therefore be adopted for reducing the impact of buildings on the temperature of the city; and
- There is also need to introduce planning controls or guidelines that reflect the findings of the sea level rise modelling, and that minimise future vulnerability and maximise future resilience and adaptability to sea level rise.

Private Development Initiatives

Private developments occupy the greatest land take in Southbank. They should be responsive for an appropriate proportionate response to the mitigation of climate change impacts. These could include:

- On site stormwater harvesting;
- Green roofs and green walls;
- Reduction reflection and absorption of heat in high rise development; and
- Off grid energy generation and connected green infrastructure to reduce peak loadings.

1.5.4 Conclusions/Recommendations

The potential impacts of climate change are clearly articulated above and have the potential to significantly and fundamentally impact on existing and future development in Southbank.

A variety of responses are required to arguably the most significant challenge society faces.

All actions and strategies and controls undertaken or prepared to progress Southbank must have environmental sustainability as their foundation.



Fig 1.5.1 Flood Projections Diagram (80cm to the year 2100)

0m 100m 200m 500m

Scale 1:10,000 (At A3)



1.6C

- Floodplain
- Projected 2100 Floodplain by 80cm

Source: CoM supplied GIS files

1.6 Analysis of Planning System

1.6.1 Introduction

The planning framework for Southbank, described in Chapter 1, sets the challenge that the suburb will achieve high quality urban form outcomes. The success of this challenge will be analysed based on an assessment of major planning decisions since 1999 and a physical and expert assessment of actual development outcomes in Southbank.

Major planning permit applications within the study area from 1999 to early 2009 have been analysed to review the effectiveness of planning controls and how they have been applied by the City of Melbourne, the Department of Planning and Community Development (DPCD) and its predecessors, and the Victorian Civil and Administrative Tribunal (VCAT).

Generally in the 41 major applications assessed, the main issues of contention have centred around:

- height limits and built form outcomes;
- the creation of active street frontages;

and to a lesser extent:

- traffic and parking; and
- open space .

Land uses per se have not been a key concern.

1.6.2 Planning Assessment

Policy

Southbank has been very successful in attracting significant residential and office development since 1999.

Southbank is now an established suburb of Melbourne in its own right and has provided the core land uses of residential, office and tourism.

The desktop and site analyses suggest, however, that Southbank is struggling at a number of finer grain levels. In particular, Southbank lacks:

- housing diversity and choice, and consequently affordability and equity of access (Clauses 12.01, 12.05, 12.06, 16.05, 16.06, 21.08-3);
- quality or excellence in design outcomes, and particularly in creating active street frontages (Clauses 12.05, 19.03, 22.01 and 22.17);
- quality local open spaces (Clauses 12.05,

15.10, 21.05);

- quality pedestrian spaces and linkages generally and particularly away from vehicular traffic (Clause 12.05, 19.03, 21.08-3, 22.01 and 22.17);
- developments incorporating resource efficiency and energy generation mechanisms (Clauses 12.07, 15.12 and 15.14); and
- supporting service land uses such as retail (Clauses 12.04, 17 and 21.08-3).

Housing Diversity and Choice

In clause 21.04 under point 4 is the need to support a diverse range of housing tenures, types and options to meet the housing needs of the community. Southbank has been identified for the provision of housing stock with two different roles. Firstly, high density, high rise apartment typology in the Capital City Zone (Clause 21.08-1), and secondly, medium scale residential areas located around Southbank Village.

In principle this has worked with smaller apartment units north of Citylink and larger housing units to the south. However, the breakdown of tenure (indicated in Section 1.4) indicates a huge proportion of smaller apartment units due to the high densities allowed in the northern half of Southbank. This, in reality, creates an over dominance of a particular demographic in the suburb leading to a silo society residing here. The lack of specific incentives in the Scheme for affordable housing or appropriate student housing also exacerbates the problem.

Excellence in Built Form Outcomes

The desire for Southbank to provide building design to make a positive contribution to the public realm has been iterated through numerous policies in the Scheme, most notably in Municipal Strategic Statement (MSS) (Clause 21.03-3) and the vision for Southbank (Clause 21.08-3) and more specific built form objectives in Clauses 19.03, 21.05, 22.01 and 22.17. The need to create developments that achieve high quality urban design and architecture that enhances liveability, diversity, amenity and safety in the public realm, to create developments that promote the attractiveness of the city and contributes to the character of the area should be

driving the outcomes of development in Southbank.

One significant issue that is common and critical to creating high quality urban design is that of life and activity in buildings fronting on the street. In Southbank there is a common approach to the design of the built form interface with the street via podiums. The podium is dominated by car parking in the first floor upwards which creates blank, inactive facades which reduces the quality of the street and general activity and street life (refer to figures 1.6A-B).

Development seems to be focus on both maximising yields to the detriment of architectural quality and its contribution to the public realm. Figures 1.6A to 1.6C indicate typical developments that pay little attention to the public realm. This approach is creating many problems with the urban environment in Southbank, discussed below. Figure 1.6A, for example, indicates a public realm that is dominated by large structural columns that dominates the street and reduces the quality of the retail facades behind. Policy at Clause 22.01 states that towers should be set back at least 10m from street frontages. None of the examples shown comply with this policy. This is but one example noncompliance with policy which creates an over dominance of a tower onto the street.

These policies are in place to create a scaled street character and to reduce the negative environmental impacts from such tall buildings such as overshadowing of the street and spaces and effect of wind down draughts onto the street. Very few buildings comply with the policies stated in the Scheme for built form.

The built form outcome is important to create a particular character of an area. This analysis has led to the conclusion that a specific character for districts in Southbank has not been clearly identified and stipulated. Southbank is a very different place to the CBD and as such requires very specific direction for development of the character of the suburb. As of 2009, Southbank fails to deliver a clear character (or series of character districts) as enjoyed by the CBD and a majority of other inner city suburbs. Additionally, the interpretation of or the lack of specificity in these controls has led to reduced quality of the urban realm.



1.6A



1.6B



1.6C

High Density Development

There is often an assumption that high rise creates high densities. Clause 21.05 identifies Southbank as a suburb growing in importance as a location for high rise and campus style office development mixed with high density residential development. Equally, in table 4 of the same clause, areas where built form character is envisaged to have substantial change relates to tower typology. Although high rise development often does create density, the downsides to building towers throughout Southbank are highlighted in this Stage 1 report. Equally, chapter 3 proves that some of the World's densest cities are not high rise.

The Scheme, although supporting the development of high rise, also makes clear the need for high quality built form character (such as in Clause 21.05.02) that achieves amenity for residents and adjacent properties alike.

What severely lacks in Southbank, beyond Southbank Promenade, is the quality public environment, dominated as it is by tower developments with solid podiums for car parking. Additionally, towers need to work harder to achieve sustainable energy outcomes, both in themselves and their impact on the City, compared to medium rise development. Although the guidance in the Scheme does not prohibit medium rise typology, it is written based on an assumption of guiding high rise development. For example Clause 22.01 assumes a podium/tower configuration. Interestingly, Clause 22.17, Urban Design outside the Capital City Zone (CCZ) provides greater guidance on issues of scale and bulk than Clause 22.01, Urban Design within the CCZ.

Creating Active Street Frontages

Active street frontages encourage pedestrian movement giving the street vitality and life. Clause 19.03 requires that new development should create urban environments that enhance personal safety and property security and where people feel safe to live, work and move in at any time. Clause 21.01 requires that streets and public spaces should be fronted by active uses to increase interest, use and the perception of safety. It also states that on major streets and other areas of pedestrian activity, windows at ground floor level should be maximised

to provide surveillance.

There are 2 different solutions of quality urban design at the public building interface. The first is the positive, active facade, mainly associated with medium rise urban block residential development. This condition normally provides a small zone of private space with low wall or fence to delineate between the street and dwelling. This space is often green and well tended and there are normally numerous entrances along the facade. It can be seen throughout Melbourne's inner suburbs. Figure 1.6D shows a successful example of this in Southbank (albeit with walls slightly too high).

The second is the retail frontage to the street. This is the most popular solution north of Citylink. There are two benefits to active frontages which normally create the vibrant places seen throughout Melbourne's inner suburbs, interaction and surveillance. The interaction normally generates the street life. Interaction and interest in street facades is also dependent on a high level of grain to the blocks of development, such that different shop units occupying narrow frontages create a variety of activities and interest. The natural surveillance comes from the activity and light from retail units which provide a feeling of security when walking past. This condition is poorly executed in Southbank. The purpose of ensuring active frontages is that they are active with entrances. Too often, an entire building or block is occupied with a single unit with only 1 or 2 entrances along



1.6E



1.6H



1.6F



1.6I



1.6ED



1.6G



1.6J

its length. This creates neither the activity nor surveillance. Figure 1.6E indicates such a solution that simply complies with the requirement rather than the intent whilst the newly built Recital Centre in figure 1.6F shows how the limited number of entries compromises the street edge.

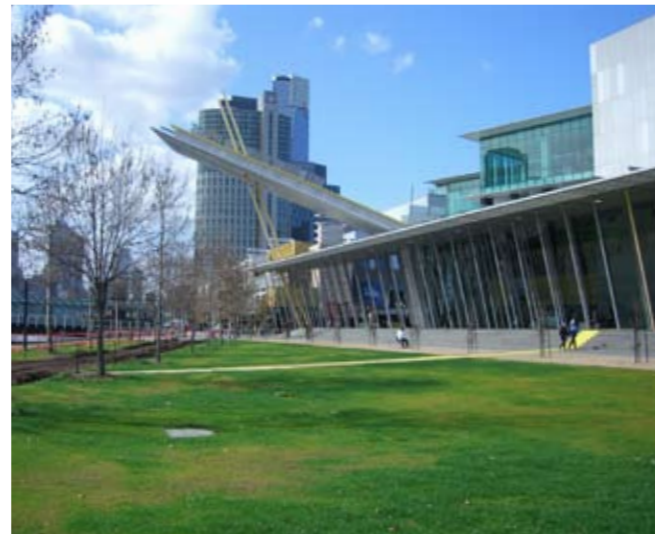
The built form above ground floor level also contributes enormously to this safety through passive overlooking onto the street or public space. Due to the high water table and low quality sub strata in Southbank, there are few basement car parking decks, in favour of above ground parking. This creates a situation with parking occupying the 4 to 5 storeys above ground level, reducing the passive overlooking from buildings and thus the lack of this natural surveillance so important to give the feeling of safety on the street. Figure 1.6G indicates this condition compared to 1.6H which provides this overlooking at lower levels. The Scheme or design guidelines does not provide the level of regulation to control such outcomes in Southbank.

The car park podium presents no public interaction which creates unsafe environments that are generally car dominated. Such streets as Normanby Road and Whiteman Street at the Crown Complex (figures 1.6I and 1.6J) are reflective of this very low quality interface. Developing podium/tower typologies create the demand for either/or situation for building interfaces. This is a downside of this particular typology, inflexibility of the urban form. The alternative is to consider different built forms that deliver the active public realm required in such a close proximity to the CBD.

Creating Quality Local Public Open Spaces

Clause 22.01 and 22.14 requires developments to consider the provision of high quality new open spaces, and deliver new public spaces to cater for the needs of the City's diverse communities.

Development in Southbank to date has provided little public open space for the density of residential units. The majority of developments are in tower format with no private open space associated making the need for public open space even more important. The public spaces that have emerged in Southbank are generally not appropriate for local



1.6K



1.6L



1.6M

community use, rather for tourism and visitors in general. Such spaces as Polly Woodside and Queensbridge Square shown in figures 1.6K and 1.6L fall into these categories. The only spaces tailored to the local community are the Grant Street play space and Miles/Dodds Street reserve. Considering Southbank has a population of over 8000 this reflects a huge shortage of local public space.

Creating Quality Pedestrian Spaces and Linkages

Melbourne is known and is proud of its title as one of the world's most liveable cities. It is even contained in the MSS. (The CBD is often cited as a place that facilitates this condition through its walkability, vitality and level of activity, particularly for the pedestrian.) Clause 21.08-3 requires that high quality public realm for pedestrians is a major component in the creation of a liveable city.

The quality of the pedestrian environment varies enormously throughout the suburb. Southbank Promenade, shown in figure 1.6N, is a high quality environment to rival any space in Melbourne for pedestrian activity and vitality. St. Kilda Road, in figure 1.6O is also of high quality as it provides wide pedestrian areas, numerous crossings to the parks and tree lined boulevard features. Certain streets around Southbank Village also provide a good quality of public realm.

Otherwise, many recently completed buildings, particularly north of Citylink provide little or no regard to the public realm. There are 2 major concerns, quality of the pedestrian space and pedestrian permeability. The quality of the pedestrian space refers to the space allocated for pedestrians on streets together with the interface between them and the building. Permeability refers to the routes and connections between streets to allow for easy movement through the suburb.

The quality of pedestrian space is very poor adjacent to many new developments in Southbank, in particular along heavily trafficked streets. An example of this is on Whiteman Street shown in figure 1.6P. This development builds close to the street forcing pedestrians close to the road. This is a poor outcome and not isolated to this development. Although zero building setback is encouraged, this should be considered alongside

high quality public realm with appropriate pedestrian space.

Pedestrian permeability through Southbank is also very poor. Clause 21.08-3 states that developments must encourage a continuous network of through block links to increase permeability, amenity and safety. Clause 22.17 states that developments on large sites are encouraged to provide laneway and pedestrian through block links. Not only is the street network confusing with long waits at traffic lights for pedestrians, there is little permeability between the large blocks which are dominated by single developments. When added to the lack of grain in retail frontages along these lengths, the monotony of streets becomes apparent. Developments such



1.6N



1.6O



1.6P



1.6Q



as Crown Complex, the Exhibition Centre and those on Whiteman Street (shown in figures 1.6Q-S) have created such long lengths without any public permeability. The Freshwater Place development also fails to provide permeability. Once within the central square there is only 1 public egress. These mega developments not only reduce the walkability of the area but also prevent future development from occurring in the urban blocks which reduces the flexibility of the area to develop and regenerate throughout the next 50 years.

Developments Incorporating Resource Efficiency and Energy Generation

These are difficult to quantify from this assessment, however, in general building design is reflective of high energy use layouts with large glass facades, single glazing, east and west aspects which create huge heat build up in the apartments, single aspect apartments requiring mechanical ventilation and little natural air flow, no shading devices on northern facades etc.

There are some buildings that have installed bi-generation systems however these are only used for backup power rather than integral to the reduction of dependence on the power grid. Recently released Building Commission Practice Notes (2008) for residential sustainability should improve this situation.



Development Supporting Service Land Uses such as Retail and Community Facilities

The final major omission in Southbank is the lack of retail and community resources and facilities throughout the suburb. Instead, the dominance of residential, commercial, entertainment and arts facilities create a place for visitors rather than residents. As a major destination in Melbourne this situation is necessary. However, with a lack of complimentary uses supporting the day to day function of the community, it will become further dominated by its current overriding demographic of residents. Who use and require fewer broader community facilities but still need the basic services.

1.6.3 The Planning Scheme

Following on from Section 1.6.2, the interpretation and application of the Scheme and its controls have not been adequate in achieving high quality design of buildings and development in general in urban form or its response to the public realm. If controls or interpretation of application of are not achieving these outcomes, then they (and potentially their parent policies) require future review.

Policy

The first question to be answered is whether or not the local policies identified in the Scheme are relevant or correct in their aspiration.

Having regard to the values of work undertaken in Southbank exploring and defining its role as part of Melbourne, there is little wrong in the aspirations contained in policy. That is, the core threads of policy regarding diversity and choice, excellence in design and so on are a valid and exciting response. However, the urban character aspirations of Southbank are unclear and should be more clearly articulated in policy.

Zones

Generally speaking, the zones have not been a cause for contention as the land uses locating in Southbank have been consistent with the policies and strategies for the area.

The zones in Southbank have facilitated the delivery of the core land use types sought by policy. They have not, however, delivered the array of secondary, service type land uses envisaged by policy. This is problematic in that the zones generally allow these

uses but development proposals have failed to deliver them.

This issue could also extend to land uses more broadly, as land use outcomes in Southbank tend to lack diversity and the level of complexity required to achieve the mix of demographics and creativity discussed in the planning policies summarised earlier in section 1.2.

The use of vertical zoning could assist in this regard, however there is no local or national precedent for such an approach.

Simplistically the use of horizontal and vertical differentiation in land uses can result in more diversity, animation and activity in urban areas. The use of vertical and horizontal zonings could be a more effective tool than DD01 in the delivery of active street frontages. Vertical zoning could also be identified as a tool for ensuring passive surveillance and activity at the upper podium levels of a development.

Finally, there are a number of zones within the study area. The CCZ has migrated from north of the Yarra River and affects a significant component of the study area. This zone concentrates on the relationship with the CBD, however, the controls are written with focus already on the core structure of the CBD, therefore relying on this strong character. Southbank does not share this character, which presents a problem when identifying the correct approach to take when developing any particular lot. As the CCZ does not extend throughout the entire Southbank area and is creating planning anomalies to either side of City Road this zone should be reconsidered to ensure it serves Southbank's needs rather than simply extending the CBD controls.

Overlays

The Design and Development Overlays (DDOs) in the Scheme are the more detailed tools (beneath policy and zoning) that are used to address building height and form. In some areas the DDOs have been effective in producing good design outcomes, however, by default they have also been less successful than anticipated with regard to the delivery of several of the missing urban design outcomes identified earlier.

The DDOs prescribe a series of standards with regard to building height, forms, street activation and the like. It is noted that these provisions can be varied. The DDOs relevant to Southbank differ in their instruction and provide mixed messages about design excellence. However, it is hard to measure design excellence where there is a lack of clarity or inconsistency in the understanding in what constitutes excellence.

Whilst several components of the Scheme overtly or covertly (by requiring good design) seek to create active street interfaces, developer preferences and the difficulty of creating basement parking due to underlying soil conditions has challenged this outcome. The need to provide parking in the quantities required by the Scheme fuels this argument.

It is interesting to note proposed Amendment C133 to the Scheme, which if successfully introduced, will create a maximum number of car parking spaces of 1 car space per dwelling rather than the current approach of asking for 2 car spaces per dwelling, with permission required to reduce this amount. Part of Southbank (the part affected by the CCZ) already benefits from the approach proposed by Amendment C133 via the existing schedule to 52.06-6.

Planning permit applications in DDO40 (Arts Centre and River Environs Overlay) and DDO41 Southbank Village Overlay have remained within the height limit. The height limit in DDO41 is mandatory.

The other DDO areas have all experienced increases in height beyond the provisions of their respective controls, in particular in DDO39, 42 and 43. Approved heights have exceeded DDO controls by up to 48% along Dorcas Street and by an average of 20% along the Kavanagh Street/City Road corridor.

It is evident there has been a shift in the way building height is considered in parts of Southbank since 2007. Recent and current planning permit applications in several locations are consistently allowed to exceed the discretionary height limits as specified in the DDOs. Height limits do not generally affect the quality of Southbank but do affect the perception of the City as a whole and the legibility of inner Melbourne. In terms of the quality

of the experience in Southbank, the building height is less of an issue than the interface with the street however the taller the building the more yield and greater number of parking spaces which directly impacts on the quality of the street frontage.

Built form and street activation outcomes present a mix of positive and negative outcomes.

There are also a number of other influences (such as car parking and soil types) that also conspire to challenge the objectives sought by the planning controls.

It is evident that the planning controls (including height controls) need to be assessed in full against the outcomes and recommendations as part of the Southbank Structure Plan to provide clarity and direction to achieve the preferred development outcome for Southbank in the future.

1.6.4 Governance

The implementation of the Scheme is interesting in that, the Minister for Planning is the responsible authority for decision making regarding land within the City of Melbourne for key land parcels and for development in excess of 25,000m². Melbourne City Council is the responsible authority for the remainder of the study area.

Governance between the two authorities may not be an issue of significance if these two authorities are in general agreement on the future directions of the study area.

In recent times, however, there is clear evidence of a difference of opinion with regard to the intensity of development in the area, and the height and the form of buildings and their contribution to public space, activity and wellbeing. This creates uncertainty for all parties and needs to be remedied.

City of Melbourne as the responsible authority

The City of Melbourne is not the responsible authority for planning permit applications Southbank that are over 25,000m² or specific sites listed in Clause 61.01. The City of Melbourne only approves developments with a height limit equal to or less than the discretionary height limit with success, and sought to limit or avoid

completely street level parking in favour of active street frontages.

As a key stakeholder, the City of Melbourne has supported buildings in excess of the DDO height limit if DDO objectives and Built Form Outcomes (BFO) are met.

The City of Melbourne has maintained a consistent approach with regard to active street frontages but experienced mixed success with regard to the delivery of positive and active streetscape outcomes.

DCPD (DOI/DSE) as the responsible authority

Acting as the responsible authority, DCPD (DOI/DSE) occasionally approves developments which are slightly above the discretionary height limits and has also had mixed success with active street frontages.

However there were also a limited number of instances where the proposed height was significantly greater than the discretionary height limit and were refused by DCPD, even though these proposed developments were supported by the City of Melbourne because they were considered to meet DDO objectives and built form objectives.

There were two appeals to VCAT over building height against refusals by DCPD. VCAT overturned these two refusals, approving towers with heights in excess of 30 metres where there was a height limit of 15 metres, and of 220 metres in an area where there was a discretionary height limit of 160 metres.

In the latter appeal in 2004 for 31-49 Queens Bridge Street, the Tribunal was satisfied that the building was of an exemplary design (a point supported by the City of Melbourne) and that the proposed height was appropriate having regard to the prominent location of the site (corner Queens Bridge and Power Streets) and its context, which includes its relationship with Eureka Tower and Freshwater Place.

Interestingly, since 2007, DPCD has approved most applications where the proposed height has been in excess of the discretionary height limit.

In many of these cases City of Melbourne has not

supported these proposals on grounds including that the building is above the discretionary height limit, it is an over development of the site, the extent of above ground car parking, and/or it is not an example of exemplary design.

1.6.5 Conclusions/Recommendations

The land use policies and zonings are generally sound, however to facilitate the better delivery of policy regarding urban design and the activation of streets, Southbank needs a clear vision as to its desired urban character whilst other zoning mechanisms such as vertical zoning could be explored further.

The integrity of several of the DDOs has been compromised by recent planning decisions and developments and these must be reviewed to provide relevant guidance to future planning applications and decisions.

The planning structure of having two responsible authorities in the study area need not impact adversely on the delivery of these outcomes provided both are of the one mind in direction. If this were the case, there would, however, be no real need or argument to have separate responsible authorities.

1.7 Issues and Conclusions

There is a wealth of information and study available regarding Southbank, most of which is generally complimentary and supports the reshaping of Southbank as a significant contributor to the viability and liveability of Melbourne.

The key issue that has emerged in this planning analysis to date is the effectiveness of the implementation of the existing suite of planning policies and controls in delivering Southbank's more recent policy directions and emerging new land use and built form objectives.

Policy documents and influences such as the Southbank Plan (2007), the Climate Change Adaption Report (2009), Future Melbourne and Melbourne 2030 and the outcomes of its various reviews raise the following issues which are not adequately managed by the existing planning framework.

Planning Framework Implications

The Scheme contains a suite of planning policies and controls (zones and overlays) that are specifically designed to stimulate appropriate development responses.

The planning policy remains relevant, with the exception that Southbank needs a clear vision as to its desired urban character.

The land uses zonings are generally sound, however to facilitate the better delivery of policy regarding the activation of streets, other zoning mechanisms such as vertical zoning could be explored further.

The integrity of several of the DDOs has been compromised by recent planning decisions and developments and these must be reviewed to provide relevant guidance to future planning applications and decisions.

There is clearly confusion regarding the preferred built form outcomes as a result of recent decisions regarding design in general, and particularly regarding the link between exceeding height controls and meeting the objectives of the DDO including achieving exemplary design outcomes within Southbank and street interfaces and pedestrian environments.

The encouragement of diversity

Future Melbourne highlights the strong connection between creativity and innovation in a community and a diverse social mix.

Simplistically, Southbank is in danger of producing a mono-culture of intelligent, wealthy, single and dual person households living in one and two bedroom apartments. There are significant affordability issues in Southbank.

This has both social and built form implications for a future Southbank and a future Melbourne.

The creation of high quality design and pedestrian environments and open spaces

Southbank has not created an environment which delivers high quality design, particularly at street/pedestrian level. Pedestrian activity is discouraged due to poor street activation, high volume of vehicle movements, large number of roads, and the lack of clear, safe and pleasant pedestrian networks and open spaces.

Separately, the road networks, public transport opportunities and the levels of car parking within Southbank require resolution so that "efficient" solutions are created which limit their impacts on built form outcomes and pedestrian movement networks.

Open space is an emerging issue as Southbank provides very little by way of diverse public space opportunities for the local community. This challenges the way in which land tends to be viewed simply for development in the area, as well as the way in which the extensive street network could be used. The lack of open space means that the suburb is now under provided for which should be addressed in the Southbank Structure Plan.



Fig 1.4U Arts Centre

Responding to the issues of Climate Change and environmental factors generally

Like the rest of Melbourne, Southbank needs to produce development and movement outcomes that contribute positively to the emerging climate change and environmental challenges.

There is currently a gap between an awareness of this challenge and the way in which development should be responding to these challenges and how planning controls should support or stimulate more responsive development outcomes.

The Planning Framework

The key issue is that the development outcomes delivered or approved fail to capture the spirit of the policy or controls. Put another way, the development outcomes have not responded holistically enough or well enough to these aspirations. This has particularly compromised the relevance of a few of the DDOs which are the detailed expression of the policies and zonings from a design perspective.

Governance

The planning structure of having two responsible authorities in the study area need not impact adversely on the delivery of these outcomes provided both are of the one mind in direction. If this were the case, there would, however, be no real need or argument to have separate responsible authorities.

Recommendations

It is the recommendation of this study that the planning policies, zones and overlays be reviewed alongside the land use and development scenario options as part of the Southbank Structure Plan with a particular view to ensuring a stronger link between the controls and emergent policy.



Fig 1.4V Victoria Barracks





02 Physical Analysis

BACKGROUND REPORT
SOUTHBANK STRUCTURE PLAN



2.0 Contents of the Physical Analysis Study

- 2.1 Introduction to the Physical Analysis**
- 2.2 Urban History of Southbank**
- 2.3 Contextual Relationships**
- 2.4 Southbank Heritage Sites**
- 2.5 Southbank Character Areas**
- 2.6 Land Uses**
- 2.7 Landscape and Open Spaces**
- 2.8 Review of Total Watermark**
- 2.9 Arts and Entertainment Activities**
- 2.10 Community Facilities**
- 2.11 Urban Grain and Built Footprint**
- 2.12 Edge Conditions and Quality of Enclosure**
- 2.13 Legibility**
- 2.14 Pedestrian Analysis**
- 2.15 Bicycle Network Analysis**
- 2.16 Public Transportation Analysis**
- 2.17 Private Vehicle and Car Parking Analysis**
- 2.18 Link & Place Analysis**
- 2.19 Future Melbourne Assessment based on Physical Analysis**
- 2.20 Key Issues and Recommendations from Physical Analysis**

2.1 Introduction to the Physical Analysis of Southbank

A physical analysis of Southbank in its current form has been undertaken. This analysis informs the study by identifying the issues and gaps in the provision of environmental and social services. The analysis was prepared through detailed investigation and on-site research into the current physical status of Southbank. It also draws upon references from the Southbank Plan (DSE, 2007) and other relevant publications assessed in greater detail in Chapter 1.

This study was also informed early in the process by the Southbank Project Management Working Group workshop. The key issues discussed at the first workshop were as follows:

Urban Design Issues

- The importance of Sturt Street cultural spine;
- Opportunities for the Westgate Freeway undercroft;
- Low-rise 'high density' approach;
- Existing height regimes hold little credibility i.e. 'transition area' contentious and unsupported by policy. Examples of excessive height above controls along City Road and Southbank Boulevard;
- City Road acts as a piece of road infrastructure rather than a place for people -
 - An unpleasant road for pedestrians
 - Divides Southbank in half;
- Lack of open space -
 - No current policy requirement for compulsory communal open space requirements in private developments;
- Poor pedestrian connections -
 - Between Melbourne CBD and Southbank
 - Flinders Street underpass uninviting
 - Physical and perceived connections
 - Safety concerns at night
 - Along Whiteman Street and Normandy Road in particular due in part to a lack of passive surveillance
 - Night club and Casino activities;
- Absence of public spaces and destinations; and
- Provision of podium car parking creates a

poor public frontage -

- An opportunity to improve through better design – active street frontages, habitable podium areas.

Transport and Mobility Issues

- Role of Southbank Boulevard -
 - Southbank Boulevard originally created in order to facilitate an alternative route once Swanston Street was closed. In reality, Kings Way has performed this function;
- Over supply of car parking -
 - Zero provision of car parking in new development could be extended beyond the reach of the CCZ;
 - the need to improve Public Transport to reduce car use;
- Essentially four categories of car parking within Southbank -
 - Residential (evenings & weekends)
 - Visitors (evenings & weekends)
 - Arts Market (concert hall precinct) (evenings)
 - Entertainment Market eg. Crown (evenings)
 - Possible 5th market in the future if more office development is allowed for commuter traffic;
- Improvement of Bicycle Network (E/W Links) -
 - The Victorian Transport Plan includes bike projects; and
 - Princes Street bridge affords poor cycling accessibility.
- Need for Public Transport to the Convention Centre.

Community Issues

- Eventual need for a local school;
- Traffic noise corridor concerns -
 - No noise screening is currently in place;
- No main street for local amenity or a number of hubs to function as local centres; and
- Lack of usable open space and community meeting spaces -

- The Boyd School site represents an opportunity.

Environmental Issues

- Soil Condition -
 - Shallow water table due to Coode Island Silt.

2.2 Urban History of Southbank

The suburb known as Southbank forms part of the traditional lands occupied by the Kulin Nation of indigenous peoples known as the Wurundjeri, Boonerwung, Taungurong, Djajawurrung and the Wathaurung tribes.

Following Batman's Treaty in 1835 and, due to the marsh like nature of the lands south of the Yarra River, this area did not really begin development until the late 1800s. South Melbourne grew from Port Phillip northwards and the CBD grid was established early.

Major infrastructure linking the CBD to South Melbourne and down to St Kilda such as St Kilda Road and the Sandridge Rail Bridge began the stabilisation of the marsh lands of Southbank. The rail line defined the northern edge of the suburb of South Melbourne which remains as the tram corridor connecting to Whiteman Street and across to Flinders Street.

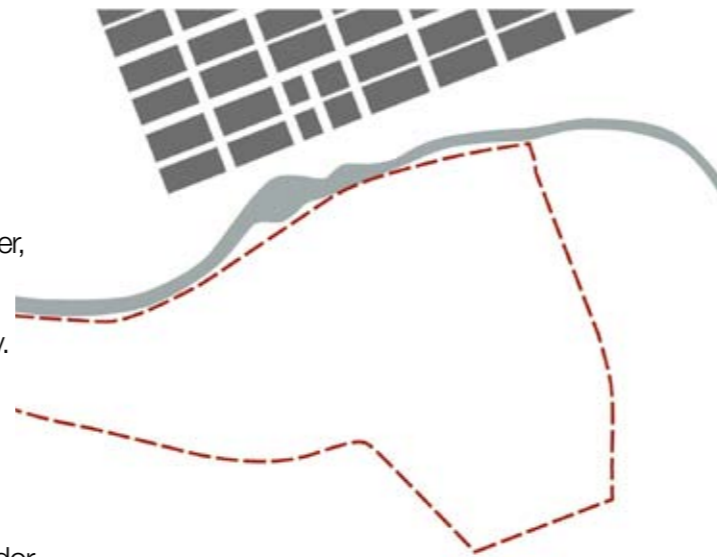
During the 1860s the land to the Yarra River became sparsely developed with wharves.

The wharves were soon displaced with the increase in bridge development in favour of the more accessible Port of Melbourne land and Docklands to the west. It was the establishment of Queen Street Bridge in 1889 over the natural waterfall, and separation between the saline and fresh water flows that opened up Southbank for major industrial development between the Yarra River and South Melbourne. The period of 1900-1950 saw the greatest extent of development in Southbank establishing the alignments of Sturt Street and City Road as the key cross streets in the suburb.

During the 1960s the National Art Gallery of Victoria (NGV) and Victorian College of the Arts (VCA) established Southbank as a key contributor to culture and the arts in Melbourne.

The late 1980s through to the 1990s saw the major pieces of road infrastructure built through the heart of the suburb, redefining it as a primary gateway into the CBD. The opening of the Crown Casino in 1997 further established Southbank as a major leisure destination and led to the establishment of Southbank Promenade to interface more closely with the CBD, largely turning its back on the suburb to the south.

Present day Southbank continues to thrive along the Yarra River but has yet to reconnect with its southern hinterland.



Before British settlement, the area now called South Melbourne was a series of low lying swamps inhabited by tribes from the Kulin Nation.

1840s

Expansion of Melbourne CBD which includes the southern Yarra banks.

Parish of South Melbourne begins development.

1844

Princes Bridge built

First bridge built across Yarra,

Was popular for Sunday day trips to the 'affluent' seaside location St Kilda

Enabled development on the banks

Southbank consisted of some old factories, warehouses and wharves mostly built between the 1860s-1920s when the area was part of the first port of Melbourne

1850s

Victoria Barracks land acquired and developed (still active present day)

1854

The Sandridge Railway Line (built for Melbourne and Hobson's Bay Railway Company, first passenger railway line in Australia) moved goods/passengers

(Closed in 1987, when St Kilda and Port Melbourne railway lines converted to light rail)



1889

Queen Street Bridge built on top of natural waterfall dividing the fresh/salt water of the Yarra River

Encouraged full industrial development - all the way to the border of the parish of South Melbourne.



Early 1800's

Mid 1800's

Late 1800's

Post 1920s

The wharves fell into disuse as port facilities were moved downstream, displaced by manufacturers and warehouses

1930s

Spencer Street Bridge built

Opens low bridge joining Spencer and Clarendon Streets

1934

Shrine of Remembrance opened

Realigned St Kilda road into Parish of South Melbourne (hence shrinking size of Parish)

1961

King Street Bridge built as part of Kingsway/Queens Road St Kilda junction development.

Formed part of Princes Highway

1967

National Art Gallery of Victoria (NGV) built on St Kilda Road

1970s

Victorian College of the Arts developed on St Kilda Road

Polly Woodside docked and turned into museum on banks of Yarra River

1977

Westgate Bridge built however terminated just outside subject site (at Graham St)

Later connected through, terminating at St Kilda Road

1980s

Urban renewal

Southbank first defined as an area for redevelopment by the State Government in 1984

Two years later the Government published a strategy document for the redevelopment process

Arts Centre Complex including Arts Centre and Hamer Hall built

Southgate Shopping Centre built

City Road/Alexander Road underpass created as part of development

1990s

Art and Leisure precinct built

1990

Southbank Promenade development (DCM) built

1995

Esso building completed in 1995

1996

Melbourne Convention and Exhibition Centre ("Jeff's Shed") built

1997

Crown Casino Complex opened

City Link built in the late 90s

2002

Australian Centre for Contemporary Art opened

2006

Eureka Tower, the tallest residential building in the world opened

2009

The Recital Centre and Melbourne Convention Centre opened

Early 1900's**Mid 1900's****Late 1900's****Early 2000's**

2.3 Contextual Relationships

Southbank is situated on the Yarra River south of the Melbourne CBD. Its relationship with the Yarra River and the CBD is the primary focus of the suburb. Its other relationships are to the east with the parks and gardens, to the west with the Yarra's Edge Docklands development and to the south with South Melbourne and the St Kilda Road developments. The contextual relationships diagram (Fig 2.3.1) represents these relationships

Melbourne CBD

The relationship between Southbank and the CBD is one of symbiosis. Southbank is Melbourne's and the State's premier arts precinct and is also a primary leisure destination. Southbank is also becoming a residential hub for workers in the CBD. Melbourne is, by design of its policy, the primary business centre in the region to service the residential suburbs and accommodates the primary retail destination for the region.

Within 500m of the CBD, Southbank is arguably the primary residential suburb feeding the CBD businesses and destinations. While it doesn't have the character of Carlton, Fitzroy or East Melbourne it contains the highest densities of younger workers. The numerous connections across the Yarra River also allow for easy access.

Parks and Gardens

There are three parks directly interfacing with Southbank, namely Alexandra Gardens, Queen Victoria Gardens and Kings Domain. St Kilda Road, separating the suburb from these gardens is a pedestrian friendly boulevard type street with plentiful street crossings allowing for easy access to the green space from Southbank.

The interface with Southbank is predominantly the buildings along St. Kilda Road. The parks form a picturesque backdrop to the Arts Precinct. The gardens, also provide wonderful public amenity and lungs for the CBD, Southbank and Melbourne generally.

Yarra's Edge Docklands

There is little to connect Southbank with Yarra's Edge Docklands other than a similar level of residential density and relationship with the Yarra River. Apart from riverfront promenading, the relationship between the two is merely passive.

South Melbourne

South Melbourne has a strangely indirect relationship with Southbank. The two suburbs are not only disconnected through different Council management structures but also by major road corridors of Kings Way and the Westgate Freeway. They are also differentiated by their urban character and main focus of the Yarra River and Port Phillip waterfronts.

South Melbourne has more of a holistic community focused neighbourhood character reminiscent of the other inner suburbs, whereas Southbank feels slightly disconnected from the characteristics of inner city and local residential neighbourhoods. South Melbourne contains many of the community facilities lacking in Southbank (refer to section 2.9), and while Southbank bears no relationship with its southern neighbour it provides for many local amenities such as food shopping, hairdressers, etc.

Summary

In summary, while Southbank is in close proximity to parks, gardens and services, Southbank as a suburb still misses out on the local amenities enjoyed by most inner city suburbs and as such can only be a supplementary suburb until gaining these services.



Fig 2.3.1 Contextual Relationships

0m 100m 200m 500m Scale 1:10,000 (At A3)



2.4 Southbank Heritage Sites

As the redevelopment of Southbank came about rapidly in the 1990s, there are only pockets of historic assets within its boundaries. The historic sites diagram (Fig 2.4.1) represents these historic assets. The focus on early development along St Kilda Road resulted in a concentration of buildings of heritage status. These include civic institutions such as the National Gallery of Victoria (founded in 1862) and the Victorian College of Arts (founded in 1867), which led to the renaissance of the Southbank cultural centre in Victoria. Their presence on the prominent eastern edge of the study area contributes to the success of the Queen Victoria Gardens and Kings Domain.

The Victoria Barracks Melbourne (built in 1856) is of architectural and historical significance as one of the most impressive 19th century government buildings in Victoria. Further examples are the three bridges, Queens Street Bridge, Princes Bridge and Kings Street Bridge, which are historically significant to the growth of Southbank as an employment centre and later a suburb. These bridges also hold a critical role in connecting the CBD to this residential and leisure precinct.

In addition to the main buildings mentioned above, there are a collection of small isolated heritage buildings dotted throughout the suburb.

Victorian Heritage Listed buildings that are located within the study area are as follows:

- National Gallery Of Victoria;
- Victorian Arts Centre;
- Jones Bond Store;
- JH Boyd Girls High School;
- Robur Tea Building;
- Former Victoria Police Depot;
- Victoria Barracks - A Block; and
- Polly Woodside.

Issues

- There is a spread of heritage listed buildings in the study area. They are concentrated towards St Kilda Road and disparate locations through the rest of the suburb;
- The most important heritage sites in Southbank are the Victoria Barracks and the National Gallery of Victoria;
- Certain cases of heritage listed buildings do not present a positive aspect to the adjacent environments, one example being Hamer Hall; and
- The heritage significance of the area is important and should be enhanced and protected. It is also critical to consider the heritage values in new development and create positive and appropriate streetscape scales close to historic buildings or areas.



2.4.A Victorian Barracks



2.4.B JH Boyd School Site



2.4.C National Gallery of Victoria



- Buildings included on the Victorian Heritage Register
- Heritage Overlay (Clause 43.01 of the Scheme)
- ① Polly Woodside
- ② Robur Tea Building
- ③ JH Boyd Girls High School Site
- ④ Jones Bond Store
- ⑤ Melbourne Concert Hall
- ⑥ Victorian Arts Centre
- ⑦ National Gallery of Victoria
- ⑧ Former Victoria Police Depot
- ⑨ Victorian College of the Arts (and stables)
- ⑩ Victoria Barracks

Fig 2.4.1 Heritage Sites Diagram

0m 100m 200m 500m Scale 1:10,000 (At A3)



2.5 Southbank Character Areas

This analysis assesses the collective character observed in smaller pockets within the wider study area. Character area and land uses often align however the observed conditions within Southbank illustrates that this is not always the case, as shown in the Character Areas diagram (Fig 2.5.1).

This study has identified that there is no overarching character throughout Southbank although there are pockets of clear identity.

These character areas include:

A. Contemporary Riverfront

This area features large, linear buildings fronting directly onto the Southbank Promenade that were built in recent years. This includes the recently completed Convention Centre and hotel complex. Finishes of glass, steel and stone cladding are common materials in this character area reflecting its hotel, entertainment and retail uses. Tree-lined environments creates a seasonally pleasant pedestrian environment along the river's edge. The length of this riverfront serves as a lively alfresco and dining frontage.

B. Post-modern Riverfront

Southbank Promenade is a long narrow character area. Its main aesthetic is a collection of 1990s post-modern architectural façades facing the Yarra river. The length of this riverfront serves as a lively alfresco and dining frontage. However, the area behind the Southbank Promenade is characterised by service streets and car park entrances.

C. Arts Precinct

The unique character of this precinct is a result of built form originating from diverse periods in establishment. Civic institutions such as the Victorian Arts Centre, National Gallery of Victoria and the Victorian College of the Arts were all established in the mid-1800s. These are set against the contemporary Australian Centre for Contemporary Arts and Malthouse Theatre as well as the recently completed Recital Centre.

Generally, these are aesthetically iconic buildings but all serve to house performances

and artwork and as a result present inactive facades. The Recital Hall is a recent example of iconic architecture taking precedence over establishing a relationship between the street and user. The setbacks to St Kilda Road create a specific character as the edge of the suburb. The gardens opposite St Kilda Road give this area a green edge that is unique to Southbank.

D. City Road

Flanking either side of City Road is a series of 1980s and 1990s showrooms, light industrial warehouses and medium scale offices (mostly of unexceptional quality and architectural value).

The area is also characterised by many newly built and upcoming residential towers on podiums which present a consistent character, particularly in height and density of built form. The street level typically includes car parking and vehicular entrances as well as local retail services. The podium often comprises car parking.

E. Central

This character area consists of many vacant sites and under-utilised or derelict commercial/warehouse buildings. It is also characterised by the imposing presence of the West Gate Freeway and the poor environment that heavily engineered infrastructure requires. Similar to character area D above, the area is also characterised by many newly built and upcoming residential towers on podiums.

In its strategic location, the Boyd School site adds interest to the City Road edge of this character area.

F. Southbank Village

Reasonably good quality residential complexes built in the 1980s and 1990s that are 4 to 6 floors provide the character for this area. Many of these are more internally facing with substantial interior courtyards although there are examples of units that open onto small gardens and the street.

The Melburnian (a contemporary residential tower) acts as the landmark for this character area although differs in form and height from the

earlier developments.

G. Victoria Barrack

Victoria Barracks was built in the mid-1800s and largely presents as an architecturally significant Victorian era building forming part of a bluestone-walled enclosure. Its presence on Wells Street is less prestigious and is characterised by wire fencing and at grade car parking.

H. Commercial & Warehouse Strip

This area is characterised by featureless ten storey 1990s office buildings at either end (St Kilda Road and Kings Way) and a collection of warehouses and offices located inbetween. The most memorable street condition occurs on Dorcas Street where a row of single storey cafes and shops reside. This areas contains a small residential component with new residential areas under construction.

Issues

- The character of Southbank varies significantly in aesthetic due to a range of built form stemming from different land uses and periods of development. Importantly, there is a significant portion of Southbank that was built in the 80s and 90s that generally comprises large monolithic structures;
- Additional layers of extremely varied densities and environments make for an inconsistent character throughout the study area;
- The uses of building inform the built form and aesthetic that drives the character; and
- The general impression of Southbank character is that it presents very differently to the north and south rather than as a single cohesive and suburb defining character. The area between these two sides lacks any sense of definition and therefore has the opportunity to be identified as a new character area linking the two together.



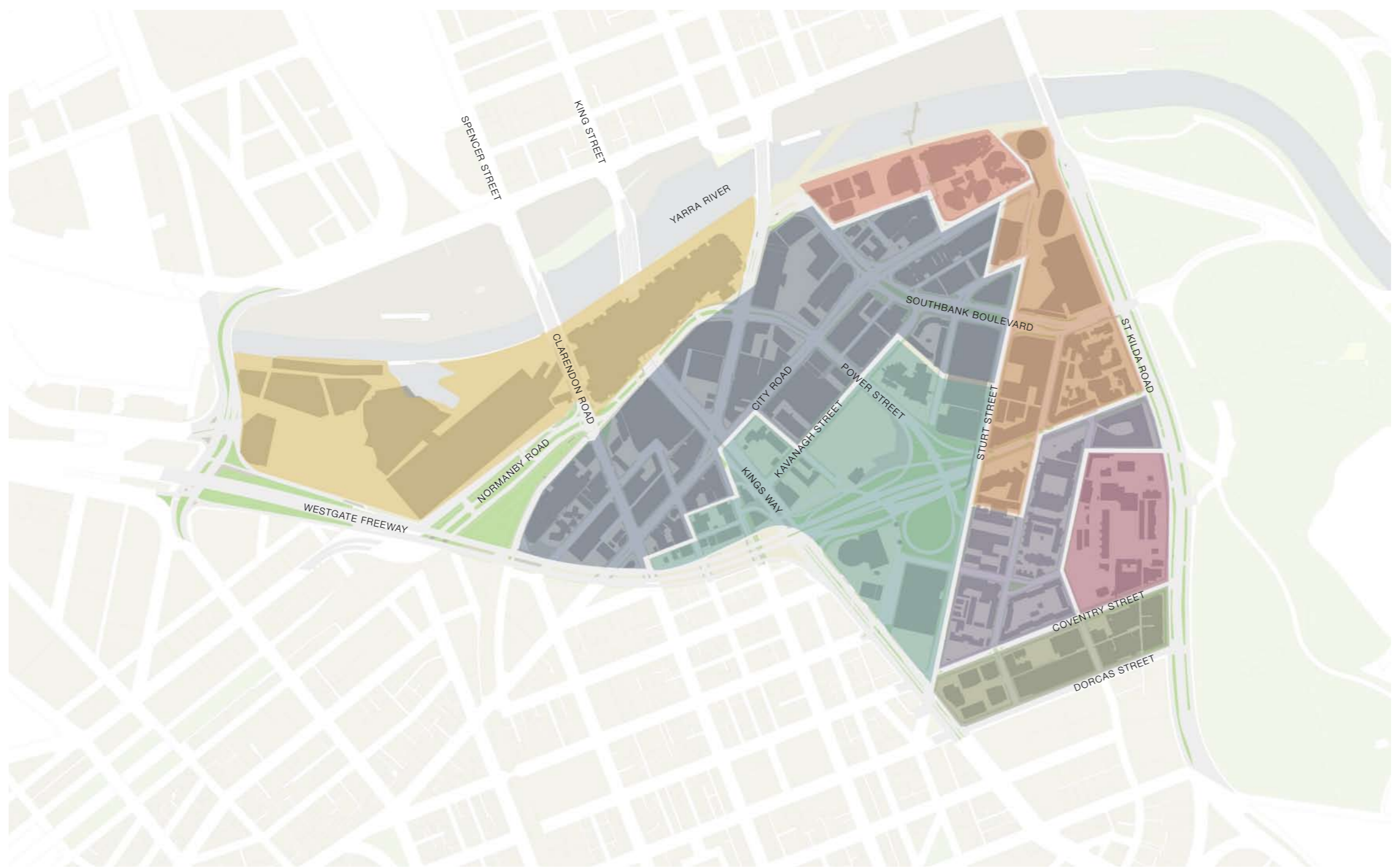
2.5.A Contemporary Waterfront



2.5.B Arts Precinct



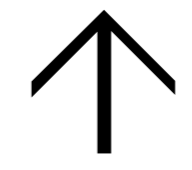
2.5.C City Road Skyline Character



- Contemporary Riverfront
- Post-modern Riverfront
- City Road Character
- Arts Precinct
- Central
- Southbank Village
- Victoria Barracks
- Commercial and Warehouse Strip

Fig 2.5.1 Character Areas Diagram

0m 100m 200m 500m Scale 1:10,000 (At A3)



2.6 Land Uses

This analysis assesses the current land uses that occur within the study area and illustrated in the Land Use diagram (Fig 2.6.1). Although the distribution of land use is extremely scattered throughout the study area, there are five clear categories that can be identified:

Arts Precinct

The establishment of civic and cultural institutions commenced in the era when Southbank was still an industrial area. This comprises the Victorian Arts Centre and Victorian College of the Arts and other arts activities in their vicinity. Most recently the highly successful Australian Centre for Contemporary Art (ACCA) and Malthouse Theatre extends the precinct toward the south.

The newest addition to this extension is the recently completed Recital Hall. .

River Corridor Precinct

This precinct consists of mainly commercial and entertainment activities. Southbank Promenade is a long narrow retail strip. Its main use is the food and beverage façade facing the Yarra River. This precinct is dominated by buildings of large footprints giving the river corridor precinct a continuity of use but also making it visually and physically impermeable. The area also contains pockets of high density housing.

Government Uses

The Victoria Barracks serves as a Commonwealth owned government institution.

State and Local Uses

Recent and current construction projects are predominantly residential towers. It includes more established medium density residential complexes of 4 to 6 floors, internal facing with internal courtyard. These are gravitating around the arts precinct and to the southern end of the study area into Southbank Village.

The commercial element of Southbank's mixed-use precinct tends to present a demand for showrooms, light industrial warehouses and medium scale offices. Other uses include the Victorian Colonial Services and facilities such as

the blood bank, social services and limited retail facilities.

Retail Uses

The majority of quality retail uses occur within the commercial developments of Southgate Shopping Centre and the Crown Entertainment Complex. The upcoming retail component of the Melbourne Convention and Exhibition Centre is envisaged to create quality retail activities to the western end of the study area.

As a result of high traffic flow, City Road has become a home to a series of showrooms retailing furniture, luxury cars, commercial supplies and equipment. Scattered throughout the remainder of Southbank is the presence of convenience stores and the occasional cafe or restaurant. These are located mostly at major intersections to service nearby residential towers.

In addition, there is a small mixed use, retail precinct in Sturt Street that services the local area.

Residential Uses

There is a large provision of residential development throughout Southbank. Residential typologies are location specific with high rise apartments to the north of City Road and low rise perimeter block or warehouse conversion typology to the south. High rise typologies are however beginning to develop close to City Road on the south side.

A high proportion of serviced and rental apartments are found in the high rise area, catering for wealthy international students, young professionals and short term holiday accommodation.

The southern residential areas, such as Southbank Village are dominated by owner-occupiers.

Issues

- The study has identified that there is a wide range of land use mix particularly when moving away from the Yarra River and St Kilda Road edges. This mixed use precinct is comprised of the entire suite of high, medium and low density residential and commercial uses established yet without clear definition or relevant scales between individual buildings;
- A significant number of buildings contain a vertical mix of uses, often with retail to the ground level with car parking occupying the rest of the podium. This reduces the public presence and passive surveillance onto the street;
- Retail has proved to be the most successful within mixed use buildings along the Southbank Promenade;
- Retail that occurs beyond Southbank Promenade generally is less attractive and less successful;
- Concentration of activities along the river frontage and the Arts Precinct deters attention from Southbank as a holistic functioning suburb; and
- Residential typologies are split by City Road, although the trend in high rise residential development is beginning to creep southwards.



2.6.A Arts Use - Victorian Centre of Arts



2.6.B Residential Apartments



2.6.C Commercial - Office Towers



- Arts Precinct
- Arts
- Convention Centre
- Crown Entertainment Centre
- Mixed Use and Residential Uses
- Commercial/ Retail
- Light Industrial
- Residential - Apartments
- Residential - Housing
- Government Uses
- Commonwealth Government - Victoria Barracks
- State and Local Government
- At-Grade Commercial Car Parking

Fig 2.6.1 Land Use Diagram

0m 100m 200m 500m Scale 1:10,000 (At A3)



2.7 Landscape and Open Spaces

This analysis informs the type and distribution of open space and landscape features. This is illustrated in the Landscape and Open Space diagram (Fig 2.7.1).

Generally, street trees are present throughout Southbank but because of the wide roadway conditions they do not significantly contribute to the streetscape environment. Of the streets in Southbank, St Kilda Road, Southbank Boulevard and Whiteman Street stand out as the most generously tree-lined roadways namely because they are comprised of wider median strips.

Streets such as City Road are on average 6 lanes wide with street trees located only on either side. Tree-lined streets add greenery to significantly urbanised environments and streets dominated by vehicular traffic. Avenues of trees also reduce the impact of imposing building towers on pedestrian perception.

There are also many examples of roads that have little to no street tree planting such as large runs of King Way and Queens Bridge Road. This condition is not conducive to pedestrian use due to exposure to environmental elements and a harsh vehicular traffic environment.

Overall, there is a distinct lack of green space and public open space within the study area. This must be acknowledged despite the generous parklands on the opposite side of St Kilda Road. There is a distinct difference between formal gardens, botanical gardens and neighbourhood community gardens.

There are generally three different types of open space in an urban suburb:

- Hard landscape urban spaces;
- Pocket park; and
- Community park.¹

Firstly, hard-landscaped urban spaces generally associated with retail development.

In this instance, the spaces along the Southbank Promenade provide easy and generous pedestrian spaces along the river with positive retail edges to the southern side.

With the advantage of a maximised aspect onto the Yarra River, the northerly aspect and a dramatic avenue of mature trees, this space is highly valued and well utilised. This open space is further enhanced on its northern side by copses of mature trees, public grassed areas and floating pontoons giving visitors direct access to the river. This strip culminates at the Melbourne Exhibition Centre.

The second spatial type is the pocket park catering for small scale community activities such as playgrounds and seating areas or community gardens.

Southbank contains only a few spaces that are able to cater for such activities. The most meaningful of these parks are located at the corner of Sturt Street and Kings Way and Grant Street play space. The grassed area adjacent to the Melbourne Exhibition Centre has been allocated pocket park status and therefore has a 200m population catchment.

The majority of pocket parks within Southbank are currently only left over spaces adjacent to major road corridors and are thus polluted and feel unsafe.

The third spatial type is the community park. These important spaces allow for more opportune active play such as football or cricket and provide important ways for the city to mitigate the urban heat island effect.

Southbank contains no such spaces within its boundaries, although the gardens and spaces associated with the Kings Domain and Birrarung Marr to the east and north-east provide the necessary respite for adjacent residents. These are situated quite far from a large proportion of residential developments and can only be considered to realistically service those living within 500m of the parks.

Issues

- Although there are instances of high quality finishes along St Kilda Road and the Southbank Promenade, Southbank is generally characterised by poor public environs;
- Queen Victoria Gardens and the Kings Domain are perceived to be inaccessible due to the width of St Kilda Road. However the real issue is that a growing number of residential developments are occurring towards the western portion of the study area rendering this public open space beyond walking distance; and
- There is a lack of a green heart to Southbank. Even though public and retail amenities occur by way of the Arts Precinct and the Southbank Promenade, Southbank as a community is distinctly under provided for and is reflective of a transitory place rather than a destination.



2.7.A Hard landscaped promenade



2.7.B Pocket Park - Sturt Street Reserve



2.7.C Southbank Boulevard street tree environment



- Pocket Parks
- Promenade Park
- Regional Park
- Quality street tree setting
- Main street tree setting
- Residential street tree setting
- Catchment of open space
- 500m catchment of the parks and gardens

Fig 2.7.1 Landscape & Open Space Diagram

0m 100m 200m 500m Scale 1:10,000 (At A3)



2.8 Review of 'Total Watermark - City as a Catchment' (City of Melbourne, 2008)

Melbourne as a 'Water Sensitive City' is part of a wider proposition to reconsider the 'City as an Ecosystem.' This approach encompasses complete greenhouse gas mitigation and habitat protection. The City of Melbourne is moving from the traditional 'Water Supply City,' a single, centralised infrastructure which provides limited flexibility for water management and reuse, to the versatile 'Water Sensitive City' which creates a more integrated approach to water management.

Another reason to move to a 'Water Sensitive City' is the pressure on piped water infrastructure by the warming of the city, exacerbated by the Urban Heat Island effect (UHI), with more extreme hot days and less rain to soften the ground associated with climate change. These pressures lead to drier ground and thus more pressure on pipes through normal movement. By providing a more resilient city through greener landscape and water features the heat build up will lessen which will reduce pressure on the below ground infrastructure.

The Climate Change Adaptation Strategy (2009) identified stormwater harvesting as the highest priority measure to mitigate the effects of flash flooding, limited water supply and reducing the UHI effect. Best practice Water Sensitive Urban Design (WSUD) techniques to conserve, re-use and recycle water and manage stormwater run off are considered high priority initiatives in creating a resilient 'City as an Ecosystem.'

Total Watermark suggests many different mechanisms for securing this alternative approach. The Southbank Structure Plan will be focussing on precinct and suburb wide initiatives, assuming that the other principles are already embodied in building specific solutions and behavioural change in the community.

The Total Watermark review refers to two categories of landscape. The first are known as 'sources,' or elements that provide stormwater run off such as roads, roofs etc. The second are 'sinks' which require water such as parks, sports fields and water intensive industries. Southbank comprises over 95% of its land area as a 'source' landscape. The Watermark diagram (Fig 2.8.1) indicates the 'source' and 'sink' components. In order to create a resilient city,

the design of these two landscape categories should also encompass three design objectives of sustainable water management practices. These are: nature conservancy, conserving and protecting biodiversity; natural/urban interface, such as the rehabilitation of environmental impacts associated with catchment urbanisation, and; urban ecology, where the role of biomimicry in promoting ecosystem services in actively integrated into the urban landscape alongside built form, art and science.

It is important to understand that stormwater harvesting is one component of an integrated water management system for the city. Although stormwater harvesting has been identified as the most significant tool for mitigating the effects of climate change in the city, when assessing the hierarchy of alternative water sources it is superseded by the change in behaviour and general reduction in demand for water and also through the increased use of harvested rain water. Both of these present little or no demand on the city's other infrastructure such as power to ensure it functions properly.

Stormwater could account for over half the water needs for the public landscape in the city. However, capturing and treating this water requires WSUD systems before the flow runs into the Yarra River. WSUD systems in the streetscape have the following advantages:

- Replacement of rigid pipe infrastructure with natural elements for drainage such as wetlands;
- Enhanced aesthetics through increased vegetation, aquatic elements and landscaping, also helping to reduce the UHI effect;
- 'Visible infrastructure' combining functionality and natural elements also allowing for easy maintenance; and
- Linked urban and natural environments.

They can also take the form of:

- Porous and permeable pavements to allow water to seep into the water table rather than rushing into the stormwater system; and
- Street trees in road ways designed to ensure the tree is watered from stormwater flowing into its base then filtering the pollutants from the excess stormwater before it ultimately

enters the Yarra River

The City of Melbourne is already recognised as a leader in the application of WSUD. Its guidelines provide a clear approach to building an ecologically sustainable suburb. Critical components of stormwater harvesting and treatment of the public realm of Southbank should include:

- On street rain garden implementation;
- Swales and small wetlands on street and in parks and gardens; and
- Porous and permeable paving to allow the ground to saturate reducing heat build up in the city.

Currently, only the new Grant Street play space contains public WSUD in Southbank. The space contains a rain garden and underground tank. These systems will provide a total nitrogen reduction in the space of 58% and total phosphorous reduction of 36% with an anticipated 100% litter reduction. Although small in comparison to the entire suburb, if all streets and spaces contained similar initiatives the overall contamination in the waterways would be significant.

Issues

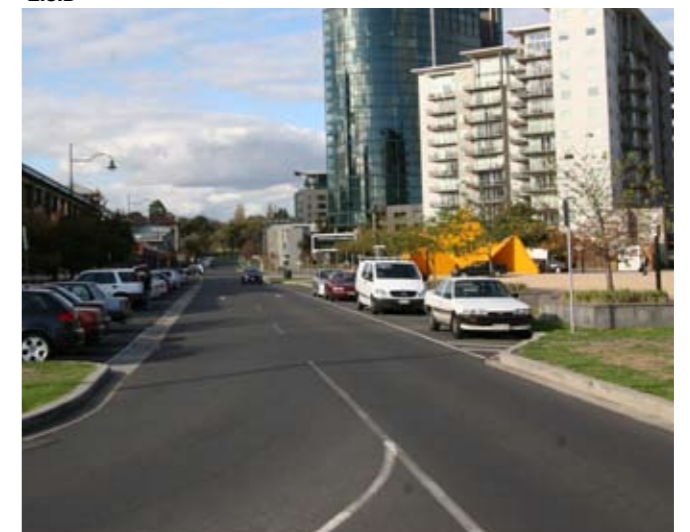
- 95% of Southbank is comprised of 'source' category landscape;
- Only Grant Street play space contains active WSUD systems; and
- In order to create a truly versatile 'Water Sensitive City' the suburb needs to undertake a shift in the design of its streets and spaces into a hierarchy of WSUD systems.



2.8.A Example of a 'Sink' - Green open space



2.8.B Example of a 'Source' - Rooftops



2.8.C Example of a 'Source' - Road surfaces



Source
Sink

Fig 2.8.1 Watermark Diagram

0m 100m 200m 500m Scale 1:10,000 (At A3)



2.9 Arts and Entertainment Activities

The clear majority of visitors to Southbank come for its arts and entertainment attractions. Crown Entertainment Complex and Southgate shopping complex attract 9 million and 7 million visitors respectively each year. Southbank holds an elevated reputation due largely to the prestigious Arts Precinct it harbours. Thus it is important to understand the type and distribution of these public destinations. The Arts and Entertainment diagram (Fig 2.9.1) represents this understanding.

The arts amenities are concentrated generally along the St Kilda Road edge of Southbank and consist of:

- Arts Centre and Hamer Hall;
- National Gallery of Victoria;
- Melbourne Recital Hall;
- Melbourne Theatre Company;
- Australian Centre for Contemporary Arts (ACCA);
- Malthouse Theatre; and
- Victorian College of the Arts (VCA) - (Music, Theatre, Exhibitions).

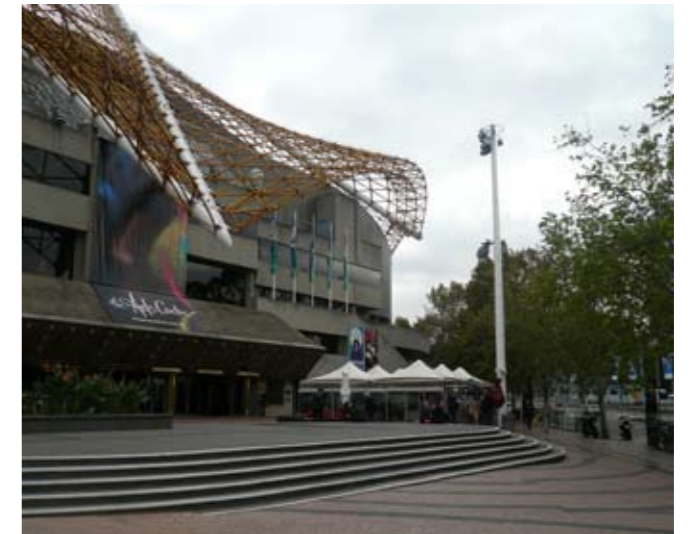
The entertainment amenities are concentrated on the along the Yarra River edge of the study area and consist of:

- Crown Entertainment Complex;
- Southgate shopping complex; and
- Melbourne Convention and Exhibition Centre Retail Precinct.

Hotel amenities are well distributed along the length of the Southbank Promenade as the concentrated of these attractions to the northern edge of the study area, establishes an intense focus on the edge of the Yarra River as a tourist destination. Further development of arts and entertainment through the suburb will provide opportunity to distribute hotel accommodation elsewhere.

Issues

- There is a lack of a pedestrian activity at the heart of Southbank. This is in part due to a lack of public destinations, poor connections, and safety issues due to the lack of passive surveillance or use of the streets;
- All major public activities are outward facing, choosing St Kilda Road and the Yarra River as frontages and leaving the centre of Southbank relatively unaddressed; and
- The Arts Precinct is being extended along Sturt Street. This has created a cultural spine that will bring activity into the central area of Southbank. The connection back to St Kilda Road is still poor.



2.9.A Arts Amenities - Victorian Arts Centre



2.9.B Hotel Amenities - The Hilton



2.9.C Retail facilities - Southgate



- Arts Amenities
- Hotel Amenities
- Retail Amenities and other retail precinct

Fig 2.9.1 Arts & Entertainment Amenities Diagram

0m 100m 200m 500m Scale 1:10,000 (At A3)



2.10 Community Facilities

Generally, the level of public amenity in a suburb reflects its percentage of residents, their demographics and its historic purpose. Southbank as an historic employment centre has become a residential suburb relatively recently in its lifespan.

The recent and fast transition between employment and community has led to a fragmented provision of social facilities and public amenity. These facilities have been broken down into the components below and illustrated in the Community Amenities diagram (Fig 2.10.1).

Community facilities

Southbank contains a wealth of nationally and internationally recognised facilities. It is also a hub of leisure activity. Southbank as a suburb however is under resourced for community facilities. To begin with, there is no permanent community space available. The City of Melbourne hires facilities at the Malthouse Theatre for community uses and meetings. This page highlights further gaps in community and social infrastructure normally found in vibrant suburbs.

Education

The suburb of Southbank contains only 1 school below tertiary education which is a specialist school run by the Victorian College of the Arts for dancers and musicians. The closest general admission kindergarten and primary schools generally lie to the south east of the study area with Melbourne Grammar within 800m, Christ Church Grammar and South Yarra Primary School within 1800m. Mac Robertson High, Ozford and Taylors Colleges are the other closest secondary schools (with Melbourne Grammar) 1300m from the closest corner of the study area and thus up to 3000m from South Wharf. A specialist school for the deaf is located on St Kilda Road 2500m from the study area but accessible by public transport.

Generally the CBD is well serviced by high quality tertiary institutions with Southbank also containing the Photography Studies College on City Road and the Victoria College of the Arts, a world famous institution on St Kilda Road.

Healthcare

There are no hospitals in Southbank, the closest general hospital is Royal Melbourne 2500m from the study area. St John of God Healthcare is situated in Coventry Street, South Melbourne but is a private facility.

There are numerous registered doctors in Southbank, generally located to the north of the suburb so less convenient for residents in the village precinct. Together with many practitioners in the CBD, Southbank is well serviced for general medical advice.

Southbank only contains 2 dentists which represents an under provision of dentistry services, however there are many dentists in the CBD to cater for Southbank residents.

There is currently no Maternal Health Centre operating in Southbank however there is one located on Bank Street in South Melbourne.

Community Support Services

Southbank contains few support services for crisis, homelessness and drug related concerns. The provisions catered for, primarily from the Hanover Southbank facility on Haig Street include accommodation, health services/pharmacy, legal advice and laundry. Food is also available from a mobile unit at Hanover House on City Road.

The suburb still lacks such services as emergency health, drug and alcohol advice, counselling, employment and tenancy assistance. These are generally found in the CBD or South Melbourne.

Senior Citizens

Senior citizens are well represented in the demographics of Southbank, generally 'empty nesters' who have down sized into central city apartments. There are no senior citizens centres located in the suburb with the closest in South Yarra, 2000m from Dorcas Street. With the increasingly elderly population and desire for smaller units, Southbank is a highly desirable area for growth in this demographic. Therefore a senior citizens centre would be a highly desirable facility for community provision in the suburb.

Young People

With the large student population in Southbank, together with its leisure based activities along the promenade, Southbank is a popular destination for young people. Although there are no youth facilities in the suburb, the easily accessed Riverslide Skatepark is within 300m of St Kilda Road providing a free and well-used facility together with a popular meeting place. A Youth Outreach Program is also located in Dorcas Street, South Melbourne, only 500m from the suburb.

Families

Generally, families are under provided for in Southbank. The suburb contains few public open spaces, play spaces or playgrounds, the closest being adjacent to the Riverslide Skatepark. Grant Street Reserve has been identified as an appropriate location for a district level playground, to meet the recreational needs of children aged between 3 and 12 years of age. There are also no children's centres or maternal or child health centres, the closest being Fawkner Park Children's Centre in South Yarra 2000m away or Art Play at Birrarung Marr. Southbank's only playgroup is located in Southgate Shopping Centre to the north east corner of the suburb, a fair distance from the Southbank Village. There are numerous facilities in South Melbourne however these are run by the City of Port Phillip.

Art Play is an excellent facility in Birrarung Marr, close to Federation Square and is easily accessed from Southbank. Art Play's mission is to 'provide a setting for children and their families to come and broaden their education and skills by involving them in artistic, interactive and creative projects. By involving them in workshop programs with professional artists Art Play hopes to improve opportunities for these children in both education and the arts.'

Religious Facilities

The only recognised religious facility is St John's Southgate Church, located adjacent to the Southgate shopping complex.

Emergency Services

Southbank contains the Victoria State Emergency Service (VICSES), located on Sturt Street. The



2.10.A Hanover Southbank Facility



2.10.B Victorian State Emergency Service



2.10.C South Melbourne Fire Brigade

VICSES is a volunteer based organisation responding to emergencies and working to ensure the safety of communities around Victoria. This facility is of regional importance but has little influence over local emergencies.

There are no local police stations in Southbank but four are located close by on St Kilda Road, Finders Street, Flinders Lane and Bank Street, South Melbourne. There is also an increasing police presence at local night time hot spots close to Crown Casino and King Street.

The South Melbourne Fire Brigade is situated in Moray Street in Southbank. This facility provides a local response unit for the suburb and is close to the major road corridors for fast response to the wider South Melbourne area.

Issues

- There is a lack of diverse residential development type in this area which limits the demographic mix;
- There is a lack of social facilities in Southbank leading to the suburb being less desirable for communities. This in turn creates silo-based small unit development catering for student and young professionals to the north of the suburb;
- The communities living in Southbank Village are disadvantaged by the lack of services and also from the distance to the few services concentrated in the north. This community generally uses South Melbourne's services;
- There is need for general admission kindergarten, primary and secondary school facilities to cater for growing population;
- There is need for a primary medical facility and an increase in dentistry services;
- There is a need for wider provision of crisis outreach facilities;
- Senior citizens centre is critically needed;
- Youth facilities are needed, particularly for 12-18 year olds; and
- Play spaces, playgrounds, public open spaces and community meeting spaces are critically needed.



Fig 2.10.1 Community Amenities Diagram

0m 100m 200m 500m Scale 1:10,000 (At A3)

2.11 Urban Grain and Built Footprint

The pattern of the arrangement of streets, blocks, plots and their buildings create an urban grain which is either small and frequent (fine grain) or large and infrequent (coarse grain). Generally in good city fabric, the fine grain pattern is most flexible and lovely allowing for continual growth and prosperity. The Built Footprint Diagram (Fig 2.11.1), opposite, shows the street block and plot structure of Southbank.

There is generally a lack of spatial hierarchy or clear network of streets and spaces as can be seen through other inner Melbourne suburbs. Southbank Promenade is the only area that contains along its length a series of open spaces and narrower promenade streets. The key promenade spaces relate to the key entry points from the CBD into the suburb which creates a good level of legibility to this northernmost edge of the Southbank.

The grain of Southbank varies considerably. The extremes of this grain are found:

- In the area around Drury Lane which comprises a fine grain;
- In the north-eastern area, north of City Road and east of Power Street, which comprises of buildings with large footprints, creating a coarse grain;
- In the area further south around Coventry Street, comprises predominantly medium grain with smaller residential footprints (however these are often amalgamated to form large residential blocks); and
- Scattered throughout the Mixed Use Zone on Sturt Street where larger footprints indicating commercial activities are located.

Freeway columns largely influence the urban grain particularly along Kings Ways and the West Gate Freeway. The need for roadway infrastructure along Kings Way (between Whiteman Street and City Road) results in a highly inaccessible urban grain. Generally however, the sites underneath raised roadways are largely accessible and currently used for commercial parking purposes.

The study area can be broken into two categories, the fine grain and coarse grain. The coarse grain is by far the most prominent Southbank and is becoming increasingly more so. It mainly comprises clusters of large residential towers on podiums that dominate a substantial portion of a traditional city block. The northernmost area, north of City Road is the most coarse with full city blocks combined to create mega blocks. These create serious problems for the growth of the city. The problems are threefold.

Firstly, there is a lack of permeability through the block which allows fewer opportunities for accessing other streets and facilities, the second is the inevitably monolithic architectural response over a long length of facade which generates a lack of interest and, particularly facing the CBD, lack of aesthetic variety. Thirdly, and most importantly, the mega blocks create an inflexible urban structure which cannot be allowed to regenerate itself continually over time which in turn tends to reduce the continual updating which normally adds to the vitality of the city. It creates, in effect, a mono-cultural enclave.

The fine grain can be found in pockets of Southbank, generally around Drury Lane and in the Southbank Village. This fine grain creates a variety of opportunities for continually evolving street character and land use activities. It allows for flexible street networks which provide different options for pedestrian movement, parking, or access. It provides for a hierarchy of streets to enable the user to understand their location based on the type of road, and it provides opportunity for many different developments to occur, increasing the variety of solutions. A good example of this is the CBD that provides flexible block types and a clear street hierarchy.

Issues

- There are a few examples of fine urban grain that occur at the southern end of the study area and midway along Southbank Boulevard;
- In general however, the urban grain rarely provides a clear urban structure with mega-block based built form;
- The dense grain to the north area is overly dominant at street level and creates poor permeability southwards; and
- The lack of spatial enclosure to the centre emphasises the traffic infrastructure and reduces the quality of spatial proportion and streetscape.



2.11.A Coarse urban grain - Commercial



2.11.B Coarse urban grain - Residential



2.11.C Freeway influence on urban grain



- Built footprint
- ⋯ Elevated roadway columns

Fig 2.11.1 Built Footprint Diagram

0m 100m 200m 500m Scale 1:10,000 (At A3)



2.12 Edge Conditions and Quality of Enclosure

Generally, active street frontages and the enclosure of space by buildings create well defined public spaces and pedestrian friendly streets with passive overlooking. Spatially, Southbank presents poorly defined spatial relationships. The many low quality spatial edges, particularly around City Road prevents the centre of the study area from becoming a liveable place. The current conditions are represented in the Edge Conditions and Quality of Enclosure diagram (Fig 2.12.1).

There is a dispersed placement of positive edges. These are generally identified as individual shop units or open and inviting facades rather than complete public streets. The large number of inactive frontages and poor spaces ruin the area. Although many positive frontages are present, these do not necessarily add life to the street environment comprising large commercially based uses rather than interactive and frequent changes in activity.

Spaces located against the major roadways and flyovers with associated columns, walls or fences enclosing them create environments perfect for antisocial behaviour and lurking and therefore will be unused by families and children who lack amenity space in the first instance or by walkers fearing safety.

The Arts Centre, Southgate Shopping Centre, Melbourne Convention and Exhibition Centre and Crown Entertainment Complex address the Yarra River and St Kilda Road with a vibrant and active frontage. However, this treatment is not applied to their opposite frontages exposing poor back-of-house to the public realm.

The majority of residential and institutional developments have been established with inward-facing layouts. Dominant edges of inactive frontages produce poor environments for pedestrians.

The provision for car parking is a major contributor of inactive street frontages in Southbank. The large number semi-basement or ground level parking enclosures is responsible for degrading the potential quality of the street environment.

The centre of Southbank is an area lacking active

frontages. This area suffers from a variety of problems. Firstly, there is no active public space. Secondly, the area is dominated by major traffic junctions occupying large areas of space for heavy concentrations of vehicles consequently presenting leftover spaces with no edge definition. Thirdly, even recent developments like the Melbourne Exhibition and Convention Centre are massed away from the road, worsening this condition. Where active frontages may occur, they are disadvantaged by a non-pedestrian friendly environment dominated by heavy vehicular traffic.

A partially successful example is the space formed between the ACCA and the Malthouse Theatre. The result is a pleasant pedestrian enclave in the context of major roads and freeways. While outside the study area the lively precinct that has evolved around the South Melbourne markets is another fine example of successful pedestrian environment.

Dorcas Street presents a pleasant café and pedestrian setting made possible by a low trafficked road and pedestrian desire line from central South Melbourne to Kings Domain.

The Eureka Tower's iconic presence does not translate to the ground level and hence cannot be considered as a successful gateway to the rivers edge or into Southbank itself.

Issues

- Southbank contains few areas of high quality urban spatial enclosure and active frontage. These are focused on the Yarra River's edge and St Kilda Road;
- Generally, the public environment within the centre of Southbank is poor with wide traffic dominated spaces, lack of public space and blank facades;
- The study area contains buildings which either do not relate to the street in land use, aesthetic, form or in built edge and therefore creates a stark anti-urban environment for the pedestrian;
- Despite the success of places such as the ACCA and Malthouse Theatre courtyard, the resultant condition is one of an unintegrated street frontage;
- Only 17% of Southbank's street frontages can be considered active. In turn, half of all frontages are inactive meaning the streets of Southbank do not currently present a conducive setting for pedestrian interaction; and
- Lack of podium edge activity reduces the security and vibrancy of the street.



2.12.A Active frontage - Southbank Promenade



2.12.B Positive frontage - Queens Bridge Road



2.12.C Inactive frontage - Podium car



- Active Frontage
Accumulative length = 3,989m
Distribution in Southbank = 17%
- Positive Frontage
Accumulative length = 7,880m
Distribution in Southbank = 33%
- Inactive Frontage
Accumulative length = 11,884m
Distribution in Southbank = 50%
- Poorly defined public realm

Fig 2.12.1 Edge Conditions and Quality of Enclosure Diagram

0m 100m 200m 500m Scale 1:10,000 (At A3)



2.13 Legibility

Legibility refers to the way we move around a place, how easy it is to navigate and how we use landmarks to find our way. The Legibility diagram (Fig 2.13.1) opposite shows landmarks, dominant structures and different types of views.

Most importantly, the Eureka Tower stands above all else and can be used as a visual marker from most prominent positions in the study area and throughout the south side of Melbourne.

The second most prominent is the spire of the Arts Centre that acts as an iconic marker along Sturt Street and St Kilda Road. However, due to its transparent structure, the spire becomes visually lost when set against the backdrop of Melbourne's Central Business District.

The most important view corridor throughout Southbank is its impression from the CBD. The impression of Southbank is therefore hugely important as a backdrop to Melbourne and a frontage onto the Yarra River.

The periphery of the study area when navigated along is not typical of Melbourne. Instead it comprises streets that are not of the Hoddle grid form and routes which do not connect, creating a lack of street hierarchy, poor levels of connectivity or large areas without permeability.

There are many aesthetically unique, city scaled buildings of 10-30 storeys which to some degree assist with the levels of legibility. Those concentrated along Southbank Promenade give the pedestrian a sense of the Yarra River location. This does not necessarily assist in the accessibility to the rivers edge.

Unfortunately the majority of towers within the heart of the study area are homogenous and less significant strategic landmarks, which are only considered to influence the local area and do not function to create a legible environment. There are many residential towers in the area, yet these do not necessarily indicate an important junction, destination or retail centre. This presents a confusing environment to navigate around.

The major feature to prevent clear and legible movement around the study area is the major roadways namely West Gate Freeway, Kings Way and City Road. The road hierarchy is based on the major traffic access through the suburb.

Issues

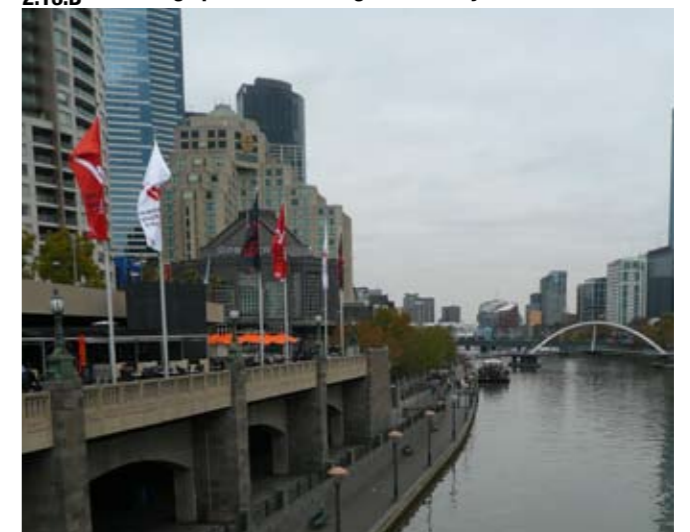
- The Arts Centre spire is an icon of Southbank but its transparent structure reduces its impact as a landmark;
- Eureka Tower is the key landmark in Southbank;
- There are low levels of legibility surrounding the study area but also within, particularly throughout the central areas; and
- Residential towers are indistinguishable and are responsible for obscuring views to key landmarks.



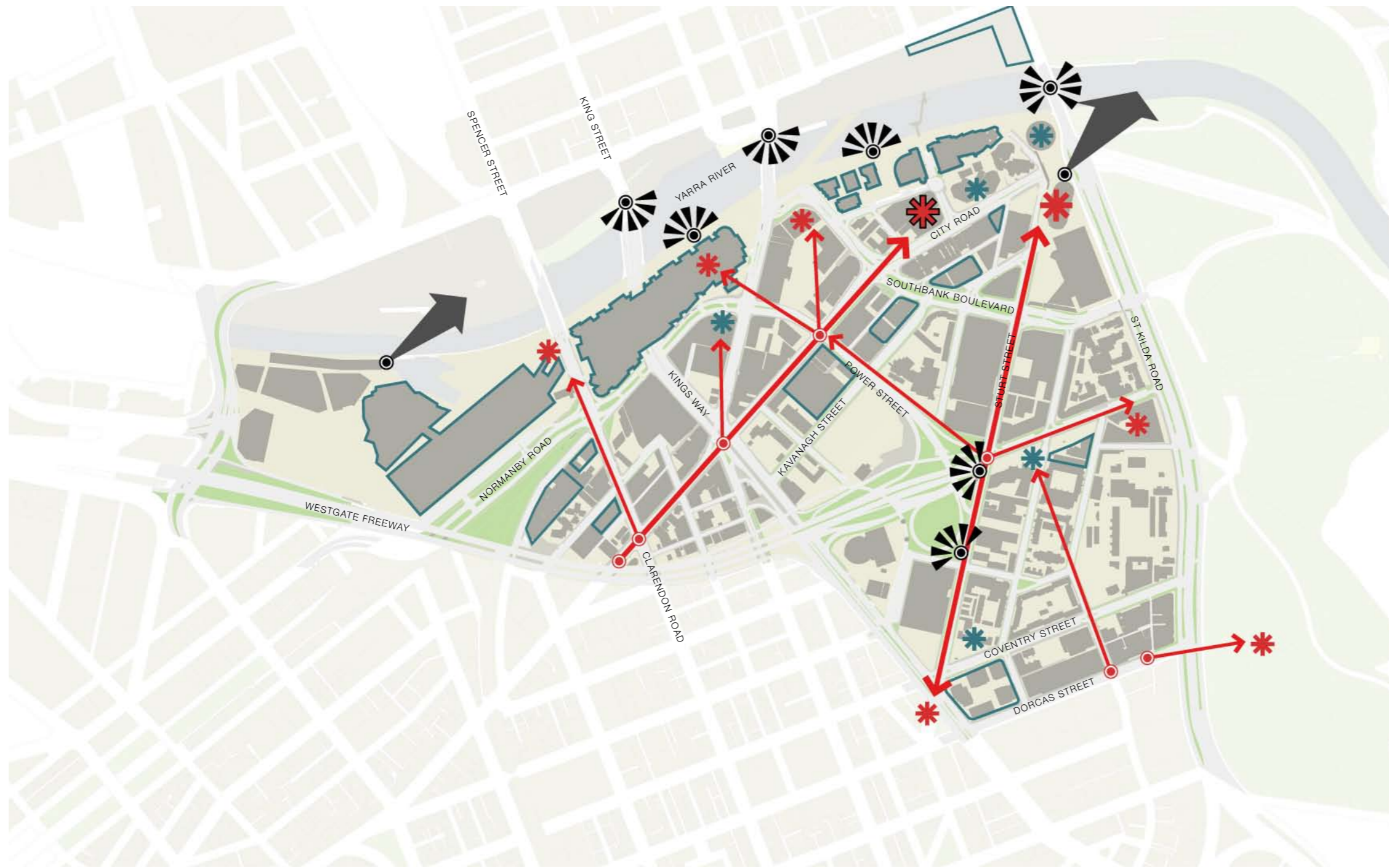
2.13.A View along City Road to Eureka Tower



2.13.B Vantage point from Westgate Freeway entrance



2.13.C View from Princes Bridge to Southbank Promenade



- Eureka Tower
- Key Landmark
- Dominant Structure
- Important Views to Landmark
- Vistas from Site
- Vantage Points

Fig 2.13.1 Legibility Diagram

0m 100m 200m 500m Scale 1:10,000 (At A3)



2.14 Pedestrian Analysis

A pedestrian environment that is accessible, permeable and generally easy to move through is fundamental to creating a vital and viable suburb. The pedestrian movement through Southbank is, in the most part, difficult to navigate and of low quality.

The City of Melbourne's Transport Strategy 2020 Moving People and Freight has identified walking as a clear priority over the next 10 years. The following is a summary of the directions endorsed by the City of Melbourne and relevant to Southbank.

Transport Strategy 2020: Moving People & Freight (2006)

This Strategy, adopted in 2006 'is about delivering the future that Victorians want for their capital city: a vibrant business and community centre that is accessible to all.' Its intent is to create an integrated and sustainable transport network 'which is convenient, equitable and sustainable, ensuring a thriving and sustainable City, and which meets the diverse needs of our residents, workers, tourists, visitors and businesses.'

The strategy is broken down into three key areas for action: Getting to the City, Getting Around the City and Freight and Commercial Travel. This study is focusing on the latter two action areas since it is located in the centre of the City and trends around getting to the City are tending towards significant growth in public transport use and a reduction in car-borne travel.

Walkability is a fundamental indicator of a city's liveability. In particular, a safe and pleasant walking environment encourages the use of public transport, has significant health benefits for those taking part, and encourages people to engage with their surroundings. A good city street is a destination in its own right, an experience as well as a thoroughfare, it also:

- creates a more people friendly environment;
- improves pedestrian infrastructure;
- makes roads safer for pedestrians; and
- encourages active frontages.

A recent study was undertaken on the traffic

issues in Southbank and their effects on pedestrian activity and movement. This has been summarised below.

Southbank Pedestrian & Traffic Study, JTP P/L (2004)

The Southbank Pedestrian & Traffic Study provides an understanding of the current and future pedestrian and traffic patterns in Southbank, and indicates how future development will affect projected pedestrians. Opportunities for enhancing pedestrian safety and amenity are also addressed.

This study explains that once development is complete, Southbank will have a daily population of 136,500 people (16,000 residents, 35,000 workers and 85,000 visitors). The following chapters suggest even greater densities.

Key conclusions of the study include:

Footpath capacity

The existing footpaths have the capacity to accommodate the future pedestrian growth and the potential shift of people walking more frequently.

City Road

City Road is an arterial road and City Link has significantly reduced traffic on it. There are no opportunities to reduce the traffic function of City Road.

Kings Way

There is only limited opportunity to enhance pedestrian access.

Sturt Street

This street is proposed to be a key pedestrian route through Southbank. The vitality of the street can be improved by encouraging café and al fresco dining and more interactive street frontages.

Southbank Boulevard

Southbank Boulevard is also proposed to be a key pedestrian route as it provides an important link to Southbank Promenade. To improve safety and amenity it is suggested the tram stops be upgraded to be DDA compliant and shelters installed.

Kavanagh Street

The study suggests that pedestrian traffic on Kavanagh Street will significantly increase as it abuts high density residential development. As such it is proposed that this street will become a key pedestrian route and that it will be a more convenient and safer route than City Road.

The majority of pedestrian movement occurs on City Road/Power Street, City Road/Southgate Avenue, and City Road/near Fanning Street. It is estimated that daily pedestrian movements are generally visitors and workers.

The study recognises that since the implementation of CityLink and the closure of Southbank Boulevard and Queensbridge Street, there have been significant improvements to the local road network.

A Walkability Audit was conducted in Southbank and the following findings arose:

- There was a general lack of street furniture;
- Information and directional signage was generally inadequate;
- Many streets had non-active building frontages;
- A number of streets are orientated to vehicle use and not pedestrians; and
- There was a lack of regular street tree planting.

Physical analysis of the pedestrian (and cycle) environments:

As identified in the two preceding strategies, although the walkability of a place is recognised as being critical to its success, Southbank in general fails to create this desired outcome. This is not to suggest there are no walkable areas in the suburb. It contains two different types of high quality public walkable routes and good examples of each. The walkable routes are illustrated in the Pedestrian analysis diagram (fig 2.14.1).

The first is the pedestrianised precinct, such as the Southbank Promenade. Connecting along the river with good quality underpasses beneath the bridges, this walk is interesting, varied and well used (except for beneath the Hamer Hall/

Princes Bridge which is a dark, foreboding environment). This type of route should be carefully considered and only applied to areas with significant pedestrian use throughout the day. This is a vibrant, well used route. There are conflicts with cyclists along this route which should be addressed, though they are not critical to the success of Southbank Promenade.

Equally, the Yarra and Sandridge footbridges and Princes bridge provide important pedestrian access across the Yarra River. Princes Bridge is the most heavily used bridge by pedestrians in the area. The footways are wide, with the ability to accommodate a large number of pedestrians. Pedestrian stages at the traffic signals provide adequate time to enable pedestrians to cross safely. The quality of design and finish to this area also enhances the pedestrian experience.

The second type of route is the boulevard, an example of which is St Kilda Road. This route is considered a high quality walkable street. Pedestrian crossings are located on various sections of St Kilda Road linking Southbank with the parks and gardens to the east. The street is well lined with tree coverage providing shade and reducing the effect of pollution. Finally, the arts activities give the street a vibrancy throughout the day and evening. Southbank Boulevard contains street trees and a generous green reserve but does not as yet provide a vibrant street life experience.

There are other quieter streets in Southbank, particularly around the Southbank Village, however many of these road corridors are often environmentally poor, traffic dominated and lacking active frontages, which in turn increases traffic speeds due to the lack of activity.

The quality of the pedestrian environment is equally to do with the edge conditions. DDO038-43 require new developments to build podium and tower based developments. This is in part to create a street proportion in scale with the road size. Developments within DDO1 are also required to open a portion of their frontage at street level with glazing, entries and displays. Although developments in general have met these conditions, there are two major concerns with the outcome.

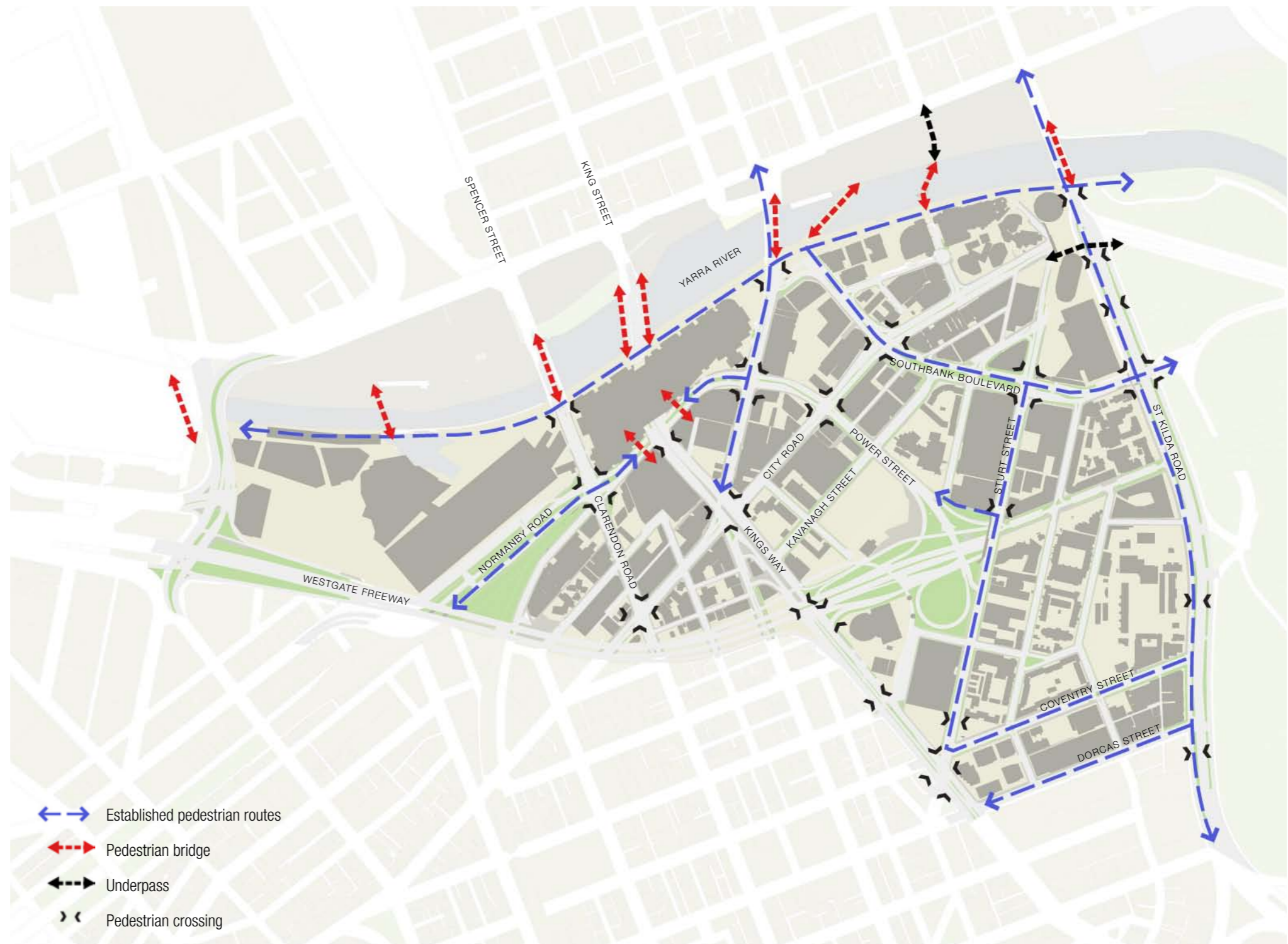
The first is the composition of the ‘active’ frontage at street level. Generally comprising large areas of glazing, the uses are often large car showrooms and office lobbies. These types of frontages, although better than blank walls, do not engage the pedestrian as they are generally static, lack activity and contain few people at the street interface (i.e. within 5m of the glazed area). This lack of activity does little for the vitality of the street which was the purpose of the condition.

The second concern is the upper podium levels. It is accepted that due to poor ground conditions and high water table, building underground car parking is expensive and so parking has been built above ground. This creates a condition where there is no activity at the upper levels and therefore no provision of passive surveillance or interaction at the human scale (within 5 storeys).

These two concerns together create a total lack of activity throughout large areas of Southbank - this is particularly emphasised at night. This inactivity creates insecure environments which reduces the number of people willing to walk along the street which in turn reduces the commercial viability of the street.

Issues

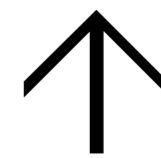
- Roads in Southbank are busy with fast moving traffic. This creates an intimidating barrier difficult for pedestrians attempting to cross, even at designated crossings. The smaller, more residential roads do not have pedestrian crossings, but as the volume of traffic is lighter this is less of a problem;
- A quality pedestrian environment has been achieved for Southbank Promenade precinct but this is not carried through to the rest of the suburb;
- Southbank Promenade is a well used pedestrian corridor, however this creates a conflict between cyclists and pedestrians who simultaneously utilise the narrow strips of pavement. Key entrances and edges that have active frontages are areas that generate the largest conflict between these movements; and
- Lack of podium edge activity at ground and upper floors reduces the security and vibrancy of the street.



- ↔ Established pedestrian routes
- Pedestrian bridge
- Underpass
- ↔ Pedestrian crossing

Fig 2.14.1 Pedestrian Analysis Diagram

0m 100m 200m 500m Scale 1:10,000 (At A3)



2.15 Bicycle Network Analysis

As with pedestrian access, a good cycling environment is fundamental to creating a vital and viable suburb. At present for the most part, cycling trips are difficult to navigate and of low quality. The navigation of cyclists is illustrated in the Cycle Analysis diagram (Fig 2.15.1).

The City of Melbourne's Transport Strategy also identifies cycling as a clear priority over the next 10 years. The following is a summary of the directions endorsed by the City and relevant to Southbank.

Transport Strategy 2020: Moving People & Freight (2006)

The strategy also informs the improved cyclability of the city by:

- enhancing road safety for cyclists;
- improving opportunities for cycling;
- providing more end of trip facilities; and
- improving connectivity and use of the cycle networks.

A recent study was undertaken on the traffic issues in Southbank and their effects on cycle activity and movement. This has been summarised below.

Southbank Pedestrian & Traffic Study, JTP P/L (2004)

Key conclusions of the study include:

Sturt Street & Southbank Boulevard

- The improvements noted in 2.14 to improve pedestrian accessibility are also noted as key directions for improving the cycling environment.

Kavanagh Street

- As noted for pedestrian access improvements, is proposed that this street will become a key

bicycle route and it will be a more convenient and safer route than City Road.

Physical analysis of the cycle environments:

The connectivity from the edge of the study area into the CBD is relatively easy to navigate as a cyclist with the many bridges across the Yarra River allow good connectivity from Southbank. Access to South Melbourne is not as easy when navigating across major road corridors.

There are two types of routes available for cyclists. The first is the Southbank Promenade. Connecting along the river with good quality underpasses beneath the bridges, this accessway is interesting, varied and well used.

The second type is along the major transit corridors. These routes are environmentally poor with overly hard landscaped environments, traffic that dominates and many buildings facing away from the street. Together these factors contribute to increased traffic speeds and less safe experiences for cyclists.

Quality cycling routes include:

- a few dedicated cycle lanes along sections of the main roads including Queens Bridge Road, St Kilda Road and Moray Street;
- The Southbank Promenade also provides an alternative route for cyclists although the intensity of pedestrian activity along this route creates these conflicts between these two user groups.

Southbank Plan (2007):

The Southbank Plan proposes a range of projects which seek to improve the amenity and vibrancy of the area. The document highlights some of the opportunities to improve the bicycle network within and around Southbank. The following key points have been derived from two

of the proposed projects and part of the more general 'Travel behaviour change' component:

The Sturt Street cultural spine

A bicycle connection extending Sturt Street via a generous ramp up to the Arts Centre podium:

- Extending Sturt Street via a generous ramp up to the Arts Centre podium through the new plaza to St Kilda Road and on to Federation Square. This connection will open up Sturt Street as Melbourne's arts street – an entirely new and exciting prospect for the central city; and
- It will further elevate the proposed Arts Centre plaza as a major new hub of public life and open up further the Sturt Street address of the National Gallery of Victoria.

Kavanagh / Moray Street local link

- Improve bicycle links between South Melbourne and Southbank;
- Create an attractive, safe and convenient east-west route for cycling; and
- Improved cycle links between South Melbourne, Southbank and Docklands along Cecil Street and through the Exhibition Centre.

Travel behaviour change

- Encourage provision of more end-of-trip bicycle facilities, including parking and change-rooms in new developments; and
- Develop a program for on-street bicycle route improvement throughout Southbank.



2.15.A Established bicycle route

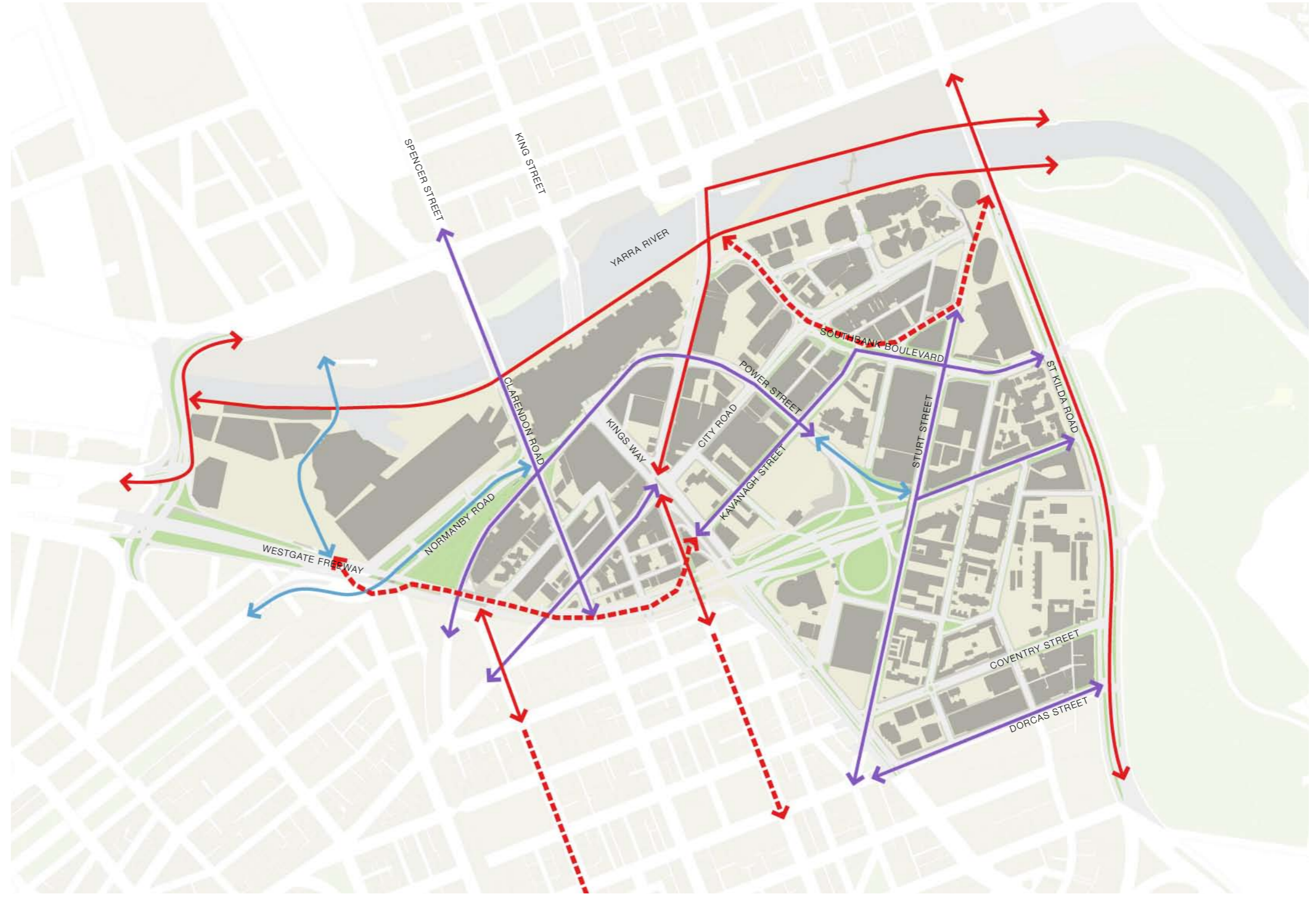


2.15.B Off-street bicycle route (Normanby Road)



2.15.C Lack parking facilities

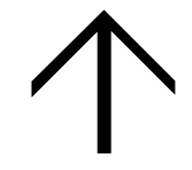
- Issues**
- The roads in this area are busy and more could be done to increase the levels of cycle safety. Measures include the strategic designation of bicycle lanes and adequate signage;
 - Southbank Promenade is a well used cycle and pedestrian corridor, however this creates a conflict between cyclists and pedestrians who simultaneously utilise the narrow strips of pavement. Key entrances and edges that have active frontages are areas that generate the largest conflict in visitor movements; and
 - There is a lack of east/west cycle routes.



- ↔ Established cycle routes
- ↔ Roadways used by cyclists
- ↔ Established off-street cycle routes
- - - Proposed additional cycle routes

Fig 2.15.1 Cycle Analysis Diagram

0m 100m 200m 500m Scale 1:10,000 (At A3)



2.16 Public Transportation Analysis

Vehicular infrastructure occupies over one third of the entire study area in Southbank. Public transport occupies a good proportion of the north-south road corridors, particularly along St Kilda Road and Clarendon Street. It is important to recognise the critical role public transport has in the city and also the importance of easy multi-modal interchanges, frequent services and proximity to the precinct destinations play in reducing car dependency and thus improving the environmental quality of the city.

Transport Strategy 2020: Moving People & Freight (2006)

The key elements of the vision for public transport comprise:

- Improving connections to public transport;
- Prioritising public transport;
- Integrating transport and land use planning;
- Encouraging investment in public transport;
- Addressing road congestion by prioritising space-efficient transport modes; and
- Informing people about their travel choices.

Getting Around the City (by Public Transport)

Public Transport

- Improved reliability, frequency, and safety of public transport services, enabling significant increases in the use of public transport by people of all abilities within the CBD and inner Melbourne.

Improving Tram and Bus services

- To make public transport the first choice for longer trips within the CBD, the system needs to be made more efficient and attractive. Initiatives will include tram and bus priority routes, and intersections that give priority to public transport ahead of cars. Tram and bus stops will be safer, have better information and be easily accessible for all abilities.

Boat

- Melbourne City Council will work with Parks Victoria to promote and encourage water

transport as a useful transport choice for those enjoying the city's Sports and Entertainment Precinct, the Arts Precinct and the entertainment and dining precincts of Southbank and Docklands.

Support of Rail Extensions

- Possible underground rail line beneath St Kilda Road with new station close to the southern boundary of the suburb.

It has been recognised that a critical component in reducing car use is integrated land use planning:

'How land is used in an urban environment – where we live, work, socialise and shop – has a direct effect on travel and transport demand. The City of Melbourne can influence underlying land use patterns through mechanisms such as the Melbourne Planning Scheme.

Through good urban planning, Council will create better connections between people and their communities – increasing accessibility, and decreasing the need for mechanised transport. Council will also support business and industry by promoting land use that is close to transport infrastructure (both public transport and freight). This in turn will make it easier for people to get to work – and for goods to reach their markets – fostering growth that is dynamic, community-focused and sustainable. Key community facilities and high density housing will also be further consolidated around public transport nodes, while protecting the important character of our City.'

Analysis of the Physical Transport Network

The Public Transport diagram (Fig 2.16.1) indicates the extent of public transport services in Southbank. Whilst it takes a secondary role to road infrastructure, there is an extensive network in place. The numerous stops of the three tram routes allow visitors and residents to access all areas of the suburb with relative ease. The 500m (easy walk) walking radii also indicate that

the vast majority of the suburb can be accessed from stops located within the boundary of Southbank (this of course does not reflect the low quality of streets and waiting times at major junctions).

The public transport services generally run north-south with only a single bus route crossing the suburb on Normanby Road and Southbank Boulevard. Bus services use the road network extensively but because there are very few stops, the local area suffers heavy bus traffic with little benefit.

There are no rail services located directly within Southbank. However Flinders Street Station and Southern Cross Station are within walking distance from Southbank Promenade or via a connecting tram service. A potential Metro station may be located on St Kilda Road just outside of the study area. This is currently being considered by the Department of Transport.



2.16.A Peak hour on City Road



2.16.B Water transport



2.16.C Tram route along Normanby Road

Issues

- The existing tram network serves the suburb well with routes running north-south into the CBD. The tram network could be made more comprehensive with the introduction of an east-west route;
- There is a sufficient number of well distributed tram stops within the study area. This means that visitors can access any part of Southbank by using tram services. However, the lack of amenities does little to encourage movement;
- Frequent bus services, but with few stops in Southbank so that the benefit is not realised; and
- The tram stops provide a coverage for pedestrian walkability within 500m of all areas however this does not account for the quality of those minimal distances.

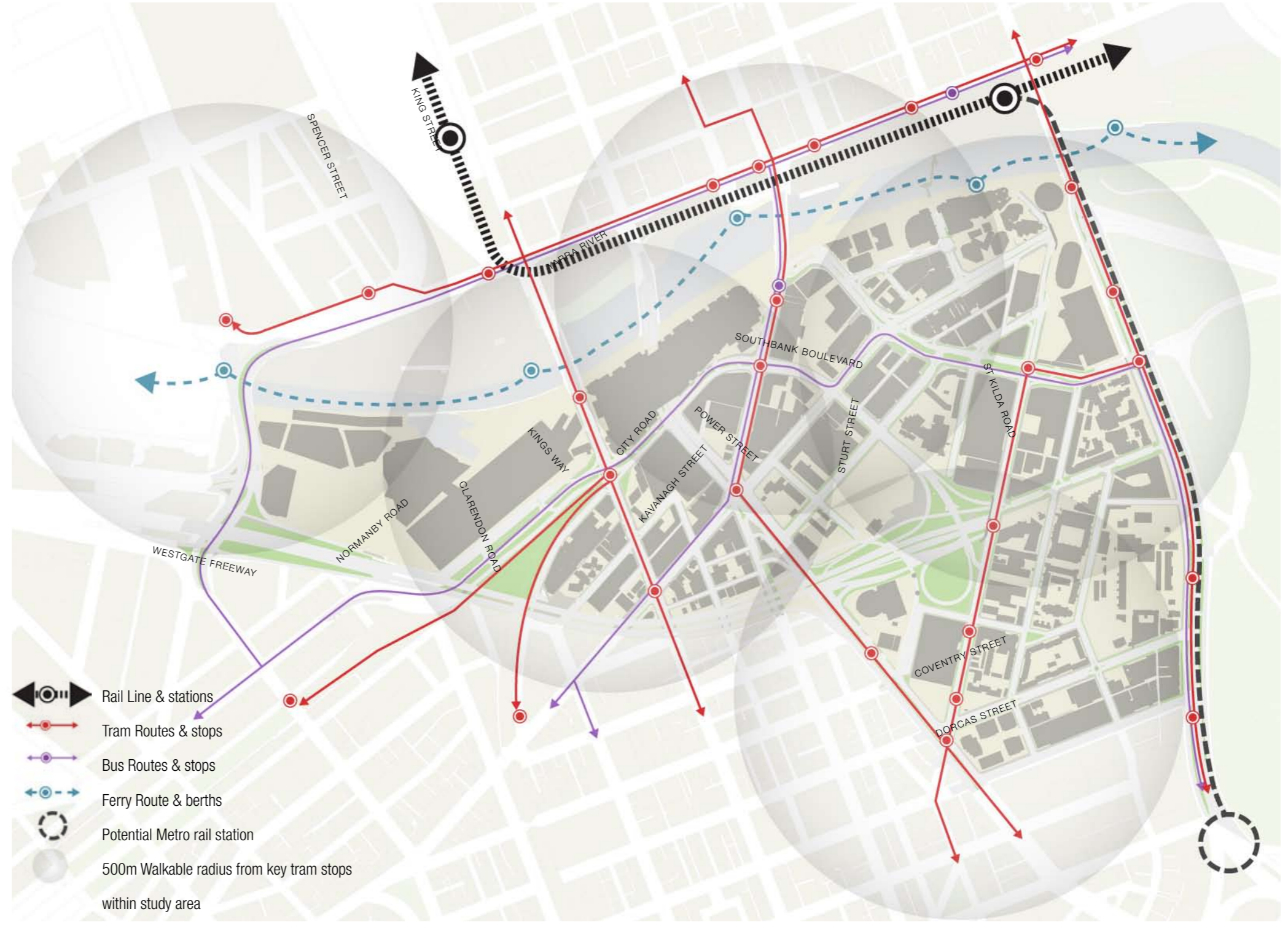


Fig 2.16.1 Public Transport Diagram

0m 100m 200m 500m Scale 1:10,000 (At A3)

2.17 Private Motor Vehicle and Car Parking Analysis

Over the past 50 years, the private vehicle has been the mode of transport most frequently used. Due to its flexibility, the personal environment, ease of use and lack of radial transport routes greater provision and infrastructure has been made to accommodate this mode, no more so than in Southbank. This suburb allocates 39% of its land for road corridors. This percentage is reflective of the dominance of the private motor vehicle movement through the suburb. This movement has been used as a negative aspect for the majority of the physical analysis in this Chapter.

Therefore, it could be stated that private vehicular movement is both the lifeblood and biggest concern for Southbank. As a network to keep the city moving the major roads through the suburb, such as Kings Way, St Kilda Road, Clarendon Street, Queensbridge Street and City Link, are important city and regional routes. This is to the detriment to the public realm and airborne quality. It is an issue that will be focussed on during the Southbank Structure Plan.

Transport Strategy 2020: Moving People & Freight (2006)

The key elements of the vision for private and freight transport comprise:

- Dynamically managing the provision of on-street parking and access to short-term parking;
- Integrating transport and land use planning;
- Increasing the efficiency of freight operations and commercial movement by managing road congestion;
- Addressing road congestion by prioritising space-efficient transport modes; and,
- Informing people about their travel choices.

Emphasis has been given to creating a more sustainable city by reducing private car use and thus congestion on roads to improve public transport efficiency and frequency. The strategy identifies the following components to assist this transition.

Vehicle Access and Parking

Parking and vehicle access has been managed in such a way that it has positively influenced transport choice, with greater take-up of sustainable transport options by city residents, workers and other visitors, while the viability of business continues to be assured.

Promotion of car sharing

In such a high density suburb as Southbank with local car ownership, car share possibilities are high.

Analysis of the Road Network for Southbank

The Road Hierarchy diagram (Fig 2.17.1) indicated a high proportion of roads in Southbank that are prioritised as collector upwards. They form the major movement corridors from the inner northern suburbs and CBD to the south of the city and out to the south western corridor down to Geelong. These are heavily trafficked and often congested.

This top heavy hierarchy of roads clearly shows why the quality of streetscapes in Southbank is low and there is such a concern about environmental quality in the suburb. As an example, the West Gate Freeway travels along the southern boundary of the study area then enters the Southbank area over Kings Way. This is a major amenity concern for the local residents.

Southbank is changing its nature, from a thoroughfare to a destination. Therefore, if it is to really grow into a sustainable community, the importance, location and dominance of the road corridors will need to be reconsidered.

Car Parking and Access

A recent parking study has been undertaken in Southbank that directly informs the impact of car movements throughout the suburb.



2.17.A Westgate Freeway & Kings Way condition



2.17.B Car park entrance at Arts Centre



2.17.C Kings Way over Crown Casino car park entrance



2.17.D Westgate Freeway & Commercial Parking condition

Southbank Parking Study, TTM Consulting P/L (2007)

The objectives of the Southbank Parking Study were to determine the existing off-street and on-street car parking within Southbank, identify demand for parking, develop initiatives for greater utilisation of off-street parking, provide for appropriate on-street car parking and generate increased pedestrian activity in Southbank.

The key highlights for parking in Southbank are:

Off-street public parking

- There are a total of 11,920 off-street public parking spaces in Southbank;
- 8,096 (68%) of these car spaces are available for public use on Friday and Saturday evenings;
- Saturday evening demand for car spaces is 100%; and
- The Arts, Southgate and Casino Precincts have high demand on Friday and Saturday evenings.

On-street parking

- Southbank has a total of 2,907 on-street car parking spaces;
- 50% of these car spaces are located in the Arts Precinct;
- All on-street car spaces are available for use on Friday and Saturday evenings;
- There is high demand and usage of on-street parking in the Freeway Precinct, particularly during the evenings. This parking is most likely

to be used by visitors at the Casino; and

- Low usage of on-street car parking in the Exhibition Precinct is likely to be caused by poor pedestrian connectivity to the Casino Precinct, as well as lack of security, poor signage and high after hours prices.

Overall there are a total of 14,827 public parking spaces in Southbank, and 74% (11,003 spaces) are available for use on Friday and Saturday evenings.

Key findings

- There is a surplus of car parking on weekdays which service Southbank's commercial sector;
- The CCZ has a parking limitation policy restricting additional car parking spaces. This study identifies that consideration needs to be given to extending this policy throughout Southbank;
- 32% of off-street car parking is not available for use by the general public after 5pm; and
- The study suggests that residential car ownership indicates that parking requirements in the Scheme are greater than actual demand.

The study identifies strategies for improving the availability of off street-public car parks, including car parking operating conditions, signage, removing charges in particular areas, and encouraging car parking in particular areas to remain open to the public after 5pm on Friday and Saturday evenings.

Strategies for improving on-street car parking include the provision of additional on-street car spaces for visitors to residences as well as spaces within the walkable catchment of Southbank, and provision of improved pedestrian amenity.

The Transport Strategy 2020: Moving People & Freight (2006) presents the case for dealing with car parking in a more integrated approach. The recommendations include car parking management within neighbourhoods as:

- Demand for parking in neighbourhoods close to the Central City is continually increasing

with the expansion of commercial, residential and institutional development; and

- There is a finite supply of on-street parking but simply increasing the number of off-street parking spaces is no solution because of its ramifications for vehicle congestion. Factors such as land use, number of on-street parking spaces, type of dwellings and access to other transport modes all need to be considered.

Freight and Commercial Travel

Undoubtedly the largest single issue affecting freight in Melbourne is road congestion. As there are really no alternatives to road transport for freight distribution around large cities such as Melbourne. Final mile, or door to door services require road movement even if some line haul tasks can be performed by rail.

Initiatives are therefore aimed at decreasing congestion on both the freight rail system and the more strategic road corridors. This will improve amenity, reduce environmental impact and have a medium to high level of economic performance. The intentions are therefore to:

- Restrict through-traffic and freight access to local roads;
- Support measures to reduce empty running or partial loading to and from the Port of Melbourne – thereby decreasing the number of trips required and the resulting environmental impact;
- Encourage road freight links that avoid residential and mixed use areas; and
- Unfortunately, Southbank comprises a much larger proportion of roads that are of city and regional level than most residential suburbs. It therefore is required to cater for a higher level of through traffic from the Port of Melbourne industrial areas through to the rest of the city.



2.17.E Commercial parking under Westgate Freeway



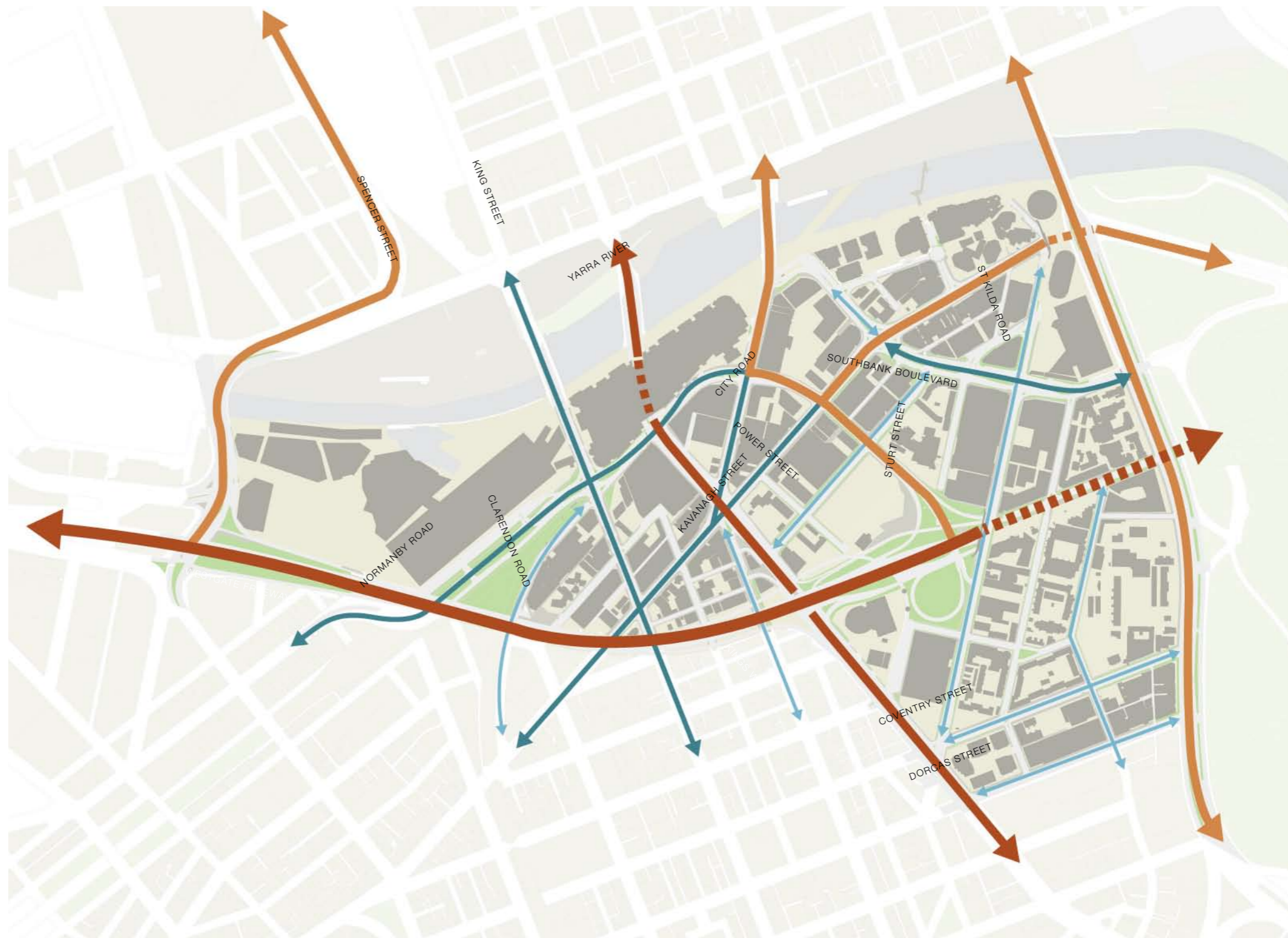
2.17.F Informal parking under Kings Way



2.17.G Locked residential parking compound

Key issues

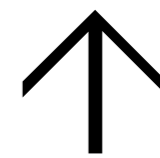
- The road system in Southbank may prove confusing to motorists unfamiliar with the area. The volume of traffic in this area is such that any disruption on the highway network leads to the rapid formation of queues;
- Three major routes exit the city directly through Southbank. Flyovers, tunnels, wide roadways and confusing layouts also make the road network a disorientating place to drive;
- The hierarchy of roads in Southbank dominates the suburb, with too great a proportion being designated strategic or city based;
- The reduction in environmental quality from the congestion reduces overall public amenity in Southbank;
- Congestion prevents easy access through the suburb for pedestrians and cyclists;
- To improve freight distribution efficiencies traffic congestion needs to be reduced; and
- On-street car parking is under supplied where as private car parking has a significant over supply.



- Westgate Freeway
- Arterial Roads
- Collector Roads
- Local Roads
- Public carpark & entry point
- Southbank Gateway

Fig 2.17.1 Road Hierarchy Diagram

0m 100m 200m 500m Scale 1:10,000 (At A3)



2.18 Link & Place Analysis

This analysis is relatively new and is taken from the publication *Link & Place: A Guide to Street Planning and Design* (P.Jones, N. Boujenko, S. Marshall; Landor Publishing; 2007). The premise behind the study is to understand that urban streets can be and often are multifunctional. One function of a street is as a link, or a movement corridor between two other places. The other function is one of a place or destination. To varying degrees most streets contain both functions. This analysis is shown in the Link Diagram (Fig 2.18.1)

The research tools identify the level of function for each street relating to its link and place hierarchy. For streets as links the range of levels are determined as National Status (Level 1) or freeways down to Local Status (Level 4) that function only as an access within the neighbourhood. Examples of these could be the Westgate Freeway/City Link through Southbank, which acts as a National Level 1 Status link or Kavanagh Street as a Local Level 4 Status Street.

Equally, the hierarchy of function of streets as places range from National Status (Level A) to Local Status (Level D), illustrated in Place diagram (Fig 2.18.2). An example of a National Status Street in Southbank is Southbank Promenade. There are few examples of streets as Local Status throughout Southbank. Generally, there should be an increase in the number of Level B-D status streets through a diverse and well functioning neighbourhood. This is a major omission in Southbank.

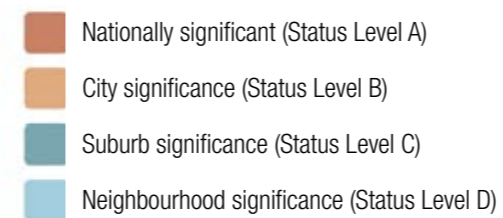
Good urban streets mediate between the functions of link and place. Examples of these in Melbourne are: Brunswick Street in Fitzroy; Lygon Street in Carlton; or Chapel Street in South Yarra. Some streets have a dominant function as either a link or place. Bourke Street Mall in the CBD functions as a major place and less so as a link, as do the pedestrian streets in the new Harbour Town development in the Docklands. Alexandra Parade or Royal Parade however are primarily used as a link.



Fig 2.18.1 Link Diagram

100m 200m

Scale 1:12 500(At A3)



100m 200m Scale 1:12 500 (At A3)

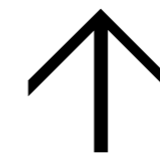


Fig 2.18.2 Place Diagram

The outcome of this research tool is that Southbank functions as a place that contains many streets dedicated as major National, City and Collector Roads with few streets having a dominant place function.

The historic development of Southbank as a focus of port and industrial activities led to a need for extensive road infrastructure for movement of goods. This area was also sacrificed as the primary east-west link through the city from the south. Only in the last 20 years has Southbank become a viable residential suburb and so the usual historic street compromise between link and place has never been allowed to occur, as it is dominated by heavy goods and extensive private vehicle movement.

This situation is changing with an ever increasing residential population and an expectation of a more inclusive street function. The Scheme requirements for 'active' frontages to address the balance have led to large expanses of glazed retail units that still lack the required activity in such a dense urban suburb, as the general environmental conditions are not suitable for

Issues

- The clear dominance of streets in Southbank with a link function;
- The National Level Places are aligned along Southbank Promenade and St Kilda Road; and
- There are no locations that combines a suburb or city level function of both link and place.

2.19 Future Melbourne Assessment based on Physical Analysis

Future Melbourne provides a set of objectives and goals that the City of Melbourne have identified as critical components to become a Sustainable City. These goals have been tested against the current situation in Southbank to provide a clearer understanding of the gaps remaining for the suburb as a key strategic components of Melbourne's success.

The goals have been given a traffic light system of assessment where red is poor, yellow to be improved, green for a good provision and blue for not relevant.



Future Melbourne is broken down into 6 goals. These are:

- a city for people;
- a creative city;
- a prosperous city;
- a city of knowledge;
- an eco-city;
- a connected city.

This goals assessment has tested Southbank in isolation of other suburbs in the city. It is a snapshot overview based on the outcomes of the analysis and has therefore been interpreted through a high level understanding of the Future Melbourne goals not a thorough assessment. As Future Melbourne relates to over arching goals Southbank might not be expected to meet a good provision of some of these goals, with other suburbs providing more specialist facilities. A level of relevance has therefore been included, indicated as a number from 1 to 3, or low level of relevance to high and 0 for not relevant Another column has been added for those goals not relevant to Southbank, such as financing or international relationships.



It can also be seen that Southbank contains a high proportion of high level of relevance goals. This is due to the close proximity to the CBD and symbiotic relationship between the two places.

The assessment has raised numerous over arching issues for Southbank in achieving a

status as a sustainable suburb. Of particular concern are issues of community (A City for People), resource efficiency and living in a dense place (An Eco City), and access and movement (A Connected City).

Alternately, Southbank scores better for business and leisure (A Prosperous City) and the arts in general (A Creative City), although this refers to the suburb as a regional centre rather than community arts.

From the Future Melbourne assessment it can clearly be seen that for Southbank to develop as a sustainable suburb, it will need to introduce a more inclusive and wider ranging approach to its development, focusing on community driven facilities together with a re-appraisal of the hierarchies of streets as links and places. The Southbank Structure Plan will consider the potential and focus for Southbank to improve on these goals.

Future Melbourne Goals	Future Melbourne Sub Goals	Poor	For Improvement	Good	Not relevant
A City for People					
A great place to live	Growth of the City		3		
	A sense of community	3			
	Balancing diverse community needs		3		
	Infrastructure and services	3			
Inclusive community	Collaborative community		3		
	Caring community	3			
	Social justice				0
	Valuing Melbourne's student community		3		
	Community infrastructure and support programs	3			
A healthy community	Healthy people		3		
	A healthy City environment	3			
	Preventative health	3			
	Community involvement and participation	3			
	Physical activity and social interaction	3			
Designed for people	Human scale	3			
	Sense of place	3			
	Continuity and change		3		
	Activity and interest on our street edges	3			
	Sustainable urban design and architecture	3			
	Strong neighbourhoods	3			
	Functional public and private space	3			
	A supportive regulatory framework		1		
	Physical representation of the City		3		
An affordable place to live	Affordable housing opportunities	3			
	Affordable healthcare				0
	Affordable and nutritious food	2			
	Chronic homelessness eliminated	2			
	More housing construction		3		
	Better site utilisation	3			
	Equitable planning system		1		
Quality public space	Variety	3			
	Adaptability	3			
	Accessibility	3			
	Movement and activity	3			
	Connected network of spaces	3			
	Streets, boulevards and laneways	3			
	Parkland	3			
	Waterways			3	
	Private and communal open space	3			
Community facilities and services to meet growth	Provision of infrastructure	3			
	Sport and recreation infrastructure	3			
	Financing infrastructure				0

A Creative City					
Creative risk taking	Stimulating and inspiring City culture	3			
	Creative risk taking	1			
Vibrant, creative community	Artistic creativity and cultural innovation			3	
	Philanthropy, government and businesses supporting the arts			2	
	Grow Melbourne's creative profile			2	
Celebrating diversity	Enhancing creative industry learning and education			3	
	Affordable and creative spaces for artists		2		
	Valuing cultural diversity		3		
Prosperity through creativity	Melbourne's uniqueness	2			
	Vibrant indigenous art and culture			3	
	A thriving creative economy			2	
A City of Knowledge	Global recognition of Melbourne's creativity			3	
	A City community engaged in creativity	3			

A City of Knowledge					
Generating innovation from knowledge	Culture of innovation	1			
	Creative learning community	3			
	Reputation for knowledge culture				0
Synergies between the City and universities	World class universities	1			
	Leading university City			2	
	Postgraduate training centre	2			
	Research and development capacity	1			
	Public sector productivity	2			
	New generation of entrepreneurs	2			
	Foster networks and alliances				0
Learning City	Promote our knowledge capability				0
	Leader in scientific research				0
	Increase venture capital investment				0
	Learning as a value			2	
	Active culture of lifelong learning			3	
Online City	Active collaboration	3			
	Accessible lifelong learning			3	
	High speed, high capacity internet				0
Adapted for climate change	Universal wireless internet access			2	
	Creative and innovative on-line culture				0
	Internet access for disadvantaged communities				0

A Prosperous City					
A global City	A global centre of commerce		2		
	Attract skilled and talented workers		2		
	Infrastructure to support global connectivity		3		
	Leadership in business environment		1		
	Strong international relationships				0
A stimulating and safe 24-hour City	Welcoming, engaging and safe 24-hour City		3		
	Well managed variety of activities		3		
	Safe City		3		
	24-hour public transport service		3		
	Complimentary day-night use of space		3		
Attractive for new businesses	Affordable space for business		3		
	Utilise long term, usable vacant property		2		
Supportive of business	Industrial and commercial land supply/ accommodation			1	
	Online business				0
	Leadership and support in business				0
	Grow business and employment				0
	Business information and support				0
An events City	Access to information				0
	Business connections				0
	Growth in social enterprises				0
	Collaboration between businesses				0
	Premium events destination			3	
A great place to visit	Economic benefits from events			3	
	Preferred global destination		2		
	A welcoming destination		3		
	Well informed visitors				0
	Effective marketing				0
A philanthropic culture	Integrated delivery of tourist needs			3	
	More youth and children visiting		3		
	Leader in philanthropy			1	
	Philanthropy is embraced				0
	Effective business and community sector partnerships				0
An Eco-City	Increased volunteering				0
	Zero net emissions City		3		
	Resident's reduce emissions		3		
	Worker's reduce emissions		3		
	Transport reduces emissions		3		
City as a Catchment	Report greenhouse gas emissions annually				0
	Resident's water consumption reduced		3		
	Worker's water consumption reduced		3		
	Council's water consumption reduced		3		
	Reporting on water consumption				0
Resource efficient	Reduce pollution entering waterways		3		
	Reduce household waste in the City		3		
	Reduce commercial waste in the Municipality		3		
	Ecological footprint and target		3		
	More economic recycling and waste collection		3		
Adapted for climate change	Embodied energy		3		
	Climate change		3		
	Leader in climate adaption research		2		
Living and working in a dense urban centre	Innovative climate adaption solutions		2		
	A sustainable mixed use urban centre		3		
	Better population balance		3		
	More locally produced food		3		

A Connected City					
Effective and integrated public transport	Improve and expand metro public transport		3		
	New urban growth as transit oriented development		3		
Cycling City	Integrate public transit with pedestrian and cycling		3		
	Public transit real time user information				0
	Integrated electronic ticketing and booking				0
Walking City	Accessible and integrated public transport system				3
	Whole network made bike safe		3		
	Develop a culture of slow cycling		2		
	A public bicycle rental system		2		
	Quality end of trip facilities		3		
Innovative urban freight logistics	A comprehensive, fine grained walking network		3		
	Zero pedestrian deaths-serious injuries		3		
	A connected network of pedestrian places		3		
	Built to universal access standards				3
	Increase rail freight and reduce road freight		1		
Smart City driving	Reduce amenity degrading freight		3		
	Low impact and efficient central City last-mile freight		3		
	Low impact and more efficient waste freight		3		
	Efficient, flowing inner urban motor vehicle traffic		3		
	Smart and efficient motor vehicle use		3		
Regional and global transport connections	Reduce motorist road rage and frustration		3		
	Zero road death and serious trauma in the Municipality		3		
	Motoring compatible with vulnerable road users		3		
	Maintain international visitations to Melbourne				3
	Affordable very high speed CBD to CBD inter-City travel				0
	Integrated central City coach terminal				0

1 2 3 0

The goals have been given a traffic light system of assessment where red is poor, yellow to be improved and green for a good provision. The numbers relate to relevance of the point to Southbank.

2.20 Key Issues and Recommendations from Physical Analysis

Southbank is a nationally renowned and highly visited destination in the City, particularly during evenings and at the weekend. Its interface to onto the Yarra River and the CBD is positive and lively and presents an attractive facade. Equally well considered is its eastern edge to St Kilda Road and the parklands. The inclusion of the Arts Precinct establishes it as a major destination in Australia.

Southbank does however contain many problems behind the Yarra River facade. These are mainly conditions resulting from the previous uses of the area before it became a public destination and residential suburb. Historically a dock and industrial district, the area was increasingly serviced by major road and rail infrastructure. This created an easily accessed area but also means that it became a regional thoroughfare into and across the city.

As the suburb grew into a leisure and arts precinct, further road infrastructure was needed to support the specific access and parking needs of major land uses occupied during specific windows of time throughout the week. As the suburb further grew with residential uses the demand during similar times for road capacity saw further investment in the transport network.

In 2009, the suburb of Southbank (and South Wharf) finds itself in a precarious position. It remains a highly visited destination to its northern border but is segregated from the rest of the suburb by major road infrastructure. This condition has led to increasingly high densities of small units to the north with minimal social facilities or local retail amenity to service the apartments. In particular, the lack of community amenity such as neighbourhood open space or schools is a major omission for a residentially orientated suburb. This, together with the demographics occupying the small apartments, reduces the ability for the suburb to provide for families which leaves Southbank as a mono-cultural society, reflected in its character.

The analysis shows that this disjointed character has led to a lack of legibility, traffic dominated environments, a lack of public amenity space, and poor connections into the surrounding urban structure.

These issues are isolated and disparate and should therefore be set into a clear context. The headings below provide an overview of the analysis together with a recommendation for

each section to carry through to the Southbank Structure Plan work:

Historic Assets

- There is a spread of heritage listed buildings in the study area. They are concentrated towards St Kilda Road and disparate locations through the rest of the suburb;
- The most important heritage sites in Southbank are the Victoria Barracks and the National Gallery of Victoria;
- Certain cases of heritage listed buildings do not present a positive aspect to the adjacent environments, one example being Hamer Hall; and
- The heritage significance of the area is important and should be enhanced and protected. It is also critical to consider the heritage values in new development and create positive and appropriate streetscape scales close to historic buildings or areas.

Recommendation:

- Ensure that new buildings respect the scale of a neighbouring heritage buildings.

Character Areas

- The character of Southbank varies significantly in aesthetic due to a range of built form stemming from different land uses and periods of development. Importantly, there is a significant portion of Southbank that was built in the 80s and 90s that generally comprises large monolithic structures;
- Additional layers of extremely varied densities and environments make for an inconsistent character throughout the study area;
- The uses of building inform the built form and aesthetic that drives the character; and

The general impression of Southbank character is that it presents very differently to the north and south rather than as a single cohesive and suburb defining character. The area between these two sides lacks any sense of definition and therefore has the opportunity to be identified as a new character area linking the two together.

Recommendation:

- Create a uniting urban character in the transition zone between the defined northern and southern areas of Southbank.

Land Uses

- The study has identified that there is a wide range of land use mix particularly when moving away from the Yarra River and St Kilda Road edges. This mixed use precinct is comprised of the entire suite of high, medium and low density residential and commercial uses established yet without clear definition or relevant scales between individual buildings;
- A significant number of buildings contain a vertical mix of uses, often with retail to the ground level with car parking occupying the rest of the podium. This reduces the public presence and passive surveillance onto the street;
- Retail has proved to be the most successful within mixed use buildings along the Southbank Promenade;
- Retail that occurs beyond Southbank Promenade generally is less attractive and less successful;
- Concentration of activities along the river frontage and the Arts Precinct deters attention from Southbank as a holistic functioning suburb; and
- Residential typologies are split by City Road, although the trend in high rise residential development is beginning to creep southwards.

Recommendation:

- Create a suburb with a mix of uses throughout; and
- Create a local centre to provide for the Southbank community.

Landscape and Open Space

- Although there are instances of high quality finishes along St Kilda Road and the Southbank Promenade, Southbank is generally characterised by poor public environs;
- Queen Victoria Gardens and the Kings Domain are perceived to be inaccessible due to the width of St Kilda Road. However the real issue is that a growing number of residential developments are occurring towards the western portion of the study area rendering this public open space beyond walking distance; and

There is a lack of a green heart to Southbank. Even though public and retail amenities occur by way of the Arts Precinct and the Southbank Promenade, Southbank as a community is distinctly under provided for and is reflective of a transitory place rather than a destination.

Recommendation:

- Create a green heart in the centre of Southbank; and
- Create enough public open space throughout the suburb to cater for the expected size and diversity of population.

Total Watermark Review

- 95% of Southbank is comprised of 'source' category landscape;
- Only Grant Street play space contains active WSUD systems; and

In order to create a truly versatile 'Water Sensitive City' the suburb needs to undertake a shift in the design of its streets and spaces into a hierarchy of WSUD systems.

Recommendation:

- Develop a connected system of water sinks and treatment areas to create a water positive suburb; and
- Ensure there is enough on street vegetation to reduce the UHI effect.

Arts and Entertainment Amenities

- There is a lack of a pedestrian activity at the heart of Southbank. This is in part due to a lack of public destinations, poor connections, and safety issues due to the lack of passive surveillance or use of the streets;
- All major public activities are outward facing, choosing St Kilda Road and the Yarra River as frontages and leaving the centre of Southbank relatively unaddressed; and
- The Arts Precinct is being extended along Sturt Street. This has created a cultural spine that will bring activity into the central area of Southbank. The connection back to St Kilda Road is still poor.

Recommendation:

- Develop arts and entertainment activities throughout the suburb; and
- Concentrate on the Sturt Street Cultural Spine as a major opportunity to connect the cultural suburb with arts and cultural facilities.

Community Facilities

- There is a lack of diverse residential development type in this area which limits the demographic mix;
 - There is a lack of social facilities in Southbank leading to the suburb being less desirable for communities. This in turn creates silo-based small unit development catering for student and young professionals to the north of the suburb;
 - The communities living in Southbank Village are disadvantaged by the lack of services and also from the distance to the few services concentrated in the north. This community generally uses South Melbourne's services;
 - There is need for general admission kindergarten, primary and secondary school facilities to cater for growing population;
 - There is need for a primary medical facility and an increase in dentistry services;
 - There is a need for wider provision of crisis outreach facilities;
 - Senior citizens centre is critically needed;
 - Youth facilities are needed, particularly for 12-18 year olds; and
- Play spaces, playgrounds, public open spaces

and community meeting spaces are critically needed.

Recommendation:

- Develop a series of community facilities to service a diverse population within Southbank.

Urban Grain

- There are a few examples of fine urban grain that occur at the southern end of the study area and midway along Southbank Boulevard;
- In general however, the urban grain rarely provides a clear urban structure with mega-block based built form;
- The dense grain to the north area is overly dominant at street level and creates poor permeability southwards; and
- The lack of spatial enclosure to the centre emphasises the traffic infrastructure and reduces the quality of spatial proportion and streetscape.

Recommendation:

- Create a much finer grain of development throughout Southbank.

Edge Conditions and Quality of Enclosure

- Southbank contains few areas of high quality urban spatial enclosure and active frontage. These are focused on the Yarra River's edge and St Kilda Road;
- Generally, the public environment within the centre of Southbank is poor with wide traffic dominated spaces, lack of public space and blank facades;
- The study area contains buildings which either do not relate to the street in land use, aesthetic, form or in built edge and therefore creates a stark anti-urban environment for the pedestrian;
- Despite the success of places such as the ACCA and Malthouse Theatre courtyard, the resultant condition is one of an unintegrated street frontage;
- Only 17% of Southbank's street frontages can be considered active. In turn, half of all frontages are inactive meaning the streets

of Southbank do not currently present a conducive setting for pedestrian interaction; and

- Lack of podium edge activity reduces the security and vibrancy of the street.

Recommendation:

- Ensure Southbank is developed with well defined blocks creating active and positive street frontages;
- Identify a strategy for retail frontage and focus of creating the right levels of street activity.

Legibility

- The Arts Centre spire is an icon of Southbank but its transparent structure reduces its impact as a landmark;
- Eureka Tower is the key landmark in Southbank;
- There are low levels of legibility surrounding the study area but also within, particularly throughout the central areas; and
- Residential towers are indistinguishable and are responsible for obscuring views to key landmarks.

Recommendation:

- Identify areas of height and locations for iconic buildings to provide a clearer urban structure.

Pedestrian Analysis

- Roads in Southbank are busy with fast moving traffic. This creates an intimidating barrier difficult for pedestrians attempting to cross, even at designated crossings. The smaller, more residential roads do not have pedestrian crossings, but as the volume of traffic is lighter this is less of a problem;
- A quality pedestrian environment has been achieved for Southbank Promenade precinct but this is not carried through to the rest of the suburb;
- Southbank Promenade is a well used pedestrian corridor, however this creates a conflict between cyclists and pedestrians who simultaneously utilise the narrow strips of pavement. Key entrances and edges that

have active frontages are areas that generate the largest conflict between these movements; and

Lack of podium edge activity at ground and upper floors reduces the security and vibrancy of the street.

Recommendation:

- Create a network of streets and spaces to prioritise pedestrian movement and interaction.

Bicycle Network Analysis

- The roads in this area are busy and more could be done to increase the levels of cycle safety. Measures include the strategic designation of bicycle lanes and adequate signage;
- Southbank Promenade is a well used cycle and pedestrian corridor, however this creates a conflict between cyclists and pedestrians who simultaneously utilise the narrow strips of pavement. Key entrances and edges that have active frontages are areas that generate the largest conflict in visitor movements; and
- There is a lack of east/west cycle routes.

Recommendation:

- Continue to develop the cycle network and identify locations for greater cycle priority.

Public Transport Analysis

- The existing tram network serves the suburb well with routes running north-south into the CBD. The tram network could be made more comprehensive with the introduction of an east-west route;
- There is a sufficient number of well distributed tram stops within the study area. This means that visitors can access any part of Southbank by using tram services. However, the lack of amenities does little to encourage movement;
- Frequent bus services, but with few stops in Southbank so that the benefit is not realised; and

The tram stops provide a coverage for pedestrian walkability within 500m of all areas however this does not account for the quality of those minimal distances.

Recommendation:

- Consider the potential for further improving connects to the public transport network; and
- Improving public transport network and after hours (weekend/evenings) services.

Private Motor Vehicle and Car Parking Analysis

- The road system in Southbank may prove confusing to motorists unfamiliar with the area. The volume of traffic in this area is such that any disruption on the highway network leads to the rapid formation of queues;
- Three major routes exit the city directly through Southbank. Flyovers, tunnels, wide roadways and confusing layouts also make the road network a disorientating place to drive;
- The hierarchy of roads in Southbank dominates the suburb, with too great a proportion being designated strategic or city based;
- The reduction in environmental quality from the congestion reduces overall public amenity in Southbank;
- Congestion prevents easy access through the suburb for pedestrians and cyclists;
- To improve freight distribution efficiencies traffic congestion needs to be reduced; and
- On-street car parking is under supplied where as private car parking has a significant over supply.

Recommendation:

- Reduce residential car parking provision requirements;
- Better use of existing under utilised car parking, particularly in residential buildings for access to the arts and entertainment precinct; and
- Consider methods of reducing congestion through all local streets.

Link and Place Analysis

- The clear dominance of streets in Southbank with a link function;
- The National Level Places are aligned along Southbank Promenade and St Kilda Road; and

There are no locations that combines a suburb or city level function of both link and place.

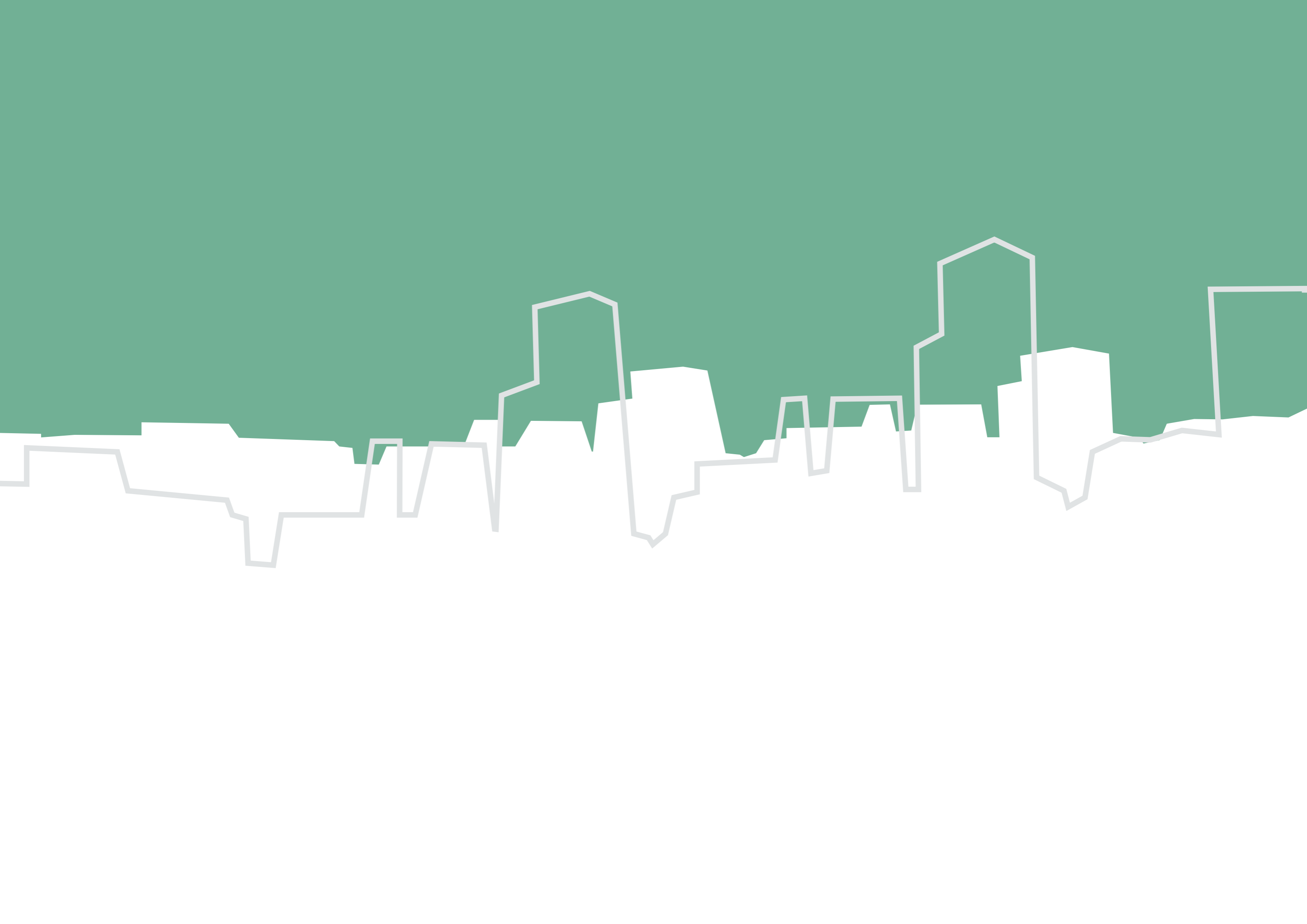
Recommendation:

- Prioritise the 'place' aspect of streets through Southbank; and
- Reduce the dominance of high level 'link' status streets through Southbank.





03 Urban Density Study
BACKGROUND REPORT
SOUTHBANK STRUCTURE PLAN



3.0 Contents of the Urban Density Study

- 3.1** Introduction to the Urban Density Study
- 3.2** Assessment Tools of the Urban Density Study
- 3.3** Test case: Melbourne CBD
- 3.4** Case Study 1: Coin Street, London, UK
- 3.5** Case Study 2: Borneo Sporenburg, Amsterdam, Netherlands
- 3.6** Case Study 3: Bercy, Paris, France
- 3.7** Case Study 4: Long Beach, LA, USA
- 3.8** Case Study 5: Battery Park, NYC, USA
- 3.9** Case Study 6: Southbank Melbourne, Australia
- 3.10** Case Study 7: Beddington Zero, Surrey, UK
- 3.11** Case Study 8: Mid Levels, Hong Kong, China
- 3.12** Case Study 9: Eixample, Barcelona, Spain.
- 3.12** Conclusions from the Urban Density Study
- 3.13** Recommendations for the Southbank Structure Plan

3.1 Introduction to the Urban Density Study

The intention of the density study is to analyse global cities that are renowned for inner city living. The case studies are intended to inform qualitative and quantitative techniques that will be applied to the thinking behind recommendations for a sustainable Southbank Structure Plan.

Global precedents have been sourced through AECOM offices in the United States, Europe, Asia and Australia. These case studies have been deliberately sourced to include a range of different urban forms with examples drawn from highly urbanised cities, such as Hong Kong and New York, along with more recent urban edge examples, such as Beddington Zero in England (also included as a benchmark carbon neutral development).

Selection of Sites

Each site had to be an inner urban development (within 2km of a CBD) and contain elements of community activity/use.

Examples of high density, low-rise were encouraged as it is the typology least understood for providing high density living, however, not at the exclusion of gaining a better, more rounded understanding of different workable urban situations. In order to facilitate direct comparisons the study area nominated for each case study is the same – 400m x 400m, that is, 16 hectares and 5 minutes walk. This also facilitated the analysis of a piece of city rather than an analysis of discrete urban developments. The intention was to research how different urban environments operate as sustainable holistic places, not just as benchmark architectural or sustainable project examples.

Key Criteria

The key indicators that the study aims to identify are densities for the following criteria – population density, residential density, employment density and car parking density (to serve the residential population). This provides a quantitative appreciation of the densities achieved within different urban locations. Higher densities are associated with more sustainable urban outcomes as they provide the population capacity to support the provision of better social and infrastructure facilities and services. To gain an understanding of the relationship between the quality of life and urban density an analysis of each site is provided with themes based around the Site, the Built Form, Context and ESD as follows:

Site

An overview of the site area including land use percentages (building footprints and open space) and a brief description of the development history.

Built Form

An analysis of the existing urban form including dwelling built form typologies, building heights and setbacks, car parking distribution and typical interface arrangements to the street.

Context

An analysis of the access provided to services and infrastructure within the site and within 500m of the site area. This includes access to public transport, parks and community facilities. An analysis of water and energy sources is also incorporated to assess how each piece of city is performing environmentally.

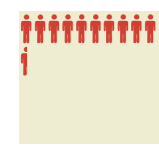
ESD

Provides an overview of the water and energy sources servicing each study area to give a snapshot of the environmental credentials of each site.

3.2 Assessment Tools of the Urban Density Study

The following definitions provide further explanation of the framework used to inform many of the assessed criteria.

DENSITY



Population Density

The number of people residing per hectare within the 16 hectare site area.

PEOPLE/HA
108
1.6 PER
DWELLING

1 person = 10 people/ha (An average of two people per dwelling are assumed if exact statistics are unavailable).



Residential Density

The number of dwellings per hectare. The case studies represent gross densities, that is, the total number of dwellings per hectare (inclusive of roads, waterways, public spaces etc).

DWELLINGS
/HA 66

1 house picture = 10 dwellings/ha



Car Density

The provision of car parks per hectare within the site area to support the resident population.

CARS/HA
33

1 car picture = 10 cars/ha (An average of 1 car per two dwellings is assumed if exact statistics are unavailable).



Employment Density

The number of jobs per hectare within the site area.

JOBS/HA
1255

The densities are illustrated in the following way to enable quick comparison between each study area.

1 person (employment) = 50 people/ha

LAND USE



Building Footprint

The building footprint is the total area of the site occupied by built form.



Open Space

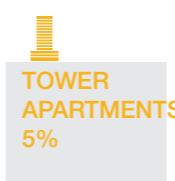
The open space is the total area of the site without built form. This is usable space and water is not included but removed from the percentages.

BUILT FORM



Car Parking

The percentages of car parking typologies in or around the site.



Tower Apartments

Apartment towers typically on a podium of 2-10 storeys. Apartment tower in excess of 10 stories.



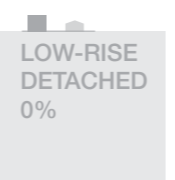
Mid-rise Apartments

3-10 storey buildings, typically no podium level although nonresidential uses common at ground and first floor.



Low-rise Attached Housing

1-3 storey attached or semi-attached dwellings - typically low scale walk-ups, stacked townhouses, terraces or duplexes.



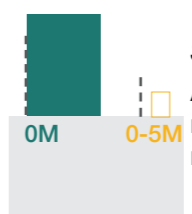
Low-rise Detached Housing

1-3 storey conventional houses.



Height Range

Heights are considered to be of low desirability at single story and at heights over 10 storeys.



Street Setback

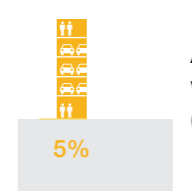
A zero setback is an urban response and most desirable with increasing setbacks reducing in desirability.



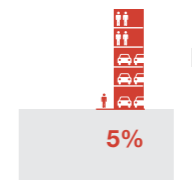
Street Interface

The street interface was categorised into three alternate arrangements:

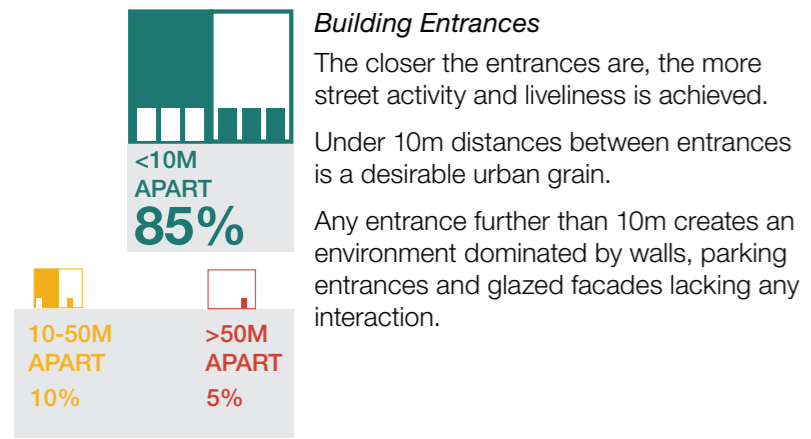
Active/positive interface at all building levels.



Active/positive interface at ground level with inactive floors immediately above (typically car parking).



Inactive/negative interface at ground floor.



Building Entrances

The closer the entrances are, the more street activity and liveliness is achieved. Under 10m distances between entrances is a desirable urban grain. Any entrance further than 10m creates an environment dominated by walls, parking entrances and glazed facades lacking any interaction.



Non Residential Uses

These are purely indicative to the range of other uses in the area and not necessarily a qualitative assessment of the uses themselves.

ACCESS TO OPEN SPACE/ SOCIAL AND COMMUNITY INFRASTRUCTURE

Nominates facilities, infrastructure and services either within the study area or within 500m walk.



Open Space
Access to small community spaces or squares provides respite from the typical street activity and traffic noise.



Access to large parks provides for play facilities and improves general environmental quality.



Education
Access to community, tertiary and higher education facilities provides an indication of the range of educational possibilities enjoyed by the immediate community and thus the likely profile of residents.



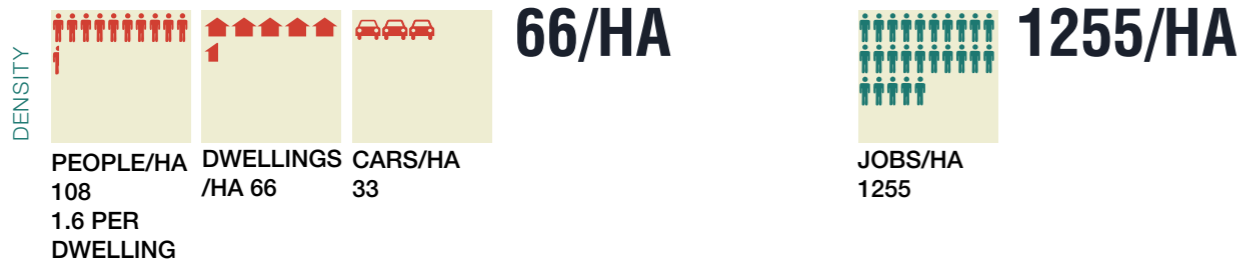
Community Facilities
Access to the general facilities that provide services to enable families to live and function at their most integrated.



ESD

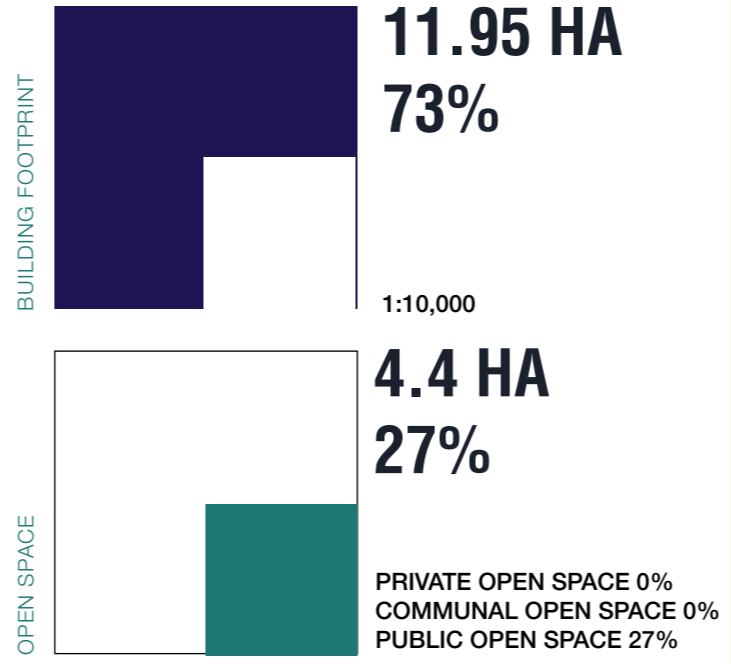
Measures the percentage of ESD components generally utilised in the area. This is broken down into water and energy.

3.3 Case Study 01 Melbourne CBD

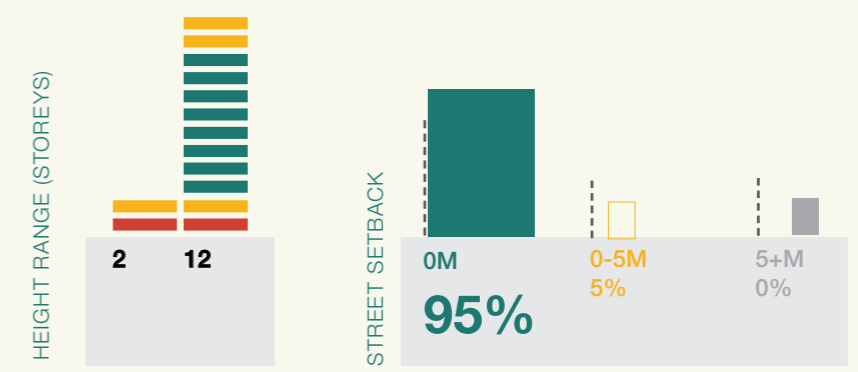
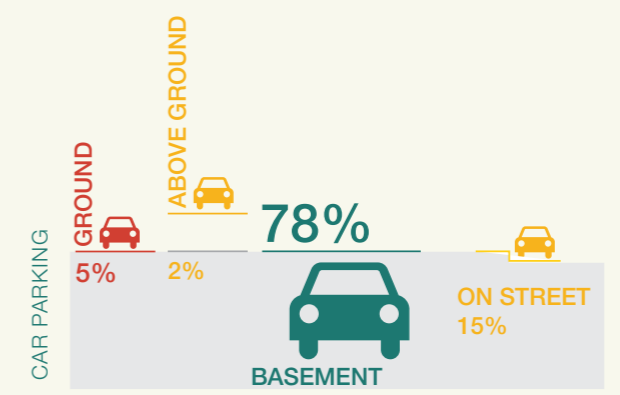


DATE 1800S - 2009
DIST. TO CBD 0KM / 0 MIN

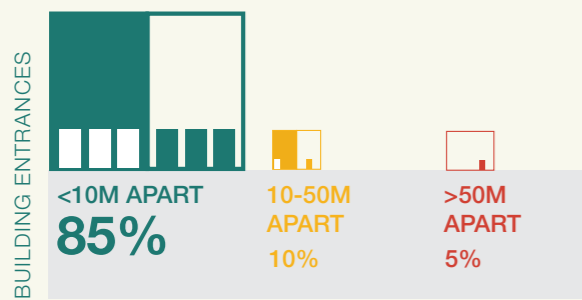
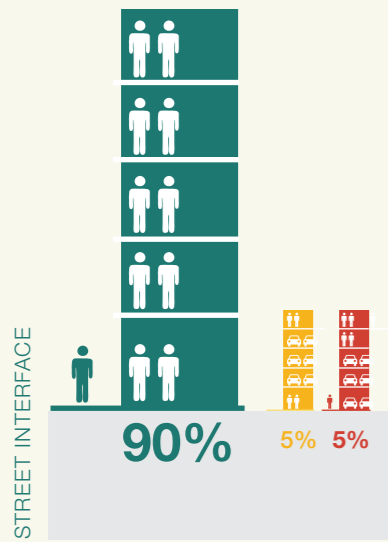
Melbourne's CBD in its current grid form has developed over the past 170 years. It is a mixed use area, with primary uses being commercial, retail and increasingly residential. Recent local government initiatives have increased the number of residents by 850% in a 15 year period.



SITE



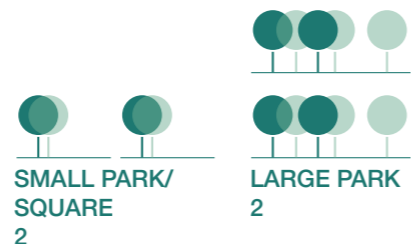
BUILT FORM



NON-RESIDENTIAL USES

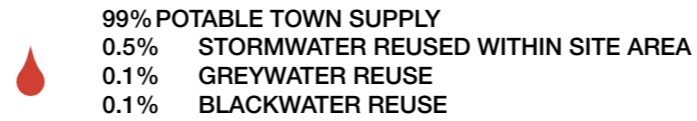


ACCESS TO OPEN SPACE

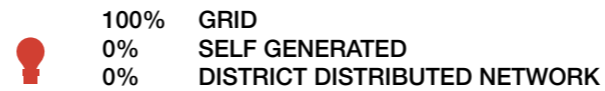


CONTEXT

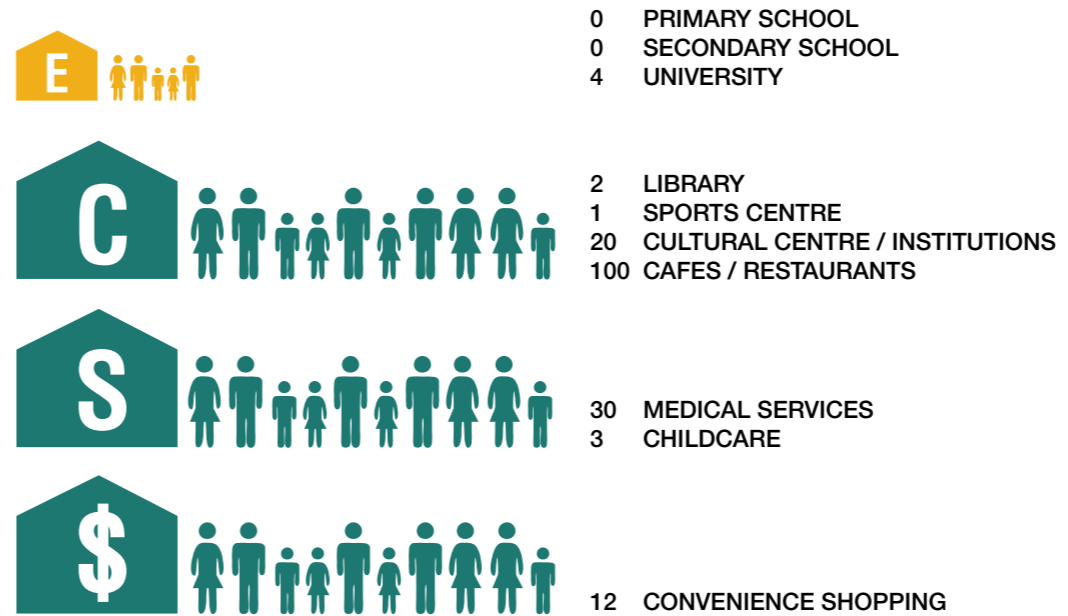
WATER SOURCE



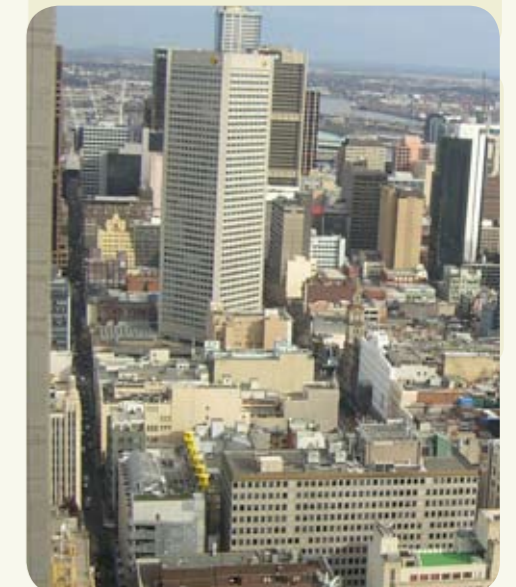
ENERGY SOURCE



ACCESS TO SOCIAL / COMMUNITY INFRASTRUCTURE

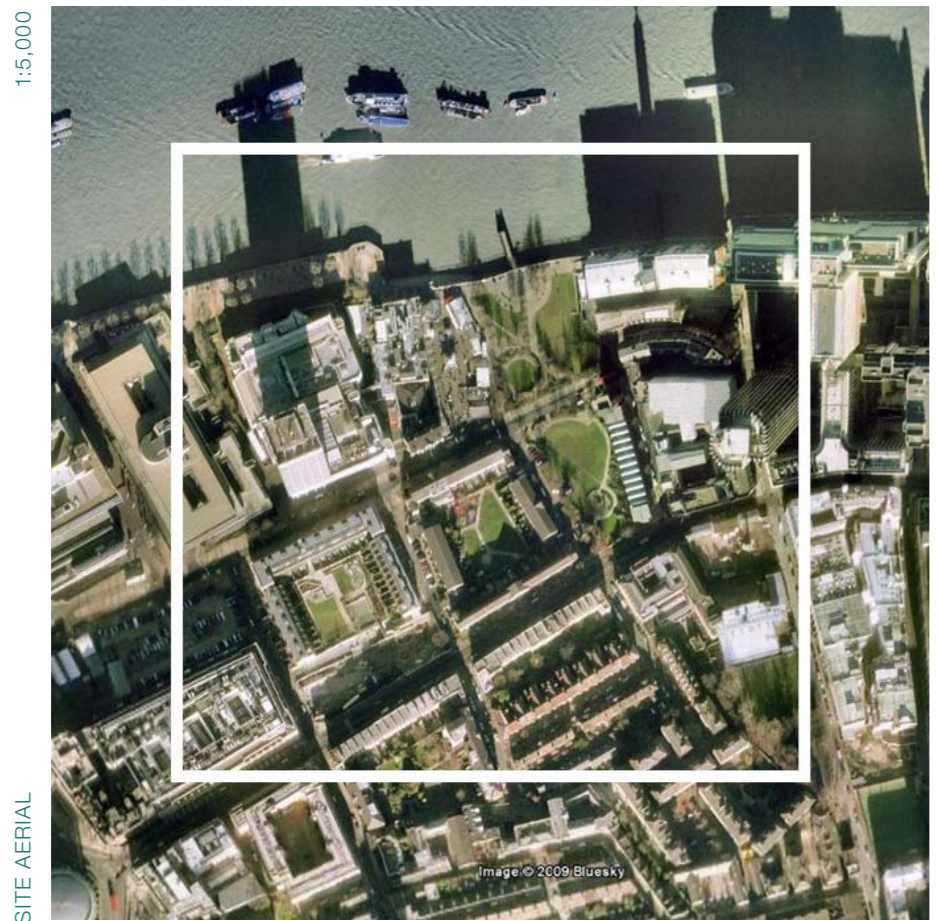
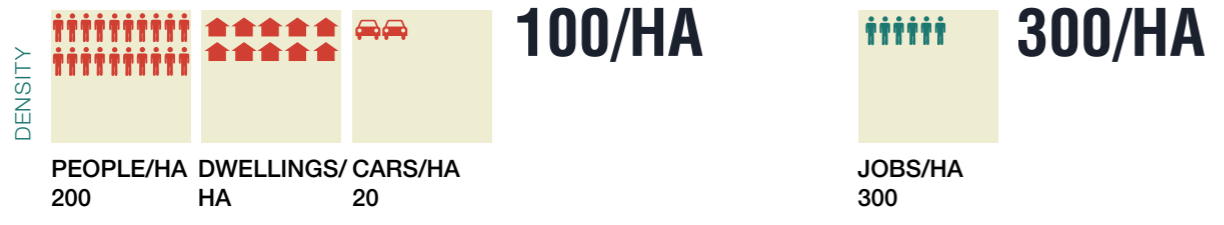


ACCESS TO PUBLIC TRANSPORT

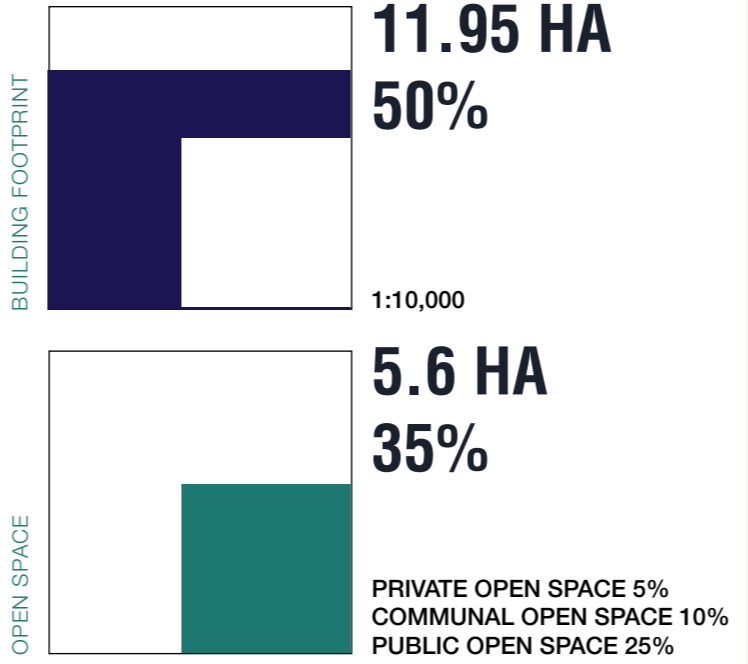


SITE PHOTOS

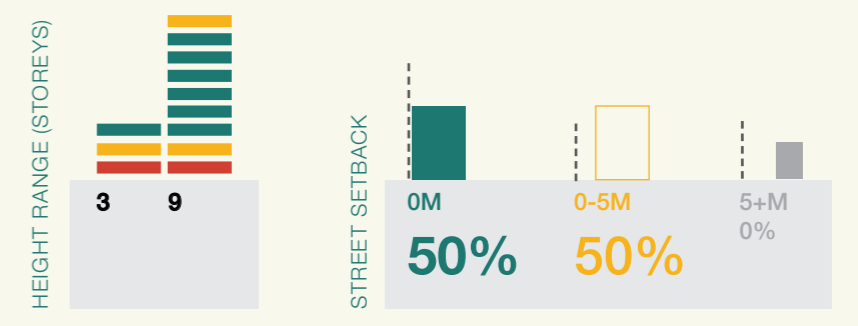
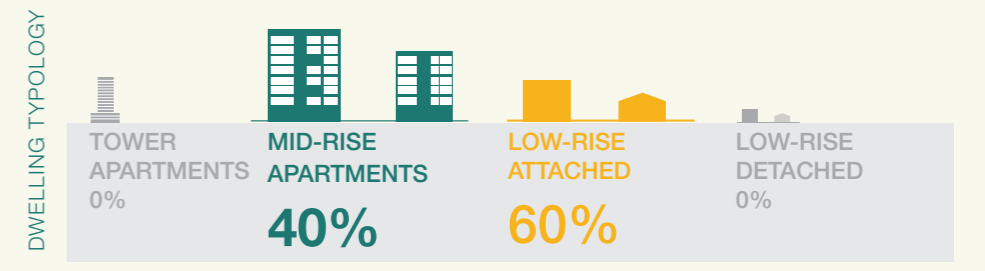
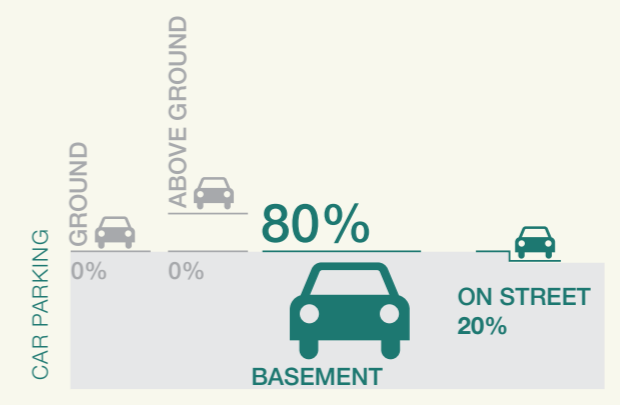
3.4 Case Study 02 Coin Street, London, UK



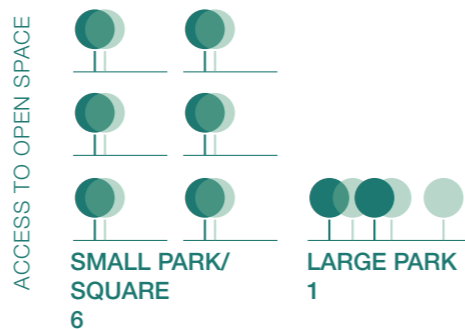
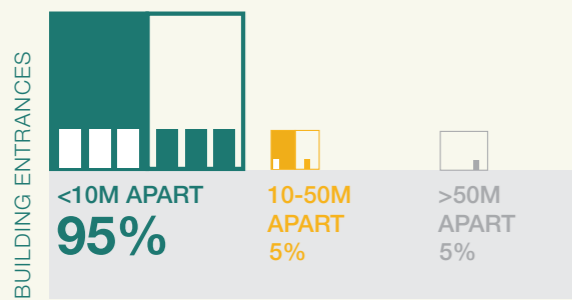
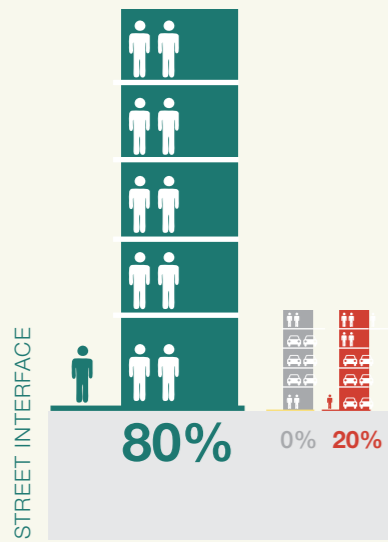
DATE 1974 - 2009
DIST. TO CBD 0 KM / 0 MIN
 All residential developments in Coin Street are social housing. Four housing developments in the area are each run by 'fully-mutual' co-operatives. Members vote on all decisions made by the cooperative and therefore have a strong involvement in the future direction of their housing area.



SITE

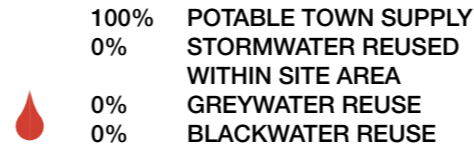


BUILT FORM

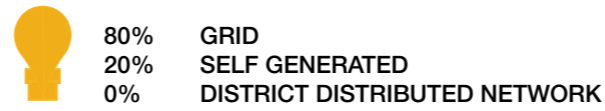


CONTEXT

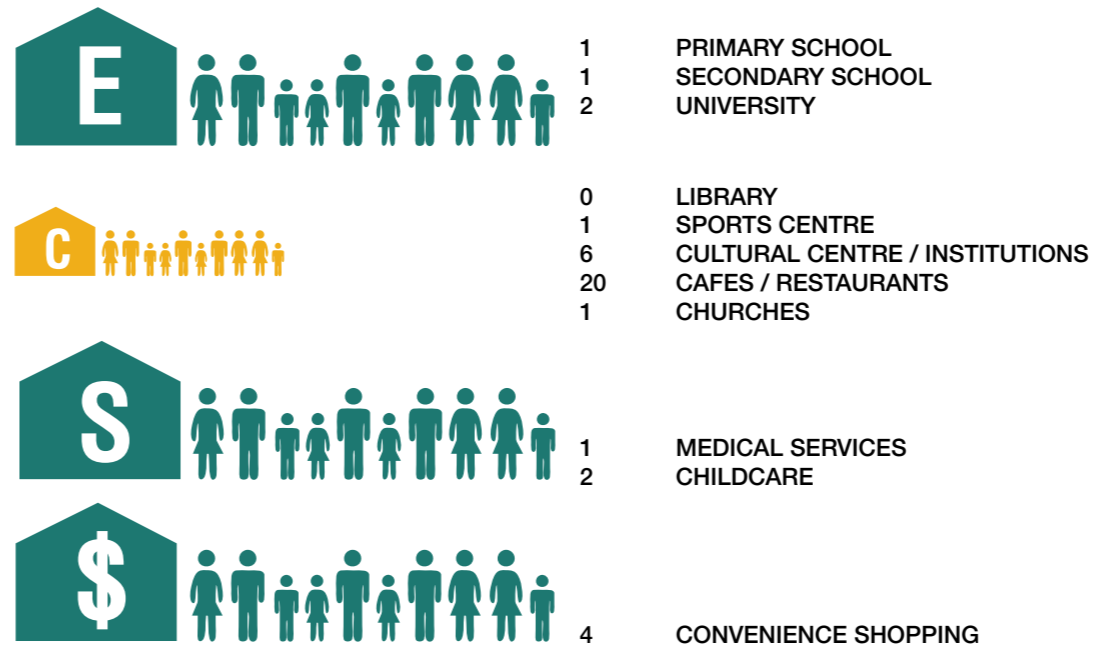
WATER SOURCE



ENERGY SOURCE



ACCESS TO SOCIAL / COMMUNITY INFRASTRUCTURE



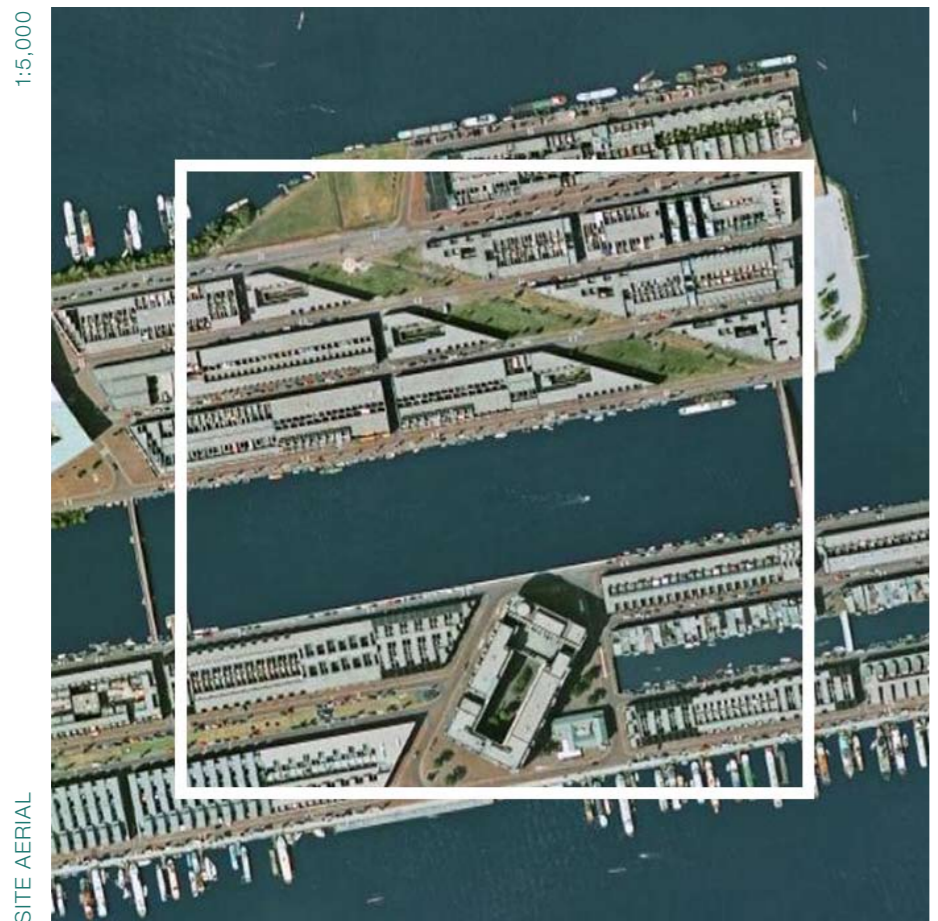
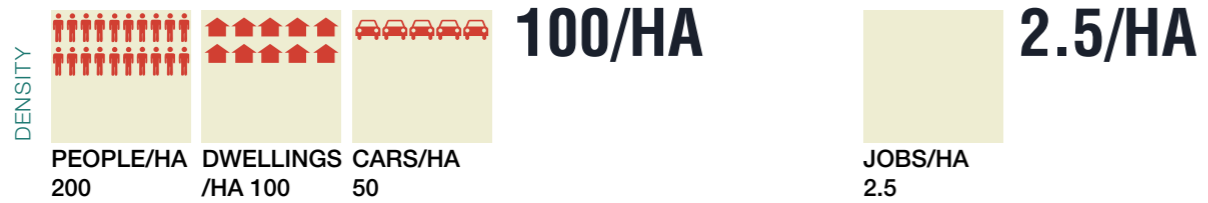
ACCESS TO PUBLIC TRANSPORT

BUS	0M / 0 MIN WALK
TRAIN	400M / 5 MIN WALK
TRAM/METRO	400M / 5 MIN WALK
FERRY	400M / 5 MIN WALK

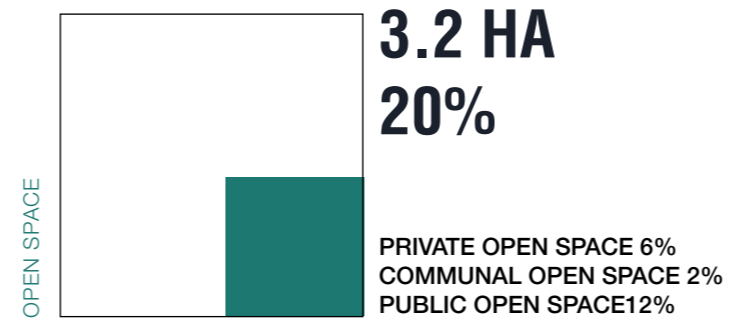
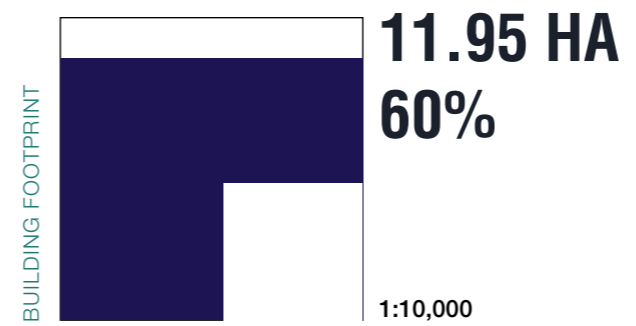


SITE PHOTOS

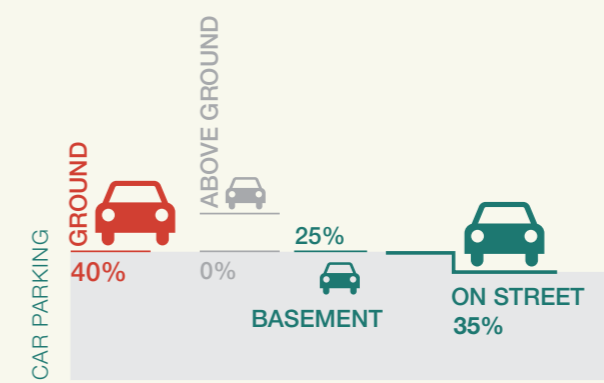
3.5 Case Study 03 Borneo Sporenburg, Amsterdam, Netherlands



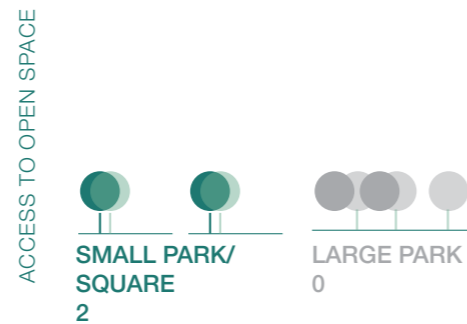
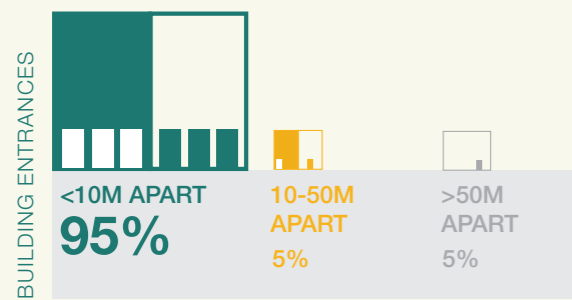
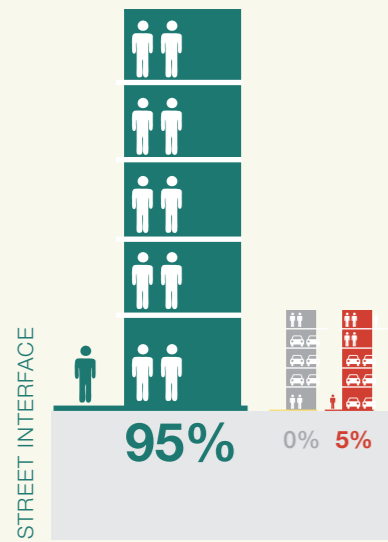
DATE 1996 - 2000
DIST. TO CBD 2 KM
 Of the 17,000 housing units in the Eastern Docklands, those in Borneo Sporenburg are the most innovative, offering a vision of urban living tuned to an aspiration by many to live in the city's historic core, or some place like it.



SITE



BUILT FORM



CONTEXT

WATER SOURCE

- 60% POTABLE TOWN SUPPLY
- 20% STORMWATER REUSED WITHIN SITE AREA
- 20% GREYWATER REUSE
- 0% BLACKWATER REUSE

ENERGY SOURCE

- 100% GRID
- 0% SELF GENERATED
- 0% DISTRICT DISTRIBUTED NETWORK

ACCESS TO SOCIAL / COMMUNITY INFRASTRUCTURE

- 1 PRIMARY SCHOOL
- 1 SECONDARY SCHOOL
- 0 TAFE/TECHNICAL COLLEGE/UNIVERSITY

- 0 LIBRARY
- 0 SPORTS CENTRE
- 0 CULTURAL CENTRE / INSTITUTIONS
- 11 CAFES / RESTAURANTS

- 1 MEDICAL SERVICES
- 1 CHILDCARE

- 4 CONVENIENCE SHOPPING

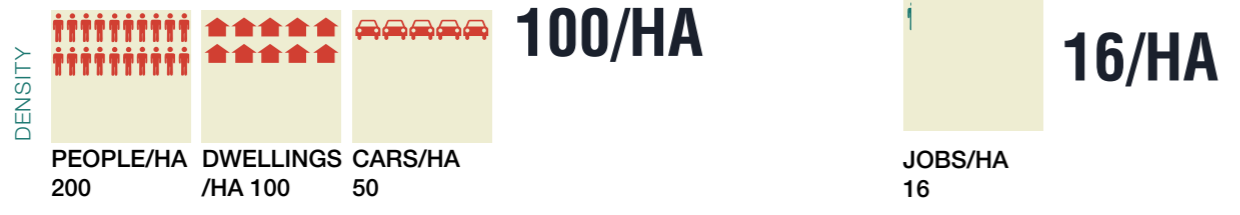
ACCESS TO PUBLIC TRANSPORT

- BUS 0M / 0 MIN WALK
- TRAIN 2KM / 25 MIN WALK
- TRAM 0M / 0 MIN WALK
- FERRY 0M / 0 MIN WALK



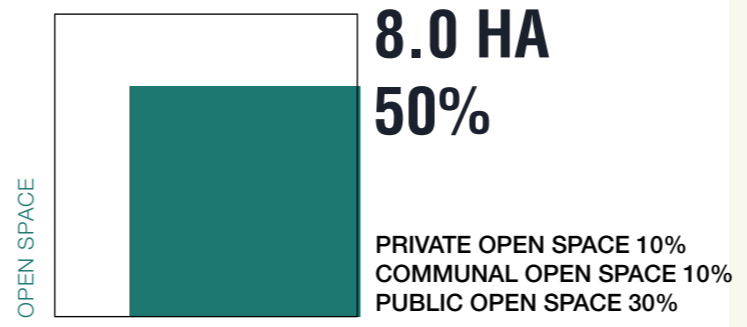
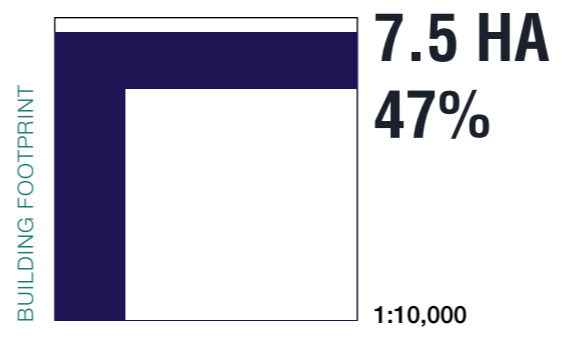
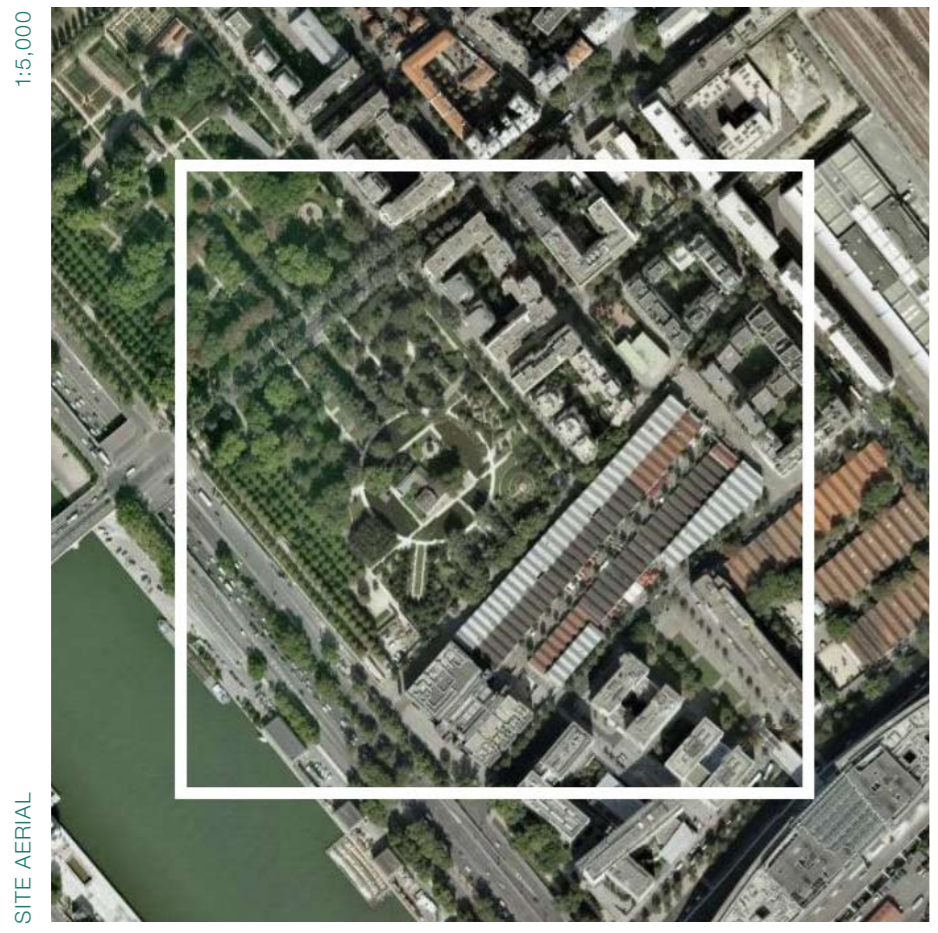
SITE PHOTOS

3.6 Case Study 04 Bercy, Paris, France

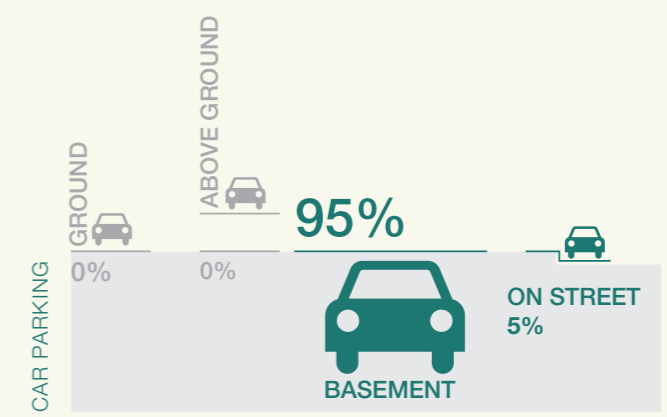


Date 1997-1999
 Dist. to CBD 2 km

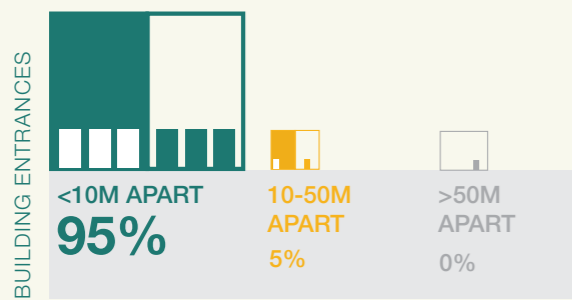
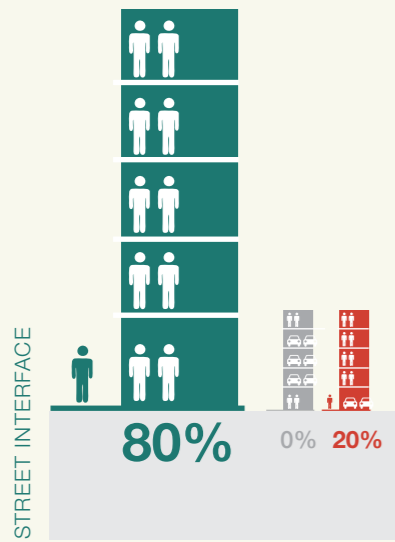
Mixed use development with a new park, high density residential and retail, commercial and leisure facilities



SITE



BUILT FORM



NON-RESIDENTIAL USES

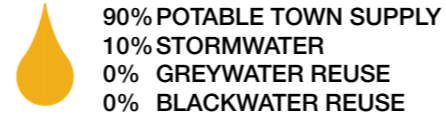


ACCESS TO OPEN SPACE

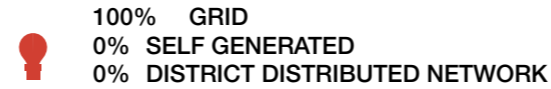


CONTEXT

WATER SOURCE



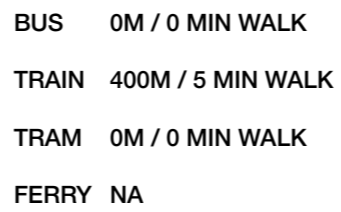
ENERGY SOURCE



ACCESS TO SOCIAL / COMMUNITY INFRASTRUCTURE

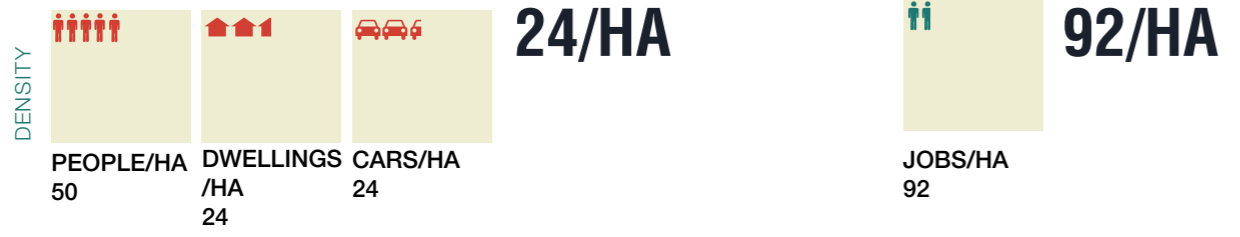


ACCESS TO PUBLIC TRANSPORT

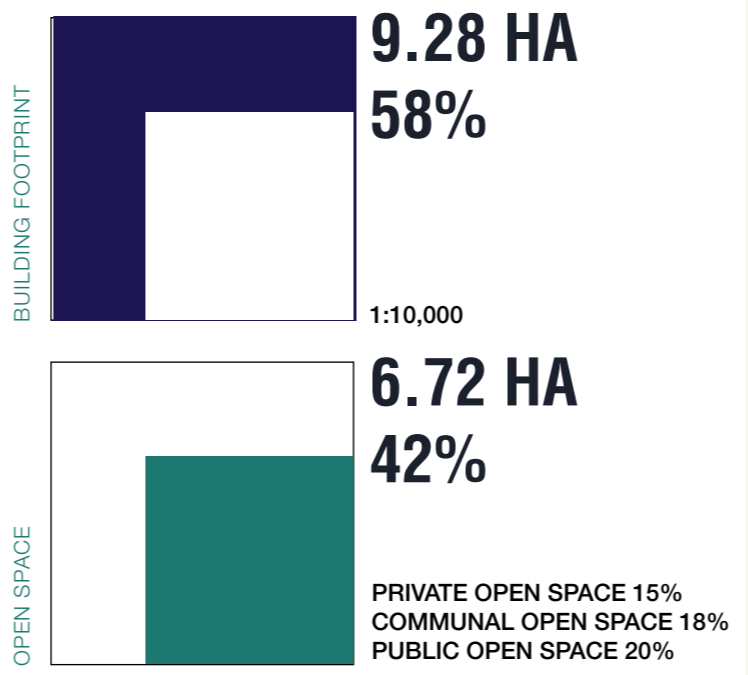


SITE PHOTOS

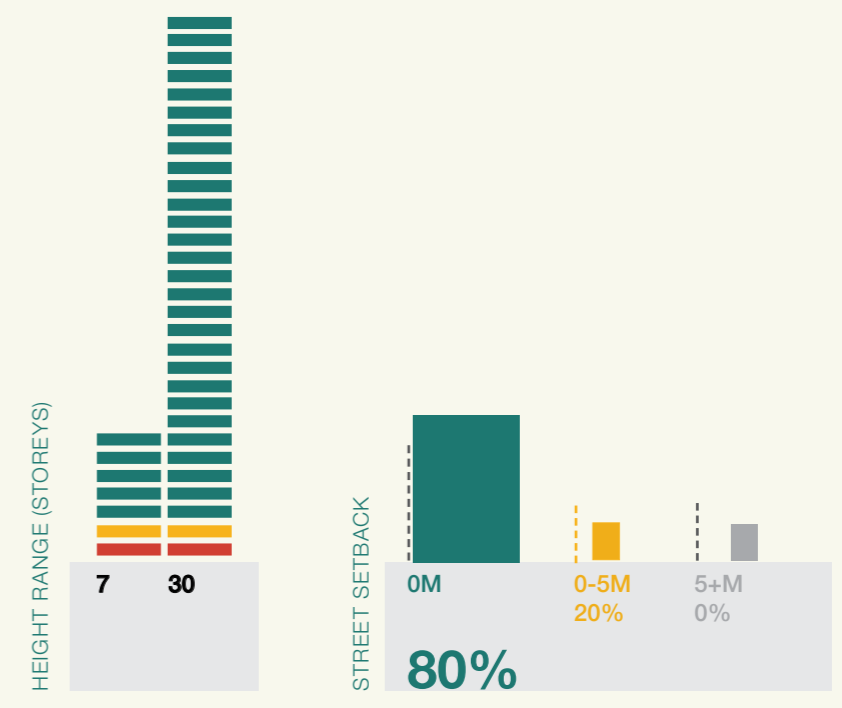
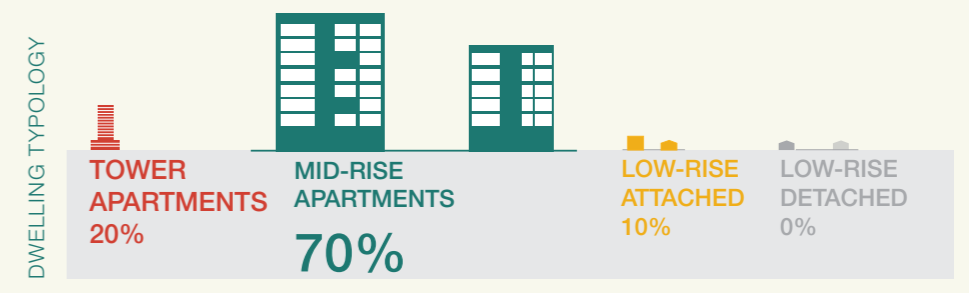
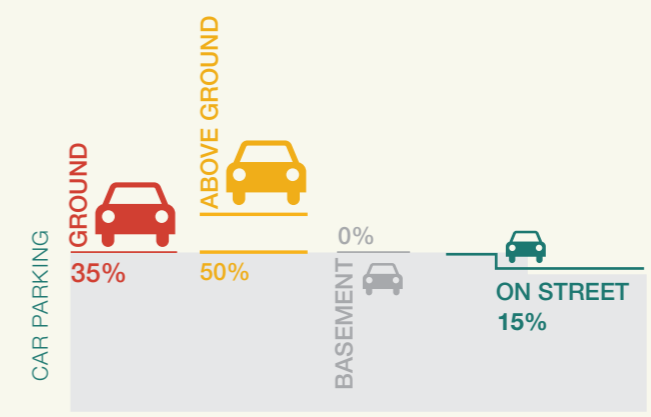
3.7 Case Study 05 Long Beach, California



DATE 1880S-2009
DIST. TO CBD 0 KM
 Downtown Long Beach in its current gridded form has developed since the late 1880s. It is a mixed use area, with primary uses being commercial, retail and increasingly residential. Due to public investment and market preferences, Downtown population has increased by 32% since 1990.

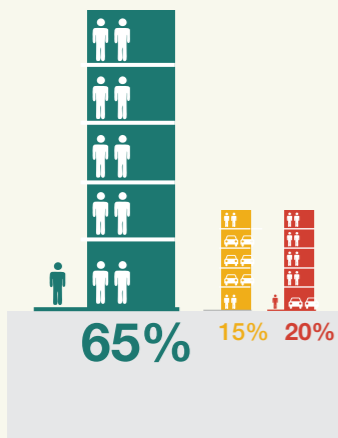


SITE

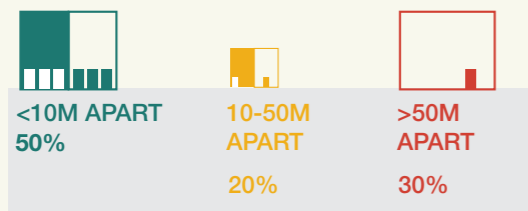


BUILT FORM

STREET INTERFACE



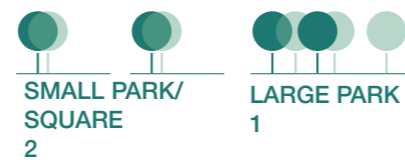
BUILDING ENTRANCES



NON-RESIDENTIAL USES



ACCESS TO OPEN SPACE



CONTEXT

WATER SOURCE

- 100% POTABLE TOWN SUPPLY
- 0% STORMWATER
- 0% GREYWATER REUSE
- 0% BLACKWATER REUSE

ENERGY SOURCE

- 100% GRID
- 0% SELF GENERATED
- 0% DISTRICT DISTRIBUTED NETWORK

ACCESS TO SOCIAL / COMMUNITY INFRASTRUCTURE

- E** (Education icon)
 - 5 PRIMARY SCHOOL
 - 3 SECONDARY SCHOOL
 - 3 UNIVERSITY
- C** (Culture icon)
 - 4 LIBRARY
 - 9 SPORTS CENTRE
 - 3 CULTURAL CENTRE / INSTITUTIONS
 - 30 CAFES / RESTAURANTS
- +** (Medical icon)
 - 9 MEDICAL SERVICES
 - 5 CHILDCARE
- \$** (Shopping icon)
 - 5 CONVENIENCE SHOPPING

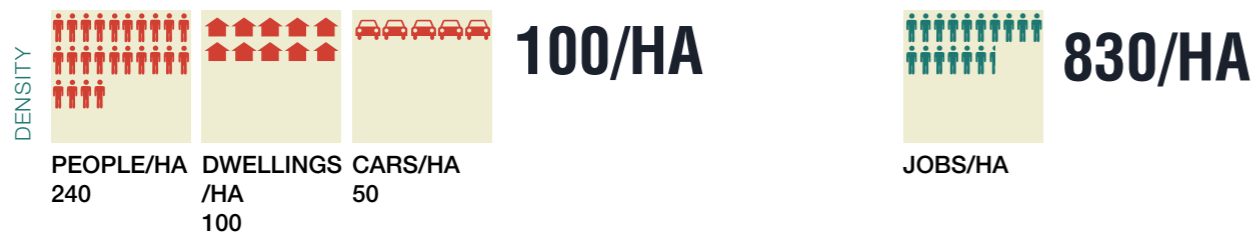
ACCESS TO PUBLIC TRANSPORT

- BUS 60M / 1 MIN WALK
- TRAIN 150M / 3 MIN WALK
- TRAM NO
- FERRY 600M / 8 MIN WALK

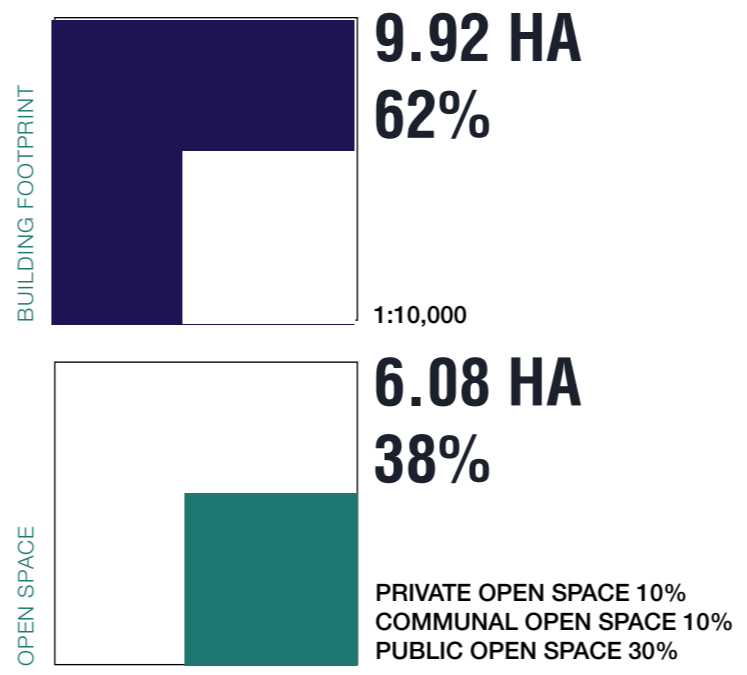


SITE PHOTOS

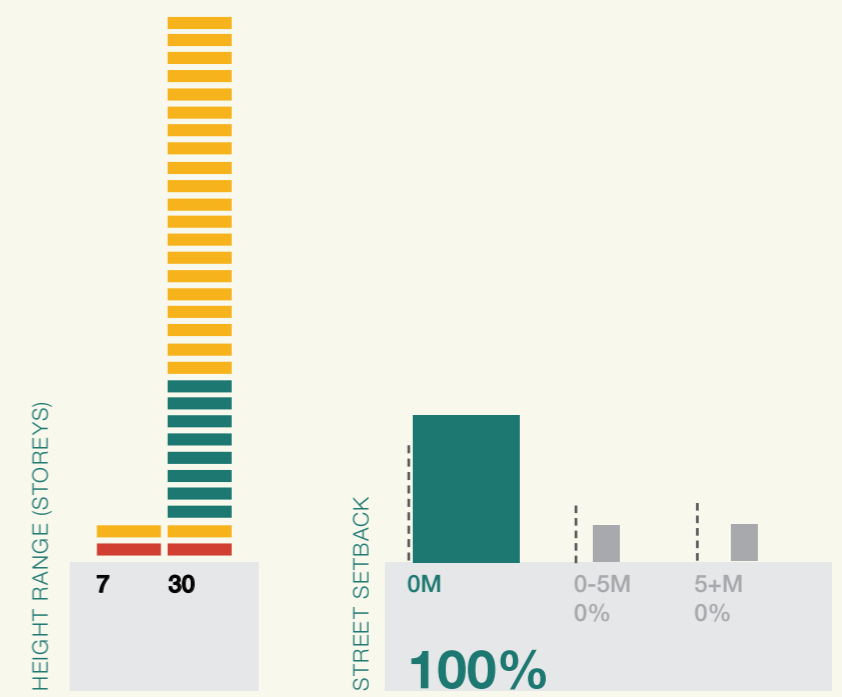
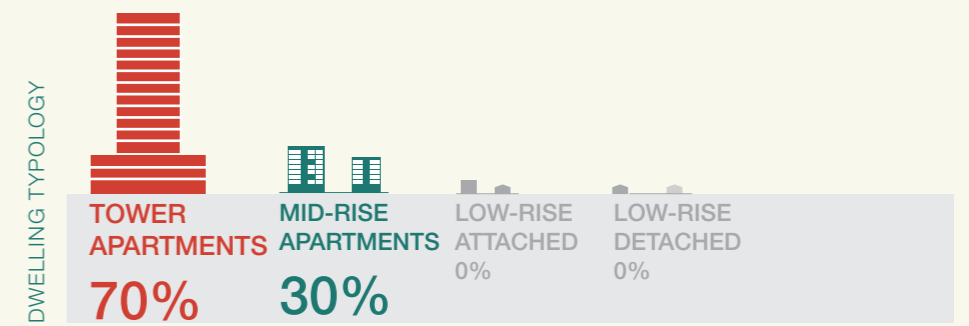
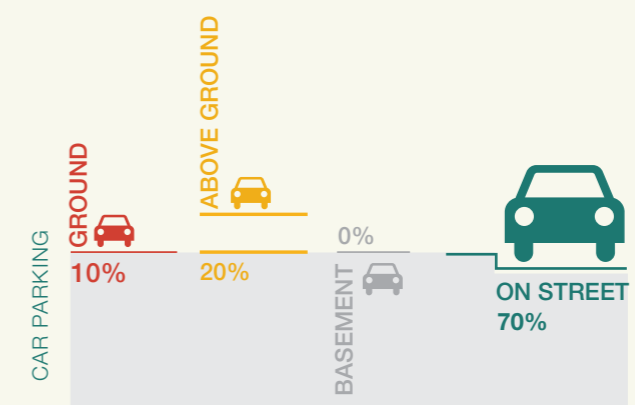
3.8 Case Study 06: Battery Park, New York



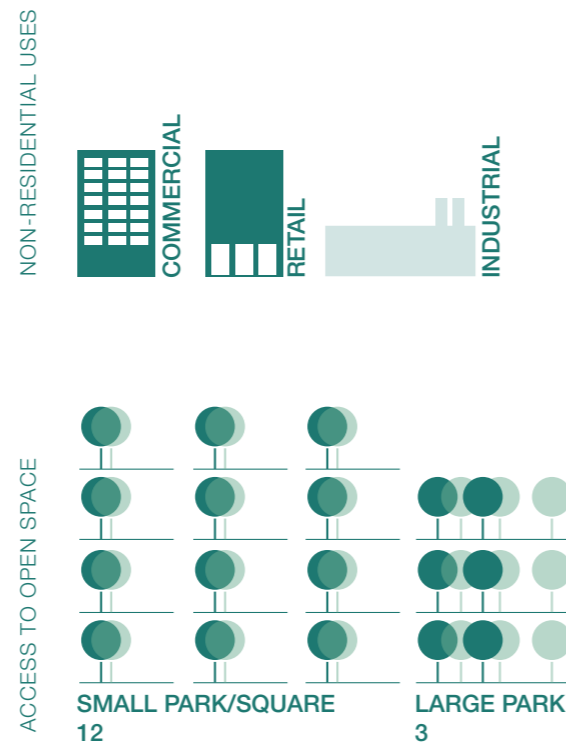
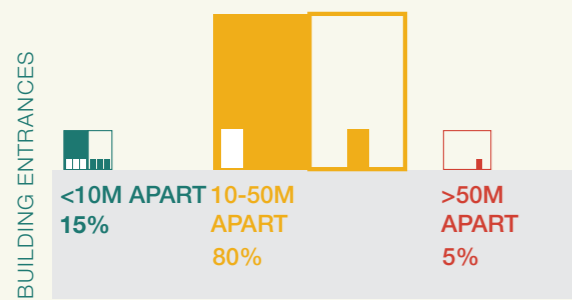
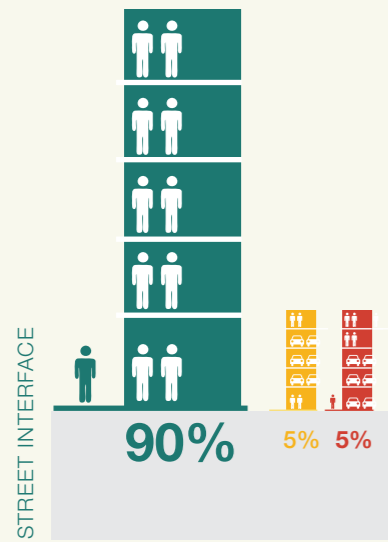
DATE 1960S-2009
DIST. TO CBD 0 KM
 Battery Park City was built on landfill created during the early 1960's and completed during the construction of the World Trade Center. The plan is essentially gridded following alignments from the adjacent Lower Manhattan Street grid.



SITE



BUILT FORM



CONTEXT

WATER SOURCE

- 99% POTABLE TOWN SUPPLY
- 1% STORMWATER
- 0% GREYWATER REUSE
- 0% BLACKWATER REUSE

ENERGY SOURCE

- 100% GRID
- 0% SELF GENERATED
- 0% DISTRICT DISTRIBUTED NETWORK

ACCESS TO SOCIAL / COMMUNITY INFRASTRUCTURE

- E** 1 PRIMARY SCHOOL
2 SECONDARY SCHOOL
0 UNIVERSITY
- G** 0 LIBRARY
1 SPORTS CENTRE
4 CULTURAL CENTRE / INSTITUTIONS
39 CAFES / RESTAURANTS
- +** 0 MEDICAL SERVICES
6 CHILDCARE
- \$** 42 CONVENIENCE SHOPPING

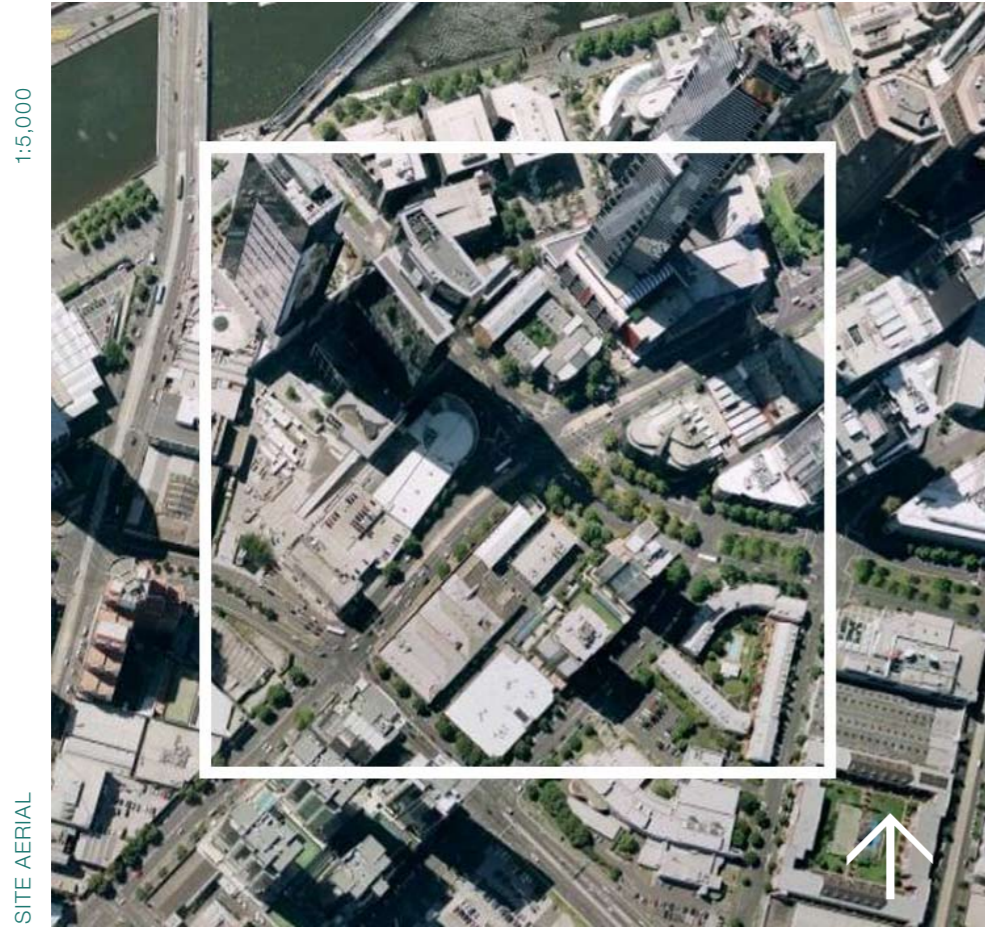
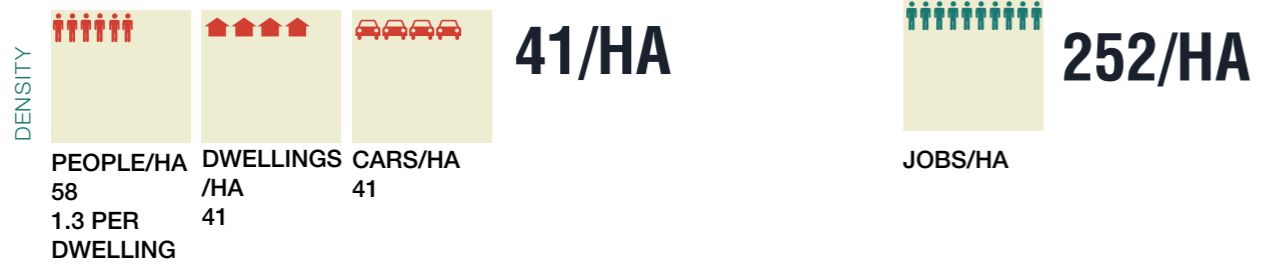
ACCESS TO PUBLIC TRANSPORT

- BUS 100M / 1 MIN WALK
- TRAIN 200M / 2 MIN WALK
- TRAM NO
- FERRY 200M / 2 MIN WALK



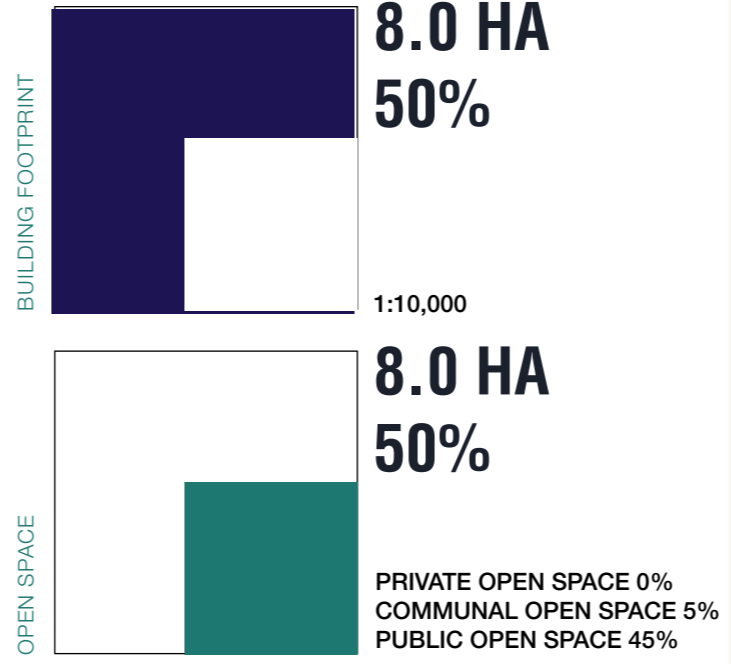
SITE PHOTOS

3.9 Case Study 07 Southbank, Melbourne, Australia

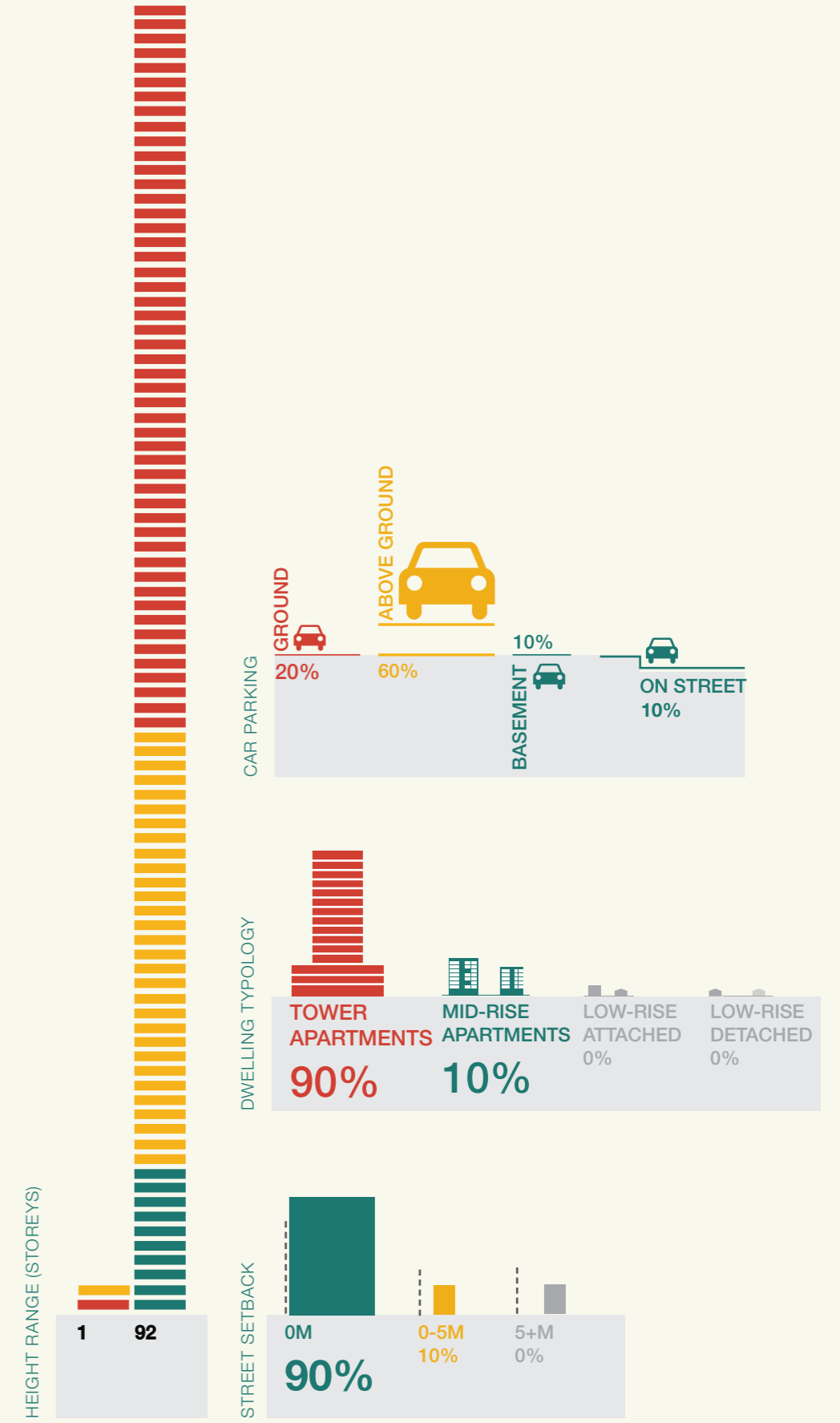


DATE: 1840S-2009
 DIST. TO CBD: 0 KM

Southbank in its current form was developed in the 1980s from its pre-existing industrial use.

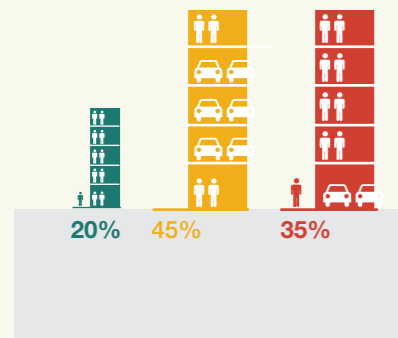


SITE

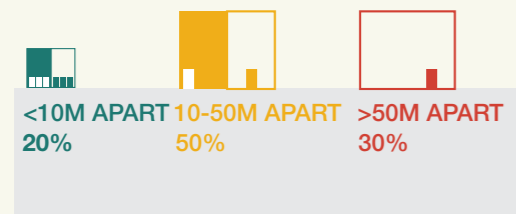


BUILT FORM

STREET INTERFACE



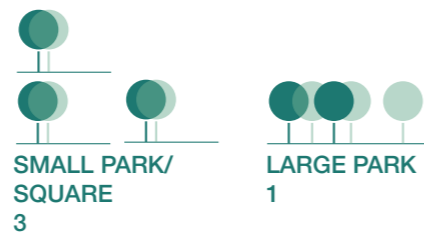
BUILDING ENTRANCES



NON-RESIDENTIAL USES

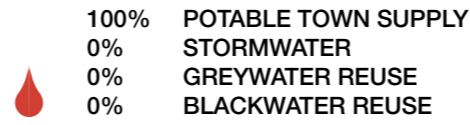


ACCESS TO OPEN SPACE

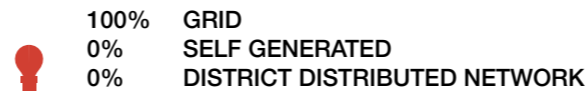


CONTEXT

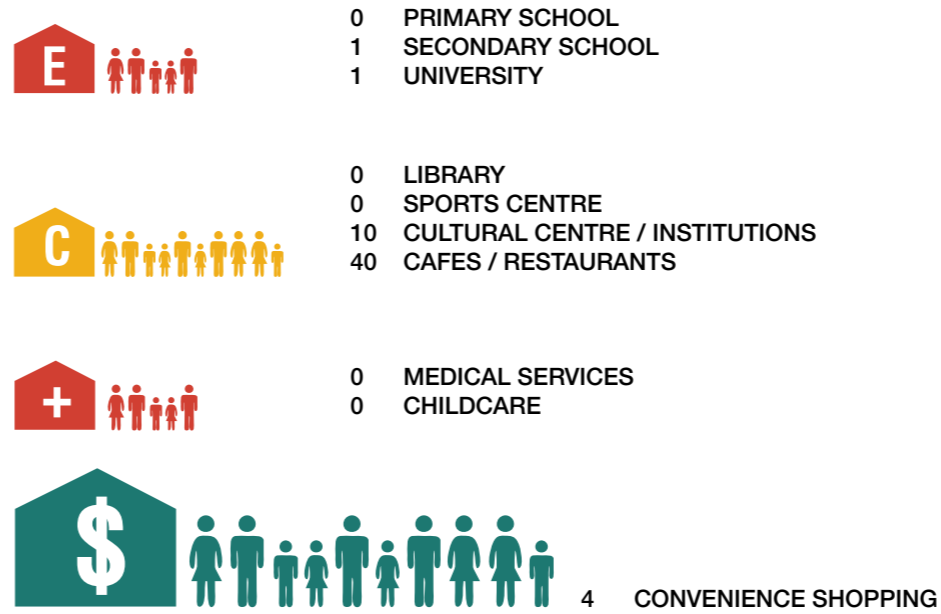
WATER SOURCE



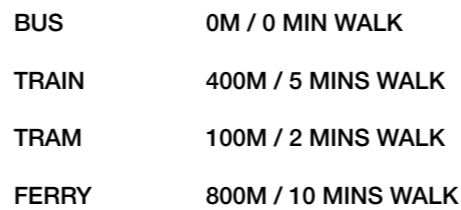
ENERGY SOURCE



ACCESS TO SOCIAL / COMMUNITY INFRASTRUCTURE

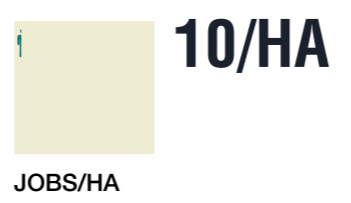
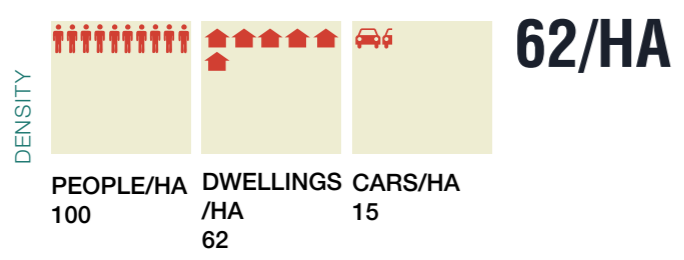


ACCESS TO PUBLIC TRANSPORT

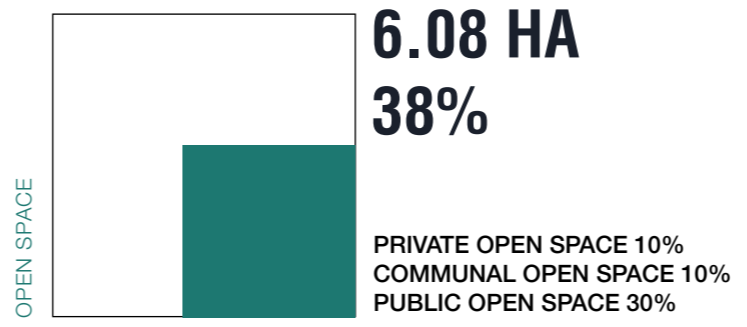
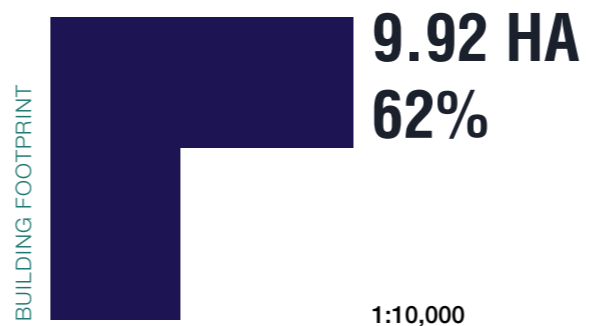


SITE PHOTOS

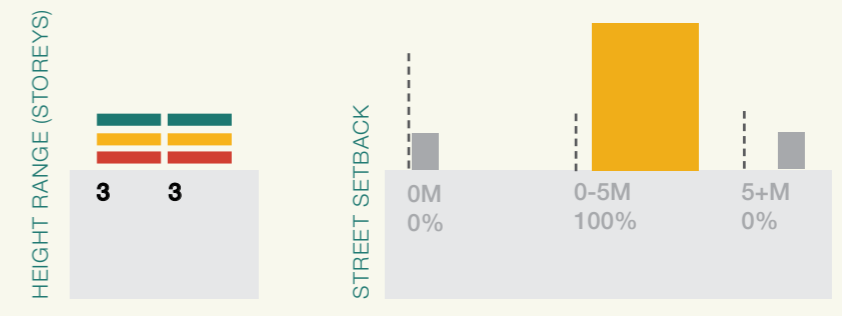
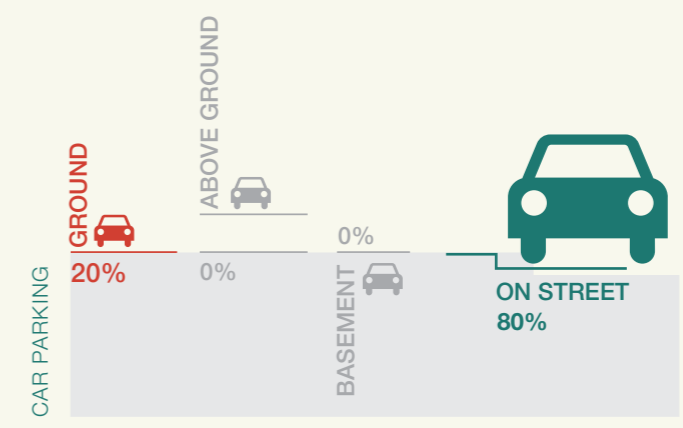
3.10 Case Study 08 Beddington Zero, Surrey, UK



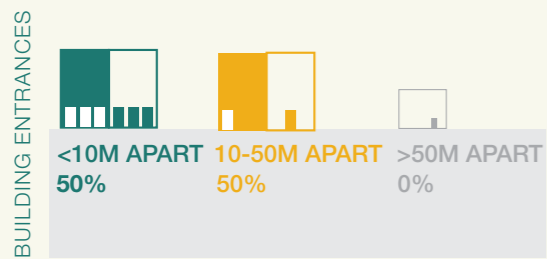
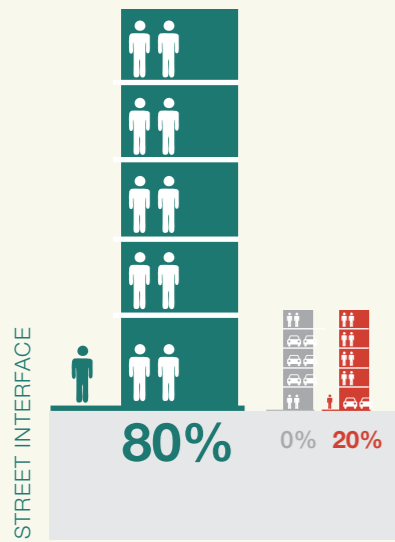
DATE 2000
 DIST. TO CBD 0 KM
 Beddington Zero Energy Neighbourhood was developed as a prototype of a carbon neutral neighbourhood.



SITE



BUILT FORM



NON-RESIDENTIAL USES

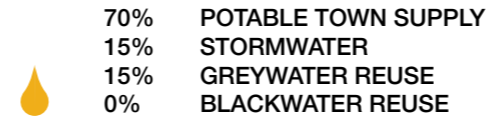


ACCESS TO OPEN SPACE

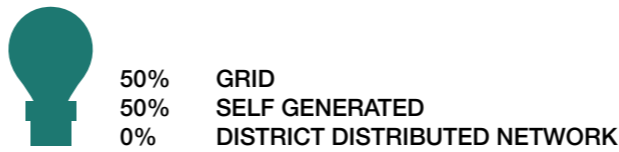


CONTEXT

WATER SOURCE



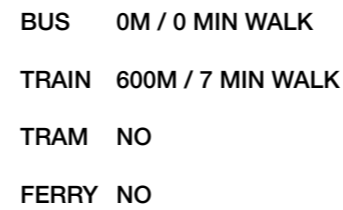
ENERGY SOURCE



ACCESS TO SOCIAL / COMMUNITY INFRASTRUCTURE

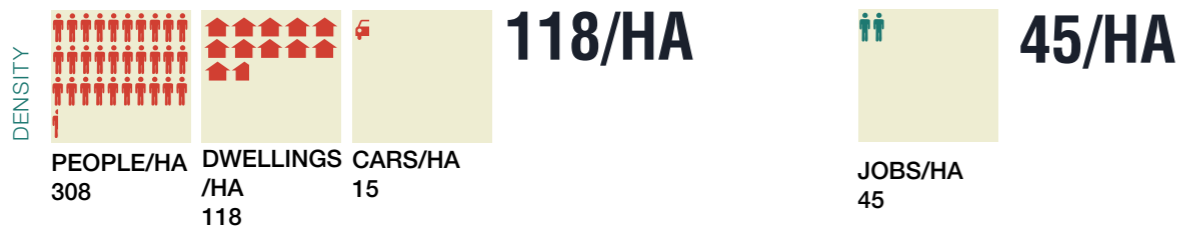


ACCESS TO PUBLIC TRANSPORT



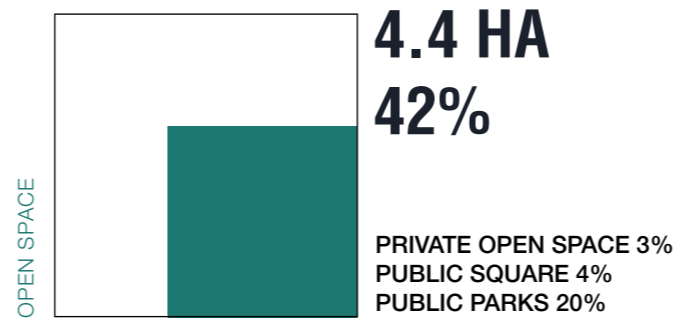
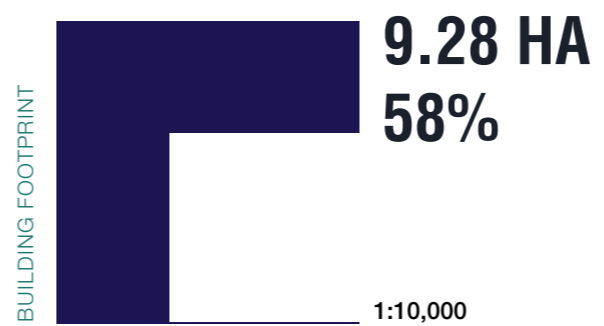
SITE PHOTOS

3.11 Case Study 09: Mid-Levels, Hong Kong

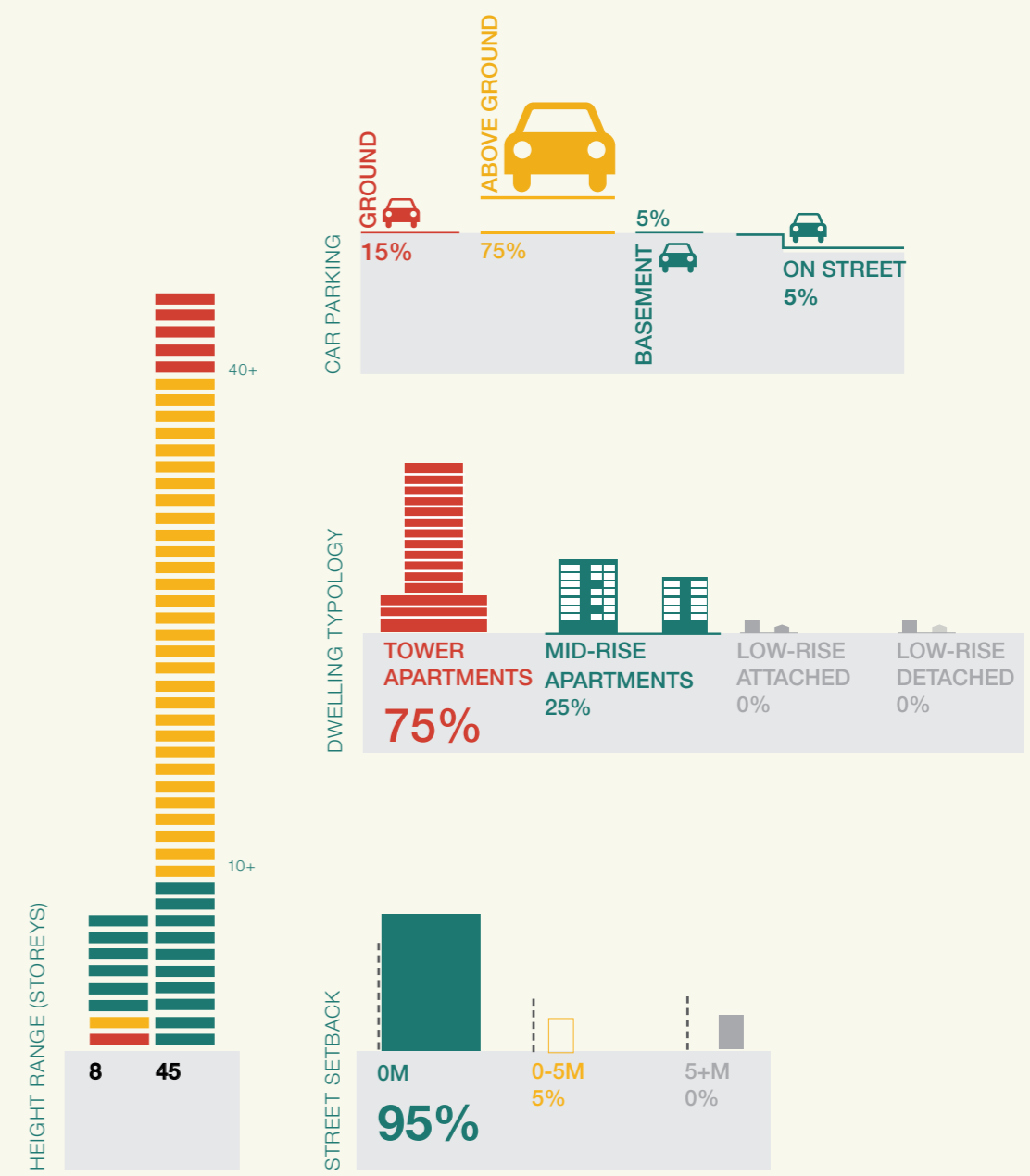


DATE 1800S - 2009
DIST. TO CBD 1.8 KM / 10 MIN

The Mid Levels of Hong Kong is a vibrant mixed use district within close range of the CBD, Central. Accessed via a series of covered escalators, the area contains a variety of community amenities, universities, restaurants and local grocers. It is well integrated and contains numerous open spaces.

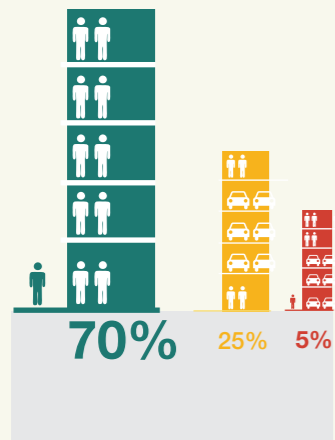


SITE

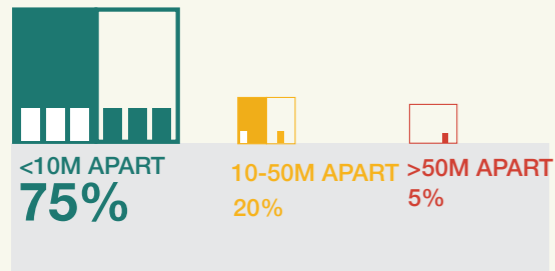


BUILT FORM

STREET INTERFACE



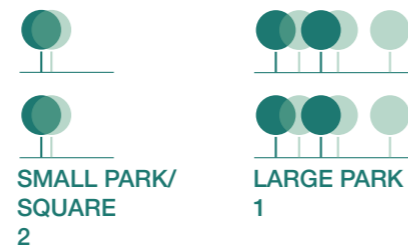
BUILDING ENTRANCES



NON-RESIDENTIAL USES

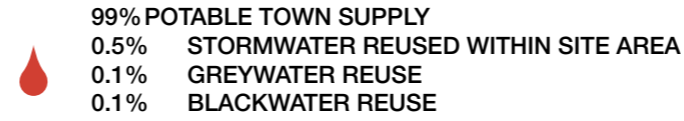


ACCESS TO OPEN SPACE

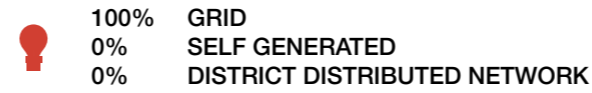


CONTEXT

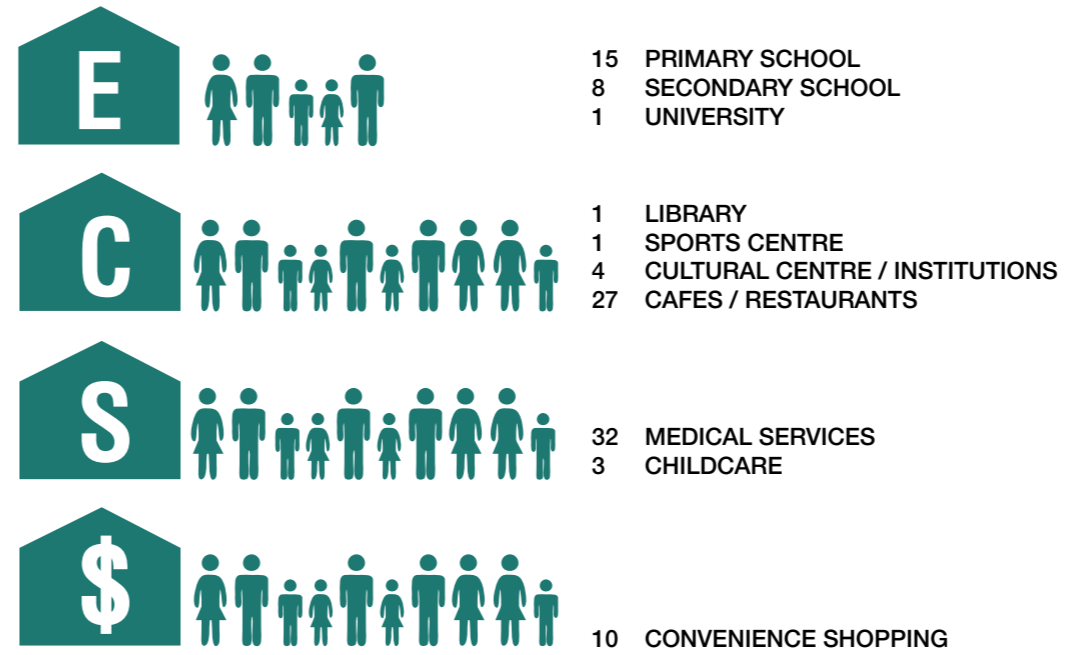
WATER SOURCE



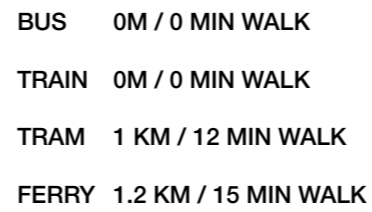
ENERGY SOURCE



ACCESS TO SOCIAL / COMMUNITY INFRASTRUCTURE

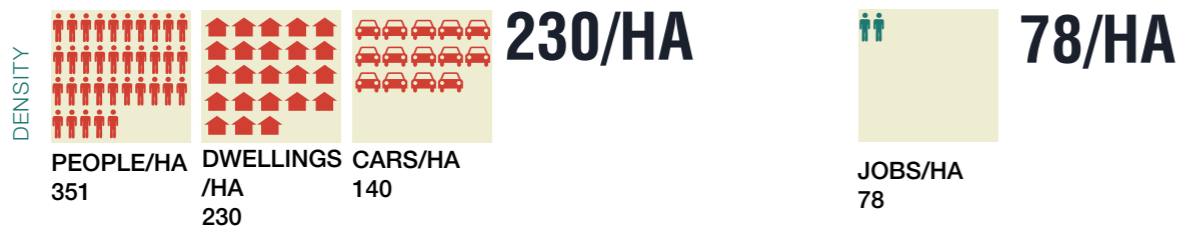


ACCESS TO PUBLIC TRANSPORT



SITE PHOTOS

3.12 Case Study 10: Eixample, Barcelona, Spain

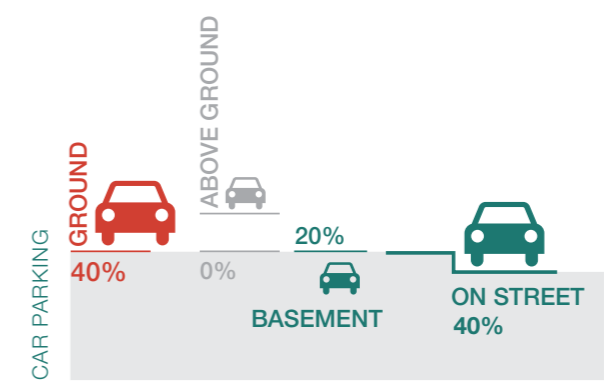
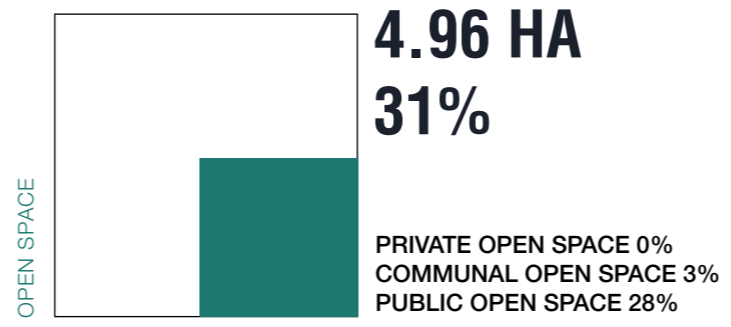
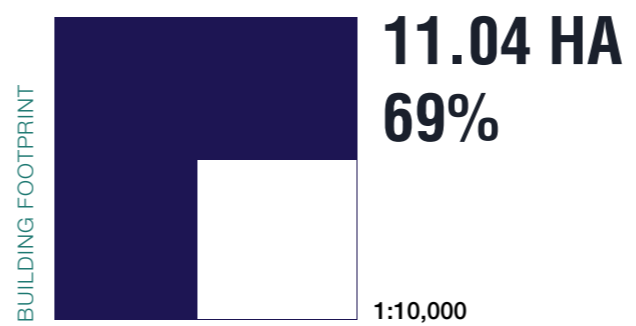


1:5,000

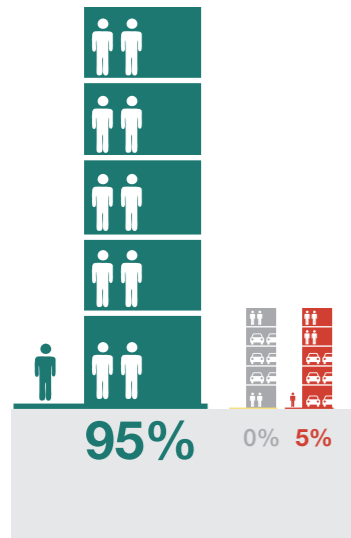


SITE AERIAL

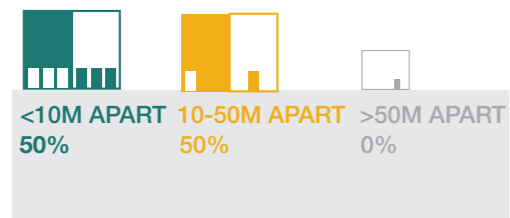
DATE 1850-1900
DIST. TO CBD 2KM
 The Eixample district in Barcelona was designed by Cerdas as an extension to the city beyond the traditional defensible walls. The grid block layout is repeated across the 7.5 square kilometre suburb. It is Barcelona's densest city area.



STREET INTERFACE



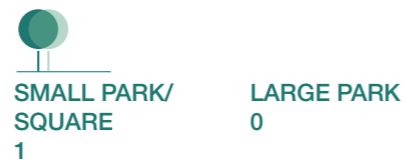
BUILDING ENTRANCES



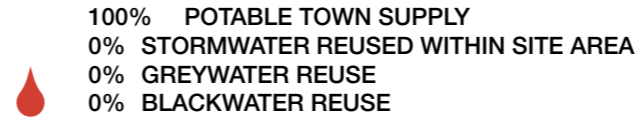
NON-RESIDENTIAL USES



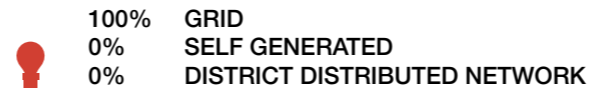
ACCESS TO OPEN SPACE



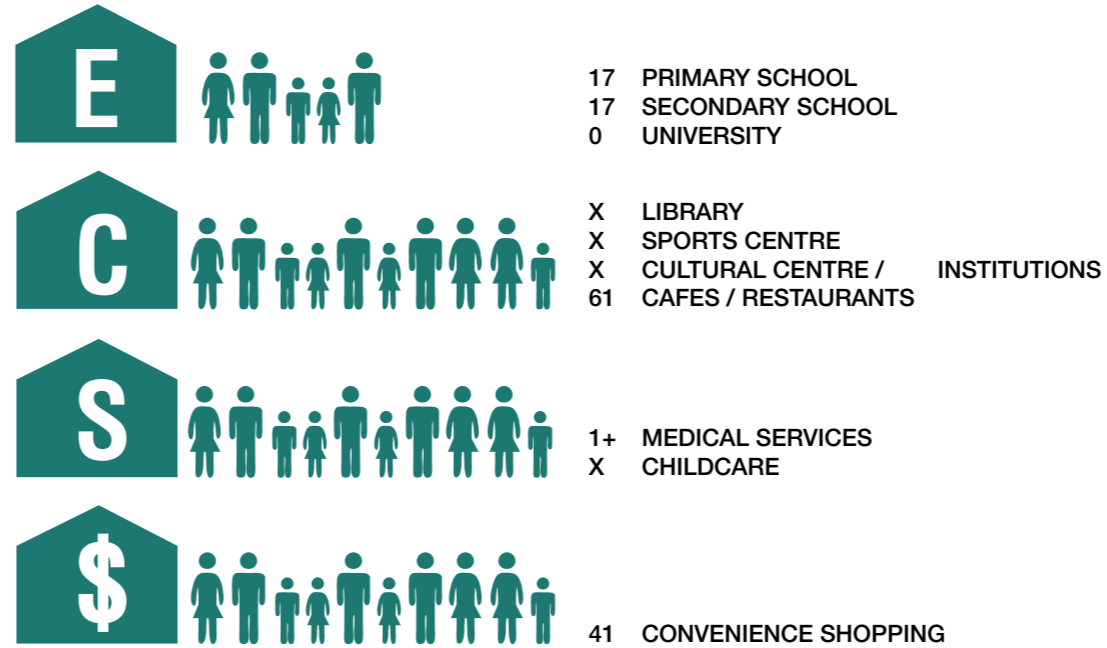
WATER SOURCE



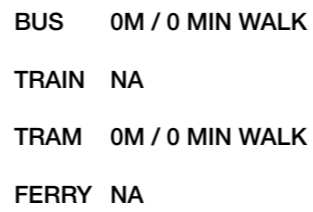
ENERGY SOURCE



ACCESS TO SOCIAL / COMMUNITY INFRASTRUCTURE



ACCESS TO PUBLIC TRANSPORT



3.13 Conclusions from the Urban Density Case Study

The following is a summary of the case studies ordered according to residential densities.

3.13.01 Densities

Densities

Five of the case study examples all achieved dwelling densities in the order of 100 dwellings per hectare. These included Hong Kong, Bercy, Borneo-Sporenburg, Coin Street and Battery Park. The remaining four case studies recorded densities of 66 (Melbourne), 50 (Beddington Zero), 41 (Southbank) and 24 (Long Beach).

Employment densities varied greatly with four case studies exceeding 100 jobs per hectare. These were Coin Street, Battery Park, Melbourne CBD and Southbank. Long Beach was within reach of this number at 92 jobs/hectare. The remaining three case studies Bercy, Borneo-Sporenburg and Beddington Zero recorded distinctly lower densities ranging from 2.5 to 16 jobs per hectare. These figures reflect the predominantly residential use of these sites.

In order to achieve a successful mixed use area, it will be important to balance sustainable residential and employment densities.

Car densities were typically difficult to determine with information on car ownership not readily available for each case study. Similarly, population data that we defined for the relatively small study areas analysed was not easily accessible. Considering the reliance on assumed ratios of car ownership and the number of residents per dwelling the recommendations drawn from this study will focus primarily on dwelling and employment densities.

THE RESULTS ALL DENSITIES

	POPULATION	DWELLING		CARS	CARS/ DWELLING	EMPLOYMENT	
01 EIXAMPLE, BARCELONA	351	230	230/HA	140	0.6/	78	78/HA
02 MID LEVELS, HONG KONG	308	118	118/HA	15	0.1/	45	45/HA
03 COIN ST, LONDON	200	100	100/HA	20	0.2/	300	300/HA
03 BORNEO SPORENBURG, AMSTERDAM	200	100	100/HA	50	0.5/	2.5	2.5/HA
03 BERCY, PARIS	200	100	100/HA	50	0.5/	16	16/HA
03 BATTERY PARK, NEW YORK	240	100	100/HA	50	0.5/	830	830/HA
07 MELBOURNE CBD	108	66	66/HA	33	0.5/	1255	1255/HA
08 BEDDINGTON ZERO, SURREY	100	50	50/HA	12	0.2/	10	10/HA
09 SOUTHBANK, MELBOURNE	58	41	41/HA	41	1.0/	252	252/HA
10 LONG BEACH, CALIFORNIA	50	24	24/HA	24	1.0/	92	92/HA

3.13.02 Site

Built Footprint

The building site coverage across the case studies ranged from 47% (Bercy) to 73% (Melbourne CBD). The majority of study areas were within excess of -8 percentage points of the average of 58% site coverage. Melbourne CBD and Barcelona had the highest percentage of site coverage at 73% and 69% respectively. There was no relationship evident in this study between the residential or employment densities, and building footprints.

The building coverage for Southbank was 50% which was 8 percentage points lower than the average.

Open Space

The area of each site attributed to open space ranged from 20% to 50%. The majority of this area in each case was provided as public space predominantly in the road corridors/transit ways but also as accessible urban parkland. Private open space accounted for a maximum of 10% of the site area (Bercy and Beddington Zero) and was not evident within Mid Levels, Battery Park, Melbourne CBD, Southbank or Barcelona.

Southbank recorded the equal highest area of open space (50%) and the highest area of public open space (45%). Bercy and Beddington Zero also recorded 50% open space area followed closely by Hong Kong (48%). However a review of the aerial photographs illustrates that within Southbank a significant portion of this area is road infrastructure and not available as green community active or passive recreation areas.



Case Study
Dwelling Density
Employment Density
Building Footprint

Case Study	Dwelling Density	Employment Density	Building Footprint
Eixample, Barcelona	230	78	69%
Mid Levels, Hong Kong	118	45	58%
Bercy, Paris	100	16	47%
Borneo-Sporenburg	100	2.5	60%
Coin Street	100	300	50%
Battery Park	100	830	62%
Melbourne CBD	66	1255	73%
Beddington Zero	50	10	50%
Southbank	41	252	50%
Long Beach	24	92	58%

3.13.A BUILDING FOOTPRINT BREAKDOWN

Case Study
Dwelling Density
Employment Density
Open Space
Private
Communal
Public

Case Study	Dwelling Density	Employment Density	Open Space	Private	Communal	Public
Eixample, Barcelona	230	78	31%	-	3%	28%
Mid Levels, Hong Kong	118	45	48%	-	5%	43%
Bercy, Paris	100	16	50%	10%	10%	30%
Borneo-Sporenburg	100	2.5	20%	6%	2%	12%
Coin Street	100	300	35%	5%	10%	20%
Battery Park	100	830	38%	-	10%	28%
Melbourne CBD	66	1255	27%	-	-	27%
Beddington Zero	50	10	50%	10%	20%	20%
Southbank	41	252	50%	-	5%	45%
Long Beach	24	92	42%	4%	18%	20%

3.13.B OPEN SPACE BREAKDOWN

Building Typology

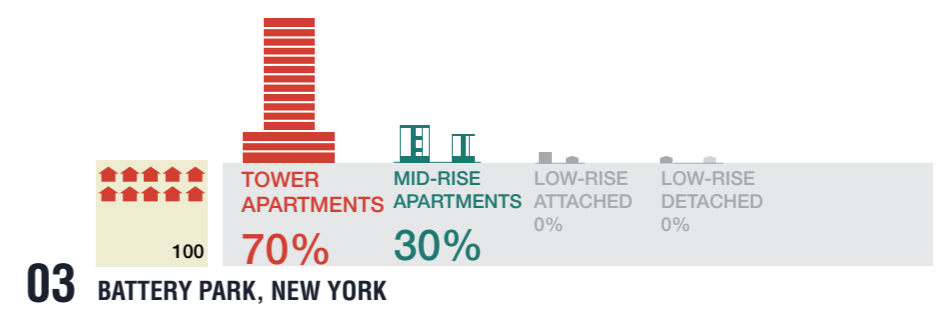
The predominant typology across all case studies was mid-rise apartments. Tower apartments only featured prominently in the Mid Levels, Battery Park and Southbank examples. There were no cases of low rise detached houses.

While the study only assesses a limited number of examples, there is an evident relationship between the building typology and the dwelling density recorded with four of the highest density case studies containing only mid-rise apartments and low-rise attached dwellings. Mid Levels and Battery Park are the exceptions where 75% and 70% respectively of the residential population lives in high-rise apartments.

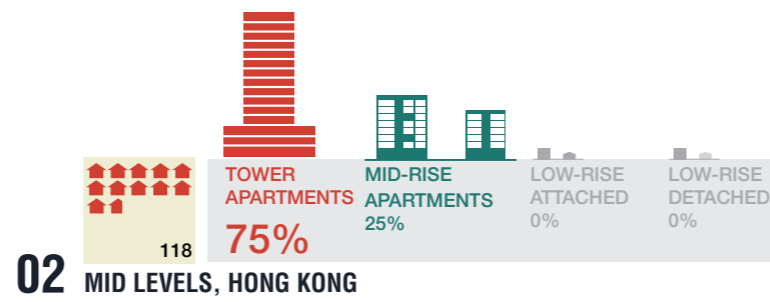
Southbank recorded the highest provision of apartment living at 90%.



01 EIXAMPLE, BARCELONA



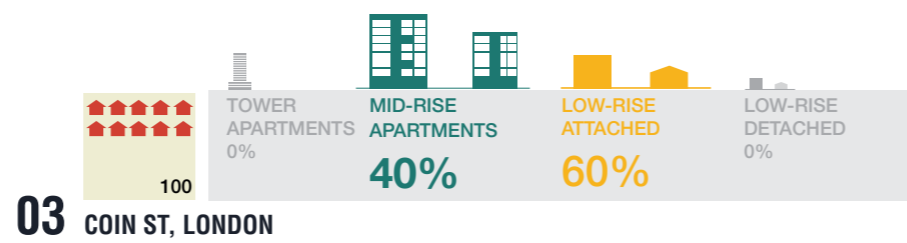
03 BATTERY PARK, NEW YORK



02 MID LEVELS, HONG KONG



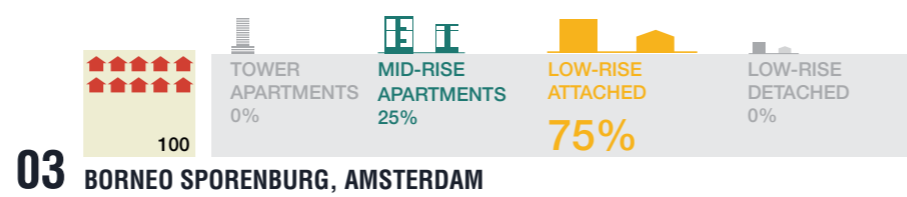
07 MELBOURNE CBD



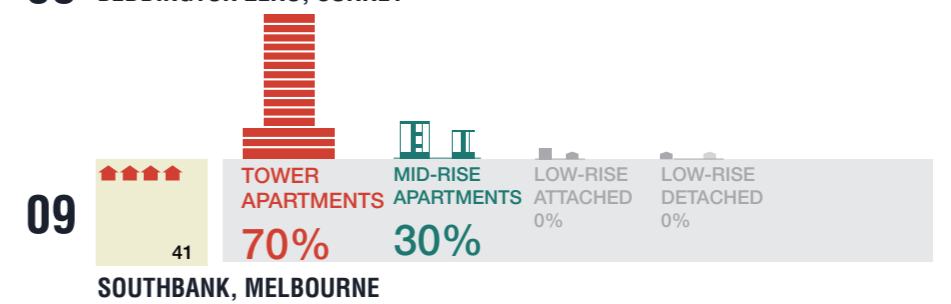
03 COIN ST, LONDON



08 BEDDINGTON ZERO, SURREY



03 BORNEO SPORBURG, AMSTERDAM



09 SOUTHBANK, MELBOURNE



03 BERCY, PARIS



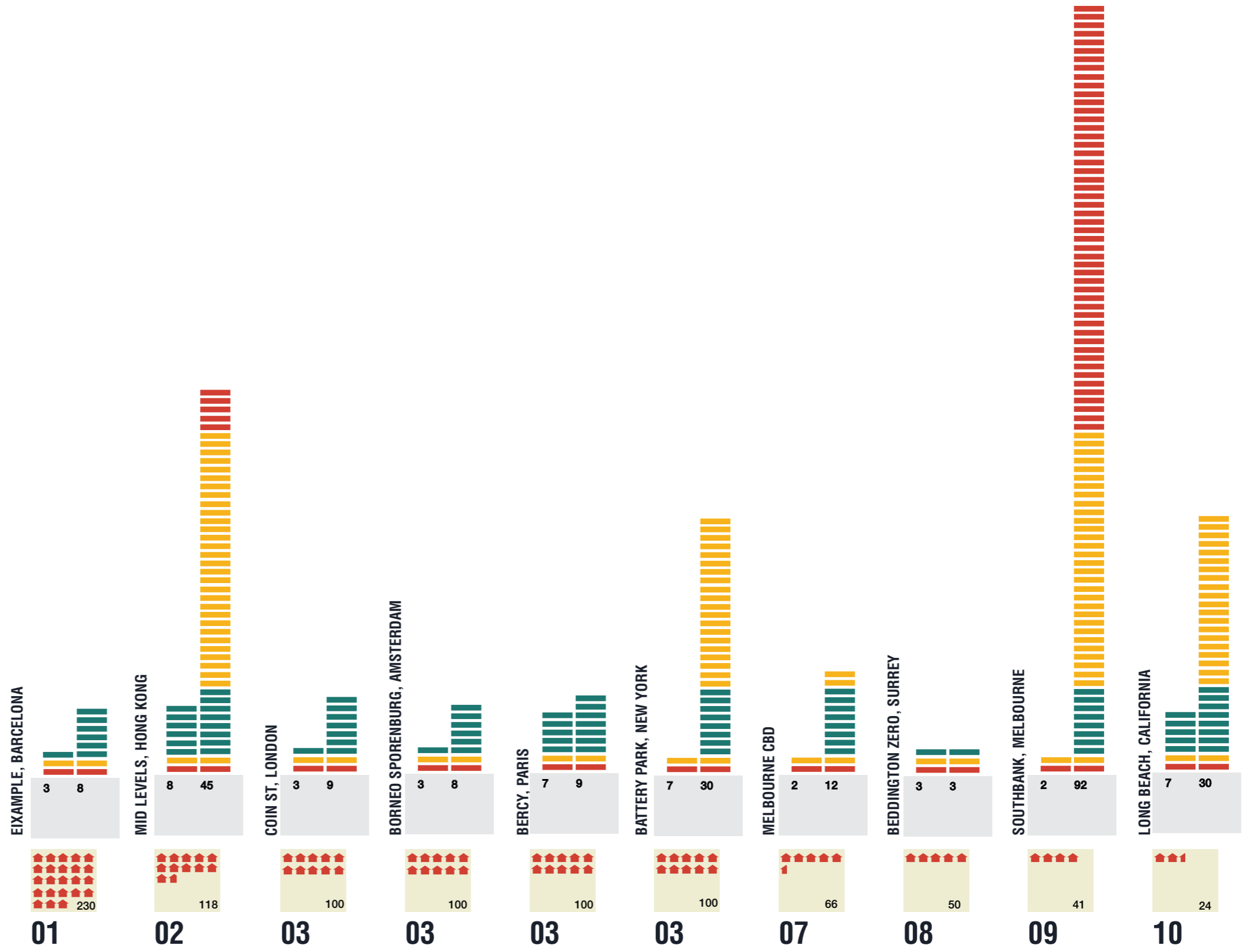
10 LONG BEACH, CALIFORNIA

Building Height

Following the building typology mix, the predominant height range for buildings was 2-10 storeys. The maximum height of any dwelling was the Eureka Tower in Southbank at 92 storeys. This far surpassed the next tallest building at 42 storeys in Hong Kong. Four of the five highest dwelling density examples did not exceed 9 storeys. Higher buildings were associated with higher employment densities.

The relationship between building heights and densities is illustrated in Figure 3.13E.

Southbank has the most differentiation between building heights within the study areas with the highest and lowest building heights recorded.



3.13.E BUILDING HEIGHT BREAKDOWN

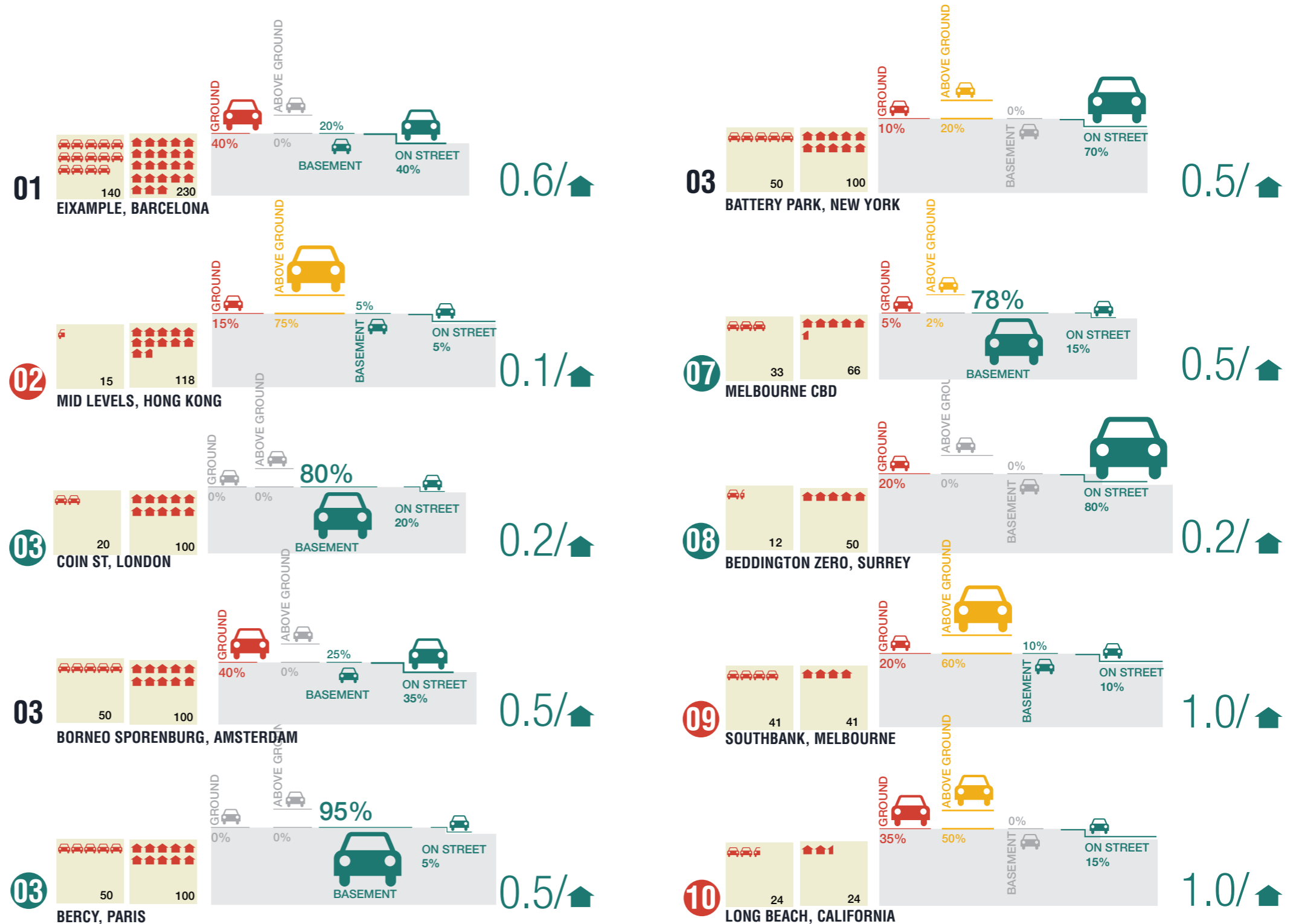
Car Parking

There was a wide range of car parking configurations across the case studies. Five of the six sites with the highest residential densities had a significant share of their car parking located either in the basement or on-street. These two parking arrangements provide the best public realm experience as they avoid locating the inactive use of car storage at the street interface or overlooking the street.

The parking arrangements of Southbank, Long Beach and Hong Kong suggest that these cities provide the worst public realm outcome with a minimum of 80% of car parking located at ground level or in multi deck car parks. The effect may be mitigated to a degree however in Hong Kong where car ownership is significantly lower than in Southbank or Long Beach.

This study identifies a direct relationship between car parking arrangements and building heights as these three city examples were also those that recorded buildings exceeding 30 storeys.

BEST PERFORMERS >80% POSITIVE
 WORST PERFORMERS >80% NEGATIVE



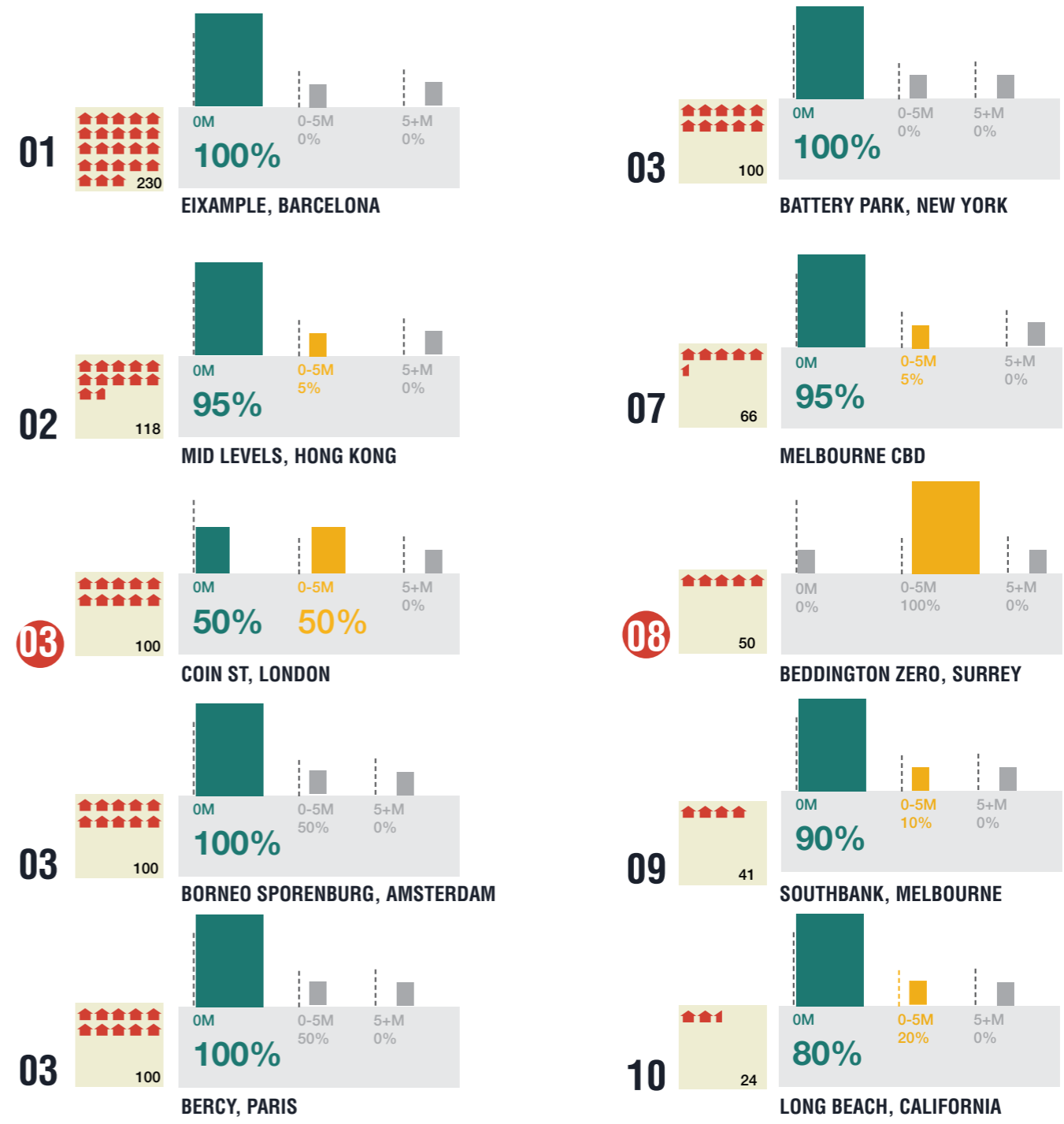
Street Setback

Zero setbacks were the most common followed by 0-5m. Setbacks greater than 5m were not recorded in any case study.

Southbank was comparable with the remaining study areas with 90% of the building footprint with no street setback and 10% setback 0-5m.

Beddington Zero recorded the highest extent of setbacks. Considering its suburban location comparative to the other case studies this is not unexpected.

● BEST PERFORMERS >80% POSITIVE
● WORST PERFORMERS >80% NEGATIVE



3.13.F STREET SETBACK BREAKDOWN

Street Interface

The relationship of the street interface was predominantly a mix of 65-90% active/positive interface and 5-20% inactive interface – indicating a direct interface with the street of blank walls (typically service areas) or car parking.

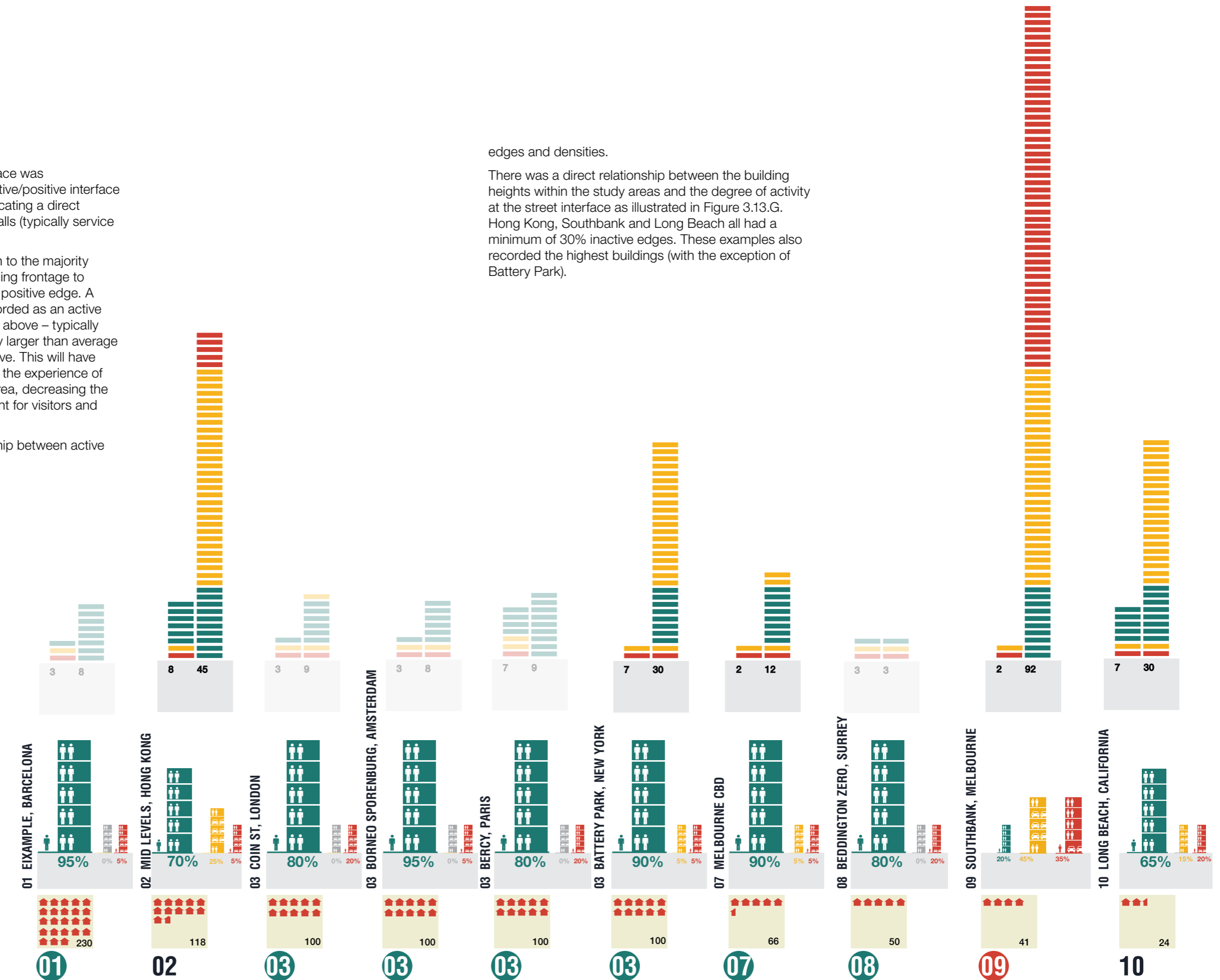
Southbank was the clear exception to the majority example with only 20% of the building frontage to the street recorded as an active or positive edge. A large percentage – 45% - was recorded as an active ground interface with inactive uses above – typically car parking. Similarly, a significantly larger than average percentage was recorded as inactive. This will have a significantly detrimental effect on the experience of the public realm within the study area, decreasing the perceptions of safety and enjoyment for visitors and residents.

There was no discernible relationship between active

edges and densities.

There was a direct relationship between the building heights within the study areas and the degree of activity at the street interface as illustrated in Figure 3.13.G. Hong Kong, Southbank and Long Beach all had a minimum of 30% inactive edges. These examples also recorded the highest buildings (with the exception of Battery Park).

BEST PERFORMERS >80% POSITIVE
 WORST PERFORMERS >80% NEGATIVE



3.13.G STREET INTERFACE BREAKDOWN

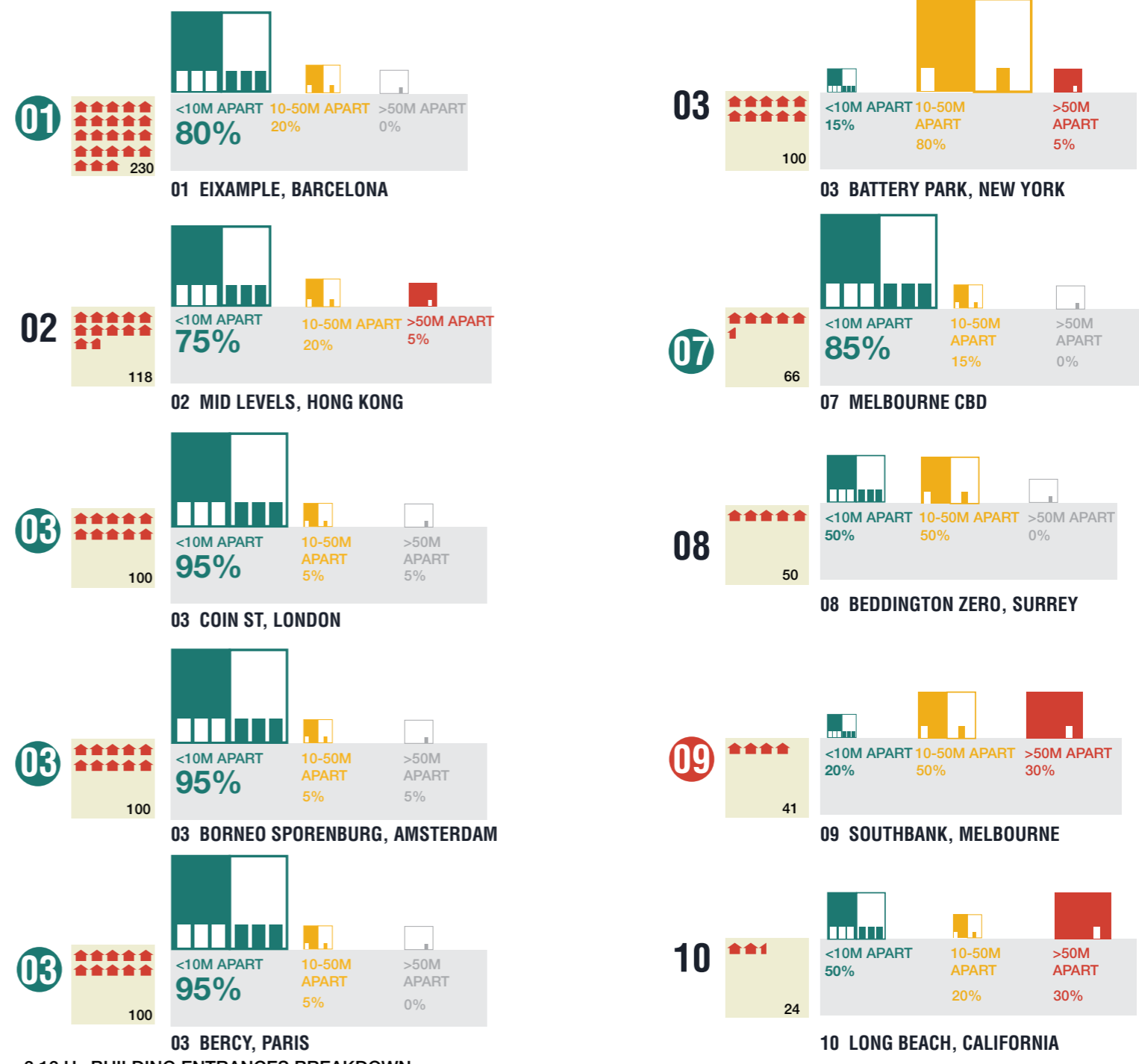
Building Entrances

The distance between building entrances indicates the grain of urban development and provides a strong indication of the intensity of different premises within the site and the built form character. Entrances that are close together (less than 10m) indicate a fine grain of development that adds diversity and interest and vibrancy to an urban area. Entrances less than 10m apart were the most common (above 50% in most case studies).

Building entrances greater than 10m were recorded against all four of the lowest residential densities. There was no clear correlation between building entrance densities and employment densities.

There is an identified relationship between the distances between entrances and building typologies. The two examples with the greatest distances recorded between building entrances were Battery Park (85% of entrances greater than 10m apart) and Southbank (80% of entrances greater than 10m apart). This suggests that these two examples incorporate a coarser urban grain. Coin Street and Beddington Zero each had approximately 50% of dwellings 10-50m apart, with none greater than 50m. Battery Park and Southbank also recorded two of the three highest percentages of tower apartments and it is possible to associate this coarser urban grain with the tower apartment typology.

BEST PERFORMERS >80% POSITIVE
 WORST PERFORMERS >80% NEGATIVE



3.13.H BUILDING ENTRANCES BREAKDOWN

KEY OUTCOMES: BUILT FORM

The following table illustrates the performance of each of the case study examples in the Built Form category. The key outcomes that can be discerned from the study area:

- 1 Higher building footprints do not deliver higher densities than mid-rise buildings.
- 2 Car parking requirements are critical in achieving a high quality urban realm within higher density areas.
- 3 The quality of the street interface and distribution of building entrances has a direct relationship with building height and typology.

BEST PERFORMERS >80% POSITIVE
 WORST PERFORMERS >80% NEGATIVE

	POPULATION	DWELLING	CARS	CARS/DWELLING	EMPLOYMENT	HEIGHT	CAR PARK LAYOUT	STREET INTERFACE	BUILDING ENTRANCES
01 EIXAMPLE, BARCELONA	351	230	140	0.6/🏠	2	8	●	●	●
02 MID LEVELS, HONG KONG	308	118	15	0.1/🏠	1	45	●	●	●
03 COIN ST, LONDON	200	100	20	0.2/🏠	4	9	●	●	●
03 BORNEO SPORENBURG, AMSTERDAM	200	100	50	0.5/🏠	0	8	●	●	●
03 BERCY, PARIS	200	100	50	0.5/🏠	1	9	●	●	●
03 BATTERY PARK, NEW YORK	240	100	50	0.5/🏠	10	30	●	●	●
07 MELBOURNE CBD	108	66	33	0.5/🏠	10	12	●	●	●
08 BEDDINGTON ZERO, SURREY	100	50	12	0.2/🏠	1	3	●	●	●
09 SOUTHBANK, MELBOURNE	58	41	41	1.0/🏠	10	92	●	●	●
10 LONG BEACH, CALIFORNIA	50	24	24	1.0/🏠	2	30	●	●	●

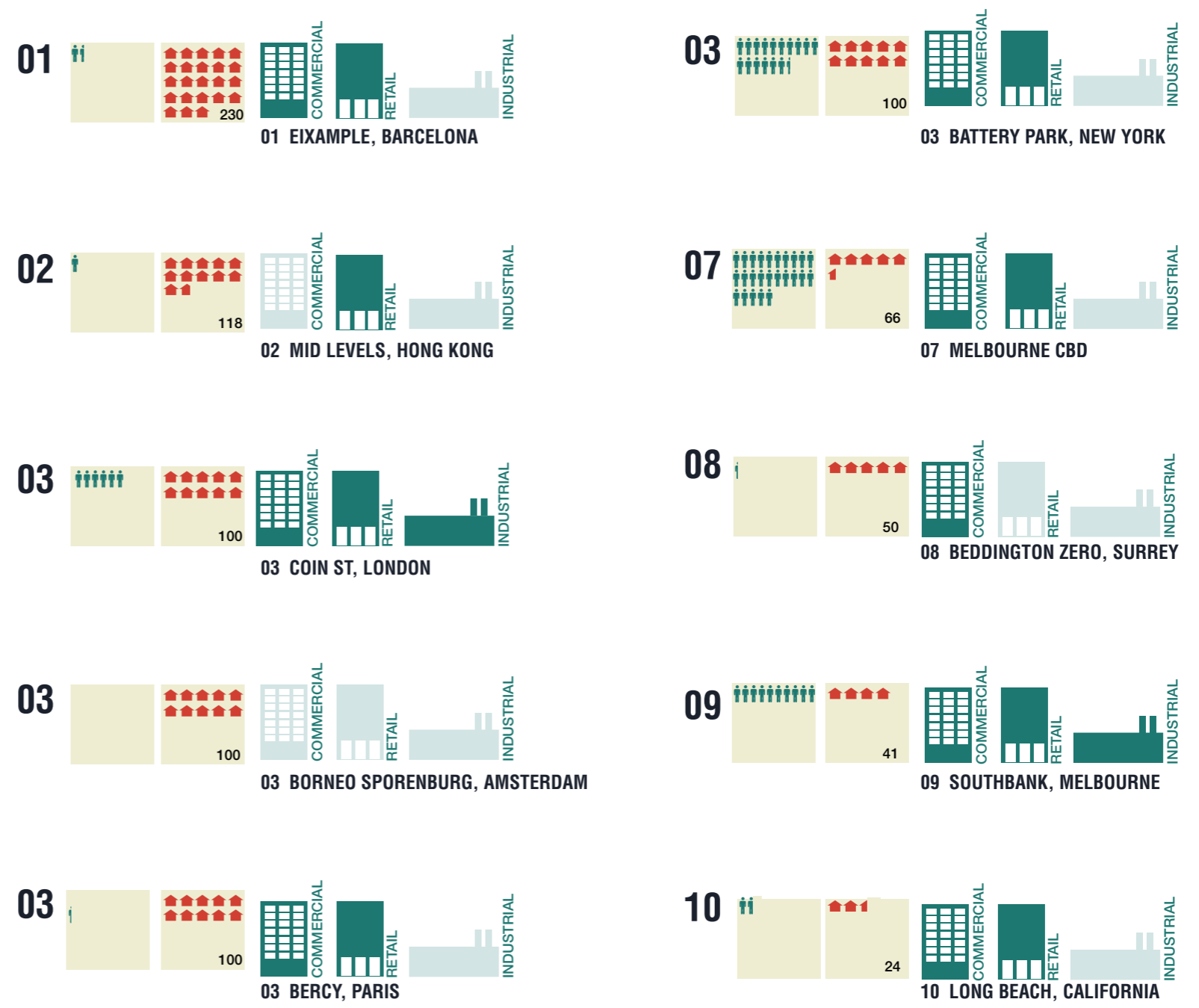
3.13.03 Context

The context analysis provides a useful tool to assess the livability of each case study. Access to open space, employment, social and community facilities and public transport all directly contribute to the quality of life offered to residents and visitors within urban environments.

Non-Residential Uses

Most of the case studies incorporated non residential uses with the exception of Borneo Sporenburg. Beddington Zero only incorporated commercial uses in addition to residential uses. These two case studies also recorded the lowest densities in employment. Only Coin Street and Southbank incorporated industrial uses within the study areas.

Southbank, along with Coin Street, recorded the greatest mix of uses within the site.



3.13.I NON RESIDENTIAL LAND USE BREAKDOWN

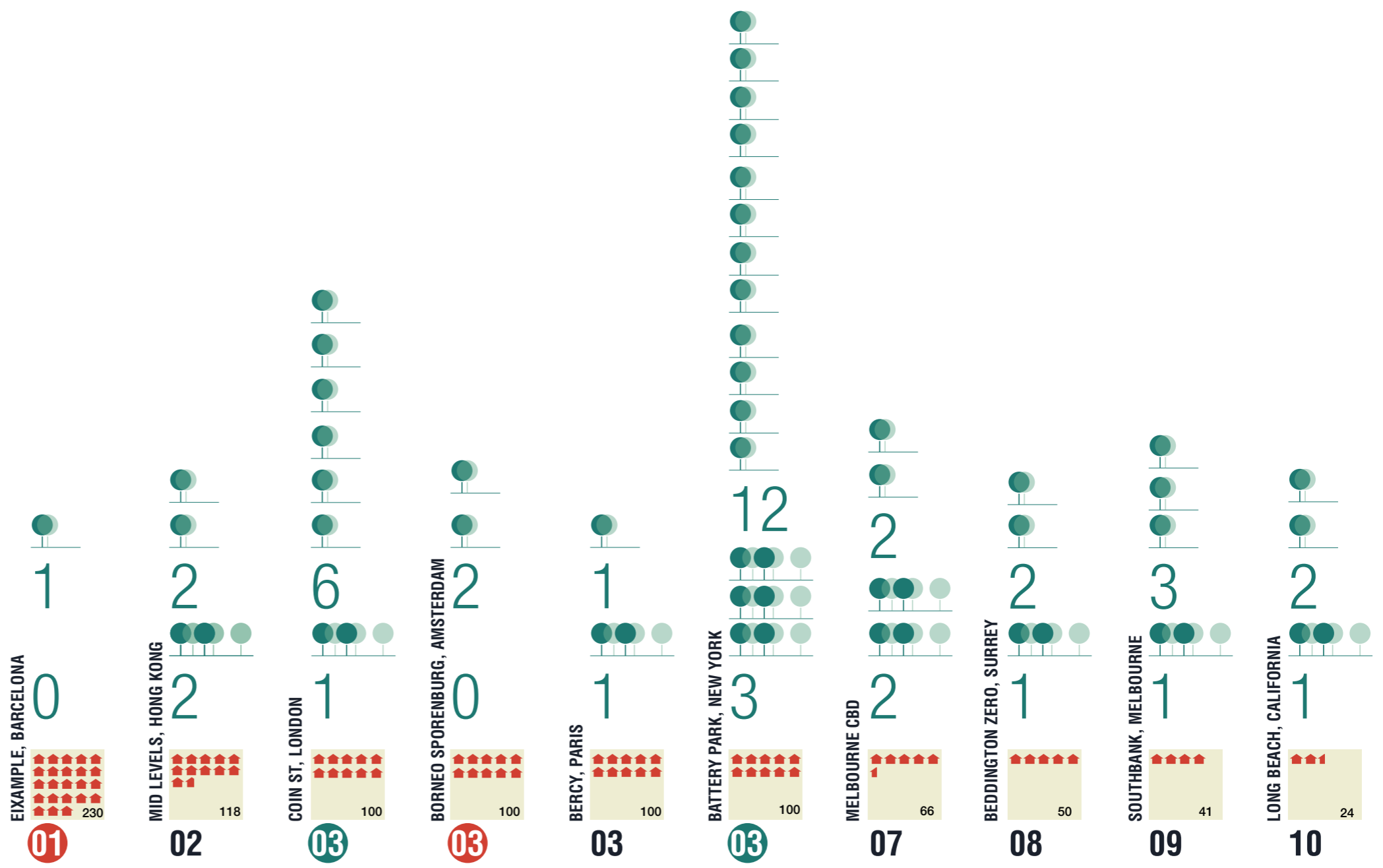
Access to Public Open Space

Access to public open space was provided in all case studies however the provision of this access differed greatly. Eixample and Borneo-Sporenburg were the two examples that did not have access to a large park and provided limited access to a smaller open space area. The provision of open space in Barcelona has been compromised by the build-out of many of the internal courtyard spaces that historically provide a semi-private green space to residents.

As dwelling densities increased there was not a proportional change (negative or positive) that could be discerned. It is therefore possible to suggest that the level of amenity provided to these residents is lower than those living in lower density areas that have an equal number of open spaces.

Considering its low residential density, Southbank provided a higher than average ratio of small parks/squares per dwelling/hectare. The ratio of large parks per dwelling/hectare was on average with the other case studies. The large park Kings Domain (inc. Alexandra, Queen Victoria and Botanical Gardens) is at one end of the Southbank study area and does therefore not provide equitable access to all residents.

BEST PERFORMERS >80% POSITIVE
 WORST PERFORMERS >80% NEGATIVE



3.13.J ACCESS TO OPEN SPACE BREAKDOWN

Access to Social /Community Infrastructure: Education

The provision of educational institutions varied across the sites and cannot be directly related to densities. A significant gap in provision is evident – particularly in primary/secondary schools where proximity to schools from residences is of greater importance than the distance between universities and residences (it can be assumed that an adult can travel more independently and therefore further than young children). In this case Melbourne CBD and Southbank recorded a distinct gap in the provision of childhood education, both not providing either a primary or secondary school. Beddington Zero was the only other example that failed to provide both levels of schooling within no secondary school within 500m of the development.

The provision of Universities in the area can have a significant impact on the vibrancy of the neighbourhoods with a prevalence of affordable eateries and social venues typically collocated with University student populations. The Mid Levels and Eixample both delivered a high number of schools to service the high density populations.

Access to Social /Community Infrastructure: Community Facilities

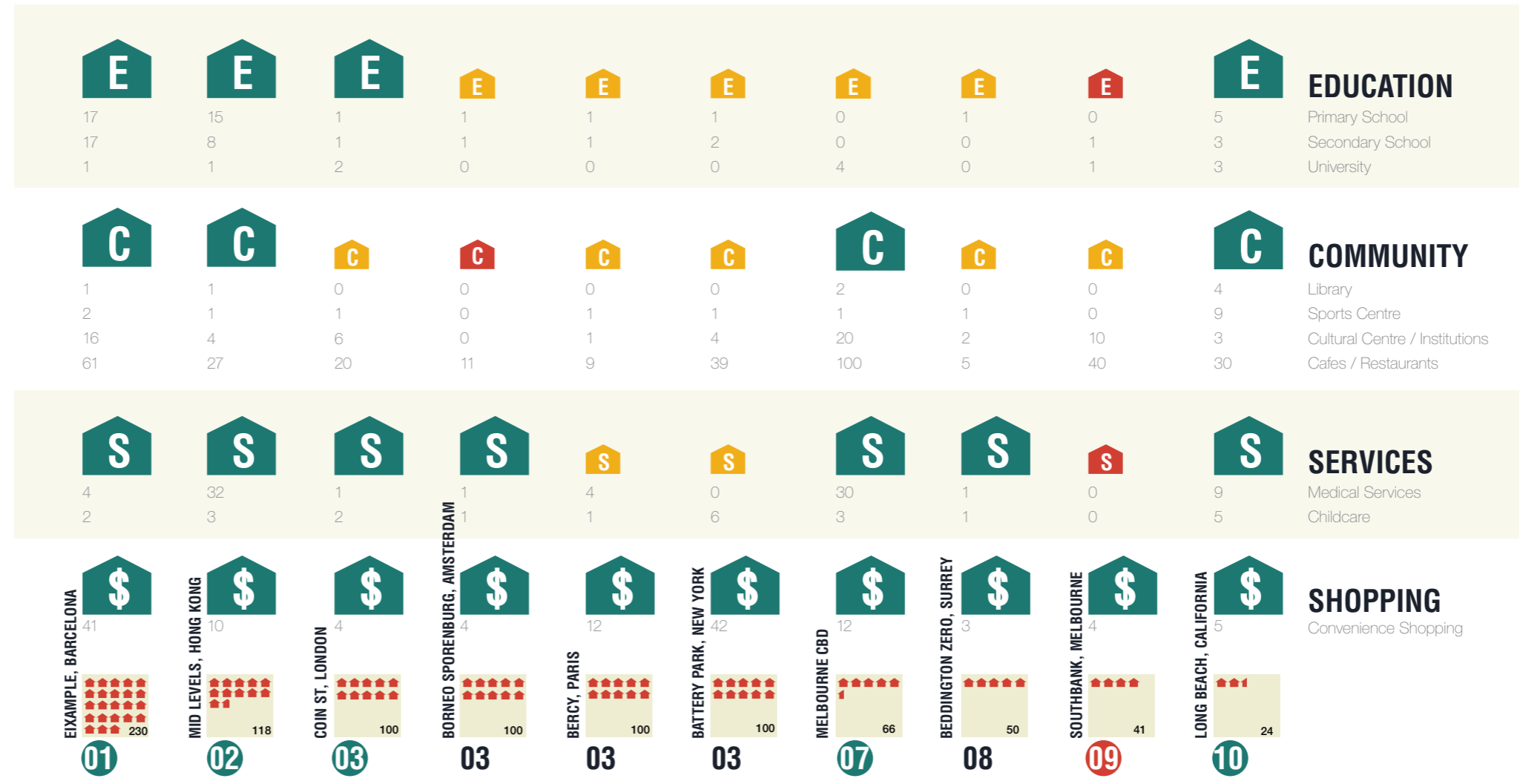
The provision of community facilities within each study area was mixed. The provision of public libraries was generally low as only Mid Levels, Eixample, Melbourne CBD and Long Beach provided this public service. The highest provision of cultural centres/institutions were found in the Eixample, Melbourne CBD and Southbank.

Southbank incorporated many large cultural venues: institutional galleries, performance spaces and an arts centre. The provision of these facilities in Eixample and Melbourne CBD are predominantly attributed to smaller scale premises, particularly small art/design galleries. Cafes/Restaurants were prevalent in all case studies, with the highest provisions associated with higher densities in employment – this was the case for Coin Street, Battery Park, Melbourne CBD, Southbank and Long Beach.

Significant gaps in the provision of community infrastructure were evident in Bercy, Borneo-Sporenburg and Beddington Zero. These are predominantly residential developments that do not exhibit a high level of social infrastructure amenity. Southbank does not provide either a public library or sports facility. In relation to its residential density it offers a high degree of access to participation in cultural events.

Access to Social /Community Infrastructure: Social Services

Access to social services is low in most examples considering the residential densities recorded, with the exception of Mid Levels, with the same reason as discussed above. Further investigative research would be useful to break down the provision of medical services – Melbourne CBD records a high provision of medical facilities, however as the CBD of a state capital this is to be expected as it will provide a range of specialist services only found here within Victoria.



Access to Public Transport

All sites had access to at least two modes of public transport. With the exception of Beddington Zero, all case studies had access to three modes of public transport within a 10 minute walk.

Public transport is critical to achieving urban sustainability. It has been recommended that the population densities to support an urban transit centres are in the order of the following (refer Peter Newman's submission to the recent Garnaut Report):

- Viable Transit Centre – 10,000 people and jobs within a 1km radius (equates to 3.14km², that is 314 hectares). This translates to 32 people and jobs per hectare (gross).
- Regional Transit Centre – 100,000 people and jobs within a 3km radius (equates to 28.27km², that is 2827 hectares). This translates to 35 people and jobs per hectare (gross).
- Walking Oriented Centre – Over 100 people and jobs per hectare in the 1km pedestrian shed. This translates to residential densities of approximately 40 dwellings per hectare.

Newman suggests that the mix between residents and jobs is not critical in supporting public transport services as long as the threshold of 100 people and jobs per hectare is met. These are minimum thresholds only and increases in density above these levels will have a significant impact on the choice of transport mode. Densities below this level result in a sharp increase in car use, while densities above this level result in an exponential increase in the preference for walking, cycling and public transport as the preferred mode of travel. These increased densities therefore have a significant impact on the environmental sustainability of urban environments and should be pursued to achieve the best low fossil fuel outcomes.

Case Study	Dwelling Density	Employment Density	Bus		Train		Tram/Metro		Ferry	
			m	Min. Walk	m	Min. walk	m	Min. walk	m	Min. walk
Mid Levels, Hong Kong	118	45	-	-	-	-	1000	12	1200	15
Bercy, Paris	100	16	0	0	400	5	0	0	-	-
Borneo-Sporenburg	100	2.5	0	0	2000	25	0	0	0	0
Coin Street	100	300	0	0	400	5	400	5	400	5
Battery Park	100	830	100	1	200	2	-	-	200	2
Melbourne CBD	66	1255	0	0	0	0	0	0	800	10
Beddington Zero	50	10	0	0	600	7	-	-	-	-
Southbank	41	252	0	0	400	5	100	2	600	8
Long Beach	24	92	60	1	150	3	-	-	600	8

3.13.K COMMUNITY FACILITIES BREAKDOWN

KEY OUTCOMES: CONTEXT

The following table illustrates the performance of each of the case study examples in the Context category. The key outcomes that can be discerned from the study area:

- The provision of good amenity through the delivery of open space, community infrastructure and public transport was not directly related to density, however it was possible to discern the highest performing examples with Coin Street representing the best recorded outcome.
- Southbank was one of the two worst performers along with Borneo Sporenburg.

	POPULATION	DWELLING	CARS	CARS/DWELLING	EMPLOYMENT	OPEN SPACE	COMMUNITY/SOCIAL	PUBLIC TRANSPORT
01 EIXAMPLE, BARCELONA	351	230	140	0.6/🏠				
02 MID LEVELS, HONG KONG	308	118	15	0.1/🏠				
03 COIN ST, LONDON	200	100	20	0.2/🏠				
03 BORNEO SPORENBURG, AMSTERDAM	200	100	50	0.5/🏠				
03 BERCY, PARIS	200	100	50	0.5/🏠				
03 BATTERY PARK, NEW YORK	240	100	50	0.5/🏠				
07 MELBOURNE CBD	108	66	33	0.5/🏠				
08 BEDDINGTON ZERO, SURREY	100	50	12	0.2/🏠				
09 SOUTHBANK, MELBOURNE	58	41	41	1.0/🏠				
10 LONG BEACH, CALIFORNIA	50	24	24	1.0/🏠				

3.13.04 ESD

Water Source

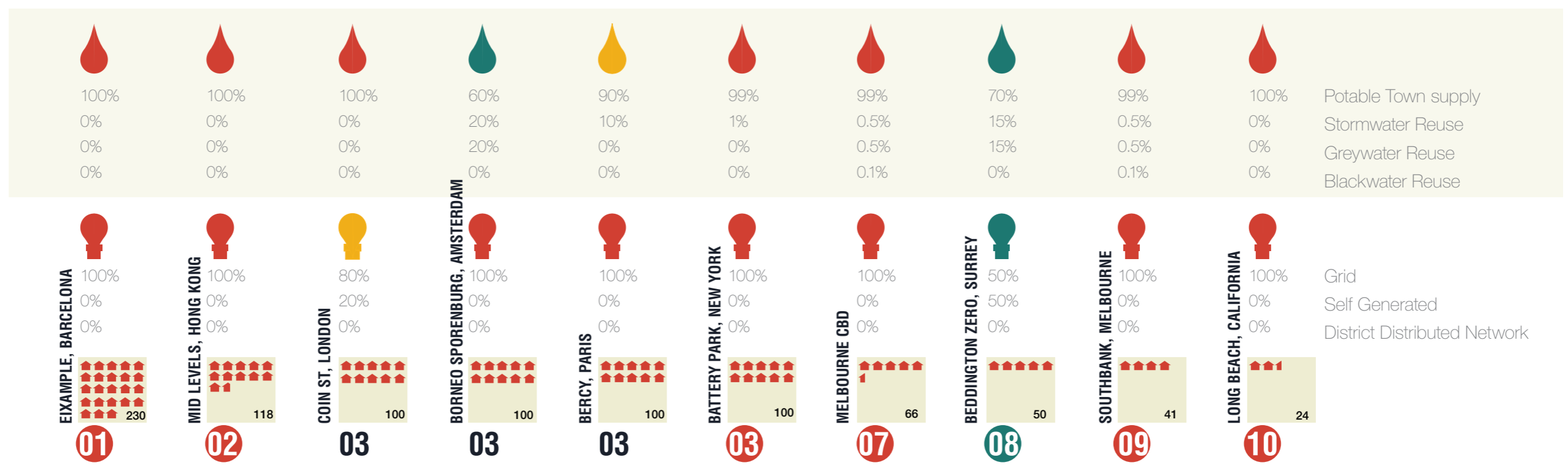
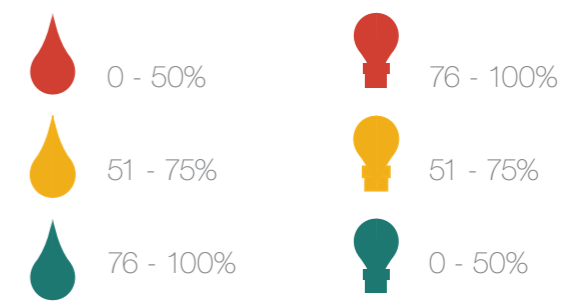
The majority of case studies relied on the potable water supply to service the development. The exceptions were Borneo-Sporenburg and Beddington Zero which only partly used other water sources. These figures reflect the fact that although there might be the odd development undertaking water capture and reuse, the majority do not.

- The residents of Beddington Zero use 50% less water than the local average.

Energy Source

The majority of the case studies relied on the energy grid to provide power requirements. The exceptions were Coin Street and Beddington Zero. Beddington Zero relied on a combination of solar and wind technology to generate energy demands.



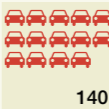














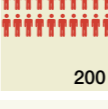



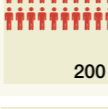




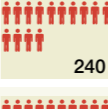





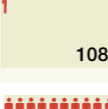











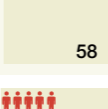

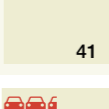

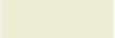

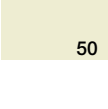
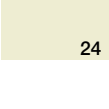
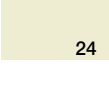



- The residents of Beddington Zero use 45% less energy than the local average. A biomass treatment plant is designed to service the development. This is yet to come online but is intended to replace all energy currently sourced from the grid.



KEY OUTCOMES: ESD

The following table illustrates the performance of each of the case study examples in the ESD category. With the exception of Beddington Zero no case studies recorded outstanding ESD results.

It is important to note that the ESD study was focused on the method of provision of water and energy supply and did not delve into the ecological performance of each city zone - for example water quality, air quality, microclimate or residential comfort.

	POPULATION	DWELLING	CARS	CARS/ DWELLING	EMPLOYMENT	ESD
01 EIXAMPLE, BARCELONA	 351	 230	 140	0.6/ 		
02 MID LEVELS, HONG KONG	 308	 118	 15	0.1/ 		
03 COIN ST, LONDON	 200	 100	 20	0.2/ 		
03 BORNEO SPORENBURG, AMSTERDAM	 200	 100	 50	0.5/ 		
03 BERCY, PARIS	 200	 100	 50	0.5/ 		
03 BATTERY PARK, NEW YORK	 240	 100	 50	0.5/ 		
07 MELBOURNE CBD	 108	 66	 33	0.5/ 		
08 BEDDINGTON ZERO, SURREY	 100	 50	 12	0.2/ 		
09 SOUTHBANK, MELBOURNE	 58	 41	 41	1.0/ 		
10 LONG BEACH, CALIFORNIA	 50	 24	 24	1.0/ 		

KEY PRINCIPLES

- 01 Higher is not necessarily denser
- 02 Too high leads to worse urban realm outcomes
- 03 Car parking requirements (numbers and their locations) are critical in achieving a high quality urban realm
- 04 Residential densities of 100+/ha and employment densities of 50+/ha are required to support social infrastructure
- 05 Look to Eixample, Barcelona and Coin St, London

	POPULATION	DWELLING		CARS	CARS/DWELLING	EMPLOYMENT		HEIGHT	CAR PARK LAYOUT	STREET INTERFACE	BUILDING ENTRANCES	OPEN SPACE	COMMUNITY/SOCIAL	PUBLIC TRANSPORT	ESD
01 EIXAMPLE, BARCELONA	351	230	230/HA	140	0.6/🏠	78/HA	8	●	●	●	●	●	●	●	●
02 MID LEVELS, HONG KONG	308	118	118/HA	15	0.1/🏠	45/HA	45	●	●	●	●	●	●	●	●
03 COIN ST, LONDON	200	100	100/HA	20	0.2/🏠	300/HA	9	●	●	●	●	●	●	●	●
03 BORNEO SPORENBURG	200	100	100/HA	50	0.5/🏠	2.5/HA	8	●	●	●	●	●	●	●	●
03 BERCY, PARIS	200	100	100/HA	50	0.5/🏠	16/HA	9	●	●	●	●	●	●	●	●
03 BATTERY PARK, NY	240	100	100/HA	50	0.5/🏠	830/HA	30	●	●	●	●	●	●	●	●
07 MELBOURNE CBD	108	66	66/HA	33	0.5/🏠	1255/HA	12	●	●	●	●	●	●	●	●
08 BEDDINGTON ZERO	100	50	50/HA	12	0.2/🏠	10/HA	3	●	●	●	●	●	●	●	●
09 SOUTHBANK, MELB	58	41	41/HA	41	1.0/🏠	252/HA	92	●	●	●	●	●	●	●	●
10 LONG BEACH, CA	50	24	24/HA	24	1.0/🏠	92/HA	30	●	●	●	●	●	●	●	●

3.14 Recommendations for the Southbank Structure Plan

There are some clear distinctions between the global precedent examples and the present Southbank urban conditions. For an urban suburb located within 400m of the Melbourne CBD, Southbank residential densities are considerably low. The site layout, built form and urban context that generates these densities is categorised by particular characteristics that compromise the densities and livability of Southbank.

These were most marked in the following criteria and recommendations to address each of these shortfalls are provided below.

Open Space

While Southbank incorporated the equal highest area of open space (50%) and the highest area of public open space (45%) the greatest portion of this area is dedicated to road infrastructure and not available as community active or passive recreation areas.

The Southbank study area incorporates only 5% of community open space. This is associated with one development and does not therefore contribute significantly to informal or spontaneous interactions between the residents across the site. Spaces for shared residential uses are typically provided within upper floors of residential towers – for example communal gym facilities/lap pool. There is a distinct lack of green open space.

Recommendation:

- Increase the extent of public open space dedicated to active and passive recreational community uses; and
- Encourage developments that incorporate shared communal open spaces to more effectively encourage interaction between residents in new developments.

Car Parking and Street Interface

Southbank recorded one of the worst public realm outcomes with a minimum of 80% of car parking located at ground level or in upper level car parks (incorporated into high-rise podiums). This results in a significant reduction in casual visual surveillance of the street both at street level and from the overlooking vantage points provided from upper floors. It also decreases the visual interest for pedestrians through the provision of largely inactive edges to the building frontages.

Recommendation:

- Reduce car parking requirements for all new developments in Southbank; and
- Develop residential edges to multi deck car parking or encourage basement provision.

Building Typologies and Heights

Southbank represented the greatest divergence in building typologies from the other 9 case study sites. In Southbank, 90% of the residential buildings were tower apartments with only 10% provided as Mid-rise apartments. A relationship between densities and heights was not evident as Southbank recorded a low average residential density. Southbank had the tallest building by 62 storeys. The footprint of this building is significant and the impact that it has on the surrounding urban environment is detrimentally affecting the quality of the urban realm.

Recommendation:

- Tower apartments are effective at achieving high densities. They have however, a significant impact on the public realm and the livability of urban environments. To achieve higher levels of density it is recommended that the Southbank Structure Plan Stage 2 consider the efficiencies of density that can be achieved with lower building typologies – in particular mid-rise apartments which can achieve densities in the order of 100-235 dwellings per hectare.

Building Entrances and Street interface

Southbank recorded a much coarser grain of development than Melbourne CBD and the European case studies. Southbank, Long Beach and Battery Park (USA examples) all had the majority of building entrances greater than 10 metres apart. This provides less opportunity for more complex and interesting experiences within the urban realm and inhabitants and visitors have to travel much further to access the same number of premises. The relationship between the tower apartment typologies and the coarser grain suggests that alternative built form scenarios would deliver a much richer, more interesting urban experience to Southbank.

Southbank also provided a generally poor and inconsistent interface to the street with only 20% of the building frontage to the street recorded as an active or positive edge. A large percentage – 45% - was recorded as an active ground interface with inactive uses above – typically car parking as discussed above. Similarly, a significantly larger than average percentage was recorded as inactive. This has a significantly detrimental effect on the experience of the public realm. It establishes Southbank as a less stimulating place with less visible human activity which reduces the attractiveness of the area to further public life.

Recommendations:

- Encourage building typologies with smaller footprints to provide a greater density of entrance points to different premises and a finer grain of urban development; and
- Discourage blank and inactive interfaces to the street scape. The City of Melbourne's planning controls for the CBD recommend a minimum 85% active interface to the street but with an additional requirement for entrances at finer grain than 10m.

Access to Social /Community Infrastructure: Education

Southbank recorded a distinct gap in the provision of childhood education with no primary or secondary school in the area.

Recommendation:

- Establish local schools which can support the residential population.

Access to Social /Community Infrastructure: Community Facilities

Southbank lacks community public facilities such as a sports centre or public library. An increase in the provision of these facilities would significantly increase the livability of the area. A range of community services should be assessed.

Recommendation:

- Establish new public community facilities to service the existing and future residential populations.

Access to Social /Community Infrastructure: Social Services

Southbank had the lowest provision of social services within the case studies with no medical or child care services provided.

Recommendation:

- Establish new social service facilities to service the existing and future residential populations.

Access to Public Transport

While Southbank exceeds the minimum density thresholds to services a transit centre, with only 58 residents people per hectare, it is reliant on its employment population to support any transport service. This will affect the capacity of the residential population to support transport services in non-peak times.

Recommendation:

- Increase residential densities to better support existing and future public transport infrastructure requirements.

ESD

With the exception of Beddington Zero, most case studies performed poorly in the environmental categories that tested water and energy source supply. From the information provided in the case study it is not possible to draw any conclusions about the densities required to achieve environmentally sustainable developments. Beddington Zero achieves 62 dwellings per hectare, however the proposed plans for the carbon neutral MASDAR initiative currently in development in Abu Dhabi is aiming to deliver 140 dwellings/hectare. The greater the density the more economical it is to deliver the assets required to achieve carbon and water neutrality such as solar parks, biomass plants of wastewater treatment plants.

Recommendation:

- Southbank could significantly change its carbon footprint and water requirements by putting into place initiatives to draw energy from sustainable resources or to capture or reuse and stormwater, grey water and waste water that exits the site.





DRAFT

04

Utilities Capacity Review

BACKGROUND REPORT
SOUTHBANK STRUCTURE PLAN



4.0 Contents of the Utilities Capacity Review

4.1 Introduction to the Utilities Capacity Review

4.2 Electricity Infrastructure

4.3 Gas Supply Infrastructure

4.4 Water Supply Infrastructure

4.5 Sewer Infrastructure

4.6 Stormwater Infrastructure

4.7 Conclusions to Capacity of Utilities in Southbank

4.1 Introduction to the Utilities Capacity Review

Cities consume significant quantities of resources and have a major impact on the environment, well beyond what can be managed within their borders (Melbourne Principals for Sustainable Cities, 2002). These unsustainable trends need to be curbed and reversed. The Structure Plan for Southbank presents the opportunity to assess the infrastructure capacity of the suburb and consider a sustainable future.

To transform Southbank into a sustainable city there needs to be a fundamental redesign of the processes in place to deliver urban design, technology, infrastructure systems, transport, buildings and behaviour change outcomes. To realise the ambitious goals of eco-city in the review of the Southbank Structure Plan, an initial understanding of the current capacity of the infrastructure within Southbank was required. This involved locating, mapping and providing a high level review of the current capacity of the utilities located in Southbank.

This analysis is focused on the electricity, gas, water supply, stormwater and sewer 'service mains' that form the backbone of the utility services network. The study examines the interaction of the utility infrastructure and the systems they connect into. The majority of streets also have smaller 'reticulation mains' that are used to service each individual property, however, that level of detail is beyond the needs of this investigation.

There are two key aspects of demand on a utility service: peak demand and annual demand. The peak demand is a short term peak (e.g. peak hourly) that is used to design the size and pressure of the utility network. The annual demand has minimal effect on systems sizing. To avoid infrastructure upgrades, utility companies manage loads to meet the peak demand while working within the existing capacity of the infrastructure (peak balancing options).

The utility services were investigated in collaboration with the service authorities. A list of these utilities is provided in Table 1.

The 'service mains' within Southbank benefit a wide area, extending beyond the Southbank region into other adjacent suburbs and crossing

over municipal boundaries. While the capacity of the utilities and the impact of future development have been explored, the interconnection of these services to surrounding suburbs will alter the capacity of the services.

SERVICE UTILITY	ASSET MANAGER
ELECTRICITY	CITIPOWER
GAS	MULTINET (JEMENA)
WATER	SOUTH EAST WATER
STORMWATER	CITY OF MELBOURNE AND MELBOURNE WATER
SEWER	SOUTH EAST WATER

Table 1 Service Utilities and Asset Managers

4.2 Electricity Infrastructure

The Victorian electricity network is divided into three sections:

- Generation;
- Transmission (and Subtransmission); and
- Distribution.

The transmission and subtransmission system delivers power from the generating centres to the major load centres via terminal stations and zone substations. The distribution system then accepts power from the zone stations and distributes it to the final consumers. As illustration of the system flow of the Victorian electricity network service is provided in Figure 4.2.1. This report will focus on the distribution section of the electricity supply network.

CitiPower is the responsible authority for maintaining and operating the electricity distribution and subtransmission network within Southbank.

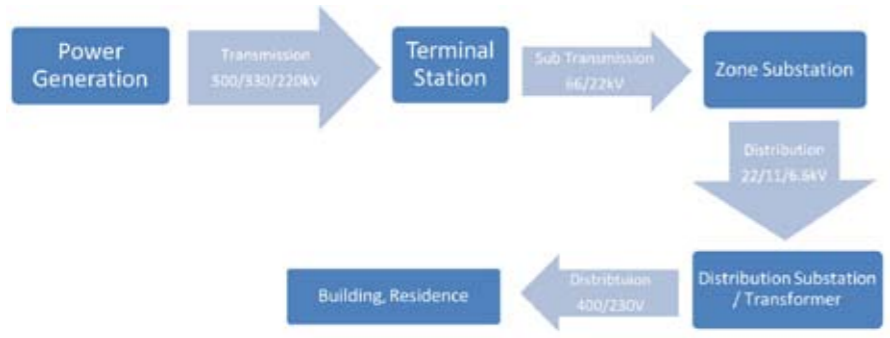


Fig 4.2.1 Overview of Victorian Electricity Network Service

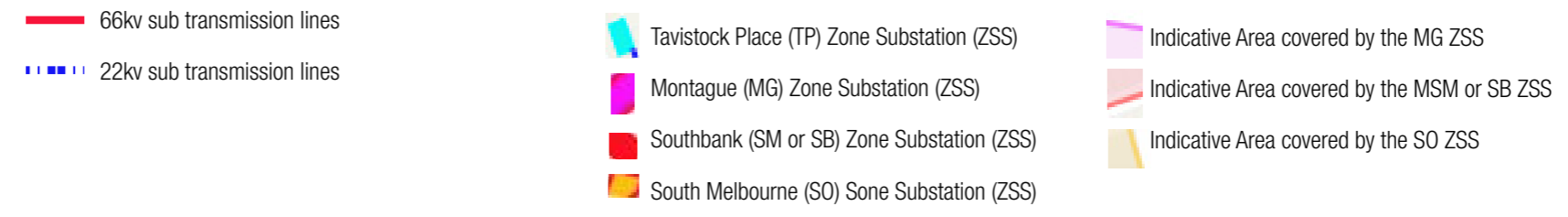
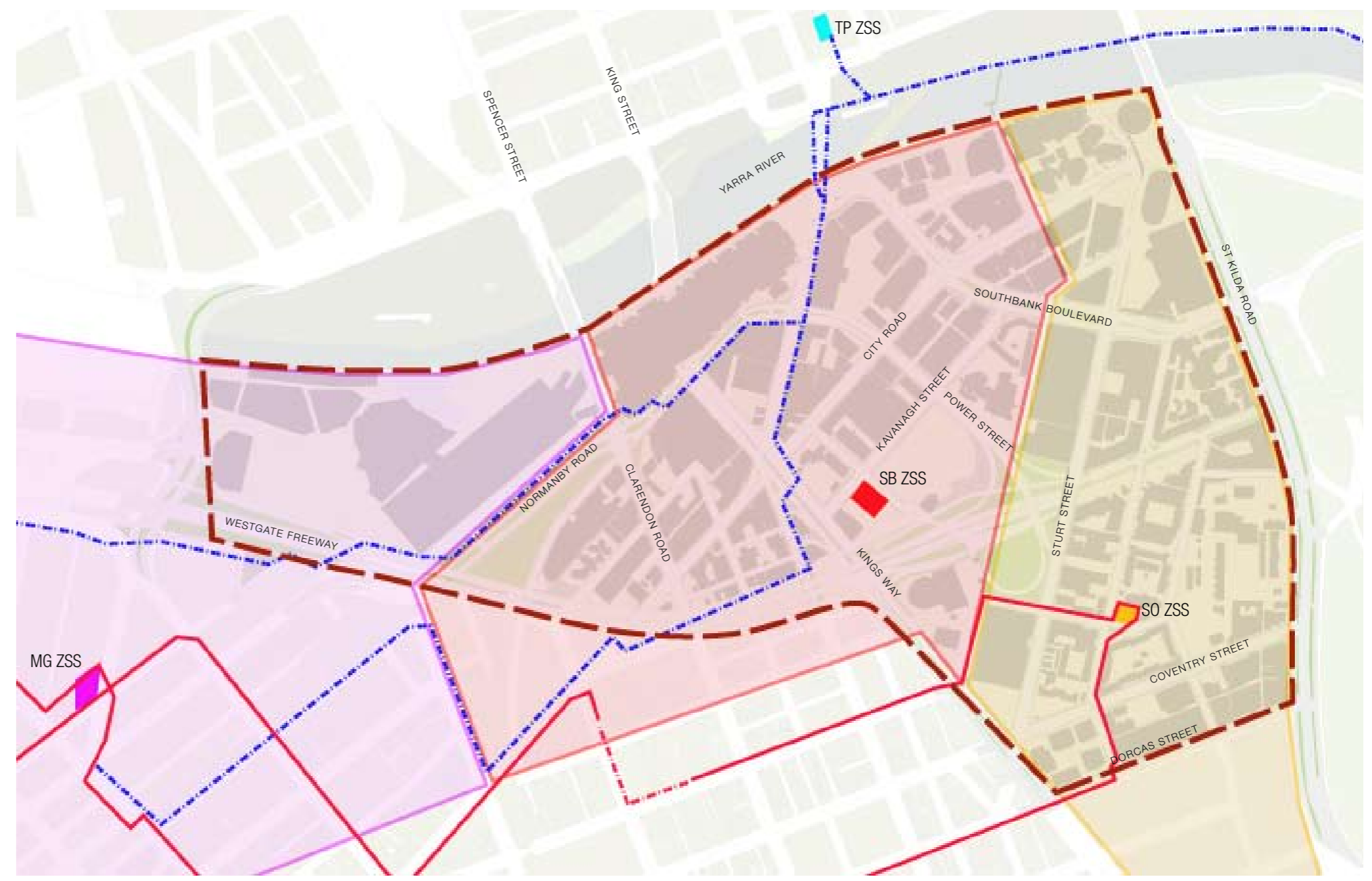
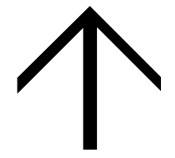


Fig 4.2.2 Location of Zone Substations and Indicative Supply Areas

0m 100m 200m 500m Scale 1:10,000 (At A3)



Zone Substations

The Southbank Precinct is broadly supplied by three 66kV/11kV zone substations (ZSS):

- South Melbourne (SO) – corner Miles and Dodds streets Southbank;
- Montague (MG) – corner Munro and Johnson streets South Melbourne; and
- Southbank (SM or SB) – corner Kavanagh and Balston streets Southbank.

The Albert Park (AP), West Gate (WG), Docklands (DLF), Flinders-Ramsden (FR) and Mcillwraith Place (MP) zone substations and Richmond Terminal Station (RTS) also supply electricity into the Southbank Precinct.

The three main zone substations are supplied via 66kV ring sub transmission lines from the Fishermans Bend Terminal Station. The SM ZSS is currently decommissioned and is to be replaced at the same location by a new zone substation (SB) in 2011. When commissioned, the SB ZSS will be on the same sub transmission ring as the SO ZSS. The MG ZSS shares its sub transmission ring with the Albert Park (AP) ZSS. A 22kV sub transmission line also runs through the Southbank area to the Tavistock Place (TP) ZSS in the CBD. The indicative location of the zone substations is visually represented in Figure 4.2.2.

Distribution Feeders

From the zone substations power is reticulated through the Southbank Precinct via a combination of overhead and underground 11kV distribution feeders. The distribution feeders connect to numerous 11kV/415V distribution substations that then supply power to the consumer. Some larger consumers take their power at the higher 11kV voltage. Figure 4.2.3 shows the indicative locations of the distribution feeders through the Southbank Precinct.

As well as supplying power to the Southbank Precinct there are several ZSS that supply electricity to areas outside Southbank. For example the Montague substation, while located outside of the study area, feeds electricity into the study area. The indicative location of the electricity supply lines, referred to as distribution feeders, within Southbank are visually represented in Figure 4.2.3.



— indicative Location of High Voltage Distribution Feeders

- Tavistock Place (TP) Zone Substation (ZSS)
- Montague (MG) Zone Substation (ZSS)
- Southbank (SM or SB) Zone Substation (ZSS)
- South Melbourne (SO) Zone Substation (ZSS)

0m 100m 200m 500m Scale 1:10,000 (At A3)

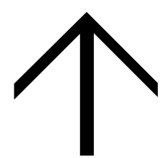


Fig 4.2.3 High Voltage Distribution Feeders

Electricity Capacity

As actual electricity demand varies with ambient temperature, CitiPower uses a 50th percentile method when forecasting demand. This means that the actual demand for any year has a 50% probability of being higher than the 50th percentile forecast. Therefore the 50th percentile forecast can be considered the most likely level of demand.

CitiPower design the electricity network to an N-1 standard. This means an allowance is made in the system for planned or unplanned removal from service of any line, such as the transformer or circuit breaker, at the time of 50th percentile maximum demand loading.

As the electricity infrastructure supplies an area which extends beyond the Southbank precinct, the capacity data provided is not necessarily limited to the Southbank area, as depicted in Figure 4.2.4.

Zone Substations

Currently the SO ZSS is exceeding its N-1 capacity by 2.2% and the MG ZSS is loaded to 94% of its N-1 capacity. It should be noted that the Southbank area only takes up a small proportion of the total supply area for the MG ZSS so the 6.0% N-1 spare capacity is not limited to increases in load in the Southbank area.

Of the zone substations that supply minimal power into the Southbank Precinct the AP and WG ZSS are running at 113% and 50% of their N-1 capacities. The availability of supply from the other remaining ZSS is dictated more by the capacity in its distribution feeders to the area rather than the capacity of the ZSS itself.

With the commissioning of the new SB ZSS in 2011 to replace the old SM ZSS, the overload on the SO ZSS is mitigated. The SB ZSS will add an additional 65 MVA to the electricity supply capacity in the area. Once commissioned and subsequent load transfers are in place, it is forecasted that the MG, SO and AP ZSS will be loaded to 82%, 68% and 104% of their respective N-1 capacities. By 2012 it is forecasted that the SO, SB and MG zone substations will have an



- Indicative location of Feeder lines less than 50% capacity
- Indicative location of Feeder lines between 50% and 75% capacity
- Indicative location of Feeder lines between 75% and 100% capacity
- Indicative location of Feeder lines over 100% capacity

- Tavistock Place (TP) Zone Substation (ZSS)
- Montague (MG) Zone Substation (ZSS)
- Southbank (SM or SB) Zone Substation (ZSS)
- South Melbourne (SO) Zone Substation (ZSS)

Fig 4.2.4 Current Capacity of High Voltage Distribution Feeders

0m 100m 200m 500m Scale 1:10,000 (At A3)



available capacity of 40.4 MVA between them. The WG ZSS offers a further 25.3 MVA however this is limited by the capacity of the distribution feeders into the area.

The installation of new zone substations and distribution substations is difficult due to the limited space available in the area. New developments may need to consider the location of a distribution substation within the site or building.

Distribution Feeders

Eight of the distribution feeders are loaded up to or in excess of their planning rating. The planning rating allows for load transfers during contingencies. The actual capacity of the line is greater. The overload of these feeders is mainly an issue with new loads coming onto the system. New loads will need to be addressed on an individual basis. With the commissioning of the SB ZSS in 2011 it is unknown at this stage how the loading of the distribution feeders may change. This will be assessed by CitiPower in 2010. It should be noted that distribution feeders identified may supply power to buildings both inside and outside the Southbank area. The indicative location of the current percentage loadings of the distribution feeders through the Southbank area is represented in Figure 4.2.4

Electricity Resource Consumption

Electricity consumption data for the Southbank precinct has been provided by City of Melbourne, who sourced the information from electricity retailers. The data is based on tariffs for areas covered by the 3006 postcode. The total electricity consumed with Southbank for financial year 2007/08 was 499,003,601 kWh. A breakdown of these values is provided in Table 2.

The tariff classification listed in Table 2, is not an accurate reflection of the customer base and cannot be used for analysing energy consumption. For example the residential tariff identifies less than 3,000 meters in service, which could be translated to 3,000 residential dwellings within Southbank. However, actual number of residential dwellings is 6,508, a difference of approximately 3,500 (CLUE, 2009). Hence the tariff classifications are not a true reflection of the actual number of businesses or residential dwellings.

Impact of Future development

In the short term there is limited spare capacity in the zone substations. Spare capacity in the area will be increased in 2011 with the commissioning of the new SB ZSS and the subsequent re-distribution of the zone substation loadings.

A significant proportion of the Southbank area is supplied by overloaded distribution feeders. Each new load in the area will need to be addressed on an individual basis. It is unknown at this stage how the feeder loadings will change with the commissioning of the SB ZSS. The nature and time of any network modifications required will not be known until CitiPower has completed their assessment (planned for 2010).

The Southbank Structure Plan offers the opportunity to plan for future demand management of electricity and the infrastructure required to service this need in a resource efficient manner. Several areas of consideration may include:

- Addressing the significant number of overloaded distribution feeders on a collective basis, avoiding the current approach which is on an individual basis;
- The spare capacity that will be introduced in 2011 with the commissioning of the new SB ZSS;
- Holding over land for the future development of additional ZSS within Southbank; and
- Reduce network augmentation and hence reduce the need for future ZSS upgrades.

TARIFF CLASSIFICATION	NUMBER OF METERS IN SERVICE (NMIS)	TOTAL PEAK ELECTRICITY (kWh)	TOTAL OFF PEAK ELECTRICITY (kWh)	TOTAL ELECTRICITY (kWh)
HIGH VOLTAGE	6	148,448,262	256,111,931	398,560,193
LARGE LOW VOLTAGE	25	26,362,335	25,083,106	51,445,441
NON-RESIDENTIAL	210	15,153,395	10,447,542	25,600,937
RESIDENTIAL	2,949	18,203,557	5,193,473	23,397,030

Table 2 Electricity consumption for FY 2007/08, source: City of Melbourne (2009)

4.3 Gas Supply Infrastructure

The distribution of gas within the Southbank region is undertaken by MultiNet Gas, a Victorian gas distribution business created when the State Government owned Gas and Fuel Corporation of Victoria was corporatised and subsequently privatised in the 1990's. There are different elements of the supply chain that deliver natural gas to Southbank. The pressure transmission pipe network is the backbone of the gas network that delivers gas to downstream reticulated pipe networks. The gas is distributed to most consumers through these downstream reticulated pipe networks which operate at various lower than transmission pressures, typically via smaller diameter pipes than those of the transmission pressure systems.

MultiNet Gas has an extensive gas pipe network covering Southbank with transmission and high pressure distribution pipes as shown in Figure 4.3.1. The transmission pressure pipes run north south through the precinct and also service municipalities on both sides of Southbank. The high pressure pipes are fed from the transmission pipes at their connection points and are distributed throughout Southbank to provide coverage. For clarity, the extensive reticulation pipe network which exists in all streets to provide gas supply to all properties is not shown.



Fig 4.3.1 Gas Pipe Locations

Gas Supply Capacity

The ability to provide additional capacity within the Southbank precinct is not constrained by a practical or technical 'cap'. Augmentations of upstream facilities and additional main laying would accommodate any reasonably conceivable amount of additional natural gas load required, including multiple centralised co-generation plants.

- The low pressure reticulated gas network is not planned to be upgraded by replacement to high pressure in the foreseeable future unless load applications warrant an upgrade;
- The area is generally regarded as a high cost construction zone on account of the levels of reinstatement, traffic management and other asset congestion in the ground;
- The low pressure reticulated gas network has no unutilised capacity; and
- The high pressure reticulated gas network has minimal unutilised capacity in most areas.

Current Gas Consumption

Gas consumption data for the Southbank precinct has been provided by the gas distribution company for the area, MultiNet. The values are based on the 3006 postcode, however part of the data:

- Includes an area west of the Convention Centre, which is not part of the Southbank region. considered. MultiNet has estimated that this may consume 5% of the load across the complete postcode over a year; and
- As the post code boundary is located to the back of the St Kilda Road properties, the gas consumed by these properties is not included.

As the St Kilda Road properties have not been accounted for, no adjustments to the values provided by MultiNet have been made. The values for 2007 and 2008 calendar years are provided in Table 3.

YEAR	Q1 (TJ)	Q2 (TJ)	Q3 (TJ)	Q4 (TJ)	ANNUAL (TJ)
2008	18.3	41.5	52	24.9	136.7
2007	18.1	41.1	51.4	24.6	135.2

Table 3 Annual Gas Consumption, source: MultiNet (2009)

4.4 Water Supply Infrastructure

South East Water (SE Water) is the responsible authority for supplying potable water to Southbank and managing and maintaining the water supply networks within the precinct. The key infrastructure consists of pipes and valves. SE Water purchase water from the Victorian government's water wholesaler, Melbourne Water, who are responsible for managing water catchments and dams, treating the water and operating the larger water mains feeding the SE Water mains.

The main source of water supply for the Southbank Precinct is the 600mm diameter pipeline that traverses the area and originates from the north, across the Yarra River, to link with a 900/750/600mm diameter pipeline located in Punt Road to the south. The 600mm diameter pipeline, which has an estimated overall capacity of 85 ML/d, currently supplies the CBD (part), Southbank, South Melbourne and Port Melbourne.

City West Water is responsible for the distribution system north of the Yarra River and Melbourne Water owns the transfer pipeline in Punt Road. SE Water has an extensive water main network, several kilometres of pipes in varying diameters servicing Southbank. A map showing the extent of coverage in Southbank is represented in Figure 4.4.1.



Fig 4.4.1 Water Supply Locations

Water Supply Capacity

The capacity constraint that could be caused by extensive growth within Southbank and the surrounding areas has the potential to be partly solved by methods beyond the current conventional water supply means. Alternative water supplies and a reduction in demand on water would free up capacity in the network.

Further detailed investigation will be required to determine the current ceiling capacity of the water supply infrastructure. SE Water has conducted a preliminary investigation based on a scenario of 40,750 additional residential dwellings within Southbank. Results from the high level analysis indicate that the existing distribution system will not have sufficient capacity to meet this future demand. Local augmentation could permit short to medium term development within the Precinct, however indications are that an alternative source of supply will be required to service long term forecast growth of this magnitude. The preliminary investigation shows that the local distribution has some spare capacity but not sufficient to supply 40,750 additional residential dwellings.

Current Gas Consumption

Total potable water consumption values for the 2006 and 2007 calendar year have been provided by South East Water and are listed in Table 4. From 2007 to 2008 there was a drop in water consumption by over 100,000 kL. This is largely attributable to the City of Melbourne's sustainable water management initiatives as outlined in Total Watermark, City as a Catchment.

YEAR	Q1 (kL)	Q2 (kL)	Q3 (kL)	Q4 (kL)	ANNUAL (kL)
2008	379,188	425,950	543,199	435,698	1,784,035
2007	457,563	471,409	528,951	445,504	1,903,427

Table 4 Mains Water Consumption, source: South East Water (2009)

4.5 Sewer Infrastructure

South East Water (SE Water) manages and maintains an extensive sewer pipe network servicing the Southbank area. Sewage systems consist of an extensive pipe network along most roads with occasional pumping stations and finally discharging to a sewage treatment plant. There are no treatment plants under SE Water's authority within the Southbank precinct. Melbourne Water is the responsible authority of the main sewers located outside of the Southbank precinct.

Within Southbank there is a pump station within the Crown Casino complex, three main branch sewers receive flows from an extensive reticulation network. Located just outside the boundary to the south east and west are two main sewer networks operated by Melbourne Water that receive flows from SE Water's branch sewers. The SE Water sewer network discharges into Melbourne Water's sewers, the Melbourne main sewer and South Yarra main sewer, located outside the precinct. Some private dwellings in Southbank may operate small scale black or grey water treatment systems, however, the exact numbers and types are unknown at this point in time.

The sewer plan only shows the 'branch sewers' and 'sewer mains' which are considered to be the 'service mains' however the property connections are serviced by an extensive 'reticulation main' network along the majority of streets which is not shown for clarity reasons. A map of the sewer network is provided in Figure 4.5.1.



Fig 4.5.1 Sewer Pipe Locations

Sewer Capacity

An increase in sewer flows due to an ultimate development scenario in Southbank will require SE Water's branch sewers to be significantly upsized along with extensive upgrades to the reticulation system feeding the branch sewers. Information on the capacity is based on 2005/06 data - both loadings and future growth projections have changed since then.

- South East Water has investigated its branch sewer mains which are located in Hanna Street, Wells Street and Normanby Road;
- The Hannah Street and Wells Street sewer mains currently have very limited capacity available for further development, with upgrades planned for later in the Water Plan period;
- The Normanby Road branch sewer main has sufficient capacity to meet growth projections, however, based on the projections within the precinct structure plan augmentation works will be required; and
- The Melbourne Water sewer mains (South Yarra sewer main and Melbourne Main sewer) that receive flows from the South East Water mains have some spare capacity to receive extra flows from increased development.

Melbourne Water is replacing a section of the existing Melbourne Main Sewer. The new main sewer will travel approximately 2.3km from Docklands, crossing the Yarra River upstream of the Charles Grimes Bridge, and into Port Melbourne. During the project, approximately 2.5km of new local branch and reticulation sewers will be constructed to reconnect the existing local sewers into the new Melbourne Main Sewer. Six vertical access shaft sites will be located along the route of the new sewer, with one of the shaft sites located within Southbank at South Wharf: South bank of Yarra River. The project is due for completion by 2012.

Current Sewer Volumes

The rate at which the wastewater is produced mirrors the rate of water consumption. The total difference in yearly flows between the two sources is approximately 300,000 kL per year or 15%. This difference is likely to be from water used to irrigate parks and gardens. Waste water volumes are provided in Table 5.

Impact of Future development

Any sewer harvesting/recycling will have the potential benefit of freeing up capacity in the network, however the preference is often to sewer mine downstream in catchments to get suitable volumes, it is not immediately obvious that sewer mining would free up capacity within the study area. This has the potential to benefit developers and rate payers by providing an opportunity to avoid the cost of service system upgrades. The size of the sewer mining systems will determine whether their implementation will delay required upgrades as opposed to avoiding upgrades within the system.

Improvements in water use efficiency have resulted in decreased dry weather flows, while shorter more intense storms resulting from climate change are expected to increase wet weather flows in the upstream reaches of sewer catchments. These impacts combined should be considered when assessing the long term viability of sewer mining opportunities.

YEAR	Q1 (kL)	Q2 (kL)	Q3 (kL)	Q4 (kL)	ANNUAL (kL)
2008	327,348	367,517	454,619	359,203	1,508,687
2007	394,791	399,193	441,331	373,043	1,608,357

Table 5 Wastewater Volumes, source: South East Water (2009)

4.6 Stormwater Infrastructure

Stormwater in the Southbank precinct is captured in the drainage system and discharged into the Yarra River where it eventually flows into Port Phillip Bay. Melbourne Water is responsible for managing the larger stormwater drains in Southbank, which is part of an extensive network covering the Port Phillip and Westernport catchment, made up of over 1,200 kilometres of stormwater drains. City of Melbourne, as the council within Southbank, is responsible for the local stormwater drains, road networks and street and property drainage that feed into the larger stormwater drains and into the Yarra River.

Within the Southbank area there is a pump station located within the Crown Casino complex and extensive drainage network that discharges into the Yarra River. The larger drains are part of a larger catchment that extends beyond Southbank draining areas of the City of Port Phillip. As such the water quality and flow are partly under the control of the City of Port Phillip. A map of the stormwater network is provided in Figure 4.6.1



Fig 4.6.1 Stormwater Pipe Locations

Stormwater Capacity

The stormwater pipe network is commonly sized for the smaller 'minor storm' rainfall event. 'Major storm' rainfall events will normally exceed the capacity of the pipe network and flow overland. The Melbourne Planning Scheme-Land Subject to Inundation map shows the area where overland flood flow will occur. Refer to Figure 1.5.1 for the map of the flooding inundation. The stormwater network is an interconnected system affected by the capacity of the surrounding drainage network.

Part of the City of Melbourne drainage network connects into the Melbourne Water drainage network, hence the dependence of that part of Council's drainage network on the capacity of the Melbourne Water drainage network. The Kings Way part of the Melbourne Water drainage network has no spare capacity at this stage, and there are currently no plans for it to be upgraded.

City of Melbourne has limited information on the capacity of the drainage network however their experience suggests that parts of the drainage network in the surrounding 'low lying' areas have no spare capacity.

Due to the drainage pipe network discharging to the Yarra River, the capacity of the network would be reduced by a rise in river water levels associated with sea level rise. Under potential climate change scenarios which may cause rising sea levels and an increase in intense storm activity, an increase in flooding in areas with no spare drainage capacity may occur.

Impact of Future development

To maintain water quality in respect to future development, Melbourne Water has implemented new drainage standards to minimise the environmental water quality impact of stormwater run-off into rivers and creeks. This involves older urban areas being 'retrofitted' with stormwater treatment measures where physically possible and cost effective (Melbourne Water, 2009).

The wider catchment of the Melbourne drainage network is highly developed (mostly covered by roof and paved surfaces with minimal parkland). Any increase in development is expected to have minimal impact on the percentage of rainfall runoff. Consequently, the peak flow rate or total volume of rainfall runoff will not be increased and it will not add any extra flow into the pipe network.

The Melbourne Planning Scheme-Land Subject to Inundation shows that land in the Kings Way area is subject to inundation from the 1% Annual Exceedance Probability (AEP) major storm event. Any increased development is expected to have minimal impact on the extent of inundation. Building floor levels for new developments are required to be set above the flood level in accordance with City of Melbourne requirements.

Stormwater harvesting systems are typically designed to harvest the numerous smaller rainfall events and therefore will have minimal impact on the peak flows of the 'minor' and 'major' storm events, so will do little to free up capacity in the drainage network. While harvesting stormwater will have minimal affects on the drainage network capacity, there are the broader benefits that can be gained from stormwater harvesting, such as reducing constraints in the water supply network, benefits to the Yarra's health, opportunities to irrigate green spaces and general reduction in pressure placed on other water resources.

4.7 Conclusions to Capacity of Utilities in Southbank

Overall, the utilities capacity in Southbank meets current demand in the network with the exception of parts of the electricity grid and the low lying stormwater drainage network. However, any significant increase of demand through new development will require an upgrade or overhaul of the entire utilities network.

Electricity Supply

The electricity network in Southbank is in the short term supplied by a significant proportion of overloaded distribution feeders. CitiPower are planning a new substation upgrade at Southbank (SB), due for commissioning in 2011. The capacity of the network will increase at that point although the amount increase has not been determined.

Gas Supply

The gas supply is a more flexible network than electricity with simple laying of pipe and increasing pipe size (and pressure) to supply additional demand.

Water Supply

The water supply network is multifaceted and comprised supply to the local network and wider water supply issues. The local network services demand in Southbank under capacity however a significant increase in demand will require an upgrade to the local water pipe network. The wider network is more problematic as, prior to the desalination plant coming online, water reserves are decreasing year on year in the greater Melbourne catchment. There is therefore need to reduce consumption as well as guarantee supply in the short term. Table 4 shows the decrease in 2008 compared to 2007 levels of consumption attributable to the City of Melbourne's sustainable water management initiatives.

Sewer Infrastructure

The sewer network currently services Southbank within its capacity. With any significant additional demand this will require a major up sizing of the reticulation system feeding the branch sewers, in particular the Hannah and Wells Street sewers that are currently reaching capacity.

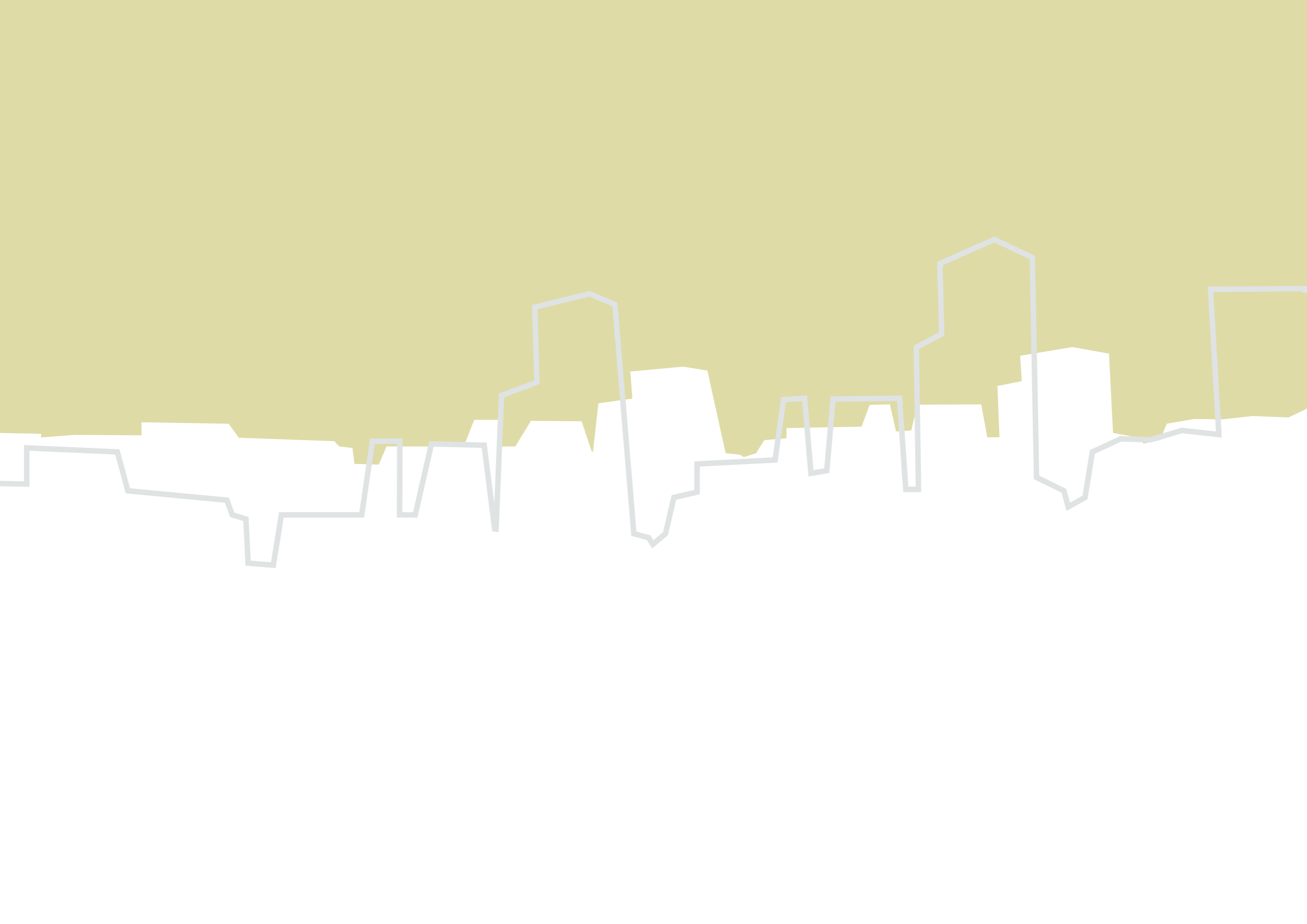
Stormwater Infrastructure

The existing stormwater pipe network is sized to cope with 'minor storm' rainfall events. 'Major storm' events will normally exceed the pipe capacity and flow overland. Although there are no figures supporting this, anecdotal evidence suggests there is no capacity in the low lying drainage network. Due to the pipes discharging into the Yarra River, this network capacity will be reduced by sea level rises. Under potential climate change scenarios, sea level rises combined with more frequent 'major storm' events will increase flooding in areas with no capacity such as low lying areas.





05 **The Vision for Southbank**
BACKGROUND REPORT
SOUTHBANK STRUCTURE PLAN



5.0 Contents of the Vision for a Sustainable Southbank

- 5.1 Key Issues Overview
- 5.2 The Vision Workshop
- 5.3 The Vision for a Sustainable Southbank
- 5.4 The Objectives for a Sustainable Southbank

5.1 Key Issues Overview

This Background Report has been compiled using primary research and summaries of current, draft and previously adopted research. The process has involved site visits, consultations with various State and Local Government departments and internal creative reviews undertaken by AECOM.

The process also involved two formal workshop sessions. The first, attended by representatives of the City of Melbourne, Department of Planning and Community Development and Vic Roads identified the key issues these departments have been grappling with in Southbank over the last 10 years. The second workshop also included representatives from Sustainability Victoria, Monash University and other key thinkers in the industry to consider what is meant by a 'Sustainable Suburb' and how that applies specifically to Southbank.

The output of this workshop was a Vision and a set of objectives to test scenarios in Southbank Structure Plan and to continually assess Southbank leading into its future.

Negative Issues Overview

The key issues coming out of each section provide a high level of understanding of Southbank, how it arrived at this point and what components of the suburb do not function as a well rounded suburb should:

Issue 1: Southbank's community is not well serviced

The analysis undertaken in Chapter 1 and 2 clearly identify major omissions in the provision of community facilities, spaces and places to encourage communities and diversity. The combined negative effects of coarse urban grain, low levels of active edges and variety of frontages, little public space, narrow pavements, poor legibility and no local heart to the suburb create a place without character, activity or soul.

Issue 2: Southbank is a car dominated location

Strategic regional and city status roadways with a high level of freight movement through Southbank has led to a suburb separated by major road infrastructure. This in turn affects the environmental condition of Southbank. Additionally, the extensive car parking provision actually exacerbates Southbank's 'environmental condition' and being mainly above ground, degrades streetscapes.

Issue 3: Southbank does not serve the environment well

Southbank contains a 95% hard surfaced land mass. It lacks green spaces, water sensitive streetscape, sufficient tree coverage and shade. In fact, Southbank generates its own heat through the UHI effect which cannot be dissipated in the warmer months. At this point it is highly vulnerable to the negative effects of climate change.

Issue 4: Southbank lacks clear governance

The dual governance by the City of Melbourne and DPCD can/ has created conflicts with the interpretation of the planning scheme and provides a lack of clarity for developers

Positive Issues Overview

Although the negative aspects of Southbank currently outweigh the positive, there are still components of the suburb that function well. These are generally isolated to the northern and eastern edges.

Issue 5: Southbank is a great waterfront, arts and cultural destination

The combined regionally and nationally renowned facilities of the Arts Centre, National Gallery of Victoria and Crown Complex have put Southbank on the map as an evening and weekend destination.

Issue 6: Southbank facilitates movement across Melbourne

Southbank is well serviced by public transport, particularly north-south. Although it has major negative local issues, the road network keeps Melbourne moving regionally and is an important interchange between north-south to east-west movement.

Issue 7: Southbank services the CBD

The close proximity of such a dense residential catchment allows the CBD to function more efficiently as a business centre without impacting on the private or public transport networks.

These issues have been considered holistically and have informed the following Vision and Objectives aimed at creating a truly self sustaining inner-city suburb.

The Southbank Structure Plan will enhance the elements that work in Southbank and will address those that prevent the suburb from realising its potential.

5.2 The Vision Workshop

The Vision for a Sustainable Southbank will define its strategic role in the City of Melbourne and guide the future direction of the suburb. It is a critical component of the Structure Planning exercise and will be a constant source of reflection throughout the study and over the next 10 years.

The Visioning process has been led by AECOM and undertaken in consultation with the City of Melbourne, Department of Planning and Community Development, VicRoads, and Sustainability Victoria. It is step one in a two step process. Step two will involve consultation with the wider Southbank community to finalise the intentions of the Vision. This will be undertaken as one of the first tasks in the Southbank Structure Plan.

This first step was undertaken as a day long Sustainability workshop on Wednesday 15th July, 2009 in the Observation Deck of the Rialto Tower in Melbourne. It was broken down into two halves, the morning provided a reflection of Southbank as it stands, together with a series of presentations on the principles for creating socio-economic and environmental improvements of a dense inner-city area. The afternoon focused on the objectives for Southbank to become a more sustainable suburb and the Vision statement was framed from these.

The outcomes of each presentation formed a set of principles intended to inform the outcomes of the afternoon session. They were identified as:

Leanne Hodyl: Urban Density Study Outcomes

- Higher is not denser;
- Car parking requirements (numbers and their locations) are critical in achieving a high quality urban realm; and
- Minimal residential densities of 100/ha and employment densities of 100/ha are recommended to support social and transport infrastructure.

Ed Blakely: Socio-Economically Viable Places

- New economy integrates work and home in the same areas and not the same places;
- Building jobs has to be part of the design of good development;
- Total family living environments for all ages are superior to separated environments; and
- Technology is part of the solution to job creation and development but not the answer.

Alice Foster: Places for People

- Create and achieve public spaces that are inviting and inclusive that people adopt use and manage the space;
- Aim to a wide variety of community, civil organisations and activities; and
- Aim to places where people can display their culture and identities and learn awareness of diversity and differences.

Nigel Tapper: Mitigating the UHI Effect

- Move the precinct to (or towards?) carbon neutrality;
- Maximise human thermal comfort given the Melbourne urban heat island and future climate projections; and
- Be climate resilient, particularly in relation to future rainfall.

Tony Wong: City as a Catchment

- The management of urban stormwater, and the opportunistic access of wastewater, as important alternative water sources that would build the city's resilience to the water supply pressures placed on Melbourne from climate change and increasing urban density;
- The planning and design of landuse around the concept of urban metabolism and industrial ecology to ensure synergistic uses of resources and waste-streams;
- Improved stormwater quality for the protection of the Yarra River and Port Phillip Bay;
- Passive landscape watering in supporting a green landscape/infrastructure for micro-climate management and liveable environment

- Water art as an integrating element of community and commercial activities within the precinct; and
- A framework that balances the management of water for urban water supply security (commodification of water) with that for public good (environmental protection and community cultural and amenity relationships with water).

Michael Nolan: Developing Low Carbon Places

- Low carbon energy from a diversity of sources with rationalised energy needs and energy efficiency applied;
- Integrated energy services with grid, storage and behaviour; and
- Energy systems designed to be resilient to future climate impacts.

Lester Partridge: Sustainable Built Form

- Develop naturally lit and ventilated housing and commercial mixes;
- Develop dual and tri-generation energy sources;
- Orientate buildings to capture wind flows and winter sun;
- Maintain built heights and distances to improve solar access and allow breezes to passively ventilate; and
- Increase green space to improve air quality.

Jose Mantilla and Stephen Pelosi: Creating a Sustainable Transport Network

- Transport and urban systems that promote sustainability through a built environment that:
 - Advances a reduction in the need for travel;
 - Enhances accessibility to goods and services;
 - Provides a variety of travel alternatives to all; and
 - Makes sustainable travel options not only viable, attractive & desirable, but also the logical choice.

5.3 The Vision for a Sustainable Southbank

This Vision was crafted from an agreed set of intentions, words and phrases. Southbank should:

- be balanced;
- be about people;
- be a diverse and inclusive community with housing diversity;
- be a place that promotes health and wellbeing;
- be endowed with community services;
- sustain its existing community and evolve;
- be a world class arts and cultural centre;
- be a climate resilient place;
- be an eco-service provider;
- have local and regional interaction;
- have economic prosperity.

The Vision for a Sustainable Southbank has been identified as:

“

An inclusive, diverse and resilient place that exemplifies the ecological, community and commercial prosperity of a sustainable urban district, whilst enhancing its presence as a world class cultural and arts precinct in the heart of Melbourne’s parkland and riverfront.

”

5.4 Preliminary Objectives for a Sustainable Southbank

In the Southbank Structure Plan these objectives will be further developed into recommendations that are measurable and can be tested.

Southbank is a place in transition. The future of Southbank could be defined by its past development. It could also be defined by its future potential.

Chapter 3 determined that the development of Southbank with high-rise buildings will continue to create the mono-cultural place that the northern quarter has already become. It identified that other high density options are available which can create a more rounded urban community. The provision of usable local open space for use by the local community, educational facilities, community amenities and commercial businesses combine to create an integrated and lively place. Such examples as Coin Street in London, Bercy in Paris and Eixample in Barcelona exemplify these benefits.

The Vision was considered using the key words and phrases identified in Section 5.3 and was also developed during a discussion around a series of objectives to ensure Southbank becomes a place that encourages a diverse population whilst responding to climate change.

The objectives were arranged into 6 discrete headings, without hierarchy, which form the objectives for delivery of Southbank as a sustainable place. These were Regional, Location, Resource Positive, Natural Ecosystem, Social Amenity, and Positive and Adaptable Urban Form.

These objectives also respond to the identified shortfalls of the Future Melbourne goals in Southbank from Chapter 2 and the issues and recommendations from each chapter.

Regional Location

1. Southbank should become the centre of conference and conventions in Australia
2. Southbank should be enhanced as the arts and cultural centre of Victoria
3. Southbank is a population source and business sink for Melbourne
4. Southbank should establish a diverse provision of entertainment, culture and recreation
5. Southbank should be a regional destination not simply a thoroughfare
6. Southbank should build on its symbiotic relationship with Melbourne CBD with complimentary land uses and services

Proposed recommendations for testing the capacity:

- All population to be within 500m of at least two forms of public transport;
- All population should be within 500m of a local entertainment facility;
- All population should be within 500m of a community arts facility;
- Southbank should compliment the CBD.

Resource Positive

7. Southbank should become a carbon sink (beyond carbon neutral)
8. Southbank should be water positive and become an exemplar for 'Total Watermark'
9. Southbank should have zero net waste and become a closed loop system

Proposed recommendations for testing the capacity:

- All dwellings should be serviced by at least 1 local energy source;
- Explore the potential for harvesting finite resources on site;
- Southbank should contain a closed loop system of waste and energy generation.

Natural Ecosystem

10. Southbank should minimise its impact on the broader environment
11. Southbank should become an ecosystem service for the broader environment
12. Southbank should provide an environment conducive to natural and beneficial habitation
13. Southbank should consider indigenous species

Proposed recommendations for testing the capacity:

- Any water captured in Southbank should be used at least once within the suburb;
- Any water leaving Southbank should be treated so as not to damage downstream systems.

Social Amenity

14. Southbank should have at least one local neighbourhood heart
15. Southbank needs a hierarchy of streets as places
16. Southbank's streets should have amenity
17. Southbank should have a diversity of spaces
18. Southbank should be inclusive, affordable and engaging
19. Southbank should have a diversity of residents

Proposed recommendations for testing the capacity:

- Usable and diverse open space provision for the local community as meeting places, play and relaxing spaces;
- Provision of all community facilities within a 500m (walking distance for all abilities) radius of any point in Southbank;
- Creation of at least one local heart for Southbank;
- Minimum 100 dwellings per hectare average across the suburb (from section 3); and
- Minimum 50 jobs per hectare average across the suburb (from section 3).

Positive and Adaptable Urban Form

20. Southbank should have a scale and density to create critical mass as a sustainable inner city suburb
21. Southbank should be a human scale
22. Southbank's streets should have positive or stimulating edge conditions
23. Southbank should have a fine urban grain with flexible built form
24. Southbank should benefit from, and contribute to, its microclimate
25. Southbank should have buildings which passively utilise its microclimate
26. Southbank should contain safe environments

Proposed recommendations for testing the capacity:

- There should be at least one external and public laneway every 50m (average CBD laneway distance to continue Melbourne CBD character and ensure adaptability of urban blocks);
- Street proportions should not be less than 0.5:1:0.5 or greater than 5:1:5 (height:width:height);
- All floors of buildings adjoining streets or other public spaces should have land use that provides passive surveillance;
- The ground level of any building should be the most important and contribute positively to the street; and
- No urban block should be longer than 200m (Melbourne CBD grid).