

Sydney 2030: A City Safe for Children

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ABSTRACT

The City of Sydney's vision for 2030 is to develop a city safe for children. As suggested by the internationally renowned urban architect, Jan Gehl, a city safe for children would mean a city safe for all.

A safe city is one where children can play, interact and travel safely within the city's environment. A safer environment is one that provides appropriate conditions for children to walk, ride and travel around with minimal risk.

The City of Sydney has embarked on a long term program that will address pedestrian amenity and safety through urban design and transport management strategies.

Road safety is a major factor in achieving this vision for *Sustainable Sydney 2030*. The City of Sydney's Road Safety Programs will be closely aligned to the needs of the City's population over the next two decades. The objective is to provide long term sustainable programs that will develop a road safety culture to encourage road safety from birth through to adulthood.

This paper will provide an overview of the current research on facilitating and promoting pedestrian and cyclist movement in a city environment, and plans to achieve the *Sustainable Sydney 2030* vision, including the role of road safety strategic planning.

BACKGROUND

The City of Sydney covers 26 square kilometres of the most densely developed part of Australia. Like many cities around the world, Sydney is experiencing increasing levels of motor vehicle traffic. Like many cities, the City of Sydney has collected a lot of data on motor vehicle movement and little on pedestrian movement. It is not until recent years urban planners from around the world realised that pedestrians have been largely invisible in the planning process in many international cities.

The City of Sydney is home to 158,000 residents and global corporations with 360,000 jobs. On an average day it is estimated that there are over 600,000 people in the City including visitors and students. By 2030 it is estimated that there will be 70,000 more residents and 90,000 more workers.

According to the 2006 Census, there has been a 21% increase in population with 27,500 more residents since 2001 with many households not owning a car. There are more people living and working in the City, with up to 34% of these residents walking to work. The number of households without a vehicle has dramatically increased since 2001. The number of people walking to work has increased, however, the number of vehicles driving within and through the City and on the arterial road system continues to increase.

Approximately 7% of residents in the City of Sydney are children under the age of 15 years. Since 2001, there has been an 11% increase in the number of children under the age of five years and a dramatic decrease in children aged 5 to 19 years (18% decrease of 5 to 9 year olds; 27% decrease in 10 to 14 year olds; 3.5% decrease in 15 to 19 year olds).

Sustainable Sydney 2030 is the City of Sydney's long term vision for a sustainable future with city transport one of the key focus areas for this vision. The City of Sydney aspires to be a "connected City" connecting people and places by developing efficient transport infrastructure and services to and within the city. There will be a strong emphasis on encouraging walking and cycling as the first choice for people to move about the city.

ISSUES

Roads in urban areas and the inner city are not just for motor vehicle traffic, they are also for the movement of pedestrians and cyclists.

Potential conflict between pedestrians and vehicles

With over 600,000 people in Sydney on a typical weekday pedestrians and motor vehicles are competing for space. Pedestrians represent a high proportion of road injuries in the City of Sydney, accounting for 28% of road injuries in 2004 compared to 11% for the rest of the metropolitan area.

With an increased number of residents walking to work and more vehicles travelling within and through the City, there is a concern of greater conflict between pedestrians and vehicles.

Child development and road safety

Child development affects children and young people's ability to be safe in traffic environments. Young children are small and are difficult for drivers to see. They are also fragile, therefore injuries are more likely to be severe. Children are developing their peripheral vision and the ability to identify the direction of sound, which impacts their ability to observe traffic conditions.

Young children are unable to judge the speed and distance of moving vehicles, limiting their ability to identify how long it will take them to cross the road safely. Young drivers have a tendency to underestimate perceived risks, which puts them at greater risk of being involved in road accidents.

The increased number of City residents under the age of 5 years demonstrates the need to develop campaigns to raise awareness of road safety issues for young children.

The decline in the number of City residents aged 5 to 19 years suggests that parents may have moved to a different area because the City is perceived to be an inappropriate environment for children. It seems that the City is perceived to be unfriendly for children.

Children as pedestrians

Figure 1 shows the number of pedestrian accidents that involved children up to the age of 19.

Overall, the number of pedestrian accidents involving children up to 19 years of age has been declining over the 2001 to 2005 period. This is in line with the general trend for this period. However there are still more than fifty young people injured each year.

The majority of these accidents involve children aged 15 to 19 years. There are a number of possible reasons why children at this age group are more likely to be in pedestrian accidents:

- These children are more independent and are more likely to be in a traffic environment without adult supervision;
- Many cannot drive or do not have access to a vehicle;
- A small number of the children in this age group work in the City (they represent 3% of the entire workforce in the City), and a large number of them study in the City. This makes this age group more likely to walk in the City; and
- There are more children in this age group who live in the City of Sydney, compared to other age groups.

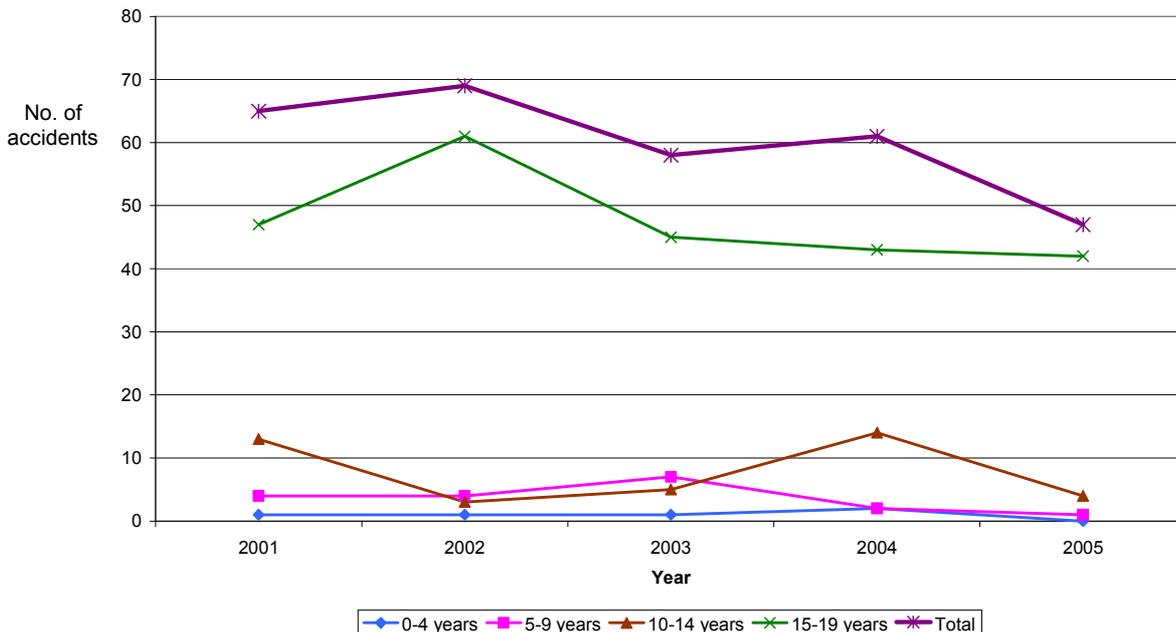


Figure 1. Pedestrian accidents by age (2001-2005)

Figure 2 shows a break down of the available data to indicate when accidents involving children as pedestrians occur.

Children under 15 years are more likely to be involved in pedestrian accidents during the day time on any given day of the week, whilst children aged 15 to 19 years are

more likely to be involved during the afternoons and late evenings to the early hours of the mornings on Wednesdays, Fridays and Saturdays.

This relates to the activities undertaken by children in the age groups. Under 10 most children are supervised as they travel around the City. From 10 to 14 many children are still supervised to some degree. The peak time for accidents is during the afternoon which corresponds with school leaving times. From 15 onwards children have a desire for more entertainment and distances travelled may also become greater. Visiting friends after school until later in the day and going to a variety of functions, or just 'hanging out' all become part of this age groups activities.

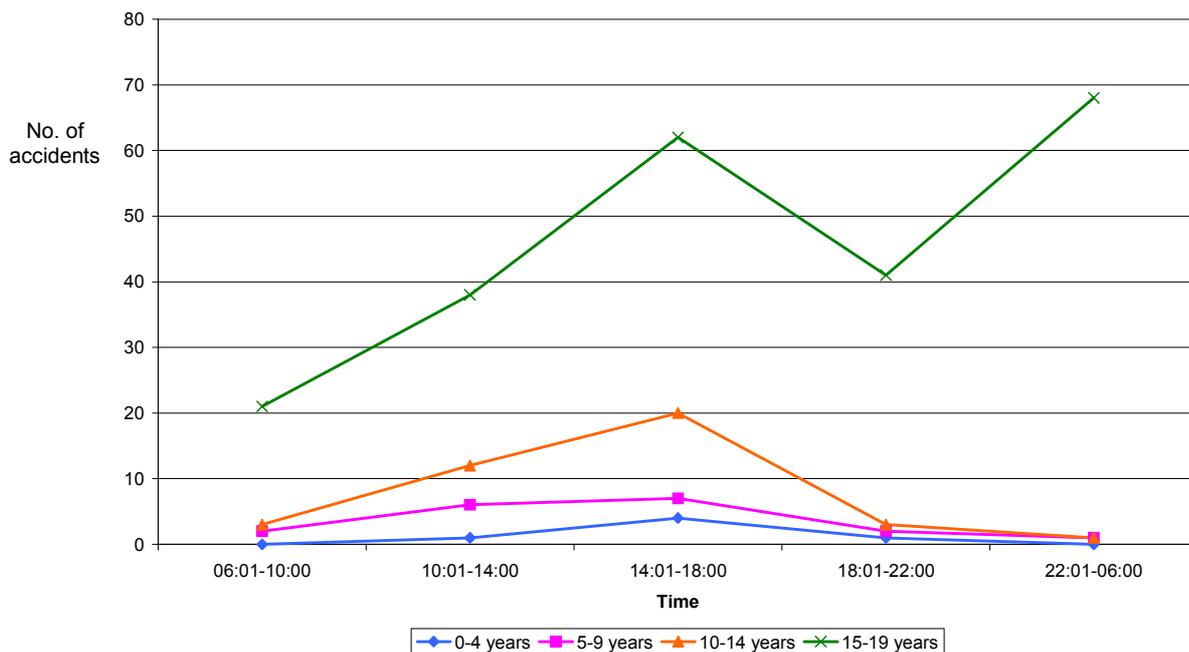


Figure 2. Pedestrian accidents by age and time (2001-2005)

Young drivers

While the City has a very low level of car ownership there will still be a demand for young people wanting to drive. Young people in the City generally have the same desire to drive as those outside of an urban and inner-city environment. In addition many young people travel into the CBD as workers or for shopping and entertainment.

Figure 3 shows that there has been a decline in young drivers being involved in car accidents, however, they are still highly represented in the total number of crashes.

Figure 4 shows that on average around 45 crashes each year involve a 19 year old driver.

These high numbers of crashes are possibly because young people are still developing their ability to perceive risks and hazards and have limited driving experience. This is generally reflected in crash data throughout New South Wales and Australia as a whole and indicates that although car ownership is relatively low there is still a safety issue that needs to be addressed.

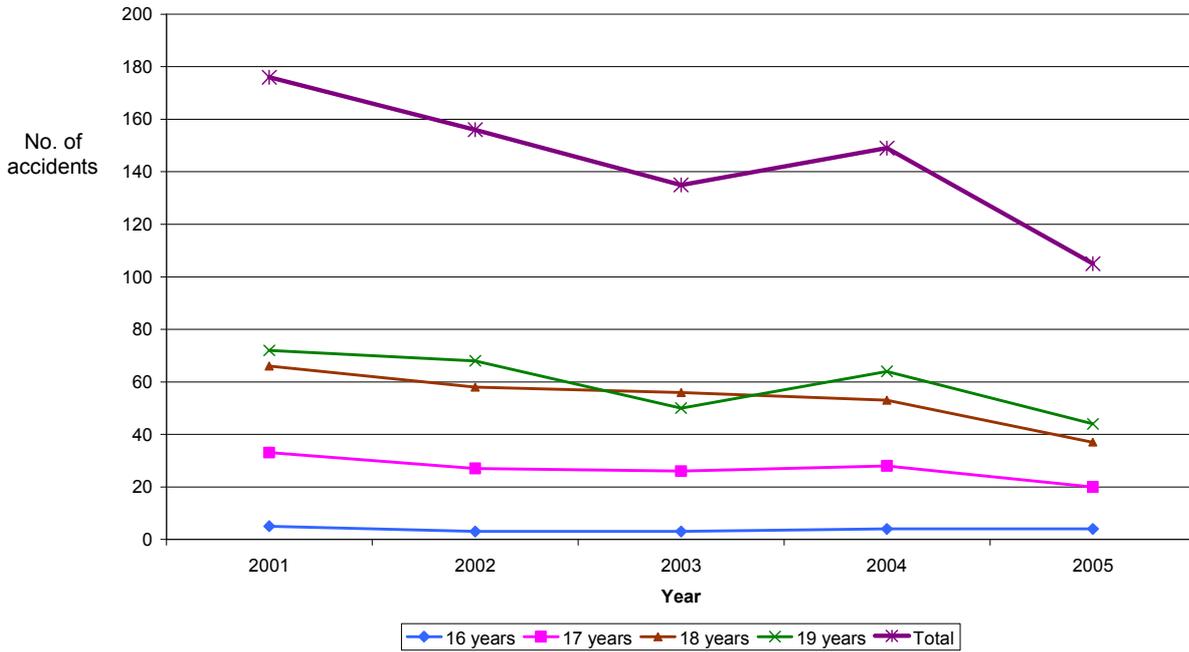


Figure 3. Car accidents involving young drivers - by age (2001-2005)

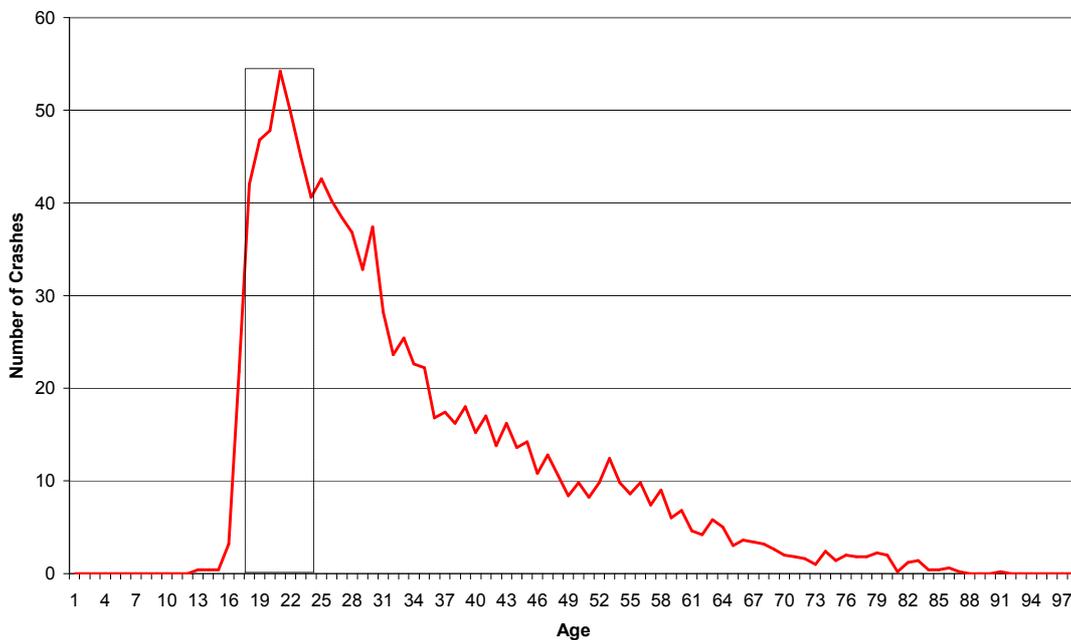


Figure 4. Car accidents per year by driver's age (2001-2005)

Speed in the City

There are different speed limits around the City, from 10km/h in Shared Zones to 50km/h Urban Speed Limit. For the Inner-City and CBD environment 50km/h is perceived as inappropriate and that the speed limit should be reduced. Police have observed that some motorists speed at traffic signals in order to avoid a red signal, or as soon as they have the green signal. This creates high risk situations for pedestrians, particularly those who are less mobile, such as young children, the elderly and people with disabilities.

The City of Sydney supports changing the speed limit in the Sydney CBD to 40 km/h as part of the Road and Traffic Authority of NSW's high pedestrian area program. With the long shopping strips, entertainment areas and areas of large numbers of workers it is clear that the Sydney CBD needs lower speed limits. A lower speed limit gives a signal to drivers that there are special reasons to slow down – such as pedestrians and cyclists. Lower speeds give drivers, pedestrians and cyclists more time to react in a potential collision situation and enables drivers to stop in a much shorter distance.

Research in Australia and internationally shows that a maximum of 30 km/h is desirable if we are to reduce the incidence of serious injuries or death to pedestrians and cyclists. However, for New South Wales the Roads and Traffic Authority has set 40 km/h as appropriate speed for areas of high pedestrian activity.

INTERNATIONAL EXAMPLES OF ADDRESSING PEDESTRIAN NEEDS

Many international cities have experienced a continued increase in motor vehicle traffic with consequent negative impacts on pedestrian access and safety. Since the introduction of motor vehicles, urban planners in many international cities have focused on facilitating motor vehicle movements while pedestrians have been neglected. Furthermore, some cities seem to be designed as places to work, rather than places to visit, for recreation or to live. As a result, some of these cities do not cater for families with children, the elderly, or the disabled.

In recognition of their failure to accommodate pedestrians and the needs of different groups in society, some cities have conducted studies on how to improve pedestrian facilities and make their city safer and more sustainable by reducing motor vehicle traffic and promote walking, cycling and public transport.

The following are examples of studies conducted in some international cities aiming to improve pedestrian facilities and make their city safer and more sustainable.

Copenhagen

An increase in motor vehicle traffic in the 1950's and 1960's caused road safety concerns due to higher conflicts between motor vehicles and pedestrians on the narrow city streets of Copenhagen and degradation of the urban environment. Improvement to pedestrian facilities in the City of Copenhagen began in 1962, when its main street, Strøgen, was turned into a pedestrian only street. Improvements to the city's pedestrian environment were implemented gradually over time, such as more pedestrian only and pedestrian priority streets.

In order to make these improvements, the City of Copenhagen needed to reduce the amount of traffic within the city by:

- Reducing the number of lanes on arterial roads into the city, using the space for bus and bicycle lanes instead;
- Gradual reduction of parking space in the city (2-3% per year); and
- Providing new metro mass transit lines to provide better access to the inner city from outer areas.

The city is now attractive for a variety of user groups by developing spaces and activities to meet their needs with flow on economic benefits to businesses.

The strategies used by the City of Copenhagen proved successful. The amount of pedestrian and cyclist movement has increased over the years due to providing a safer environment, through the reduction of motor vehicle traffic volumes, and developing an attractive city that encourages walking and cycling.

London

In 2004, London commissioned a public spaces study to examine selected traffic, pedestrian and cycling environments in order to find solutions to achieve a better balance between the different road users and improved the urban environment.

The general increase of motor vehicle traffic in Greater London has led to poorer conditions for pedestrians and cyclists, despite improvements in central London as a result of the congestion charge.

The study identified the following issues:

- Motor vehicles dominate the streetscape, conflicting with other road users;
- Poor walking conditions for pedestrians;
- Pedestrians often crossing roads away from designated facilities, also when the lights were against them; and
- Poor conditions for cyclists and little awareness of cyclists' needs by other users.

These issues are compounded by the lack of data on pedestrian movement, exposing the fact that pedestrians have been largely invisible in the planning process prior to 2004.

London's pedestrian facilities were inadequate for the levels of pedestrian movement in the city. There are various features on the streets and paths that posed potential risks to pedestrians including:

- Crowding on footpaths and narrow footpaths
- Guard railings and inappropriately placed street furniture on footpaths creating an obstacle course for pedestrians
- Difficult pedestrian crossings and lack of connections
- Poor access for parents with strollers and people with limited mobility.

Numerous road safety campaigns have been implemented in London to advise pedestrians on safety and how to behave in traffic. All these campaigns serve a good purpose as they put pedestrian safety on the agenda. However, these campaigns do not produce solutions to improve walking conditions and fail to eliminate some of the problems such as the lack of facilities which are reasons for pedestrians putting themselves at risk.

As a result of the study, London is recommended to create a better balance between all road users by:

- Continuing with the congestion charge;
- Reducing through traffic;
- Creating new patterns for goods deliveries;
- Encouraging public transport and walking;
- Improving conditions for walking;
- Creating pedestrian streets and pedestrian priority streets where many people already walk; and
- Reducing the amount of parking spaces within the city.

Reduction in motor vehicle traffic was perceived as important because if there is too much traffic, the environment deteriorates, the space for pedestrians becomes limited, more accidents happen and results in increased fears for pedestrians.

ADDRESSING PEDESTRIAN NEEDS IN AUSTRALIA

Melbourne

In 1994, a study of public spaces and public life in the City of Melbourne, conducted by the internationally renowned urban architect, Jan Gehl, and his team identified the city as an unpleasant environment for people. The City of Melbourne was criticised for having an empty and useless city centre. People would go to the city centre during the business hours. However the city centre was a deserted place after hours. There had been a downward trend in CBD commercial activity and employment prior to 1994.

Jan Gehl's study offered the City of Melbourne information on the types of activity that occurred in the city's public places and set targets for attracting more pedestrians to the city.

In 1994, the recommendations for the City of Melbourne were to improve the pedestrian network and encourage pedestrian activity. The strategies to improve the pedestrian network include:

- Develop better links between to the city centre;
- Introduce wider footpaths;
- Relieve overcrowding on the footpaths of smaller streets and attract more activity to the wider streets; and
- Offer good quality pedestrian access and high amenity.

The strategies to encourage pedestrian activity include:

- Make the public spaces attractive;
- Increase the city's ornamental and feature lighting;
- Ensure that valuable historic environments are retained, restored, respected and interpreted;
- Provide easy, safe access for people with disabilities;
- Increase the number and seating capacity of outdoor cafes to promote street activity;
- Discourage through traffic;

- Widen footpaths and convert centre-of-road parking into safer, more attractive medians;
- Develop a lively city at night; and
- Increase the number of festivals, events and street markets.

Since the study was conducted in 1994, the City of Melbourne has implemented many changes to address the problems. In 2004, Jan Gehl and his team conducted a follow up study and identified the following successes achieved by the City of Melbourne:

- A larger residential community - 830% increase in the number of residents in the City of Melbourne.
- Improved streets for public life - the number of pedestrian priority public space has increased, the laneways are more attractive and accessible, and the footpaths have been widened.
- New squares, promenades and parks - there was 71% more space for people and activities on streets and squares in 2004, compared to 1994.
- A revitalised network of lanes and arcades - accessible and active lanes, arcades and alleys increased from 300 metres to 3.4 kilometres.
- More places to sit and pause - 117% increase in the number of outdoor seats since 1993.
- A 24-hour city with more attractions and places to go - new major attractions, such as the Melbourne Exhibition Centre, the Crown Casino, the Melbourne Museum, and the Melbourne Aquarium. Evening and weekend activities and attractions have also increased, creating a livelier and safer city, day and night.
- Better cycle and public transport access - on-road cycle lanes have been established on many roads entering the CBD with a network of high quality off-road dedicated cycle paths along rivers, bay and rail corridors. Tram travel and safety improved by the establishment of tram 'superstops' at key destinations and interchange points. There are plans to improve streets adjacent to railway stations in order to better cope with the high pedestrian activity around those areas.

The study conducted in 2004 suggests that although the City of Melbourne has achieved remarkable success since 1994, it can also do more to:

- Expand and improve the pedestrian network;
- Improve the cycle network;
- Develop better links to public transport;
- Reduce traffic volumes;
- Upgrade streets adjacent to major transport and retail corridors;
- Improve linkages to outer city areas; and
- Extend city improvements to adjacent neighbourhoods.

The City of Sydney

The City of Sydney has identified pedestrian needs as a key to improving the City and is a prime element of *Sustainable Sydney 2030*.

Walking is a sustainable form of transport that is good for the environment and also has significant health benefits in addressing obesity, cardiovascular and other non-communicative diseases which are becoming more prevalent in modern society.

The ease and comfort that pedestrians are able to move about the City of Sydney is a major issue for the City to address especially for people with disabilities.

Gehl Architects from Denmark have been engaged to recommend measures to transform the City's public spaces. This involves undertaking extensive public space and public life analysis to form a qualitative and quantitative view of how people use public areas. Data has been collected on people and activities taking place and the characteristics including weather conditions and the quality of the public space together with physical features, seating, lighting, pavement and signage.

This work will provide the basis to identify solutions for specific public spaces and associated implementation programs and also guide and inform the City as it improves the pedestrian network.

Gehl Architects have developed the following 12 quality criteria in the design of public places:

- Road safety – pedestrian facilities etc;
- Safe from crime – passive surveillance;
- Climate protection – trees, awnings etc;
- Space for walking – footway width, uncluttered etc;
- Stopping opportunities;
- Seating opportunities;
- Lighting and opportunities for views and vistas;
- Noise free environment to allow talking etc;
- Inviting people activity and play;
- Scale – human dimensions;
- Use positive aspects of climate (shade in summer and solar access in winter), and
- Architecturally well designed.

The City is currently awaiting the initial findings of Jan Gehl's study.

ROAD SAFETY AND SUSTAINABLE SYDNEY 2030

Long term strategic planning is necessary to develop a safety culture approach to life. Training young children to become safety conscious adults is considered one way to develop this culture. By teaching children adults also learn. As safety conscious adults in 2030, parents and others will then be well placed to pass on this mindset to the young people of that time.

To successfully develop this safety culture, the City of Sydney will target two key community groups – the residents and the working community, which makes up 600,000 people in the City every day.

Sustainable Sydney 2030 is a commitment to Sydney's future, ensuring the next generation inherits a city that is liveable, workable, attractive and sustainable. The City can provide information to help educate parents and children in road safety and promote the use of safer and more sustainable transport modes. The community can be engaged through community groups, child care centres, schools and other Council facilities such as libraries.

The City also aims to promote road safety through major city businesses. Many City businesses employ several thousand employees and have well developed employee care programs such as child care facilities and professional development programs. By law they all have Occupational Health and Safety programs. Linking road safety into these programs and working more with City businesses there is potential for road safety programs to be accessed by up to a quarter of a million people who work in the City.

Case study

An example of a CBD business working with the City is Westpac Bank on Kent Street, Sydney. A new building was constructed on Kent Street in 2005 to accommodate 5,000 employees. Access to the new building is from a mid-block entrance between Erskine Street and Napoleon Street. Many employees travel to work via Wynyard Station and use a narrow underground footway from the station to Kent Street where the footway opens on to Kent Street across a four-lane road opposite the Westpac entrance. The pedestrian desire line created an unsafe high risk crossing situation. The City of Sydney worked with Westpac and the RTA to install a signalised crossing at this location.

In the process the City and Westpac developed a very good working rapport. A large organisation such as this has child care facilities and many staff have children learning to drive. By liaising with the City's road safety officers Westpac can include road safety as part of their employee care commitment.

Action plans and programs

From 2007 the City's road safety action plans and projects are being developed with long-term sustainability as the guiding factor. Road Safety Officers provide input on urban planning and development of transport issues.

Cities around the world have identified that controls on motor vehicle usage are essential strategies to make their city pedestrian and bicycle friendly and safe.

To improve safety for both pedestrians and cyclists, the City of Sydney will continue to lobby for lower speed limits as the City develops its pedestrian and cycling plans. The City of Sydney has requested a reduced 40 km/h speed limit for the Sydney CBD.

The City will also propose to increase the number of Shared Zones, with a 10 km/h speed limit, particularly in the laneways that link main street and access buildings around the city. Many of these laneways can be developed into effective pedestrian areas providing improved pedestrian safety and amenity. In addition there are inner-city roads currently signed as 60 km/h that would benefit from a reduction to a 50 km/h urban speed limit.

Outside of the Sydney CBD there are many areas that will benefit from reduced traffic impact. To achieve this the City of Sydney is implementing an extensive program of Local Area Traffic Management schemes throughout the Local Government Area. These schemes will make residential areas much better in terms of pedestrian and cycling amenity and help to improve public transport access.

Child road safety will become increasingly important as the census data shows more children are being born in the City. The City of Sydney accommodates around 36 schools of which 25 cover the ages 5-12 (Kindergarten to year 6). While the in-

school road safety curriculum is not within the scope of work for the City's Road Safety Officers, the City is working with agencies such as the NSW Department of Education and Training to influence the way children travel to school. These programs also include working with the Sydney South West Area Health Service and TravelSmart. This generally involves encouraging parents and children to use of public transport and to walk.

Over a longer term, the objective is to get parents to make adjustments to their travel arrangements for the benefit of their children in terms of health and safety. This in turn will lead to an improvement in the parents' health and safety. There is also likely to be cost saving benefits as we encourage people to reduce their reliance on using motor vehicles where alternatives are available.

The census data shows that the largest group representing children is that of 15 to 19 year olds. This translates into a continuing demand for young driver education. Whilst the City will continue to work towards reducing the level of car ownership there will still be a demand from young people to want to drive motor cars.

The City has programs in place that assists young drivers to get through the Graduated Licensing Scheme where their personal situation does not give them access to a suitable car. The key objective of these programs is to help young people, especially from the Aboriginal community, to be better equipped to access employment. The road safety outcome is the development of safer drivers who in turn can influence other young drivers.

Prioritising road users

A clearly defined hierarchy of road user priorities is an essential tool in transport planning. If road users are prioritised by the type or mode then the environment can be enhanced to cater for those with the greater needs. In an inner-city and CBD environment, pedestrians should be given the highest priority, followed by cyclists and public transport. This will have potential road safety benefits, especially for children.

Urban design and transport demand management strategies are key focus areas that underpin the *Sustainable Sydney 2030* strategy. Road Safety Officers working with the strategic planning team ensure road safety is considered from the strategy and design stage to develop a safer city.

The City of Sydney is a signatory to the WALK 21 *International Charter for Walking* (WALK21, July 2006) and will work to provide an improved pedestrian environment through better designed and managed spaces and places for people. More open spaces and better pedestrian amenity will give people a better sense of ownership of inner-city areas. People will be encouraged to walk or cycle as a first choice to travel around the City as it becomes more accessible and safe.

It is anticipated that the initial work of Jan Gehl in Central Sydney will lead to Sydney being a place that is desirable for people to live, work and visit as a matter of choice because it offers places that are comfortable, safe and enjoyable. *Sustainable Sydney 2030* will expand this to the growing areas of the City, such as Green Square and other developments that encourage more residents and places to work and visit. This work will help to transform Sydney into an accessible world class city similar to Paris, London or New York.

CONCLUSION

Reducing the demand for non-essential motor vehicles, promoting the use of sustainable transport and improving the quality and safety of public spaces throughout the City of Sydney will provide great improvements for pedestrian safety. This will be further enhanced by long term road safety education and promotion programs aimed at all sectors but with emphasis on the people who have made a choice to live in the City. They will represent the families that will grow up within a culture of safe living and safe travel.

The working community will be aware of the changes that will take place, with community consultation involving businesses and workers. Many businesses are aware that an improved environment is desirable for them as it makes the working life of all staff more comfortable and this will enhance productivity and make it enjoyable to work and live in the City.

The City is awaiting the report from Jan Gehl's Public Spaces and Public Life study which will guide the City towards the *Sustainable Sydney 2030* vision and act as a catalyst for improvement in pedestrian amenity and safety. This report will also help inform the Pedestrian Strategy and Action Plan and influence the City's Road Safety Strategy, Cycle Strategy and Integrated Transport Strategy.

Sustainable Sydney 2030 provides a unique opportunity for the City of Sydney to view road safety holistically, by integrating road safety planning, education and promotion with strategic planning. The outcome will be a city safer for children (and therefore everyone else) by 2030, where there is a general safety culture amongst all residents, workers and visitors. Road safety will be well-integrated into the City's overall policies and plans, leading to safer people and a safer environment.

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