Putting Pedestrians Back in the Picture:

Exploring the Pedestrian Experience in Sydney

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Pedestrians have gradually been pushed further out of the focus of urban planning in city centres, in favour of ever increasing infrastructure for private vehicles. Not only has this severely impacted the nature of street life in cities, but it has also resulted in degradation of the environmental, social, economic and visual qualities of these unique environments.

The tide has now begun to turn, and Sydney like many other cities across the globe are now turning to the tremendous achievements of cities such as Copenhagen, Barcelona and London for inspiration. These cities have transformed the character of the pedestrian realm with tremendous success, resulting in higher levels of pedestrian activity than ever before. Accessibility, opportunities for social interaction, safety, user comfort, maintenance and aesthetic considerations are the most influential factors in improving the quality of the public domain, and must be the central concerns in the planning of urban streetscapes and public spaces.

Today, Sydney’s public realm is heavily utilised and offers a wide range of opportunities for human interaction. Nevertheless, remains a need to reduce the dominance of vehicular traffic in the city, and to place greater emphasis on the experiential characteristics in the public domain as it stands today and into the future.
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Dedication

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PART 1

PLANNING FOR PEDESTRIANS
1. PLANNING FOR PEDESTRIANS

1.1 Introduction
This thesis will present an analysis and discussion of the quality of the pedestrian environment in Sydney in 2006. The analysis is placed in the context of the need to improve pedestrian amenity and the social activities which occur in Sydney and other cities across the globe. Pedestrian safety, growing environmental concerns and the appeal of vibrant and active city centres, all call for the need to improve the quality of city centres to encourage pedestrian activity downtown. As Australia’s only global city (ABS, 2006), it is important that the environment in the heart of the city of Sydney is lively, safe and appealing for people using the space for recreation or to simply move about the CBD.

This study will examine the nature of Sydney’s pedestrian network as a whole, exploring the varied patterns of usage between the different streets and precincts within the CBD, and identifying the strengths and weaknesses of the existing network. In addition, the study will also closely investigate the nature of human activity in four key public spaces within the city centre, namely Circular Quay, Pitt Street Mall, Martin Place and the King Street Wharf. These sites which are spread throughout the CBD area, each have distinctive characteristics and patterns of usage, and provide an accurate insight into the internal operations of urban spaces within the heart of Sydney.

1.2 Background to the need to plan for pedestrians
The western world’s dependence on the automobile since the 1930’s has led to the well-documented degradation of public life in civic spaces, the loss of open spaces and reduced pedestrian accessibility. This is particularly the case in city centres, many of which are choked with traffic congestion, polluted and frequently desolate outside the working week. This presents a range of safety concerns, environmental problems and reductions in the quality, vibrancy and usability of these important city spaces. Sydney is no exception to this and these are the challenges which are facing
those who plan for the future of urban streetscapes in the city centre. Like other cities in Australia and around the world, it is crucial that the public realm in Sydney supports and encourages maximum pedestrian activity throughout the city centre.

**Car Dependence:**
In Australia and elsewhere in the developed world, private vehicles are the most widely used means of transportation. Sydney has been plagued by public transportation crises in recent years. Regular strike action by government bus operators, inefficient rail services and increasing traffic congestion on the cities roads during peak periods means that it is not always easy or convenient to travel by public transportation. Coupled with the sheer convenience and privacy offered by the private motor vehicle, many Sydneysiders choose to travel to and from their workplaces and other daily activities by car. In the case of the Sydney CBD, limited and expensive car parking facilities do go some way to limiting the number of people who choose to travel by car instead of public transportation. In order for public transport modes to be most effective, it is vital that they are an economical, reliable, comfortable and a convenient means of linking destinations (Kenworthy and Laube, 1999). These are certainly issues that require improvement in the case of Sydney. Despite the parking limitations in the city centre, the streets in the heart of the city are routinely choked with private traffic as well as taxi and bus services.

**Conflict between cars and pedestrians:**
The streets of today’s city centres are a hub of activity, crowded with people in cars, on buses and on foot. This vibrant mix is confined to share limited space within a compact network of streets, laneways and plazas. The streets are frequently crowded with traffic and footpath space can be stretched forcing people to step onto roadways. In this complex environment, pedestrian safety can be at risk, not only as people commonly cross busy streets illegally, but also as foot traffic is forced onto roadways and into conflict with cars, buses and bicycles. This is evidenced by
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frightening statistics which highlight the hazards for pedestrians in Sydney and other cities.

City centres uninhabited outside office hours:
The traditional nature of the Central Business District has led to the creation of downtown urban environments which are disproportionately balanced in the provision of retail and commercial floor space, and with very little provision of residential housing in the city centre. This means that the city centre is full of life and activity during the working week, but desolate outside of office hours. This discourages commercial activity which operates beyond traditional hours from locating in these environments due to lack of patronage, and presents personal safety concerns for the few people who do use the centre during the evenings and weekends.

Decline of social life in public spaces and death of the traditional ‘street’:
As city centres such as Sydney have grown increasingly busy, valuable footpath space has become a premium, forcing out the recreational and community activity which were once common. Street vendors, entertainers, community markets and passive informal recreation activities such as games of cards or chess between strangers are forced out of the urban environment and formally relocated into parks and squares on the fringe of the city and out of the way and indeed out of sight of the majority of people who ‘use’ the city.

Policies promoting walking and discourage car use:
With environmental and public safety concerns, the obesity and diabetes epidemics of our modern western societies under constant media focus, a range of international governments have formulated policies specifically aimed at promoting physical activity, increasing security in public areas and even limiting or altogether prohibiting vehicular traffic from city centres. Such policies as well as the initiatives of lobby groups such as the ‘car free days’ held internationally are drawing increasing
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attention to these important issues, which have direct implications for the nature, quality and use of space in the CBD. For these reasons, research of this kind into the character, useability and walkability of city centres such as Sydney is important and highly topical.

1.3 Research Statement, Objectives & Hypothesis:
This research project will attempt a comprehensive examination of the strengths, weaknesses and opportunities present for pedestrians in the streets and public spaces of Sydney in 2006.

This study aims to analyse the role of three key public spaces within the context of the wider city centre pedestrian system. We will examine the characteristics of these pedestrian networks and spaces, explore the theories by which these systems may be assessed and ultimately draw conclusions as to how the city's pedestrian spaces function today and how they may be improved in the future.

The study seeks to investigate and resolve the following central question:

*How does Sydney rate in terms of pedestrian amenity, particularly in regards to the walkability and usability of urban public space, and how can it be improved in the future?*

In order to examine the various interrelated issues which are associated with this question, there are a range of objectives for the study. These objectives are:

- To assess the quality of pedestrian amenity in Sydney against the key theories and methodologies for urban assessment
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- Assess the walkability and usability of the CBD pedestrian network as a whole and in the three key public spaces.
- Determine which urban theories are the most relevant to an assessment of urban space amenity for pedestrians and apply these criteria to an analysis of Sydney.
- Determine what lessons can be learnt from the scholarly literature and how these concepts may be applied in Sydney to improve the quality of the public domain.

The study’s underlying hypothesis is that the public spaces and pedestrian movement systems in Sydney are well patronised, but are primarily used as thoroughfares. There is limited opportunity for informal recreational activity in the urban spaces of the CBD at the present time and there is significant variation in levels of human traffic, the use of public spaces and the types of activities that occur within them.

1.4 Structure of this Study:

Chapter 1  –  This chapter provides a brief introduction to pedestrian planning and provides the context for the study of Sydney’s pedestrian environment.

Chapter 2  –  This chapter explores the theoretical concepts which emerge from a review of the scholarly literature relating to the analysis of pedestrian environments. We will particularly focus upon leaders in this field of urban research, including Jane Jacobs, Kevin Lynch, Jan Gehl and Jon Lang amongst others.

Chapter 3  –  This chapter provides the results of a detailed analysis of the Sydney pedestrian network. It provides a profile of the urban network of the
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city, before providing data on the results of a practical investigation of walkability and useability of the streets and public spaces.

Chapter 4 – This chapter explores the relationships between the theoretical concepts which were raised in chapter two, and the findings of the pedestrian analysis of Sydney.

Chapter 5 – In this chapter a host of recommendations are offered for the future improvement of Sydney’s pedestrian environment. These practical actions promote improvements in the walkability of the Sydney CBD and the usability of the street network and the cities public spaces. This chapter also details a range of conclusions on the research process undertaken and the analysis of Sydney’s pedestrian environment which has been provided.
PART 2

SETTING THE SCENE
2. SETTING THE SCENE

2.1 Introduction
The purpose of this contextual review is to gain an understanding of the existing wealth of knowledge which currently exists related to the field of pedestrian planning. By examining the scholarly context for this field of research, we will determine what information and research into this field is already available. In addition the literary study will also identify issues and concepts which have not yet been adequately explored in the literature to date and which are in need of future research. The theoretical insights gained as a result of this process will be applied later in this research project to analyse the character, use and quality of the public realm in Sydney at present.

2.2 The need for better pedestrian environments
Many urban philosophers have sought to investigate and theorise about what characteristics contribute to a good or even an ideal environment for pedestrians. The issue has been approached from a range of perspectives, including economic, social, environmental, transport-oriented and purely design focused viewpoints. In turn, there are many reputable researchers who have concentrated specifically on the functioning and improvement of pedestrian spaces and networks. Many of these authors have attempted to illustrate the principles which they attribute to having the most critical role to play in the creation of high-quality pedestrian environments.

Their work has contributed substantially to the knowledge base which has developed in the past 30-40 years (Gehl and Gemzøe, 2003). They have each attempted to explain, to varying degrees, the role of the various human, societal, environmental and physical factors which influence the people who use the public domain and precisely how they do so. The underlying aim of these influential hallmark studies has been to contribute to the design of more successful and pleasant public spaces – whether through the creation of entirely new environments, or the improvement of existing spaces.
2. SETTING THE SCENE

It is impossible to discuss improving the quality and character of the urban environment in city districts without making some reference to the issues which have contributed to its degradation. Traditionally, city centres served an important community function and were the concentration of commercial and business trade and the central focus of community pride and identity (Gehl and Gemzøe, 1996). The advent of the popular automobile has played a critical role in the demise of this traditional character in urban centres throughout the world, but particularly in westernised countries in Europe, Australia and North America. Urban space which was once devoted to community congregation, green space and outdoor market places, rapidly began to disappear, replaced by ever expanding lanes of traffic and parking areas. This phenomenon has been discussed by numerous authors including Gehl and Gemzøe (2003) and Jon Lang (1994), who credit the rise of the motor car as the single most detrimental factor to the development of community oriented and alluring city centres.

Another consequence of the rise of the automobile has been the segregation of land uses and activities within city centres. The popularity of this private motorised transportation meant that activities no longer needed to be located close by and easily accessible by foot and as a result, many activities were gradually pushed further away from the urban core. The dispersal of activities across widening distances has created modern urban environments which no longer contain the rich mix of vibrant retail uses, community activities and commercial concentrations. Increasingly, cities such as Sydney cater predominantly to the needs of tourists, large department stores and commercial offices.

There are no longer the community activities and social atmosphere that once existed in the largely pedestrian streets of the inner city before the private vehicle boom began in the 1960’s (Jacobs, 1993). Once thriving commercial centres are now oversaturated with office development, at the expense of struggling retail uses and with the almost complete absence of residential accommodation within the inner city
area. Clare Cooper Marcus and Carolyn Francis (1998) explain how these trends have resulted in traditional community activities have been pushed into private spaces such as suburban shopping malls and underground arcades. They describe the damage that this approach has caused to the urban public realm which has resulted from these processes, noting that ‘what remains are scattered, unconnected urban plazas used predominately by one segment of the population (office workers), and only on weekdays during the lunch hour.’ (Cooper Marcus and Francis, 1998). This sentiment is echoed by the President of Project for Public Spaces, American Fred Kent who places the blame on the design professionals who have allowed this climate to develop. He makes an interesting observation about modern urban centres, commenting that “We’ve narrowed the experiences that people can have. It’s an atrocity, and the design professionals don’t even know they do it! (Gurwitt, 2005). The rationalisation of the disconnected structure of the urban realm of cities, together with the desire for revitalisation of economic activity within city centres has become a major focus of urban planning in recent years. This dual focus (while explained here from a largely American perspective) has been the catalyst for the range of pedestrian schemes which have become popular experiments in cities across the world, from Asia to Europe and North America.

To date, a range of pedestrian schemes have been tried and tested, in the quest for an urban environment and community focus to rival the squares and plazas of many medieval European cities (Lang, 1994). Europe has long been considered the model upon which modern city centres should be based, due to the effectiveness with which their design combines high quality architecture, community interaction and commercial trade. This traditional medieval urban structure lends itself well to a compact and interesting walking environment for pedestrians, which functions well at a human scale and provides opportunities for social interaction and passing retail trade (Lynch, 1984).
2.3 The Theoretical Approaches
The scholarly writers discussed below have become the most prominent experts in the field of planning for pedestrian amenity. Their texts contain some of the most comprehensive assessments and analytical first principles for urban realm improvement which have emerged in the discipline thus far.

Jan Gehl and Lars Gemzøe – Places for Public Life and Social Interaction
Danish Architects Jan Gehl and Lars Gemzøe best explain the evolution of today’s renewed interest in the quality of the urban realm which has developed markedly since the 1980’s (Gehl and Gemzøe, 2003). They quite rightly argue that in 2006 urban planners are no longer simply interested in planning for transportation and commercial prosperity. Rather, they have been alerted to the social benefits that can be gained for the community when the focus is placed on people, and on the development of ‘public life’ or the social integration which epitomised the cities of yesteryear.

Effective planning is essential for improving pedestrian safety, creating an environment which encourages pedestrian activity and improving the social image of the city itself (Brambilla and Longo, 1977). These two authors have listed six primary human actions which account for activity in public spaces – namely, walking, standing, sitting, lying, running and playing. Brambilla and Longo (1977) divide these actions into ‘necessary’ and ‘optional’ activities. Gehl (1987) however has refined this concept to distinguish three types of outdoor activities. He describes ‘necessary activities’ which occur irrespective of the quality of the public domain and include basic errands, ‘optional’ activities such as lingering which occur only where the urban realm allows and is of a nature that people choose to be there, and finally he adds ‘social activities’ which are spontaneous actions requiring the presence of other people to share the space such as people watching and conversation. In successful urban spaces, these optional and social activities are abundant and as such should
be a key objective of urban design. He stresses that the wider the range of activities a space enables, the better the quality of that environment.

Gehl and his celebrated Copenhagen-based Architectural firm Gehl Architects have undertaken numerous analyses of pedestrian environments in a range of cities across the globe. He and his consultants specialise in making assessments of urban quality and produce strategic recommendations for local authorities which consequently have resulted in significant improvements in the human use and quality of the public realm in these cities. Cities in which Gehl has influenced and enhanced pedestrian amenity include Stockholm in Sweden, London in England, Wellington in New Zealand, Zurich in Switzerland. Gehl has also undertaken pedestrian analysis studies in several Australian capital cities including Perth, Adelaide and Melbourne, which has particularly seen marked improvement in the quality of its public domain since Gehl’s project commenced there in 1994.

In general, the ultimate success of any pedestrian scheme is dependant upon the unique combination of the local social and economic climate, existing and future built context and the specific nature of its design and implementation (Brambilla 1977 and Childs, 2004). Jan Gehl and Lars Gemzøe (2004) particularly stress the importance of a gradual and deliberate staged approach to the implementation of changes of any significant magnitude in an established city context. By their very nature, humans are fearful of change and any suggestion of major modification to the way a place or system presently functions is likely to be met with opposition of the unfamiliar. In order to overcome this resistance, plans to rationalise the city structure or movement system in a particular area or across an entire centre should be well coordinated and introduced over a lengthy period. As Gehl and Gemzøe (2003) explain, this allows residents to become familiar with the changes in small increments, and as a result, benefits can be realised as improvements are slowly made, building community support for the project as it develops. This approach was applied in the highly successful pedestrianisation scheme for Copenhagen. Over the
course of 45 years, the city has substantially reduced car use in and surrounding the urban core while making significant improvements in the amount and quality of the public domain, with what has evolved into massive community support for such public initiatives. Copenhagen has truly become an internationally recognised model for urban domain improvement.

While the tide has begun to turn and the focus is shifting (Gehl 2003) from our aesthetic and functional preoccupations of traditional planning approaches, the response to a human and social focus has been insufficient as yet. There is however much to learn from the successful transformations which are evolving in landmark cities such as Barcelona, London, Portland and Curitiba, Brazil which will shape future action elsewhere.

**Jane Jacobs - Diverse Urban Environments**

A key catalyst for this change was the influential book *The Death and Life of Great American Cities* written by Jane Jacobs. Since its 1961 release, this text has revolutionised the planning fraternity with its criticism of traditional planning theory and practice. Since then, numerous other urban researchers including William H. Whyte, Kevin Lynch and Jon Lang have built upon concepts first expressed by Jane Jacobs, and attempted to bring the focus of urban planning back to the role that the physical environment can play in the lives of people and their society.

Jane Jacobs was particularly interested in understanding the physical actions by city designers which support and contribute to economic and social vitality, and which activities are detrimental. She argues that diversity of land uses is the most critical factor in this regard, and also highlights the need for the full range of uses in an urban environment (or part there of) to complement and support each other. In order to achieve this, Jacobs argues that four elements are necessary. These are short blocks, a mixture of built form types, concentration of diverse populations and districts which serve more than simply one primary function (such as the dining
district). She repeats the theme that cities play an important social purpose as ‘a meeting place of strangers’ and builds upon the concept of people attracting people and generating further social activity. She emphasises that these social considerations should be a focus and objective of physical planning in an urban context, but stresses that it is inappropriate to dictate behaviour and that the role of designers is to provide environments which can accommodate a wide-range of human activities. Safety is another major focus of Jacobs work. She identifies three fundamental qualities which are required for a safe environment. These include passive surveillance, active footpaths and clear delineation of public and private areas within the urban environment.

**Jon Lang - Qualities for Attractiveness and Functionality**

Jon Lang is another North American researcher whose interest in the quality of the public domain stemmed from his aversion to the struggling central business districts which characterised urban environments across the United States. His valuable textbook *Urban Design: The American Experience* (1994) is a powerful analysis of the evolution of traditional city planning approaches in the United States, but more importantly, it is a discussion of the key challenges which urban planners face and advice for their attempts to rectify these problems in the future. His work is useful as an overview of the historical development of traditional planning approaches and for his discussions of the consequences of a range of historical theories such as the Garden Cities Movement and rationalist theory.

In analysing the urban environment, Lang (1994) is interested in human activity within the public domain, and distinguishes between two types of behaviour settings - places and links - both of which offer very different opportunities for activity based upon their different functions in the urban system. Similarly, he also provides a discussion of the various types of pedestrian linkages which exist in an urban context, based on their appropriateness in terms of their location, users and function. His most valuable contribution in respect to planning for human use of the public
domain is his designation of the four basic elements of the physical environment. These factors which are the spatial character, furnishings, enclosing character and illumination are the four elements which Lang argues set the character of a given space, and provide the setting for human interaction in space. Careful consideration of all four of these elements can produce places which are appropriate for their intended use and surrounding built and natural context, and which are ultimately well liked and patronised.

Kevin Lynch - The Legibility and Public Image of the City
Kevin Lynch is another author who has contributed a great deal to the field of urban design, particularly in terms of the design of environments which contribute positively to the lives of the citizens of a city. His seminal texts *The Image of the City* (1960) and *Good City Form* (1984) provide some fundamental first principles of urban design within city contexts, and have formed the foundation of much of the work of his successors including Allan Jacobs (1993) and Cooper Marcus and Francis (1998). Lynch is particularly interested in the visual form of cities, and in the coordination of built form and the public domain at this city scale. His particularly directs his attention towards people. He believes ‘the people and their activities are as important as the stationary physical parts’ of the city, and as such he investigates the character of American cities, specifically Los Angeles, Boston and Jersey City, though a study of how residents and visitors to these cities experience the urban environment. In particular, he focuses upon the importance of legibility (the logical and navigable structure of the urban pattern) and the ‘public image’ of the city environment projects which gives its identity in the experience of its inhabitants. He identifies five elements which contribute to this city image (1960) – namely, paths, landmarks, edges, nodes and districts – which have become fundamental concepts in urban design. In addition he also proposes five key performance dimensions by which urban form can be assessed. These dimensions are vitality (how the vital requirements of human users are supported by the environment), sense (the mental legibility of streets and spaces), fit (the appropriateness and adaptability of the urban
form), access (the ease of movement) and control (the regulation and management of the environment). He also highlights the importance of justice and efficiency in regards to how these performance dimensions are achieved.

**Allan Jacobs – Characteristics of Great Streets**

One commentator who has provided the most thorough and realistic criteria for the creation of good urban spaces to date is Allan Jacobs. His influential text ‘Great Streets’ (1993), offers a comprehensive list of criteria for what he terms ‘great streets’. Like the majority of researchers in this discipline, he focuses upon the physical and designable elements which give identity to a space and contribute to its ‘greatness’ or lack thereof. In this text, Jacobs also identifies a range of different ‘street’ types (which include plazas and pedestrian only spaces) from medieval streets and historical districts to sizable boulevards to contemporary shared traffic zones and pedestrian malls, and makes valuable comparisons using international case studies of each.

The criteria Jacobs (1993) sets out is wide ranging and includes the full range of issues discussed by the other leading authors, despite his biased focus upon aesthetic quality and human interaction. Essentially, this criteria strive for public environments which are accessible, pleasant, comfortable, safe, encourage social interaction, are memorable and have local meaning for the community. Throughout his text, Jacobs stresses the important role of streets for adding a social experience in individual’s lives and the important role that designers have to play in shaping their use. He notes ‘there is magic to great streets. We are attracted to the best of them not because we have to go there but because we want to be there’ (Jacobs 1993: XX). His emphasis on this ‘magic’ ingredient is a major element which distinguishes Allan Jacobs from other authors in this research field. In addition, Jacobs also devotes particular attention to the role of the local context (particularly in regards to surrounding street and block patterns and their functions) in shaping meaning and use for a particular street or space.
Clare Cooper Marcus and Carolyn Francis – Guidelines for Public Space Design

Carolyn Francis and Clare Cooper Marcus are two prominent American writers from the renowned Planning Department at the University of California at Berkeley in the United States. In their instructive 1998 text *People Places*, the authors express their dismay at the state of existing public spaces in urban contexts throughout North America. To remedy the poor design quality of public spaces, the inadequate coordination of the public domain in many downtown areas and the underutilisation of public spaces, Francis and Cooper Marcus provide practical strategies for the resolution of these concerns. Through the designation of seven categories of urban space based on scale and function, the authors have suggested design guidelines which accommodate the social needs of users within these varied types of urban spaces. Their fundamental objectives are to create environments which are equitably accessible, respond to the needs of their patrons and which have meaning within their societal context, although they acknowledge that local strategies must be respond to their local physical and socio-economic context. The key themes which are evident throughout their work include physical aspects such as boundaries, circulation and subspaces as well as the importance of specific functional elements such as public art, vegetation, seating and signage within the public domain. Other issues which are highlighted throughout *People Places* include microclimate, the need for visual complexity in the creation of pleasant environments and the importance of maintenance to sustain the quality of public areas in the long term.

2.4 What makes a good pedestrian environment?

One common theme throughout the literature is the importance of social activity as a primary attraction in the city centre. Jan Gehl (1987) and William H Whyte (1980) stress the importance of a vibrant social atmosphere for creating usable urban spaces which people enjoy and importantly, are well utilised. These authors go so far as to argue that providing appropriate settings for social engagement is more
important that physical form and design, and is in fact the single most vital factor in the creation of a high quality urban environment for both the use of urban space and the creation of a functional city-wide pedestrian network. However, we can not dismiss the importance and contribution of a good urban design. It is an unfortunate reality however, that these social considerations have not been given sufficient attention in existing research as well as in practice, as Brambilla and Longo (1977) explain “Designers often concentrate on refining the formal architectural components of public spaces without understanding how people use the space and what makes a place successful”, he goes on to note that the physical ‘frame’ is important, but it is only this, a border for the human activity which should be the prime focus. While the tide has begun to turn and the focus is shifting (Gehl 2003) from our aesthetic and functional preoccupations of traditional planning approaches, the response to a human and social focus has been insufficient as yet. There is however much to learn from the successful transformations which are evolving in cities such as Barcelona, London, Portland and Curitiba, Brazil which will shape future action elsewhere.

To date, most of the literature approaches the issue of urban design for human interaction and enjoyment from a functional perspective, led by authors such as Kevin Lynch and more recently, Carolyn Francis and Clare Cooper Marcus. That is, the writers typically present advice and design guidelines which can be applied directly to urban environments to resolve specific issues and improve the quality of a place for the people who use it. This section presents a discussion of the dominant themes and criteria which emerge from an analysis of the existing scholarly literature on the subject.

It is pertinent to discuss the various types of ‘pedestrian environments’ which have emerged from the literature and from practical experimentation. Cooper Marcus and Francis (1998) have categorised these environments into seven specific types of public spaces, according to their scale, function within the surrounding urban context and the nature of their human occupation. In fact, all of the urban researchers
mentioned above discuss the various ‘types’ of different urban spaces to varying degrees of detail. Consequentially, the following primary categories of urban spaces materialize:

- Pedestrian Malls
- Skywalks and Internal or Underground Arcades
- Shared Spaces
- Pedestrian Plazas and Town Squares
- Urban Parks and Gardens

A recurrent theme in the literary discourse is the critical importance of physical elements in creating an urban realm which supports human use and interaction. This focus upon the physical is approached from a range of angles within the literature. Some writers such as Kevin Lynch (1984) and Mark Childs (2004) place particular emphasis upon the physical structure and form of urban places and have sought to refine the objectives and design criteria that others before them have produced for this very purpose. What has resulted is a complex range of design guidelines which contribute to the creation of good streets and plazas for the people who use them.

2.5 **Key considerations in the creation of good pedestrian environments:**

The following represents a list of the key considerations in urban design for human activity in city centres such as Sydney. These six criteria will form the basis for an evaluation of the public domain in Sydney which forms the basis of this thesis project.

**Accessibility**

- Equity of access to all activities, people and places within the urban centre
- Consideration of access for the most vulnerable groups within the population
  - children, the elderly and people with disabilities
- Reliable and convenient access between places by public transportation modes and by foot

- Logical navigation should be possible throughout the urban centre, supported by way finding mechanisms such as signage, landmarks and a legible street network.

Encouraging human interaction

- The public domain should make human interaction, both passive (such as conversation) and active (such as playing a game) possible.

- The public domain including both streets and spaces should be designed so that human activity and socialisation is not hindered by means such as excessive noise, poor seating design or cluttered footpaths.

- Street and plaza furnishings should support and enable a wide variety of uses.

Safety

- Public streets and urban spaces should be well lit and should avoid hidden corners which enable antisocial behaviour to occur undetected.

- Streets and squares should be active at most times of the day – including day and night and weekdays and weekends so that there is constant human activity and supervision of the public realm.

- Police and or security guards should perform regular patrols to monitor space and discourage inappropriate behaviour such as harassment or vandalism.

- Concepts of both ‘perceived’ safety and ‘actual’ safety should be considered by designers and local authorities during the design and the ongoing implementation phases of any urban activity in public spaces. Even when locations are free from crime, they may still feel unpleasant or dangerous to users.
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- Ongoing maintenance of urban space should ensure that damage to furnishings floor surfaces is repaired instantly to prevent accidents.

Comfort

- The design of the urban domain should be responsive to the local climate and environmental constraints such as topography to create an environment which is attractive and comfortable to users. Trees should be provided to provide shade in hot climates, or deciduous trees may be used to provide additional sunlight in the winter months where necessary. This is particularly important in locations with extreme weather conditions such as wind, heat or cold where special measures (such as temperature controlled glass ‘rooms’ rather than open bus shelters in cities prone to snowy and windy conditions)

- Furnishings should maximise comfort and usability for people within a space. Seating should be appropriately located (able to receive an appropriate level of solar access) and should be comfortable, particularly for the elderly to use to rest. Ledges, steps and bollards can also be used to provide additional informal seating in peak periods, as a place to lean and to rest goods upon.

Responsibility and Maintenance

- Places must be monitored and maintained in an acceptable condition for the life of the space. Vandalism and graffiti must be repaired as soon as is practical and damage to steps, manholes and floor surfaces must also be fixed to maintain the appearance of the space and most importantly for the safety of users.

- There should be a clear understanding between the relevant parties over who is responsible for basis services such as garbage collection and security services.
Aesthetics and visual complexity

- Attractive urban environments must be diverse in the type of land use activities they contain (and therefore the type of users and human activities) and the character of the built form. The visual environment should be varied and contain a rich mix of architectural elements, while maintaining some common elements which tie the street scene together and provide some local identity for the area.

- The public domain should be designed to retain or create vistas and view corridors wherever possible. Access to views of important or attractive features in the local built and natural landscape provide a unique character and tie the urban realm into the context of the unique environment in which it is set.
3.1 Introduction
This investigation of the quality of the urban environment in Sydney is based upon a practical study of the City. This field study was conducted over several days in September and October 2006. The aim was to gain an accurate snapshot of the extent to which people currently use urban spaces in Sydney and how they do so, and also to assess the internal accessibility of the City. This chapter details the findings of this study in an effort to evaluate the quality of the public domain for pedestrians.

This detailed study of Sydney considers the City’s streets and public spaces against the criteria which emerged from the theories discussed previously in chapter two. The practical survey also seeks to specifically investigate the central themes of this thesis project - the useability and walkability of the public domain. These issues are important indicators of how the urban realm is currently being used in Sydney, and also highlight shortcomings in the design of urban spaces and the street network that would benefit from future improvements.

Urban environments which are attractive to pedestrians encourage increased patronage of urban spaces and make it an attractive option for people to walk in the city – not merely out of necessity, but for enjoyment. This also adds to the liveliness and vibrancy of the city centre, as more people and a wider range of human activities contribute to and strengthen the unique character of the city.

3.2 Chapter Structure
This chapter will present the results of the field study in logical order, looking first at the city network as a whole, before focusing more closely at some specific urban sites.

The first part of the chapter provides a snapshot of Sydney. It addresses a range of issues which contribute to the city structure, activities, appearance and accessibility of the city. All of these issues play a critical role in shaping the nature and character
of the urban realm for the people who use it. The topics which are covered in this section include the physical structure of the urban fabric, development controls which apply to the land, traffic and transportation matters, City attractions and activities, accessibility for the disabled as well as heritage items, city furnishings and public safety.

The second section deals with the issue of the walkability of the city street network. The results of a pedestrian survey exercise which was undertaken as part of this study are outlined. This data presents a summary of how pedestrians currently move throughout the city of Sydney, highlighting which areas are most heavily exploited and which sections of the city are presently underutilised.

Finally, the third section of this chapter investigates the useability of Sydney’s public spaces. The results of three detailed case studies of different types of urban spaces are detailed, showing how these spaces are currently used. Specifically, it looks at their level of use and how this varies across the day, the range of activities which occur within these spaces, and their physical design and how this contributes to their character and attractiveness to users.

This data leads into an analysis of the findings of the study which will be discussed in chapter four. In this chapter, Sydney will be assessed in terms of its fulfilment of the criteria for pedestrian amenity that were outlined in chapter two.
3.3.1 Introduction to Sydney

The Greater Metropolitan Region of Sydney covers a vast area, officially from the NSW Central Coast in the north to the Illawarra in the South and as far west as the Blue Mountains. This entire region is now home to approximately 4.2 million people.

In contrast, the Sydney Central Business District (CBD) covers only a small area of land on picturesque Sydney Harbour. It is set on the site of Governor Phillip’s original penal settlement on Port Jackson (Sydney Harbour) when Australia was colonised in 1788. In fact, the actual landing site of the First Fleet is now occupied by Circular Quay, the City’s premier harbour side attraction, and a site which is a major focus of this study of Sydney.

The image below depicts the City in its local context, highlighting the site of the CBD and historical settlement and the various waterfront localities which surround Central Sydney.

Sydney is Australia’s only global city. It is the largest CBD in the nation, succeeded immediately by Melbourne, which is its closest rival in terms of geographic and population size, as well as its function within the national trade and commercial sectors. With such a critical role, and as the birthplace of the nation, Sydney has great commercial and cultural significance for all Australians which should be reflected in its urban form. It should be a place for the people – residents, visitors, workers and tourists alike.
3.3.2 Study Area

To study the quality of the urban realm of any city, it is useful to examine the area in which built development and human activity is most densely concentrated. For this reason, this analysis focuses upon the heart of the Sydney CBD. This study area features the bulk of the city’s historical, cultural, commercial and retail attractions, and is the sacred centre of Sydney for the residents of the city.

The area which has been selected for investigation is bound by Circular Quay to the North and Liverpool Street to the South. The western boundary comprises King Street Wharf and Sussex Street, and the eastern extent of the area is Macquarie Street and Elizabeth Street along Hyde Park. In total, this represents an area that is 1.75 kilometres in length and ranges in width from 525 to 870 metres.
The images below depict the study area from an aerial perspective, visually indicating the nature and density of the urban form, while the second map illustrates the street pattern of the city. This map also identifies the location of parks and public spaces within the street network. The three areas marked in black are the locations which are explored as case studies to examine the usability of public spaces.
3.3.3 Case Studies of Urban Spaces

In order to gain an understanding of the complexities in the way urban spaces function in Sydney today, three sites were identified for closer examination. These sites were used to examine the level of usage of the public domain and to discover the nature of activities that take place in these spaces on a given day.

The three sites which were selected are Martin Place, Pitt Street Mall and Circular Quay. These locations represent the three most significant public spaces in the city, followed by Hyde Park and King Street Wharf. It is interesting to study them together as they each play a unique role in the urban system of the City, serving very different functions between them. This enables comparisons and contrasts to be drawn between them, and also allows a wide scope for this investigation across spaces which serve important tourist, retail and accessibility functions within the City, resulting in diverse activities and users of the space.

3.3.4 Sydney's Public Domain

The public domain of the City comprises its streets and laneways, plazas and public spaces, parks, malls and internal arcades. Sydney exhibits a mix of each of these forms of public space. Due to the nature of arcades as spaces confined within privately owned buildings, these sites are inaccessible at times (outside of business hours), and have different management rules which can affect their operation and who uses the space. For this reason, for the scale and scope of this particular study, internal malls have not been considered for their impacts upon pedestrian amenity. Rather, this study focuses upon the publicly accessible streets and public spaces in the outdoor environment of the City. It is in these areas that accessibility should be at its peak, and that make the greatest contribution to the look and feel of the city atmosphere for the people who use it.

The following diagram illustrates the public domain of the city of Sydney today.
3.3.5  Places for Recreation

The image above highlights the location of the various recreation spaces within Sydney’s CBD. These spaces can be logically divided into two categories – parks and urban plazas. These sites add visual interest to the city streetscape, and provide places for people to relax, play and interact with others while enjoying the urban outdoor environment.

These two types of spaces offer very different options for users in terms of their physical surroundings, and the types of activities they are likely to encounter and have the opportunity to participate in while there. Across the city, these various public
spaces offer very different environments in regards to their scale and character. Some, such as the magnificent and popular Hyde Park offer a peaceful natural oasis within the city, while others such as the busy Pitt Street Mall provide a chance to observe the hustle and bustle of the heart of the cities shopping district or to be entertained by street performers.

The images below provide an impression of the nature of the recreation spaces within the Sydney CBD.
3.3.6 Built Form Controls

Sydney is governed by the City of Sydney municipal government. The council is the primary body responsible for the management of the city and for regulating urban development within the CBD and its surrounds. The bulk of the study area is within the coverage of the Sydney Local Environmental Plan 2005 (Sydney LEP 2005) which is administered by the City of Sydney.

The remaining land consists of the northern tip of the study area, north of Grosvenor Street and west of George Street. This land is immediately adjacent to the historic district of The Rocks, which is owned and managed by the Sydney Harbour Foreshore Authority (SHFA). The planning control structure in this area is unique and features standards based on discrete street blocks rather than a typical zoning or height structure for the entire locality. These development standards are specified within the Sydney Cove Redevelopment Administration Scheme (SCRA Scheme) for which SHFA is the consent authority. The document outlines only building heights, types of permissible activities and building envelopes, with exclusive controls for each street block. Due to these unique circumstances and the relative isolation of this portion of the study area from the surrounding street scene, the maps below outline the development standards for the remainder of the study area, excluding the few streets which fall under the SCRA Scheme.

Sydney LEP 2005 contains the relevant development controls for the Central Sydney area by which new development proposals are assessed (excluding development within The Rocks). These controls shape the bulk, scale, character and function of the urban form. As such, they also play a significant role in shaping the quality of the urban realm through such aspects as the height of buildings and resultant overshadowing, land use activity location and the level of activity of street frontages, the visual amenity of the urban landscape and traffic generation and the interruption of the footpath by parking garage entrances.
The two development controls which have the most critical influence on the aesthetics and functionality of the public domain are building height controls and land use zoning provisions. In the study area, these controls permit a wide variety of land uses and set maximum heights in keeping with the character of the locality and its iconic skyline, while maintaining an appropriate level of solar access to street level. The impacts of these two physical design elements have been discussed previously in the theoretical discussion in chapter two.
Zoning:
The majority of urban land within the CBD is zoned ‘City Centre’ under Sydney LEP 2005. Under this zoning, any type of development is permissible, subject to compliance with the objectives of the zone. These objectives relate to such matters as promoting a wide range of uses, regulating development impacts on solar access, ventilation and wind levels, promoting active frontages and ground floor retail activity in appropriate locations and maintaining the unique built character of the city.

It is worth noting that the land within the area between King, Elizabeth, Market and George Streets is given special importance under the plan. In this area, ground floor retail uses are mandated, acknowledging the important commercial function of the area.

Building Height:
The map below illustrates the building height controls for Central Sydney specified in Sydney LEP 2005. It indicates that there is significant variation in the standards which apply across the various areas of the City. In fact, the maximum permissible heights vary from 16 metres along the land fronting King Street Wharf to a maximum of 235 metres in two areas adjacent to George and Pitt Streets. The greatest building heights are concentrated along the primary road which transects the City, George Street and in the northern portion of the study area. These controls not only affect the City skyline, but also influence the feeling of city streets through solar access to streets and urban spaces, wind tunnelling and the maintenance of view corridors.

These controls also stipulate sun access planes which provide additional protection for specific community places throughout the eastern portion of the City. The spaces which are protected by these controls are Hyde Park, Martin Place, Pitt Street Mall and the Domain parklands, east of the study area. These planes prohibit development beyond specific levels which will result in overshadowing of these sites.
3. A STUDY OF SYDNEY
3.3 SYDNEY SNAPSHOT

LEGEND

- 235 m maximum
- 150 m maximum
- 130 m maximum
- 110 m
- 80 m
- 60 m
- 55 m
- 46 m
- 35 m
- 26 m
- 23.5 m
- 16 m
- Existing height to be maintained
- No additional overshadowing
- Public Space
- Sun access planes
- B1/B2 Hyde Park North
- C Hyde Park West
- E Martin Place
- F1/F2 Pitt Street Mall
- G The Domain
- 45 m under sun access plane
- 55 m under sun access plane
- Existing height under sun access plane
3.3.7 Attractiveness and Amenity

There are a range of physical urban design factors which can impact upon pedestrian amenity. In Sydney, the three most important design considerations for the public realm which affect the pedestrian experience are street trees, vistas and view corridors and the protection of key heritage streetscapes within city streets. The image below illustrates the presence of these aspects within the public domain in Sydney. It shows that there are a number of important vistas around the edges of the CBD which maintain a connection between the city and the natural water and parkland features which surround it. Heritage streetscapes are areas within the city that maintain some connection to the City's colonial past in the character of the street scene. These streets are amongst the most visually interesting and appealing places for pedestrians. Street trees are found in the majority of City streets, excluding those which carry very high traffic volumes or where the existing built form would not support them. These add interest and the presence of nature amongst the urban setting, as well as providing an important source of shade in summer.
3.3.8 City Districts and Attractions
The following maps illustrate the various attractions and the unique neighbourhood districts which exist across the city. The rich diversity of the CBD is the basis of its attraction for residents and visitors. The specific nature of these various cultural, historical, commercial attractions is less significant for the purpose of this study than their distribution across the city network, and what this means for the pedestrian usage of the street network. From this image it is clear that the key attractions are concentrated into specific localities.

The city may also been divided into seven distinct activity precincts, based upon their unique character and functionality as a separate urban neighbourhood. The following
images illustrate the location and spatial relationships between these various city precincts. While some, such as the Hyde Park precinct are predominately based on commonalities in their visual appearance and the close proximity of the street blocks, others such as the George Street precinct are based on their function, in this case as a shopping and entertainment hub.

### 3.3.9 Transportation and Accessibility

The transportation network is a key consideration which strongly influences the quality of the public domain, and the level of accessibility it provides. Sydney offers a wide variety of public transportation modes, in addition to being highly accessible by car. These modes include buses, trains, ferries, taxis and a monorail which connects important tourist attractions within the city and its surrounds. The city also provides a network of cycle lanes and bicycle parking facilities, for which extensions are proposed to take place in the near future.

The following diagrams provide a visual summary of the transportation facilities which are present in Sydney. They indicate that care has been taken to ensure that all areas within the city network are serviced by some form of private transportation, as the City actively attempts to discourage private vehicle use within the CBD area.
3. A STUDY OF SYDNEY

3.3 SYDNEY SNAPSHOT
3. A STUDY OF SYDNEY

3.3 SYDNEY SNAPSHOT

LEGEND

- Public Car Parking Stations
- Public Motorcycle Parking
- Streets and Laneways
- Plazas
- Street Blocks
- Parks

LEGEND

- Two-way Streets
- One-Way Streets
- CBD Entry Points
- Direction of Travel
3.3.10 Accessibility for people with disabilities

Another important aspect of accessibility which affects the quality and usability of the public domain are the facilities which are offered for people with disabilities. This is a fundamental urban design issue for the public domain of any environment, but certainly a major urban city such as Sydney. The following diagram portrays the distribution of measures to assist people with disabilities. It highlights the location of accessible transportation facilities and public amenities throughout the CBD. It shows that these items are spread widely throughout the city system.

![Diagram showing the distribution of accessible facilities in Sydney CBD](image-url)
3. A STUDY OF SYDNEY

3.3 SYDNEY SNAPSHOT
3.3.11 Safety and Security

Safety measures are an important element in the design of the public domain in an urban environment such as Sydney. The CBD area is divided into two Police Local Area Commands – The Rocks and the Central City Command. Between these two commands indicated on the diagram below, the study area contains three police stations – two command centres and a small ‘shopfront’ station on Bathurst Street. The police are heavily supported by the presence of CCTV cameras which are located throughout the city in some of the most troublesome locations, particularly around late trading entertainment establishments in and around George Street. Other safety measures throughout the city include information kiosks which also serve important surveillance and monitoring functions in key public areas and telephones within bus stops which can be used to dial 000 in an emergency.
3.4.1 Methodology for a study of walkability

To assess the level of use and ease of movement throughout the public realm, pedestrian counts were undertaken in the various streets throughout study area. The purpose of this exercise was to gather data on the level of human usage of the city streets, and to subsequently identify patterns in pedestrian behaviour and gain an understanding of the key pedestrian links within the network.

To do this, gate counts were performed where the number of pedestrians crossing a specified portion of the footpath was counted over a set period of time. This enabled comparisons to be drawn between usage patterns across different sections of the city to enable comparison across the various localities. In total, 71 locations across the city street network were subject to this pedestrian survey. The sites of these gate counts are indicated in the map below, showing their even distribution across the street pattern.
3. A STUDY OF SYDNEY

3.4 WALKABILITY

Due to practical limitations associated with the available time to perform this study and the single researcher conducting the survey, it was decided to perform these gate counts over a five minute period. This interval was considered sufficient to gain an accurate measure of the level of pedestrian use of the space, and while a longer time frame may have been more reliable and would enable these counts to be converted to give a measure of the number of users per hour, it was considered unnecessary under the given circumstances to extend this time frame. In measuring all sites for a consistent period, reliable comparisons may be made, indicating differences and patterns in the level of use of Sydney’s inner city streets, providing an accurate snapshot of human behaviour across the city street network.

Furthermore, to maximize the reliability of these gate count results for comparison across the city network the timing of these studies was deliberately coordinated. Due to time and other limitations in terms of the sole researcher undertaking this field study, it was not possible to perform these pedestrian counts simultaneously or even in a single day. Instead, it was decided to set parameters for these studies so that they may be performed on multiple days while preserving the consistency and reliability of the data for comparison. Weekdays best represent a ‘typical’ day in the city centre and there are numerous and marked differences in the level and type of usage of pedestrian areas as well as the nature of the people using the space. For this reason, Mondays to Thursdays were identified as the most suitable time to perform these pedestrian counts to produce reliable and comparable results. Similarly, the timing of the gate counts was also a carefully considered factor. It was decided that the counts should be taken between the hours of 8am and 12pm in the morning session and between 2pm and 6pm in the evening. Any measurements between the hours of 12 noon and 2pm would be misleading, as they would be heavily influenced by the concentrated lunchtime rush of local office workers which would skew the volume of pedestrian traffic recorded. This notion was supported by
3.4 WALKABILITY

Gehl (1996) who also identified these timeframes as the most suitable periods for an accurate indication of ‘ordinary’ behaviour.

3.4.2 Pedestrian Gate Count Survey Results
The gate count survey produced interesting results in terms of illustrating key pedestrian linkages and underutilised sections within the city street pattern. The diagram below depicts the number of pedestrians which were observed at the gate count points during the five minute survey period. This shows that areas with the highest volumes of pedestrian traffic tended to be situated within the central portion of the city, while streets on the periphery of the street network were observed to contain fewer pedestrian movements. The highest pedestrian count was taken on George Street opposite the Town Hall, while Cumberland Street in the north-western corner of the study area produced the lowest reading, with no pedestrian movement observed during the survey period.
3. A STUDY OF SYDNEY

3.4 WALKABILITY
3.4.3 Hierarchy of Pedestrian Volumes

For clearer comparisons to be drawn, these raw figures from each count location were converted into a measurement of pedestrians per minute. This data allowed for traffic volumes to be grouped into six discrete categories based upon the level of pedestrian traffic flow. These categories are defined as follows:

<table>
<thead>
<tr>
<th>Pedestrian Traffic Category</th>
<th>Measure of Pedestrian Activity</th>
<th>Locations within Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very High Activity</td>
<td>40-50 pedestrians per minute</td>
<td>3  (4%)</td>
</tr>
<tr>
<td>High Activity</td>
<td>30-40 pedestrians per minute</td>
<td>2  (3%)</td>
</tr>
<tr>
<td>Medium-High Activity</td>
<td>20-30 pedestrians per minute</td>
<td>14 (20%)</td>
</tr>
<tr>
<td>Medium-Low Activity</td>
<td>10-20 pedestrians per minute</td>
<td>9  (13%)</td>
</tr>
<tr>
<td>Low Activity</td>
<td>1-10 pedestrians per minute</td>
<td>39 (55%)</td>
</tr>
<tr>
<td>No Traffic Activity</td>
<td>0 pedestrians per minute</td>
<td>4  (6%)</td>
</tr>
</tbody>
</table>

These traffic volume observations have been visually represented in the diagram below. The image illustrates the spatial location of streets with different levels of traffic volume, and shows how these streets each relate to those around them. The result is a depiction of the pedestrian movement patterns across the city-wide street network as they exist on a typical weekday.
3. A STUDY OF SYDNEY

3.4 WALKABILITY

This information allows the areas with the greatest traffic volumes to be identified, and these are indicated in the diagram below. These areas represent the heart of the public domain and human activity in Sydney today. An understanding of this activity pattern is important, as it highlights the strengths of the existing system and indicates which portions of the city carry small traffic volumes. The next step is to analyse this data and determine the reasons why these activity levels are as they are, and whether they are appropriate given their local context and function within the overall urban network.
3. A STUDY OF SYDNEY

3.4 WALKABILITY

LEGEND

- Very High Volume Routes
- High Volume Routes
- High Activity Areas
3.5 USEABILITY

3.5.1 Introduction

The three sites which were studied in detail to examine their usability are Pitt Street Mall, Martin Place and Circular Quay. These three sites vary significantly in terms of their physical appearance, the types of users of the space, and in the function that they fulfil within the wider urban system. In addition, they are also distributed throughout the City area and as such give a reliable indication of the activities which presently occur in a range of different spaces across the CBD area.

Two specific aspects have been studied in terms of the degree of usability which is evident in these three urban spaces. The first is the level of usage in terms of the number of people who are observed within the space on an hourly basis, and how this fluctuates throughout the day. The second aspect which is investigated is the types of activities which are occurring in these spaces across the day. Together, these two factors give a clear indication of what is occurring in these spaces and how they fare in terms of useability. The underlying principle of this is that the more people and the wider the range of activities in a space, the higher the space performs in regards to the useability of the site.

3.5.2 Methodology for assessing useability of public spaces

In addition to this city-wide pedestrian count exercise, a series of in-depth case studies were also conducted for several specific urban spaces within the centre. Three communal spaces were selected for a detailed examination of patterns in human behaviour which occur in Sydney’s public spaces. Three study sites that were selected for close inspection were Martin Place, Circular Quay and Pitt Street Mall.

These three sites were chosen as they exhibit marked differences in their scale and function within the urban fabric, and due to their distribution throughout the city centre. The observations were conducted at hourly intervals across the day to gain an understanding of how the activity within these spaces changes over time.
Photographic records at set locations were taken enabling visual comparisons to be made between the different times of the day. In addition, detailed observation notes were recorded, explaining the types of users, activities and traffic flows were present in the space.

3.5.3 Results of the Case Studies
The following is the results obtained from a study of the key case study sites.
PITT STREET MALL

Survey Date: Thursday 14th September, 2006
Time: 9:30 am to 6:30 pm

Character
Pitt Street Mall is the central core of the City’s retail and shopping district. It is the City’s only outdoor shopping mall, and connects a series of shopping arcades which are accessed from the mall to the east and west. In addition, it is located adjacent to the major department store David Jones, and the Myer City store is situated at the southern end of the mall. The mall has a busy atmosphere, and is full of shoppers and pedestrian through traffic throughout the day. It is also a popular location for
buskers and street performers which contribute to the lively and fun atmosphere of the space. There are a large number of trees planted throughout the mall which create a visually attractive scene, complementing the mix of heritage buildings and more modern built form, while providing a pleasant connection to the natural environment.

Observations

Accessibility:

- The mall is well located within the city street network. It is situated in the heart of the retail district, and is located in an ideal location between several key intersections of major routes within the city, resulting in a high level of accessibility from all directions within the CBD.
- The footpath areas on the streets surrounding the mall are widened to cater to increased pedestrian traffic movement towards the mall. This creates a pleasant pedestrian experience when entering and exiting the space, and helps to minimise pedestrian conflicts during peak traffic periods.
- Additional access to the mall is provided via the five internal arcades located within the buildings fronting Pitt Street Mall. The Strand arcade, Mid City Centre, Skygarden, Centrepoint and the Imperial Arcade offer ground floor access into the mall for shoppers. This assists in distributing the high pedestrian traffic generated by city workers and shoppers and visitors to a significant extent, as many shoppers are attracted to the arcades while workers predominantly utilise the street network.
- In addition, two raised pedestrian walkways connect the first floors of the Myer Department Store and Centrepoint, further reducing the pressure of high pedestrian volumes at street level.
- The mall is flat and evenly surfaced. It contains no kerbs or impediments to safe and convenient movement by wheelchairs or for people whose mobility is
impeded. Several pedestrians on crutches and in wheelchairs were observed using the space throughout the day without difficulty.

- The mall is situated in a convenient central location which affords it a high level of accessibility from public transportation. There are six bus stops located immediately surrounding the block containing the mall. In addition, there are two heavily utilised cab ranks located at either end of the plaza, and the mall is within easy walking distance from both Martin Place and St James Railway Stations.

**Human Interaction:**

- The amount of seating and its location is the major weakness of this space.
- Despite the high traffic volumes in this mall, only 16 benches are provided which was seen to be inadequate, as seating was in high demand during most of the day, and was a critical problem during the lunchtime peak.
- The arrangement of seating was also problematic. Seats were inappropriately designed in pairs facing away from each other, separated by street trees which provided much needed shade. The arrangement of these seats made it difficult for people to talk to each other as they could only sit beside and not opposite one another. It was also inappropriate for groups of people, who were observed to either separate into two smaller groups and sit facing either direction on the benches, or some people stood opposite while others sat. This presents a fundamental flaw in the design of the space which discourages socialisation.
- Due to the function of the space as a shopping mall, there is a large amount of ambient noise within the mall. This noise is a combination of noise from people talking to each other or on mobile telephones as they move about the space, traffic noise from the busy streets at either end of the mall. The greatest noise generators however are from street performers and from music emanating from the many store frontages along the mall. These two sources
of noise create conflict which was found to be quite unpleasant in certain sections of the mall at various times of the day.

- The installation of bollards throughout the site is the most significant and valuable feature in influencing movement and behaviour within the mall. The bollards segregate the space into three sections or ‘lanes’ of foot traffic to minimise conflict from shoppers window shopping on the major pathways adjacent to the shop fronts, from through traffic, and people stopping to watch the street entertainment. In addition, these bollards also provide additional informal seating and places to lean or rest goods upon. The bollards also serve as meeting points for people, or locations to pause to greet others out of the stream of traffic.

**Safety:**

- Pitt Street Mall exhibits a high level of perceived safety. This is in a large part due to the high levels of human activity which are present in the mall throughout the day. While traffic volumes varied throughout the day, the mall was constantly occupied by people, and activity within the shop entrances also contributes to this feeling of security due to the constant passive surveillance of the site.

- The physical structure of the space is very open, allowing good levels of visibility throughout all portions of the mall. There are no ‘invisible’ locations within the mall where people could lurk, and pedestrians moving throughout the mall are visible to others as they move throughout the entire length of the mall.

- No damage to the mall furnishings were present on the study day, to threaten user safety. The mall was in good working order, implying a high degree of maintenance and management of the space.

- Lighting was found to be an issue in the evening. There were too few lights throughout the mall, and those that were there were too dim to be effective.
3. A STUDY OF SYDNEY

3.5 USEABILITY

The illuminated signage and internal lighting of the stores surrounding the mall provided the primary source of illumination in the evening.

- City Rangers were observed to patrol and monitor activity within the mall throughout the duration of the day. These City of Sydney rangers performed an important security presence in the site, which was supported by police patrols which occurred several times throughout the day.

**Comfort:**

- The mall offers a pleasant pedestrian experience for users. It is flat and open which minimises conflict with pedestrians and furnishings, and makes movement through the space easy.
- Street trees and awnings provide effective shading of the most heavily utilised parts of the mall. This is important as the open mall area would be very hot during summer, but the open central portion of the site provides an option for people to walk in the sunlight, which is particularly valuable during winter. The deciduous trees also assist in maximising solar access in winter, while providing summer shade of the seats and walkways.
- The choice of seating is comfortable and attractive within the space, however as previously discussed, its arrangement discourages human interaction.
- The bollards throughout the space provide a valuable place to rest or sit in this busy space where seating is insufficient. While they would be unsuitable for long periods of sitting, they are a suitable height and width to make short term sitting and leaning a comfortable experience.

**Responsibility and Maintenance:**

- The mall is well maintained. There was no graffiti or evidence of vandalism to be found, indicating that the area is well managed and maintained.
- Litter was not a problem in the mall at any stage of the day. Garbage bins were emptied in the morning, and Council maintenance staff conducted
several cleanups during the day, particularly in the lunchtime and afternoon periods to collect litter.

- The security services on the site were conducted by Council’s City Rangers and by police officers throughout the day. In addition, security guards monitored the entrances to several of the shopping arcades.

**Aesthetics:**

- The street scene of the mall is very attractive, and features a mix of modern development styles such as the Mid City Centre, and historical developments such as the heritage streetscape items in the north-eastern portion of the mall.
- There is little diversity in the land use activities in this space as they are all retail uses at ground level, in accordance with the provisions of the LEP which respects the function of the site as the core of the City’s shopping district.
- The design and sporadic location of the street furniture within the space complements the attractive and complex mix of the built form of the buildings surrounding the space. The open design of the plaza area and the appropriate scale of the surrounding buildings create a comfortable feeling of limited enclosure and contribute to the visual amenity of the space.
Photographic Observations

9:30 am 10:30 am 11:30 am
12:30 pm 1:30 pm 2:30 pm
3:30 pm 4:30 pm
5:30 pm 6:30 pm
Number of Users
The following graph illustrates the fluctuations which were observed in the level of human activity across the day. It shows that activity in the space was quite consistent throughout the day, excluding the early morning period where traffic levels were lower, and the busy lunchtime peak which resulted in heightened pedestrian activity.
MARTIN PLACE

Survey Date: Thursday 14th September, 2006
Time: 9:00 am to 6:00 pm

Character
Martin Place is the primary urban plaza within the city street network. The many large historical facades which surround the mall such as the GPO building create a pleasant environment which reflects the cultural importance of the site as the location of the cenotaph, and as a central historical focal point within the heart of the CBD. The plaza also plays an important function in the accessibility network of the City. A large underground railway station is situated beneath the space, which is heavily utilised by office workers and by shoppers to access the nearby shopping
3. A STUDY OF SYDNEY

3.5 USEABILITY

district which immediately adjoins Martin Place to the South. There is limited vegetation within the site, however the tree plantings throughout the site contribute to a visually attractive urban environment, and work to soften what is entirely a hard surface area bordered by large and imposing buildings. The historical developments which abut Martin Place offer limited opportunity for active frontages seen elsewhere throughout the city streets and spaces. In addition, the types of uses are upscale stores which have limited patronage by the majority of the people who visit the space. There are several exceptions to this however, with a small number of café’s and bars scattered throughout the mall, with one café providing popular outdoor dining facilities. The other major activity in the area is the Mid City Centre which is a popular attraction, particularly in the lunchtime peak, and the Channel Seven television studio. The studio adds visual interest and vitality to the plaza especially in the morning when pedestrians pause in front of it to watch and participate in the live broadcast, and sometimes, live plaza concerts. Martin Place is a busy urban environment which is evidently most popular with local office workers and provides connections between various key pedestrian routes within the City.

Observations

Accessibility:

- Martin Place is highly accessible for both pedestrians and from public transportation. There are six bus stops situated within one block of the streets which transect the plaza, in addition to Martin Place Railway Station which lies beneath the space. There are also two cab ranks located within metres of the plaza to the east. Finally, four car parking garages are located in the streets immediately surrounding Martin Place.

- The site is marginally accessible for people with impaired mobility such as the elderly, people with young children in prams, and the physically disabled. While there are no stairs impeding access through the major pedestrian routes through the space, the steep gradient of the site makes movement
difficult for people with mobility challenges. The physical design has responded to the local topography as best it can, however the natural features of the area make it less than ideal for disabled accessibility.

- The plaza is located in the most legible portion of the City street network. In this area the historical structure of the urban fabric has resulted in a neat grid pattern of wide roadways which assists pedestrian navigation. Additionally, there are a number of large and distinctive buildings within this space which are effective landmarks, and signage throughout the city helps to highlight the location of the plaza from other parts of the City.

**Human Interaction:**

- The design of Martin Place encourages and supports socialisation and a wide range of human activities. There is a large amount of open plaza space which enables spontaneous children’s games or room for joggers to move easily through the space for instance.

- There is a large amount of potential for informal seating on ledges, steps and plantar boxes throughout the space. These areas were heavily used throughout the day, often by groups of people who benefited from the flexibility these items offer to arrange themselves across stairs as they please.

- The space offers a pleasant environment for human interaction. There are no externalities such as noise levels to impede social activity within the space.

**Safety:**

- Martin Place experiences high volumes of pedestrian traffic at all times of the day. This enables a high degree of passive surveillance and visible activity within the space which assists in maintaining an atmosphere of security within the space, and with providing some supervision of the public domain to actually minimise vandalism and antisocial behaviour.
There were a small number of repairs being undertaken on floor surfaces and seating within the plaza. These items were marked with appropriate security devices in an effort to protect pedestrians from the hazards.

The space is well lit at night, and provides an environment that is well patronised and feels safe in the evening. There are no portions of the plaza which are dark or particularly uninviting in the evening. This matter is assisted by a number of sites, most notably bars and the restaurants and bars within the GPO building which are active in the evenings and ensure that there is a visible human presence in the space at night.

**Comfort:**

- The benches and other furnishings within Martin Place and appropriately located and comfortable for users.
- There are a very large number of design elements throughout the plaza area which provide opportunities for informal seating. This was found to be the primary human behaviour within the space, and was even more popular than the formal bench seating throughout the space.
- The location and orientation of the space within the urban fabric means that solar access to the site is highly varied across the length of the space throughout the day. People were found to move about the space in response to the availability of sunlight, with the highest concentration of users situated in positions where sunlight was available.
- The space suffers from a significant amount of wind tunnelling, which makes it physically uncomfortable at times.

**Responsibility and Maintenance:**

- The site is well maintained by the City of Sydney Council. Several litter patrols were conducted throughout the day, to remove litter discarded by patrons, particularly following the lunchtime rush.
The channel seven studios perform an important surveillance function within the eastern portion of the site. Private security guards were seen to undertake regular patrols of the areas immediately adjacent to the studio, as well as providing a constant surveillance presence within the space.

Regular police and City Ranger patrols were observed throughout the day, but this was particularly obvious and necessary in the afternoon and evening periods.

**Aesthetics:**

- Martin Place has a unique historical character, which is created by the various large historically significant building facades which abut the plaza area. These characteristics of the built form create visual interest and provide a visible linkage between the current urban context and use of the space, at its past as a key functional icon within the City.

- The site contains a diverse range of land use activities within the built form adjacent to the public domain. These activities include television studios, bars and restaurants, retail stores and office buildings. The result is an interesting environment which attracts a variety of users who come to frequent these various locations.
Photographic Observations

9 am        10 am        11 am
12 pm       1 pm         2 pm
3 pm        4 pm
5 pm        6 pm
Number of People
The level of usage of the space was observed on an hourly basis throughout the day. The graph below depicts the patterns in the occupation of the space across the workday. They demonstrate a trend for Martin Place to be used most heavily during times when local office workers are out of the office. More specifically, it shows that occupation of the space is greatest during the lunchtime period between 12 and 2pm. The space is also busiest at 9am as office workers are leaving the Railway Station or cutting through the plaza on their way to work, and between 5 and 6pm when a similar pattern is evident. They show the space is well used throughout the day.
CIRCULAR QUAY

Survey Date: Wednesday 20th September, 2006
Time: 9:00 am to 5:00 pm

Character
Circular Quay is very different in regards to its physical scale, character and function in comparison to the other case study spaces. This space is set in a picturesque and historically significant waterfront location which was the site of the original First Fleet landing site and settlement in 1788. Today, the site is an important tourist attraction and iconic gateway into the city from the Harbour. It is also an important transportation node for the northern portion of the city. It contains the Circular Quay Railway Station beneath the Cahill Expressway, as well as the busy CBD ferry
terminal. The site effectively combines these competing functions, while creating a pleasant environment which is comfortable for pedestrians and balances the modern built form with its natural landscape. Circular Quay may effectively be divided into three areas which operate both as a whole coordinated plaza environment, and as three discrete spaces.

The eastern portion of the site contains a plaza and colonnade area that is closely connected to the mixed use buildings along this upper portion of Macquarie Street, and provides a critical linkage between Circular Quay and the nearby Sydney Opera House. This area has great views of the Opera House, Harbour Bridge and the CBD skyline, and is characterised by the many alfresco cafes which line the pedestrian thoroughfare.

The central portion of the plaza which runs adjacent to Alfred Street has an entirely different character. It is primarily associated with the ferry terminal, and is a popular location for busking and street performances which add to the vibrancy of the space.

Finally, the western area of Circular Quay has a character which is in stark contrast to the previous areas of the plaza. This area also has magnificent iconic views of the Harbour, Opera House and Harbour Bridge, but is interesting as it combines a wide plaza area with seating overlooking the waterfront, with an expansive grassed parkland area set around the Museum of Contemporary Art. This is a very attractive environment from a visual perspective, but it is as much the wide variety of human activity that creates this attraction as the built form.

Circular Quay is an attractive site, which operates well as a pedestrian environment and effectively balances the various important and contrasting functions it plays in the City network.
Observations

Accessibility:
- Circular Quay performs a vital accessibility function for the CBD area. It contains the primary city ferry terminal, as well as a major railway station and an important bus terminal and major taxi rank.
- Movement throughout the space is safe and convenient. The land itself is entirely flat in this area, and there are no physical obstacles to free movement throughout the space. The plaza itself is wide and well-surfaces, providing a safe thoroughfare which discourages pedestrian conflict despite the high patronage of the area by tourists, city visitors, local workers and commuters.
- Circular Quay caters exceptionally well to the needs of disabled people. The flat and well maintained surface is suitable for comfortable movement of wheelchairs throughout the site, and its popularity for vulnerable populations is evidenced by the substantial number of elderly and disabled people that were witnessed within the space.

Human Interaction:
- The urban furnishings throughout the space such as benches, ledges and bollards as well as the large open plaza and park areas provide extensive opportunities for human activity and socialisation.
- A wide range of activities were observed throughout the various areas of the public domain. These included ball games in the parkland areas, street performances in the

Safety:
- Circular Quay is a safe and attractive urban environment which is well illuminated and occupied during the evening period, due to the types of land use activities such as restaurants which are present within the space.
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3.5 USEABILITY

- The plaza features an open design, which provides no impediment to safe movement throughout the key plaza thoroughfares within the space.
- Several police patrols were observed throughout the day. This security presence discourages common tourist-oriented crimes which occur in tourist attractions such as this, such as pick-pocketing and petty theft.

**Comfort:**
- The physical features and plaza furnishings throughout the site are appropriately located to take advantages of views, and to encourage human interaction.
- The space is fairly noisy due to the sounds emanating from the Ferry Terminal, Railway Station and the Cahill Expressway. This noise is not so significant to impede human interaction by making conversation difficult, but rather this ambient noise contributes to the lively atmosphere of the space.

**Responsibility and Maintenance:**
- The plaza is maintained by a combined effort between the City of Sydney and Sydney Ferries. These agencies share responsibility for the general upkeep of the site, and ensure that damage to the urban area is reported and repaired by Council maintenance staff in a timely fashion.

**Aesthetics:**
- Circular Quay is a highly attractive waterfront environment, which operates as a major showpiece and icon of the City. The built form surrounding the space effectively complements the natural setting, and contributes positively to the pedestrian experience.
- The choice of urban furnishings are appropriate to offer a high urban amenity and functionality, while maintaining a minimalist look so as to not detract from the many landmark features of the surrounding environment.
3. A STUDY OF SYDNEY

3.5 USEABILITY

- The high levels of pedestrian activity and the wide array of activities which are present in the space at any given time provides a high degree of visual interest which adds to the appeal of the public domain of the area.

Photographic Observations

9 am   10 am   11 am

12 pm  1 pm   2 pm

3 pm   4 pm   5 pm
Number of People

The follow graph shows the distribution of human activity within the plaza across the day. It indicates that plaza usage was consistently high across the entire day, with only the lunchtime period providing a major variation in the level of human activity within the space. During the lunchtime peak, Circular Quay was very busy with office workers and an increased number of tourists making use of the space.
PART 4
THE QUALITY OF SYDNEY’S PUBLIC SPACES
4. QUALITY OF SYDNEY’S PUBLIC DOMAIN

4.1 Introduction
The practical survey of the Sydney’s urban realm has provided a valuable insight into how this urban system operates, and the nature of the pedestrian experiences it offers. However, in order to determine how effectively it meets the central objectives for the design of urban environments it is important to explore the relationship between the urban form and the major theoretical concepts and design considerations.

4.2 The Theoretical Approaches
To evaluate how well Sydney performs against the various theoretical approaches in the field of urban design for pedestrian amenity, it is useful to re-examine the theoretical approaches that were introduced in part two to determine how well Sydney’s urban realm meets these various criteria.

Jan Gehl and Lars Gemzøe – Places for Public Life and Social Interaction
Urban researchers Gehl and Gemzøe make valuable recommendations regarding the human use of urban environments which are relevant for Sydney. Gehl’s philosophy regarding the three types of outdoor activities (Gehl: 1987) was tested and found to be pertinent in Sydney’s public domain. As Gehl suggests, the locations with the greatest variety of human activities were the most pleasant environments. In these spaces, the most appealing activities witnessed were those involving spontaneous human interaction, or as Gehl defines them ‘social activities’. For instance, the people watching or participating in street performances, or groups gathered in conversation were major focal points within Pitt Street Mall in the afternoon period, and at these times when such activities were frequent the space was most appealing.

Jane Jacobs - Diverse Urban Environments
Jane Jacobs applies a broader focus, concentrating on the physical elements of the city structure which produce socially and economically diverse environments. She
4. QUALITY OF SYDNEY’S PUBLIC DOMAIN

stresses the importance of diverse and deliberate land use patterns to achieve this aim, noting that short city blocks, mixed population concentrations, multifunctional urban districts and a mixed urban form assist in this endeavour (Jacobs, 2000). Sydney certainly exhibits the latter two characteristics, however it is lacking in a substantial diverse resident population, and displays a rectangular street grid which produces lengthy north-south running frontages. These two factors do detract somewhat from the quality of the urban realm, as they contribute to public spaces being fairly empty beyond office hours in many areas, while long distances between intersections on north-south streets result in some underutilised mid-block locations on peripheral streets such as Sussex Street.

Jon Lang – Qualities for Attractiveness and Functionality
Lang outlines several key elements of the built form of urban environments which influence their attractiveness and functionality for pedestrians, by which Sydney may be assessed (Lang, 1994). Sydney displays a unique spatial character which delineates local urban districts, while maintaining a consistent overall integrity throughout the built form. The coordination of streetscape furniture and planting and consistency in entry level building facades, and bulk and scale contribute to this overarching character and create an appropriate feeling of spatial enclosure in the public domain from surrounding built development. Finally, the furnishing and illumination of Sydney’s streets and communal spaces also contribute significantly to the quality of the urban environment and to the behaviour of pedestrians within it. Areas which are well lit and provide appropriate amenities such as seating, tables or ledges are well utilised by pedestrians, in contrast to spaces which are dark and appear unsafe or where there is no opportunity to pause in an area due to a lack of street furniture.

Kevin Lynch – The Legibility and Public Image of the City
Lynch also concentrates upon the role of the built form in shaping human behaviour and the overall appeal of the urban environment. He discusses the importance of
4. QUALITY OF SYDNEY’S PUBLIC DOMAIN

legibility, or navigability of the urban fabric in creating a pleasant pedestrian experience (Lynch, 1960). The various way finding mechanisms such as signage throughout the CBD and the consistent grid pattern which characterises the street pattern of the city mean that Sydney satisfies Lynch’s legibility criteria quite well. Furthermore, laneways and internal pedestrian arcades within buildings throughout the city make the city a place which is walkable and easy to navigate for pedestrians. Sydney also meets Lynch’s objectives for a positive public image of the city, with the various urban landmarks and key public spaces and city districts contributing to a pleasant impression of the city for residents and visitors alike.

Allan Jacobs – Characteristics of Great Streets
Allan Jacobs is particularly interested in the physical qualities of great urban streets. He outlines a range of criteria which contribute to a high quality public domain. These include issues of accessibility, physical comfort, attractiveness, security, cultural significance and the memorability of the place (Jacobs, 1993). On the whole, Sydney performs well when assessed against this range of design considerations. The City is certainly a memorable urban environment, with its own unique local identity which is internationally recognisable and renowned, and evokes pride from all Australians. It is also an environment which is physically safe, comfortable and attractive for its users and as the results of the field study have shown, it is a walkable environment that is highly accessible for all segments of the community.

Clare Cooper Marcus and Carolyn Francis – Guidelines for Public Space Design
Francis and Cooper Marcus have stipulates a range of practical strategies for the design of urban spaces which are appealing and responsive to user needs (Cooper Marcus and Francis, 1998). They also emphasise the importance of equitable ease of access throughout the public domain and the impact of a strong local meaning in the creation of a pleasant and well used urban setting. They particularly emphasise that urban designers must anticipate and acknowledge the needs and desires of the users of urban spaces for the ultimate success of any public domain strategy. It is
evident that this aspect has been considered in the design of Circular Quay in particular, which features a range of built settings within the space including parklands, modern colonnades, waterfront seating and a wide variety of options for informal seating on bollards, ledges and retaining walls. These elements contribute to an appealing physical setting that supports an extensive variety of human activities.

2.4 What makes a good pedestrian environment?
In addition to an assessment against the relevant scholarly literature, it is also useful to examine the quality of Sydney’s public domain in reference to the six principle characteristics of good pedestrian environments which were prescribed in part two, and by which the three case study spaces were assessed.

Accessibility
This study of Sydney has shown it to be a highly accessible environment, for both pedestrians, vehicles and for members of the community with mobility difficulties. There are a variety of transportation facilities and basic public amenities which are distributed throughout the city area that specifically cater to the needs of this group, which includes the elderly and the disabled. The city area features a wide variety of public transportation modes which can be accessed from many locations throughout the CBD area, including buses, taxis, trains and monorail modes. The city structure also exhibits a large degree of legibility within the physical arrangement of the city blocks, street networks and pedestrian paths which make way finding simple.

Encouraging human interaction
The city of Sydney displays an urban environment which enables human activity and interaction in streets and public spaces. The study highlighted the wide range of activities which occur in communal spaces throughout the city. These activities are facilitated by the configuration of the urban realm which provide the space and amenities (such as formal and informal seating facilities) to support such human
activity. In the streets throughout the city the design and location of street furnishings such as benches, bollards and bus shelters provide opportunities for people to conveniently rest or interact with one another, without impeding the pedestrian flow.

**Safety**
On the whole, the city represents an environment which is safe for pedestrians as they use public spaces or move about the city. The city council provides regular ranger patrols throughout some of the most heavily trafficked and troublesome city locations, to support the local police and provide a visible security presence within the public domain. Naturally, the perception of pedestrian safety is strongest in the most heavily utilised streets and spaces within the city such as George and Pitt Streets due to the high degree of passive surveillance afforded by the level of activity on and around the street. In peripheral areas of the CBD where less human and vehicular traffic is present, the public domain can feel quite empty and unappealing as there is a lack of indirect supervision and assistance in an emergency. Streets such as Bent Street and portions of Sussex Street display these qualities, however on the whole, the city can be considered safe in the context of its urban function as city centre of a global scale.

**Comfort**
The public domain in Sydney is comfortable for pedestrians and caters well to local environmental factors. Comfortable and practical street furnishings are appropriately located throughout the public domain. Extensive street tree planting strategies in the majority of city streets provide effective shade from the harsh summer sun, while the deciduous species enable additional solar access to footpath areas during winter, creating a pleasant pedestrian experience in response to the City’s environmental constraints. The major weakness of the city network for pedestrian comfort is related to the topography of the natural landscape. The land falls towards the western shoreline throughout the CBD area, however it is most pronounced south of Kent Street where it becomes quite strenuous to walk uphill for any distance. This is an
environmental constraint which has been managed by internal arcades in several locations in Kent, Clarence and York Streets which provide welcome relief by way of escalators and lifts, which is a particularly important consideration for the physically impaired who find it difficult to navigate this western portion of the city.

Responsibility and Maintenance
Sydney CBD is well maintained by the City of Sydney Council, and the various private enterprises which help to maintain the interface between the public and private domain. Garbage collection and footpath, park and plaza maintenance are coordinated by the local Council. The city is notably clean in comparison to other large cities such as San Francisco and Berlin, and obvious care is taken in Sydney to regularly remove litter and repair vandalism and graffiti in public areas. The majority of graffiti that is evident throughout the city is on private land and outside Councils control.

Aesthetics and visual complexity
Sydney is a very attractive City which affords visitors a pleasant visual experience. This is true in terms of the high quality of the built form, which features a range of development styles from modern feature buildings, to historical buildings and streetscapes reflecting the City’s colonial origins. The wide array of activities on offer throughout the centre also contributes to this vibrant and dynamic urban environment that is a constant hub of activity. The most striking aesthetic feature of the urban realm however is the connection to the natural landscape and surrounding urban environment that is offered by the large number of view corridors throughout the CBD. These vistas highlight important landmark buildings and linkages between the city and its surrounding harbour side landscape and provide pleasant relief from the urban form of the city buildings.
PART 5
RECOMMENDATIONS AND CONCLUSIONS
5.1 Introduction
Sydney provides a high quality urban environment and an enjoyable and convenient pedestrian experience. However, the public domain is not without some shortcomings, which could benefit from strategies for improvement of these features of the urban realm. This chapter outlines several key recommendations for Sydney, and provides an evaluation of this research process and the findings that have resulted.

5.2 Accessibility Recommendations
- Improved and expanded cycle routes should be provided within the city area to encourage this mode of transportation. This includes the provision of change room and shower facilities and appropriate bicycle storage facilities. The proposed expansion to the cycle network goes some way to achieving this aim, however further improvements are needed.
- External lifts for wheelchairs should be provided and clearly signposted at least two locations to facilitate improved access between York and Sussex Streets where the local topography is steep and discourages disabled access.

5.3 Human Interaction Recommendations
- Movable furnishings should be provided within the major public spaces throughout the city. Cushions and chairs should be rented by the Council at the information kiosks for a deposit which is refunded when the furniture is returned. This would increase the flexibility of the urban realm by enabling users to define their own arrangement of the space, enhancing the opportunities for spontaneous socialisation. Set areas in which such furnishings may be permitted would avoid the disruption of key traffic flows through the public spaces.
- More benches for formal seating should be provided on the quieter streets in the outer areas of the CBD. These streets often appear quite open, but
provide no amenities for pedestrians to rest or to stop and watch the activities taking place in the environment around them.

5.4 Safety Recommendations

- There is a need to provide barriers on some dangerous sections of key traffic routes throughout the city such as George, Pitt and Elizabeth Streets. A high degree of jaywalking presently occurs in this area, presenting serious safety concerns. Physical barriers would discourage this illegal behaviour.

- Greater illumination is required in the laneways throughout the city centre, as well as in some streets in the periphery of the CBD such as Gloucester and Cumberland Streets.

- Greater distribution of evening activities should be encouraged throughout the centre. This serves the dual function of reducing the security issues associated with high concentrations of entertainment venues, such as is the case on George Street, and also helps to activate areas throughout the city which are presently only active during the day.

5.5 Comfort Recommendations

- The provision of ledges or bollards around building facades should be encouraged in new developments where it is appropriate. This provides greater opportunities to rest or to enjoy a coffee break.

- Awnings should be mandatory in new development to enhance the pedestrian experience and provide protection from sunshine and rain. These awnings should preferably be made of glass where this is appropriate in the local built context as this allows solar penetration of the street while maintaining protection from the elements.

5.6 Responsibility and Maintenance Recommendations

- The City of Sydney should implement a formal policy which compels property owners within Central Sydney to maintain a particular standard of physical
5. RECOMMENDATIONS AND CONCLUSIONS

maintenance and to ensure that vandalism and graffiti in the public/private interface is remedied in a timely fashion.

- The use of graffiti resistant paints should be mandated in Council policy to discourage graffiti and assist in its fast removal. This should apply to private and public areas to the buildings themselves, as well as any street furnishings.
- The City ranger patrols should be expanded, both in terms of the patrol routes and the number of rangers. This would enhance the security presence in the public domain.

5.7 Aesthetic Recommendations

- Paving strategies should be extended to cover all streets within Sydney’s street network to facilitate greater consistency in the appearance of the city’s streets.
- Visual corridors should be retained and protected. These locations should be identified by local signage to create a network of lookout points throughout the urban fabric to highlight this valuable quality of the public realm.
- Laneways throughout the urban area should be given particular attention. These locations are generally poorly maintained and would benefit significantly from the creation of paved shared zones, encouraging safe and enjoyable human movement throughout these important linkages while improving their visual amenity substantially. The laneways of Melbourne provide an ideal template for the options available to beautify and activate these spaces.
5.8 Conclusions

The aim of this research project has been to examine the public domain of the Sydney CBD. It has explored the strengths and weaknesses of the urban system, and identified a range of opportunities for improvements which will enhance the experience of pedestrians in the city’s streets and public spaces.

There is a wide array of literature and theoretical perspectives relating to the field of pedestrian planning. These conceptual approaches were discussed in detail in chapter two, and illustrate the central themes which are most critical in the creation of successful pedestrian environments. The work of leading theorists such as Jan Gehl and Lars Gemzøe, Allan Jacobs, Clare Cooper Marcus and Carolyn Francis, Kevin Lynch, Jon Lang and Jane Jacobs has provided invaluable direction for the improvement of existing urban areas, and the creation of thriving new urban spaces. A successful environment is defined as one that is easily walkable and useable by pedestrians. This is the fundamental criteria upon which Sydney has been examined throughout this research project.

Six key considerations have been emphasised as the primary factors which contribute to a high quality public domain. These are:

- Accessibility – equity and convenience of movement between places
- Human Interaction – opportunity for a wide range of social activities
- Safety – a secure, well supervised and non-threatening environment
- Comfort – appropriate physical features which are enjoyable to use
- Responsibility and Maintenance – effective management of the public domain
- Aesthetics – a visually attractive street scene and appealing design elements

These fundamental issues have provided the foundation for an investigation of the design and use of Sydney’s streets and public spaces. Pedestrian counts and methodical observations of the urban domain provided invaluable insights into the nature of human behaviour in Sydney today. This study indicated that Sydney’s urban
spaces are well used at present, and do in fact support and variety of human behaviours on a daily basis. It showed that Sydney’s streets and squares are comfortable and convenient to move around by foot, and respond well to the existing environmental and built form constraints such as the hot and humid climate, local topography and overshadowing of the urban realm by historical buildings.

In the future, there are several practical strategies which have been identified to enhance the quality and character of the city’s public domain. These functional suggestions relate specifically to the six guidelines for good pedestrian environments, and their application will result in an improved experience of Sydney for pedestrians.

The public realm in Sydney is more heavily utilised and functional than was originally anticipated. This research project has shown that Sydney provides a high quality urban environment to rival other major cities in Australia and throughout the world.
BIBLIOGRAPHY


Project for Public Spaces (PPS). [http://www.pps.org]


APPENDICES
RESULTS OF PEDESTRIAN GATE COUNT SURVEY
This appendices provides details of the data collected during the pedestrian gate count exercise to assess the walkability of the street network in Sydney. These images and observations support the gate counts obtained in each location, as they provide a summary of the nature of the streetscape at each location, showing factors which contribute to the level of pedestrian activity at the site.

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<th>Macquarie Street (West)</th>
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<tr>
<td>between Martin Place and St James Road</td>
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<td>Date: Thursday, 14 September 2006</td>
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<tr>
<td>Time: 12:00 – 12:05 pm</td>
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<td>between Martin Place and Hunter Street</td>
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<td>Effective Path Width: 5 metres</td>
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### Elizabeth Street (West)
Between King and Market Streets

- **Date:** Thursday, 14 September 2006
- **Time:** 3:30 – 3:35 pm
- **Effective Path Width:** 3 metres
- **Pedestrians Counted:** 60

### King Street (South)
Between Castlereagh and Elizabeth Streets

- **Date:** Thursday, 14 September 2006
- **Time:** 3:39 – 3:44 pm
- **Effective Path Width:** 2 metres
- **Pedestrians Counted:** 39

### King Street (North)
Between Pitt and George Streets

- **Date:** Thursday, 14 September 2006
- **Time:** 4:02 – 4:07 pm
- **Effective Path Width:** 3 metres
- **Pedestrians Counted:** 111

### Market Street (North)
Between George and Pitt Streets

- **Date:** Thursday, 14 September 2006
- **Time:** 4:59 – 5:04 pm
- **Effective Path Width:** 6 metres
- **Pedestrians Counted:** 156
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<tr>
<td>Loftus Street (West)</td>
<td>Bridge and Spring Streets</td>
<td>Wednesday, 20 September 2006</td>
<td>2:00 – 2:05 pm</td>
<td>3 metres</td>
<td>25</td>
</tr>
</tbody>
</table>
Loftus Street (East)
Between Bridge and Alfred Streets

Date: Wednesday, 20 September 2006
Time: 2:09 – 2:14 pm
Effective Path Width: 3 metres
Pedestrians Counted: 24

Pitt Street (West)
Between Alfred and Bridge Streets

Date: Wednesday, 20 September 2006
Time: 2:54 – 2:59 pm
Effective Path Width: 3.5 metres
Pedestrians Counted: 67

Bridge Street (North)
Between Pitt and George Streets

Date: Wednesday, 20 September 2006
Time: 3:08 – 3:13 pm
Effective Path Width: 3 metres
Pedestrians Counted: 47

George Street (East)
Between Grosvenor and Jamieson Streets

Date: Wednesday, 20 September 2006
Time: 4:00 – 4:05 pm
Effective Path Width: 3.5 metres
Pedestrians Counted: 113
<table>
<thead>
<tr>
<th>Street</th>
<th>Between</th>
<th>Date</th>
<th>Time</th>
<th>Effective Path Width</th>
<th>Pedestrians Counted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bond Street (North)</td>
<td>Pitt and George Streets</td>
<td>Wednesday, 20 September 2006</td>
<td>4:10 – 4:15 pm</td>
<td>1.5 metres</td>
<td>52</td>
</tr>
<tr>
<td>George Street (East)</td>
<td>Market and King Streets</td>
<td>Monday, 16 October 2006</td>
<td>2:13 – 2:18 pm</td>
<td>5 metres</td>
<td>205</td>
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<tr>
<td>Pitt Street (West)</td>
<td>Angel Place and Hunter Street</td>
<td>Monday, 16 October 2006</td>
<td>2:32 – 2:37 pm</td>
<td>3 metres</td>
<td>137</td>
</tr>
<tr>
<td>Hunter Street (South)</td>
<td>George and Pitt Streets</td>
<td>Monday, 16 October 2006</td>
<td>2:44 – 2:49 pm</td>
<td>3.5 metres</td>
<td>121</td>
</tr>
<tr>
<td>Street</td>
<td>Direction</td>
<td>Between</td>
<td>Date</td>
<td>Time</td>
<td>Effective Path Width</td>
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</tr>
<tr>
<td>Pitt Street (West)</td>
<td>West</td>
<td>Hunter and Bond Streets</td>
<td>Monday, 16</td>
<td>2:52 – 2:57 pm</td>
<td>3 metres</td>
</tr>
<tr>
<td>Hunter Street (North)</td>
<td>North</td>
<td>Pitt and Castlereagh Streets</td>
<td>Monday, 16</td>
<td>3:03 – 3:08 pm</td>
<td>3 metres</td>
</tr>
<tr>
<td>Hunter Street (South)</td>
<td>South</td>
<td>Elizabeth and Castlereagh Streets</td>
<td>Monday, 16</td>
<td>3:12 – 3:17 pm</td>
<td>2.5 metres</td>
</tr>
<tr>
<td>Macquarie Street (West)</td>
<td>West</td>
<td>Hunter and Bent Streets</td>
<td>Monday, 16</td>
<td>3:26 – 3:31 pm</td>
<td>3 metres</td>
</tr>
<tr>
<td>Location</td>
<td>Date</td>
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<td>Pedestrians Counted</td>
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</tr>
<tr>
<td>Phillip Street (East)</td>
<td>Monday, 16 October 2006</td>
<td>3:35 – 3:40 pm</td>
<td>3 metres</td>
<td>13</td>
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</tr>
<tr>
<td>Castlereagh Street (West)</td>
<td>Monday, 16 October 2006</td>
<td>3:49 – 3:54 pm</td>
<td>3 metres</td>
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</tr>
<tr>
<td>Castlereagh Street (East)</td>
<td>Monday, 16 October 2006</td>
<td>4:00 – 4:05 pm</td>
<td>3 metres</td>
<td>29</td>
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<tr>
<td>Elizabeth Street (West)</td>
<td>Monday, 16 October 2006</td>
<td>4:10 – 4:15 pm</td>
<td>3.5 metres</td>
<td>37</td>
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</table>
Park Street (North)
Between Pitt and Castlereagh Streets

Date: Monday, 16 October 2006
Time: 4:20 – 4:25 pm
Effective Path Width: 5.5 metres
Pedestrians Counted: 136

Pitt Street (East)
Between Park and Market Streets

Date: Monday, 16 October 2006
Time: 4:30 – 4:35 pm
Effective Path Width: 3 metres
Pedestrians Counted: 124

George Street (East)
Between Park and Market Streets

Date: Monday, 16 October 2006
Time: 4:39 – 4:44 pm
Effective Path Width: 4 metres
Pedestrians Counted: 113

York Street (East)
Between Market and Druitt Streets

Date: Monday, 16 October 2006
Time: 4:50 – 4:55 pm
Effective Path Width: 4 metres
Pedestrians Counted: 89
<table>
<thead>
<tr>
<th>Location</th>
<th>Street Name</th>
<th>Between</th>
<th>Date</th>
<th>Time</th>
<th>Effective Path Width</th>
<th>Pedestrians Counted</th>
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</thead>
<tbody>
<tr>
<td>Clarence Street (West)</td>
<td></td>
<td>Market and Druitt Streets</td>
<td>Monday, 16 October 2006</td>
<td>4:57 – 5:02 pm</td>
<td>2 metres</td>
<td>16</td>
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<tr>
<td>York Street (East)</td>
<td></td>
<td>Market and King Streets</td>
<td>Thursday, 19 October 2006</td>
<td>9:31 – 9:36 am</td>
<td>3 metres</td>
<td>71</td>
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<tr>
<td>Market Street (South)</td>
<td></td>
<td>Clarence and Kent Streets</td>
<td>Thursday, 19 October 2006</td>
<td>9:44 – 9:49 am</td>
<td>6.5 metres</td>
<td>79</td>
</tr>
<tr>
<td>Kent Street (West)</td>
<td></td>
<td>Market and King Streets</td>
<td>Thursday, 19 October 2006</td>
<td>9:56 – 10:01 am</td>
<td>2.5 metres</td>
<td>24</td>
</tr>
<tr>
<td>Street Name</td>
<td>Between</td>
<td>Date</td>
<td>Time</td>
<td>Effective Path Width</td>
<td>Pedestrians Counted</td>
<td></td>
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</tr>
<tr>
<td>King Street (North)</td>
<td>Clarence and Kent Streets</td>
<td>Thursday, 19 Oct 06</td>
<td>10:04 – 10:09 am</td>
<td>2.5 metres</td>
<td>41</td>
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</tr>
<tr>
<td>Sussex Street (East)</td>
<td>King and Market Streets</td>
<td>Thursday, 19 Oct 06</td>
<td>10:12 – 10:17 am</td>
<td>3 metres</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Sussex Street (West)</td>
<td>Market and Druitt Streets</td>
<td>Thursday, 19 Oct 06</td>
<td>10:37 – 10:42 am</td>
<td>3 metres</td>
<td>8</td>
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</tr>
<tr>
<td>Sussex Street (West)</td>
<td>Druitt and Bathurst Streets</td>
<td>Thursday, 19 Oct 06</td>
<td>10:49 – 10:54 am</td>
<td>2.5 metres</td>
<td>6</td>
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<tr>
<td>Street</td>
<td>Between</td>
<td>Date</td>
<td>Time</td>
<td>Effective Path Width</td>
<td>Pedestrians Counted</td>
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<tr>
<td>Sussex Street (East)</td>
<td>Bathurst and Liverpool Streets</td>
<td>Thursday, 19 October 2006</td>
<td>11:00 – 11:05 am</td>
<td>2 metres</td>
<td>30</td>
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</tr>
<tr>
<td>Liverpool Street (North)</td>
<td>Sussex and Kent Streets</td>
<td>Thursday, 19 October 2006</td>
<td>11:08 – 11:13</td>
<td>2.5 metres</td>
<td>30</td>
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<tr>
<td>George Street (East)</td>
<td>Liverpool and Bathurst Streets</td>
<td>Thursday, 19 October 2006</td>
<td>11:19 – 11:24 am</td>
<td>3.5 metres</td>
<td>145</td>
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<tr>
<td>Liverpool Street (South)</td>
<td>Pitt and Castlereagh Streets</td>
<td>Thursday, 19 October 2006</td>
<td>11:31 – 11:36 am</td>
<td>2 metres</td>
<td>78</td>
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<tr>
<td>Location</td>
<td>Between</td>
<td>Date</td>
<td>Time</td>
<td>Effective Path Width</td>
<td>Pedestrians Counted</td>
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<tr>
<td>Castlereagh Street (West)</td>
<td>Between Liverpool and Bathurst Streets</td>
<td>Thursday, 19 October 2006</td>
<td>11:41 – 11:46 am</td>
<td>2 metres</td>
<td>49</td>
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<tr>
<td>Bathurst Street (South)</td>
<td>Between Castlereagh and Pitt Streets</td>
<td>Thursday, 19 October 2006</td>
<td>11:49 – 11:54 am</td>
<td>2.5 metres</td>
<td>60</td>
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<tr>
<td>Elizabeth Street (West)</td>
<td>Between Park and Bathurst Streets</td>
<td>Thursday, 19 October 2006</td>
<td>2:17 – 2:22 pm</td>
<td>3.5 metres</td>
<td>28</td>
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<tr>
<td>Pitt Street (West)</td>
<td>Between Bathurst and Liverpool Streets</td>
<td>Thursday, 19 October 2006</td>
<td>2:26 – 2:31 pm</td>
<td>3 metres</td>
<td>109</td>
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</tr>
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</table>
**George Street (East)**
Between Bathurst and Park Streets

Date: Thursday, 19 October 2006  
Time: 2:37 – 2:42 pm  
Effective Path Width: 3.5 metres  
Pedestrians Counted: 241

**Bathurst Street (North)**
Between Kent and Sussex Streets

Date: Thursday, 19 October 2006  
Time: 2:50 – 2:55 pm  
Effective Path Width: 2.5 metres  
Pedestrians Counted: 29

**Kent Street (West)**
Between Druitt and Bathurst Streets

Date: Thursday, 19 October 2006  
Time: 2:58 – 3:03 pm  
Effective Path Width: 2.5 metres  
Pedestrians Counted: 31

**Bent Street (North)**
Between O’Connell and Gresham Streets

Date: Thursday, 19 October 2006  
Time: 3:33 – 3:38 pm  
Effective Path Width: 2.5 metres  
Pedestrians Counted: 24
<table>
<thead>
<tr>
<th>Street (Location)</th>
<th>Between</th>
<th>Date</th>
<th>Time</th>
<th>Effective Path Width</th>
<th>Pedestrians Counted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bligh Street (South)</td>
<td>Bent and Hunter Streets</td>
<td>Thursday, 19 October 2006</td>
<td>3:43 – 3:48 pm</td>
<td>2.5 metres</td>
<td>45</td>
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<tr>
<td>Young Street (West)</td>
<td>Bridge and Alfred Streets</td>
<td>Thursday, 19 October 2006</td>
<td>3:53 – 3:58 pm</td>
<td>2 metres</td>
<td>25</td>
</tr>
<tr>
<td>Phillip Street (West)</td>
<td>Bent and Bridge Streets</td>
<td>Thursday, 19 October 2006</td>
<td>4:01 – 4:06 pm</td>
<td>2 metres</td>
<td>39</td>
</tr>
<tr>
<td>George Street (East)</td>
<td>Angel Lane and Hunter Street</td>
<td>Thursday, 19 October 2006</td>
<td>9:27 – 9:32 am</td>
<td>3 metres</td>
<td>72</td>
</tr>
<tr>
<td>Street</td>
<td>Between</td>
<td>Date</td>
<td>Time</td>
<td>Effective Path Width</td>
<td>Pedestrians Counted</td>
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</tr>
<tr>
<td>Barrack Street (East)</td>
<td>George and York Streets</td>
<td>Thursday, 19 October 2006</td>
<td>9:35 – 9:40 am</td>
<td>3 metres</td>
<td>26</td>
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<tr>
<td>Erskine Street (North)</td>
<td>Kent and Clarence Streets</td>
<td>Thursday, 19 October 2006</td>
<td>9:47 – 9:52 am</td>
<td>2 metres</td>
<td>7</td>
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<tr>
<td>Sussex Street (West)</td>
<td>Erskine and King Streets</td>
<td>Thursday, 19 October 2006</td>
<td>9:55 – 10:00 am</td>
<td>3 metres</td>
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<tr>
<td>Erskine Street (North)</td>
<td>Sussex and Lime Streets</td>
<td>Thursday, 19 October 2006</td>
<td>10:04 – 10:09 am</td>
<td>3 metres</td>
<td>3</td>
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<tr>
<td>Street</td>
<td>Between Streets</td>
<td>Date</td>
<td>Time</td>
<td>Effective Path Width</td>
<td>Pedestrians Counted</td>
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</tr>
<tr>
<td>Lime Street (East)</td>
<td>Erskine and Cuthbert Streets</td>
<td>Thursday, 19 Oct</td>
<td>10:10 – 10:15 am</td>
<td>2 metres</td>
<td>5</td>
</tr>
<tr>
<td>Clarence Street (West)</td>
<td>Erskine and King Streets</td>
<td>Thursday, 19 Oct</td>
<td>10:22 – 10:27 am</td>
<td>3 metres</td>
<td>24</td>
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<td>York Lane (West)</td>
<td>Barrack and Erskine Streets</td>
<td>Thursday, 19 Oct</td>
<td>10:28 – 10:33 am</td>
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<tr>
<td>York Street (East)</td>
<td>Erskine and Margaret Streets</td>
<td>Thursday, 19 Oct</td>
<td>10:35 – 10:40 am</td>
<td>3 metres</td>
<td>30</td>
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<tr>
<td>Street</td>
<td>Between</td>
<td>Date</td>
<td>Time</td>
<td>Effective Path Width</td>
<td>Pedestrians Counted</td>
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</tr>
<tr>
<td>Kent Street (West)</td>
<td>Margaret and Erskine Streets</td>
<td>Thursday, 19 Oct</td>
<td>10:43 – 10:48 am</td>
<td>3 metres</td>
<td>9</td>
</tr>
<tr>
<td>Clarence Street (East)</td>
<td>Margaret and Jamieson Streets</td>
<td>Thursday, 19 Oct</td>
<td>10:50 – 10:55 am</td>
<td>3 metres</td>
<td>16</td>
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<tr>
<td>Margaret Street (North)</td>
<td>York and Carrington Streets</td>
<td>Thursday, 19 Oct</td>
<td>10:58 – 11:03</td>
<td>3 metres</td>
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<tr>
<td>Jamieson Street (North)</td>
<td>Margaret Lane and George Street</td>
<td>Thursday, 19 Oct</td>
<td>11:06 – 11:11 am</td>
<td>3 metres</td>
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<tr>
<td>Street Name</td>
<td>Between Streets</td>
<td>Date</td>
<td>Time</td>
<td>Effective Path Width</td>
<td>Pedestrians Counted</td>
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<tr>
<td>Grosvenor Street (North)</td>
<td>George and Harrington Streets</td>
<td>Thursday, 19 Oct</td>
<td>11:13 – 11:18 am</td>
<td>3 metres</td>
<td>12</td>
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<tr>
<td>Gloucester Street (West)</td>
<td>Grosvenor and Essex Streets</td>
<td>Thursday, 19 Oct</td>
<td>11:20 – 11:25 am</td>
<td>2 metres</td>
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</tr>
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<td>Cumberland Street (West)</td>
<td>Essex and Grosvenor Streets</td>
<td>Thursday, 19 Oct</td>
<td>11:27 – 11:32 am</td>
<td>2 metres</td>
<td>0</td>
</tr>
<tr>
<td>Carrington Street (West)</td>
<td>Margaret and Wynyard Streets</td>
<td>Thursday, 19 Oct</td>
<td>11:45 – 11:50 am</td>
<td>3 metres</td>
<td>30</td>
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</table>