ATTACHMENT A

**VOLUME 1:
LIVEABLE GREEN NETWORK STRATEGY
AND MASTER PLAN REPORT (WITH
PROPOSED AMENDMENTS)**

The Liveable Green Network

Volume 1

Liveable Green Network Strategy and Master plan Report

City Strategy and Design
City Design

EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY

The **Liveable Green Network** is a key project idea in **Sustainable Sydney 2030** that aims to deliver a connected pedestrian and cycle network. The Liveable Green Network will contribute to the delivery of Targets 7, 8, and 9 of Sustainable Sydney 2030.

The focus of the Liveable Green Network is active transport. By making walking and cycling more attractive particularly for short trips a viable **alternative transport choice** to using the private motor vehicle will be provided.

The **Liveable Green Network Strategy and Master plan** report develops and refines the Sustainable Sydney 2030 project idea by undertaking background research and case studies, reviewing previous cycle and pedestrian network planning studies, and undertaking route assessments to identify network gaps and amenity shortfalls.

1.0 Report Structure

The Master plan report comprises of three sections:

Volume 1 – Liveable Green Network Strategy and Master plan Report – provides mapping and description of the Liveable Green Network hierarchies with Toolbox Design Guidelines that identifies key components to consider in the development of the Network.
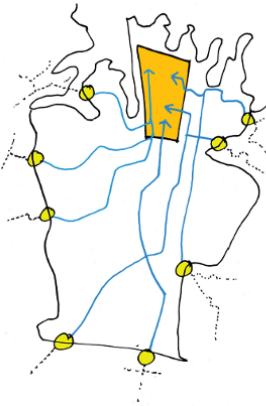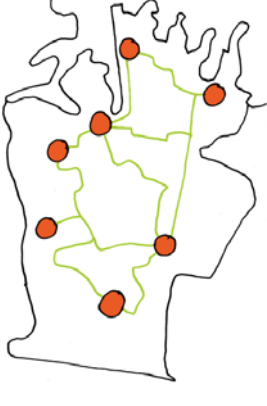
Volume 2 – Liveable Green Network Development and Assessment Report – provides **analysis mapping** and **assessments** with **recommendations** on the development of various network components.

Volume 3 – Background Research and Case Studies – provides an overview of studies and research that has influenced and directed the development of the Liveable Green Network.

2.0 Development of the Liveable Green Network

(A) Network Focus

Liveable Green Network routes will provide the most convenient and direct connections to **major destinations** across the **City** and **Inner Sydney** regional area.   The major network focus will be connections to:

| City Centre | Village Centre to Village Centre | Major Parks and Recreation Facilities |

(B) Liveable Green Network Assessment

Route Assessment Criteria

Route alignment and public domain quality assessment criteria have been used to demonstrate which routes display the highest potential to serve pedestrian/ cycle demand, and assist in the assessment shortfalls that need to be addressed to improve amenity.

**Volume 2** provides assessment of individual components of the city wide network.

Assessment and Analysis Mapping

Volume 2 includes a range **assessment and analysis mapping** that has been used to develop and check the validity of the proposed Network. This includes mapping key destinations and attractors, public transport networks, gradients and topography, network barriers, and modal share characteristics.
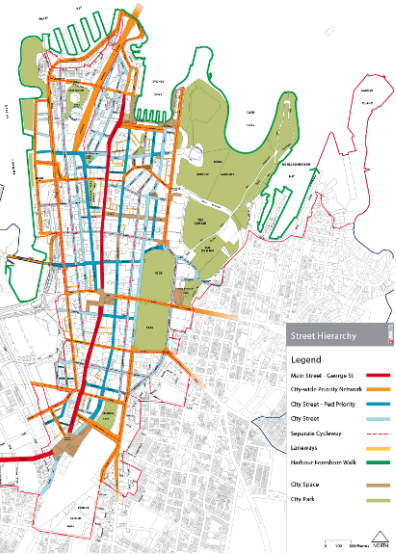
(C) Liveable Green Network Master Plan

The Liveable Green Network Master plan involved the development of a City- wide **pedestrian network plan** that was overlayed on the City's **cycle master plan** to show where pedestrian / cycle routes **align** or **diverge** across the City's Local Government Area.

Citywide – Pedestrian and Cycling Routes

Cycle Priority Routes

Pedestrian Priority Routes

Liveable Green Network
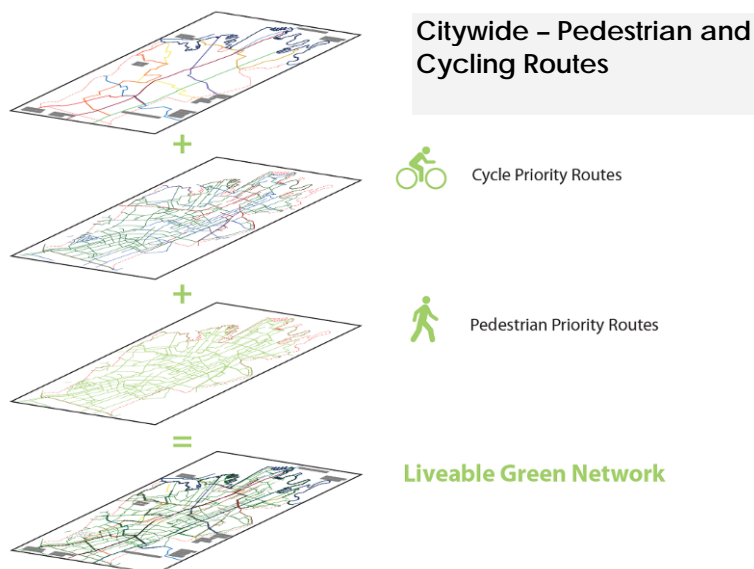
From these overlays network mapping at a **City Wide**, **City Centre** and **Village Centre** level has been developed.

\n\n**City Wide**	**City Wide Network**\n\nProvides convenient and direct connections to **major destinations** across the City and Inner Sydney regional areas.\n\nVillage Centre mapping shows further details of the City Wide network.
\n\n**City Centre**	**City Centre**\n\nNetwork includes streets and public spaces that provide convenient access around the city centre as well as links from the City Centre to surrounding Village Centres and Inner Sydney areas.\n\n**George Street** is promoted as the network's "Main Street".
\n\n**Village Centre**	**Village Centre Network**\n\nProvides a more **local function** within each Village Centre precinct with connections to local amenities and destinations such as schools, parks, community centres, and retail and commercial services and public transport as well as links to the City Wide Network.

3.0 Delivering the Liveable Green Network.

Sustainable 2030 Targets

Sustainable Sydney 2030 includes ten targets. The Liveable Green Network will contribute to the delivery of the following targets:

TARGET 7   By 2030, at least 10 per cent of City trips will be made by bicycle and 50 per cent by pedestrian movement.

TARGET 8   By 2030, every resident will be within a 10 minute (800m) walk to fresh food markets, childcare, health services and leisure, social, learning and cultural infrastructure.

TARGET 9   By 2030, every resident in the City of Sydney will be within a three minute walk (250m) of continuous green links that connect to the Harbour Foreshore, Harbour Parklands, Moore or Centennial or Sydney Parks.

Current Projects

The current and **proposed project directions** undertaken by the **City** will contribute to the delivery of the Liveable Green Network by addressing **network gaps** and improving public domain quality.

These include:

- Cycleway Program
- Park and Open Space upgrades
- Streetscape Upgrade Program
- Public Domain Planning projects
- Pedestrian Cycle Traffic Calming (PCTC) Program
- Footpath Reconstruction Program
- Urban Renewal project planning.

Gaps in the proposed network due to private land ownership will be largely addressed through **urban renewal** particularly sites such as Green Square, Barangaroo, CUB and Ashmore Estate which will provide new street connections.

Achieving a **connected cycleway network** will be addressed with the City's commitment to a 200 kilometre cycle network including 55 kilometres of separated cycleways.

In the **local street network** attention to intersection and crossing treatments by either through raised crossings / thresholds/ kerb extensions will significantly improve connectivity and amenity. The **Pedestrian Cycle and Traffic calming (PCTC) plan proposed treatments** are an important in achieving the delivery of these components. The conversion of streets and lanes to **Shared Ways** will also significantly change the priority of street network to pedestrian and cycling use. The City's **footway reconstruction program** also delivers to the pedestrian network.

The shortfalls in pedestrian amenity that need attention include sections of **narrow footpaths** and poor **intersection treatments** particularly at **State Roads** where pedestrian crossing facilities are sometimes either inadequate or non existent or sections of **narrow footpaths**.

Project Management Governance Framework

Delivery of the Liveable Green Network will involve a **cross divisional approach** of City of Sydney departments to deliver the various project programs.

Project scoping, development and implementation will be directed by the City **Project Management Governance Framework**. The Framework will facilitate strategic management of issues, resources and decisions across a portfolio of projects.

The Framework includes the formation of an **Initiation Review Group** which will provide an oversight and review role to ensure initiatives are appropriately developed, scoped, and analysed.

Toolbox Design Guidelines

The toolbox design guidelines provide a range of treatments and ideas that should be considered in the development of the Liveable Green Network. **Specific recommendations** for individual network components are detailed in **Volume 2.**

Apart from pedestrian and cycle infrastructure these guidelines also consider public domain quality and sustainability measures such as water sensitive urban design, landscape treatments and tree planting, provision of street furniture , and paving materials palette selection.

4.0 Next Steps

The Liveable Green Network Master plan will be used to inform and guide future pedestrian and cycle planning, and be a mechanism for allocating resources and priorities for network improvements. Key next steps will be:

Network Implementation Plan

Develop a Network implementation plan to finalise route selections, determine priorities and assess resource allocation to projects.

Network Amenities Plan

Develop an amenities plan that scopes the need and locations for bubblers, seats, toilets and other street furniture that will assist future budget and capital works planning.

Communication of the Network

Develop a wayfinding and legibility framework that considers mapping / graphics, promotion, signage, and use of legibility strategies such as **public art** to assist people finding their way.

Measuring Success

Measuring the success of the Liveable Green Network and delivery on Sustainable Sydney 2030 targets will require data collection to develop baseline measures of levels of walking and cycling in order to track progress over time.

 Potential data sources include:

- Australian Bureau of Statistics Census data – journey to work

- Collecting qualitative data about pedestrian activity

- utilising GIS Pedestrian Permeability Analyses to evaluate walkable access to activity centres, community facilities, schools and transport stops

- undertaking pedestrian counts in targeted locations.

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Volume 1

Liveable Green Network Strategy and Masterplan Report

INTRODUCTION

1.1 Background

The **Liveable Green Network** is a key project idea in **Sustainable Sydney 2030** that aims to create a connected pedestrian and cycle network across the City local government area. The Liveable Green Network will contribute to the delivery of Targets 7, 8, and 9 of Sustainable Sydney 2030.

The Master plan report develops and refines the Sustainable Sydney 2030 project idea by undertaking background research and case studies, reviewing previous cycle and pedestrian network planning studies, and undertaking route assessments to identify network gaps and amenity shortfalls. The Master plan details a pedestrian and cycle network that connects the City Centre and Village Centres as well as other destinations.

Extensive planning on the City cycle network has already been undertaken with the development of the **City of Sydney Cycle Action Plan 2007 and Master plan.** Many cycleway projects are now being constructed or under design development. This study acknowledges and incorporates the cycle network planning work done to date under the umbrella of an **integrated pedestrian and cycling network**.

Previous pedestrian planning undertaken by the City has focused on particular neighbourhoods or precincts rather than taking a city wide network perspective. Consequently there is an emphasis on **citywide pedestrian network planning** in this study.

The report is divided into three volumes:

Volume 1 – Liveable Green Network Strategy and Master plan Report – provides mapping and description of the Liveable Green Network hierarchies with toolbox design guidelines that identify key components to consider in the development of the Network.

Volume 2 – Liveable Green Network Development and Assessment Report – provides **analysis mapping** and **assessments** with **recommendations** for the development of various network components.

Volume 3 – Background Research and Case Studies – provides an overview of studies and research that have influenced and directed the development of the Liveable Green Network.

1.2 Sydney 2030

The delivery of the Liveable Green Network is a key project idea in Sustainable Sydney 2030 and is integral to the delivery of a Green Global and Connected City.

Green: provide a sustainable non-motorised transport option, with opportunities to incorporate Water Sensitive Urban Design;

Global: provide world class attractions such as the Harbour Foreshore Walk;

Connected: a continuous cycle and pedestrian pathway network links the City Centre, Village Centres, main streets, parks and open spaces and major activities precincts.

The Liveable Green Network will respond to eight of the 10 strategic directions of SS2030.

- A Globally Competitive and Innovative City

- A Leading Environmental Performer
- A City for Walking and Cycling
- Integrated Transport for a Connected City
- A Lively Engaging City Centre
- Vibrant Local Communities and Economies
- A Cultural and Creative City of Sydney
- Sustainable Development, Renewal and Design.

These are further detailed in **Volume 2** of the report.

As well the delivery of the Liveable Green Network will respond to the following 2030 **targets.**

TARGET 7
By 2030, at least 10 per cent of City trips will be made by bicycle and 50 per cent by pedestrian movement.

TARGET 8
By 2030, every resident will be within a 10 minute (800m) walk to fresh food markets, childcare, health services and leisure, social, learning and cultural infrastructure.

TARGET 9
By 2030, every resident in the City of Sydney will be within a three minute walk (250m) of continuous green links that connect to the Harbour Foreshore, Harbour Parklands, Moore or Centennial or Sydney Parks.

Figure 1 Sydney 2030 Liveable Green Network Proposal

1.3 Liveable Green Network Objectives

Objectives of the Liveable Green Network Strategy and Masterplan are:

- Provide a comprehensive and legible pedestrian and cycle network that responds to Sustainable Sydney 2030 targets by connecting the City Centre, Village Centres, public transport, major parks and recreation facilities

- Increase the proportion of pedestrian and cycling trips in the city to minimise greenhouse gas emissions

- Provide inclusive access to meet the needs of people with disabilities

- Co-ordinate with adjacent Councils to develop an integrated Inner City Network;

- Improve community health, <u>safety</u> and well being

- Ensure provision of amenities that invite and promotion pedestrian and cycle travel

- Ensure integration with transport planning

1.4 Definition of the Liveable Green Network

The Liveable Green Network is a **pedestrian and cycling network** that connects people to the City Centre, Village Centres and neighbourhoods, as well as to public transport, education and cultural precincts and major parks and recreation facilities.

Many overseas examples of cycling and pedestrian networks have a **recreation and leisure focus** with routes mainly located along foreshores , parkland and other areas of high scenic amenity.

While the City's network also considers recreation and leisure needs, the prime focus is providing an **alternative transport choice** that will make walking and cycling more attractive than using the car – particularly for short trips to work, to the shops, to public transport and to recreation facilities. To encourage wider use and promote commuter short trips it is crucial that networks link up places where people really want to go.

Routes prioritised for the Liveable Green Network will combine the following characteristics:

Infrastructure that provides for **pedestrian** and **cycle priority** This includes **separated cycle facilities**, traffic calming and slower vehicle speeds, widened pedestrian pathways, raised pedestrian crossings, continuous thresholds	 **Crown Street**

across minor intersections, and shared way treatments.	**Bourke Road**
Quality public space design along the journey and at destinations that includes places to rest and stay as well as facilities such as seats, toilets, bubblers, and cycle parking.	**Victoria Park**
Legibility and Communication Promotion of the network to encourage use will depend on clear identification of routes through consistent **mapping graphics**, **signs** and other markers such as **public art**.	
Green Streets **Landscape treatments** such as street trees and verge planting make streets more attractive, add interest, provide shade and increases biodiversity. **Water sensitive urban design treatments** to improve stormwater runoff management, maximises infiltration of water and help irrigate the landscape.	**Myrtle Street** **Joynton Avenue**

2.0 BACKGROUND RESEARCH AND CASE STUDIES

2.1 Summary Findings from Background Research

Volume 3 of the report details the background research and case study examples of cities that have planned and implemented pedestrian and cycle networks similar to the Liveable Green Network. These include Vancouver, New York, San Francisco, Detroit, and the Sustrans networks in the United Kingdom.

Summary findings include:

2.1.1 The Concept of Active Transport

Active transport includes non- motorised forms of transport involving physical activity such as walking and cycling. It also includes public transport to meet longer distance trip needs as public transport trips generally include walking and cycling components as part of the whole journey.

Walking and cycling have tended to be marginal to transport thinking which has focussed mostly on road and public transport alternatives. However current environmental and economic challenges have meant that many cities are readjusting priorities to accommodate active transport aiming to make walking and cycling mainstream travel options especially for shorter trips. Recent publications such as *An Australian Vision for Active Transport* highlight the growing recognition and importance to plan and implement active transport networks. (Refer Volume 3 , Section 3.0)

2.1.2 The Benefits of Active Transport Networks.

Liveability

The popularity of walking and cycling is an important guide to the liveability of a city. High levels of walking show a city has vibrant, safe urban spaces with convenient access to places where people work, shop and play. Ease of access to services and amenities and the quality of life are important drawcards in the competition between cities to attract the businesses and people they need for economic growth.

Health Benefits

Cycling and walking are generally recognised as excellent forms of physical activity that can help prevent and/or control cardiovascular disease, diabetes, and obesity. A major benefit of active transport is that it can bring regular exercise into a daily routine – exercise which might otherwise not feature in people's busy schedules.

Environment

Encouraging people to walk or cycle for shorter trip distances can also help reduce carbon footprint pollution and improve environmental amenity. Good pedestrian/ cycling routes linking to mass transit complement the role of public transport by providing an environmentally sustainable alternative to the car that can take pressure off congested road and public transport systems.

Economic Benefits

An Inner Sydney bicycle network would return a clear economic benefit a recent study shows.

The *Inner Sydney Regional Bicycle Network – Demand and Economic Appraisal.* (AECOM 2010) shows that full development of the Inner Sydney Regional Bicycle Network is economically desirable. The net economic benefits accruing from the development of the Inner Sydney Regional Bicycle Network over a 30 years would be $506 million at a benefit cost ratio of 3.88. That means every $1 invested in the network would return $3.88 in benefits. If more people took up cycling and the Government's cycle mode share targets were reached the economic benefits are estimated at up to $1.8 billion.

Fairness

Young people, older people and people without a car or other vehicle need choices in how they get to work, school, places of recreation and to shops and other services. People who live in the City are less likely to own a car than others the Sydney region - with an average 0.7 vehicles per City household compared to 1.46 for the Sydney region.

2.1.3 Streets as Places

Streets are not just links between places – they are important public places themselves.

The value of streets in providing significant public areas for people to meet, socialise and play is recognised as crucial to the liveability and sustainability of cities and towns. Streets need to provide public space for public life as well as carry out their traditional linking and transport corridor functions.

Cities such as New York, Copenhagen, San Francisco and Seattle recognise the importance of streets as places for public life as well as places for environmental improvements such as greening and water sensitive urban design treatments

This thinking is also outlined in publications such as **Link and Place** recognises that streets have various functions - as a **link** ,a conduit for through movement as well in some instances as a **place** where streets are a destination in their own right.

2.1.4 Public Domain Quality

Improving the quality of our public areas is a crucial element in encouraging people to walk, cycle and make other use of these spaces.

The renowned architect and urban design consultant Jan Gehl has succeeded in transforming cities across the world partly be emphasising the importance of a comfortable well-thought out public spaces. By improving the quality of public areas Gehl argues that cities can make spaces and streets more inviting and encourage people to use them more and stay there longer.

"There is more to walking than walking. Walking is a healthy and environmentally friendly mode of traffic, but it's also a lot more: Walking is about experiencing the city at an appropriate pace, looking at shop windows, beautiful buildings, fine details, other people, traffic moving etc. Taking rests on carefully placed benches with nice views can be a valuable part of the walking experience. At some point we are all pedestrians walking from public transport, the bike rack, a parking structure or from home. As such streets should be welcoming to all of us.

"…walking is the key to city quality"

2.1.5 Greener Streets

The large areas of land covered by streets can become a useful resource to help cities become more sustainable.

Streets can reduce heat island effects through additional tree planting and landscape treatments, capture, treat and reuse stormwater through water sensitive urban design, use energy efficient lighting and be built using materials with low embodied energy or recycled materials. Good streets also contribute to the greening of cities by encouraging walking and cycling as alternatives to motorised transport.

2.1.6 The Differences between Pedestrians and Cyclists

Walking and cycling each have different characteristics and infrastructure needs and it cannot be assumed that one street will be suitable for both cycle and pedestrian priority. For example bike riders travel much further and faster than pedestrians and need more facilities at their destinations.

Consequently development of the Liveable Green Network consider walking and cycling separately and does not assume that the route preferred for cycling will necessarily be preferred by pedestrians or vice versa.

The key differences between walking and cycling are detailed in **Volume 3 – Section 4.0.**

2.1.7 Promotion and information are essential for best use of the Network.

Communication and **legibility** are crucially important to ensure that people will use the network and will be confident in finding their way around.

Overseas examples highlight the importance of promoting:

- Interpretative and directional **signage systems**;
- I**nternet based** mapping and promotion including download applications;
- **Consistent** graphics and branding of network; and
- Use of **public art** and urban design to improve legibility and identification of routes.

3.0 NETWORK DEVELOPMENT AND ASSESSMENT

The proposed network has been developed after extensive research, mapping and field work which is fully detailed in Volume 2 and summarised in this section.

3.1 Network Development Methodology

Development of the Network involved the following steps.

		Section
1.0	Develop overall **LGN Objectives**	Volume 1 section 1.3
2.0	Assessment of the **Sydney 2030 Liveable Green Network Proposal** to determine merits of proposed routes;	Volume 2 Section 3.0
3.0	**Review previous studies** that relate to pedestrian and cycle planning for the City of Sydney and Inner Sydney region.	Volume 3 Section 2.0 & 3.0
4.0	Undertake **assessment and analysis mapping** to determine opportunities and constraints;	Volume 2 section 3.0

5.0	**Develop of Route Alignment Principles** as a means to assess merits of potential routes;	Volume 1 Section 4.0 Volume 3 Section 5.0
6.0	**Undertake Route Assessments** based on Route Alignment Principles that indentify priorities for upgrade and improvements.	Volume 2 Section 5.0
7.0	Develop of **route hierarchy mapping;**	Volume 2 Section 4.0
8.0	Develop **City Pedestrian Network master plan**.	Volume 1 Section 6.2
9.0	**Overlay Pedestrian Network Plan and City Bicycle Network Master plan** to create a Liveable Green Network city wide network master plan that depicts where pedestrian and cycle routes are aligned or diverge across the Local Government Area.	Volume 1 Section 6.2
10.0	Develop **Design toolbox of components** and materials that will be used to develop the Network.	Volume 1 Section 8.0

3.1.1 Reports and Case Studies
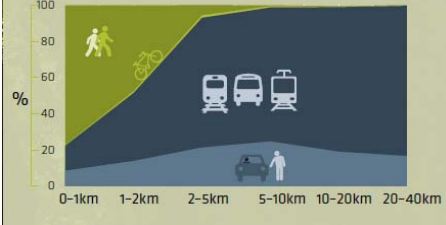
Development of the Liveable Green Network master plan has drawn upon previous strategies studies and projects that have a pedestrian and cycling component .These are detailed in **Volume 3.**

3.2 Opportunities for Walking and Cycling in the City of Sydney.

The City of Sydney local government area has many positive attributes that would contribute to be development of a Liveable Green Network from which a strong walking and cycling culture could be established.

Details of this assessment are provided in **Volume 2 Section 3.0**

	Village Centres- Density/ Mixed Use	Apart from the Southern Industrial area the City consists of **mixed land use precincts** with high residential densities surrounding various **"Village Centres"**. These centres provide access to destinations including shops, schools, public transport and other facilities that are usually clustered around a main street. When these destinations are close together in the same area people are more likely to walk, cycle or catch public transport. There is a very close job/ homes match in the City. Nearly 60 per cent of the resident workforce lives and works within the subregion - the highest self-containment for employment of any subregion	 **Harris Street** **Sydney University**
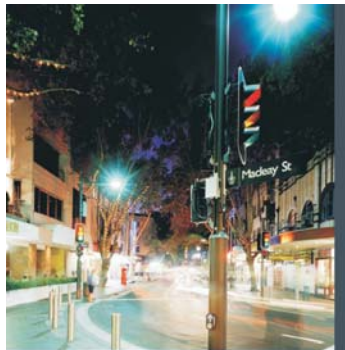
	Major Destinations	The City contains **major destinations and attractors** including the **City Centre**, leading universities, hospitals, cultural and entertainment precincts. The availability of facilities and activities at a short distance from people's homes mean more than **70 per cent of trips by City residents are less than 5km in length**. (traditionally viewed as lengths ideal for walking and cycling). The relatively high residential density within 10km of the City Centre is a significant catchment for cycling to work and other activities.	Refer to **Volume 2** **City Centre from Domain Parklands**
	Existing Mode Share and Trip Distances	Walking already has a high share of the transport modes. Almost half the trips by residents to the city centre are made by walking and cycling with 92 per cent of these trips less than 2km.However this drops to 25 per cent for trips 2-5km .Thus there is a potential to increase the proportion for these longer trips by providing safe and connected networks. City residents also have the highest use of bicycles for work trips of any sub region (1.7per cent compared to 0.8per cent for the Sydney Region)	
	Fine Grain Street Network	The streets of the City's older established neighbourhoods display largely a **fine grain street network** with short distances to intersections and rear laneways which creates a highly permeable network offering choice and ease of access.	
	Topography / Gradients	Although there are some topographic barriers such as escarpments and steep gradients generally the City's topography is flat to undulating with gradients being mostly less than 7per cent.	

3.3 – Constraints- Current Barriers to Walking and Cycling in the City of Sydney.

Although the City of Sydney has many positive attributes there are barriers that discourage walking and cycling as alternative transport. In summary these are:

	Topography/ Gradients	Areas such as Woolloomooloo, Pyrmont and Glebe have steep **gradients** and **escarpments** that makes accessibility more difficult in some places.	**McElhone Steps, Woolloomooloo**
	Traffic Speed/ Busy Roads	The City is crossed by **busy arterial roads** that limit the frequency of safe crossing opportunities.	**Regent Street Redfern**
	Lack of Cycling Infrastructure and connected Network.	The current cycling network is **fragmented** and **disjointed** which forces cyclists to mix with general traffic. Because of safety concerns this discourages less confident people who might be considering cycling as a transport choice.	
	Poor Crossing Facilities/ Excessive Waiting Times	Pedestrians face many frustrations and difficulties when choosing to walk in the city because of **long waiting times** at crossing signals, intersections that lack crossing facilities on all sides, and use of slip lanes and generous corner radii that increase vehicle speeds.	**Ultimo Road**
	Infrastructure Barriers	**Busy roads** and **railway corridors** sometimes limit accessibility and direct connection to desired destinations.	**Railway corridor - Erskineville**

	Narrow Footpath and Barriers/ Obstacles	**Poorly placed street furniture** and signage plus narrow footpaths can reduce ease of access and discourage walking.	 **Botany Road**
	Public Domain Quality/ safety	**Poor quality urban spaces** including inactive streetscapes make pedestrians feel less safe and thus can discourage walking.	 **Kent Street Underpass**
	Lighting	**Street lighting** has traditionally focussed on illuminating road carriageway for vehicles rather than helping pedestrians or cyclists. Dimly lit footpaths also increase safety concerns.	
	Poor Connectivity/ Coarse Grain Street Networks	A long distance between cross streets (a coarse grain street network) particularly in the southern industrial area/ urban renewal areas can reduce choice and limit direct connections to destinations.	 **Aerial Photo – Southern Industrial Area**
	Land Tenure and Urban Renewal	**Private land ownership** in some areas is a barrier in to direct connections to destinations.	 **Lachlan Precinct**

	Lack of Mid Journey and End of Trip Facilities	Research shows walking and cycling is encouraged when mid trip facilities such as **toilets**, **bubblers,** shaded rest areas, and directional signage are provided. End of trip facilities at places of employment also encourage walking and cycling.	
	Lack of Information / Signage/ Maps	Clear showing walking/ cycle travel distances and times help reduce perception that some destinations are longer too far way for walking or cycling.	

Jan Gehl's *Public Spaces Public Life Sydney 2007* identified the following deficiencies with the **City Centre** pedestrian environment:

1. Unacceptably long waiting times at intersections
2. Push buttons at every intersection
3. Unacceptably short periods for crossing streets
4. Narrow footpaths
5. No benches along primary walking links
6. Low amenity of walking routes
7. Unacceptable noise levels
8. Abrupt crossings /pedestrian islands
9. High speed traffic
10. Uninviting street layouts
11. Street clutter obstructing walking links
12. Poor footpath amenities
13. Continuous inactive ground floor frontages;
15. Missing links between key destinations.

These issues are detailed in **Volume 2** of the report.
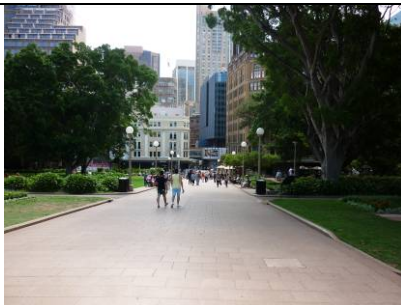
4.0 ROUTE ALIGNMENT ASSESSMENT CRITERIA

Route Alignment assessment criteria have been used to demonstrate which routes display the highest potential to serve pedestrian/cycle demand, and assist in the assessment shortfalls that need to be addressed to improve amenity.

As stated previously the emphasis has been on **pedestrian network** planning as Cycle Network Plan has been developed over the previous three years.

Volume 2 provides assessment of individual components of the city wide network based on the criteria outlined below.

The assessment criteria in the Table below are based on **Jan Gehl's methodology** to assess public domain quality, and route alignment principles contained in **Walkable London** and the **RTA's** Pedestrian Action and Management Plan (PAMP) guidelines. (Refer **Volume 3** section 5.0 for further details)

Assessment Criteria	
1.0 Route Alignment Quality	
1 (A) Connectivity/ Directness	
Are there direct continuous connections to destinations, public transport modes etc? Any gaps in network?	
1(B)Legibility/ Views	
Any landmarks to aid visual orientation? Are there good visual connections along route? Views and vistas?	
1(C) Accessibility	
Any inclusive access issues – obstacles, steep gradients?	
2.0 Public Domain Quality	
2(A)Invitation to Walk	
Is there good pathway width (appropriate for location) and surface treatment? Are there pedestrian amenities such as kerb extensions, continuous thresholds? Are the road crossings placed where people want to cross the road? Any facilities – public toilets nearby.	

2(B) Stationary Activities	
Are there any seats, bubblers? Any parks/ urban spaces to rest, linger, or play? Any outdoor café seating/ dining?	
2 (C) Evening/ Night Activities	
Are there anyevening/ night businesses- restaurants/ pubs/ cafes to add to vibrancy and interest of the street in the evening?	
2 (D) Streetscape Design Quality	
Architectural quality/ human scale/ consistency/ quality of materials. Public domain detailing /Public art; Are there active ground floor frontages, detailing and design that pedestrians can enjoy? Are there mature trees with good canopy or small trees out of scale with the streets or no trees?	 **Glebe Point Road**
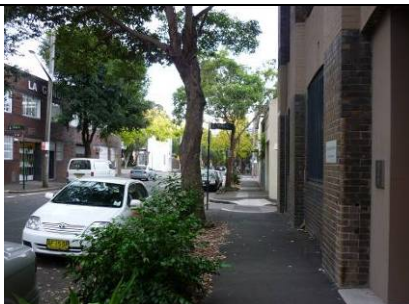
5.0 ASSESSMENT AND ANALYSIS MAPPING

Volume 2 provides the **assessment and analysis mapping** used to develop and check the validity of the proposed network. This includes mapping key destinations and attractors, public transport networks, gradients and topography, network barriers, and how travel is shared between walking, cycling and public and private transport.

Assessments have been developed from a **City wide perspective** as well as a drill down to the **City Centre** and **Village Centre** area as outlined in **the following section.**

6.0 THE LIVEABLE GREEN NETWORK

The Liveable Green Network has been developed with **three levels** of mapping and assessment.
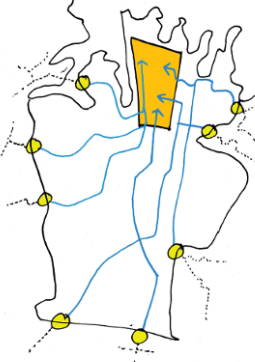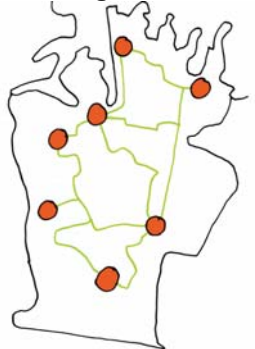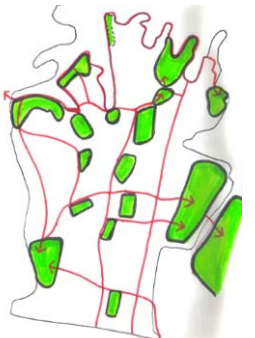
1.0	**City Wide Network;** provides convenient and direct connections to **major destinations** across the City and Inner Sydney regional areas.	**Pyrmont Bridge**
2.0	**City Centre Network** The **City Centre** is a major destination with extensive pedestrian activity day and night. Network includes streets and public spaces that provide convenient access around the city centre as well as links from the City Centre to surrounding Village Centres and Inner Sydney areas.	**York Street**
3.0	**Village Centre Network.** Provides a more **local function** within each Village Centre precinct with connections to local amenities and destinations such as schools, parks, community centres, and retail and commercial services and public transport as well as links to the City Wide Network.	

6.1 City-wide Network

These routes provide the most convenient and direct connections to **major destinations** across the **City** and **Inner Sydney** regional area.

The majority of the cycle master plan routes have a **city wide** and **regional focus** given that cyclists can cover longer distances more easily than pedestrians.

The focus of the City Wide network includes the following:

• **Links City Centre with the Village Centres.** 	Alexandra- City Centre Roseberry- Green Square- City Centre Pyrmont – City Centre Glebe/ Forest Lode- City Centre North Sydney- City Centre Potts Point/ Elizabeth Bay - City Centre Paddington – City Centre Newtown/ Erskineville/ City Centre
• **Village Centre to Village Centre-** 	Harbour North Green Square Haymarket Kings Cross Oxford Street Glebe Point Road King Street Crown Street Harris Street Redfern Street
• **Major Park and Recreation Facility Connections-** 	Harbour Foreshore Walk; Sydney Park – Centennial Parklands; Sydney Park – Prince Alfred Park – Hyde Park/ RBG; Glebe Parklands – Sydney Park; Alexandra Canal – Green Square – Centennial Parklands;

6.1.1 City Wide Network Pedestrian and Cycle Plan Overlay.

The **City Wide Network** involved developing a City-wide **pedestrian network plan** that was overlayed on the City's **cycle master plan** to show where pedestrian / cycle routes **align** or **diverge** across the City's Local Government Area.

Citywide – Pedestrian and Cycling Routes

Cycle Priority Routes

Pedestrian Priority Routes

Liveable Green Network
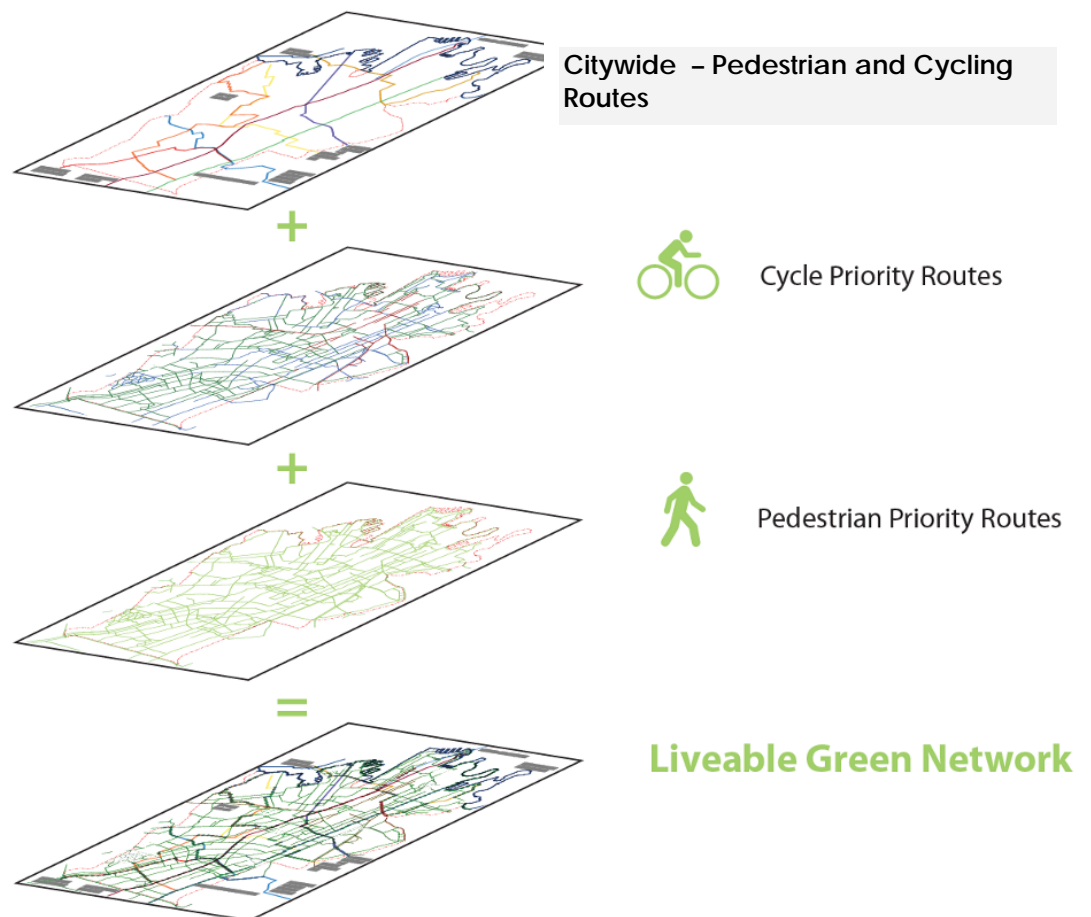
6.1.3 City Wide Pedestrian Network Plan

The **City-wide Pedestrian Network Plan** (Figure 3.0) involved reviewing the City's existing pedestrian plans and studies (refer Volume 3) as well as undertaking field work and assessment to find out about pedestrian conditions and amenity. Key components of the network are described in Section 6.3.6 and assessed in Volume 2 section 5.0
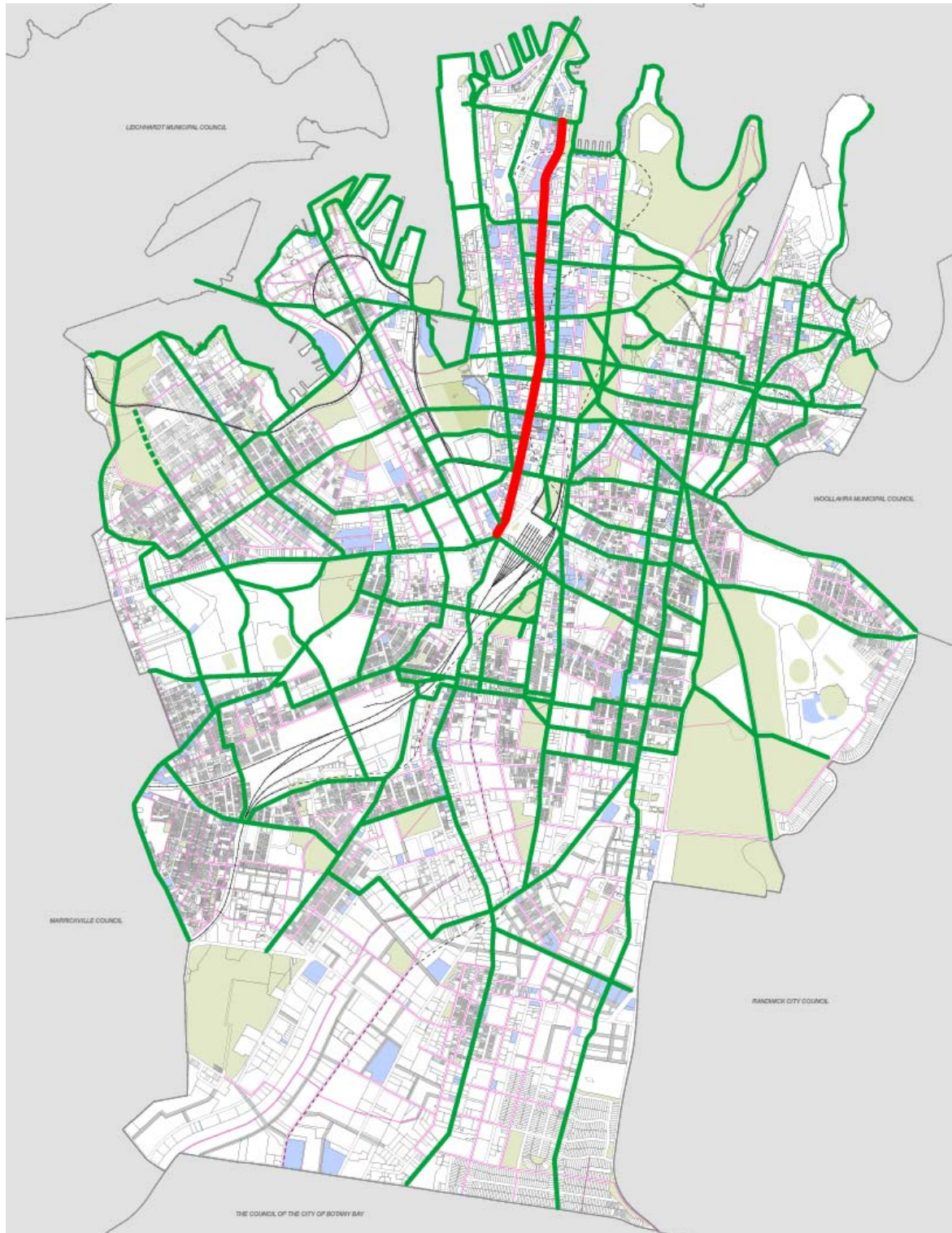
George Street
Citywide Main Pedestrian Network
Local Pedestrian Network

Figure 2 City Wide Pedestrian Network

Note: Detailed planning may result in some re-alignment to route selections.

6.1.4 City-wide Cycle Network

The City of Sydney Council's **Cycle Strategy and Action Plan 2007-2017** sets out the Council's commitment to improving cycling access over the next 10 years with a variety of cycle infrastructure improvements including separated facilities, off street shared pathways, dedicated lanes and mixed with traffic arrangements to create a comprehensive cycle network. (Figure 4.0)

The plan identifies that the best way to dramatically increase cycling levels is to provide cycleways that are physically separated from moving traffic and parked vehicles. Bi-directional cycleways were endorsed as the preferred treatment for inner Sydney as they minimise the effect on parking and increase urban and pedestrian amenity.

Figure 5 shows the priority city wide Liveable Green Network cycle network extracted from the City of Sydney cycle masterplan. The plan places emphasis is on the proposed separated cycle facilities, off street pathway connections, and essential mixed traffic or shared footway components that are necessary to connect the separated network.

Figure 3 Cycle Strategy and Action Plan 2007-2017 Masterplan

▬▬▬▬▬	George Street - "The Main Street"
▬▬▬▬▬	Separate Cycleway
▬▬▬▬▬	Off Street Pathway (Shared Path)
▬▬▬▬▬	Mixed Traffic/ On Road Traffic
▬▬▬▬▬	Shared Footway

Figure 4 Liveable Green Network – City-wide Cycle Network Components

6.1.5 Liveable Green Network – City Wide Cycle and Pedestrian Network Map Overlay
Figure 6 shows the overlay of the pedestrian and cycle citywide network maps which shows where the pedestrian / cycle priority routes are aligned or diverge across the Local Government Area. Section 7 provides mapping of each Village Centre to show further details of the City Wide network.
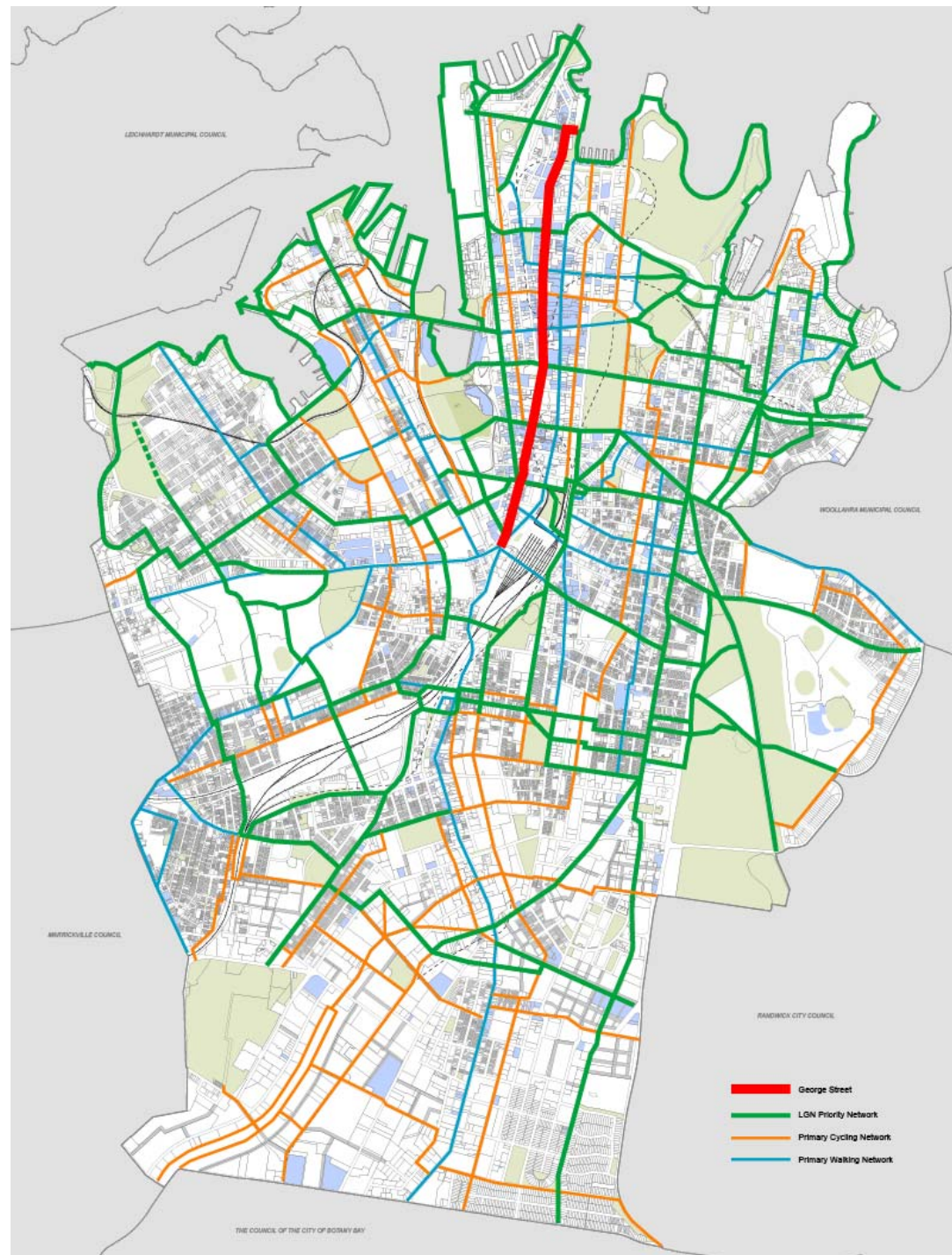
George Street	- "The Main Street"
LGN Priority Network – Pedestrian & Cycle	
City-wide Pedestrian Priority Street	
City-wide Cycling Priority Street	

Figure 5 City-wide Liveable Green Network Overlay
 Note: Detailed planning may result in some re-alignment to route selections.
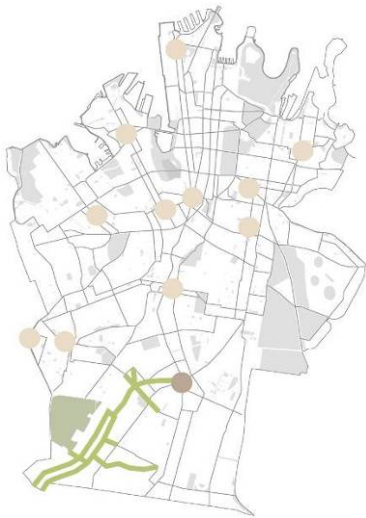
The **Citywide Network** includes the following typologies:

Priority Network City Corridor **Pedestrian** and **Cycle Priority** Streets that include separated cycle ways, with intersection treatments that provide pedestrian and cycle priority or shared way treatments.	
Citywide Cycle Priority Streets Streets with separated cycle infrastructure.	
Citywide Pedestrian Priority Streets Pedestrian priority expressed with quality pavement materials, kerb extensions, continuous crossing treatments and landscape amenity.	
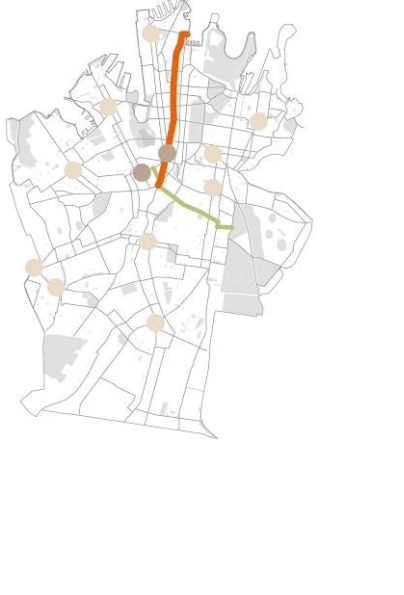
6.1.6 Description of City Wide Network Components

Key sections of the City Wide Liveable Green Network as detailed in Figure 6 are described below. **Volume 2** provides a more detailed **description and assessment** based on the route alignment principles with **recommendations** to improve amenity.

1.0	**Alexandra Canal – Green Square** **Alexandra Canal** is a significant feature of the landscape within the Southern Industrial Area that can provide improved access to Green Square and regional connections to Tempe, Cooks River and Botany Bay foreshore. Using the connecting stormwater channels and easements for cycle/pedestrian access will create a finer grain off street pathway system for this area. **Alexandra Canal**	
2.0	**Rosebery – Green Square- Redfern Railway Square** North south connection along Botany Road/ Regent Street to Railway Square. **Botany Road**	
3.0	**Rosebery – Green Square – Redfern – Surry Hills – Haymarket** North south cycle priority route to City Centre along Dunning Ave/ George Street will provide safe and convenient access for cyclists to use instead of nearby busy Botany Road/ Regent Street. Off street shared pathway links though Prince Alfred Park and Belmore Park. Pedestrian activity more significant from Redfern Street to Central/ Haymarket. **Prince Alfred Park (before upgrade)**	

4.0	**Rosebery – Alexandra – Sydney Park** East west connection from Sydney Park through Alexandra and Rosebery with regional links to Kensington and UNSW. Intersects with Citywide LGN routes at Bourke Road, Dalmeny avenue and Alexandra Canal precinct. **Doody Street**		
5.0	**Rosebery – Green Square – East Redfern / Waterloo** This route will form a north south connection from Rosebery to Green Square Town Centre and adjacent urban renewal areas. The route also directly connects into Bourke Street LGN route that provides access to the City Centre and Harbour Foreshore. **Dalmeny Avenue**		
6.0	**Alexandra – Green Square – Surry Hills-Woolloomooloo** Extends from Gardeners Road Alexandra along Bourke Road and Bourke Street to Woolloomooloo. Links to Moore Park, City Centre Harbour Foreshore. **Bourke Road Cycleway**		

7.0	**Baptist – Crown Streets** Provide pedestrian and cycle link from Green Square urban renewal areas to Crown and Oxford Street Village Centres. **Baptist Street**	
8.0	**Paddington / Centennial Parklands – Surry Hills and City Centre** Eastern Suburbs connection to City Centre along Anzac Parade/ Flinders Street and Moore Park Road as well as links to Centennial Parklands from East Redfern/ Surry Hills. **Anzac Parade**	
9.0	**Moore Park – East Redfern – Redfern Station** Connects Moore Park and adjacent urban renewal sites to Redfern Street and Redfern Station along Philip, Telopea , Redfern and Zamia Streets. Redfern Park provides convenient through site access to Redfern Street. **Redfern Park**	

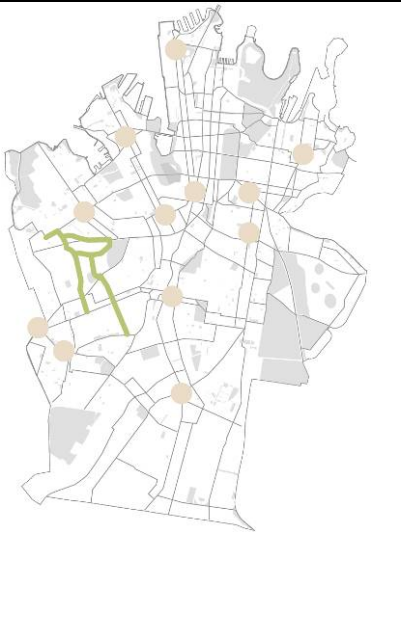|		
10.0	**Redfern – Surry Hills- Haymarket** Focuses on pedestrian activity generated from Central Station and major bus stops along Chalmers, Elizabeth Streets and Eddy Ave. Connections through Belmore Park provide access to Hay Street and city centre. **Chamber Street**	
11.0	**Devonshire Street** **Surry Hills –Central Railway –** **Haymarket** East west connection along Devonshire Street that links Moore Park, Surry Hills to Central Station. Access to Haymarket along Ultimo Pedestrian Network or Quay Street. **Devonshire Street**	
12.0	**Haymarket – Surry Hills** East west connections along Hay Street with connections along Wentworth Ave/ Foster Street to Oxford Street 	
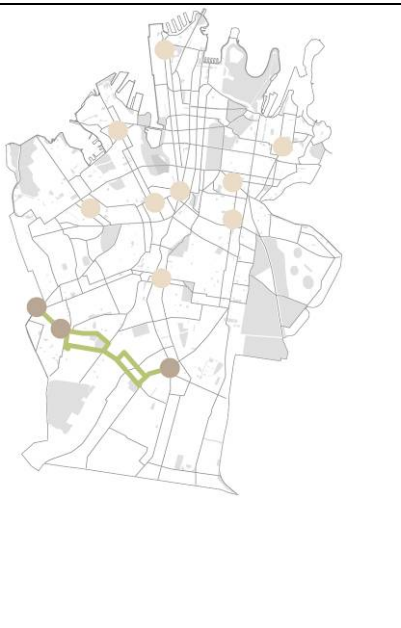
13.0	**Central – Moore Park** Foveaux Street/ Fitzroy Street provides link from Central Station to Moore Park. 	
14.0	**Oxford Street: City Centre - Paddington** Oxford Street provides a direct link along the ridgeline from City Centre to Paddington/ Centennial Park. Separated cycleway extends along College Street to the King Street cycleway. Hyde Park provides more pedestrian and cycle links into the City Centre. **Oxford Street East Sydney**	
15.0	**Rushcutters Bay – W'Loo – City Centre** City Centre connection through Woolloomooloo Basin along Cathedral street to Kings Cross Darlinghurst and Rushcutters Bay. **Cathedral Street**	

16.0	**Rushcutters Bay – Darlinghurst – City Centre** Liverpool and Burton Streets provide direct east west connections from City Centre to East Sydney, Darlinghurst and Rushcutters Bay **Liverpool Street**	
17.0	**Elizabeth Bay – Potts Point – Woolloomooloo** Connects Eastern districts to City Centre through Domain Parklands. Choice of City Centre connections include access through Hyde Park, Martin Place and Shakespeare Place. **Art Gallery Road**	
18.0	**William Street: City Centre – Kings Cross** William Street forms a direct link from Town Hall to Kings Cross, Rushcutters Bay. Intersects with Bourke Street, Darlinghurst Road and Victoria Street LGN routes. **Top of the Cross**	

19.0	**Darlinghurst – Potts Point – Elizabeth Bay** Victoria Street and Darlinghurst Road provide connections from Oxford Street and converge at the Top of the Cross before providing links to Potts Point, Elizabeth Bay/ Rushcutters Bay. **Top of the Cross**	
20.0	**Glebe – Pyrmont – City Centre** Miller / Union Street / Bridge Road provide links across Darling Harbour via Pyrmont Bridge to the City Centre. Includes regional links across Anzac Bridge to Rozelle/ Balmain. **Union Square Pyrmont**	
21.0	**Pyrmont – Ultimo – Broadway** Harris Street, Bulwarra Road and Jones Street form North south links along Pyrmont peninsula that link Pyrmont Point to Broadway. **Harris Street**	

22.0	**Glebe – Ultimo – Haymarket – City Centre** Route links Chinatown/Haymarket with Ultimo educational precinct along Ultimo Road/ Mary Anne Street and then through south Ultimo along Kelly Street near Broadway Shopping Centre and Glebe Street to Glebe Point Road/ St Johns Road **Hay Street- Haymarket**	
23.0	**Newtown – Broadway – City Centre** Major city centre gateway connection along King Street/ City Road to Broadway. Sydney University , King Street, UTS , Broadway retail are major pedestrian generators. **King Street**	
24.0	**Forest Lodge-Glebe – Ultimo- City Centre** Liverpool Street provides direct access into Darling Harbour and Ian Thorpe Aquatic Centre. Quarry Street links to Wentworth Park and St Johns Road which intersects with Glebe Point Road. **St Johns Road**	

25.0	**Glebe – Broadway – City Centre**	
	Includes links along Glebe Point Road and Derwent Street to Victoria Park and Broadway which is the western gateway into City Centre. **Glebe Point Road**	
26.0	**Glebe Foreshore Parklands – Sydney Park**	
	Glebe Foreshore Parks provide off street pathway network that extends to Orphan School Creek/ Bridge Road. Missendon Road provides access to King Street while local streets connect to Erskineville Road and Sydney Park. **Glebe Parklands**	
27.0	**Redfern – Darlington – Chippendale – Ultimo**	
	Links from Redfern Station to Sydney University and Chippendale / Broadway along Lawson Street, Wilson Street, Abercrombie, Shepherd Street, and Bartley Street which includes through the future CUB site. Myrtle Street/ Meagher Street provide major east- west link across Chippendale. **Abercrombie Street ,Darlington**	

28.0	**Glebe – Sydney University – Newtown – Alexandra** Focus on links from Bridge Road/Orphan School Creek to Sydney University campus to North Eveleigh and Alexandria. Includes potential bridge connection aligned with Codrington Street across railway reserve to Alexandra. **Sydney University**	
29.0	**Sydney Park –Erskineville Alexandra – ATP site – Redfern Station** Henderson Road and Mitchell Road provide links into the off street network through ATP site which links to Redfern Station and Redfern Street, **Redfern Station**	
30.0	**Newtown – Alexandra – Green Square** Connections between Newtown and Green Square along Erskineville Road, Ashmore Street to Bowden and Bourke Road. Future opportunity to use Sydney Water easement off Harley Street to provide a more direct link to Bourke Road and Beaconsfield. **Erskineville Road**	

31.0	**Harbour Foreshore** Harbour Foreshore provides potential access extending 14 kilometres from Rushcutters Bay to Glebe Foreshore Parklands. **Dawes Point**	

6.2 City Centre Network

The City Centre is a unique main destination and focus of pedestrian activity more than 600,000 pedestrians using the City Centre each day to get to work, shops, services, tourist destinations or entertainment.

The **Gehl** *Public Spaces Public Life Sydney 2007* identified the deficiencies of the pedestrian and cycling environment and provided strategic directions to give greater priority to pedestrian and cycling around the City Centre. These are outlined in **Volume 2** of the report.

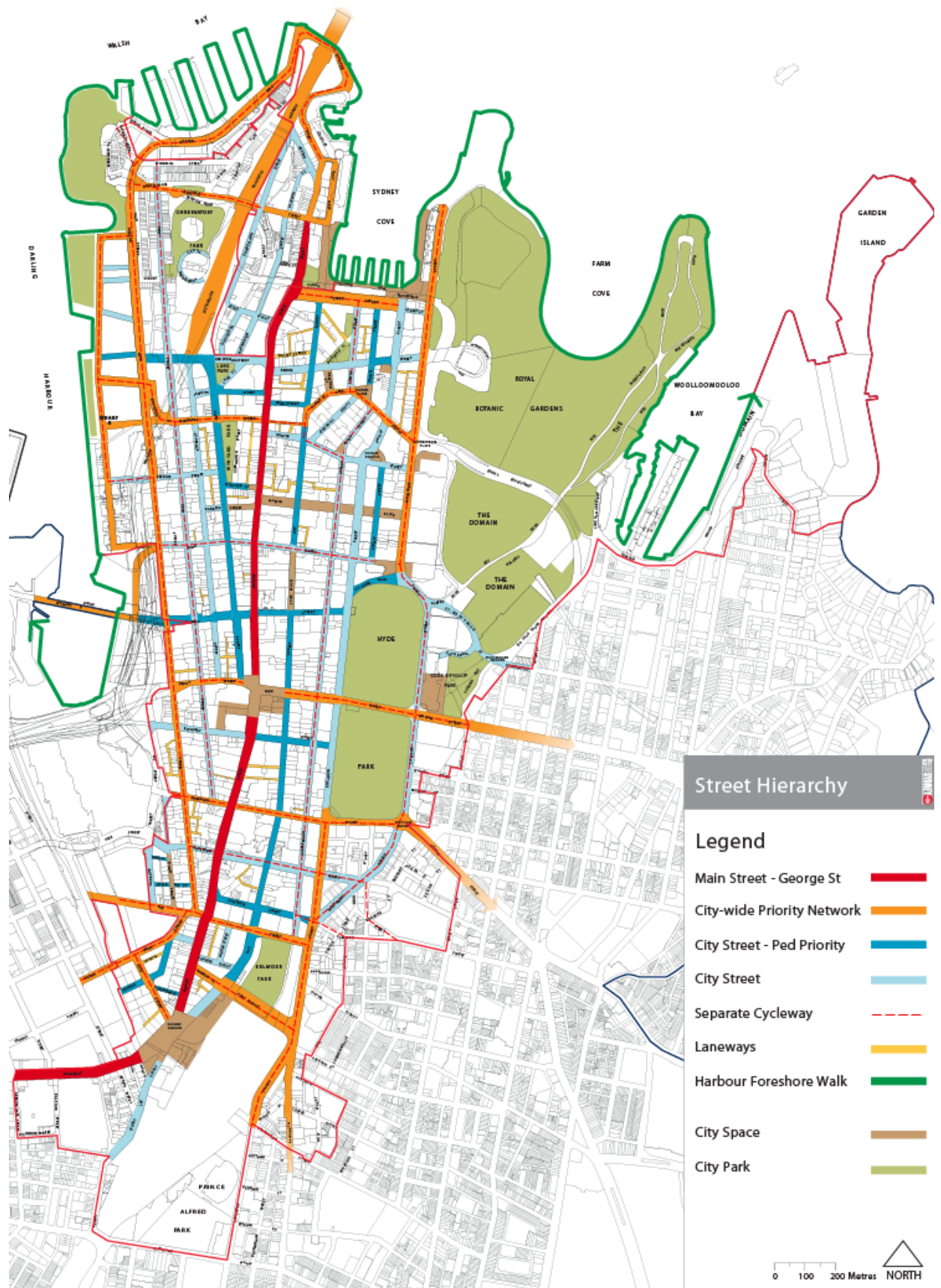Figure 2.0 and the following Table show and describe the pedestrian and cycling network in the City Centre:

Street Hierarchy

Legend

Main Street - George St	▬▬▬
City-wide Priority Network	▬▬▬
City Street - Ped Priority	▬▬▬
City Street	▬▬▬
Separate Cycleway	- - -
Laneways	▬▬▬
Harbour Foreshore Walk	▬▬▬
City Space	▬▬▬
City Park	▬▬▬

0   100   200 Metres   NORTH

Figure 6 City Centre Liveable Green Network

Note: Detailed planning may result in some re-alignment to route selections.

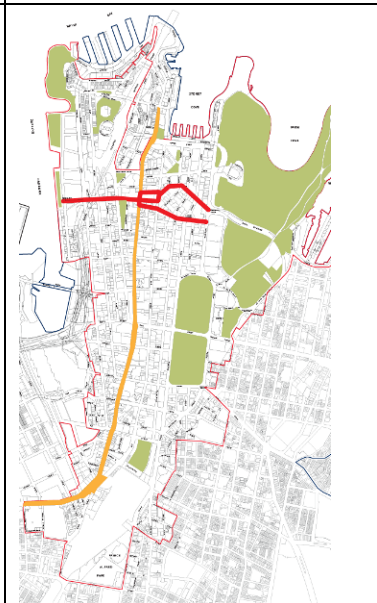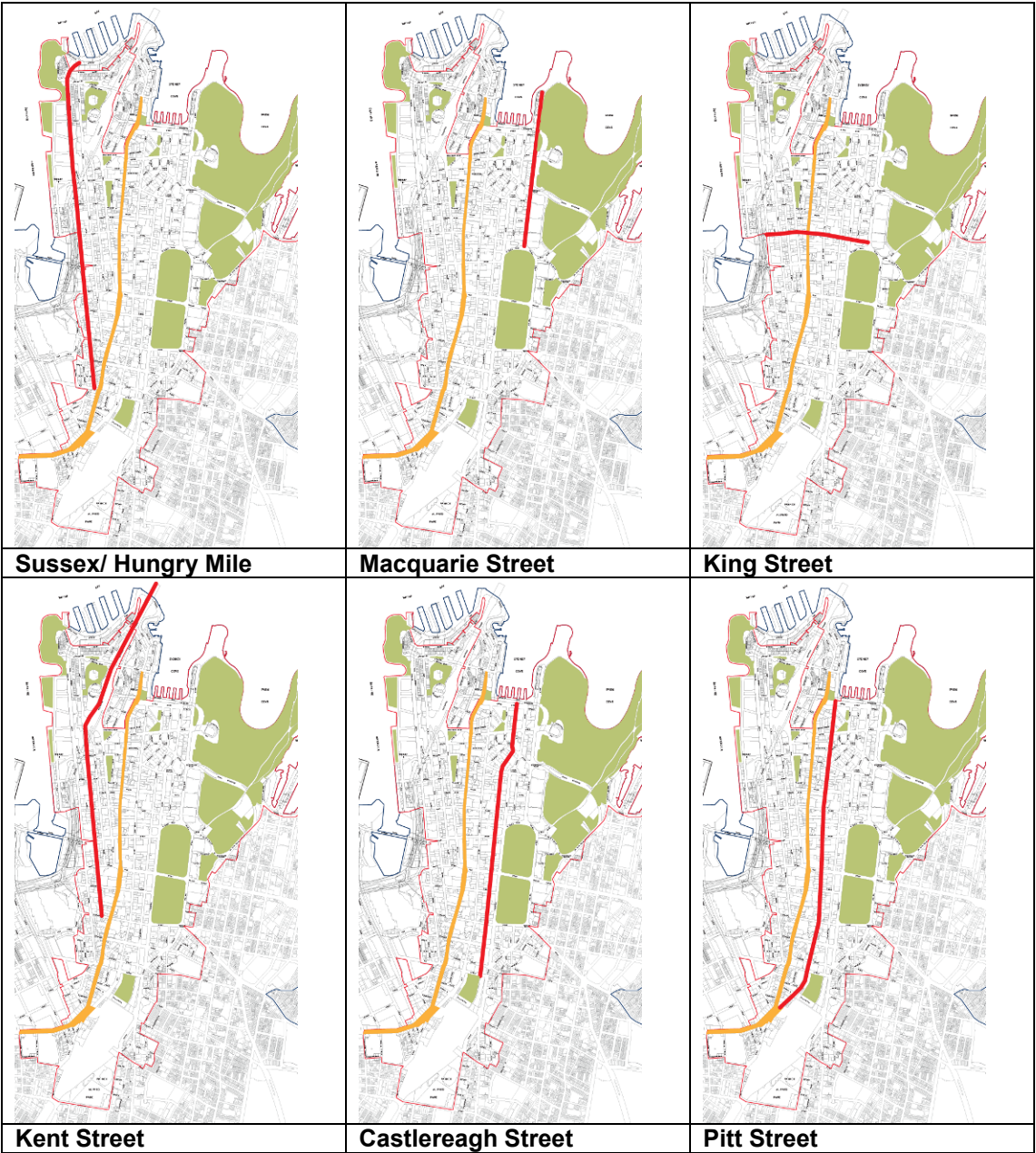The key structure of the **City Centre Network** includes:

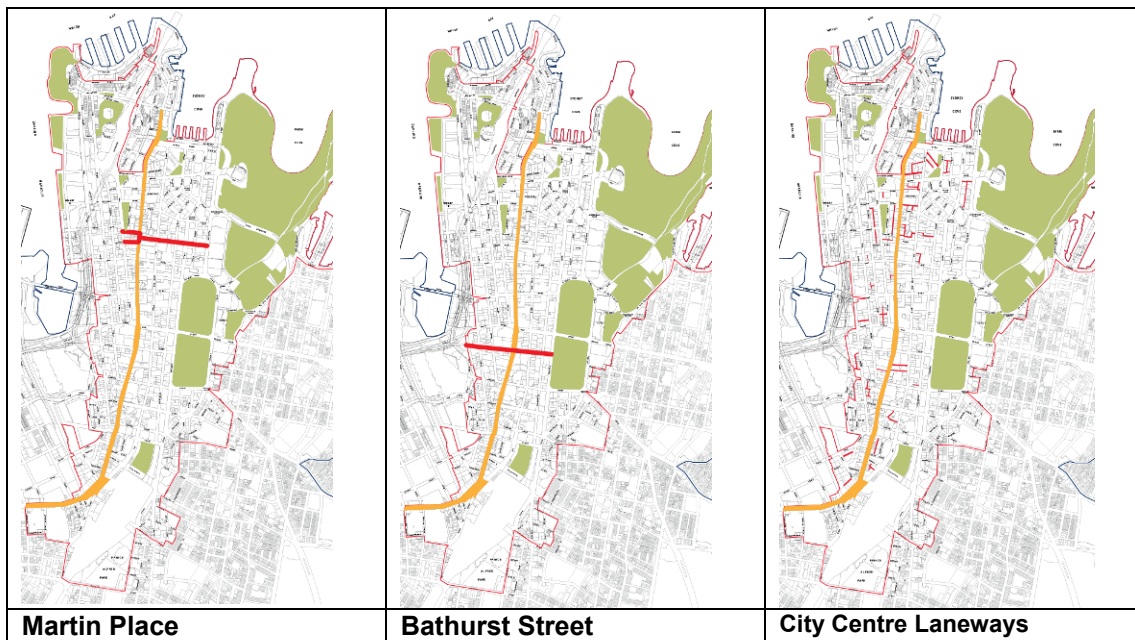| 1.0	George Street "The Main Street"	
	Gehl's *Public Spaces Public Life Sydney* vision is to transform **George Street** into a civic spine linked by three major public spaces at Railway Square, Town Hall and Circular Quay. This **Civic Spine** will create a stronger city identity and allow **George Street** to be promoted as the network's "Main Street". Its pedestrian and transit functions will distinguish it from other city centre streets.	 **Artists impression – George Street**
2.0	Liveable Green Network Priority Network	
	As part of the **LGN Priority Network** (refer 6.2) these streets provide north south and east west **pedestrian** and **cycle priority** connections within the City Centre as well as to surrounding Villages Centres and inner Sydney destinations. Streets include: • Argyle Street; • Spring/ Bent/ Hunter/ Margaret /Napoleon Streets; • Macquarie Street; • Liverpool Street; • Park Street • Hay Street; • Sussex Street/ Hungry Mile.	 **Hay Street**
3.0	City Streets	
	Most City Centre streets will accommodate a combination of general traffic, pedestrian and cycle use. These streets still need to provide a high level of public domain quality however some City Streets will have extra **Pedestrian Priority** or **Cycle Priority** as outlined below:	 **York Street**
3 (A)	City Street – Pedestrian Priority	
	Includes pedestrian only streets, shared ways, and slow traffic streets with widened footpaths and continuous paving treatments. Streets include: • Pitt Street; • Market Street; • Bathurst Street;	 **Artists impression – Pitt Street**

3 (B)	**City Street- Separated Cycleway** City Centre streets with separated cycle facilities provide east west and north south links across the city centre and to the city wide and inner Sydney network. These include King Street, Kent Street, Sussex Street, College Street, Castlereagh Street, Park Street and Liverpool Street	 **King Street Cycleway**
4.0	**City Centre Laneways** City centre laneways and through site links provide destinations as well as convenient access across city blocks. The **City's Laneway Revitalisation Program** will redevelop the city's lanes into busy "outdoor rooms" with cafes, wine bars, restaurants, live performances and open air galleries and stimulate public life and vitality. Key laneways include: • Angel Place/ Ash Street; • Wilmot Street; • Central Street; • Bulletin Pl; • Albion Place; • Lee's Court/ Rowe Street; • York Lane; • Hosking Pl/ Penfold Pl;	 **Rowe Street**
5.0	**City Centre Public Spaces** Public spaces provide the opportunity for rest and public life as well as a convenient means to get to destinations. City Centre public spaces include parks, and urban spaces/ squares. In some places this space has been created by closing streets or restricting traffic. Spaces include: • Martin Place; • Pitt St Mall; • Town Hall Square; • Regimental Square	 **Martin Place**

6.2.1 City Centre Components

Maps of the components described in Section 6.1.

George Street	**Hay Street**	**Liverpool Street**
Market Street	**Spring/ Bent Hunter/ Margaret/ Napoleon**	**Argyle Street**

Sussex/ Hungry Mile

Macquarie Street

King Street

Kent Street

Castlereagh Street

Pitt Street

| Martin Place | Bathurst Street | City Centre Laneways |

6.3 Village Centre Network

Villages Centres provide local communities with a place for meeting, creating, learning and working – places for community interaction. They were identified as centres of activity in Sustainable Sydney 2030. (Figure 7)

For the eight already established Village Centres, the City's role will be to build on current strengths and amenities. In the two emerging Village Centres **(Harbour and Green Square)** the focus will be on ensuring that these new areas provide the facilities and services needed by existing and incoming residents.

Village Centres are Places

- Haymarket
- Harris Street
- Kings Cross
- Oxford Street
- Glebe Point Road
- Redfern Street
- King Street
- Crown Street
- Green Square
- Harbour

Figure 7 Village Centres

The **Village Centre Liveable Green Network** has **a more local function** within each Village Centre precinct. It provides main connections to local amenities and destinations such as schools, parks, community centres, and retail and commercial services and public transport

as well as links to the City-wide Liveable Green Network. Section 6.4.1 provides descriptions and mapping of each Village Centre.

The Primary Local Pedestrian Network consists of typical **local streets** as well as distinctive network types include **traffic calmed streets**, **shared ways**, **through site links** and **laneways** that provide shortcuts for pedestrians and cyclists to desired destinations.

All remaining streets and laneways in the City provide local access and need to be considered as part of the local network. All streets need to be provided with a level of pedestrian amenity that includes well maintained footpaths that include pedestrian ramps.

Village Centre Network	
Local Streets and Laneways	 **Park Street Alexandria**
Shared Ways	 **Fitzroy Street Surry Hills**
Through- site Links	 **Through-site Link, Waterloo**

6.3.1 Village Centre Network Mapping and Descriptions.

For the purposes of the Liveable Green Network **Haymarket** and **Harbour Village Centre** have been included in the **City Centre** assessments and mapping rather than being treated separately in this section.

The overall aim of the assessment was to determine public domain quality and route alignment quality to ascertain key streets selected for the network which are then assessed further to ascertain detailed opportunities for improvement and upgrade.