

VOLUME 3: LIVEABLE GREEN NETWORK – BACKGROUND RESEARCH AND CASE STUDIES (WITH PROPOSED AMENDMENTS) Darlington

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The Liveable Green Network

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Background Research and Case Studies

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City Strategy and Design City Design

<u>May 2011</u>

Liveable Green Network Volume 3 Background Research



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1.0 INTRODUCTION

Volume 3 provides a review of strategic planning documents, background research and case studies that have been used to inform the development of the Liveable Green Network Master plan.

2.0 STRATEGIC / PLANNING CONTEXT

City of Sydney and State and Federal Government Documents

The **Liveable Green Network** fits under a broader policy and strategic planning directions prepared by City of Sydney such as the **Sustainable Sydney 2030 Vision** and the **City of Sydney Cycling Strategy and Action Plan 2007-2017** as well as policies adopted by the State and Federal Government.

Consideration is also given to existing networks in neighbouring Councils such as Canada Bay and Leichhardt Council's Bay Run, the Coast Walk along the eastern beaches, and the Cooks River cycleway which meets the Alexandra canal at the City's south west edge.

2.1 City of Sydney

2.1.1 Sustainable Sydney 2030

The *Sustainable Sydney 2030* Vision is the City's guiding strategic plan for the coming 25 years.

The City undertook 18 months of consultation with the community and other stakeholders to develop the *Vision*, which provides 'step change' progressions toward a more sustainable Sydney.

The key 2030 Strategic Directions and the implications for the Liveable Green Network are outlined in the Table below.

2030 Strategic	Relevant Objectives/ Actions	Contribution of Liveable Green	
Direction		Network in Achieving Objective	
A Globally	Objective 1.6	Harbour Foreshore Walk and Eora	
Competitive and		Journey – tourism assets.	
Innovative City	Enhance tourism infrastructure,		
-	assets and branding of the City	A connected pedestrian / bicycle	
	C	system would be an amenity worthy of	
		tourist promotion.	
A Leading	Objective 2.1	Liveable Green Network could	
Environmental	-	accommodate reticulation system to	
Performer	Increase the capacity for local	deliver sustainable energy and recycled	
	energy generation and water supply	water.	
	within City's boundaries.		
		Liveable Green Network to incorporate	
	Objective 2.2	WSUD measures.	
	Reduce waste generation and		
	stormwater pollutant loads to the		
	catchment		

Integrated Transport For a Connected CityObjective 3.3Reduce the Impact of transport on public space in the City Centre and Activity Hubs to "protect the heart"		Prioritised pedestrian and cycle network will a key component of an integrated transport system.
A City For Walking and Cycling	 Objective 4.1 Develop a network of safe, linked pedestrian and bicycle paths integrated with green spaces throughout the city and inner Sydney Objective 4.2 Give greater priority to cycle and pedestrian and cycle movements and amenity in the City Centre Objective 4.3 Promote green travel for major workplaces and venues in the City 	This is the major Strategic Direction associated with the Liveable Green Network in providing a comprehensive pedestrian and cycle network across the city.
A Lively Engaging City Centre	Objective 5.1 Strengthen the City's public domain identity and create more places for meeting, rest and leisure.	Liveable Green Network will provide a distinctive public domain structure for City Centre and LGA wide. The George Street Spine is included as part of the Network.
Vibrant Local Communities and Economies	Objective 6.2 Create a network of Activity Hubs as places for meeting, shopping, creating, learning and working for local communities	Liveable Green Network will provide key connections between the Activity Hubs
A Cultural and Creative City	Objective 7.1 Encourage the appreciation and development of Aboriginal and Torres Strait Islander cultural heritage and its contemporary expression. A cultural ribbon from Darling Harbour to Bennelong Point and Macquarie Street.	Eora Journey and Cultural Ribbon will be included as part of the Liveable Green Network.
Sustainable Development Renewal and Design	Objective 9.2 Define and improve the City's streets, squares, parks and open space, and enhance their role for pedestrians and in public life.	Liveable Green Network is an important component in achieving connectivity of urban renewal areas with the rest of the city.

The 2030 Vision also sets out 10 City of **Sustainable Sydney 2030 Targets.** Relevant to the Liveable Green Network are:

- **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

The 10 main Liveable Green Network corridors proposed in the 2030 document include:

Corridor 1	Sydney Harbour Foreshore	Continuous 14km foreshore walk
		from Glebe to Rushcutters Bay.
Corridor 2	Central Spine	A north –south spine connecting
	Circular Quay to Botany	the Harbour to the Bay and the
	Bay	City Centre to Botany.
Corridor 3	Woolloomooloo to Botany	Connecting the north and south of
	Вау	the City with links to Green

		Square.
Corridor 4	Balmain to Garden Island	Connecting Balmain and Woolloomooloo to the City Centre.
Corridor 5	Pyrmont to Centennial Park	Linking the Harbour at White Bay and Centennial Park to Central.
Corridor 6	Glebe to Centennial Park	Linking the Harbour at Jubilee Park to Glebe Activity Hub, University of Sydney, Carriageworks and Redfern Activity Hub.
Corridor 7	Glebe to Rosebery	Connecting the Harbour to Rosebery following Orphan School Creek.
Corridor 8	Newtown to Randwick Education and Health	Providing a southern City connection from the Inner West to the Eastern Suburbs and beaches.
Corridor 9	Cooks River to Centennial Park	Connecting Cooks River and Botany Bay to Green Square, Centennial Park and beyond to the Eastern Beaches.
Corridor 10	North Sydney to Central	A cycle and pedestrian link to join the two halves of Global Sydney, North Sydney and City Centre.

2.1.2 Gehl Architects- Sydney Public Spaces Public Life 2007

In 2007, the City engaged international urban designer Jan Gehl, to undertake a detailed study of pedestrian connections and quality of life in the City's public domain.

Gehl's Public Spaces, Public Life Study found that while Sydney benefited from a beautiful foreshore setting, large parklands and a distinctive topography, there were a number of issues that compromised the pedestrian experience and walkability of the City.

Recommendations for a walkable city include increasing access to the waterfront, integrating renewal sites with the city fabric, linking public transport and the pedestrian network, and calming traffic.

Gehl's Public Spaces Public Life study focused on pedestrian activity in the City Centre. The study found a City Centre that does not serve pedestrians well, with barriers and constraints impacting on ease and enjoyment of walking.

Issues include massive infrastructure such as the Western Distributor cutting key precincts off from the water and from each other and traffic dominating the western part of the City Centre. Gehl's study reflected back to us a 'mono-functional' City, where precincts are dominated by either offices, retail or entertainment rather than mixed use precincts.

Tall buildings restrict solar access and create wind tunnels, there is a lack of a street hierarchy, and public spaces are scattered and lacking in character.

In short Public Spaces Public Life study noted:-

- overcrowding and congestion on all major pedestrian routes;
- inadequate space for pedestrian movement

- road space allocation orientated to motor vehicle and dominated by vehicle traffic;
- walking time waiting times at intersections contribute to crowding and pedestrian congestion, safety issues;
- street clutter disrupt pedestrian flow;
- no clear legible street hierarchy;
- no pedestrian heart to the city;
- underground network;
- isolation of pedestrian free zones such as parks and urban spaces
- no clear legible network for pedestrian streets fractured condition of network;
- age and gender survey showing that elderly/ young are scarcely present

The Plan proposes the creation of a distinctive street hierarchy in the City Centre including George Street as a main civic spine or "main street" accommodating public transport, pedestrians and cyclists that is linked by public squares at Railway Square, Town Hall and Circular Quay.

The legibility of the public domain is an important consideration for the Liveable Green Network. George Street provides the opportunity to be the main street of the local government area around which the liveable green network hierarchy can be constructed.





Figure 2 Gehl Architects - George Street Civic Spine Proposal.

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capitalise on the amenities



Figure 3 Public Spaces Public Life Sydney 2007 – Summary Recommendations

2.1.3 City of Sydney Cycle Strategy and Action Plan 2007-2017

The *City of Sydney Cycle Strategy and Action Plan* 2007-2017 was adopted by Council in June 2007. It outlines infrastructure and social initiatives needed to ensure a safer and more comfortable cycling environment to encourage more people to cycle. It is based on a comprehensive analysis of cycling issues prepared by consultants for the City.

Plans include connecting each of the City's village centres with a sustainable bicycle network, managing the City's streets to increase safety for cycling and delivering a series of social programs to provide the public with information and encouragement.

The Strategy also identifies potential routes, treatments and priorities for establishing a comprehensive network of separated cycle ways across the local government area. It identifies that the best way to dramatically increase cycling levels is to provide cycle ways that are physically separated from moving traffic and parked vehicles.

Bi-directional cycle ways were endorsed as the preferred treatment for inner Sydney as they minimise impact on parking and increase urban and pedestrian amenity.

Cycling targets include to:

- increase the number of bicycle trips made in the City of Sydney, as a percentage of total trips, from less than 2% in 2006 to 5% by 2011, and to 10% by 2016;
- increase the number of bicycle trips between 2 and 20 km made in the City of Sydney, as a percentage of total trips to 20% by 2016;
- achieve a minimum 80% good level of confidence and comfort for cyclists that ride in the City of Sydney by 2016; and
- measure and monitor the number of collisions and injuries involving bicycles and achieve a reduction in the number of incidents.

The development of the Liveable Green Network is co-ordinated with the Cycle plan in terms of proposed route selection and mapping.

The Liveable Green Network emphasis is highlighting the location of the separated bicycle lanes, off street network through parks and shared footpaths paths that provide connections between the shared network.



Figure 4 City of Sydney Cycle Master Plan

2.1.4 Pedestrian, Cycling and Traffic Calming Schemes (PCTC)

Pedestrian, Cycling and Traffic Calming schemes are community-driven. They aim to manage and calm traffic on local roads, increase pedestrian, bicycle and public transport access and provide better safety and amenity for local residents.

The following schemes have been undertaken by the City over the past few years, and recommended works such as pedestrian crossings, kerb blisters, traffic signals and other measures are being progressively implemented.

The works recommended by each scheme below are mapped in the Figure below:

- Redfern LATM Schemes Traffic Study May 1997
- City East Traffic Study April 2008
- Surry Hills Pedestrian, Cycling and Traffic Scheme Oct 2008
- Paddington/Centennial Park PCTC February 2010
- Glebe and Forest Lodge Traffic Study Sept 2007
- Chippendale LATM Study February 2008
- Newtown, Darlington, Erskineville, Camperdown(draft report)



Recommendations in the PCTC Plans that address pedestrian amenity include:

- 40km/hr speed limit for local streets;
- Creation of shared ways;
- New pedestrian crossings;
- Upgrade existing crossings with raised threshold treatments;
- Kerb extensions to reduce crossing width;
- Footpath widening.

2.1.5 The Fine Grain – Revitalising Sydney's Laneways Strategy

The aim of the Laneway Strategy is to advise on the actions for the long term revitalisation of laneways and fine grain spaces of the Sydney City Centre. This work has been coordinated with both the Sydney Sustainable 2030 project and the Gehl Public Spaces and Public Life Study.

The report covers case studies of Melbourne and other international cities, an analysis of Sydney's urban condition and opportunities, as well as recommendations to enliven lanes and underutilised city spaces.

The report provides four main strategic directions:

- Identify, Manage and Strengthen Precincts in the City Centre undertake precinct analysis and plans to ensure future capacity and protection of good quality laneways from consolidation.
- Increase the Supply of Small Scale Spaces on Streets and Lanes undertake strategies to increase the available supply of small retail tenancies especially fronting laneways.
- Business Support Strategy investigate options to devise a small business development fund to attract the establishment of new businesses along laneways and fine grain spaces of the City Centre.
- Support Appropriate New Bars and Restaurants in the City Centre Establish a liquor licensing taskforce to monitor and assist with the implementation of new State liquor licensing laws.

2.1.6 Woolloomooloo Accessibility and Wayfinding Study

In August 2007, Council endorsed the Woolloomooloo Improvement Plan. The Plan recommended a number of initiatives including 'Improved safety in the public domain through increased accessibility, wayfinding and lighting'.

The City subsequently commissioned consultants to carry out an Accessibility and Pedestrian Network Study for Woolloomooloo. The study includes three levels of recommendations to address access and wayfinding issues in Woolloomooloo:

(a) recommendations for capital works and maintenance programs to improve accessibility throughout Woolloomooloo;

(b) recommendations for wayfinding improvements in and through Woolloomooloo; and

(c) recommendations for further studies to address more complex urban design issues in Woolloomooloo.

2.1.7 City of Sydney Public Domain Codes

The City is preparing a series of public domain codes (Sydney Streets, Sydney Lights and Sydney Signs and Sydney Parks) that together illustrate and help to realise the vision for the public domain of the City of Sydney.

The Sydney Streets Design Code provides a set of specific design objectives and technical information for the streets and footpaths in the Local Government Area, enabling the City, its community, designers, consultants and contractors to understand and deliver the vision.

This draft Design Code has two sections:

Part One:The Design Guidelines outlines the City's vision for the public domain applied to Sydney's streets and describes how the quality and elements of its streets can enhance public life.

The Design Guidelines include:

- A set of the City's key principles for the public domain translated into objectives that underpin the design of great streets;
- A strategy for the application of these objectives and components in the design and construction of the City's streets, including:
 - the definition of a simple hierarchy of street types
 - the selection of a typical palette of materials and elements for each street type in the hierarchy
 - the opportunities for overlays of unique responses to the special places within our streets

Part Two: The Technical Details expands on the list of the typical streetscape components, giving standard details, specifications and installation recommendations. It illustrates the elements that can be standardised, and shows how the standard details can be sympathetically combined with unique overlays to give expression to special areas.

The Technical Details include:

- Footpaths
- Planting
- Fixtures
- Signage and Lighting
- Civil and Road Works

2.1.8 Greening Sydney Plan

The City of Sydney is developing a **Greening Sydney Plan** that focuses on the following key strategic areas that can deliver improved outcomes for the greening of Sydney.

These are:

- Developing and protecting the City's Urban Forest;
- Greening the City's arterial transport and utility corridors;
- Greening new development;
- Empowering the community to green our City;
- Greening to enhance habitat and biodiversity;
- Greening local streets and spaces;

Liveable Green Network considerations are mainly limited to strategies relating to greening streets and spaces which will improve pedestrian amenity and quality of the public domain.

2.1.9 City of Sydney Inclusion (Disability) Action Plan 2007-2011

The current Inclusion (Disability) Action Plan 2007-2011 builds on the work of the previous Action Plan and is the first such Action Plan since the amalgamation of the City of Sydney in 2004 with South Sydney City Council and parts of Leichhardt Council. It was adopted on Monday 10 of March 2008

The City of Sydney's 2002–2005 Action Plan for People with Disabilities and the 1999 South Sydney Disability Action Plan both placed particular importance on physical access issues.

This plan maintains the importance of physical access issues whilst broadening the scope to include a range of actions to address other important areas of inclusion. These are:

- access to services and events;
- equitable opportunities for participation in City and civic activities;
- accessible information;
- positive community attitudes;
- advocacy for people with a disability;
- staff training; and
- equitable employment practices which actively seek to employ suitably qualified people regardless of disability

Key Liveable Green Network considerations in the Plan include the following:

ACTION PRIORITY AREA2: PUBLIC DOMAIN

Objective: People with Disabilities have Access to the Public Domain, including Access to Transport, Parking and Signage

- Continue program of installation and maintenance of kerb ramps throughout the City of Sydney LGA. Installation of at least 175 in the first year of this plan including completion of ramps which impact on high traffic areas.
- Review assessment criteria and installation methods.
- Undertake periodic inspections or audits of all access kerb ramps to assess their condition or standard of maintenance against AS1428.1
- Review prioritisation criteria and proposed list of work initially and then annually using both demographic/usage data and community consultation. City infrastructure to meet with Access Forum annually.
- Conduct an audit of current bus stops to assess the current compliance with the current requirement of the Standards for Accessible Public Transport
- Monitor the handling of customer complaints relating to public domain physical access issues to ensure these issues are competently handled by mainstream complaints mechanisms
- Review Construction Hoardings Policy draft to ensure consideration of accessible paths of travel.

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- Ensure that the City takes account of the needs of users who have a disability in: the design, maintenance and placement of amenities and fixtures; and the planning processes for the development of parks and other outdoor spaces, including the placement of street furniture
- Develop a footpath trading policy taking into account best practice examples and the rights and needs of all pedestrians. This policy must include enforceable standards and outline a course of action to ensure compliance.
- Consult and advocate with State government bodies (e.g. CityRail, RTA) and neighbouring LGAs regarding public domain and transport issues where appropriate in order to assist consistency

2.1.10 Walk 21 - International Charter for Walking

Walk 21 is an international organisation established to champion the healthy sustainable and efficient communities where people choose to walk.

Through the Walk 21 Conference series and International Charter, Walk 21 have a vision to create a world where people choose and are able to walk as away to travel, to be healthy and to relax.

On 26 November 2006 the City of Sydney signed the International Charter for Walking.



2.2 City of Sydney Planning Controls

The City of Sydney is currently governed by three planning instruments;

- Sydney Local Environmental Plan 2005
- Leichhardt Local Environmental Plan 200
- South Sydney Local Environmental Plan 1998

These instruments govern the provision of open space and through links in the local government area. Land use zonings within the instruments provide for adequate access and linkages to public open space. Each instrument also contains foreshore building lines which aim to retain, protect and promote public access to foreshores areas. For land fronting Sydney Harbour, additional planning controls protect and promote public access to foreshores areas under Regional Environmental Plan Sydney Harbour 2005

The City can provide additional park and civic space through City of Sydney Development Contributions Plan 2006. New open space can also be created in association with Development Applications through a Voluntary Planning agreement.



In the Southern areas of the City there is more scope for creation of open space with major renewal sites such as at Green Square, Redfern-Waterloo and the Southern Industrial Area. The South Sydney Local Environmental Plan (LEP) includes special controls and objectives for redevelopment of Green Square, including a "Connectivity" vision for "an accessible network of public streets, which integrate existing and future landscapes and buildings" as well as a planning principle for the public domain which aims to better integrate the precincts within Green Square and surrounding areas.

The South Sydney LEP (Clause 40) also prohibits any structures within 10 metres of the bank of Alexandra Canal or its open secondary channels. This clause allows Council the legal right to impose conditions of consent requiring the creation of a right of carriageway, or the dedication of land, for the purposes of permanent pedestrian or bicycle access.

2.2.1 City Plan

The new City Plan will be a package which includes a single Local Environmental Plan (LEP) and Development Control Plan (DCP) and supporting information that will apply to the whole City of Sydney for the whole Local Government Area (LGA)

This project involves the review of existing DCPs and establishing an approach to amalgamate these into one consistent DCP for the whole LGA. This project involves an amalgamation (and some review) of the existing three large DCPs, the numerous issue and area focused DCPs and incorporation of new provisions and policies

Liveable Green Network considerations include the provision of new streets and through site links particularly in urban renewal areas, controls to influence the human scale of the streetscape including active ground floor edges, awnings, building texture and details and controls on car park entrances.

2.2.2 Urban Design Studies

The development of the City Plan has been informed by the following Urban Design Studies:

- City East;
- Surry Hills;
- Glebe and Forest Lodge;
- Green Square;
- Waterloo and Redfern;
- Chippendale , Camperdown , Darlington, West Redfern and North Newtown;
- Paddington,, Centennial Park, Moore Park;
- Erskineville, Alexandra and Newtown south).

These studies have been reviewed to ascertain future character and opportunities for improved connectivity of the public domain. The studies are located at:

http://www.cityofsydney.nsw.gov.au/Development/CityPlan/SiteSpecificPlanning/Defau It.asp

2.3 State Government - Metropolitan Context

2.3.1 Sydney Metropolitan Strategy

Direction 3 of the State Government's Metropolitan Strategy for the Sydney City subregion is "Influence Travel Choices to encourage more sustainable travel".

Key actions for walking include that the Roads and Traffic Authority and City of Sydney continue to upgrade walking and cycling facilities to improve access within and across neighbourhoods, villages, town centres and Strategic Centres in the Sydney; that NSW Government and local government align local walking and cycling networks with public transport routes to improve accessibility to public transport; and that the NSW Government, in partnership with local government and the community, to develop programs which target travel demand management.

The State Government's Metropolitan's subregional planning for the Sydney City Region provides a picture of how City of Sydney residents travel. It reveals that

- The Sydney City Subregion has the highest proportion of any subregion of short trips;
- 72 per cent of trips by City residents are less than 5 kilometres long (traditionally viewed as lengths ideal for walking and cycling);
- There is a very close job/ residence match in the City with nearly 60 per cent of the resident workforce living and working within the subregion the highest self-containment for employment of any subregion;
- Just over half of the trips made by residents on an average weekday (58 per cent) trips start and finish within the Sydney City Subregion;
- On an average weekday, only a third of all trips by Sydney City residents are made by vehicle, less than half the Sydney metropolitan average;
- Almost half of all trips are made by walking and cycling.



2.3.2 Metropolitan Transport Plan

The Metropolitan Transport Plan, released in February 2010, outlines a revised approach to providing transport to ensure that it integrates with land use strategy through the Metropolitan Strategy and that funding sources are identified and secured

The Metropolitan Transport Plan enunciates a greater role for cycling, with an ambitious target of five per cent travel by bike across Sydney by 2016 for all trips less than 10 kilometres. The Transport Plan commits the NSW Government to:

- Releasing the NSW BikePlan in 2010
- Constructing missing links in the Sydney Metropolitan Strategic Cycle Network;
- Implementing programs to encourage cycling; and
- Establishing new partnership opportunities with local government and business.

2.3.3 Transport Memorandum of Understanding (MoU)

The Metropolitan Transport Plan foreshadowed an historic partnership with the Council "to transform the heart of the global city".

This partnership was to be enshrined in a Memorandum of Understanding (MoU) which was signed by Lord Mayor and NSW Premier on 17 September 2010.

The MoU contains amongst other things, options for the transformation of George Street, improvements to the way pedestrians and cyclists get around the City including use of pedestrian count down timers, support for Council's laneways revitalisation, creation of more Shared Ways and improvements to the attractiveness and availability of public transport.

2.3.4 Sydney City Draft Sub-Regional Strategy

The Sydney City Draft Sub-Regional Strategy, a complementary document to the Sydney Metropolitan Strategy, was released in July 2008 to provide detail on the implementation of the Metropolitan Strategy within the City of Sydney. The Regional Strategy recognises the higher than average levels of cycling within the City and aims to support and increase these high levels into the future by:

Increasing cycle mode share from 2 percent in 2006 to 10 percent in 2016;

Ensuring that residents in new development areas a such as Redfern–Waterloo and Green Square in the south of the subregion have similar levels of connectivity and amenity as residents throughout the rest of the Sydney City Subregion

Relevant strategies mentioned within the Regional Strategy include:

Sydney City D1.2.1: The Roads and Traffic Authority and Ministry of Transport to continue to coordinate road upgrades in existing urban areas, including bus priority measures to enhance bus services, and walking and cycling access.

Sydney City D3.1.1 City of Sydney Council to implement the City of Sydney's draft Cycle Strategy and Master Plan.

Sydney City D3.1.2: The Roads and Traffic Authority, in cooperation with City of Sydney Council, to continue to upgrade walking and cycling facilities to improve everyday access within and across neighbourhoods, villages, town centres and Strategic Centres in the Sydney City Subregion.

Sydney City D3.1.3: NSW Government and local government to align local walking and cycling networks with public transport routes to improve accessibility to public transport

2.3.5 Sydney Metropolitan Regional Trails Framework 2005

The Sydney Metropolitan – Regional Recreation Trails Framework was prepared for the then Department of Planning, Infrastructure and Natural Resources (DIPNR) to provide an inventory of trails and identify key strategic links and missing connections in Metropolitan Sydney.

A series of DIPNR studies had highlighted the growing importance of green-space to the community, the growing importance of 'passive' recreation to Sydneysiders, and the need for planning to meet this open space and recreation need. The framework focuses primarily on off road trails.

Key findings about recreation needs include

- 35.3% participation by people in NSW in trail related activities (walking for exercise, cycling, running, bushwalking)
- Trend for Southern Sydney (includes City of Sydney) towards non-competitive and passive activities rather than traditional formal sports
- Significant increases in non-competitive but active pursuits such as cycling, walking, travel and swimming
- Recognition of the links between recreation and health amongst an aging population
- Recognition of the personal, social, economic and environmental beneficial outcomes of recreation

Routes that aligned with Liveable Green Network proposals include:

- Homebush to CBD Foreshore;
- Alexandra Canal to Centennial Park;
- Blackwattle Bay





Figure 5 Regional Trails Framework Network Routes

2.3.6 Southern Sydney Region Assessing Recreation Demand and Opportunities

The Southern Sydney Region – Assessing Recreation Demand and Opportunities report 2004 identifies demand for recreational walking and cycling as a key priority area requiring further planning. In setting regional priorities for the area, it identifies (amongst others) high recreation demand for "connection and travel on trails and routes, particularly new connecting walking and bike trails.

For the Southern Sydney region, key opportunities that the report identifies are to

- Encourage/initiate regional projects with neighbouring Councils
- Develop new uses for old resources, eg rail corridors and use of rail reserves to link open spaces
- Expand linear links as land becomes available or is redeveloped
- Use Metropolitan Greenspace and Cooks River Foreshore Improvement Program funding to establish regional links
- Further develop Cooks River foreshore as a regional trail

Other findings include demand for better planning of share use of trails or sections of trails such as

• Improved signage and interpretation services

- Seating, toilets and taps
- Links to residential, retail and commerce areas and the coast.

2.3.7 NSW Bike Plan

The NSW Bike Plan is a comprehensive plan to transform cycling and to encourage people to ride more often and more safely in NSW.

The Plan details a 10 year plan for new bicycle infrastructure to be funded by the NSW Government commitment of \$158 million to improve cycling networks in NSW in the Metropolitan Transport Plan: Connecting the City of Cities. It also describes a comprehensive range of encouragement actions including cycling skills and awareness training, and more access to information for cyclists.

The NSW Bike Plan will help the NSW Government to achieve our State Plan target of increasing the number of bicycle trips made in the Greater Sydney region at a local and district level to 5% by 2016.

In Central Sydney the Plan will extend the reach of the City of Sydney cycle links into the surrounding local government areas.

The Plan includes a proposal for a Moore Park pedestrian bridge across Anzac Parade which will improve the safety and connectivity of the Liveable Green Network to Moore Park and. Centennial Park and



Source: NSW Bike Plan 2010

2.3.8 Bays Precinct Sydney.

Bays Precinct is a diverse area that includes the Glebe Island and White Bay areas , commercial maritime uses in Rozelle Bay, disused land in the Rozelle Rail Yards and White Bay Power Station and a mix of uses in Blackwattle Bay , including the Sydney Fishmarket.

The State Government is undertaking preparation a set of planning principles to guide the future planning of the Precinct.

Key Liveable Green Network considerations include the provision of foreshore access and public open space around Blackwattle Bay which includes the Bank Street properties.

Plan also presents opportunity to extend foreshore access beyond Glebe Foreshore parklands to around Rozelle and White Bay.



Figure 6 Bays Precinct

2.3.9 NSW Walking Strategy

To ensure State Government related activities and budgets are directed towards areas with the greatest potential to increase walking, the NSW Premier's Council for Active Living (PCAL) has been requested to prepare a draft NSW Walking Strategy. The key objective of the strategy is to develop an integrated state wide walking strategy to increase walking both for transport and recreational purposes. Background studies that have been prepared include a Literative Review, Stakeholder Consultation Report and Walking for Travel in NSW :What the Data Tells Us. (refer to section 3.0 Literatiure Review)

It is expected that the Draft Strategy will be completed in 2011.

2.4 Federal Government

2.4.1 Australian National Cycling Strategy 2011-16. Austroads

The Australian National Cycling Strategy aims to double the number of cyclists in Australia by 2016.

Building on the National Cycling Strategy 2005 - 2010, it identifies a series of actions to help more people get on their bikes, and start riding for a better life.

This strategy sets out a series of actions that will help to deliver its overarching vision which is to double the number of people cycling in Australia over the next five years.

Those countries that have achieved significant levels of cycling activity have benefitted from extensive and sustained investment in their cycling networks and facilities. While there has been significant investment in cycling infrastructure and facilities in Australia, this momentum must be maintained if a substantial increase in cycling numbers is to be achieved. *Gearing up for active and sustainable communities* therefore makes the continued development of a safe, attractive cycling network to key destinations and associated facilities the first key objective.

In addition to cycle routes, a lack of end-of-trip facilities has been identified as a key barrier to making cycling a viable option for commuters. This includes both facilities at an individual's destination for work or study as well as transport interchanges. The success of the King George Square Cycle Centre shows the demand for appropriate and high quality facilities.

2.5 Regional Networks Review

2.5.1 Inner Sydney Regional Bike Plan

The City, in collaboration with 14 inner Sydney Councils, the NSW Department of Environment and Climate Change, and the NSW Roads and Traffic Authority, has identified a network of 245 kilometres of additional travel lanes (bi-directional) that can be created within the existing road corridor. This includes 160 kilometres of separated bicycle roads and 70 kilometres of upgraded shared path. The network is known as the Inner Sydney Regional Bicycle Network.

The Inner Sydney Regional Bicycle Network represents an advance in cycling policy in Sydney as it places greater emphasis on the identification of a cross regional Bicycle Network for inner Sydney, an initiative which has only been recently pursued by NSW Government agencies and local councils.

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The network is designed to provide greater connectivity and segregation for cyclists between key destinations and along key arterial routes within inner Sydney.

After the preparation of the Bike Plan, further work was undertaken by the City of Sydney to refine the network. To this end, AECOM prepared the *Inner Sydney Regional Bicycle Network Implementation Strategy* in 2009 which identified an additional 54 kilometres of cycleways or 284 kilometres of cycleways in total. The proposed network is shown in **Figure 7**.

AECOM was commissioned by the City of Sydney to determine the economic desirability of developing the Inner Sydney Regional Bicycle Network for the purposes of informing submissions to Federal and State bodies for project funding. As part of this study, usage forecasts were prepared to estimate the additional levels of cycling that will be generated from an expanded and improved cycle network. This study investigated benefits arising from increased levels of cycling including:

- Travel time savings;
- Environmental savings including greenhouse gas emissions, air pollution, and noise;
- Savings on public transport vehicle operations and purchase;
- Infrastructure investment timing and budget; and
- Cycling specific benefits including health and journey ambience.

In its economic appraisal, AECOM has valued the following benefit streams:

- Decongestion;
- Vehicle operating costs savings;
- Parking cost savings;
- Travel time savings;
- Journey ambiance1;
- Health benefits in the form of reduced mortality and absenteeism savings;
- Accident costs;
- Reduced air pollution;
- Reduced noise pollution;
- Greenhouse gas reduction;
- Reduced water pollution;
- Reduced urban separation; and
- Reduced pressure on government infrastructure and services.

In addition to the abovementioned benefits, which were monetised for this study, the Inner Sydney Regional Bicycle Network will generate additional benefits including:

- Improved journey time reliability;
- Improved integration with public transport;
- Public transport decrowding;
- Improved equity and accessibility outcomes;
- Potential for wider economic benefits beyond the transport sector;
- Improved localised economic activity; and
- Reduced energy dependence.

The full implementation of the Inner Sydney Regional Bicycle Network is predicted to have the potential to generate significant economic benefits in excess of the economic costs and deliver high returns on investment. Relative to doing nothing, the development of the Inner Sydney Regional Bicycle Network is estimated to generate net economic benefits of \$507 million in todays prices at a benefit cost ratio of 3.88.



Figure E.3: Proposed Inner Sydney Regional Bicycle Network (Routes Shown in Pink)

2.5.2 Cooks River

The **Cooks River cycleway** runs 23 kilometres from Homebush Bay in the west to Botany Bay. Also known as Bay to Bay, the route runs along the course of the Cooks River, and caters for pedestrians and cyclists, through landscaped green open space and playing fields. It traverses the municipalities of Strathfield, Canterbury, Hurlestone Park, Marrickville, and Tempe where it meets the Alexandra Canal.

The cycleway is signposted along its length, and cycle maps are available from local Councils and the Roads and Traffic Authority.

The RTA's April 2008 paper 'Bicycle Ownership and Use' shows cycle numbers for the Cooks River Cycleway, but counters appear to have been poorly maintained over the 2002-2007 count period, and unfortunately the data appears far from reliable. The Liveable Green Network could link into the Cooks River Cycleway at the foot of Alexandra Canal.

2.5.3 Cooks River to Iron Cove Greenway

The Greenway is a "grass-roots" regional vision in the Inner West of Sydney to provide a cycling and walking trail that stretches 5km from the Cooks River at Earlwood to the Iron Cove at Leichhardt and includes portion of Ashfield, Leichhardt, Marrickville and Canterbury LGAs. Through the centre of the corridor runs the Rozelle to Dulwich Hill goods rail line, which is understood to become disused in the near future.(Figure)

The vision was initiated by the local community in 1999, with in-principle support from the four Councils gained in 2002. These Councils in conjunction with State agencies and the community are now preparing a Masterplan/Coordination Strategy for the corridor, funded under the Metro Greenspace Program. A \$1.83M grant has recently been awarded to the Councils under the NSW Environmental Trust Urban Sustainability Program to develop a sustainability model for the corridor and catchment.

The objectives of such a GreenWay active and sustainable transport corridor would be to:

• provide a north to south "spine" active transport corridor through the local area complemented by a finer network of routes across the catchment;

• generally provide for an increase in active and sustainable transport modes and promotion of active lifestyles through provision of safe and pleasant active transport (walking and cycling) routes with connections to other routes and destinations along and across the corridor;

• improve disability access along and across the through the corridor;

• provide active transport infrastructure that enhances interactions between people, and between this community and this GreenWay environmental setting



Figure 8 – Cooks River Greenway

2.5.4 Bay Run

The recreational Bay Run trail in Sydney's inner west is approximately 7km long and circumnavigates Iron Cove.

Upgraded for most of its length in concrete, it has an average path width of 3m and divides down the middle for much of the trail into pedestrian and cycle halves. Some sections around Callan Park and Leichhardt Oval remain dirt track.

The trail is under the authority of Canada Bay and Leichhardt Councils. Figures from 2004ⁱ put Bay Run walking, cycling and running patronage at between 15 000 and 20 000 users per week. Leichhardt Council advise that the figures have not been updated since 2004, but that they are currently seeking funding to undertake a comprehensive user study, including patronage counts.

Leichhardt Council also plans to partner with Canada Bay and Ashfield Council to develop a management and master plan for the Bay Run and envisage that signage, path creation, path marking and public information will be standardised to ensure uniformity around the trail.

2.5.5 Coast Walk

The Coast Walk, in Sydney's eastern suburbs extends from Ben Buckler Point at North Bondi to Coogee. It was begun as a state project during the 1930s and now includes Bondi, Tamarama and Bronte Beaches. Facilities along the walk include seating, picnic shelters, coin-operated barbecues, play areas, kiosks, toilets and change-rooms.

The total length of the walk is about 3.5 km, with an estimated 1.5 hours walking time. Usage numbers for the walk extending from its Woollahra end to Randwick is frequently estimated to exceed 2000 people per hour

2.5.6 Harbour Circle Walk

The Harbour Circle walk is a walk of 26km around Port Jackson up to Lane Cove and the Parramatta River, with over 45 km additional optional loops. It can be walked by a fit person in 8-10 hours, although most people walk portions at a time. The walk is deliberately linked at many points along the route with public transport, which facilitates people undertaking 2-5 hour 'bite-sized' chunks -but it also breaks naturally into two one-day walks.

The walk was instigated by community members who worked with local Councils and the Department of Planning in developing a recreational walking route to take in local natural and cultural heritage features. Also contributing to the project and publicising the route was the Sydney through the Sharing Sydney Harbour Access Program.

Within the City of Sydney boundaries, the walk travels through the back streets of Pyrmont, across Pyrmont Bridge, and along King Street Wharf before passing through Observatory Park to connect onto the Harbour Bridge and extends along sections publicly accessible harbour foreshore and streets of Potts Point/ Elizabeth Bay to Rushcutters Bay.

<u>http://www</u>.walkingcoastalsydney.com.au/brochures/harbour_circle_walk.htm <u>http://www</u>.walkingcoastalsydney.com.au/documents/harbour_circle_map.pdf

Brochures have been developed by the Walking Volunteers working in partnership with local councils, State and Federal agencies and Sydway Street Directories.



Figure 9 Harbour Circle and Coastal Walking Routes

2.5.7 Sydney Harbour Scenic Walk

The Sydney Harbour Scenic Walk will be one of Australia's "classic" walks providing a spectacular and enduring experience for Sydney's residents and visitors.

The walk will cover a number of land tenures and will include as well as secluded bushland, the promenade of the Sydney Opera House. The aim of the walk is to be rated alongside Australia's other iconic walks - such as the Overland Track and the Great Ocean Walk or Larapinta Trail but with superior levels of accessibility, comfort, convenience and enjoyment options that only the walk within a city of four million people can offer.

The Great Coastal Walk conceived by the Walking Volunteers and extending from Barrenjoey Headland to the north of Royal National Park encompasses the Sydney Harbour Walk and provides a solid foundation for the development of this component.



The idea of a "Sydney Harbour Scenic Walk"

Ref: Department of Environment ,Climate Change & Water: A Strategy for the Development of a Sydney Harbour Scenic Walk. Gondwanna Consulting. Draft February 2010

3.0 LITERATURE REVIEW

Additional research documents and information sources were considered in the preparation of this Liveable Green Network Master plan.

Key findings from these sources are listed below

Source	Findings		
Sydney On Foot. Central Sydney Pedestrian Amenity Study. Lesuik, Stewart, Marin. July 1996.	Study highlights numerous deficiencies of the pedestrian environment in Central Sydney including overcrowding, poor intersections, lack of facilities, no clear legible network and no pedestrian heart.		
	Remedies recommended include: • Less cars • More space • Safety • Respond to heritage • High quality • Things to do		
Cycling in NSW: what the data tells us Parsons Brinkerhoff	 world cities with high bicycle mode share have seen a consistent annual investments in connected bicycle infrastructure 		
	 evidence suggests that that a program of "hard" and "soft" interventions could significantly increase cycling in NSW 		
	 London and Paris, cities with recent histories of car dominance, had seen increased cycling numbers in response to investment in cycle facilities 		
	 In the case of the US cities, the higher length of cycleway per capita in San Francisco than in Chicago appears to be directly correlated with the stronger mode share. 		
	 London has recorded increased bicycle use commensurate with investment in cycling infrastructure (from £5.5M in 2000 to £24M in 2006-07). In 2008, London will invest £36M in bicycle infrastructure. 		
	• The length of cycle paths in The Netherlands increased from 9,300km to 16,100km between 1978 and 1988, a 73% increase. These new facilities, reduced car dependency and assisted the growth of cycling in The Netherlands.		
	 "safety in numbers" research conducted by Dr Jan Garrad of Deakin University indicates that the severity of cycling injuries drop as rates of cycling increase 		
	 City of Sydney has higher than regional average number of cyclist crashes 		
Premier's Council for Active Living	 Proposes key design considerations for urban places that promotes active transport that will achieve health, environmental and social objectives. al and From an integrated land-use planning and transport 		
Why Active Living. A Health Economic, Environmental and Social Solution. June 2010			

	perspective key principles for active living are:		
Development & Active Living: Designing Projects For Active Livina	Walkability and Connectivity – improve safe and easy active travel connections to local destinations.		
A Development Assessment Resource & Navigational Tool. Premiers Council for Active	Active Travel Alternatives – promote public transport use, cycling and walking to help reduce car dependency.		
Living NSW. June 2010	Legibility – make walking and cycling routes easier to find through signposting, direct walking/cycling routes and provision of public transport information.		
	Quality Public Domain – provide well-located and designed open space, with facilities for all community members.		
	Social Interaction and Inclusion – promote mixed retail districts that encourage walking and cycling for local short trips.		
Heart Foundation. Blueprint for an Active Australia. 2009	• 67% of Australian men and 52% of Australian women, aged 25 years and over, are overweight or obese.		
	Key Directions		
	 Prioritise walking, cycling and public transport in transport policy; 		
	 Thoroughly implement health related urban planning standards; 		
	Rapidly expand walking and cycling and public transport infrastructure;		
	 Improve the frequency reach and affordability of public transport; 		
	Make streets around schools safer for all children;		
	 Support infrastructure and incentives that promote and support walking and cycling to work; 		
	 Subsidise the cost of public transport especially in outer metropolitan areas; 		
	 Implement bike rental schemes in cities; 		
	 Resource complementary education and social marketing campaigns to promote active transport; 		
	 Make infrastructure provision for bicycles to be taken on public transport at peak times; 		

Healthy By Design : A Planners Guide to Environments for Active Living: Heart Foundation	This strategy emphasises fostering healthy lifestyles through walkable neighbourhoods where it is easy and attractive to walk or cycle to facilities and services.		
Summary of evidence (2009 National Heart Foundation of Australia)	 Key Findings Walking for transport is consistently associated with: proximity of destinations including shops and public transport mixed-use planning street connectivity population density greater walkability (generally a composite of the above attributes). Walking for recreation is consistently associated with: access to beaches, facilities and parks pedestrian infrastructure aesthetics 		
	 Children's walking is associated with: closer proximity to parks good pedestrian infrastructure traffic safety parental influence. Designing neighbourhoods to encourage walking is associated with: community-scale urban design and land use policies and practices (zoning regulations, street connectivity, residential and employment density) street-scale design and land use policies and practices (lighting, safe street crossings, continuity of footpaths, traffic calming measures and aesthetic enhancements) federal, state and local government policy initiatives and urban planning guidelines. 		
Creating Healthy Environments: A review of the links between the physical environment, physical activity and obesity Gebel et al.	 people are more likely to walk if footpaths are available, traffic control measures in place and shops, parks and facilities are located within an easy distance. aesthetically pleasing environments that include trees and greenery encourage walking are important. people walk and cycle more in areas that have mixed use (combination of residential, business and commercial), are higher density and have a high level of street connectivity. perceived safety is an important determinant of people's physical activity choices. better footpaths and perceptions that the footpaths are good will increase walking in a community. 		

	decrease when the infrastructure to support people to walk or cycle is changed or improved.
	 the destination and distance to the destination influences the travel modes that people will choose.
Walking and Cycling International Literature Review Victorian Department of Transport 2009	Provides comprehensive Literature Review on walking and cycling. Emphasises need to recognise differences between cycling and pedestrians as transport modes. (refer Table page 33)
Healthy Spaces and Places. Parks Victoria	Promotes concept of connectivity and active transport.
An Australian Vision for Ast	Demotes a sustainable and bastiles for the formation in
An Australian Vision for Active Transport. August 2010. A report prepared by Australian	Promotes a sustainable and healthy future for Australia encourage people to use active transport – walking , cycling and using public transport – more cost effective than structured exercise programs.
Local Government Association, Bus Industry Confederation, Cycling Promotion Fund.	Recommends that the Australian Government:
National Heart Foundation of Australia and International Association of Public Transport.	1.Develop an integrated national active transport strategy that embraces policy and planning for major components: walking, cycling, and public transport.
	2. Develop clear and realistic targets for active transport and physical activity outcomes.
	3. Provide local government authorities with substantial, sustained and targeted funding for active transport.
	4. Support the development and widespread application of Healthy Spaces and Places planning principles.
	5. encourage active domestic tourism by funding major regional projects such as rail trails, cycle routes and hiking tracks.
	6. Promote a safe environment for people who choose to walk, cycle or take public transport and review jurisdictional approaches to the legislative protection of vulnerable road users.
	7. Fund social marketing programs to promote the many benefits of walking and cycling for people of all ages.
	8. Support cycle training and pedestrian education in schools;
	9. Provide incentives for employers to encourage employees to walk, cycle or take public transport to work.
Pedestrian Access Strategy. A Strategy to increase Walking For Transport in Victoria. 2010.	The <i>Pedestrian Access Strategy</i> sets out the Victorian Government's vision for a more pedestrian-friendly transport system for Victorians. The aim of the strategy is to encourage more Victorians to walk, especially for short trips.
	The Pedestrian Access Strategy builds on The Victorian

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	<i>Transport Plan (The VTP)</i> and the <i>Victorian Cycling Strategy</i> to promote sustainable transport across the state.	
<i>Moving People; Solutions for a Growing Australia.</i> March 2010. Bus Industry Confederation, Australasian Railway Association and International Association of Public Transport.	Calls for a range of measures including more compact, walking and cycling friendly urban settlements , and increased investment in public transport	
Infrastructure Australia. Cycling Infrastructure for Australian Cities. March 2009	Australian Government sought advice on how to best facilitate the modal shift towards cycling as a viable and sustainable means for commuting, local trips and recreation.	
	There is enormous scope to increase the modal share of cycling, particularly for those 40% of Australians commuting less than 10km to their place of work or study, or those making short local trips;	
	The countries that have successfully increased cycling as a mode share have had specific, measurable policies, cross- integration of relevant government agencies, and made major investments into cycling-related infrastructure and education	
PCAL. NSW Walking Strategy – Literature Review- Aecom January 2011	Reviews a range of local and international research relevant to promotion of walking for travel and walking for recreation within NSW. Report will assist into the development of a Draft NSW Walking Strategy. Key findings include the need to provide an integrated package of interventions, importance of community campaigning and promotions, the need for change in landuse patterns to promote walking, perceptions of walkability frequently vary, high public domain quality can extend distances people are willing to walk.	
<u>PCAL. Walking for Travel and</u> <u>Recreation in NSW – What the</u> <u>Data Tells Us. GTA</u> <u>Consultants January 2011.</u>	The report reviews the extent and quality of available walking data, analyses this data and attempt to benchmark NSW against other international walking indicators.	
PWC. A Walking Strategy For NSW – Assessing the Economic Benefits of Walking- February 2011	Report provides a literature review to draw together evidence and research about how best to assess the potential benefits generated by walking projects.	

Figure 2: Key Differences Between Walking and Cycling				
Dimension	Specific to walking	Specific to cycling	Key differences	
Participants	Almost everyone except some with mobility impairments.	There are at least 3 different types of cyclists: A (Advanced), B (Basic), and C (Children)	Cyclists demand more specific environments, depending on participants or purpose; also require more physical skills (e.g., balance).	
Range/scale	Mostly up to a mile (1.6 km) in length. The average trip length in the U.S. is 1.2 miles (1.93 km); between 47% and 60% of walking trips are less than 0.5 miles (0.8 km). Recreation/ work trips tend to be longer.	Local and regional cycling. The average trip length is 4 miles (6.44 km) and 57% of cycling trips are less than 2 miles (3.22 km).	Cyclists travel much further.	
Speed	Depends on the purpose of trip; ranging from 1 mph (1.6 km/h) (dawdling) to top speeds around 4-5 mph (6.44-8 km/h) for more active walking.	Usually range from 8 mph (12.9 km/h) to 20 mph (32 km/h).	Cyclists travel much faster.	
Infrastructure	Infrastructure requirements for safe use include sidewalks (or paths, esp. for children). However, exemplary pedestrian environments may also contain attractive streetscaping.	Can share roads with cars though with safety issues; lanes and paths are options; need infrastructure at destinations (parking, showers)	Cyclists require more infrastructure at destinations	
Infrastructure planning responsibility	Local land use planners, and transportation planners; also considered in subdivision layout and urban design.	Engineers and transportation planners responsible for on-road infrastructure; parks and recreation planners for off-road.	Responsibility does not always coincide, making coordination more difficult.	
Trip purpose	Transportation (including accessing other modes, e.g., parked cars, transit) and for recreation travel	In the U.S., a clear majority of bicycle trips are related to exercise, health or recreation; cycling for transportation often plays a stronger role in many other cultural settings.	Cycling primarily viewed as a recreational activity, at least predominantly in the U.S.	
Safety concerns	Crime (real and perceived); safety from traffic at crossings and on streets without sidewalks.	Safety from traffic, particularly in narrow streets and at intersections with roads.	Pedestrians are concerned about avoiding areas of high crime; bicyclists' prominent safety concern often stems from automobile traffic.	
Key barriers	Distance or perceived distance? Safety from crime or traffic.	Distance. Safety from traffic. Cost of equipment?		
Interface with automobiles	Mainly at intersections, but also any locale without sidewalks.	Bicycles are often perceived as unwanted distractions in existing roadway space; conflicts also occur where trails intersect with streets.	Cyclists often perceived to be competing for limited roadway space with automobile drivers.	
Interface with transit	Focus on the area around bus or LRT stops to make them pedestrian accessible and attractive for walkers.	Require front racks or other means to accommodate bicycles. Requires parking at transit stops.	Cyclists are more cost prohibitive to account for.	

Table source: Adapted from Forsyth et al., 2007a. Original sources for table: Oregon Department of Transportation (1995): Forester (1994); Zegeer (1998); Statistics from U.S. National Highway Traffic Safety Administration and U.S. Bureau of Transportation. (2002); Bureau of Transportation Statistics (2003). Note: Distances and speeds in blue converted by DOT.

Extract from *Walking and Cycling International Literature Review* .Victorian Department of Transport 2009

3.1 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 trips needs as public transport trips generally include walking and cycling components as part of the whole journey.

Active transport provides tangible health benefits by increasing daily physical activity and improving social wellbeing. Planning for active transport requires facilities to ensure trips ate convenient and safe. This includes end of trip facilities (particularly for cyclists) so that people can have a shower and get changed if they need to.

Walking is the most accessible form of physical activity for many Australians. ABS stats walking the most common form of exercise.

Given that in most cities 10 percent of all car trips are for distances less than one kilometre and 50% are for less than 5 kilometres there is scope for these trips to be active transport trips rather than being made by car.

3.1.2 Conditions For Active Transport

Requires a quality public realm:

- high levels of amenity , especially to key destinations such as workplaces, schools and shops;
- mixed land uses and densities;
- choices of destinations along routes.

3.1.3 The Benefits of Active Transport Networks.

Liveability

Walking is both important in and of itself and as a marker of vibrant urban spaces. Urban spaces are, almost by definition, places where it is more convenient and common for people to walk or cycle between destinations than to take other modes of transportation. Places that are conducive to walking frequently have a host of other related characteristics: they are generally denser, better served by public transport, more central, and have more of a mix of different land uses. As Jane Jacobs has observed, walkability is at the heart of urban vibrancy, short blocks, population density and diversity and a mix of uses, building types and ages that all play out in a "sidewalk ballet" (Jacobs, 1961).

City centres and neighbourhoods that provide pedestrian and cycle access also give people increased opportunities to interact explore and know their city at the detailed 'fine grain' level or as Jan Gehl defines as "5km hour architecture".

Walking has important social benefits as well. More people walking on the streets is a signal that an area is safe and interesting. A prominent characteristic of vital urban neighborhoods is their vibrant pedestrian street life (Jacobs, 1961). Economic benefits flow from this vital and active streets by promoting commercial and social exchange.

There is also considerable evidence that crime reduced is increased perception of safety because of passive surveillance afforded by pedestrian activity in an area [Planning Guidelines for Walking and Cycling doc 2004/ CPTED website].

Health Benefits

Cycling and walking are generally recognized as excellent forms of physical activity, and can help prevent and/or control the chronic conditions that lead to cardiovascular disease, diabetes, obesity,

The Premier's Council for Active Living states that only half the population in NSW do the recommended amount of physical activity required for health benefits. Physical inactivity is a major contributing factor to obesity in this country. With close to 50% of adults now overweight, and 15% obese, opportunities to walk and cycle are vitally more important.

Connect to parks and recreation opportunities research by "Healthy Parks Healthy People" point to direct health benefits of spending time in parks importance of ensuring good connections.

Environment

According to 2030 research, transport contributes 9.4% of greenhouse gas emissions in City of Sydney. Australia-wide emissions from road transport increased by 31% (16.5 Mt) between 1990 and 2005 with passenger cars being the largest transport source (contributing 43.7 Mt).

In light of these environmental impacts to encourage people to walk or cycle for shorter trip distances can also help reduce carbon footprint polluted and improve environmental amenity. Good walking/ cycling routes to transit complement the role of public transport in providing an environmentally sustainable alternative to the private automobile

Equity

Young people, older people and people without a vehicle need choices in how they access employment, education, recreation opportunities and services. City residents are less likely to own a car than the Sydney Region average – with 0.7 vehicles per household compared to 1.46 for the Sydney region.

Non-motorized travel can play in important role in the overall transportation system. Both bicycling and walking are easy ways to complete short errands or commute to work while simultaneously helping to reduce traffic congestion. In addition, people without a driver's license (i.e., teenagers and seniors) or access to a motor vehicle may rely on such activities as their main mode of transportation.

A fully integrated non-motorized system can therefore increase opportunities for people on many levels.

Wellness Walks

Promoting the concept of **green exercise** involves the promotion of active transport (i.e. nonvehicular) and connecting people to nature through participation in incidental physical activity such as walking, gardening, conservation activities. Parks and nature can be a significant contributor to reducing risk factors associated with premature death from cardiovascular disease and poor mental health . The positive outcomes of **green exercise** are enhanced mental and physical health and wellbeing and more sustainable transport options. Participation in green exercise can be supported through the provision of street furniture and amenities such as benches, drinking fountains, play equipment that serve the needs of interest groups that are vulnerable due to their age or health status.

4.0 CASE STUDIES

4.1 New York Greenways

New York's Greenways can be traced back to 1866 when Frederick Law Olmsted and Calvert Vaux conceived of a network of wide, tree-lined avenues linking the open spaces of Brooklyn. Five boroughs are now connected through a system of transportation and recreation greenways.

In 1993, the City of New York had a vision to create 350 miles of cycle and pedestrian greenways. These greenways provide opportunities for walking, running, cycling and roller blading. They allow for a safe and pleasant alternative means of transport with health and environmental benefits. To date over 100 miles of the greenway system have been built.

A New York City Bicycle Master Plan was prepared in 1997, which details 550 miles of on-street bicycle lanes. Together with the greenways plan, New York City has a comprehensive planned system of 900 miles of on and off-street paths. In recent years 30 miles of greenway have been developed in Manhatten's Riverside Park, creating unbroken waterfront access from 59th Street to 133rd Street.

Over the coming four years, Parks will use \$133 million in city, State and Federal funds to design and construct 41.6 new miles of greenway. An additional \$85.6 million will be used to expand greenway destinations and improvements, such as toilet facilities, boat launches and environmental restoration projects.



www.nycgovparks.org

Source: A Greenway Plan for New York City, DCP, 1993

Figure 10 New York Greenways

4.2 Vancouver City Greenways Plan

Vancouver's Greenways Plan was based on a 1928 plan which envisaged a continuous waterfront park trail around downtown and into residential areas.

In the early 1990s, Vancouver City Council appointed an Urban Landscape Task Force to consider current use and future management of the city's urban landscape. One of the recommendations of the Task Force was that the Council develop a citywide system of Greenways. This recommendation was adopted by Council in 1995 and Vancouver's Greenways program was born.

The City Greenways are linear pedestrian and cycling corridors trace their way through the City as waterfront promenades, urban walks, environmental and nature trails and heritage walks, providing opportunities for residents and visitors to more fully experience nature, community and city life.

The routes also act as 'connectors', joining parks, nature reserves, cultural features, historic sites, neighbourhoods and retail areas. Ultimately the City Greenway network will constitute fourteen routes through the city and approximately 140km of trails. About 30% of the network is already in place. When the network is complete, a City Greenway will be no more than a 25-minute walk or a 10-minute bicycle ride from any residence in Vancouver.

The aim has been to ensure Greenways are interwoven across the city, with the initial priority being on areas with higher population densities and key destinations, such as the downtown peninsula.



Figure 11 Vancouver City Greenways Route Plan



Figure 12 North Vancouver Greenways Plan

4.3 Vancouver Neighbourhood Greenways

Neighbourhood Greenways are initiated by community groups and are generally smaller. Communities take the lead in creating or improving local connections in partnership with the City. City staff provide assistance in the design, development, and construction where and when support is most needed.

Neighbourhood Greenways are

- initiated by local residents
- connect local community amenities such as parks, schools, libraries, community centres, shopping streets and places of special meaning



4.4 San Francisco Bay Trail

The San Francisco Bay Trail is a bicycle and pedestrian trail that will eventually be a continuous 644 km network of trails encircling San Francisco Bay and San Pablo Bay. Once completed, the trail will link 47 cities and more than 130 parks and accessible open space in the region.

The focus is on providing recreational opportunities for hikers, joggers, bicyclists and skaters – and ultimately to increase wide public respect, support and appreciation for protection of the Bay. However it does also provide a commuting alternative for cyclists, and connects several public transport facilities.

Establishing the trail as a formal plan commenced with a 1987 Senate Bill directing the Association of Bay Area Governments (ABAG) to develop a plan for the trail. The Bay Trail offers visitors to the region improved access to a vast range of locations, but also invites local residents to discover, and rediscover their neighbourhoods, cities, and waterfront.

The trail links to commercial, industrial and residential neighbourhoods; points of historic, natural and cultural interest; recreational areas like beaches, marinas, fishing piers, boat launches, and over 130 parks and wildlife preserves. It is a trail of contrasts, passing through highly urbanized downtown San Francisco as well as remote natural areas like the San Francisco Bay National Wildlife Refuge.

Depending on the location of its segments, the Bay Trail consists of paved multi-use paths, dirt trails, bike lanes, sidewalks or city streets signed as bike routes. The Bay Trail also connects to trails that lead inland, and with the Ridge Trail, another regional trail network (which travels inland, mostly along the ridges of the Bay Area's hills). The majority of the jurisdictions along the Bay Trail alignment have passed resolutions in support of the Bay Trail and have incorporated it into their general plans.



http://baytrail.abag.ca.gov/

Figure 13 – San Francisco Tourist Map of Cycleway Network

4.5 United Kingdom Connect2 – Sustrans Project

Under the catchphrase *Changing our world one mile at a time* Connect2 is a UK wide project which will establish improved cycling and pedestrian routes in 79 communities across the UK by 2013.

The project was brought into existence after Sustrans, a UK transport charity, secured £50 million from Big UK Lottery to transform local communities by creating new networks for local journeys. Sustrans estimate the scheme will enhance links to 2,800 schools and will benefit nearly a million pupils. Routes will connect to over 2,000 doctor's surgeries and clinics, more than 800 supermarkets, and over 3,000 places of worship.

Connect2 focuses on connecting communities, helping people live more actively (and therefore more healthily), and estimated savings of 79,500 tons of carbon emissions by helping people switch from motorized travel to cycling or walking. Sustrans is working with local communities and aims to have the Big Lottery funding matched with more than £100 million of other funding from local authorities and other partners.

4.6 Key Findings and Lessons for the Liveable Green Network

- greenways and cycleway infrastructure generally shown to correlate to increases in cycling and walking
- overseas models show use of federal or private funds to support local Councils in constructing greenways
- greenways differ in character markedly, from on-road separated cycleways, shared paths, or off-street paths tracing waterfronts, to rail lines and parks or well maintained dirt trails.
- a 'greenways' network has the potential to drive profound changes for cycling and pedestrian mode share in the city, encouraging more people to choose low impact modes for short journeys within or across the City
- the chosen network will become known for its safe routes where people can cycle or walk away from heavily trafficked streets, with a high level of amenity and expanded accessibility
- potential for future models of Green Liveable Network links instigated by the community similarly to Vancouver Neighbourhood greenways

5.0 ROUTE ALIGNMENT PRINCIPLES

5.1 What Makes a Walkable and Cycleable City?

The concept of **walkability /cycleability** may be defined as the quality of walking and cycling conditions which are determined by *safety* (good sightlines, absence of vandalism, well maintained public realm, prioritisation of pedestrians and cyclists over vehicles), *comfort* (footpaths, ramps, resting places for older people or people recovering from illness), *convenience* (desire lines, accommodating special needs), *connections* (to and from destinations, public transport nodes) and *legibility* (signage, travel times, distance, hazards)

Key factors include:

Mixed-use planning—the variety and proximity of destinations (how close

destinations are to walk to); access to key destinations is a critical factor influencing the choice to walk for transport.9

Density—areas with higher residential densities are more likely to support the presence of shops and services; thus the density of an area is indirectly related to walking.

Street connectivity—the directness of travel routes between homes, shops, workplaces and other destinations. Neighbourhoods with grid pattern street networks typically have greater connectivity than those with curvilinear layouts. Walking for transport is encouraged when the street network is more connected, obstacles are kept to a minimum, and there is no requirement to cross major roads.

Pedestrian friendly: neighbourhoods that contain multiple features that encourage walking, including higher residential and commercial densities, connected street networks, public amenities such as squares, parks and other gathering places, as well as wide footpaths, street lighting, street furniture, street trees and traffic calming.

Integrated transport modes. Integrated transport modes link the origins and destinations provided by activity centres (such as shopping and community services, bus/tram stops and stations, parking facilities, sports and recreation facilities etc) through shared paths and movement routes that are attractive, safe and provide unimpeded movement. It should be remembered that every trip, regardless of purpose, length, origin or destination, duration or mode of transport used, involves some measure of pedestrian movement at either end.

Public Domain Quality In some areas, a higher level of attention to the details of the pedestrian environment is justified by expected high pedestrian use and to encourage pedestrian activity. Streets where the elements are scaled to human size rather than vehicle size are attractive to pedestrians. Streetscape improvements such as public art, benches, drinking fountains, rubbish receptacles, transit shelters and pedestrian-scaled lighting fixtures are amenities that help balance the pedestrian motorist environment.

Traffic Calming Over the past several years, traffic calming has been widely used to improve both bicycle and pedestrian safety, especially in residential areas. Traffic calming devices are installed to slow motorists, increase awareness of bicyclists and pedestrians around them, reduce cut-through traffic and reduce the impacts of higher speed collisions.

5.2 Assessment Criteria

Assessment criteria are used by various organisations to ascertain the merits and quality of existing and proposed pedestrian routes.

5.2.1 Transport for London



The '5Cs' of Good Walking Networks

The **'5Cs'** are the principal criteria against which the quality of provision for walking can be assessed. These are:

1. Connected – connect the places where people want to go?

Walking routes should connect each area with other areas and with key 'attractors' such as public transport stops, schools, work, and leisure destinations. Routes should connect at the local and district level, forming a comprehensive network.

2. Convivial – are routes attractive, well lit and safe and is there variety along the street.

Walking routes and public spaces should be pleasant to use, allowing social interaction between people, including other road users. They should be safe and inviting, with diversity of activity and continuous interest at ground floor level.

3. Conspicuous - easy to find and follow the route

Routes should be clear and legible, if necessary with the help of signposting and waymarking. Street names and property numbers should be comprehensively provided.

4. Comfortable – quality and width of the footway, what are the obstructions are there?

Walking should be enjoyed through high quality pavement surfaces, attractive landscape design and architecture, and as much freedom as possible from the noise and fumes and harassment arising from proximity to motor traffic. Opportunities for rest and shelter should be provided.

5. Convenient- are the routes direct , and crossings easy to use. Waiting times?

Routes should be direct, and designed for the convenience of those on foot, not those in vehicles. This should apply to all users, including those whose mobility is impaired. Road crossing opportunities should be provided as of right, located in relation to desire lines.

5.2.2 Gehl Architects

Gehl Architects have developed key criteria to assess public domain quality. When the whole set of criteria has been fulfilled in the design of a space, it will be a place where people can use all the human senses and fully enjoy walking as well as staying. In that respect a "100% place" has been formed.

The quality criteria are divided into three groups: Protection, comfort and enjoyment and they span from human scale factors to details of the physical environment.

1. **Protection** focuses on how to minimize unpleasant experiences like crime, traffic accidents and unpleasant climate conditions.

2. **Comfort** deals with the quality of walking and staying in a place. It involves walking, standing and sitting as well as the possibility for seeing, hearing and talking. Playing and unwinding are also included.

3. **Enjoyment** covers the human scale, enjoying the positive aspects of the climate and the experience of the artistic quality of the design of the place, including quality of materials used.

ATTACHMENT C

DESIGNING / DETAILING THE PUBLIC SPACES A KEY WORD LIST

PROTECTION	1. Protection against Traffic & Accidents - traffic accidents - fear of traffic - other accidents	2. Protection against crime & violence (feeling of safety) - lived in / used - streetlife - streetwatchers - overlapping functions - in space & time	3. Protection against unpleasant sense experiences - wind / draft - rain / snow - cold / heat - polution - dust, glare, noise
COMFORT	 4. Possibilities for WALKING room for walking untiering layout of streets interesting facades no obstacles good surfaces 7. Possibilities to SEE seeing-distances unhindered views interesting views lighting (when dark) 	 5. Possibilities for STANDING / STAYING - attractive edges »Edgeeffect« - defined spots for staying - supports for staying - supports for staying 8. Possibilities for HEARING / TALKING - low noise level - bench arrangements »talkscapes«	 6. Possibilities for SITTING zones for sitting maximizing advantages primary and secondary sitting possibilities benches for resting 9. Possibilities for PLAY / UNFOLDING / ACTIVITIES invitation to physical activities, play, unfolding & entertainment - day & night and summer & winter
E N J OY M E N T	 10. Scale dimensioning of buil- dings & spaces in obser- vance of the important human dimensions related to senses, move- ments, size & behaviour 	11. Possibilities for enjoying positive aspects of climate - sun / shade - warmth / coolness - breeze / ventilation	 12. Aestetic quality / positive sense-experiences good design & good detailing views / vistas trees, plants, water

Figure 14 Gehl Architects – Public Domain Criteria

Additional assessment considerations developed by Gehl Architects for the pedestrian environment include:

Scale & Pace

- 60 km/h scale ... or 5 km/h scale architecture;
- One way streets for greater vehicular capacity and higher speeds ...or slower two way traffic for maximum access?

Getting Along

- Narrow sidewalks ... or a more balanced distribution of space;
- Sidewalk interruptions for driveways ...or an uninterrupted continous surface;
- Sidewalk interruptions for minor streets ...or extending the sidewalks and bike lanes across;
- Obstacles in the footpath ... or dignified pedestrian experience;
- Guard Rails.....or respect for natural desire lines;
- Pedestrian detours ...or direct routes;

Getting Across

- Having to apply to cross the street ...or being respectfully informed;
- Crossing a complicated obstacle course ...or simple straight forward intersections;
- Long waiting times ...or a balance between waiting and walking;
- Pedestrian Tunnels ...or simple crossings at grade;
- Pedestrian bridges ... or crossings at grade;
- Jumping from pedestrian island to island ...or continous street crossing;
- Slip lanes ... or simple street crossings.

5.2.3 NSW Roads and Traffic Authority – Pedestrian Action Management Plans (PAMP)

These guidelines contain the following criteria to assess pedestrian conditions.

- coherence (with logical connections);
- directness;
- safety;
- comfort;
- attractiveness;
- accessibility and mobility.

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