Southbank Structure Plan 2010

A 30-year vision for Southbank

CITY OF MELBOURNE

Acknowledgments
The City of Melbourne would like to thank the representatives of the Southbank Project Management Working Group for their contribution to the *Southbank Structure Plan 2010*:

- Department of Planning and Community Development
- Department of Transport
- VicRoads
- Sustainability Victoria
- Melbourne Water
- CitiPower
- South East Water
- Jemena

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Executive Summary

The future development of Southbank is an opportunity to achieve the goals of *the Future Melbourne Community Plan* (City of Melbourne, 2008) and a new urban paradigm that will establish the city as a world leader in sustainable living.

The rejuvenation of Southbank came about in the early 1980s as a major 'Engaging with the Yarra River Initiative'. This underpinned by innovative and aspirational vision, strategic policy framework and comprehensive implementation structure. The scale of such major urban renewal projects takes decades to complete and longer to 'mature'. Southbank has been under redevelopment for close to 30 years. This *Southbank Structure Plan 2010* provides a vision and strategy for the next 30 years.

This rejuvenation of Southbank has established major activities in the area including the internationally recognised Arts Precinct, the Southbank Promenade, Melbourne Convention and Exhibition Centre and the recently completed South Wharf complex. The current residential and employment populations have easy access to the central city, the Yarra River, the adjacent parklands of Kings Domain and the Royal Botanic Gardens and the quality entertainment, retail and cultural facilities.

These successes, however, have not been complemented by the growth of a cohesive, integrated and vibrant suburb behind the St Kilda Road and river frontages. The suburb lacks a central 'heart' that can serve the focal point of community facilities, as a commercial hub and a welcoming place for social gathering. The local streets have low amenity, are dominated by dead building frontages and have been designed only with through traffic in mind without thought being given to making them also attractive and liveable places.

This need to improve the quality of the public realm was addressed in the *Southbank Plan* [Department of Planning and Community Development (DPCD) 2007]. The study's primary focus was on opportunities for public realm capital works improvements. It also identified the need to review the land use, development and transport and mobility conditions in Southbank. *The Southbank Structure Plan 2010* does this and, in partnership with the DPCD, is part of the City of Melbourne's commitment to implementing the *Southbank Plan*.

The Structure Plan 2010 will replace the *Southbank Structure Plan (Final Draft) 1999* **(see Figure 0.1)**. It is informed by the directions set out in the *Southbank Plan* and provides a renewed vision and updated strategy for Southbank's future. It recognises that Southbank is uniquely placed to be a suburb that integrates an established cultural life with a diverse residential community.

The Structure Plan 2010 proposes a suite of short to medium term initiatives and long term initiatives.

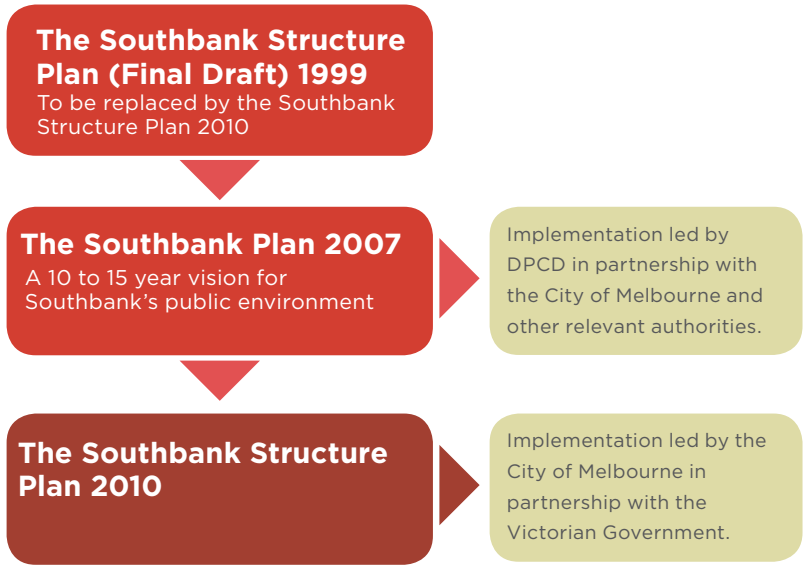


Figure 0.1 Relationship of *the Structure Plan 2010* to the *Southbank Structure Plan (Final Draft) 1999* and the *Southbank Plan* 2007.

Short to medium term proposals

A summary of the six key short to medium term project initiatives is outlined below.

1 Three new 'hearts'

Provide three new local activity nodes to be focal points of new commercial, retail and community infrastructure development and local social life in Southbank.

2 Connect and integrate Southbank with the central city and the Yarra River

Position Southbank as the natural extension of the city, establishing the Yarra River at the city's centre, not its edge. Provide easy and attractive access to and across the river from the central and southern parts of Southbank.

3 A high quality, expanded public realm

Deliver key public realm initiatives of the *Southbank Plan,* establish new parks within the area and deliver a finer grain of attractive public gathering spaces.

4 A new streetscape vision

Establish new built form controls that prioritise the delivery of lively and characterful streetscapes. This addresses the current practice of assessing new building applications on their individual architectural merit without consideration of their contribution to the whole streetscape experience. This will make Southbank a safer, friendlier and more attractive place to be.

5 A connected and permeable neighbourhood

Design and manage St Kilda Road, Clarendon Street, Sturt Street and Queensbridge Street as the four key north-south pedestrian and cycle routes. Design and manage Southbank Promenade, City Road, Southbank Boulevard, Coventry Street, Grant Street and Normanby Road/Whiteman Street/Power Street as the six key east-west pedestrian and cycling routes. Expand the existing network of laneways to enhance connectivity and permeability.

6 Sustainable buildings

Ensure new buildings are energy efficient and adapted to climate change and that existing buildings are retrofitted to improve their performance.

A summary of the two key long term project initiatives are outlined below.

7 Connect halves

Stitch together the northern and southern fragmented 'halves' of Southbank by decking over the void with new development to create a connected and continuous mixed use area and provide the opportunity for new public open space.

8 Sustainable infrastructure

Transition from traditional servicing models to the delivery of sustainable utilities including distributed energy generation and water re-use.

The overview of the future vision for Southbank is illustrated in **Figure 0.2**.

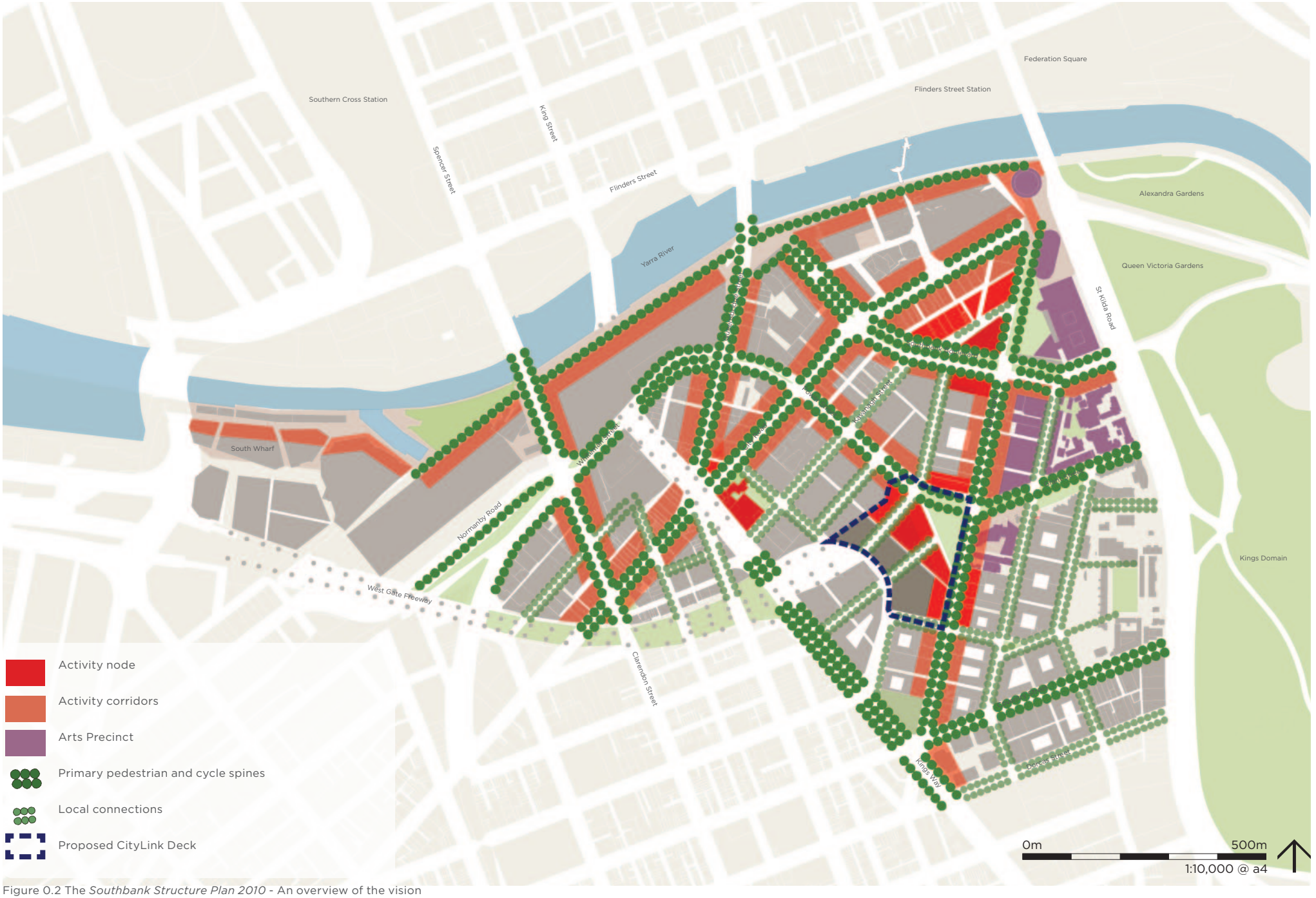


Figure 0.2 The *Southbank Structure Plan 2010* - An overview of the vision

01 Introduction

1.1 Purpose of the Southbank Structure Plan 2010

The *Southbank Structure Plan 2010* provides a vision and strategy for the future development of Southbank as an integral part of the central city with the Yarra River at its centre.

The Structure Plan 2010 outlines a preferred scenario for Southbank that integrates land use, built form, mobility and access, open space, community infrastructure and sustainable infrastructure to achieve a liveable and sustainable Southbank.

Figure 1.1 Study area - Aerial view of local context
Source: http://www.nearmap.com/, 2010

Not to Scale

1.2
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. It incorporates the newly developed South Wharf precinct. The study area is approximately 158 hectares (389 acres). **See Figures 1.1 and 1.2**.

1.3
Population Characteristics

The projected population for Southbank is up to 74,000 residents by 2040 based on development capacity available within the new built form recommendations. This is a significant increase on the existing 10,500 population.

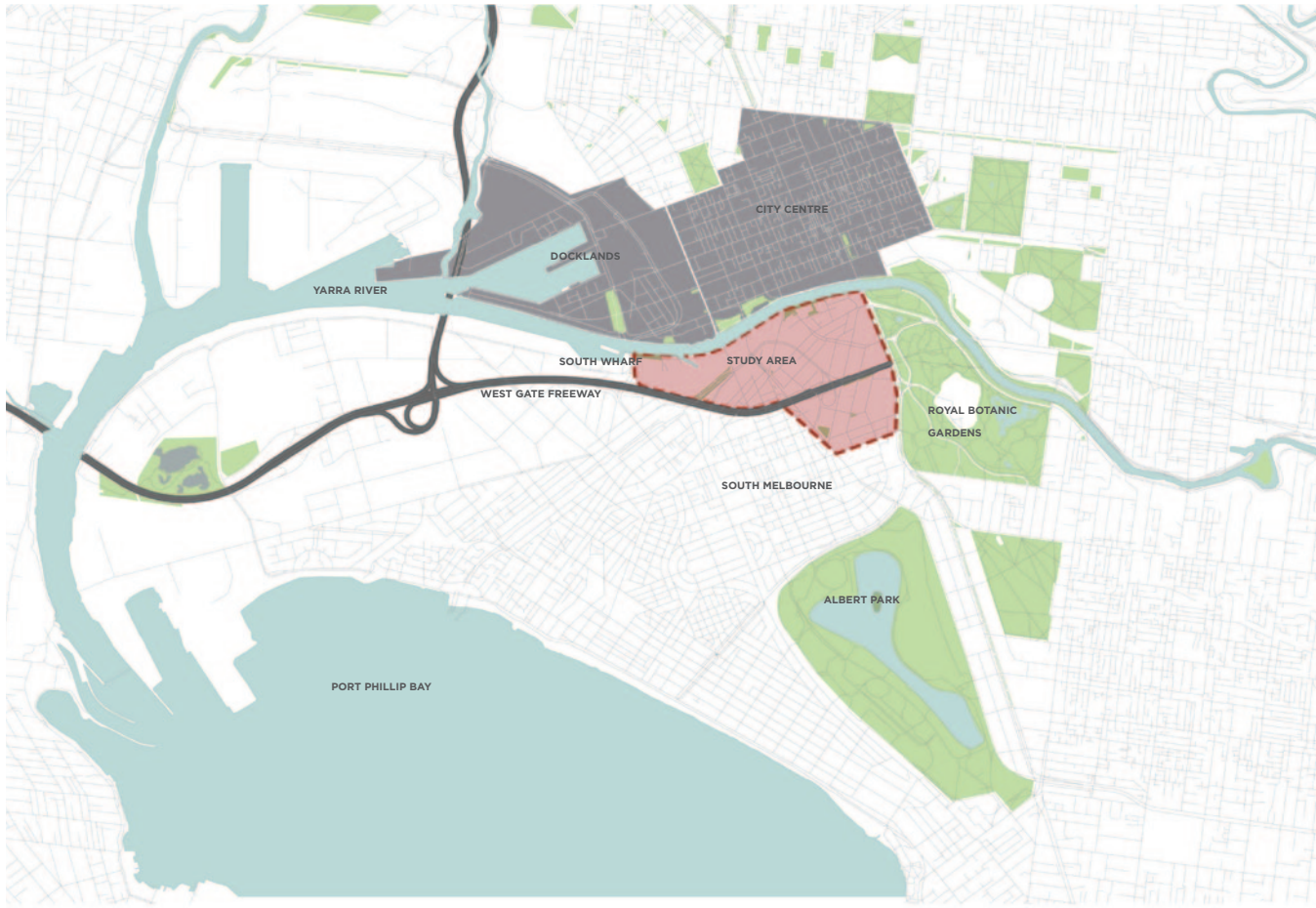


Figure 1.2 Study area - inner Melbourne context

Not to Scale

1.4 Existing Key Policy

Future Melbourne Community Plan (The City of Melbourne, 2008)

Future Melbourne is a community plan for the City of Melbourne. It is 'a plan to grow Melbourne as a global city and as one of the top ten most liveable and sustainable cities in the world. Our measure of success will be achieving six goals for making Melbourne:

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

(Future Melbourne, 2008)

Many of *the Structure Plan 2010* goals are aligned with the sustainability objectives of *Future Melbourne*. In particular, the Eco-City goal targets are utilised to assess the environmental performance of the sustainable infrastructure initiatives (see section 08). More detail on the direct relevancy of *Future Melbourne* to *the Structure Plan 2010* can be found in the Background Report.

The *Southbank Plan* (DPCD, 2007)

The *Southbank Plan* was developed in collaboration between the City of Melbourne and the DPCD. The plan outlines key opportunities for Southbank and 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 as being even more important in dense areas such as Southbank. In many places Southbank's streets are car dominated with blank and inactive facades disconnecting the life within the buildings from the public realm. This makes Southbank unpleasant and difficult to walk around. The poor public environment and lack of local civic spaces also means that the sense of community for Southbank residents is low.

The *Southbank Plan* identifies opportunities within the existing urban framework for improving the public domain. These initiatives are incorporated into seven projects (taken directly from the *Southbank Plan* Report).

Project 1: The Sturt Street Cultural Spine.

Project 2: Southbank Boulevard Open Space Link.

Project 3: CityLink Interchange Precinct.

Project 4: Kavanagh / Moray Street Local Link.

Project 5: West Gate Freeway Undercroft and Docklands - South Melbourne Links.

Project 6: Whiteman Street Local Centre and Park.

Project 7: Activating Life in the Public Environment.

The *Southbank Structure Plan 2010* is informed by the *Southbank Plan* and includes Projects 1, 2, 4, 5, 6 (to a limited extent) and 7 in the key strategies and recommendations of this report. It identifies further improvements that are possible through the significant changes proposed to the existing urban structure. The integration of the *Southbank Plan* and *the Structure Plan 2010* proposals are detailed in Section 5: Open Space Network.

1.5 Preparation of the Southbank Structure Plan 2010

The *Southbank Structure Plan 2010* is an action from the 2007 *Southbank Plan* and will replace the *Southbank Structure Plan 2010 (Final Draft) 1999.*

Preparation of *the Structure Plan 2010* was reviewed at each stage by the Southbank Project Management Working Group (PMWG) which included representatives of the following organisations:

- City of Melbourne
- Department of Planning and Community Development
- Department of Transport
- VicRoads
- Sustainability Victoria
- Water and power utilities.

The *Southbank Structure Plan 2010* has been prepared in four stages **(see figure 1.3)**.

June 2009 — November 2010 — September 2010

01 Background Report

Background Report and discussion available on eVillage Nov/ Dec 2009

Southbank PMWG Workshop no. 1, 2 and 3

This report provides a comprehensive review and analysis of Southbank from a policy and physical perspective. The report has informed the creation of *the Structure Plan 2010* by providing an understanding of the current and future capacity and the issues surrounding land use, built form, mobility, open space, and community infrastructure within the suburb.

02 Sustainable Utilities Study

This report has been prepared in parallel with the Background Report. To inform how *the Structure Plan 2010* will achieve the Eco-City targets established in *the Future Melbourne Community Plan.*

03 Concept Scenarios Report

Southbank PMWG Workshop no. 4

This showed three alternative scenarios for Southbank. The preferred scenario was agreed with the Project Management Working Group and progressed into *the Structure Plan 2010*.

04 The Draft Southbank Structure Plan 2010

Public consultation of Draft Southbank Structure Plan May/June 2010

Southbank PMWG Workshop no. 5

The Structure Plan 2010 incorporates the key recommendations established to deliver the preferred scenario. It is structured as follows:

01 Introduction

02 New Directions - Highlights the key issues and initiatives for Southbank

03-08 Recommendations - Identification of the issues, an analysis of these issues and an outline of the objectives, strategies and recommendations are provided for proposed Land Use, Built Form, Mobility and Access, Open Space Network, Community Infrastructure and Sustainable Services Infrastructure

09 Implementation: Outlines a strategy to implement the recommendations outlined in sections 03-08. Implementation actions are identified and prioritised into 1 to 5, 5 to 10 and 10+ year projects/strategies with the responsible authorities nominated.

05 The Southbank Structure Plan 2010

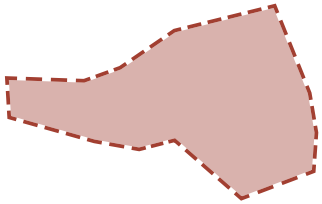
Adoption of *Southbank Structure Plan 2010* by City of Melbourne

06 Implementation of Recommendations

Figure 1.3 Structure Planning Process

1.6 Existing Capacity for Growth

The total land area within Southbank is approximately 158 hectares. An assessment of the existing development constraints provides a picture of future capacity to accommodate population growth within Southbank's boundaries.



SOUTHBANK LAND AREA

158ha

These constraints and the development opportunities are mapped in **Figure 1.3**. It illustrates that the areas most likely to change in the next 30 years are located centrally within the suburb, specifically along the City Road and Sturt Street spines and encircling the CityLink approach.

Heritage overlay and heritage listed buildings

There are limitations with development in the heritage overlay specific to the Southbank. This overlay generally serves the St Kilda Road edge of the study area. There are also numerous historic buildings along that road edge including the National Gallery of Victoria and the Victoria Barracks sites.

= 14.5ha

(9% of Southbank)

Built sites to development capacity

The sites that have been built to their current capacity (based on the current Melbourne Planning Scheme) have been highlighted. Generally, the area along the Southbank Promenade has reached its maximum potential yield between the Southgate and Crown Casino developments and back to City Road. While sites such as the South Wharf development and the Plenary Hall and Convention Centre (which have only recently been completed) could still take significantly more development capacity, no further public investment is planned for the site.

The criteria for sites at development capacity those developed over the last 20 years that have met or are within 20% of the height restrictions given in DDO38-43. These include sites under construction.

= 30.7ha

(20% of Southbank)

Short term potential development sites

These sites include vacant or predominantly undeveloped sites (some have planning approval but remain unbuilt) in the study area. These sites have immediate development opportunity (within five years) and are most likely to achieve the intentions of the *Southbank Structure Plan 2010* over the short term. These sites include the former JH Boyd Girls' School (Boyd School), the Kavanagh Street Car Park, and the Lorimer Street Car Park.

= 5.4ha

(3% of Southbank)

Medium/long term potential development sites

These sites have the potential for redevelopment over a five to 30 year term. They are sites with no constraints on them other than land ownership and tenancy agreements. Next to the short term sites they are those most likely to achieve the intentions of the Structure Plan.

= 44.9ha

(29% of Southbank)

The CityLink approach - potential development site.

The CityLink tunnel approach was built between 1996 and 2000. By decking over the approach 3.4 hectares (2.2% of Southbank) of developable area could be created.

Future development potential

In total, the area available for future development in Southbank is 38.3ha (24.2% of Southbank).

Figure 1.3 Combined development potential and site identification

A study was undertaken to assess how Southbank would look if it was to continue to develop in accordance with the current Planning Scheme and how it would look if development followed the emerging trend of breaking the planning policies in place.

Since the 1990s there has been significant development in Southbank. **Figures 1.4** models the existing built form in Southbank and details the existing floor space, dwelling numbers and population. As **Figure 1.3** illustrates there is significant potential for further development in the future until Southbank is built 'to capacity'.

Figures 1.5 and 1.6 illustrate the different future development outcomes for Southbank if it was to continue to develop in accordance with the current Planning Scheme and if development followed the emerging trend of exceeding the built form planning guidelines in place.

Of the short and medium term development opportunities within Southbank, each site has a land use zone and a Design and Development Overlay (DDO) which outlines the maximum height, podium and land use controls dictating the capacity for development. **Figure 1.6** models Southbank if the DDOs and zoning restrictions were adhered to.

The potential development capacity (gross floor area) is 4,007,500 sqm. This equates to 45,050 new dwellings and a total Southbank residential population of 58,550 and worker population of 53,470. This is a 557% increase on the current residential population.

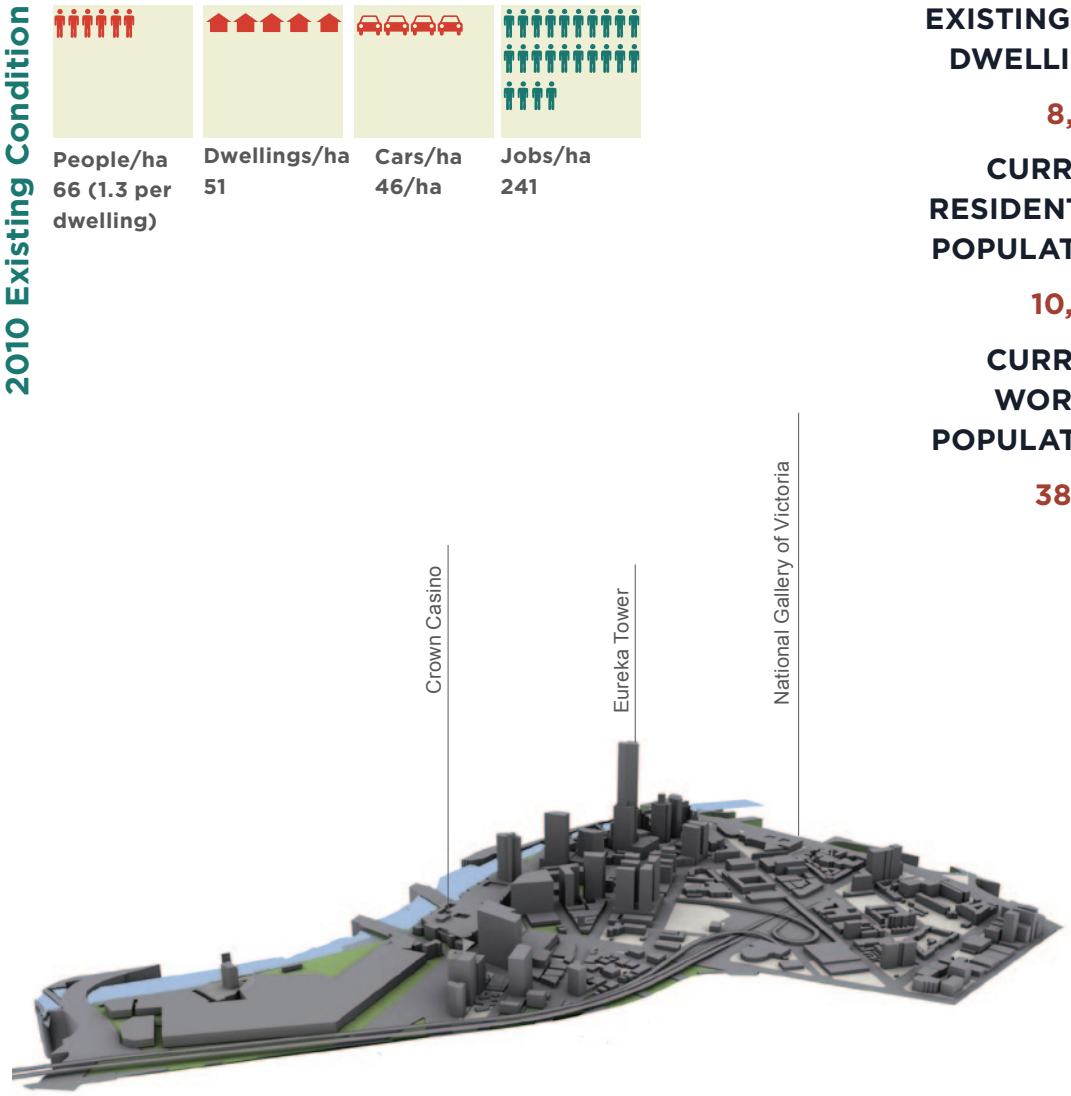
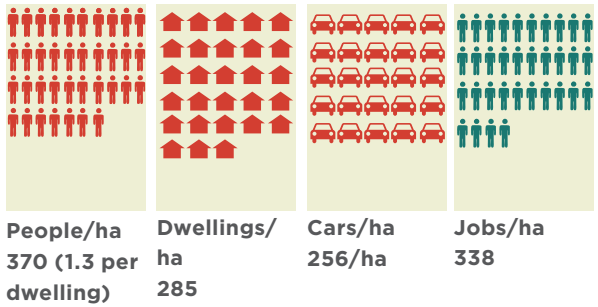


Figure 1.4 Existing development and densities

2040 within the Current Planning Scheme



People/ha
370 (1.3 per dwelling)

Dwellings/ha
285

Cars/ha
256/ha

Jobs/ha
338

TOTAL NEW DEVELOPMENT CAPACITY (GFA)

4,007,500M²

MAXIMUM POSSIBLE NO. DWELLINGS

45,050

MAXIMUM POSSIBLE RESIDENTIAL POPULATION

58,550

MAXIMUM POSSIBLE WORKER POPULATION

53,470

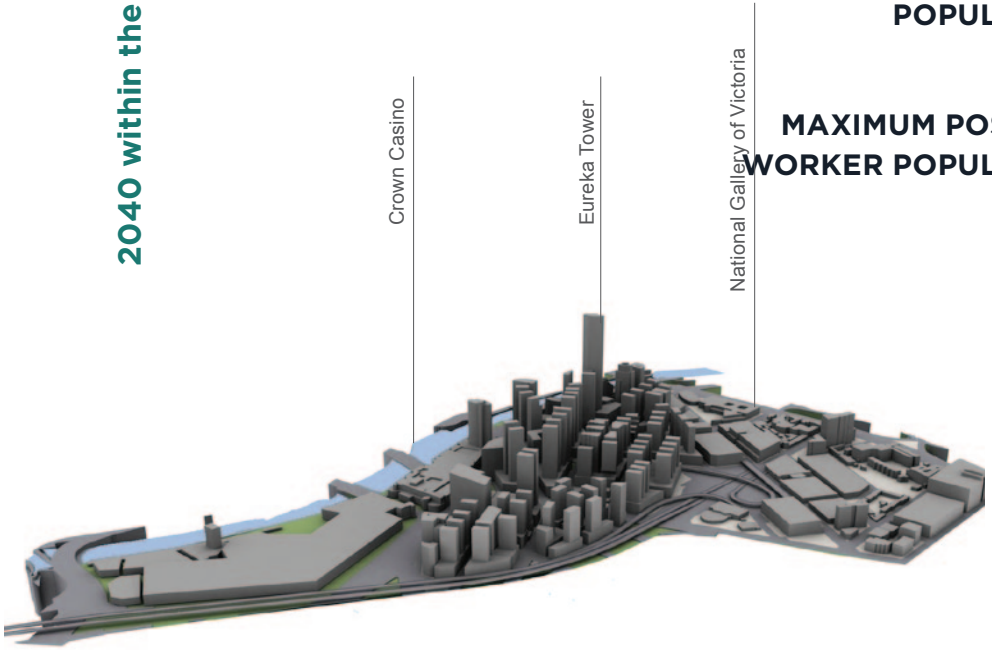
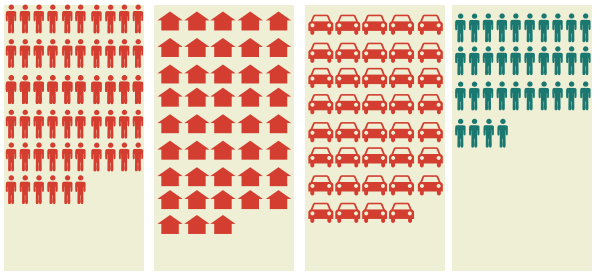


Figure 1.5 Future development of Southbank according to current Planning Scheme

2040 Business-as-usual



People/ha
565 (1.3 per dwelling)

Dwellings/ha
434

Cars/ha
390/ha

Jobs/ha
338

TOTAL NEW DEVELOPMENT CAPACITY (GFA)

6,140,250M²

MAXIMUM POSSIBLE NO. DWELLINGS

68,600

MAXIMUM POSSIBLE RESIDENTIAL POPULATION

89,200

MAXIMUM POSSIBLE WORKER POPULATION

53,470

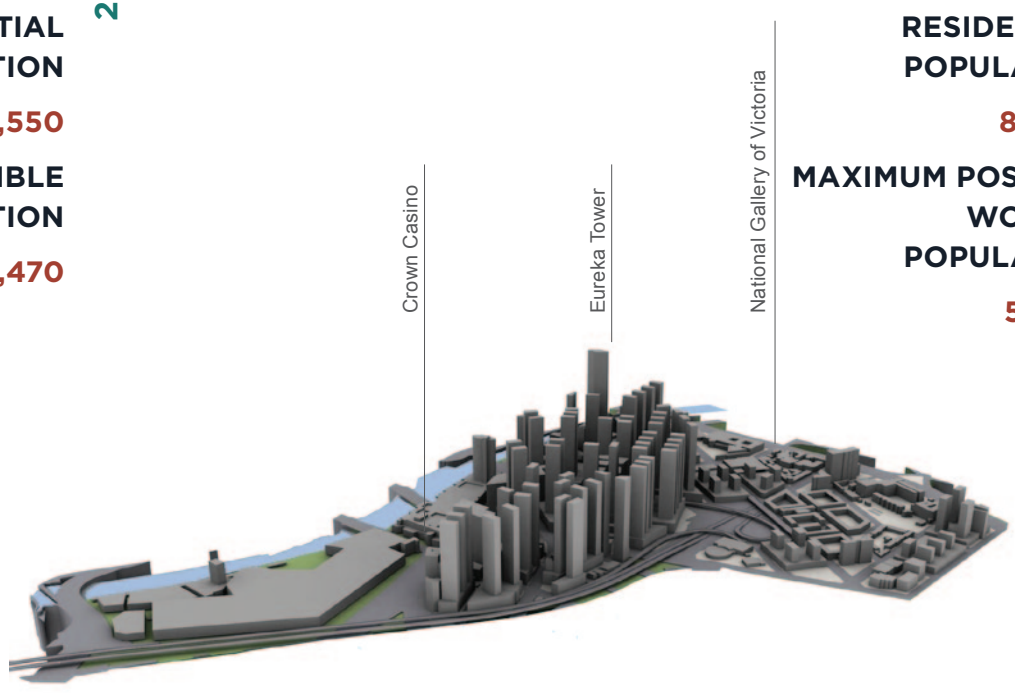


Figure 1.6 Future development of Southbank according to development trends

Trend based on current approvals practice.

Figure 1.6 models the development of Southbank if the identified short and medium term development sites were developed in line with the current planning approvals practice. This has been based on a review of planning and Victorian Civil and Administrative Tribunal (VCAT) decisions for development height and density. This provides a picture of a 'business-as-usual' development picture for Southbank.

The potential development capacity (gross floor area) is 6,140,250m^2. This equates to 68,600 new dwellings and a total Southbank residential population of 89,200.

This is a 850% increase on the current residential population.

The business-as-usual development of Southbank would result in a population density of 338 jobs/hectare and 565 dwellings/hectare which would be one of the most dense city precincts in the world, comparable with Hong Kong.

The business-as-usual will result in:

- Highly crowded streetscapes with low levels of sunlight and daylight at street level and the lower floors of all buildings.
- Disruptive wind downdrafts.
- Intensified urban heat island effect.
- Limited outlook, sunlight and daylight for most occupants.

Based on current practice the business-as-usual would also be characterised by whole streetscapes of inactive building frontages dominated by podium car parks. The streets, places and parks would be dark, windy, oppressive, unsafe and unattractive.

Decisions to grant development permits in Southbank that exceed the discretionary height controls have been made on a case by case basis. The *Structure Plan 2010* shows for the first time the eventual consequences of continuing this business-as-usual approach. This is an unliveable and unsustainable built future for Southbank. A new strategy is needed.

Southbank, however, is not a clean slate. *The Structure Plan 2010* takes the existing framework of development rights as a given and proposes strategies to shape future development to make Southbank one of the most liveable and sustainable inner city areas. **Figure 4.6** on page 36 illustrates the proposed preferred built form.

1.7 Key Drivers of the Southbank Structure Plan 2010

- Update the *Southbank Structure Plan* (Final Draft) 1999 to reflect recent State and City of Melbourne policy and initiatives, including:
  - Opportunities identified in the *Southbank Plan 2010*.
  - Realise the *Future Melbourne Community Plan 2008* and the new (draft) *Municipal Strategic Statement 2010* at a local level
  - Incorporate City of Melbourne's recent urban development policy perspectives.
- Provide for future population growth. This includes a significant increase in residential and worker population with Southbank forecast to experience a degree of change similar to that of the past 15 years. To deliver a diverse Southbank, this population growth needs to encompass a shift in the demographic mix of the area to include a range of income earners, ages and household types.
- Recognise that the existing land use and development patterns are not delivering an accessible, inclusive and liveable suburb.
- Recognise that the current development trends are delivering unsustainable buildings.
- Recognise that the current development trends can not deliver on the City of Melbourne's goal to make Southbank as one of the most liveable and sustainable central city precincts in the world.

To deliver on the vision and respond to these key drivers *the Structure Plan 2010* reviews Southbank's:

- Transport and mobility
- Energy, water and waste services
- Impacts of predicted climate change
- Planning policy and development trends
- Open space
- Community infrastructure.

02 New Directions

2.1 The Vision for Southbank

An inclusive, diverse and resilient place that exemplifies the ecological, community and commercial prosperity of a sustainable urban district, while enhancing its presence as a world class cultural and arts precinct in the heart of Melbourne's parkland and riverfront.

This vision for Southbank draws on the visions in the *Southbank Plan, Future Melbourne and the Municipal Strategic Statement*. *The Structure Plan 2010* is a strategy for achieving this vision.

2.2 Key Directions

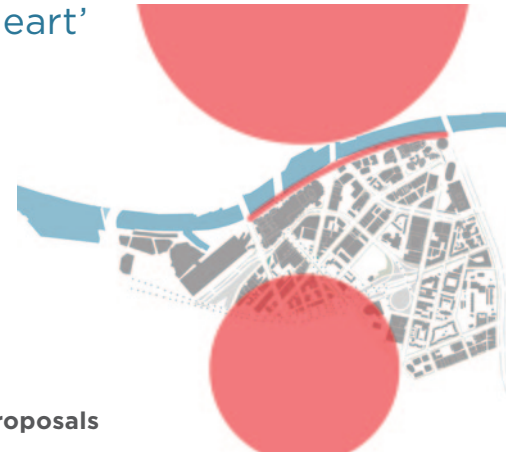
There are eight key directions in *the Structure Plan 2010*. Each of these is explained in two parts: a statement of the key issues and a description of the key initiative that addresses the issue.

The first six of these are short-medium term proposals. Seven and eight are long term proposals. At the bottom is a reference to the sections of *the Structure Plan 2010* where it is detailed.

Key Issues

1 Lack of a local urban 'heart'

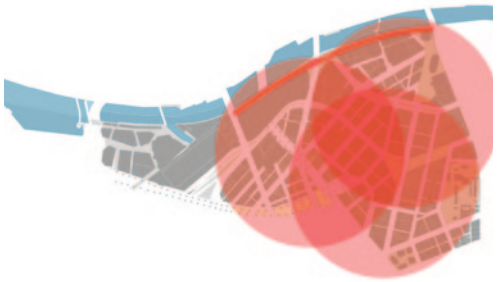
The current 'heart' of Southbank is at the edge along Southbank Promenade This is a regional tourist attraction and does not provide a local heart to Southbank. The lack of local convenience shopping, services and facilities decreases local amenity and drives locals out of Southbank to South Melbourne and the Hoddle Grid.



Key Initiatives: Short to medium term proposals

1 Three new urban 'hearts'

Provide three new local activity nodes to be focal points in Southbank of new commercial, retail and community infrastructure development and local social life.



See Section

03 04 05 06 07

2 Disconnection from the river and the central city

The built form and activity mix within Southbank is not aligned with its strategic location immediately adjacent to the Hoddle Grid.

Walking and cycling across City Road and through the immediate hinterland of Southbank Promenade is very difficult.

2 Connect and integrate Southbank with the central city and the Yarra River

Position Southbank as the natural extension of the city establishing the Yarra River at the city's centre, not its edge. Provide easy and attractive access to and across the river from the central and southern parts of Southbank.

See Section

03 04 05 07

3 Lack of accessible parks and green open space

Southbank has a lack of accessible and high quality public open space. There is currently 4,800m² of green open space (less than 2m² per person on current population). As Southbank's resident and worker population grows this issue will become more acute.

3 A high quality, expanded public realm

Deliver key public realm initiatives of the *Southbank Plan*, establish new parks within the area and deliver a finer grain of attractive public gathering spaces.

See Section

03 05 06 07 08

4 Inactive and unfriendly streetscapes

Streetscapes made up of buildings with large footprints, inactive ground levels and car park filled podiums have created a dead and intimidating public realm lacking in activity and natural surveillance. Within Southbank 83% of all street frontages are inactive. This inactivity reduces the security, vibrancy and attractiveness of the street and makes Southbank a poor walking environment and a cold and unfriendly place.

Inactive upper floors of car park podiums

Inactive ground floor frontages

4 A new streetscape vision

Establish new built form controls that prioritise the delivery of lively and characterful streetscapes. This addresses the current practice of assessing new building applications on their individual architectural merit without consideration of their contribution to the whole streetscape experience. This will make Southbank a safer, friendlier and more attractive place to be.

Active upper floors of podium

Active ground floor conditions

See Section

03 04

5 Poor walking and cycling environment

The street environment is designed for and in many places dominated by private motor vehicle traffic. City Road, Kings Way and the CityLink tunnel approach act as barriers inhibiting movement of pedestrians and cyclists through the suburb. There is a scarcity of pedestrian and cyclist routes through Southbank that are attractive, continuous and of high amenity. The only safe and attractive east-west link for pedestrians and cyclists- Southbank Promenade - is overcrowded and struggling to cater for all of the pedestrian and cyclists demands on it.

5 A connected and permeable neighbourhood

Design and manage St Kilda Road, Clarendon Street, Sturt Street and Queensbridge Street as the four key north-south pedestrian and cycle routes. Design and manage Southbank Promenade, City Road, Southbank Boulevard, Coventry Street, Grant Street and Normanby Road/Whiteman Street/Power Street as the six key east-west pedestrian and cycling routes. Expand the existing network of laneways to enhance connectivity and permeability.

See Section

03 05 06

6 Unsustainable buildings

Too many developments within Southbank are greenhouse gas intensive and ill-adapted to climate change. The area acts as a resource consumer and there are no strategies in place for generation of energy or reduction in the consumption of resources across the area.

7 CityLink void

The approach to the CityLink tunnel has created a large void in Southbank. This fragments Southbank into disparate pieces and tends to blight the immediately surrounding uses.

8 Unsustainable infrastructure

Utilities in Southbank are currently delivered in a traditional greenhouse gas intensive model. There are no local strategies in place for the generation of local energy needs or for a reduction or reuse of limited natural resources.

Key Initiatives: Long term visionary opportunities

6 Sustainable buildings

Ensure new buildings are energy efficient and adapted to climate change and that existing buildings are retrofitted to improve their performance.

See Section

04 07

7 Connect halves

Stitch together the northern and southern fragmented 'halves' of Southbank by decking over the void with new development to create a connected and continuous mixed use area and provide the opportunity for new public open space.

See Section

03 04 05 06 07 08

8 Sustainable Infrastructure

Transition from traditional servicing models to the delivery of sustainable utilities including distributed energy generation and water re-use.

See Section

04 07

03 Land Use

3.1
Land Use Issues

The following is a brief outline of the issues within Southbank:

1. Within the existing development controls, Southbank has the capacity to accommodate a residential population of 74,000 and a worker population of 56,000 by 2040. This is a substantial increase from the current 10,500 residents and 38,000 workers that access the area. The current land use strategies for Southbank do not address the needs that will arise with this significant projected growth.
2. Southbank is growing as a central city area to become an extension of the mixed use precinct found within the Hoddle Grid **(see Figure 1.1)**.
3. Southbank Promenade is a vibrant regional attraction but does not provide a local heart to Southbank. A lack of local social, retail and community facilities means that much of Southbank is relatively dead and desolate.
4. The existing residential population primarily accesses the central city or the South Melbourne (City of Port Phillip) activity centre to service their everyday needs and for local public social life. A significant increase in the population of Southbank is likely to place additional demands on community services and facilities within Port Phillip.
5. A significant number of high-rise buildings have little or no retail to the ground level and are dominated by car parking occupying the rest of the podium. The result is a reduction in public activity and passive surveillance onto the street.
6. There is a lack of cohesion in land use, precincts and character areas within Southbank resulting in a disconnected, unattractive and hard to navigate area.
7. Small scale retail, except for Southbank Promenade, is generally less attractive and less successful.
8. The mixed use, residential and public use zoning along Sturt Street is leading it to development as a residential street rather than a vibrant arts and culture precinct;
9. The park at the corner of Sturt Street and Kings Way is well landscaped, however, it is in a poor location and currently does not offer an attractive social destination due to lack of pedestrian access at this point.
10. The University of Melbourne's VCAM campus is inward looking, cut off from its surrounding city and presents a dead and forbidding facade along most of its street frontages - particularly along Sturt Street.
11. There is a lack of integration of cultural and residential and complementary activities.
12. There are limited affordable housing options within Southbank.

Land use is controlled through planning controls - particularly zoning controls and schedules attached to these controls. The existing zones and their schedules are contributing to the poor outcomes noted above by limiting the mix of land uses across Southbank and particularly the establishment of active uses at ground and lower building floor levels that service the resident and worker populations of the area and that create street level activity and passive surveillance.

The current land use planning zones are illustrated in **Figure 3.1**

Figure 3.1 Current Zones

Not to Scale

- CCZ1 - Capital City Zone
- MUZ - Mixed Use Zone
- R1Z - Residential 1 Zone
- PUZ - Public Use Zone
- PPRZ - Public Park and Recreation Zone
- RDZ1 - Road Zone Category 1
- CA - Commonwealth Land

3.2
Land Use Objectives

The following are the land use objectives for Southbank:

1. Accommodate the anticipated increase in residential population.
2. Accommodate the anticipated increase in worker population.
3. Deliver a good provision of local services and facilities within an approximate 400m walk from all residences.
4. Along and around Sturt Street provide for broader spectrum of creative industry activity that complements the existing regional arts facilities and reinforces Southbank as the arts and cultural centre of Victoria.
5. Deliver a fine grain and flexible urban form which has a scale and density to create a sustainable inner city suburb.
6. Provide uses at ground floor and within upper podium floors that create active and attractive streetscapes.
7. Recognise and build Sturt Street as a centre with local services and activities and as a cultural arts and performance precinct with services and amenity for residents, patrons and other visitors to establish an integrated residential and cultural precinct.
8. Deliver affordable housing alternatives.

3.3
Land Use Strategies

The following strategies will reshape the existing patterns of land use within Southbank to meet these objectives.

L1 Develop Southbank as part of the central city

The projected resident and worker population growth in Southbank will significantly change the character, lifestyle and range of activities present in the area to an urban living and working precinct more aligned with the emerging conditions found in the central city. Promoting a more cohesive and consistent provision of mixed use development with an intensification of diverse activities will meet many of the objectives of the *Structure Plan*, including:

- Strengthening the connection between Southbank and the central city.
- Providing an active, vibrant and liveable built environment.
- Diversifying and expanding the range and quality of activities and services available within the area to meet the population growth demands.

Southbank contains a number of significant regional destinations, including the Arts Precinct, Southgate, Crown Casino, the Melbourne Convention and Exhibition Centre and South Wharf which all establish the area as a destination intrinsically connected to the central city's regional civic, commercial and social role. As it evolves, the Sturt Street Cultural Spine will be enhanced as one of these attractions.

The existing framework of planning controls in Southbank (policy, zones and overlays) will not meet these objectives and do not recognise the increasingly civic role of Sturt Street and Southbank generally.

Specifically, the Residential 1, Mixed Use and Public Use zones fail to provide the required level of policy direction and mixed land use opportunities required to achieve these outcomes. The issues of these zones are outlined below.

Residential 1

- The objectives of the Residential Zone clearly give preference to residential outcomes and restricts commercial uses and many retail and community services that are necessary to support these residents.
- In higher density areas, residential uses at ground floor can create a poor interface between the public street and the private dwelling - it is difficult to provide privacy for ground floor residents and provide an active or surveilled streetfront. This had led to many blank frontages at street level where car parking of building services are established as the primary ground floor use.

Public Use

- While the Public Use Zone protects the important civic role of these institutions, it fails to promote the redevelopment of these sites as part of a sustainable, integrated mixed use precinct. These institutions sit as isolated sites separated from their context and do not engage with or activate the public realm. The Coroner's office and VCAM campus are examples of this situation.

Mixed Use Zone

- While this zone supports mixed land uses it gives particular emphasis and uneven weighting to the encouragement of residential land uses that respect neighborhood character. These biases are reflected in the tables of uses to these zones which limit the delivery of commercial/service land uses such as retail premises, offices and medical centres by requiring planning permits for these facilities or even prohibiting these uses. Residential or public uses, however, are often allowed without the need for planning approval.

While Sturt Street has for some time been recognised and promoted as a key arts cultural spine of State significance, the current zonings are challenging the delivery of this vision by providing four different land use zone types (Capital City, Mixed Use, Residential and Public Use) and with them four different frameworks for developing commercial and non-commercial uses along its length. The existing form of Sturt Street is evidence of this fragmented approach.

To address these failings it is recommended the land use zonings in Southbank be modified. This includes the revision of the Public Use and the Mixed Use Zone (with the exception of the blocks bounded by St Kilda Road, Dorcas Street, Dodds Street and Coventry Streets) to a Capital City Zone. The existing Residential Zone will be converted to a Mixed Use Zone (except where it fronts Sturt Street). It is also proposed that roads in Road Zone Category 1 are rezoned including, Sturt and Grant Streets and Southbank Boulevard spur road as their function transitions to become local roads within Southbank. The proposed new zonings are illustrated in **Figure 3.2**.

The Capital City Zone gives equal weight to residential and commercial land use types. This is evidenced by development within the central city and the northern areas of Southbank currently within this zoning category. The Capital City Zone has worked well in the central city to deliver a vibrant, active and liveable built environment that provides a high level of amenity for a diverse residential and worker population. These are the same objectives for the future of Southbank.

Through this zoning a coherent planning framework can be established. Flexibility to achieve the range of land use strategies incorporated into *the Structure Plan 2010* can be achieved through the provision of schedules to this zone. For example, a schedule for Sturt Street can guide the delivery of land uses that reflect its cultural focus or which limit ground floor residential activity. Similar structures can be set in place for each of the land use strategies within *the Structure Plan 2010*. The detail of these provisions is to be developed, however the zone and associated schedules would refer directly to *the Structure Plan 2010* strategies and recommendations.

The conversion of the existing Residential 1 Zone to Mixed Use will enable the delivery of commercial, retail and community services that will meet the needs of the residents living in these areas. In order to provide amenity within higher density living areas, it is essential that these services are available in immediate proximity to residences. This assists in the delivery of two clear objectives - providing a good provision of local services and facilities within a five minute walk of all residences and the provision of land uses at ground floor that will create active streetscapes.

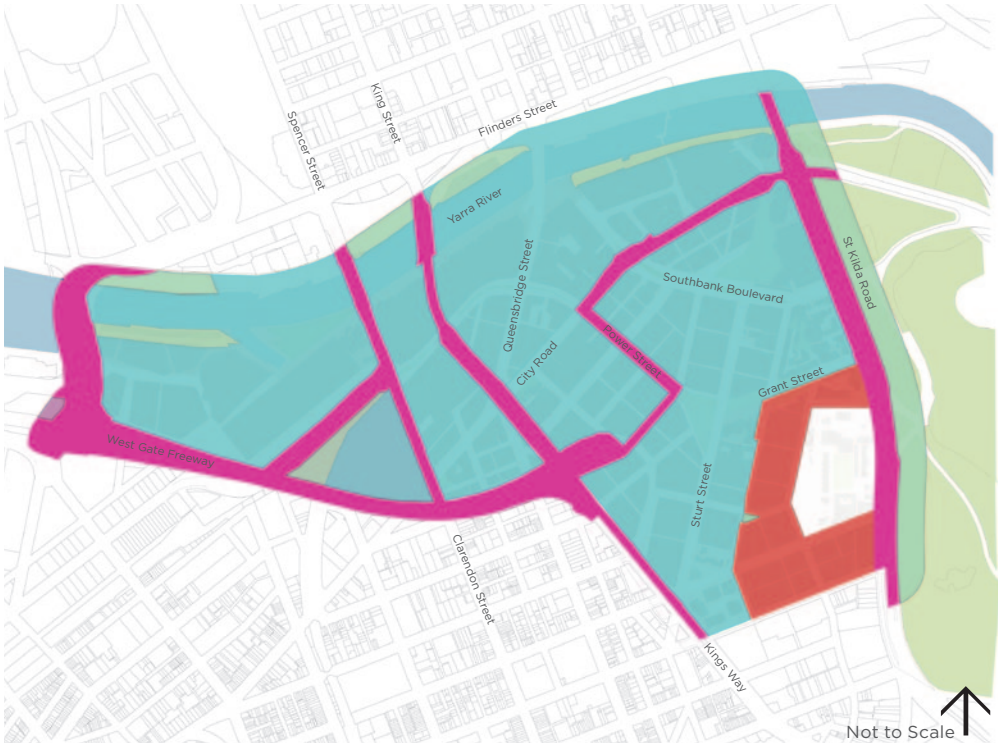


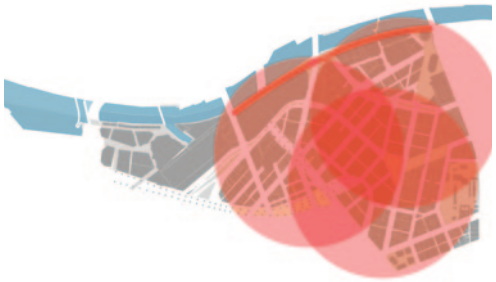
Figure 3.2 Proposed Zoning Plan - 30-year vision

Land Use Recommendation 1

Change of land use zoning from current Public Use, mixed use, Road Zone Category 1 and Residential 1 zones (**see Figure 3.1**) to the Capital City Zone and Mixed Use Zone respectively (**see Figure 3.2**). This would incorporate the removal of the 2:1 Commercial Floor Area Ratio that currently applies across Southbank which restricts commercial development and the establishment of new land use schedules.

- CCZ1 - Capital City Zone
- MUZ - Mixed Use Zone
- PPRZ - Public Park and Recreation Zone
- RDZ1 - Road Zone Category 1
- CA - Commonwealth Land

L2 Promote three local activity nodes



The significant growth in residential and worker population will dramatically increase the demand for local services, shopping and entertainment/social venues. The existing retail precincts within the central city and South Melbourne are not conveniently located to meet these needs. It is not viable to expect the growing resident, worker and visitor population to leave the area and go into the Central City and South Melbourne to meet their needs.

Addressing the existing lack of provision of local services and convenience shopping by promoting the establishment of three activity nodes within Southbank will significantly improve the local amenity and community well-being for the existing and future residents, workers and visitors. At least one of these activity nodes will be within a maximum five minute walk from any residence within the area. The three new activity nodes are to be centred on proposed open space and provide an integrated destination for local shopping, dining, community facilities and commercial premises. These activities however will not be limited to these nodes. They could develop at any location along the activity corridors. These nodes are starting points. The unique character and role of each activity node is outlined below.

1 Boyd School Activity Node

A local activity node co-located with the Boyd School redevelopment and community hub on City Road. This will provide new public facilities such as a library and community centre.

The *Southbank Plan 2010* had previously identified Whiteman Street as the preferred location for a new activity centre in this part of Southbank. Whiteman Street is located on the western side of Kings Way (a major north-south barrier to movement). Most residents west of Kings Way have good access to the Clarendon Street shops and services and this location was considered to duplicate this activity without providing a well located centre for residents east of Kings Way . Whiteman Street is fronted by development on the south side and the park/transport corridor to the north. The single sided nature of the street does not make it an ideal activity node location.

The Boyd School node should include small businesses, shops and restaurant/cafes and local services. These are expected to offer local convenience and provide community services and infrastructure for the residents within a five minute walking catchment.

An artist's impression of the vision for this node is illustrated in **Figure 3.5**.

2 Arts Precinct Activity Node

The Arts Precinct activity node is located adjacent to the existing Arts and Entertainment Precinct. It is also strategically located at the intersection of the new Sturt Street Cultural Spine link and the Southbank Boulevard park upgrade (both key recommendations of the *Southbank Plan 2010*). This location provides a key opportunity to link the existing vibrant riverfront activity to the regional arts destinations more centrally within the suburb (rather than via the existing St Kilda Road connection). This centre will service residents within a five minute walk and local, regional, interstate and international visitors to the Arts and Entertainment Precinct. The centre should include restaurants, bars, commercial premises and local convenience that complement the arts function. This centre can also provide the opportunity for a provision of smaller scale, arts facilities and creative industry businesses to flourish and add depth to the existing regional, large-scale arts attractions.

This node is currently undergoing development and is likely to develop further as the Sturt Street Cultural Spine matures. The current building stock already provides some opportunity for commercial development at the ground level, however, the area lacks an intensity of activity that is evident within the street.

3 CityLink Deck Activity Node

This major activity node offers the most significant opportunity for redevelopment within Southbank and can deliver a substantial new mixed use precinct that includes retail, restaurants, bars, commercial, residential and community infrastructure development. It can act as a major new economic and social 'heart' for Southbank that complements the existing regional social and cultural destinations along the Sturt Street Cultural Spine. This location is in a 10 minute walk from most locations within Southbank and is strategically located on the Sturt Street Cultural Spine.

The development of this area would require the removal of the Power Street off-ramp and the Sturt Street off-ramp.

An artist's impression of the vision for this node is illustrated in **Figure 3.7**.

Land Use Recommendation 2

Prepare master plans for the three activity nodes to establish a clear direction for their development.

Figure 3.3 Existing Boyd School

Figure 3.4 Existing Boyd School

Figure 3.5 Artists's impression of Boyd School Activity Node

Illustrations by Geoffrey Falk, architect

L3 Deck over the CityLink 'void' with new development

Development in this location (which is adjacent to Southbank's largest remaining vacant development site, refer **figure 1.3**) will provide significant improvements to connectivity and accessibility through the area by repairing this significant impediment to north-south movement (See Chapter 05: Mobility and Access for further detail) and 'stitch' together the disparate halves of the suburb. The cost of decking would be offset by development on it. This will also increase the broader development potential of the surrounding area and the future master plan should consider the impacts on the immediate land uses and development capacity within the area.

Figure 3.6 Existing CityLink Deck approach

Land Use Recommendation 3

Prepare a master plan and business case for the decking of the CityLink tunnel entrance to assess the feasibility of this strategy. The master plan study area should incorporate the immediate surrounding context.

Figure 3.7 Artist's impression of CityLink Deck Activity Node

Illustrations by Geoffrey Falk, architect

L4 Enhance the role of the regional arts precinct

The Sturt Street Cultural Spine began as a reality with the establishment of the Malthouse Theatre in 1990. Since then major pieces of the precinct have been progressively added but this has not yet evolved into a coherent precinct. *The Structure Plan 2010* aims to provide this coherence by encouraging the growth of a full and vibrant range of cafes, restaurants, retail, and small arts and culture venues along the street between the big arts facilities.

Land Use Recommendation 4

Deliver the Sturt Street Cultural Spine using the planning scheme and other mechanisms to encourage the growth of many, smaller scale uses along the street to complement the existing arts and cultural venues.

L5 Explore the future re-use of the Victoria Barracks for a cultural, community or mixed use development

The Victoria Barracks is an iconic building that contributes to Southbank's character and identity. The buildings fronting St Kilda Road, in particular, have architectural and cultural significance. The western (back) half of the complex is less significant and incorporates large car parking areas and less noteworthy buildings. The future use of the site for Defence purposes should be explored with the Commonwealth Department of Defence to assess whether an intensification of land uses can be accommodated within this western portion. Similarly, the site could house a cultural or community facility that showcases the site's heritage.

The barracks also contains a large green open space in its centre which could contribute to the provision of local green open space if the site were to be opened to the public in any future redevelopment (see Chapter 06 for further detail).

Any assessment would have to consider its functional and symbolic relationship to the Shrine of Remembrance and the historical significance of having a continuous military presence in the city.

Land Use Recommendation 5

Discuss long-term future options and opportunities of the Victoria Barracks site with the Commonwealth Department of Defence.

L6 New accessible public open spaces

The current provision of public open space available for recreational and community uses is low in Southbank. As the community in the eastern end of Southbank have good access to Kings Domain any new green open spaces would ideally be located in the western portion of the suburb. Delivering new public open spaces of any significant size in this area is difficult and would involve the conversion of private, developable land for public, non-commercial use with an associated high acquisition cost. The exception includes the M1 undercroft which is an opportunity to provide a linear park in the western end of Southbank.

The CityLink Deck precinct offers a new opportunity to provide a new large public park within this development site. The location of the Arts Activity Precinct at the intersection of the new Sturt Street spine and Southbank Boulevard emphasises the imperative to deliver the linear parkland within Southbank Boulevard.

Land Use Recommendation 6

Incorporate significant new green open space into the CityLink Deck master plan and business case.

Convert the undercroft of the M1 into a linear urban parkland.

L7 Increase the provision of affordable housing

Future Melbourne established a goal for the provision of 20% affordable housing in all new developments. Southbank should be contributing to this aspiration to improve opportunities for lower income earners to live within the central city through the provision of social, cooperative housing that is owned and managed by registered housing associations.

Land Use Recommendation 7

Investigate appropriate mechanisms to deliver 20% affordable housing including the opportunity for the City of Melbourne to act as a broker between developers and registered housing associations in order to facilitate this outcome.

L8 Assess flooding impacts of climate change

Preliminary mapping of potential flooding associated with climate change has indicated that the area surrounding the northern end of Kings Way could be subject to inundation (refer Background Report). A review of the flooding overlay is required to assess whether the future development of these affected sites will need mitigation measures or the prohibition of some sensitive land uses.

Land Use Recommendation 8

Review flooding overlay and extent of flooding controls/mitigation required on affected sites.

L9 Identify select sites for provision of Central Services Hubs (CSHs)

The Sustainable Utilities Study identifies three locations for the provision central service hubs. The delivery of this infrastructure has land use implications as the plants have requirements/ restrictions on adjacent use.

In selecting an appropriate area within Southbank to locate the CSHs the following factors need to be considered:

- access to services, including electrical, heating and fuel supplies
- noise emissions
- exhaust emissions
- ventilation and air quality requirements
- delivery, access and positioning of the system
- maintenance requirements
- land area relative to system size.

As much as possible, the plant building should be screened from the public, preferably wrapped in other uses, eg. commercial use. Locating these sites early on will ensure that future development does not establish land use activities that will preclude the delivery of this infrastructure at a later date.

(See Section 8 for further detail).

Land Use Recommendation 9

Confirm three locations of Central Services Hub. Investigate in more detail the specification requirements of this infrastructure including the need to consider emissions, noise, vibration and access issues associated with the installation, operation and maintenance of the facilities.

A summary of Land Use Strategies is illustrated in **Figure 3.8.**

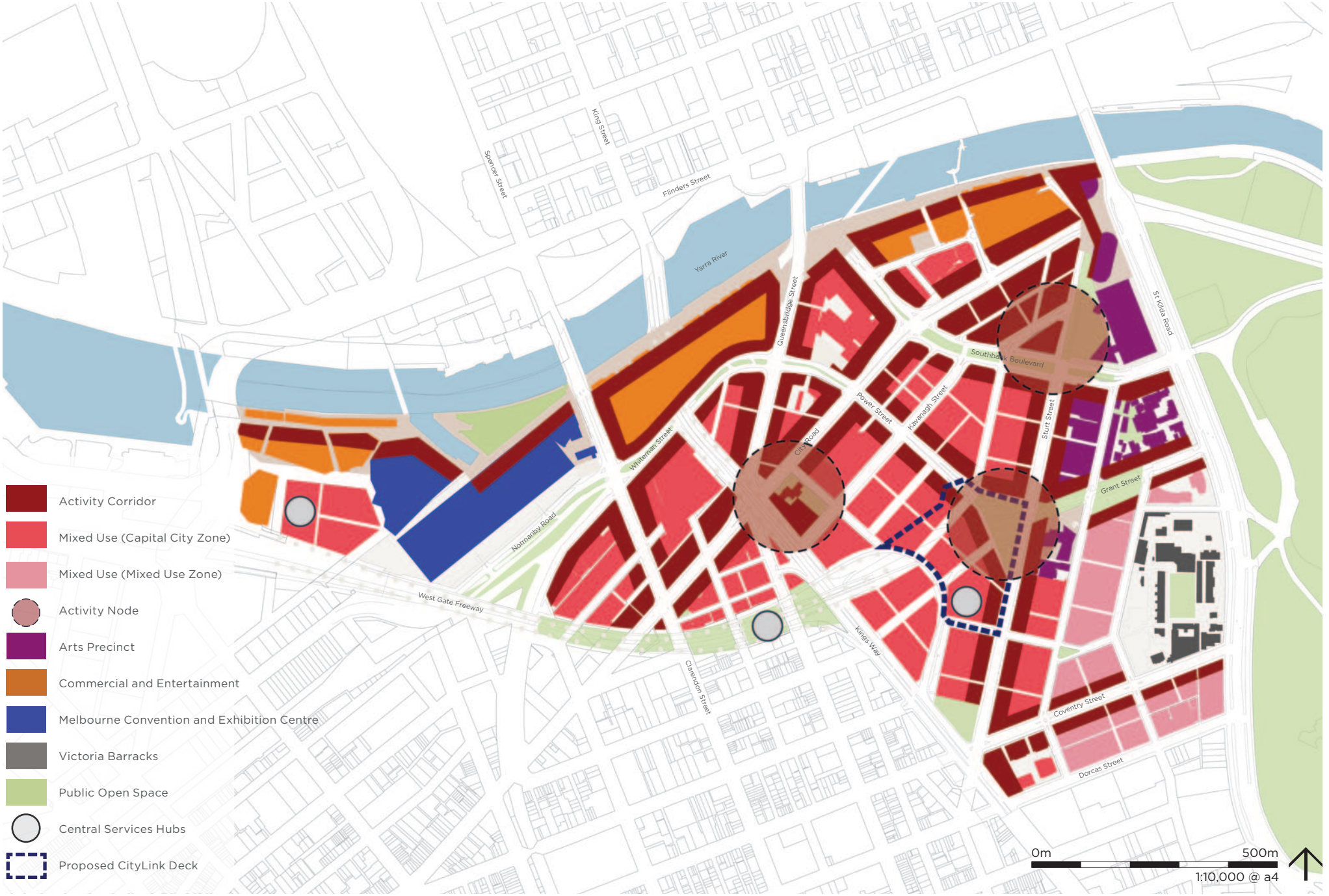


Figure 3.8 Proposed Land Use Plan

04 Built Form

4.1
Built Form Issues

Southbank and the central city area needs to be developed to high densities to optimise urban liveability, sustainability and the prosperity and vitality of the city. Southbank currently has an average density of 66 residents per hectare but the current development trend for the suburb is setting a course for an ultimate density of over 565 residents per hectare.

Southbank is now being populated with 30-60+ storey high towers. There is no compelling reason for Southbank to be developed to these excessive heights to accommodate future population growth. On the contrary, the evidence of the developments done to date is that these building heights, paired with the delivery of podiums dominated by car parking, are creating streets that are dark, windy, unwelcoming and unattractive. Southbank residents currently have to go out of their area to South Melbourne or the central city to participate in attractive and engaging streetlife. If this trend continues, so will the decline of the amenity of Southbank.

The local built form issues within Southbank are outlined below.

1. The large building footprints along the river frontage of the casino, Southgate and the Melbourne Exhibition Centre reduce pedestrian permeability to and from the river to the south.
2. Inactive frontages at ground level dominate the suburb with 83% of frontages not providing a direct and positive contribution to the quality of the streetscape.
3. Only 17% of buildings have active frontages at ground level. This creates an unattractive and unsafe walking environment (**See figures 4.1 and 4.2**).
4. The first 8-10 levels of high-rise podiums are primarily built to accommodate car parking creating dead facades and a lack of passive surveillance provided from the upper floor levels.
5. There are a few examples of the fine urban grain that occur at the south-western end of the study area and midway along Southbank Boulevard which need to be preserved.

There are many examples from around the world of dense cities that score well for liveability, sustainability, prosperity and cultural vitality where the dominant building typology is mid-rise development - up to a more modest 20 storey height range. This scale of buildings will provide a viable return for developers and enable Southbank to address many of these issues and attain a high degree of liveability and sustainability.

However, as identified in the **Figures 1.4-1.6** existing development expectations in the form of height controls are in place that, if upheld, will to an extent predetermine built form outcomes. The built form strategies proposed in *the Structure Plan 2010* do not compromise these expectations, but do suggest a series of new built form controls that will address each of the issues noted above and deliver a new streetscape vision that will drastically improve the liveability and vibrancy of Southbank.

Active

A direct engagement and positive contribution to the creation of a lively, active streetscape, includes convenience stores, retail shops (where there is an intensity of use/display and a transparency between the internal retail area and the streetfront), cafes/ restaurants/takeaways, the 'front' end of office/ commercial developments, eg. entry foyers/reception (not meeting rooms or private office space) entrances to residential developments (no habitable rooms).

Inactive - Neutral

Minimal engagement with the streetscape, includes 'back' end of office/commercial developments, residential habitable rooms, large format retail development (where there is a low intensity of use/display - eg. car/furniture showrooms)

Inactive - Negative

No engagement with the streetscape creating dead, sterile environments that are uninteresting, unsafe and unattractive includes service areas/infrastructure, blank walls and car parking.

Figure 4.1 Examples of frontage conditions in southbank

Figure 4.2 Existing edge conditions and quality of enclosure diagram

The land use issues identified in Section 3.1 - in particular the inadequacy of the existing planning controls to deliver the land use objectives - also apply to the delivery of a high quality built form.

The disjointed suite of planning controls, together with a tendency within planning assessments to consider development proposals in isolation from their streetscape context has resulted in the poor built form conditions noted above. There is a strong bias at present to assess new development based on a building's architectural merit with limited or lesser regard to any broader abutting, neighborhood or civic design context or responsibility.

The appropriate vehicle to address this current bias and deliver the streetscape vision is through a suite of built form controls. These controls should be incorporated into the Overlay Schedules within the Planning Scheme, and will require support from the *Municipal Strategic Statement* and zoning objectives.

These built form controls can and also need to be tailored to differentiate between the different precincts/issues within Southbank.

4.2 Built Form Objectives

Southbank needs a new streetscape vision to guide appropriate built form outcomes towards addressing these issues.

As the primary mechanism to deliver these objectives, new built form controls are required that achieve two key visionary outcomes.

- First ensure that new building heights and density create an appropriate streetscape scale that does not contribute to the creation of a dark, shady and windy environment at ground level.
- Second, to prioritise the delivery of a vibrant street life through the establishment of active ground uses and upper floors that provide overlooking of the street.

Both of these considerations must be given priority over the architectural merit of a building. An iconic and interesting building will fail to deliver the objectives of the streetscape vision and will contribute to the continuing decline in local amenity if it does not meet these two criteria.

The following are the built form objectives for Southbank:

- Positive and active street frontages to all street boundaries.
- Informal surveillance from the first 10 floors above street level.
- To maintain the predominantly mid-rise streetscape scale.
- To allow daylight and sunlight to penetrate to the street and lower building levels.
- To deliver energy and water efficient buildings.
- To deliver buildings which passively utilise the microclimate.
- To reduce wind downdrafts from tower buildings.
- To provide outlook from towers.

4.3 Built Form Strategies

The following strategies will reshape the built form outcomes within future developments.

B1 Deliver streetscape vision objective 1 : appropriate density and height

New development in Southbank is primarily in the form of high-rise residential towers which is further exacerbating the issues outlined above. This building type and use is expected to be the dominant form of new development. Increasingly this form of development will take place on smaller sites as availability of larger sites diminishes.

High-rise developments that do not consider the impact on the streetscapes below can create an uncomfortable, unwelcoming and unattractive experience for the pedestrian where the bulk of the building can be overly dominant on the streetscape.

Achieving the human scale of built form that is enjoyed in the central city is possible by mandating a street 'wall' height of 30 to 40m with a zero metre setback. This is an established streetscape condition in the central city which provides many central city streets with a 'human scale'. Mandating a 30m (minimum) to 40m (maximum) height limit for the podiums of future high-rise developments will establish this 'human-scale' within Southbank.

A setback of 10m is applied to all upper levels above the podium height. This contributes to the definition of the street wall, opens up sky views for pedestrians and assists in bringing daylight into the street. An illustration of this proposal is indicated in **Figure 4.3**.

To maintain existing developer expectations the height limits for buildings above podium level will stay the same as the current discretionary height limits. A maximum tower depth of 35m is proposed to ensure that daylight penetrates through to the streets and that the perceived visual bulk of these towers does not dominate the human scale quality of the street.

Within the CityLink Deck area height limits will need to be tall enough to off-set the cost of the decking without creating a detrimental impact on the public realm below.

An increase in the height limit fronting Sturt Street is proposed to create a stronger definition to the streetscape and allow for a greater intensity of activity along this important urban cultural spine. This recognises that to deliver a significant level of amenity and services a minimum level of density is required. Mid-rise developments of 10 to 12 storeys (maximum 40 metres with no towers) are proposed in this area to respect the scale of the existing cultural buildings while at the same time achieving these densities.

The existing residential area bounded by Dodds Street, Wells Street, Grant Street and Coventry Streets will maintain a 14m height limit. A future review of this height limit would be considered with the master planning of the CityLink Deck area.

The proposed built form height controls for tower developments are illustrated in **Figure 4.4**

Built Form Recommendation 01

Introduce new built form controls into a schedule in the Planning Scheme that deliver the following outcomes.

- 0m setbacks up to podium height.
- Mandatory podium height minimum of 30m and maximum of 40m.
- Tower separation (within site and to towers on adjacent sites) - minimum of 10m.
- Tower setback above podium to be 10m from a primary or secondary street frontage, 5m from a side boundary and 2m from tertiary streets.
- Maximum tower depth and width of 35m.

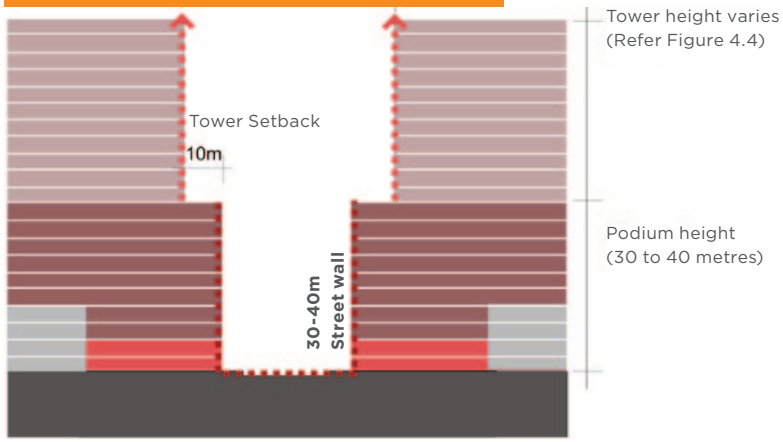


Figure 4.3 Proposed built form height and setback controls

Active use

Habitable/ commercial uses

Car parking

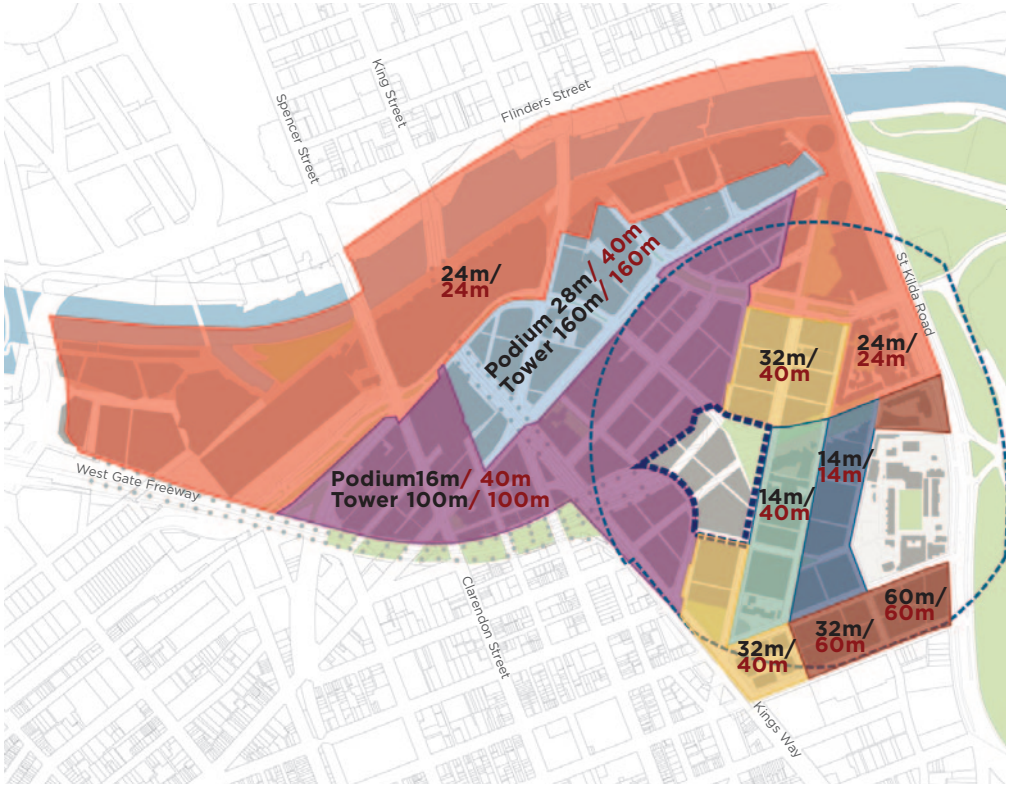


Figure 4.4 Proposed Building Height Plan*
*Maximum podium and tower height subject to local air quality requirements.

NOT TO SCALE

24m
160+
100
40
60
40
14

CityLink Exhaust Stack - Refer DDO27
24m Existing Height Limit
24m Proposed Height Limit
Proposed CityLink Deck

B2 Deliver streetscape vision objective 2 : a lively and characterful streetscape

To address the current predominance of inactive street frontages and create a liveable, vibrant and social Southbank all buildings at street level should deliver an active frontage of 80% in line with central city planning controls. In line with Crime Prevention Through Environmental Design (CPTED) principles, all buildings at upper levels must provide passive surveillance over the street by locating habitable rooms or commercial spaces to the street frontage at all upper podium levels. This will restrict the development of car parks at the street edge on lower and upper levels. As car parking will be internalised away from street frontages lighting and ventilation of the car park should be provided using low energy using solutions.

Any car parking included in the podium should be constructed with a mimimum 3.6m floor to floor heights to allow for future adaptability to other habitable or commercial uses. This allows for 0.6m of structure and services and 3.0m ceiling heights

New car parking restrictions of a maximum of one car per dwelling have recently been introduced in Southbank which will provide the opportunity to reduce the impact of car parking on the street edge. Considering Southbank's proximity to the central city and good public transport services it is possible to further reduce this ratio in Southbank to 0.5 car spaces per dwelling.

Commercial carparks should be a prohibited use as they will not deliver the streetscape vision.

Built Form Recommendation 02
Introduce new built form controls into a schedule in the Planning Scheme that deliver the following outcomes to achieve the streetscape vision.

- 80% active street level frontage within each development site to primary and secondary street frontages (**see Figure 4.5** for street classification).
- 50% active street level frontage within each development site to tertiary (laneway) frontages to assist in the activation of these pedestrian thoroughfares.
- Habitable or commercial uses to all podium levels above street level for 80% of street frontages.
- Minimum 4.0m floor to floor height for ground level.
- Minimum 3.6m for all upper podium levels (including car parking areas).
- Maximum 0.5 car spaces per dwelling
- With the exception of residential car parking rates, car parking provision to be in accordance with Schedule to Clause 52.06-6 in the Melbourne Planning Scheme.

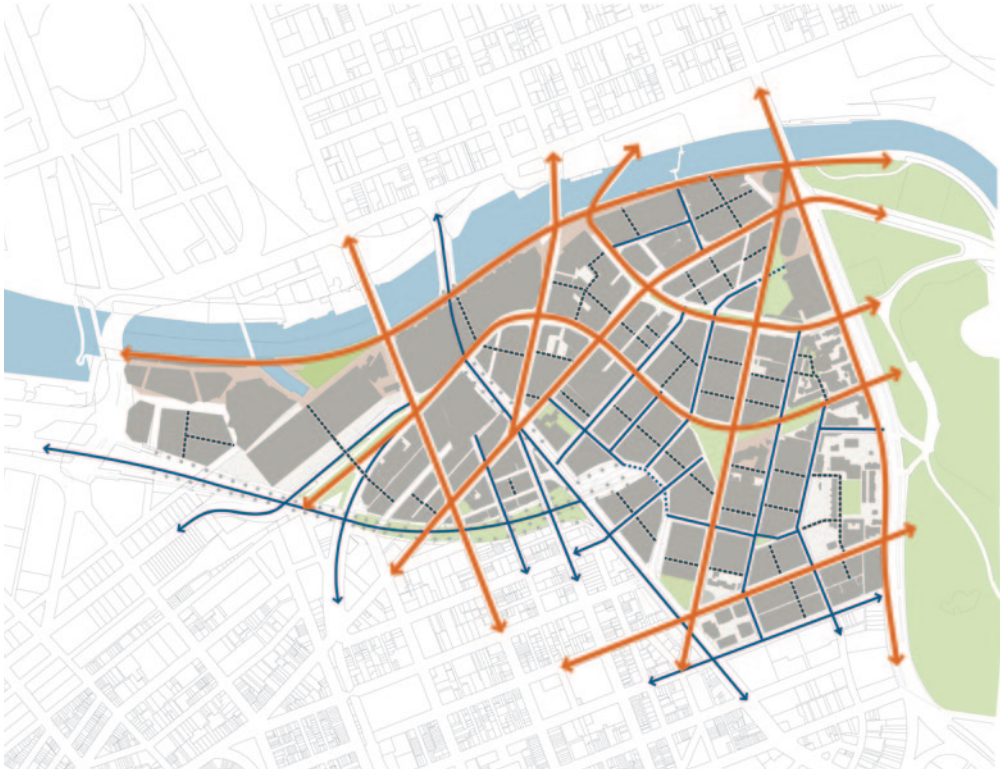


Figure 4.5 Street Classification

Not to Scale

Active corridor primary street 80% active frontage

Secondary street 80% active frontage

Tertiary laneway 50% active frontage

B3 Mandate improved environmental building performance on all new developments

The introduction of new built form controls into the Planning Scheme that target environmental performance would provide a mechanism to influence the sustainability outcomes within Southbank.

To meet the objective of establishing Southbank as a sustainable suburb, all new developments must meet the following criteria for each specific land use. These targets represent a 'best practice' legislated standard at the time of preparing this study. These targets should be updated at regular intervals to ensure that they meet the highest legislated standards.

Currently only commercial office uses are mandated to deliver this level of environmental excellence (in accordance with the City of Melbourne's Environmentally Sustainable Office Buildings (ESOB) Policy (Clause 22.19 of the Melbourne Planning Scheme)).

Commercial offices less than 2,500m2 gross floor area must:

- Address general environmental criteria only.

» Offices between 2,500 and 5,000m2 gross floor area must:

- Address general environmental criteria. Achieve a minimum 4.5 Australian Building Greenhouse Rating (ABGR) Base Building Rating.

» Offices greater than 5,000m2 gross floor area must:

- Address general environmental criteria.
- Achieve a 4 Star Green Star Office Design rating.
- Achieve a minimum 4.5 Star ABGR base building rating.
- Achieve a maximum water consumption of 30 litres/day/person using the Green Star Water Calculator.

A Green Star 5 Star must be delivered for new developments in the following uses:

» Education

» Healthcare

» Multi Unit Residential

» Office.

These uses have an existing Green Star tool that can be used to assess the building performance.

As other green star rating tools evolve and develop the following uses must apply with the relevant rating tool:

» Industrial

» Mixed Use

» Office Existing Building

» Convention Centre Design (The above categories currently have Green Star pilots in development)

» Entertainment

» Food and beverage service

» Cultural/performance facilities, eg. art galleries, theatres.

All new developments in the following land use categories must achieve a National Australian Built Environment Rating System (NABERS) energy rating 4.5 stars:

- Office
- Residential
- Hotels
- Retail.

As other land uses come online they will also have to meet the above energy rating objectives.

The environmental performance of adopting these energy savings/targets is incorporated into the Sustainable Utilities Report.

Built Form Recommendation 03

Mandate the delivery of environmental building performance in local planning policy for all new development.

B4 Mandate improved environmental building performance on redevelopment of existing buildings (when a planning permit is triggered)

All planning applications must demonstrate that the following has been achieved:

- NABERS Energy Rating 3.0 star improvement on existing (up to 5 star upper limit).

This applies to the following uses:

- Office
- Residential
- Hotels
- Retail.

As other land uses come online they will also have to meet the above energy rating objectives.

Built Form Recommendation 04

Mandate the delivery of environmental building performance in local planning policy for redevelopment.

B5 Mandate the delivery of green roofs on all new development

While the inclusion of green roofs will assist in the above energy targets they provide a number of other key benefits to address the built form, open space network and sustainable infrastructure objectives of the *Structure Plan 2010*, namely:

- Body corporate recreational space.
- Reduction in the Urban Heat Island Effect (UHI).
- Enhanced visual amenity - particularly contributing to quality of the 'fifth' facade, (the roof).
- Contribution to biodiversity benefits.
- Opportunities for local food production.
- Improved stormwater quality outcomes if used to treat roof water before discharging to the stormwater system.

Refer to Section 8 for further detail regarding the complementary uses of photovoltaics and greenroofs.

Built Form Recommendation 05

Mandate the delivery of green roofs for all new developments in local planning policy.

B6 Generate 10% of new development energy requirements on-site

To achieve the sustainability vision for Southbank, new development should be responsible for the generation of a portion of its own energy consumption. An energy generation target of 10% is in line with other global initiatives. The generation of this energy could come from a suite of sustainable technologies, including photovoltaics and micro-wind turbines.

If, due to site constraints, a new development is not able to meet this target, a developer contribution towards the delivery of the sustainable infrastructure recommendations (see Section 8) should be imposed to ensure equity in the transition from traditional energy generation methods to new, localised generation technologies.

Built Form Recommendation 06

Mandate the inclusion of a 10% energy generation target into the local planning policy.

Built Form Recommendation 07

Investigate a developer contribution overlay for the delivery of sustainable infrastructure.

B7 Protect City Road West Precinct

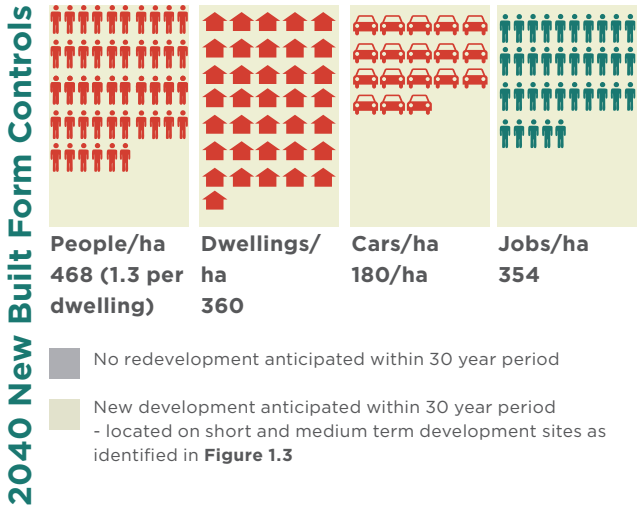
The City Road West Precinct of Southbank (bounded by Kings Way , the West Gate Freeway and Haig Street/Lane) provides unique opportunities to contribute positively to the future development of Southbank.

The urban structure of this area (fine grained street network, small sites with multiple owners) provides a positive base for the redevelopment of this precinct into a vibrant, mixed use area that includes smaller premises and establishes a distinct urban character. It will be important that the redevelopment of this area does not erode these qualities through the consolidation of site ownership and the development of larger footprint buildings.

Built Form Recommendation 08

Identify this precinct and include guidance in the Melbourne Planning Scheme that recognises and protects the fine grain urban character of this precinct.

Figure 4.6 illustrates the development of Southbank according to the proposed building controls.



TOTAL NEW DEVELOPMENT CAPACITY (GFA)

4,400,000M²

MAXIMUM POSSIBLE NO. DWELLINGS 2040

57,000

MAXIMUM POSSIBLE RESIDENTIAL POPULATION

74,000

MAXIMUM POSSIBLE WORKER POPULATION

56,000

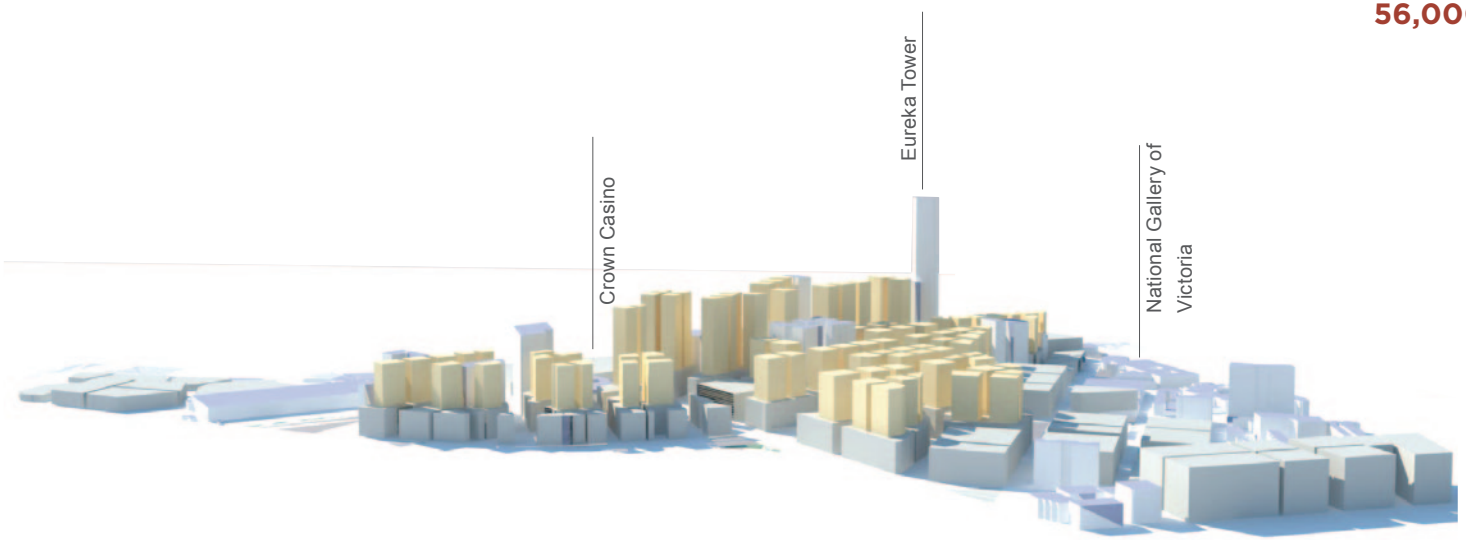


Figure 4.6 Proposed 30-Year development of Southbank

05 Mobility and Access

5.1 Issues

The transport system for Southbank must help make the precinct an attractive and desirable place where people want to live, work and play. As Southbank grows improvements to the levels of access and connectivity into and through Southbank will be necessary to ensure Southank has a vibrant and walkable environment.

Future access in Southbank must improve the efficiency of transport and in particular optimise the role of public transport, the most space efficient of motorised modes.

Adoption of sustainable and more efficient mobility solutions will thus enable Southbank to achieve optimal economic, environmental and social outcomes. It will also help to limit the adverse economic impacts of congestion. The Bureau of Infrastructure, Transport and Regional Economics estimated that the avoidable cost of congestion for the Australian capitals was $9.4 billion in 2005 and estimated to rise to $20 billion by 2020 impacting adversely on Australian productivity and national, state and local economies.

The nearby central city demonstrates how it is possible to accommodate significant population growth, reduce the role of the car, and transform a city from a mono-functional business centre into a liveable and sustainable multi-functional activity centre.

The key transport feature that has facilitated much of this transformation is the extensive availability of public transport, the highly connected and permeable pedestrian network and a high quality public domain that encourages walking.

Southbank's transformation over the last 10 to 20 years has increasingly seen the precinct take on many of the characteristics of the central city. This is manifested in its wide range of activities and growing importance as a destination of regional significance. Consequently, Southbank is equally well placed to follow the central city's lead and capitalise on its riverside location, proximity to the largest concentration of jobs in Victoria, growing population and the diversity of land uses and attractions. Southbank must respond through the establishment of a comprehensive pedestrian and bicycle network through physical infrastructure improvements and reprioritisation in favour of walking and cycling. In addition, public transport must complement walking and cycling for travel to, from, within and through Southbank.

The focus and commitment on pedestrian and bicycling needs is strongly supported by the identification of City Road as a street that caters predominantly for "local" traffic movements, has a very low proportion of through traffic, and carries a relatively small number of placarded trucks. Truck numbers on City Road, only represent 2% to 6% of total daily traffic flows. They are significantly lower on other streets. It has also been identified that the other principal roads intersecting City Road (Clarendon, Queensbridge, Sturt and Power streets) play a supporting role in distributing the local traffic and are not part of a regional arterial network for motor vehicles. As a consequence, the transport system in Southbank will be designed and managed like that of the nearby central city, featuring reallocation of road space, traffic signal and speed management, partial and intermittent street closures, parking limitations, and improved pedestrian and cycling facilities.

A first step to achieving these desired outcomes will be to redefine the transport user hierarchy – pedestrians first then cyclists and public transport users, and then car drivers – to encourage a reduction in motorised travel and a shift in mode choice. A very strong foundation already exists – as Southbank residents exhibit high levels of walking compared with Melburnians from across the metropolitan area -48% of Southbank residents walk to work. Thus, in Southbank, the urban environment and transport network cannot be built on the assumption that people own cars and will use them for the majority of their travel needs. The opposite is true – already a quarter of residents do not own cars despite having incomes 20% higher than the average Metropolitan Melbourne resident. Furthermore, despite 75% of residents owning cars, fewer than 20% drive to work.

Currently, around 61% of the 10,500 Southbank residents are employed. If this proportion is maintained, the number of employed residents when the 74,000 population target is realised will be around 45,000. If current mode share patterns are retained, the number of work-related walking trips will be nearly 22,000. The provision of an extensive pedestrian network, as well as priority and amenity, is therefore fundamental. The proximity to the central city, along with the future increased density and diversity of land uses in Southbank, will support the continued shift to walking, cycling and public transport and a reduction in car use across all trip purposes.

Walking

The walkability assessment reveals that despite the availability of reasonable pedestrian infrastructure in many parts of Southbank, overall walkability suffers from a street environment that is dominated by cars, large expanses of roadways and a lack of active building frontages. This is most evident on City Road, Kings Way and the West Gate Freeway (in the vicinity of the CityLink portal), all of which act as significant pedestrian barriers. Other important pedestrian links, such as Princes Bridge are experiencing significant crowding at peak times.

Cycling

A number of bicycle initiatives are identified in City of Melbourne's *2007-2011 Bicycle Plan*, the *Inner Melbourne Action Plan (IMAP)* and the *Victorian Cycling Strategy*. These strategies will guide improvements to cycling throughout Southbank and inner Melbourne.

An important consideration is the quality of bicycle routes since it is well-established that people are more likely to use high quality routes (e.g. Swanston Street and St Kilda Road), particularly those that physically separate bicycles riders from motor vehicles.

Cycling has experienced increased popularity in recent years and has contributed to reduced dependency on motor vehicles in Southbank. A number of issues exist with the cycling network:

- Queensbridge Street only has bicycle lanes between City Road and Power Street.
- Southbank Promenade - the only safe and attractive east-west cycling route is overcrowded.
- An absence of bicycle lanes on City Road and Clarendon Street.
- The newly created interchange between the West Gate Freeway and Montague Street creates an unattractive cycling environment leading to one of the Yarra River crossings.
- No connection to Cecil Street (in City of Port Phillip).
- Scarcity of bicycle parking.
- Low proportion of the transport network with bicycle facilities, and specifically the lack of north-south and east-west continuous bicycle facilities through Southbank.

Public Transport

Public transport has an important role particularly in satisfying the lower number of longer distance trips that are undertaken by the Southbank community. *The Structure Plan 2010* also has a vital role in ensuring that on-road public transport routes (tram and bus) which travel through Southbank taking people to and from the central city, operate as efficiently as possible. All the tram routes in Southbank are identified by VicRoads as "tram priority routes", and as a result should be treated with tram priority measures such as tram lanes and priority at signals to reduce the amount of time wasted by tram passengers stuck in traffic.

In the future, Melbourne Metro has the potential to allow public transport to make an even more significant contribution in servicing the travel needs of the Southbank community and of workers and visitors travelling to and within the area. Melbourne Metro stage one is a major new rail tunnel linking North Melbourne, Parkville, the central city and the St Kilda Road corridor. New stations will be created servicing Parkville and Southbank/St Kilda Road. It is expected that the first stage will provide a number of benefits, including:

- Relieving capacity on Melbourne's busiest rail corridor.
- Increasing passenger carrying capacity on several train lines.
- Relieving pressure on Swanston Street/St Kilda Road tram services.

Overall, the public transport share of journeys-to-work for Southbank residents is around 25 percent. In line with City of Melbourne and Victorian Government congestion and emissions reduction objectives, it is desirable to increase the current public transport mode share wherever possible. In this instance, the main challenge is to not necessarily attract current pedestrian and cyclists to public transport (these two groups form the majority of journey-to-work trips) but to target the proportion of the 19 percent motor vehicle trips that may potentially switch to public transport.

A number of key issues exist with the current provision of public transport services including:

- Major delays to citybound bus services in City Road at its intersection with Queensbridge Street are experienced during the morning peak period. This is due to congestion on Queensbridge Street delaying left turning traffic (including buses) entering from City Road. This is compounded by traffic entering Queensbridge Street during the City Road red signal phase, from Moray Street. A proposal for a morning peak bus lane on City Road has been prepared by VicRoads and endorsed by the City of Melbourne. Any solution ultimately implemented will need to be monitored to gauge its effectiveness;
- Delays for trams at signalised intersections. Low levels of active tram priority exist in some areas in Southbank.
- Citybound tram services arriving into Southbank from South Melbourne (1), St Kilda (96 and 112), Port Melbourne (109) and all services on St Kilda Road are at capacity in the morning peak period.
- Southbank Boulevard, City Road and Normanby Road are on the Principal Public Transport Network (PPTN) and bus priority should be investigated for these roads.
- The 24-hour entertainment/leisure/cultural attractions in Southbank are not well serviced by public transport during the night time hours and weekends.
- Lack of east-west public transport services through Southbank.
- A number of bus and tram stops have poor levels of amenity and lack real-time information.

Traffic and Parking

Southbank has experienced a rapid transformation from its early 20th century role as an industrial and manufacturing area to a capital city destination of regional significance. This change has not been reflected in the management of traffic and parking through the area. Parts of the transport network remain focused on the movement of cars through Southbank, rather than promoting local access and circulation. Much of the traffic is bound not only for the large car parks within Southbank, but also car parks in the Central City, with adverse amenity, safety and economic impacts. Management of both traffic and parking must reflect the current and future nature of Southbank as a vibrant, multi-use extension of the Central City, and limit its role in delivering traffic to adjacent precincts such as the Central City.

An important step in reducing car use has been the City of Melbourne's Planning Scheme Amendment C133. This introduces a car parking maximum limitation for residential parking throughout most of the Municipality (compared with the previous minimum requirement). The broad scale application of a parking limitation policy is the first of its kind in Victoria and represents an important step towards a modal shift and reduced the dependence on motor vehicles in everyday life. Travel is a reflection of activity at land use origin and destination points. As such, the availability of parking at the origin and destination is a prerequisite for motor vehicle travel. The removal of parking thus forces modal shift. It is this simple notion that has led to the recognition that parking supply and cost are a key component of an integrated strategy to reduce motor vehicle dependency. Therefore, the recommendations for *the Structure Plan 2010* must build on amendment C133 and assess all opportunities to minimise parking at origin and destination points in order to achieve sustainable reductions in motor vehicle use.

City Road represents a significant barrier to pedestrian movements and has a poor quality walking and cycling environment. A comprehensive survey program was undertaken to identify the nature of traffic movements through Southbank specifically to better understand the role of City Road.

The analysis of traffic on City Road has revealed that there is a strong local emphasis that characterises movement patterns on this street. The following was noted:

- The section of City Road between Sturt Street and Clarendon Street caters for predominantly local traffic movements – these are movements with a local (Southbank) origin and destination.
- The proportion of through traffic on City Road is very low – around a few hundred movements per hour in either direction at most.
- Total daily two-way traffic volumes are comparatively modest (in the mid 20,000s in the western section and as low as 24,000 – Power Street to Queensbridge Street; rising to 52,000 – east of Power Street; and dropping to 43,000 under St Kilda Road). These daily traffic volumes are lower than most Central City streets.
- More than half of the vehicles turning onto/coming off City Road originate from and stay within Southbank.
- It is evident that the other "main" roads intersecting City Road (Clarendon, Queensbridge, Sturt and Power) play an important supporting role in distributing the local traffic to the various private and public carparks.

Other issues identified with regards to traffic and parking include:

- Prolonged congestion on:
  - Northern section of St Kilda Road and Princes Bridge in the morning peak leading into the Central City.
  - Northbound traffic on Clarendon Street between City Road and Flinders Street in the morning peak and southbound in the same section in the afternoon peak.
  - Queensbridge Street citybound in the morning peak between City Road and Power Street.
  - Queensbridge Street southbound in the afternoon peak between Queensbridge and Power Street.
  - City Road, various sections, west of Clarendon Street to the St Kilda Road overpass.
  - Sturt Street southbound in the afternoon peak at Kings Way.
  - Coventry Street westbound in the afternoon peak east of Sturt Street.
  - Clarendon Street and Normandy Road in the vicinity of the Casino and Exhibition Centre car parks and taxi rank access points. This is particularly evident on Friday evenings and during peak event/exhibition times.
- Key roads through Southbank are sign-posted with comparatively high 60 kilometre-per-hour speed limits; higher than the default 50 kilometre-per-hour urban speed limit in Victoria.
- The extensive availability of public and private off-street parking makes driving a logical choice for many visitors to Southbank. At times, this results in unreasonable levels of traffic within the precinct. The car parks attract a large number of cars affecting the operation of on-road public transport, particularly at signalised intersections. This leads to reduced productivity and increased travel time. The delays experienced by public transport reduce its attractiveness.
- Access to existing parking, the arts venues in particular will be retained. It is recognised that it will remain a key way to travel to evening arts activities. There will need to be a significant improvement in evening and late night public transport performance to allow it to carry a significant share of this market.

Freight

Freight is not a core business for Southbank yet has a significant impact on the local residential community and local businesses. Roads should therefore be designed to accommodate freight vehicles as part of a mixed traffic environment including pedestrians, bicycles, public transport and other private motor vehicles.

Commercial vehicle traffic in Southbank is found predominantly on Kings Way , City Road and the West Gate Freeway. Kings Way and the West Gate Freeway are established arterial routes with an important freight function, which will continue into the future. The role of City Road is somewhat different as it traverses the heart of Southbank and is the alternative route for placarded goods that are restricted from accessing the CityLink tunnels. However, the analysis of City Road has revealed that it carries a relatively small number of placarded trucks. Additionally, the freight task across Southbank is predominantly associated with local servicing needs and is thus not a significant contributor to local traffic and congestion. In summary, the main commercial vehicle traffic activity in Southbank is confined to the arterial routes on the periphery of the precinct and there is thus no necessity to design and accommodate for freight movements within the heart of Southbank, including on City Road.

5.2 Mobility Objectives

Southbank's transport system should support its role as a capital city destination of regional significance and not simply a thoroughfare. On a day-to-day basis, many workers and residents already exhibit low levels of motor vehicle dependency. *The Structure Plan 2010* must build on this strong foundation to achieve even higher levels of sustainable transport. It must:

- Facilitate the walking needs of residents, workers and other visitors, and make public transport easily accessible.
- Make sustainable and efficient travel options viable, attractive and desirable.
- Promote walking, cycling and public transport as the preferred modes for local trips and public transport for longer trips (making motor vehicle use the least attractive alternative) and trips through Southbank, especially to the central city. Road network design must prioritise walking and facilitate safe on-road cycling.
- Provide high levels of accessibility (primarily by walking and cycling) to important destinations in neighbouring areas (e.g., South Melbourne Market, sports and entertainment precinct, Domain parklands, Clarendon Street shopping district and Port Phillip Bay).
- Ensure that wayfinding through the area is facilitated through good design - clear sightlines and identifiable landmarks - and reinforced through a signage strategy where required.
- Provide for the need of services delivery (freight access) to the local area that considers residential amenity.

The management of the Southbank transport network must prioritise local access and circulation and recognise that:

- Movements on City Road are local not regional.
- City Road and the other "main" roads in Southbank are not part of broader arterial routes (the only exceptions are Kings Way and the West Gate Freeway).
- The interaction of City Road with all the other streets in Southbank is local in nature.

The specific objectives that support the creation of a sustainable and fully integrated multi-modal transport system for Southbank with a central city standard of mobility, access and connectivity include:

- Increase the share of walking for all trip purposes through the development of a safe, efficient and attractive pedestrian network to capitalise on significant pedestrian activity and growth.
- Enable safe cycling within and through Southbank by improving cycling infrastructure and management to increase participation and enhance safety.
- Increase the share of public transport within Southbank including supporting Victorian Government initiatives to expand the public transport system and improve network, operations and system design.
- Accommodate local car access and circulation while targeting a reduction in car ownership and use.

5.3 Mobility and Access Strategies

M1 Improve Walkability

The Structure Plan 2010 will enhance the walking environment within Southbank through a series of management initiatives and the upgrade of the physical environment. These will make Southbank's streets lively and accessable for pedestrians. This will occur across the street network but be particularly focused on nominated pedestrian spines that connect the primary activity areas within Southbank. A network of smaller streets, laneways and walkways will also be established to provide high levels of permeability throughout the precinct.

There are five principal north-south pedestrian routes that serve both the local community in Southbank and pedestrian movements through the area. These are St Kilda Road, Clarendon Street, Sturt Street, and Queensbridge Street. These spines connect the central city with Southbank and all the precincts to the south.

There are seven principal east-west pedestrian routes. These are Southbank Promenade, City Road, Southbank Boulevard, Coventry Street, West Gate Freeway undercroft (see Section 06 Open Space Network), Grant Street and Normanby Road/Whiteman Street/Power Street. These spines provide local connectivity and allow residents to access a range of goods and services within Southbank. external destinations including Domain parklands, the DFO, the Melbourne Conventions and Exhibition Centre, South Melbourne Market and the Yarra Park MCG Sports Precinct. The redevelopment of Hamer Hall will further enhance Southbank Promenade as a key pedestrian spine to these destinations.

The north-south and east-west pedestrian spines provide an opportunity to promote non-car travel both within and through Southbank. Of particular importance is the role of City Road as it connects to most of the other north-south and east-west primary pedestrian spines. City Road is also centrally located with respect to Southbank's principal cultural, entertainment, leisure and commercial activities. In this context, City Road should be managed to provide the highest possible levels of pedestrian priority and become a strong civic spine for the northern part of Southbank.

Princes Bridge is currently overloaded for pedestrian use (with little opportunity to take space back from the road carraigeway to improve this situation). An opportunity to introduce a new pedestrian bridge that links Flinders Street Station to Southbank should be investiaged in the context of changes to existing transport infrastructure.

A suite of recommendations to improve walkability within the street network are illustrated in **Figure 5.1.**

Mobility and Access Recommendation 1

Upgrade primary pedestrian spines to optimise pedestrian safety and capacity.

Mobility and Access Recommendation 2

Investigate a 30 kilometre-per-hour speed limit on all local roads with higher limits on key arterials serving a higher traffic function.

Lower speed limits will be pursued to promote optimal safety and high levels of amenity for pedestrians and cyclists. Careful consideration needs to be given to the potential implications on public transport service efficiency. See Mobility and Access Recommendation 45 in the Reduce Car Use section below.

Mobility and Access Recommendation 3

Investigate the feasibility of reducing the speed limit on St Kilda Road north of Domain Road from 60 to 50 kilometres-per-hour and north of Southbank Boulevard from 50 to 40 kilometres-per-hour. See Mobility and Access Recommendation 45 in the Reduce Car Use Section below.

Mobility and Access Recommendation 4

Investigate widening footpaths along entire length of City Road.

Mobility and Access Recommendation 5

Provide new pedestrian crossing facilities along the entire length of City Road.

Mobility and Access Recommendation 6

Investigate introducing automatic pedestrian phase activation during every traffic signal cycle along the 12 pedestrian spines (north-south and east-west).

Mobility and Access Recommendation 7

Investigate improving pedestrian service by reducing traffic signal cycle times along the 12 pedestrian spines.

Mobility and Access Recommendation 8

Investigate the widening of all signalised pedestrian crosswalks to 3 metres minimum along the 12 pedestrian spines.

Mobility and Access Recommendation 9

Investigate footpath widening opportunities (to reduce crossing distances) where geometry is substandard or capacity is inadequate along the 12 pedestrian spines. Not mapped – investigation required.

Mobility and Access Recommendation 10

Develop a wayfinding signage strategy to direct pedestrians to all destinations within Southbank and beyond (e.g., South Melbourne Market, sports and entertainment precinct and Port Phillip Bay). Not mapped – general policy.

Mobility and Access Recommendation 11

Deliver a fine grain pedestrian network through the establishment of new laneways (minimum 6m wide and 7.6m high) and an upgrade of existing streetscapes. This is also identified in the Open Space network strategy (see Section 06). Permeability through the area can be further enhanced through the delivery of a finer grain network of public lanes and access ways. The extent of this potential network is illustrated in the **Figure 5.1** and indicative locations of laneways have been shown within identified potential redevelopment sites.

Mobility and Access Recommendation 12

Investigate a high priority pedestrian connection across Kings Way at Sturt Street (either an overpass or an underpass). This is not possible at-grade without creating increased congestion on Kings Way and possibly CityLink.

Mobility and Access Recommendation 13

Investigate ground-level pedestrian link opposite Kavanagh Street under Kings Way ramps to improve connections to Clarendon Street and South Melbourne Market.

Mobility and Access Recommendation 14

Establish overlays on existing private land for development of new laneways (See Recommendation 11).

Mobility and Access Recommendation 15

Establish a new pedestrian link through the heart of the University of Melbourne's faculty of the VCAM Campus.

Mobility and Access Recommendation 16

Examine methods to achieve unimpeded progression for pedestrians through the newly created interchange between West Gate Freeway and Montague Street.

Mobility and Access Recommendation 17

Provide a pedestrian link from the corner of Kavanagh Street and Southbank Boulevard along the western half of Fawkner Street and through a new north-south pedestrian path directly opposite Southgate Avenue.

Mobility and Access Recommendation 18

Investigate methods to achieve better pedestrian priority on the eastern half of Fawkner Street and the entire length of Fanning Street.

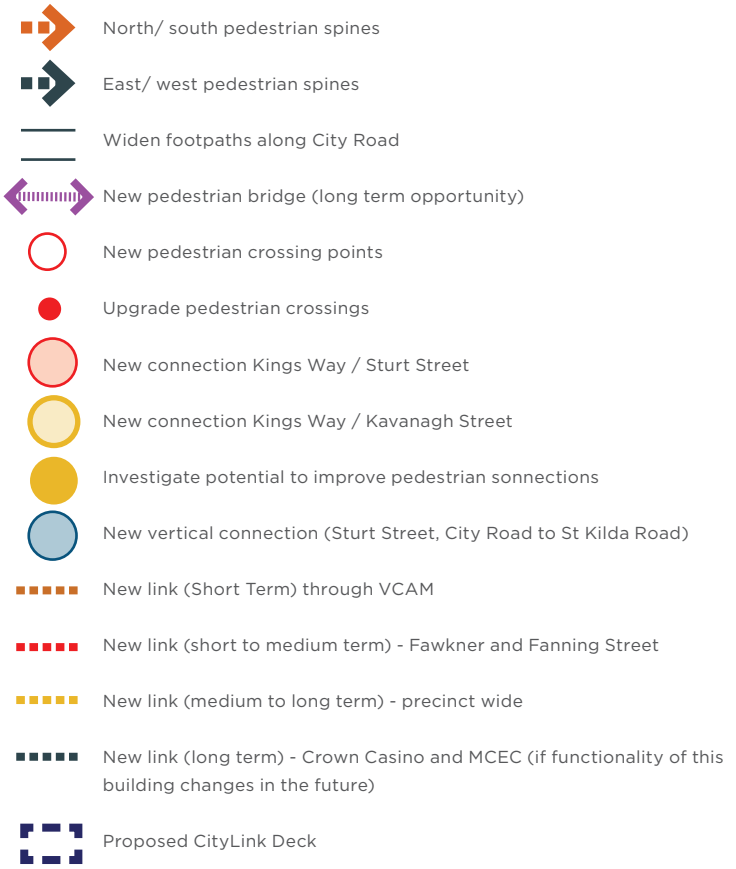
Mobility and Access Recommendation 19

Create direct pedestrian linkages from the DFO complex to the rest of Southbank and the City of Port Phillip municipality.

Mobility and Access Recommendation 20

Investigate opportunity for new pedestrian bridge linking Flinders Street Station to Southbank in the vicinity of the Arts Centre.

Pedestrian



North/ south pedestrian spines

East/ west pedestrian spines

Widen footpaths along City Road

New pedestrian bridge (long term opportunity)

New pedestrian crossing points

Upgrade pedestrian crossings

New connection Kings Way / Sturt Street

New connection Kings Way / Kavanagh Street

Investigate potential to improve pedestrian sonnections

New vertical connection (Sturt Street, City Road to St Kilda Road)

New link (Short Term) through VCAM

New link (short to medium term) - Fawkner and Fanning Street

New link (medium to long term) - precinct wide

New link (long term) - Crown Casino and MCEC (if functionality of this building changes in the future)

Proposed CityLink Deck

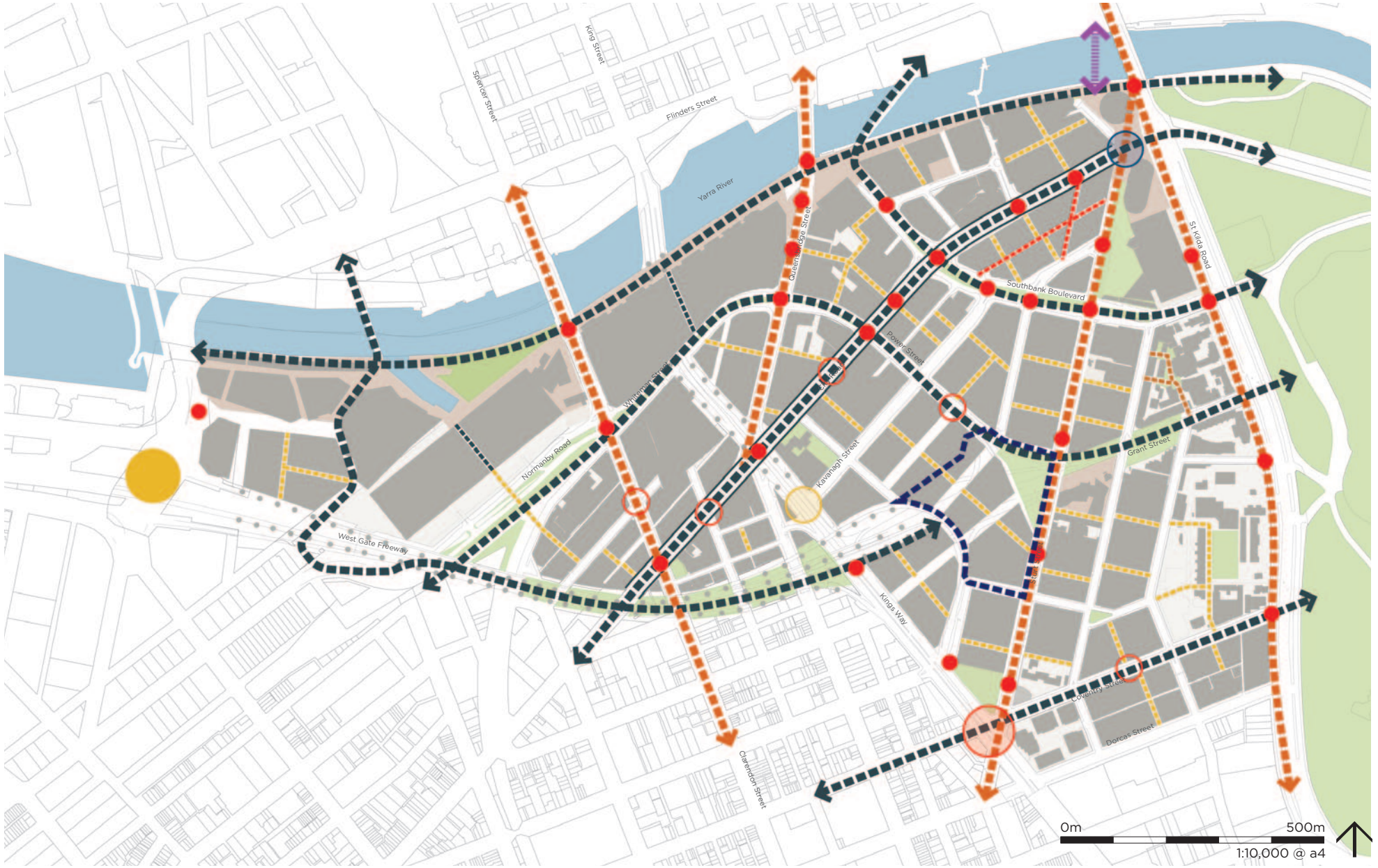


Figure 5.1 Mobility and Access Strategy 1 - Proposed pedestrian improvements (key on previous page)

M2 Expand the Bicycle Network

The Structure Plan 2010 envisages cycling playing a much greater transport role in Southbank in the future. The best way to make this happen is to significantly improve cycling infrastructure. This will provide safe, comfortable and attractive cycling environments. The following initiatives outline a series of recommendations to deliver this strategy.

Mobility and Access Recommendation 21

Investigate the installation of primary on road bicycle routes along entire length of City Road. This route should be continued with appropriate treatments provided in Alexandra Avenue (including linkages to the Yarra Trail) and the City of Port Phillip sections of City Road. These routes need to ensure continuity in the network as they are implemented. Among other benefits, this will (together with plans for a shared bicycle path along Northbank on the Central City side of the Yarra River) provide an alternative to Southbank Promenade for commuter and higher speed cyclists.

Mobility and Access Recommendation 22

Investigate the installation of primary on road bicycle routes in Queensbridge Street between Power Street and Flinders Street and along St Kilda Road.

Mobility and Access Recommendation 23

Investigate the installation of primary on road bicycle routes in Clarendon Street/Spencer Street between the municipal boundary and Flinders Street. This is to complement the stronger pedestrian and cycle emphasis required along this key civic spine linking Southern Cross Station to Southbank's attractions and into South Melbourne.

Mobility and Access Recommendation 24

Investigate the installation of primary on road bicycle routes along the entire length of Southbank Boulevard, Sturt Street and Coventry Street.

Mobility and Access Recommendation 25

Establish a bicycle route, through a combination of on- and off-road paths, along Grant Street, Power Street, Whiteman Street and Normanby Road and linking to Docklands via South Wharf and the Webb Bridge.

Mobility and Access Recommendation 26

Encourage the provision of a minimum of one bicycle parking space per dwelling for all new residential development in Southbank, an increase from the current one space per five dwellings. Not mapped – general policy.

Mobility and Access Recommendation 27

Provide additional on-street bicycle parking facilities throughout Southbank to meet demand.

Mobility and Access Recommendation 28

Establish Melbourne Bicycle Sharing Scheme facilities in Southbank. Not mapped – general policy.

Mobility and Access Recommendation 29

Investigate the provision of bicycle facilities to link St Kilda Road bicycle lanes across Princes Bridge to Flinders Street.

Mobility and Access Recommendation 30

Establish improved pedestrian and bicycle facilities along the tram reservation on Kings Way if tram route is relocated to Sturt and Power Street (see Mobility and Access Recommendation 32 in the Maximise the Potential of Public Transport section below).

Mobility and Access Recommendation 31

Extend bicycle lanes to intersections. Provide intersection treatments (eg. advance starts, storage boxes, exclusive phases etc).

Mobility and Access Recommendation 32

Provide way finding signage for cyclists.

Cycle

The suite of recommendations to improve cycling environment within Southbank is illustrated in Figure 5.2

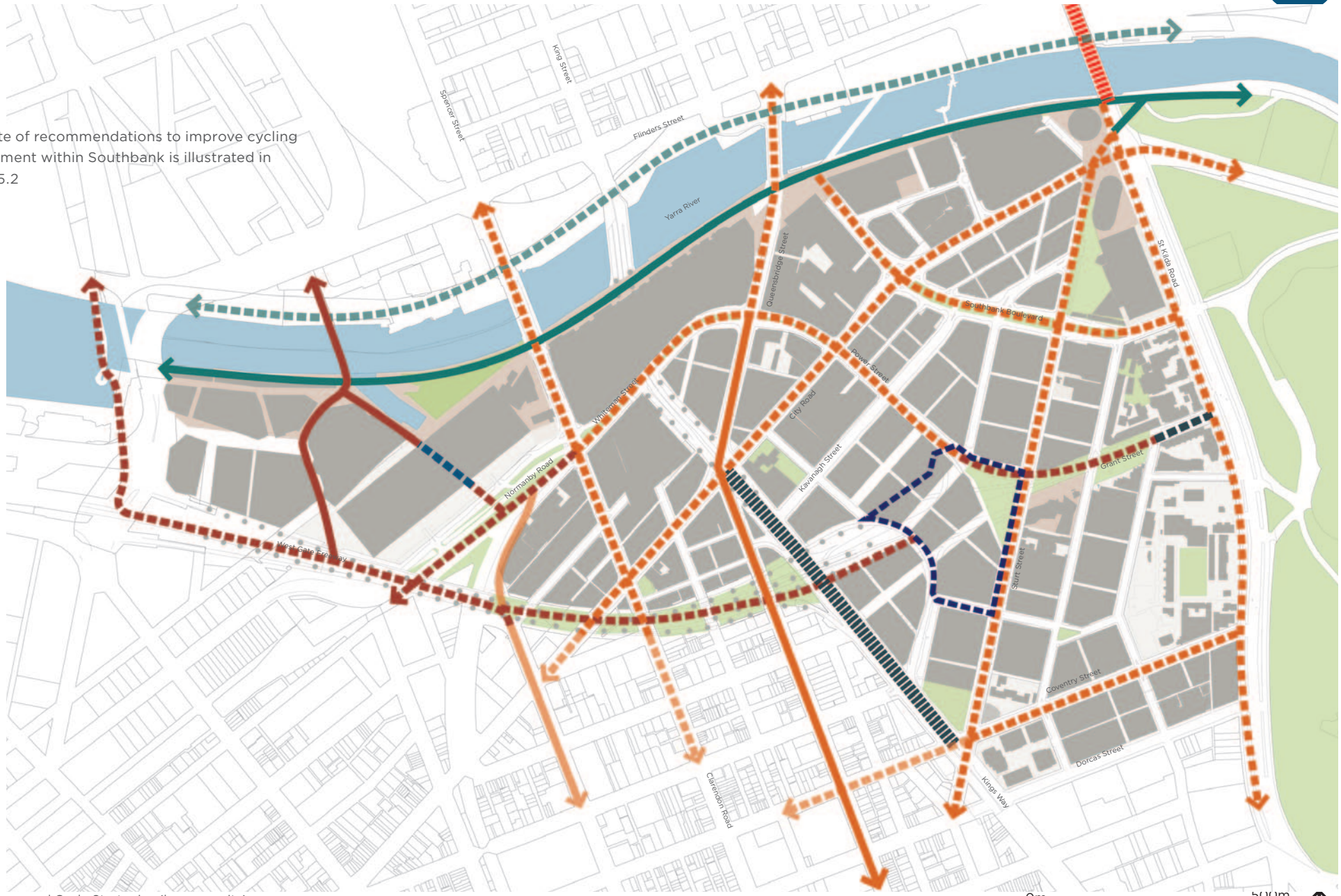


Figure 5.2 Proposed Cycle Strategies (key opposite)

M3 Maximise the potential of public transport

Improving the overall attractiveness of public transport services, particularly for motor vehicle users, will require current capacity issues to be addressed.

In the context of an increasing population, it is important to improve public transport services. This will ensure both the ongoing attractiveness and economic efficiency and viability of Southbank as a capital city destination of regional significance. It will also complement and strengthen the existing high levels of non motor vehicle trips. Furthermore, improvements to travel time through Southbank will enable potential introduction of increased frequencies on public transport routes. Enhancing the night time public transport services will make public transport a more viable choice for patrons of arts venues to complement the extensive car parking already provided.

The key recommendations are illustrated on **Figure 5.3.**

Mobility and Access Recommendation 33

Investigate options to relocate tram services from Kings Way to Sturt Street and Power Street to support the existing and growing resident, worker and visitor population in Southbank. If relocation does not proceed, existing tram stops along Kings Way should be upgraded. The potentially redundant tram reservation on Kings Way must be used to expand the pedestrian and bicycle networks. See Mobility and Access Recommendation 31 in the Expand the Bicycle Network section above.

Mobility and Access Recommendation 34

Examine the potential for new tram routes along Whiteman Street and Normanby Road, particularly to service special events, conferences and exhibitions.

Mobility and Access Recommendation 35

Investigate the provision of providing maximum active tram priority to all signalised intersections in Southbank.

Mobility and Access Recommendation 36

Investigate and develop further bus priority in the area, particularly for citybound bus services in City Road and Southbank Boulevard.

Public Transport

- Existing Tram Network
- Proposed New Tram Route (Sturt Street/ Power Street)
- Proposed New Tram Route (Whiteman Street/ Normanby Street)
- Proposed Removal of Tram Route (Kings Way and Queensbridge Street)
- Tram Priority at all Intersections
- Tram Stop
- Existing Bus Route - Principal Public Transport Network
- Existing Bus Route
- Existing Train Route
- Existing Train Station
- Potential Metro Entrance
- Existing Ferry Route
- Proposed CityLink Deck

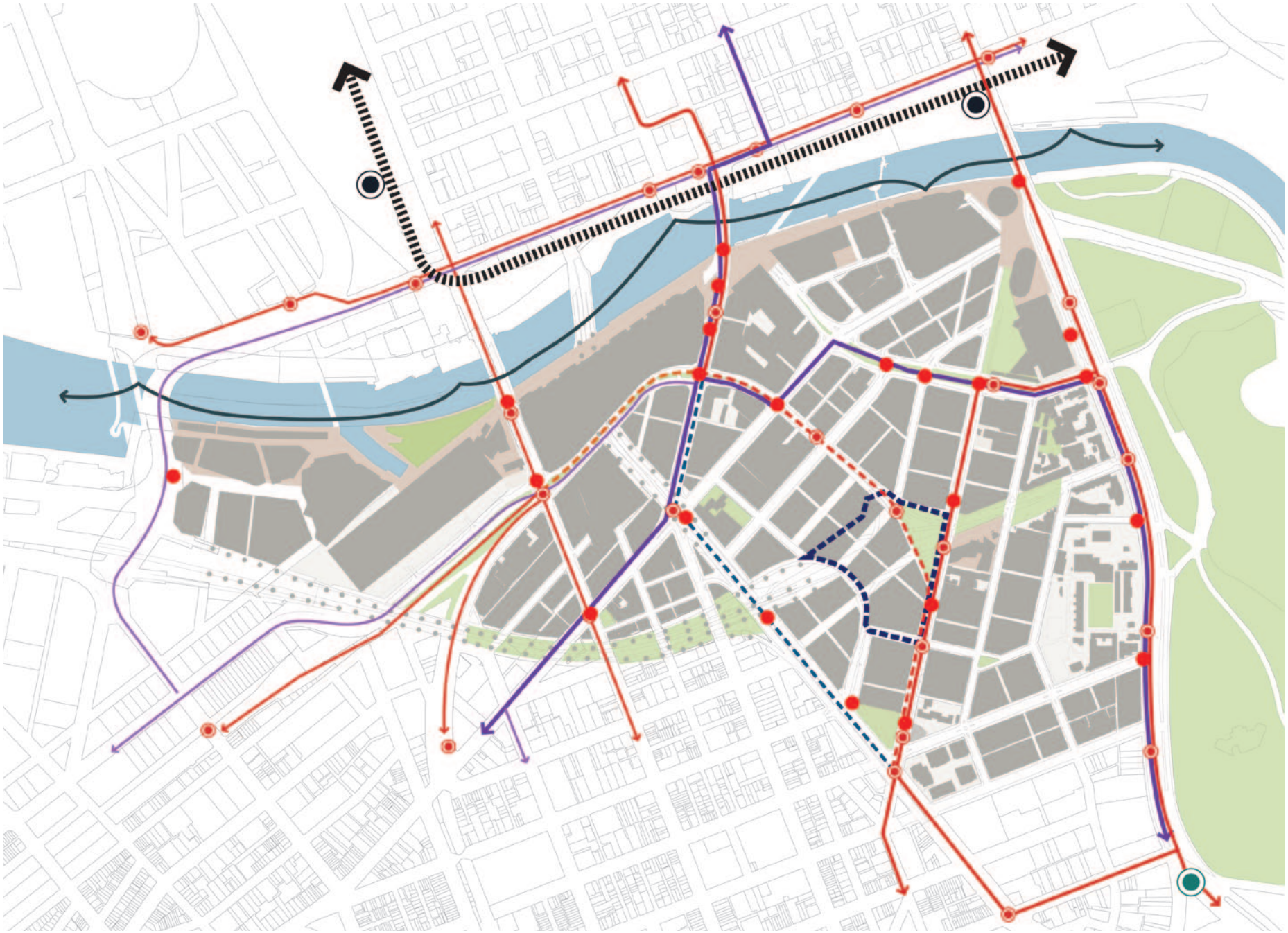


Figure 5.3 Proposed Mobility - Public Transport

M4 Reduce Car Use

The scale of anticipated growth emphasises the need to harmonise the car with other modes of transport and moderate the role of the car which currently dominates the public realm in Southbank.

This will:

- Reduce traffic congestion - which has negative economic impacts through productivity decline and increased travel time
- Reduce emissions - in Victoria, road transport (mostly cars) accounts for over 20 percent of overall greenhouse gas emissions. Car travel alone accounts for 35 to 50% of the life-cycle greenhouse gas emissions of precincts.
- Reduce noise pollution.
- Reduce social dislocation associated with car ownership.
- Allocate space for better uses - cars are allocated a disproportionately high amount of valuable space to move a disproportionately low number of people and store vehicles.

The key recommendations are illustrated on **Figure 5.4.**

Mobility and Access Recommendation 37

Investigate the management of City Road (along its entire length) with emphasis on local traffic access and circulation. This will include increased pedestrian and bicycle priority, and improved public transport operation where appropriate.

Mobility and Access Recommendation 38

Investigate the removal of the short section of clearway on the north side of City Road between Power Street and Sturt Street.

Mobility and Access Recommendation 39

Investigate the opportunities for intermittent weekend road closures in Southbank for festivals, community gatherings, ciclovias and other activities.

Mobility and Access Recommendation 40

Progressively reduce the traffic function on St Kilda Road north of Southbank Boulevard by managing it with high levels of pedestrian, bicycle and public transport priority.

Mobility and Access Recommendation 41

Facilitate creation of new open space in Sturt Street (north of Southbank Boulevard) and Grant Street (east of Sturt Street). Local access to car parks needs to be accommodated.

Mobility and Access Recommendation 42

Allow all new non-residential developments to occur with no off-street parking.

Mobility and Access Recommendation 43

Remove all long-term on-street parking and replace it with short-term restrictions.

Mobility and Access Recommendation 44

Encourage operators of commercial off-street public car parks to offer short- and medium-term car parking in preference to long-term car parking.

Mobility and Access Recommendation 45

Manage all on-street parking to support short-term access, delivery/servicing and special needs.

Mobility and Access Recommendation 46

Manage speed limits across Southbank (see Mobility and Access Recommendations 2 and 3 in the Improve Walkability section above).

Mobility and Access Recommendation 47

Investigate the potential to remove elevated section of Kings Way in the long term.

Mobility and Access Recommendation 48

Encourage the expansion of carsharing operation through the provision of additional on-street spaces and the encouragement of off-street shared spaces within private developments. This will reduce the need for additional car parking spaces within new developments.

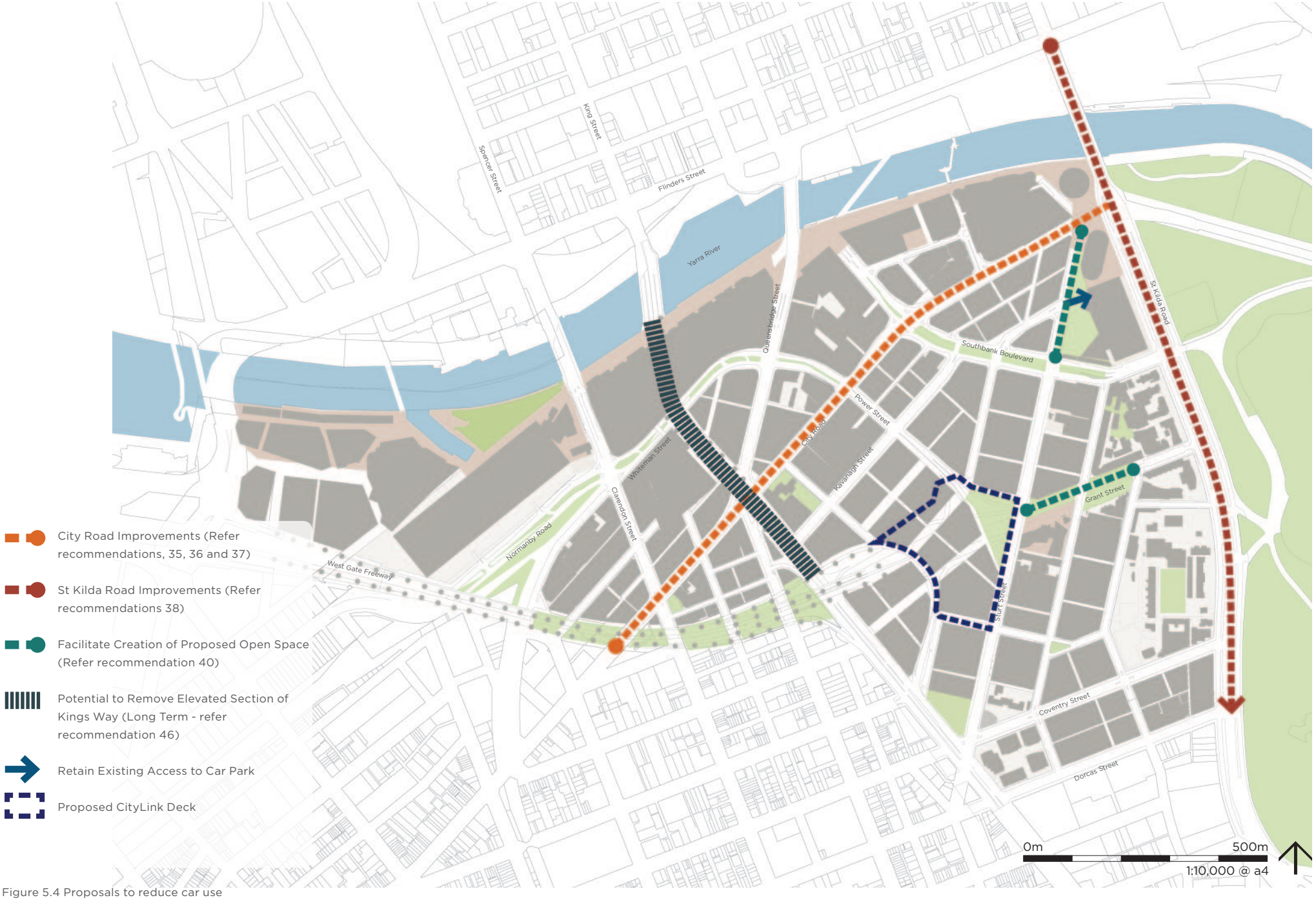


Figure 5.4 Proposals to reduce car use

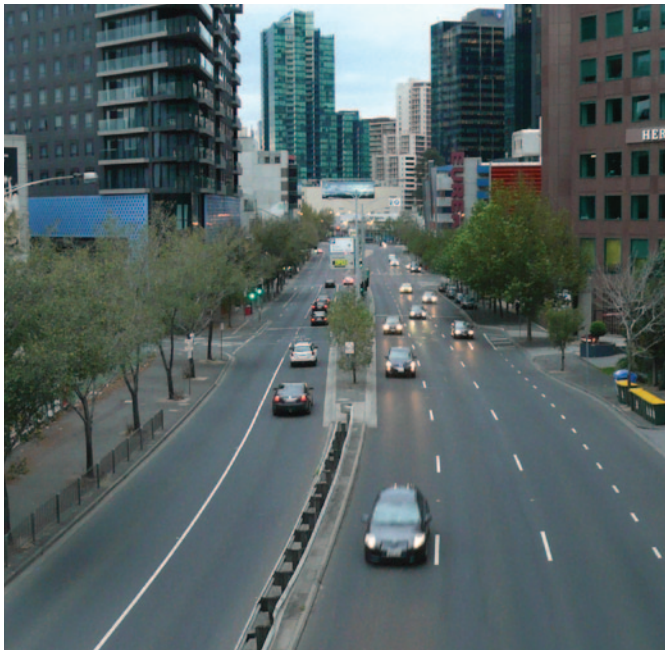


Figure 5.5 Existing condition of City Road

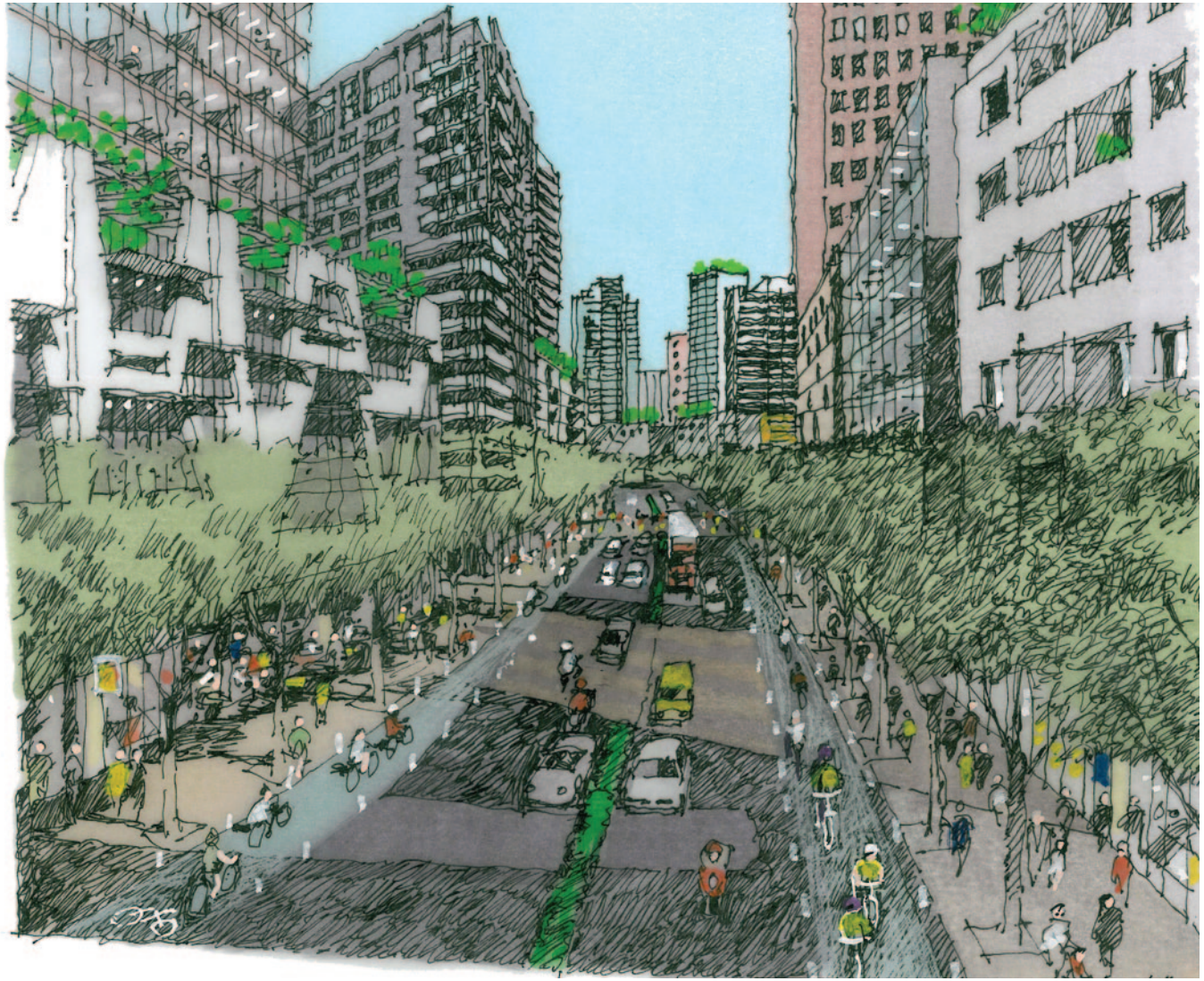


Figure 5.6 Artist's impression of City Road's upgrade into an active pedestrian and cycling spine while maintaining its important traffic functions.

Illustrations by Geoffrey Falk, architect

06 Open Space Network

6.1 Open Space Network Issues

The City of Melbourne is currently preparing an *Open Space Strategy* for the whole municipality. This Strategy, due for completion in 2011, will make recommendations on the future provision of open space in Southbank. The strategies and recommendations outlined in this chapter should contribute to the development of the open space network.

A comprehensive analysis of the current status of the open space network is incorporated into the Background Report. A summary of the identified issues includes the following:

- There are instances of high quality designed spaces along St Kilda Road and Southbank Promenade but the rest of Southbank is generally characterised by poor public environs.
- The majority of the available open space is within road corridors with only two public parks available for recreation purposes - Grant Street and Sturt Street Reserve. Neither of these spaces act as an identifiable civic gathering space for the local community.
- There is a growing number of residential developments within the western portion of the study for whom the large public open space (Kings Domain) that is located outside the study area across St Kilda Road is beyond walking distance.
- Southbank's streets are transitory places rather than destinations.
- Currently Southbank provides less than $2m^2$ of open space per resident.

6.2 Open Space Network Objectives

The following objectives address these identified issues:

- Deliver the open space objectives of the *Southbank Plan*.
- Increase the amount of accessible open space which can be used for passive recreation.
- Provide green connections to existing and proposed open space within Southbank.
- There should be no net loss of useable open space as part of delivering the *Structure Plan 2010*.
- Provide a diversity of public open spaces to serve different community needs
- Upgrade Southbank's primary open space network - its streets.

6.3 Open Space Network Strategies

A distributed network of public neighbourhood parks is proposed to facilitate safe movement through Southbank and connect to surrounding attractions. The network will be formed through proposed accessible open spaces, enhanced access to existing open space and through streetscape improvements as outlined.

06

01 Deliver the *Southbank Plan*

The following *Southbank Plan* projects are explicitly incorporated into the *Southbank Structure Plan 2010*:

- Project 1 Sturt Street Cultural Spine.
- Project 2 Southbank Boulevard Open Space Link.
- Project 4 Kavanagh / Moray Street Local Link.
- Project 5 West Gate Freeway Undercroft and Docklands – South Melbourne LinkProject 6 Whiteman Street Park (not the local centre).

The key difference in the public open space network proposals is the conversion of Project 3 (refer *Southbank Plan*) into a key development site created by decking CityLink Tunnel approach (see Land Use Strategy 03). This provides the opportunity to deliver a consolidated new central park (see Open Space Network Strategy O2).

Project 6 would no longer incorporate an activity centre as nominated in the *Southbank Plan* as it is now recommended that this is more suitably co-located with the Boyd School redevelopment (see Land Use Strategy 02).

Open Space Recommendation 01

Deliver *Southbank Plan* through the City of Melbourne capital works programme and in conjunction with DPCD.

02 Create a new central park

The decking of CityLink creates an opportunity to establish a new 'central park' that will complement the new activity node and be centrally located to service a greater portion of Southbank. The park is located adjacent to the existing open space associated with the Australian Centre for Contemporary Art (ACCA) (and the Malthouse Theatre) and the Grant Street Play Space. Together with the conversion of Grant Street to parkland between Wells Street and Sturt Street (as per *the Southbank Plan 2010*). This will create a new consolidated central park of approximately 7000 m^2. This large new civic space will play a critical role in reconnecting the northern and southern components of Southbank.

Open Space Network Recommendation 02

As part of the feasibility of the CityLink Deck explore opportunities to incorporate a significant open space that can serve as a new 'Central Park'.

03 Provide access to existing open spaces

A number of existing public open spaces exist within Southbank. The following provides an outline of these open spaces and the role they will play within the network of public open space:

- Victoria Barracks has the potential to be a public neighbourhood park. However pedestrian and cycle access through the site is required to integrate this existing green space into a network. Opening up this precinct to the public will allow access. The provision of access needs to occur in line with the long term vision for the site.
- Grant Street Reserve and the ACCA Forecourt form the open space link between the new central park and Major Activity Centre and the Royal Botanic Gardens.
- The VCAM courtyard will provide a link connecting it to the new Arts Precinct Neighbourhood Park and the Open Space link along Southbank Boulevard.

Open Space Recommendation 03

Progress discussion with the University of Melbourne and the Commonwealth Government over potential future connections through public land and access to these public spaces.

04 Introduce new public neighbourhood open space

In addition to the *Southbank Plan 2010* proposals, new public open space is proposed within the Boyd School redevelopment site (see Land Use Strategy 02).

The potential for this open space to accommodate a playground should be considered.

Open Space Recommendation 04

As part of the master plan for the Activity node consider options and opportunities for a new public open space within the Boyd School site.

05 Upgrade existing public neighbourhood open spaces

A suite of existing public open spaces in Southbank currently do not maximise their potential to enhance the amenity of the area for the residential and worker community. These spaces range from existing paved courtyards to small vegetated reserves (typically adjacent to road corridors). These are located on **Figure 6.1**.

The potential for these open spaces to accommodate playgrounds should be considered.

Open Space Recommendation 05

Upgrade the existing suite of reserves to better contribute to the quality of the streetscape and to provide a series of open spaces for respite and recreation within Southbank.

06 Connect public open space by upgrading street amenity and character

To create a green network that facilitates movement, improvements to the streets that connect the green open space network are required. Improvements include:

- Street tree planting (including the incorporation of water sensitive urban design technologies (WSUD - See Sustainable Infrastructure Strategy 05)
- Widening and/ or improving existing footpaths.

Open Space Recommendation 06

Develop a street improvement strategy for Southbank local street upgrades to be delivered through the City of Melbourne capital works program.

07 Integration of Sustainable Infrastructure into existing and new parks

Incorporate sustainable infrastructure into existing and new parks, including WSUD treatment of stormwater and the potential storage of stormwater for redistribution and reuse.

Open Space Recommendation 07

In conjunction with the sustainability infrastructure feasibility assessment, explore the retention and storage of stormwater in public open space.

08 Maintain solar access to existing key public open spaces and provide solar access to new key public open spaces

'Central Park' and the new key public park within the Boyd School Redevelopment should have continuous solar access for a suggested minimum of two hours during the winter solstice.

Open Space Recommendation 08

Investigate appropriate solar access conditions to deliver a high level of public amenity within the 'Central Park' and open space within the Boyd School site - eg. across a minimum of 50% of the site. Update Clause 22.02 to reflect the importance of these two public open spaces.

Primary upgraded streetscapes

Local upgraded streetscapes

1–5 Projects proposed in *Southbank Plan* (2007)

6 A new 'Central Park'

8 Expansion of existing public accessible open space along Grant Street

9 12 Existing public accessible open space

7 11 Existing open space with new public access

10 New public neighbourhood open space

Retain existing access to car park (refer section 5)

Proposed CityLink Deck

Upgrade of Existing Neighbourhood Open Spaces

A City Road Park

B Riverside Quay Reserve

C Eureka Reserve

D Cook St Reserve

E Kings Way and Moray Street Reserve, Moray Street Offramp Reserve

Figure 6.1 Proposed open space network

07 Community Infrastructure

7.1 Community Infrastructure Issues

Southbank currently lacks a sufficient provision of community infrastructure. For example, it does not have a library, childcare centre, preschool, primary school or general public secondary school, no maternal health care facility and no aged care services. This significantly compromises the level of amenity and services that would attract a broad spectrum of the population to live in the area.

The suburb also lacks a sense of civic 'heart', with no obvious gathering spaces that provide a sense of identity and community within the area.

Southbank has the following characteristics:

1. The population is currently 10,500 and is growing faster than the municipal average.
2. The largest age group in the population is the 25 to 34 year bracket.
3. The numbers of old people and children are very small.
4. Over a quarter of Southbank residents are attending an educational institution.
5. Over 60 per cent of residents live in either a single person or two person household.
6. The median household income in Southbank is one of the municipality's highest.
7. 94% of occupied dwellings in Southbank are apartments.

The projected population for Southbank is up to 74,000 residents by 2040 (based on development capacity available within the new built form recommendations). This is a significant increase to the existing population (10,500). Providing a greater range of community services will assist in ensuring that the population mix diversifies as it increases to include families and older/younger generations.

The City of Melbourne *Community Infrastructure Plan 2007-2017* (The City of Melbourne, 2006) highlights the current provision of community infrastructure services within Southbank and makes recommendations for future provision. This report identifies Southbank as one of seven neighbourhoods in the municipality that should have access to a neighbourhood hub. These hubs have a residential population in the range of 5,000-20,000 people. It also nominates that together with South Yarra and St Kilda Road, the area forms a district that should have a district hub that services multiple local neighbourhoods. This is based on population forecasts for the next 10 years which suggest that this district could incorporate housing growth of approximately 5,000 dwellings.

7.2 Community Infrastructure Objectives

A clear objective of *the Structure Plan 2010* needs to be a significant increase in the provision of community infrastructure services. This is required to attract a wider demographic mix and to provide for the anticipated significant increase in population growth.

The proposed *Structure Plan 2010* scenario modelling suggests that an additional 49,000 dwellings may be accommodated within the Southbank neighbourhood area alone over a 30 year period. These figures suggest that over this period a district hub that serves Southbank's projected population of 74,000 would be justified in addition to two local neighbourhood hubs.

7.3 Community Infrastructure Strategies

The following strategies will guide community infrastructure provisions within future development.

C1 Establish District Community Hub

The *Community Infrastructure Plan* recommends the establishment of a Lifelong Learning District Community Hub Model.

This incorporates access to:

- Informal recreation space
- Library services
- Computer use
- Meeting space
- Lifelong learning
- Civic functions
- Office space.

The additional services provided within a neighbourhood hub should also be incorporated, including access to:

- Primary education
- Social interaction
- Local sessional services provision
- Preschool education
- Community catering facilities.

This does not take into account the additional services that may be required to cater for a significantly larger population that will need to be accommodated over the longer period.

To cater for the community, additional services should be incorporated, including access to:

- Occasional childcare
- Health and well-being services
- Aged services
- Social and health programs
- Childcare services
- Workshop space
- Staffed information area
- Indoor recreation.

Community Infrastructure Recommendation 01

Promote the establishment of district community hub activities within the CityLink Deck development (activity node).

C2 Establish neighbourhood hubs

The neighbourhood hubs should provide opportunities for services to be delivered locally and support interaction at a neighbourhood level. The function of these hubs should include as many as possible of the following functions:

- Informal recreation space
- Community information
- Primary education
- Social interaction
- Local sessional services provision
- Preschool education
- Lifelong learning
- Community catering facilities.

The option of co-location with a local primary school should be explored where possible.

Opportunities to incorporate a community garden should be considered.

Community Infrastructure Recommendation 02

Promote the establishment of neighbourhood hubs within the Boyd School redevelopment and the Arts Precinct activity nodes.

C3 Establish primary and secondary school locations

The projected population forecasts for Southbank will exacerbate the current lack of public primary and secondary schools in the area.

In the short term, access to existing schools should be improved to meet immediate demand. Considering the significant population growth forecast it will become necessary to establish both primary and secondary public schools within the area.

Opportunities to use school premises as community facilities outlined in the district hub or neighbourhood hubs should be explored (as outlined in the Schools as Community Facilities Report, 2005). This can include using school premises for community halls or recreation facilities, holiday care programmes, information technology centres, shared library resources, shared art spaces and sporting facilities. The opportunity to co-locate preschools on the school grounds is also recommended to reduce potential car trips. This can be pursued through partnerships with community organisations, sport and recreation providers and other training providers.

Community Infrastructure Recommendation 03

Advocate for a primary and secondary school within Southbank with the Department of Education and Early Childhood Development.

C4 Provision of affordable housing

The dominant form of housing – high-rise residential towers - have historically catered for a particular demographic composition of residents – single professionals, couples without children, semi-retired and retired couples. One of the clear aims of the Southbank vision is to diversify the population mix within Southbank to create a more diverse and inclusive community. The range of housing types needs to be diversified to achieve this.

Community Infrastructure Recommendation 04

Investigate appropriate mechanisms to deliver 20% affordable housing, including the opportunity for the City of Melbourne to act as a broker between developers and registered housing associations in order to facilitate this outcome.

C5 Provision of childcare

There is currently no childcare provision within Southbank. Options to attract private childcare operators or establish a public services should be investigated.

Community Infrastructure Recommendation 05

Investigate potential sites and incentives for private developments to deliver childcare services within Southbank.

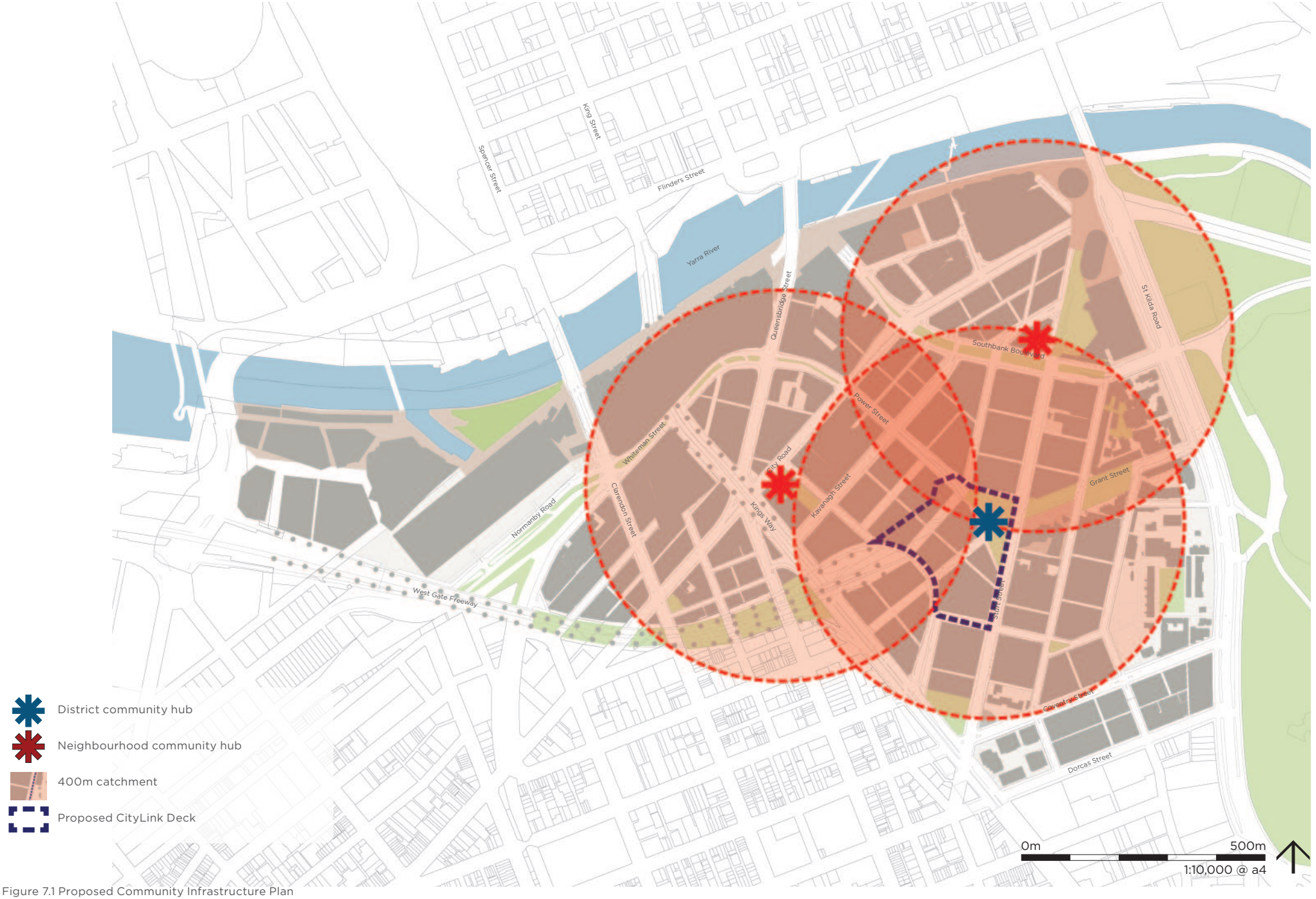


Figure 7.1 Proposed Community Infrastructure Plan

08 Sustainable Services Infrastructure

8.1 Sustainable Services Infrastructure Issues

Cities consume significant quantities of resources and have a major impact on the environment that extends well beyond what can be managed within their borders (Melbourne Principles for Sustainable Cities, DSE, 2002). This trend is unsustainable. It needs to be halted and then reversed. Our future cities must reduce demand on existing limited resources, be smarter in the reuse of resources and, ultimately, generate their own resource requirements to be self-sustaining.

In order to assess the capacity of Southbank to meet this ambition, a comprehensive analysis of the current infrastructure provision was undertaken. The current provision of services adequately meets existing levels of demand. The significant increase forecast for Southbank's residential and worker population (see Section 1.5 Existing Capacity for Growth) will require a considerable level of investment in new infrastructure to meet future increases in demand. This presents an imminent opportunity to readdress the way that service infrastructure and supply is delivered in Southbank and illustrates that a more sustainable future for Southbank is achievable.

At present, the regulatory barriers governing the supply and distribution of utility services do not support the implementation of the proposed distributed servicing study. To realise the sustainable infrastructure servicing scenario, the City of Melbourne needs to take on a stewardship role to drive the realisation of the sustainable infrastructure servicing concept.

The following summarises the existing infrastructure services conditions.

Electricity

» The zone substations (managed by CitiPower) have limited spare capacity in the short-term. Spare capacity in the area will increase in 2011 with the commissioning of the new Southbank Zone Substation and the subsequent re-distribution of the zone substation loadings. Subsequent expansion of the substation network is difficult due to the limited space available in the area. With significant population projections envisaged for Southbank, it will be important to consider electricity demands and explore opportunities for the generation of on-site electricity (within individual buildings or at a precinct scale) to meet future demand.

Gas

» There is an extensive gas pipe network covering Southbank. However, the low pressure reticulated gas network has no additional capacity. The high pressure reticulated gas network has minimal unutilised for increased gas distribution.

Water Mains

» The main source of water supply for the Southbank Precinct is the pipeline that traverses the suburb and originates from across the Yarra River. Extensive growth from adjacent suburbs (the Central City, South Melbourne, and Port Melbourne) and the anticipated significant increase of residential dwellings in Southbank will result in the pipeline reaching capacity. An alternate water supply will be required to service the long term development within Southbank.

Stormwater

» Climate change is expected to increase the likelihood of flooding in Southbank. Rising sea levels, more frequent storm events and the intensity and frequency of extreme rainfall will increase.

» Increased water levels in the Yarra River may block the outflows of the drainage pipe networks that discharge to the Yarra River, while an increase in major storm rainfall events will increase the frequency at which the capacity of the network is exceeded.

Sewer

» The projected population growth and associated increases in sewer flows will require South-East Water branch sewers to be upsized. Extensive upgrades to the reticulation system feeding the branch sewers will also be required. As the effects of climate change become more pronounced, the sewer system may have to be upgraded to allow for sea level rise and storm surge inundation of the sewer vents.

8.2
Objectives

The *Southbank Structure Plan 2010* considers and implements a number of policies developed by the City of Melbourne. These policies have guided and formed the vision for a sustainable Southbank. They include:

- *Zero Net Emissions (2008)*
- *Climate Change Adaptation Study (2008)*
- *Total Watermark (2008)*
- *Future Melbourne Eco City (2009)*

The following were identified as the primary sustainable services infrastructure objectives:

1. To deliver an integrated strategy which supports and informs all aspects of the *Southbank Structure Plan 2010*.
2. Establish Southbank as a vibrant, attractive and self sustaining suburb which better services the community through urban and built form which is energy efficient and adapted to climate change.
3. To look beyond the boundaries of Southbank for opportunities involving neighbouring precincts.
4. Create a suburb which prospers within the earth's ecological limit.
5. Embrace the targets established in *Future Melbourne* to achieve the objectives of eco-city.

The following table identifies the specific Eco City targets and objectives by which the *Structure Plan 2010* is guided.

Eco-City Goals	Targets and Objectives
01. Zero net emissions city	
Emissions reduction per resident	35% on 2005/06 levels by 2020
Emissions reduction per employee in the commercial sector	59% on 2005/06 levels by 2020
Existing office buildings retrofit (1200 buildings)	70% of existing (2008) commercial office buildings by 2020
City of Melbourne purchase of renewable energy	50% by 2010
Increase of people who use public transport, cycle or walk to work in the Central City	90% by 2020
02. The city as a catchment	
Potable water consumption per employee	50% reduction based on 1999/00 levels by 2020
Potable water consumption per resident	40% reduction based on 1999/00 levels by 2020
Potable water consumption by City of Melbourne	90% reduction based on 1999/00 levels by 2020
'Absolute' water saving	25% reduction based on 1999/00 levels by 2020
Alternate water sources for City of Melbourne's water needs	Source 30% by 2020
Alternate water sources for non-City of Melbourne land managers' water needs	Source 9% by 2020
Total suspended solids in stormwater system	20% reduction based on 2000 levels by 2020
Litter reduction on City of Melbourne and non-City of Melbourne land	30% reduction based on 2000 levels by 2020
Phosphorus reduction	20% reduction in total phosphorus based on 2005 levels by 2020
Nitrogen reduction	35% reduction in total nitrogen based on 2005 levels by 2020
Waste water reduction	30% based on 1999/00 levels by 2020
03. Resource efficient	
Reduce household waste in the city	5% reduction by 2012 (as approved for the Waste Implementation Plan 2009-2012).
Reduce commercial waste in the municipality	Targets to be developed
Recycling and waste collection more economic	Targets to be developed
04. Adapted for climate change	
Manage climate change risk to and adaptation of municipality	Innovative and productive climate adaptation solutions tailored specifically to the municipality and which make a measurable contributions to greenhouse gas mitigation
05. Living and working in a dense urban centre	
Proportion of people who live and work in the municipality	65% by 2020
Total amount of green space in the municipality	Equitable distribution and investment in trees
Number of city users (including residents) per hectare of parkland	1500 per hectare
Proportion of fresh food consumed locally but grown within 50km of the municipality	30% increase by 2020

8.3 Sustainable Infrastructure Strategies

A number of strategies are proposed to meet the objectives and include energy generation, water delivery and resource reduction proposals. The strategies are divided into precinct scale interventions and discrete building technologies. Together these form a sustainable services delivery system that maximises the potential benefits of an integrated services delivery model.

These strategies are described below and shown in a number of diagrams and plans (**Figures 8.1** through to **8.5**). Additional information about these strategies can be found in the *Southbank Sustainable Utilities Study (2010).*

Combined Energy Generation and Water Supply

S1 Establish Central Services Hubs (CSH) – Precinct Scale

Three central services hubs (CSHs) are proposed for Southbank. A CSH is a form of decentralised infrastructure that houses a tri-generation plant and a sewage treatment plant. The CSH can generate energy and water resources on-site for the immediate adjacent precinct which localises resource consumption and generation to a precinct scale.The tri-generation plant works by converting an available resource (in this case, natural gas) into electricity. This electricity is fed into the existing zone substations for distribution via the existing power supply grid. As a by-product of this electricity generation, thermal energy is created that can be utilised to both cool and heat water that can be reticulated to cool and heat individual buildings. The sewage treatment plant converts black water (retrieved from the sewage system) into Class A water for non-potable uses. The three water supply types – chilled, heated and recycled water – are distributed to individual buildings via a tri-pipe system.

A CSH has the following benefits over traditional infrastructure delivery models:

- Reduces the number of sources of pollutions from refrigerants, cooling towers, and smoke stacks.
- Defers the need to increase the capacity of power plants.
- Reduces transmission losses.
- Provides a greater energy efficiency due to lower energy loses when compared to an approach which provides infrastructure on a building by building basis.
- Provides greater efficiency in implementing and managing a centralised wastewater treatment and recycling system when compared to a building by building approach.

To operate, each CSH needs:

- Access to pressurised gas as this is the main resource used to generate electricity.
- Access to sewer to efficiently draw black water and provide an opportunity for heat rejection (as required).
- The ability to exhaust combustion emissions.
- Ventilation to assist with cooling.
- Vehicular access for servicing.
- Access to the electricity grid in order to feed generated power back into the existing infrastructure.

- An area of 9,000 to 12,000m^2 within a single level building footprint.

These requirements determine suitable locations for the potential location of each CSH. **Figure 8.1** identifies the nominated locations. Due to the nature of the soils within Southbank it is proposed that the CSH is above ground. Refer also to Land Use Strategy 09: Identify select sites for the provision of central services hubs.

Sustainable Infrastructure Recommendation 01

Undertake a feasibility assessment to further explore the potential of central services hubs.

Recommendation 02

Confirm three the locations of the Central Services Hubs. Investigate in more detail the specification requirements of this infrastructure including the need to consider emissions, noise, vibration and access issues associated with the installation, operation and maintenance of the facilities. (See also Land Use Recommendation 09 for detail on how this affects land use requirements).

S2 Distribution of Thermal Energy and Non-Potable Water Supply via a Combined Services Tunnel – Precinct Scale

A combined services tunnel is proposed to house the pipes and conduits that would be installed to provide the distribution network required to operate the CSHs. A service corridor would be an upfront investment that provides longer term gains and will be located as a trench under the road network. Utilities such as electricity, gas, telephone and broadband would be located in the tunnel as well as the five separate water related pipes, including potable water, potable hot water, non potable chilled water, non potable recycled water and a sewer. **Figure 8.1** Proposed Infrastructure shows an indicative location of the combined services tunnel and the integration with the CSHs. A detailed design study is required to understand the implication on the road network and integration into new buildings.

Sustainable Infrastructure Recommendation 03

Undertake a feasibility assessment to further explore the potential for a combined services tunnel.

See Figure 8.1 which illustrates potential CSH hub and combine services tunnel locations

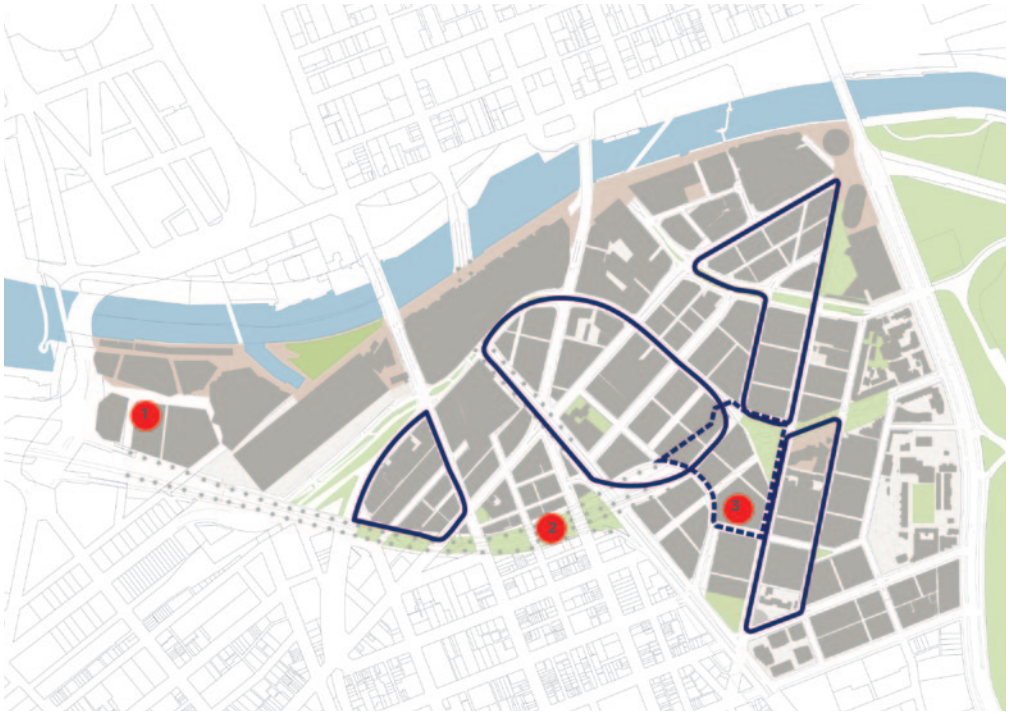


Figure 8.1 Combined energy and water supply strategy - Precinct Scale

Energy Generation

S3 Establish Tri-generation Plants – Precinct Scale

A tri-generation plants is proposed within each CSH to meet Southbank's future energy needs. A tri-generation plant is a union of a combined heat and power technology (CHP - also known as co-generation) and absorption cooling technology). It is the generation of both electricity and heat at or near the point of use; the absorption cooling technology provides a way of using the thermal energy (a by product of CHP) to provide cooling and air-conditioning as an alternative to conventional electricity driven refrigeration.

Natural gas will fuel the plants in Southbank because it is a reliable supply and has lower greenhouse gas intensity than grid powered electricity. However, biomass and biogas are a more sustainable and renewable fuel source. At present the market for biomass and biogas is emerging and immature. Guaranteeing a secure supply of these fuels is difficult.

Sustainable Infrastructure Recommendation 04

- Undertake a feasibility assessment to further explore the potential for tri-generation plants in Southbank
- Investigate potential supplies of biomass and biogas as fuel for tri-generation plants. This should be considered in relation to city-wide waste management strategies.

S4 Onsite Renewable Energy Technologies - Building Scale

The built form strategies mandate the delivery of higher levels of environmental performance for all new development. This includes the requirement for all new developments to generate 10% of their energy requirement on-site (See Built Form Strategies 3, 4 and 6). This will involve the delivery of building-scale energy generation technology. The following technologies have been assessed as part of the integrated sustainable services delivery model.

Technology 1 - Photovoltaics

Photovoltaics (PVs) are a reliable technology requiring minimal maintenance that provide a source of renewable electricity. PVs can be installed relatively easily with care required to minimise overshadowing. The location of PVs is governed by exposure to sunlight. PVs need to be without shadowing from early morning to late afternoon and fixed at an angle which maximises sunlight to ensure efficient operation. The shading from surrounding buildings needs to be considered as this can impact the energy output of PV modules. There are a number of limitations of this technology which need to be considered. The technology is expensive (assuming there are no government subsidies), paybacks can be greater than 50 years, and the energy output can be intermittent.

The proposed suitable locations for the installation of PVs within Southbank are identified below and appear in **Figure 8.2** Proposed Energy Delivery Model:

- The roof area of all new developments (assumes a 50% roof coverage).
- The large flat north facing roofs of the Melbourne Exhibition Centre, the Melbourne Convention Centre, DFO, the Hilton, Hamer Hall and river front office development (three commercial office towers along Southbank Promenade) - 100% coverage is assumed.
- The noise barrier along the West Gate Freeway (1,350m linear length assumed). This can be built as a feature of the freeway, with the PVs fixed on the main barrier, an example of this is seen at the Calder Interchange on the Tullamarine Freeway.

Technology 2 - Micro Wind Turbines

Micro Wind Turbines are proposed on new buildings which are unobstructed from prevailing southerly winds. In the installation of micro wind turbines, consideration needs to be given to the weight, turbulence, obstructions, vibration, noise, wind speed and power output. The structural integrity of the intended mounting structure needs careful consideration due to the turbine's load. The height of the bottom of the rotor blades should be at least 6 m above any obstacle that is within 76m of the mounting tower (Energy Matters, 2009) limiting the number of suitable sites.

Figure 8.2 illustrates Energy Delivery Model.

Sustainable Infrastructure Recommendation 05

Undertake a study to investigate the feasibility of retrofitting PVs on the West Gate Freeway and the buildings identified above. A detailed design study is required to establish the requirements for the height of the barrier, loading implications and structural fixtures.

Sustainable Infrastructure Recommendation 06

Undertake a study to investigate the feasibility of micro wind turbines. A detailed design study is required to establish the requirements for the height of the turbines, loading implications and structural fixtures.

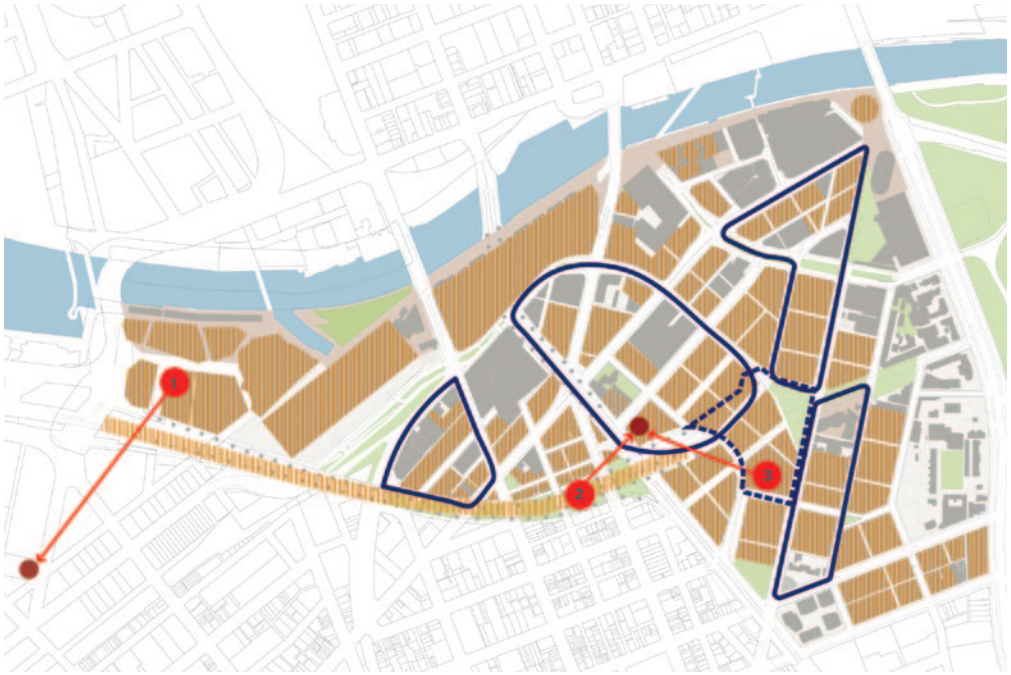


Figure 8.2 Proposed Energy Delivery Model

Not to scale

Precinct Scale

Tri-generation plant (within CSH - Nominal Locations)

Distribution substation (existing)

Tri pipe system distributing chilled and heated water for building coolling and heating

Building Scale

Photovoltaics on roofs and West Gate Freeway

(Microturbine locations not shown)

Proposed CityLink Deck

Water Delivery

S5 Distributed Catchment and Storage of Stormwater - Precinct Scale

A distributed catchment and storage of stormwater is proposed for Southbank. The catchment of stormwater and the utilisation of wastewater will ensure that potable water consumption can be significantly reduced and provide the alternate potable water needed to ensure adequate supply for the projected population of Southbank. The following is the process proposed for the treatment and use of stormwater in Southbank:

- Preliminary treatment of stormwater (removal of sediments, nutrients and other contaminants) through Water Sensitive Urban Design (WSUD) - refer to Strategy 6 below.
- Store stormwater in underground storage tanks located in the existing and proposed open space.
- Additional treatment and disinfection at the CSH1 (indicated on **figure 8.3**);
- Treated stormwater is then supplied to the tri-generation plant.
- Chilled and heated water supply is reticulated through the precinct via the tri-pipe system.

The treatment and harvesting of stormwater will reduce the energy and the subsequent greenhouse gas emissions, which would be consumed in pumping water and sewerage to and from centralised treatment plants. Through these initiatives up to 80% of the local stormwater runoff could be harvested and up to 50% of the external runoff from the main drain. The potential locations of underground tanks are represented in **figure 8.3** Proposed Water Delivery Model.

Sustainable Infrastructure Recommendation 07

Undertake a feasibility assessment to explore the retention and storage of stormwater in public open space.

S6 Utilise Open Space to Treat Stormwater – Precinct Scale

Future Melbourne sets out the goal to increase the amount of green space. This can be achieved through the increased provision of public gardens, private roof gardens, green walls and WSUD. Utilising the existing and proposed green open spaces identified in Section 06: Open Space Network and the subsequent design of these spaces to trap and filter water will provide a cooler climate mitigating the urban heat island effect and provide an alternate potable water source. Implementation of WSUD measures in open space need to be balanced against the need to provide active and useable community open space.

Sustainable Infrastructure Recommendation 08

- Consider as part of the *Open Space Strategy* undertaking a feasibility assessment to explore the treatment of stormwater in public open space.
- Develop a Water Sensitive Urban Design Strategy for the whole of Southbank.

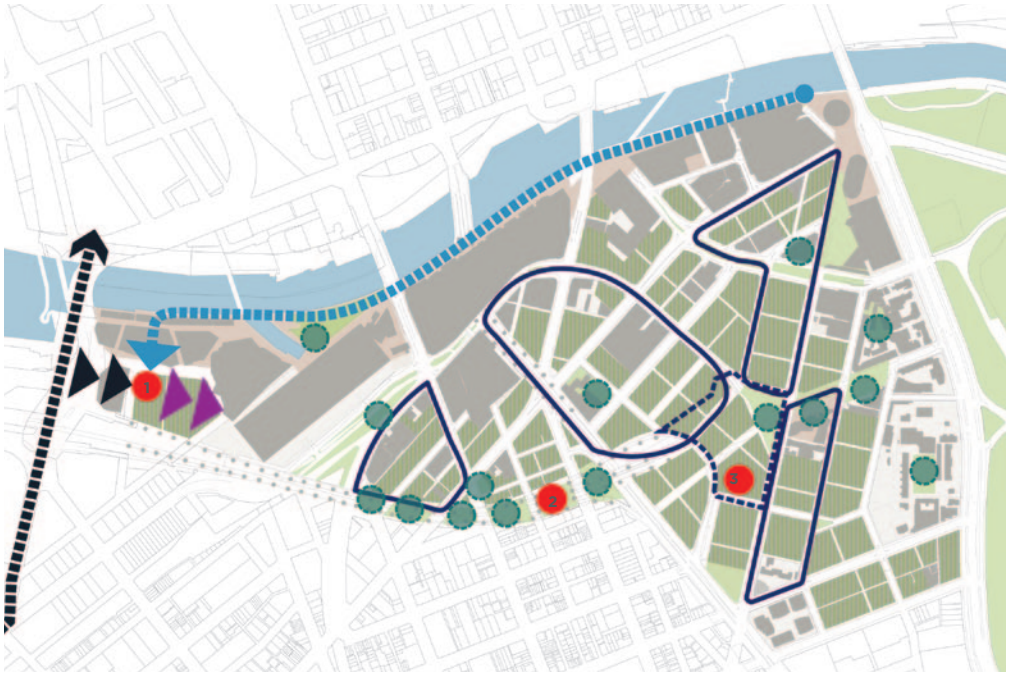


Figure 8.3 Proposed Water Delivery Model

Not to Scale

Water treatment plan (within CSH - nominal locations)

Import blackwater from existing sewer into CSH1

Export recycled water CSH 2 and 3 and then via tri- pipe system

Tri pipe system - distributing chilled, heated and recycled water.

Distributed stormwater collection points - water supplied into CSHs.

Stormwater overflow collection to CSH 1

Green Roofs - Collection of rainwater incorporated into green roofs.

Proposed CityLink Deck

S7 Sewer Mining the Melbourne Main Sewer

A sewer mining plant is proposed in the vicinity of Melbourne Water's main sewer shown in **figure 8.3**. Waste would be extracted and treated up to Class A standard via an onsite treatment plant located in CSH1 shown in **figure 8.1.** Residual waste would be deposited back to the sewer. The recycled water would be reticulated to buildings through the recycled water pipe discussed in strategy 1. Recycled water would be used to supply toilets, laundry, fire fighting, cooling towers and tri-generation as a heat exchanger. This approach has the potential to reduce potable water demand by 55% and the opportunity to become a net provider of recycled water. The water could be used to water Alexandra Gardens, Fawkner Park and Albert Park. However there are significant energy demands in treating and pumping the water.

Sustainable Infrastructure Recommendation 09

» Undertake a feasibility assessment to further explore the potential for sewer mining in Southbank.

An illustration of the integrated sustainable utilities model outlined above is shown in **figures 8.4 and 8.5**. It clearly depicts the mutual benefits of delivering an integrated system where the inputs and outputs of the energy generation and water delivery systems are utilised to maximum effect. It shows that the traditional method of delivering off-site and isolated energy generation and water supply infrastructure represents an unsustainable future and an underutilisation of existing, limited resources.

Resource Reduction

S8 Mandate Green Roofs on all New Development – Building Scale

Roof gardens provide the benefit of reducing the urban heat island effect (UHIE), preserving and enhancing biodiversity, improving the city aesthetic, air quality and stormwater. A green roof garden can regulate internal building temperature by acting as thermal insulation. Studies have shown indoor temperatures to be 3 to 4 °C lower than outside temperatures of 25 to 30 °C. Green roofs can improve the electricity production of PV panels through evapotranspiration and maintaining a higher electricity production than would be the case without the vegetative layer.

In the design of a roof garden, consideration needs to be given to the micro-environment at roof level, particularly wind speed and available sunlight and the structural impacts of the additional weight loads a roof garden may generate. Green roofs can be sited around building plant and equipment.

Sustainable Infrastructure Recommendation 10

Mandate the delivery of green roofs for all new developments in local planning policy. Refer to Built Form Recommendation 5.

S9 Incorporate Vehicle-to-Grid System

Vehicle-to-grid (V2G) systems are a sub-set of the electric-drive vehicle (EDV) and may represent a potential opportunity to bring forward and accelerate a transition towards EDVs by improving the commercial viability of new technologies. EDV technology is likely to play an important role in the future of motor vehicles in Australia. EDVs may reduce greenhouse gas emissions and ambient air pollution, while reducing energy consumption and thus Australia's exposure to crude oil prices and oil import dependency. Importantly, the emissions reduction potential of EDV technology depends on the carbon intensity of electric power generation and the size of the vehicle fleet. Therefore, CO2 emissions reductions are likely to be larger if adoption occurs under an economy-wide cap and trade system that also encourages low-carbon electricity generation. This is a technology that could develop in the next 20 years.

In Southbank it is proposed a V2G system could be implemented by aggregating V2G into 'parking-lot power plants' for vehicular distributed generation. The main benefits would include the ability to spread infrastructure costs, simplify coordination, limit bi-directional power flow centres and the need for time-sensitive price signals, aggregate capacity and energy supply into utility-friendly and distributed-generation hardware-friendly units, and aggregate V2G benefits. The main examples of potential applications include commercial fleet vehicles, car-rental companies and parking lots.

Sustainable Infrastructure Recommendation 11

» Work needs to be undertaken to determine the merits of an electric vehicle-to-grid (V2G) an approach and whether such an approach is consistent with the City of Melbourne's emissions reduction strategy. This needs to address the potential impacts for demands on the electricity network, renewable energy generation and other relevant considerations.

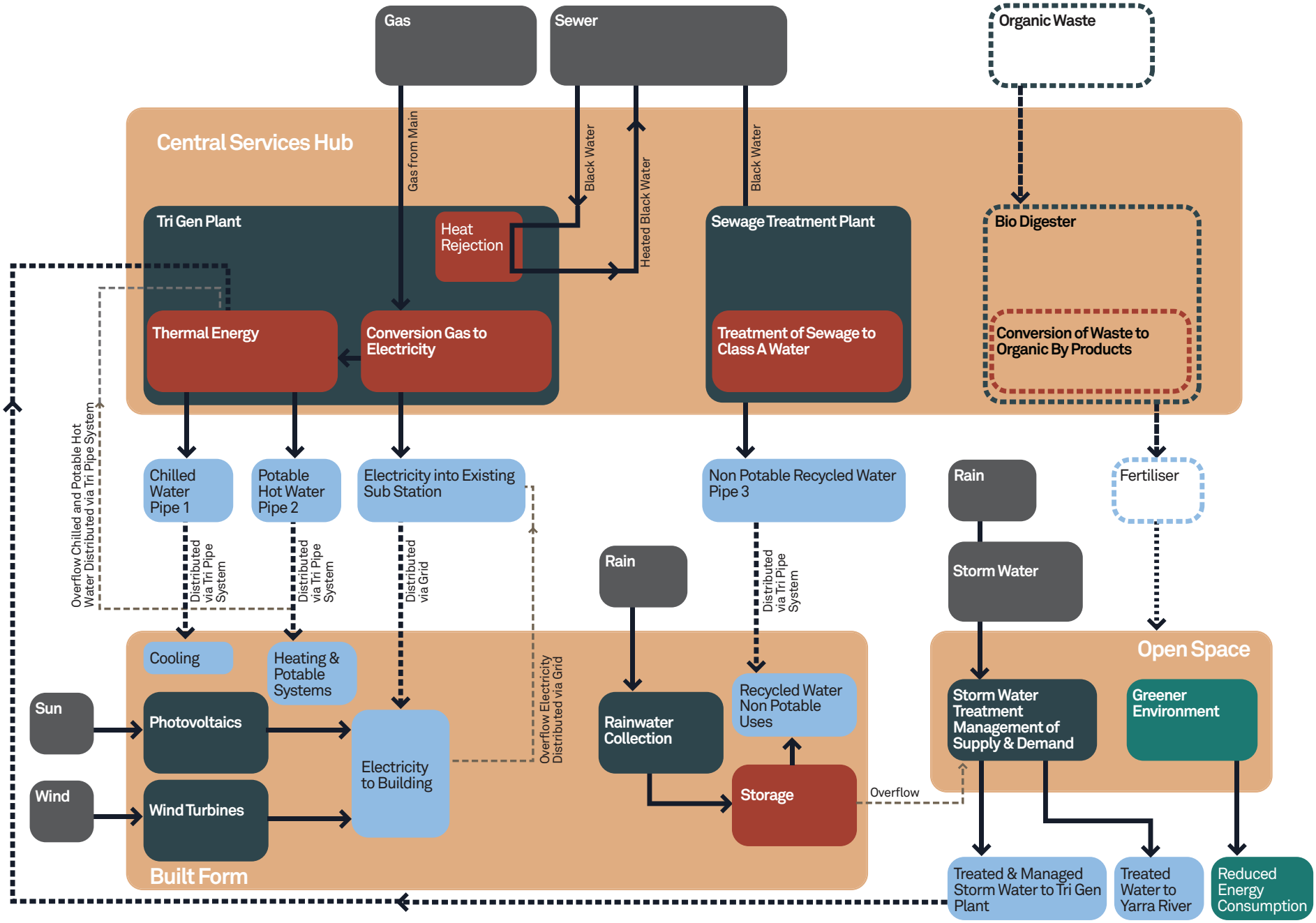


Figure 8.4 Proposed Integrated Sustainable Services Infrastructure - Systems Model

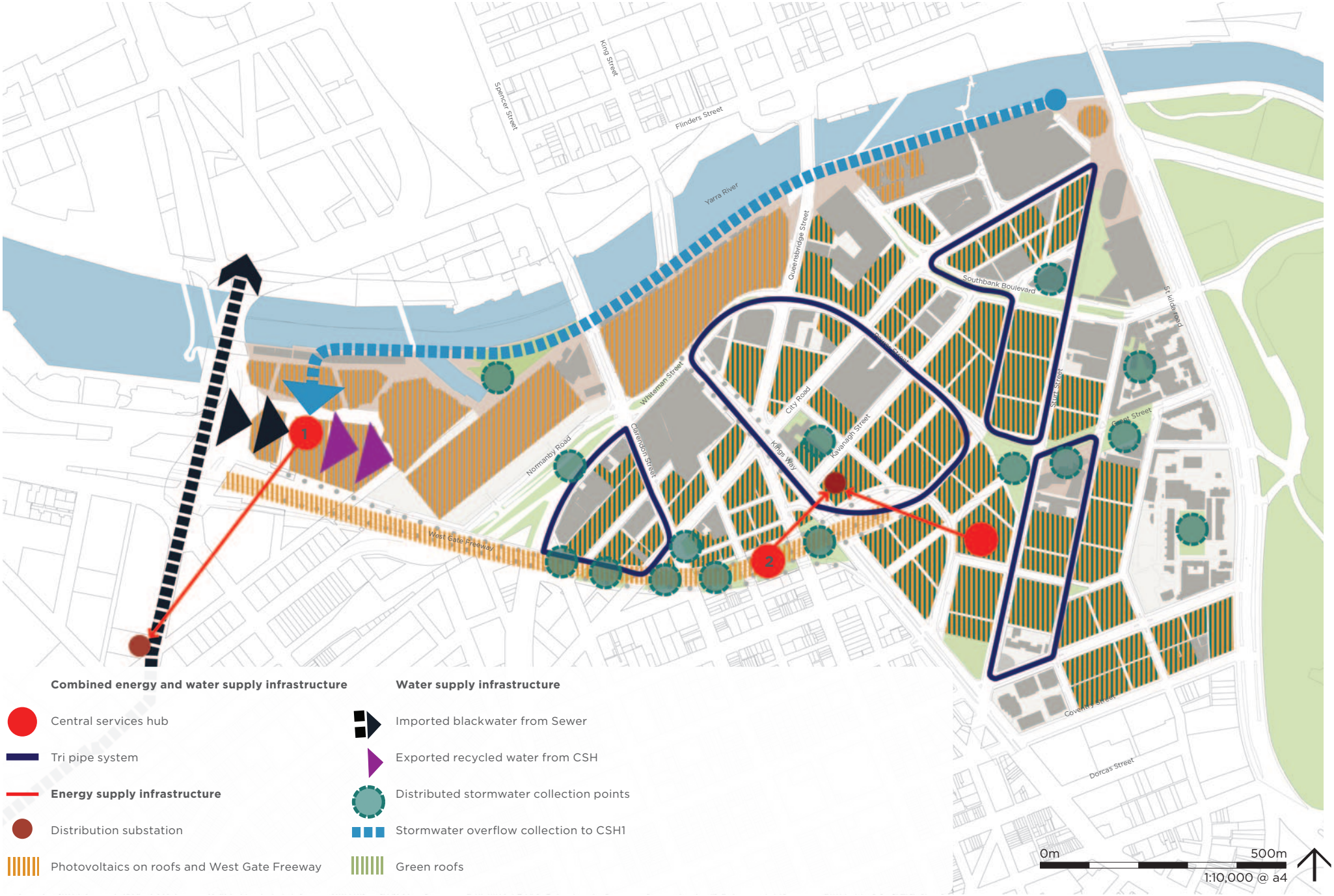


Figure 8.5 Proposed Integrated Sustainable Services Infrastructure - Indicative Spatial Layout

09 Implementation

9.1 Progressing Amendments to the Melbourne Planning Scheme

Planning controls need to deliver the particular strategic and development outcomes envisioned for an area with clarity, consistency and ease of use. The *Southbank Structure Plan 2010* paints an aspirational picture for Southbank. In order to facilitate the implementation of the strategies and recommendations the following assessment outlines the changes required to the *Melbourne Planning Scheme* (the Scheme). The implementation recommendations that follow are intended to guide the preparation of the Planning Scheme amendment.

For Southbank, changing the Scheme requires Ministerial approval. The amendment will be assessed against the Minister for Planning's Ministerial Direction No. 11 and the Strategic Assessment Guidelines for preparing and evaluating Planning Scheme Amendments General Practice Note (revised April 2008).

Future Directions

The *Southbank Structure Plan 2010* proposes that Southbank develop over time as an extension of the central city, providing a mix of commercial and residential land uses, a built form of a human scale and fine grained detail, greater permeability, activity and pedestrian priority at ground level.

There are a number of implementation initiatives that flow from *the Structure Plan 2010*. They are divided into two categories – those that occur within the framework of the Scheme and those that will occur outside of the Scheme.

9.2 Amendment Contents

The tools available within the Scheme to implement the *Southbank Structure Plan 2010* are state and local policy, land zonings and their consequent tables of as-of right, permitted and prohibited uses, overlays to address matters ranging from built form to contamination, heritage and flooding, and particular and general provisions dealing with car parking rates and services provision.

The Structure Plan 2010 will be implemented primarily through the revision of local planning policies, modifications to the land use zones that affect the area, the use of overlays and by the inclusion of the *Southbank Structure Plan 2010* as a reference document in the Scheme.

These initiatives are further outlined below.

State Planning Policy

Amendment to State Policy will affect all planning schemes in Victoria and are proposed and considered in that context.

The provisions of State policy support the directions of the *Southbank Structure Plan 2010* and the *Structure Plan 2010* is consistent in its purpose with State policy.

Local Planning Policy

Modifications are required to the City of Melbourne's *Municipal Strategic Statement* (MSS) as contained in Clause 21 of the *Melbourne Planning Scheme* to reinforce subsequent changes to other local policies and Planning Scheme provisions that are required to implement *the Structure Plan 2010*.

Specifically the MSS will need to be amended to reflect the renewed vision for Southbank articulated in *the Structure Plan 2010*. *The Structure Plan 2010* seeks to:

- Maintain and enhance the existing key relationship that Southbank has with the Central City, the role Southbank serves as a cultural and arts precinct and its relationship with the Yarra River, St Kilda Road and The Domain.
- Recognise that Southbank must develop as a place in its own right and provide services and amenities for its increasing population of residents, workers and visitors;
- Increase diversity with regard to services and housing opportunities.
- Give greater priority to pedestrian, cyclist and public transport amenity and access ahead of private motor vehicle use.
- Introduce a variety of sustainability initiatives ranging from service provision to built form outcomes to minimise energy and water consumption and reduce the heat island effect.

Clauses that will need revision include:

» **Clause 21.02-2 Land Use and Community**

To recognise the revised future demographic of Southbank.

» **Clause 21.04 Land Use**

To recognise existing land use strengths and reflect the emerging land use directions with regard to housing densities and diversity, commercial and retail nodes and opportunities and open space.

» **Clause 21.08-3 Local Areas**

Southbank To reflect the outcomes of the *Southbank Structure Plan 2010* including vision, precincts, land uses, built form, movement, street amenity, diversity and sustainability initiatives.

» **Clause 21.09.1 Land Use and Community Indicators**

Include the potential for the introduction of new measures to evaluate the success of the initiatives contained within the *Southbank Structure Plan 2010*.

» **Clause 21.10 Future Work**

To update and include new initiatives proposed in the *Southbank Structure Plan 2010*.

» **Clause 21.11 Reference Documents**

To include the *Southbank Structure Plan 2010* and replace the reference to the *Southbank Structure Plan (Final Draft) 1999*.

In addition, changes will be required to a number of local policies in the *Melbourne Planning Scheme* contained in Clause 22.

These changes include:

» All references to the *Southbank Structure Plan (Final Draft) 1999* to be replaced with reference to the *Southbank Structure Plan 2010*.

» **Clause 22.01 Urban Design within the Capital City Zone**

To either reflect the changes proposed in *the Structure Plan 2010* or to exempt the *Southbank Structure Plan 2010* area from this provision subject to a new Southbank specific provision being introduced (refer below).

» **Clause 22.02 Sunlight to Public Spaces**

To either reflect the changes proposed in the *Southbank Structure Plan 2010* or to exempt the *Southbank Structure Plan 2010* area from this provision subject to a new Southbank specific provision being introduced (refer below).

» **Clause 22.19 Environmentally Sustainable Office Buildings**

To either reflect the changes proposed in the *Southbank Structure Plan 2010* or to exempt the *Southbank Structure Plan 2010* area from this provision subject to a new Southbank specific provision being introduced (refer below).

» **A new Clause 22 policy - Urban Design within Southbank**

To reflect the particular initiatives being pursued in the *Southbank Structure Plan 2010* area.

» **A new Clause 22 policy - Environmental Sustainability within Southbank**

To reflect the particular initiatives being pursued in the *Southbank Structure Plan 2010* area.

Zoning

The Capital City Zone should be extended across the Southbank area. The only areas not proposed for the application of the Capital City Zone are:

» The existing Victoria Barracks site which is zoned Commonwealth Government land reflecting its current use.

» Existing Mixed Used Zoned (MUZ) blocks bounded by St Kilda Road, Dorcas Street, Dodds Street and Coventry Streets. These blocks to remain as MUZ.

» Existing declared roads (to be reviewed in the longer term).

» The existing land zoned Residential 1 generally bounded by Grant, Dodds, Wells and Coventry Streets which is proposed to be rezoned to MUZ.

Overlays

The Structure Plan 2010 proposes a number of changes to building height and form that will require modifications to the existing array of Overlays that currently control the study area.

These changes include:

- The built form outcomes described in Section 4 of *the Structure Plan 2010* regarding setbacks, podium and building heights and design, passive surveillance and green roofs.
- Pedestrian and cycling enhancements on private land and their transition to public land as generally described in Section 5.
- Sustainability initiatives such as the design and development implications of the various alternative energy options (i.e. photovoltaics, micro wind turbines) as discussed in Section 8 of the *Structure Plan*:

A Developer Contribution Overlay may also be required if developer contributions are identified as a mechanism to help fund the sustainable utilities initiatives.

The existing Southbank Plot Ratio Overlay (DDO18) will require removal.

The CityLink Exhaust Stack Environs Overlay (DDO 27) will remain in place.

Other

There are a number of initiatives proposed in *the Structure Plan 2010* which raise issues of metropolitan, state and even national significance. In particular, proposals to investigate minimum provisions with regard to affordable housing (20%/development) and renewable energy (10%/development).

While these initiatives have their base in *Future Melbourne* and contemporary urban thinking, they raise policy and statutory issues beyond the boundaries of Southbank. Potentially, a requirement could be included in the conditions column of the Capital City Zone requiring, for example, residential development to include 20% affordable housing.

9.3 Implementation within the Planning Scheme

Implementation within the planning scheme would require a planning scheme amendment process.

9.4 Implementation outside of the Planning Scheme

There are a number of initiatives contained in *the Structure Plan 2010* which cannot be implemented through the scheme.

These include:

- Improvements to the public domain.
- Revisions to the public transport network.
- Revisions to the road hierarchy and network.
- Infrastructure provision (including utilities, stormwater management initiatives).
- Facilitation of the introduction of desired land uses (i.e. community uses, schools) into Southbank.
- Disability Discrimination Act compliance.
- The development of a car parking precinct plan (although implementation would be via the Planning Scheme).
- Streetscape improvement strategies.
- These initiatives rely on other methods of delivery ranging from other legislative acts to advocacy, negotiation and partnerships.

9.5 Funding Opportunities

Funding opportunities include:

- Developer Contribution Plans.
- City of Melbourne's capital works budget could be used to implement elements such as the construction of roads, walking and bicycle paths and restoration of the riverside area.
- Certain elements of infrastructure costs may be covered through capital works programs of service authorities.
- Local governments may apply for grants from a variety of sources to implement particular outcomes.
- Partnerships may be able to be brokered with the private sector for the delivery of some initiatives.

09

9.6 Reviewing the Structure Plan

A regular review of *the Structure Plan 2010* is recommended due to factors such as growth rates and future strategic work to be completed. This review is recommended at four year intervals when the *Municipal Strategic Statement* is reviewed, or sooner if there is a significant change in circumstances or a dramatic and sustained shift in growth rates in the area.

9.7 Implementation Schedule

A summary of all recommendations is outlined in the implementation schedule in Section 9.3.

Projects are prioritised into three categories:

1 - Actioned within a one to five year timeframe

2 - Actioned within a five to 10 year timeframe

3 - Actioned within a 10+ year timeframe.

9.3 Implementation Schedule

Recommendations	Priority	Responsible Authority	Policy	Zoning	Overlay	*Southbank Plan* Initiative	Other
Land Use							
1 Change of land use zoning from current Public Use, Mixed Use, Road Zone Category 1 and Residential 1 zones (**see Figure 3.1**) to the Capital City Zone and Mixed Use Zone respectively (**see Figure 3.2**). This would incorporate the removal of the 2:1 Commercial Floor Area Ratio that currently applies across Southbank which restricts commercial development and the establishment of new land use schedules.	1	City of Melbourne, DPCD	Yes	Yes	Yes		
2 Prepare master plans for the three activity nodes to establish a clear direction for their development.	1	City of Melbourne (Lead) with DPCD	Yes	Yes			Significant new strategic projects that would require the support of state government through DPCD and/or Major Project Victoria.
3 Prepare a master plan and business case for the decking of the CityLink tunnel entrance to assess the feasibility of this strategy. The master plan study area should incorporate the immediate surrounding context.	1	City of Melbourne (Lead) with DPCD and Major Projects Victoria	Yes				Significant new strategic project that would require the support of state government through DPCD and/or Major Project Victoria.
4 Deliver the Sturt Street Cultural Spine using the planning scheme and other mechanisms to encourage the growth of many, smaller scale uses along the street to complement the existing arts and cultural venues.	1	DPCD / City of Melbourne	Yes		Yes	Yes	
5 Discuss long-term future options and opportunities of the Victoria Barracks site with the Commonwealth Department of Defence.	2	City of Melbourne / DPCD	Yes		Yes		
6 Incorporate significant new green open space into CityLink Deck master plan and business case. Convert the undercroft of the M1 into a linear urban parkland.	1	City of Melbourne / DPCD / Major Projects Victoria	Yes				

Recommendations	Priority	Responsible Authority	Policy	Zoning	Overlay	*Southbank Plan* Initiative	Other
7 Investigate appropriate mechanisms to deliver 20% affordable housing including the opportunity for the City of Melbourne to act as a broker between developers and registered housing associations in order to facilitate this outcome. (See also Recommendation C4)	1	City of Melbourne/ DPCD	Yes				This is not a Southbank specific issue and solution and any policy initiative should be considered for the whole municipality.
8 Review flooding overlay and extent of flooding controls/ mitigation required on affected sites.	2	City of Melbourne			Yes		
9 Confirm three locations of Central Services Hub. Investigate in more detail the specification requirements of this infrastructure including the need to consider emissions, noise, vibration and access issues associated with the installation, operation and maintenance of the facilities.	2	City of Melbourne	Yes				To be developed in conjunction with the feasibility assessment of the Sustainable Services Initiatives.
Built Form							
1 Introduce new built form controls into a schedule in the Planning Scheme that deliver the following outcomes: » 0m setbacks up to podium height. » Mandatory podium height minimum of 30m and maximum of 40m. » Tower separation (within site and to towers on adjacent sites) - minimum of 10m. » Tower setback above podium to be 10m from a primary or secondary street frontage, 5m from a side boundary and 2m from tertiary streets. » Maximum tower depth and width of 35m.	1	City of Melbourne	Yes				

Recommendations	Priority	Responsible Authority	Policy	Zoning	Overlay	*Southbank Plan* Initiative	Other
2 Introduce new built form controls into a schedule in the Planning Scheme that deliver the following outcomes to achieve the streetscape vision. » 80% active street level frontage within each development site to primary and secondary street frontages (**see Figure 4.5** for street classification). » 50% active street level frontage within each development site to tertiary (laneway) frontages to assist in the activation of these pedestrian thoroughfares. » Habitable or commercial uses to all podium levels above street level for 80% of street frontages. » Minimum 4.0m floor to floor height for ground level. » Minimum 3.6m for all upper podium levels (including car parking areas). » Maximum 0.5 car spaces per dwelling. » With the exception of residential car parking rates, car parking provision to be in accordance with Schedule to Clause 52.06-6 in the Melbourne Planning Scheme.	1	City of Melbourne	Yes				
3 Mandate the delivery of environmental building performance in local planning policy for all new development.	1	City of Melbourne	Yes				
4 Mandate the delivery of environmental building performance in local planning policy for redevelopment.	1	City of Melbourne	Yes				
5 Mandate the delivery of green roofs for all new developments in local planning policy.	1	City of Melbourne	Yes				
6 Mandate the inclusion of a 10% energy generation target into the local planning policy.	1	City of Melbourne	Yes				
7 Investigate a developer contribution overlay for the delivery of sustainable infrastructure.	1	City of Melbourne	Yes		Yes		
8 Identify this precinct and include guidance in the Melbourne Planning Scheme that recognises and protects the fine grain urban character of this precinct.	1	City of Melbourne	Yes				

Recommendations	Priority	Responsible Authority	Policy	Zoning	Overlay	*Southbank Plan* Initiative	Other
Mobility and Access							
1 Upgrade Primary Pedestrian Spines to optimise pedestrian safety and capacity.	1	City of Melbourne/ VicRoads					Facilitate through discussion with VicRoads.
2 Investigate a 30 kilometre-per-hour speed limit on all local roads with higher limits on key arterials serving a higher traffic function. Lower speed limits will be pursued to promote optimal safety and high levels of amenity for pedestrians and cyclists. Careful consideration needs to be given to the potential implications on public transport service efficiency. See Mobility and Access Recommendation 45 in the Reduce Car Use section below.	2	City of Melbourne/ VicRoads					Facilitate transition of current 60km/h speed limits through discussion with VicRoads.
3 Investigate the feasibility of reducing the speed limit on St Kilda Road north of Domain Road from 60 to 50 kilometres-per-hour and north of Southbank Boulevard from 50 to 40 kilometres-per-hour. See Mobility and Access Recommendation 45 in the Reduce Car Use Section below.	2	City of Melbourne/ VicRoads					Facilitate transition of current 60km/h speed limits through discussion with VicRoads.
4 Investigate widening footpaths along entire length of City Road.	2	City of Melbourne/ VicRoads					Facilitate through discussion with VicRoads Incorporate into Capital Works Project Program.
5 Provide new pedestrian crossing facilities along the entire length of City Road.	1	City of Melbourne/ VicRoads					Facilitate through discussion with VicRoads Incorporate into Capital Works Project Program.
6 Investigate introducing automatic pedestrian phase activation during every traffic signal cycle along the 12 pedestrian spines (north-south and east-west).	2	City of Melbourne/ VicRoads					Facilitate through discussion with VicRoads Incorporate into Capital Works Project Program.
7 Investigate improving pedestrian service by reducing traffic signal cycle times along the 12 pedestrian spines.	2	City of Melbourne/ VicRoads					Facilitate through discussion with VicRoads
8 Investigate the widening of all signalised pedestrian crosswalks to 3 metres minimum along the 12 pedestrian spines.	2	City of Melbourne/ VicRoads					Facilitate through discussion with VicRoads Incorporate into Capital Works Project Program.
9 Investigate footpath widening opportunities (to reduce crossing distances) where geometry is substandard or capacity is inadequate along the 12 pedestrian spines.	2	City of Melbourne/ VicRoads					Facilitate through discussion with VicRoads Incorporate into Capital Works Project Program.

Recommendations	Priority	Responsible Authority	Policy	Zoning	Overlay	*Southbank Plan* Initiative	Other
10 Develop a wayfinding signage strategy to direct pedestrians to all destinations within Southbank and beyond (e.g., South Melbourne Market, sports and entertainment precinct and Port Phillip Bay).	1	City of Melbourne					Incorporate into Capital Works Project Program.
11 Deliver a fine grain pedestrian network through the establishment of new laneways (minimum 6m wide and 7.6m high) and an upgrade of existing streetscapes. This is also identified in the Open Space network strategy (Refer Open Space Recommendation 5).	1	City of Melbourne					Facilitate through discussion with VicRoads Incorporate into Capital Works Project Program.
12 Investigate a high priority pedestrian connection across Kings Way at Sturt Street (either an overpass or an underpass). This is not possible at-grade without creating increased congestion on Kings Way and possibly CityLink.	1	City of Melbourne/ City of Port Phillip/ VicRoads					Facilitate through discussion with VicRoads Incorporate into Capital Works Project Program.
13 Investigate a ground-level pedestrian link opposite Kavanagh Street under Kings Way ramps to improve connections to Clarendon Street and South Melbourne Market.	1	City of Melbourne/ DPCD/ City of Port Phillip				Yes	Facilitate through discussion with VicRoads Incorporate into Capital Works Project Program.
14 Establish overlays on existing private land for development of new laneways. (See also Mobility and Access Recommendation 11).	1	City of Melbourne/ DPCD	Yes		Yes		
15 Establish a new pedestrian link through the heart of the University of Melbourne's faculty of the VCAM Campus.	1	City of Melbourne/ University of Melbourne					Facilitate through discussion with the University of Melbourne.
16 Examine methods to achieve unimpeded progression for pedestrians through the newly created interchange between West Gate Freeway and Montague Street.	1	City of Melbourne/ VicRoads					Facilitate through discussion with VicRoads Incorporate into Capital Works Project Program.
17 Provide a pedestrian link from corner of Kavanagh Street and Southbank Boulevard along the western half of Fawkner Street and through a new north-south pedestrian path directly opposite Southgate Avenue.	1	City of Melbourne/ VicRoads					Facilitate through discussion with VicRoads Incorporate into Capital Works Project Program.
18 Investigate methods to achieve better pedestrian priority on the eastern half of Fawkner Street and the entire length of Fanning Street.	1	City of Melbourne/ VicRoads					Facilitate through discussion with VicRoads Incorporate into Capital Works Project Program.
19 Create direct pedestrian linkages from the DFO complex to the rest of Southbank and the City of Port Phillip municipality.	2	City of Melbourne/ VicRoads/ City of Port Phillip					Investigate opportunities with South Wharf developers to improve access from this development.

Recommendations	Priority	Responsible Authority	Policy	Zoning	Overlay	*Southbank Plan* Initiative	Other
20 Investigate opportunity for new pedestrian bridge linking Flinders Street Station to Southbank in the vicinity of the Arts Centre.	1	City of Melbourne					Investigate opportunities through discussions with DOT in context of other transport infrastructure changes.
21 Investigate the installation of primary on road bicycle routes along entire length of City Road. This route should be continued with appropriate treatments provided in Alexandra Avenue (including linkages to the Yarra Trail) and the City of Port Phillip sections of City Road. These routes need to ensure continuity in the network as they are implemented. Among other benefits, this will (together with plans for a shared bicycle path along Northbank on the central city side of the Yarra River) provide an alternative to Southbank Promenade for commuter and higher speed cyclists.	1	City of Melbourne/ VicRoads					Facilitate through discussion with VicRoads Incorporate into Capital Works Project Program.
22 Investigate the installation of primary on road bicycle routes in Queensbridge Street between Power Street and Flinders Street and along St Kilda Rd.	2	City of Melbourne/ VicRoads					Facilitate through discussion with VicRoads Incorporate into Capital Works Project Program.
23 Investigate the installation of primary on road bicycle routes in Clarendon Street/Spencer Street between the municipal boundary and Flinders Street. This is to complement the stronger pedestrian and cycle emphasis required along this key civic spine linking Southern Cross Station to Southbank's attractions and into South Melbourne.	2	City of Melbourne/ VicRoads					Facilitate through discussion with VicRoads Incorporate into Capital Works Project Program.
24 Investigate the installation of primary on road bicycle routes along entire length of Southbank Boulevard, Sturt Street and Coventry Street.	2	City of Melbourne/ VicRoads					Facilitate through discussion with VicRoads Incorporate into Capital Works Project Program.
25 Establish a bicycle route, through a combination of on- and off-road paths, along Grant Street, Power Street, Whiteman Street and Normanby Road and linking to Docklands via South Wharf and the Webb Bridge.	2	City of Melbourne					Incorporate into Capital Works Project Program.
26 Encourage the provision of a minimum of one bicycle parking space per dwelling for all new residential development in Southbank, an increase from the current one space per five dwellings.	1	City of Melbourne	Yes				

Recommendations	Priority	Responsible Authority	Policy	Zoning	Overlay	*Southbank Plan* Initiative	Other
27 Provide additional on-street bicycle parking facilities throughout Southbank to meet demand.	1	City of Melbourne/ VicRoads/ Parks Victoria/ DPCD					Incorporate into Capital Works Project Program.
28 Establish Melbourne Bicycle Sharing Scheme facilities in Southbank.	1	City of Melbourne					Incorporate into City of Melbourne bike sharing scheme currently in planning.
29 Investigate provision of bicycle facilities to link St Kilda Road bicycle lanes across Princes Bridge to Flinders Street.	2	City of Melbourne/ DoT/ DPCD/ VicRoads					Facilitate through discussions with key stakeholders.
30 Establish improved pedestrian and bicycle facilities along the tram reservation on Kings Way if tram route is relocated to Sturt and Power Street (see Mobility and Access Recommendation 33).	1	City of Melbourne/ DoT/ DPCD/ VicRoads/ City of Port Phillip					Must be done in conjunction with the Metro 1 study revisions to the Tram Network.
31 Extend bicycle lanes to intersections. Provide intersection treatments (eg. advance starts, storage boxes, exclusive phases etc).	1	City of Melbourne					Incorporate into Capital Works Project Program.
32 Provide way finding signage for cyclists.	2	City of Melbourne					Incorporate into Capital Works Project Program.
33 Investigate options to relocate tram services from Kings Way to Sturt Street and Power Street to support the existing and growing resident, worker and visitor population in Southbank. If relocation does not proceed, existing tram stops along Kings Way should be upgraded. The potentially redundant tram reservation on Kings Way must be used to expand the pedestrian and bicycle networks. See Mobility and Access Recommendation 31 in the Expand the Bicycle Network section above.	2	City of Melbourne/ DoT/ DPCD/ VicRoads/ City of Port Phillip					Must be done in conjunction with the Metro 1 study revisions to the Tram Network.
34 Examine the potential for new tram routes along Whiteman Street and Normanby Road, particularly to service special events, conferences and exhibitions.	2	City of Melbourne/ DOT/VicRoads					
35 Investigate the provision of providing maximum active tram priority to all signalised intersections in Southbank.	1	City of Melbourne/ DOT/VicRoads					
36 Investigate and develop further bus priority in the area, particularly for citybound bus services in City Road and Southbank Boulevard.	1	DOT/City of Melbourne					

Recommendations	Priority	Responsible Authority	Policy	Zoning	Overlay	*Southbank Plan* Initiative	Other
37 Investigate the management of City Road (along its entire length) with emphasis on local traffic access and circulation. This will include increased pedestrian and bicycle priority, and improved public transport operation where appropriate.	1	City of Melbourne/ DOT					
38 Investigate the removal of the short section of clearway on the north side of City Road between Power Street and Sturt Street.	1	City of Melbourne/ Vic Roads					
39 Investigate the opportunities for intermittent weekend road closures in Southbank for festivals, community gatherings, ciclovias and other activities.	1	City of Melbourne					Explore opportunities for event days that incorporate road closures to vehicular traffic as part of an Events Program.
40 Progressively reduce the traffic function on St Kilda Road north of Southbank Boulevard by managing it with high levels of pedestrian, bicycle and public transport priority.	2	City of Melbourne/ Vic Roads					
41 Facilitate creation of new open space in Sturt Street (north of Southbank Boulevard) and Grant Street (east of Sturt Street). Local access to car parks needs to be accommodated.		City of Melbourne					
42 Allow all new non residential developments to occur with no off street parking.	1	City of Melbourne					
43 Remove all long-term on-street parking and replace it with short-term restrictions.	2	City of Melbourne					
44 Encourage operators of commercial off-street public car parks to offer short- and medium-term car parking in preference to long-term car parking.	1	City of Melbourne					Facilitate through discussion with the key stakeholders.
45 Manage all on-street parking to support short-term access, delivery/servicing and special needs.	2	City of Melbourne					
46 Manage speed limits across Southbank (see Mobility and Access Recommendations 2 and 3	1	City of Melbourne / Vic Roads					
47 Investigate the potential to remove elevated section of Kings Way in the long term.	3	City of Melbourne / DOT / DPCD					

Recommendations	Priority	Responsible Authority	Policy	Zoning	Overlay	*Southbank Plan* Initiative	Other
48 Encourage the expansion of carsharing operation through the provision of additional on-street spaces and the encouragement of off-street shared spaces within private developments. This will reduce the need for additional car parking spaces within new developments.	1	City of Melbourne					
Open Space							
1 Deliver *Southbank Plan* through City of Melbourne capital works programme and in conjunction with DPCD.	1	City of Melbourne / DPCD					Incorporate into Capital Works Project Program.
2 As part of the feasibility of the CityLink Deck explore opportunities to incorporate a significant open space that can serve as a new 'Central Park'.	2	City of Melbourne / DPCD / Major Projects Victoria					
3 Progress discussion with the University of Melbourne and the Commonwealth Government over potential future connections through public land and access to these public spaces.	2	City of Melbourne / University of Melbourne					Facilitate through discussion with the University of Melbourne.
4 As part of the master plan for the Activity node consider options and opportunities for a new public open space within the Boyd School site.	1	City of Melbourne / DPCD					
5 Upgrade the existing suite of reserves to better contribute to the quality of the streetscape and to provide a series of open spaces for respite and recreation within Southbank.	2	City of Melbourne					
6 Develop a street improvement strategy for Southbank local street upgrades to be delivered through the City of Melbourne capital works programme.	1	City of Melbourne					Incorporate into Capital Works Project Program
7 In conjunction with the Sustainability Infrastructure feasibility assessment, explore the retention and storage of stormwater in public open space.	2	City of Melbourne / Melbourne Water					To be explored with the existing water supply utilities.
8 Investigate appropriate solar access conditions to deliver a high level of public amenity within the 'Central Park' and open space within the Boyd School site - eg. across a minimum of 50% of the site. Update Clause 22.02 to reflect the importance of these two public open spaces.	2	City of Melbourne	Yes				

Recommendations	Priority	Responsible Authority	Policy	Zoning	Overlay	*Southbank Plan* Initiative	Other
Community Infrastructure							
1 Promote the establishment of district community hub activities within the CityLink Deck development (Activity Node).	2	City of Melbourne	Yes				
2 Promote the establishment of neighbourhood hubs within the Boyd School redevelopment and the Arts Precinct activity nodes.	1	City of Melbourne	Yes				
3 Advocate for a primary and secondary school within Southbank with the Department of Education and Early Childhood Development.	1	City of Melbourne	Yes		Yes		
4 Investigate appropriate mechanisms to deliver 20% affordable housing including the opportunity for the City of Melbourne to act as a broker between developers and registered housing associations in order to facilitate this outcome. (See also Land Use Recommendation 7).	1	City of Melbourne / DPCD	Yes				An acquisition overlay may be required if selected site is not currently owned by the Victorian Government.
5 Investigate potential sites and incentives for private developments to deliver childcare services within Southbank.	1	City of Melbourne					
Sustainable Infrastructure							
1 Undertake a feasibility assessment to further explore the potential of Central Services Hubs.	1	City of Melbourne / Utility suppliers	Yes		Yes		
2 Confirm three the locations of the Central Services Hubs. Investigate in more detail the specification requirements of this infrastructure including the need to consider emissions, noise, vibration and access issues associated with the installation, operation and maintenance of the facilities. (See also Land Use Recommendation 09)	1	City of Melbourne / Utility suppliers					
3 Undertake a feasibility assessment to further explore the potential for a combined services tunnel.	1	City of Melbourne / Utility suppliers	Yes		Yes		

Recommendations	Priority	Responsible Authority	Policy	Zoning	Overlay	*Southbank Plan* Initiative	Other
4 Undertake a feasibility assessment to further explore the potential for tri-generation plants in Southbank Investigate potential supplies of biomass and biogas as fuel for tri-generation plants. This should be considered in relation to city-wide waste management strategies.	1	City of Melbourne					
5 Undertake a study to investigate the feasibility of retrofitting PVs on the West Gate Freeway and the buildings identified above. A detailed design study is required to establish the requirements for the height of the barrier, loading implications and structural fixtures.	1	City of Melbourne					A long term pilot project opportunity - dependent on the progress of the technology.
6 Undertake a study to investigate the feasibility of micro wind turbines. A detailed design study is required to establish the requirements for the height of the turbine, loading implications and structural fixtures.	1	City of Melbourne/ utilities					
7 Undertake a feasibility assessment to explore the retention and storage of stormwater in public open space.	1	City of Melbourne/ utilities					
8 Consider as part of the Open Space Strategy undertaking a feasibility assessment to explore the treatment of stormwater in public open space. Develop a Water Sensitive Urban Design Strategy for the whole of Southbank.	1	City of Melbourne/ utilities					
9 Undertake a feasibility assessment to further explore the potential for sewer mining in Southbank.	1	City of Melbourne/ utilities					
10 Mandate the delivery of green roofs for all new developments in local planning policy. (See also Built Form Recommendation 5).	1	City of Melbourne	Yes				
11 Work needs to be undertaken to determine the merits of an electric vehicle-to-grid (V2G) an approach and whether such an approach is consistent with the City's emissions reduction strategy. This needs to address the potential impacts for demands on the electricity network, renewable energy generation and other relevant considerations.	1	City of Melbourne					A long term pilot project opportunity - Dependent on the progress of the technology.

Figure 9.1 summarises the key redevelopment opportunities over a zero to 15 year period.

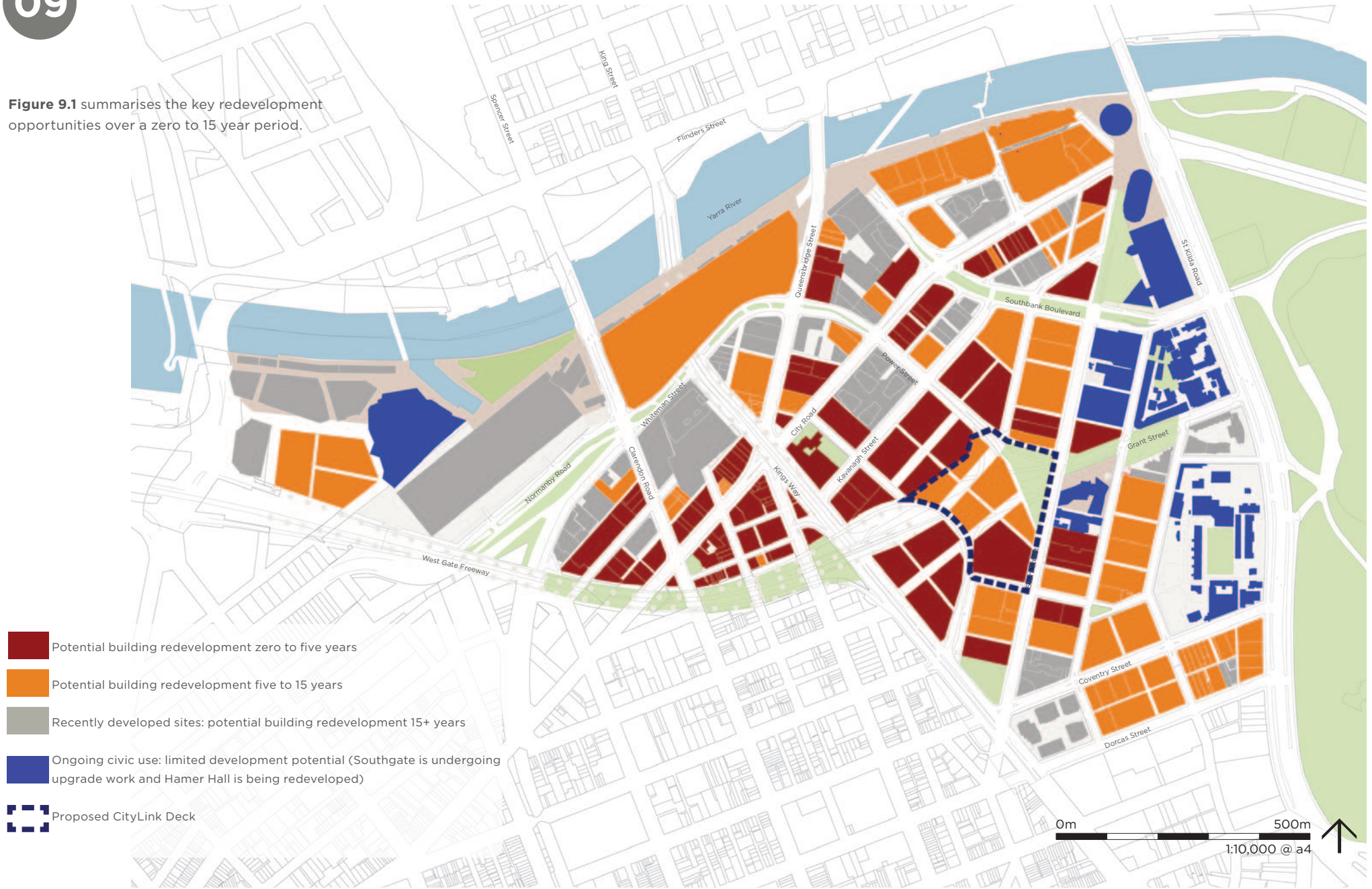


Figure 9.1 Development Potential Over 30 Years

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