wollongong
city of innovation

CITY OF WOLLONGONG

Pedestrian Plan
2017-2021

Contents

Summary

Walking is the cheapest, most equitable and sustainable form of transport. Despite walking's numerous health, social, economic and environmental benefits, travel and movement data has shown that over the past decade, walking rates in Wollongong have been in decline and car use has increased. Council is committed to the planning and the delivery of policy, services and infrastructure that can help to reverse this trend.

The City of Wollongong Pedestrian Plan sets out Council's vision for walking and recommends a range of strategies to address key walking issues facing the city, and contributes to the goal in the *Wollongong 2022 Community Strategic Plan* that we have *sustainable, affordable and accessible transport.* The Plan also seeks to support the Councillors' aspiration for walkability and connectivity identified in the *Delivering Wollongong 2022: A Summary Document.*

In the development of the Plan, the following factors were identified as deterring walking as a key mode of transport:

- Growing ageing population will increase the need for accessible pedestrian infrastructure

- Council has limited data on pedestrian volumes

- Traffic signal timings and phasings in major centres are optimised for vehicle movement rather than pedestrians

- Areas of high pedestrian activity have low numbers of pedestrian priority crossings

- Walking rates to school declined over the past few decades despite increases in footpaths

- Town centres have significant concentrations of road accidents involving pedestrians

- Road accidents involving pedestrians are mainly occurring away from designated crossings

- New footpaths along with maintenance and improvements are community priorities

- A large proportion of suburban streets lack footpaths

- Many residential streets are unsuitable for footpaths due to their steepness.

- The distance between many residential streets and public transport links and local destinations make walking unattractive, even if footpaths were available

- Some key town centres' accessibility is reduced by substandard kerb ramps

- Town centres lack wayfinding for pedestrians

- Busy roundabouts hinder safe crossing of pedestrians

- Vehicles parked on nature strips or driveways impede pedestrian access with or without the presence of an adjacent footpath

- In many locations the City's terrain is a hindrance to walkability

- Obstructions such as bins, vegetation, parked cars and signs hamper pedestrian access in many parts of the city

Summary

The five goals below are the basis of the City of Wollongong Pedestrian Plan. This Plan will help Council to achieve its vision for walking across the local government area and address the factors listed. The objectives that underpin each goal are supported by a range of specific strategies.

GOAL 1 - Encourage Walking

Objective 1.1
More children walking safely to school

Objective 1.2
More walking in everyday life

Objective 1.3
Information that supports walking is readily available

Objective 1.4
Initiatives that encourage walking are supported

GOAL 2 - Create Pedestrian Friendly Places

Objective 2.1
Pedestrian activity centres have high quality walking environments

Objective 2.2
Pedestrian infrastructure is accessible

GOAL 3 - Make Walking Safe

Objective 3.1
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Objective 3.2
Conflicts between pedestrians and other road users are reduced

Objective 3.3
Pedestrians feel safe in the city

GOAL 4 - Make Walking Easy and Convenient

Objective 4.1
Walking is well integrated with other transport modes

Objective 4.2
Wayfinding is available in areas of pedestrian activity

Objective 4.3
Walkability in the city is increased

GOAL 5 - Work Effectively to Implement the Pedestrian Plan

Objective 5.1
Good data is used to inform decision making and monitoring

Objective 5.2
Pedestrian Infrastructure Capital projects contribute to Pedestrian Plan Objectives

Objective 5.3
Work with the NSW Government to facilitate delivery of Pedestrian Plan and complimentary programs

Introduction

Walking is the most equitable, environmentally friendly and cheapest mode of transport. It's part of almost every door-to-door trip and is defined as movement by foot, pram, wheelchair or motorised scooter.

The provision of a safe and convenient urban walking environment relies on a range of interconnected elements and can be either enhanced or hindered by other users of an area, including cars. The intention of this Plan is to help Council meet pedestrian needs and integrate them into a range of urban activities.

The following statement describes the Council's aspirations for walking in the City of Wollongong.

Vision

Walking is the preferred means of transport for short trips in the city and adjoins a public transport trip for longer journeys.

The walking network is accessible to all and is a safe, quick and pleasurable way to move to and through centres and other popular destinations in the city.

High quality walking information including wayfinding and trip planning is readily available to the travelling public.

The wide-ranging benefits of walking are recognised and valued in the community.

Purpose

The City of Wollongong Pedestrian Plan sets out a range of strategies to address key walking issues facing the city, and facilitate Council's contribution toward its vision for walking and the following community goal established in the Wollongong 2022 Community Strategic Plan:

We have sustainable, affordable and accessible transport

The plan also seeks to support the Councillors' walkability/connectivity aspiration identified in the *Delivering Wollongong 2022 A Summary Document:*

"improve the connectivity of the Local Government Area (LGA) through the upgrade of our network of footpaths and cycleways. ...this focus on our path and cycle network will ensure that necessary works are carried out to achieve an accessible and connected city"

The International Charter for Walking

Council is a signatory to *The International Charter for Walking* that was developed over a number of years at the International Walk21 Conference. The Charter includes the following strategic principles for walking:

1. Increased inclusive mobility

2. Well-designed and managed spaces and places for people

3. Improved integration of networks

4. Supportive land-use and spatial planning

5. Reduced road danger

6. Less crime and fear of crime

7. More supportive authorities

8. A culture of walking

The Pedestrian Plan will also help Council meet the Walk21 principles.

To replicate other global cities' success in increasing walking to high levels, Council needs to use a wide range of approaches including programs, policy, urban design, signage, regulations, education and promotions[7].

Relationship to Key Strategic Council Documents

The City of Wollongong Pedestrian Plan is one of a number of supporting documents that will contribute to the achievement of the Wollongong 2022 Community Goals and guide Council's decision making throughout the development of its Delivery Program and Annual Plans.

The Plan is associated with several other supporting documents which relate to improving the walking environment of the whole city as well as specific precincts. The graphic below provides a number of examples and lists relevant NSW Government Plans and Delivery Programs.
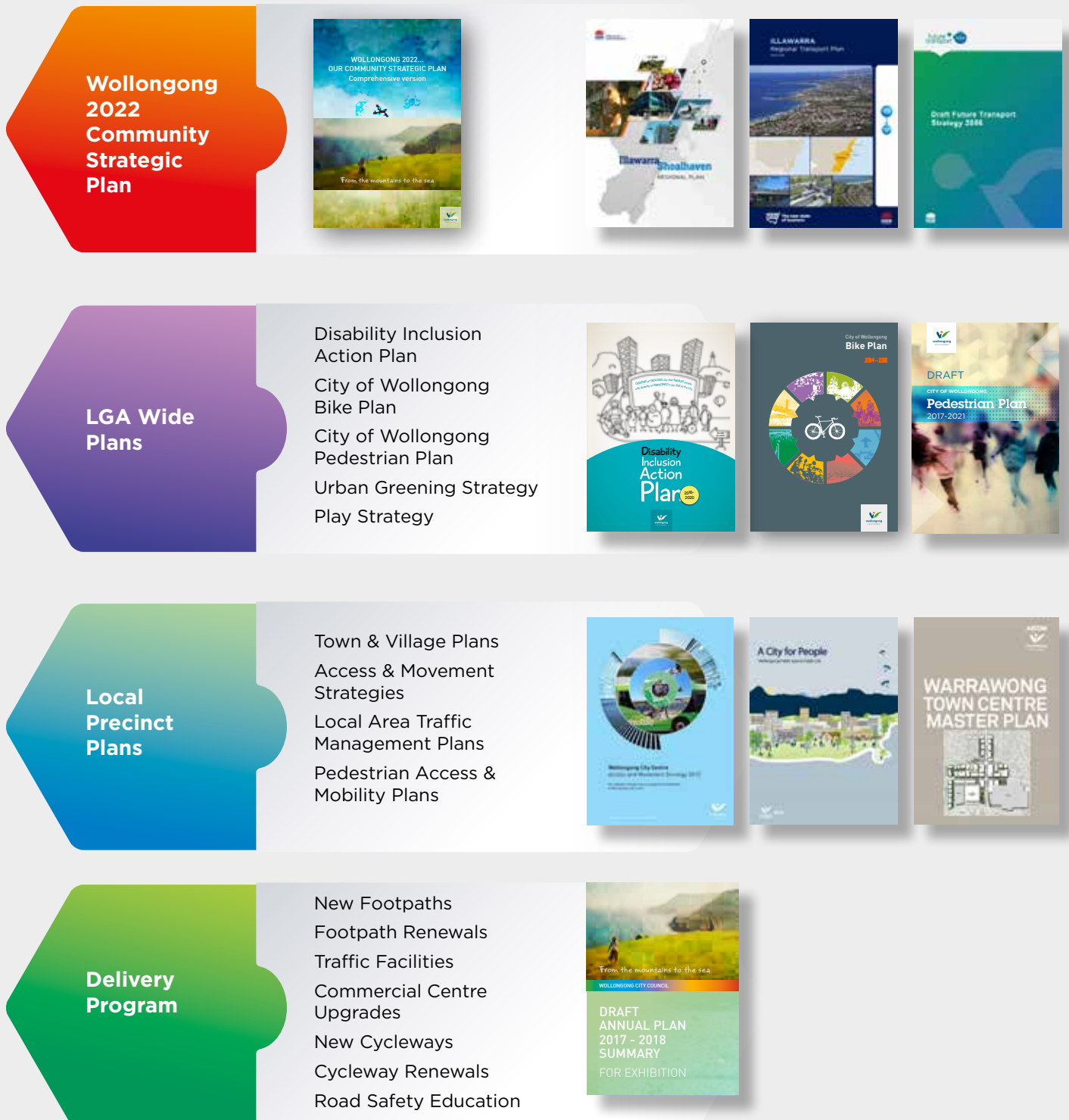
NSW Government Plans:
Illawarra Shoalhaven Regional Plan
Illawarra Regional Transport Plan
Corridor Strategies
Draft Future Transport 2056 Strategy
Draft Regional NSW Services & Infrastructure Plan

Wollongong 2022 Community Strategic Plan

LGA Wide Plans

Disability Inclusion Action Plan

City of Wollongong Bike Plan

City of Wollongong Pedestrian Plan

Urban Greening Strategy

Play Strategy

Local Precinct Plans

Town & Village Plans

Access & Movement Strategies

Local Area Traffic Management Plans

Pedestrian Access & Mobility Plans

Delivery Program

New Footpaths

Footpath Renewals

Traffic Facilities

Commercial Centre Upgrades

New Cycleways

Cycleway Renewals

Road Safety Education

Benefits of Walking

Health	• Lower risk of heart disease and stroke • Reduced impact of high blood pressure, high cholesterol, joint and muscular pain or stiffness and diabetes • Better balance and stronger bones • Improved muscle strength and stamina • Fall in body fat.[1]	
Social Benefits	• Allows for casual social interaction • Fosters community cohesion • Increases passive surveillance • Improves independence and resilience[6] • Equitable form of transport	
Economic	• Congestion cost savings • Vehicle operating cost savings • Less spent on roads • Parking cost savings • Increase in passing trade	
Environmental	• Less noise pollution • Cleaner air • Fewer greenhouse gas emissions • Less dependency on non-renewable energy	
Benefits for children	• Walking to school linked with better concentration [2] • Walking to school also makes children more geographically aware of their neighbourhoods[3] • Improves independence and resilience[6]	

Walking in the City of Wollongong

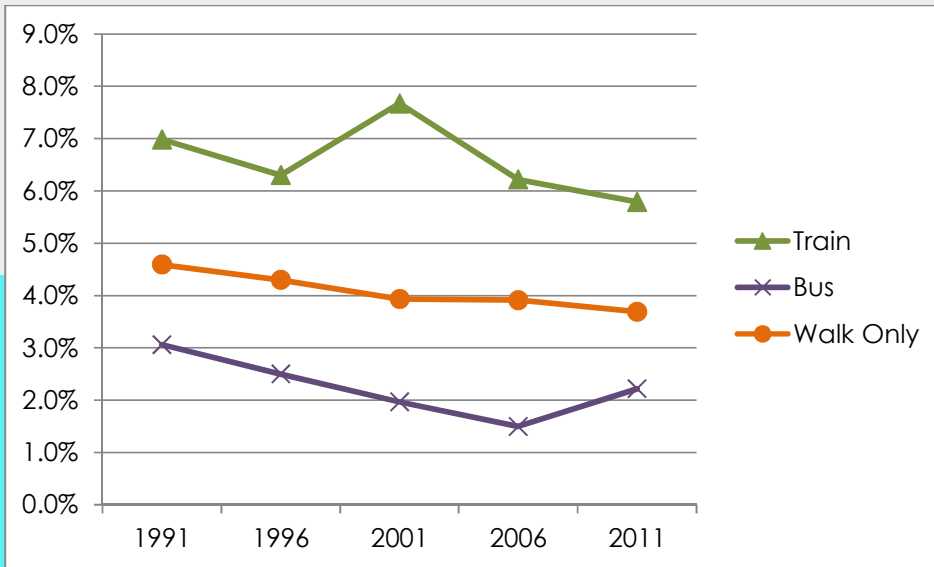The state of walking in the city can be appreciated by considering the following aspects:

- The number and proportion of walking trips compared to other modes of transport

- Locations in the city which attract high levels of walking

- Information of road crashes involving pedestrians

- The magnitude and condition of footpaths and shared pathways

- The public transport network as each public transport trip has significant walking trips at either end

- The community's views and attitudes regarding walking in the city and in general
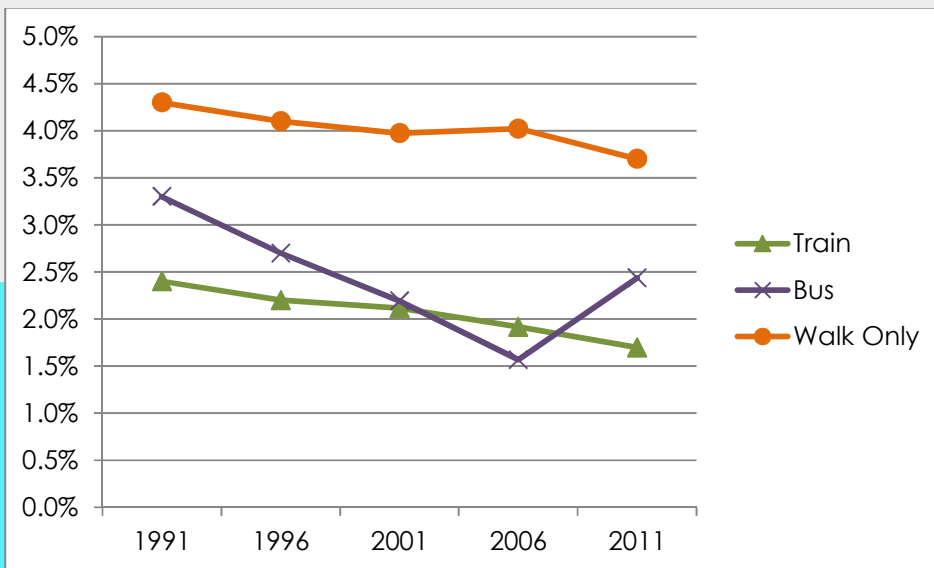
Mode of travel

Australian census data provides an indication of how much walking people do in our local government area when compared to other modes of travel, including cars. On census day, one of the key questions is on how people travelled to and from their workplace that day.

The data shows that over the past 20 years there has been a steady decline in walking as the only method used in a commute trip (around a 20% drop). As many public transport journeys are usually accompanied by significant walks at either or both ends, data related to public transport use is also an important indicator of how much walking occurs in an area. The latest available travel data shows about a 30% drop in train travel and close to a 40% reduction in bus travel between 1991 and 2011. Interestingly, there has been an increase in bus travel between 2006 and 2011, which could be attributed to the introduction of the very popular NSW Government free 'Gong Shuttle' service.
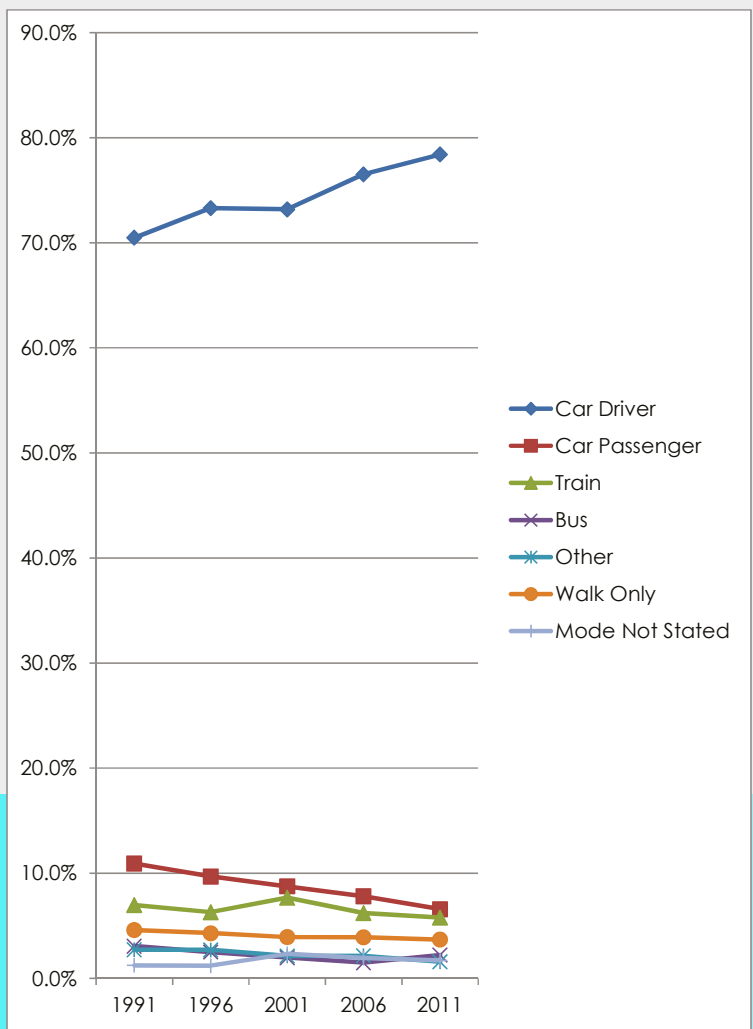
**Public Transport and Walking Commuting Trips
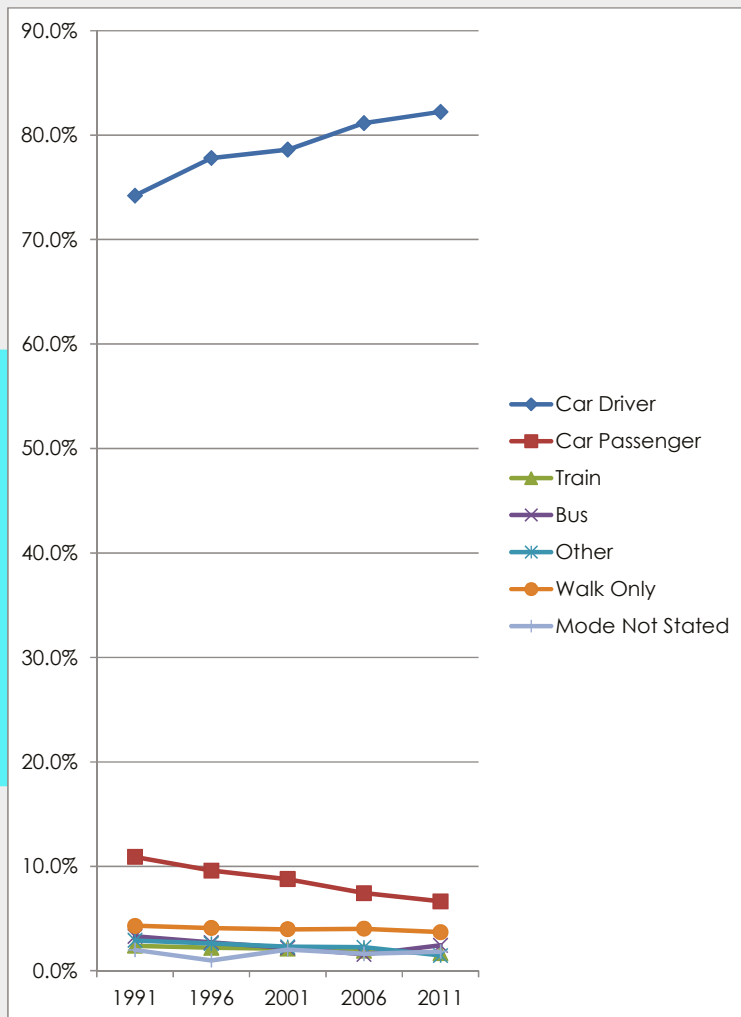(Origin in Wollongong LGA)**

**Public Transport and Walking Commuting Trips
(Destination in Wollongong LGA)**

The following two graphs reveal that carpooling has also reduced over the same 20 year period with around a 65% fall in people travelling to work as a car passenger. While there has been a fall in the use of sustainable transport modes such as public transport, carpooling and walking, there has been a corresponding rise in car use. The most recent results show some 80% of commuters in the City of Wollongong drive their cars to work.
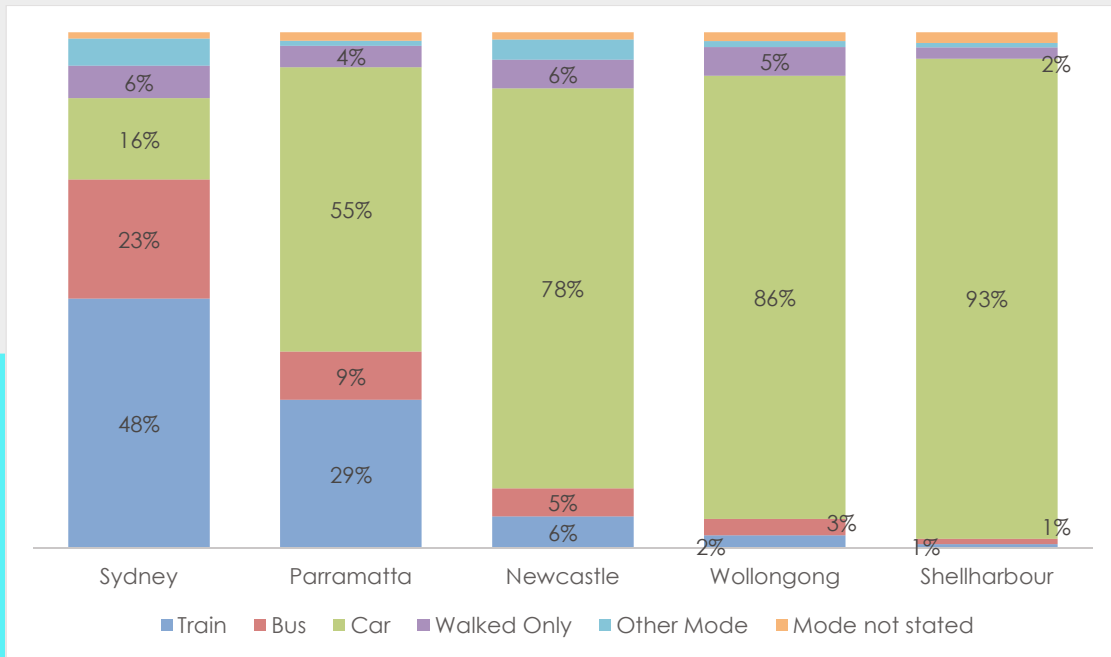

**All Commuting Trips
(Origin in Wollongong LGA)**

**All Commuting Trips
(Destination in Wollongong LGA)**

A comparison of Wollongong City Centre to a number of other significant city centres in NSW shows a comparable proportion of workers walking from home to work (~4-6%). Unfortunately, Wollongong has low levels of public transport use compared to data of other centres and a high proportion of car travel.

Commuting Trips – City Centre Comparisons

Areas of significant pedestrian activity

Activity centres are places that bring together a number of uses and attractions creating a range of social, environmental and economic benefits[12]. Subsequent to arrival, walking tends to be the main travel mode between uses within a centre. Accordingly, pedestrian networks play a major role in the success of an activity centre.

Key activity centres in the City of Wollongong include Wollongong City Centre, major town centres of Dapto and Warrawong and town centres including Corrimal, Fairy Meadow, Figtree and Unanderra. A number of special use activity centres are also present in the city including the University of Wollongong, Wollongong Botanic Gardens, Wollongong Hospital Precinct, Innovation Campus, Blue Mile Precinct (Wollongong – North Wollongong Foreshore) and Nan Tien Temple & Institute.
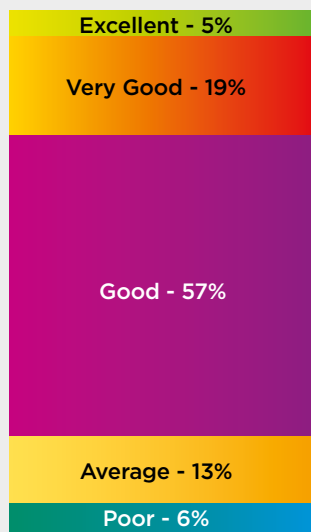
Areas of high pedestrian activity[18]

Map legend:
- **Wollongong City Centre**
- **Major Urban Centre**
- **Urban Centre**

Map labels: Fairy Meadow, Corrimal, Unanderra, WOLLONGONG, Port Kembla, DAPTO, WARRAWONG

Existing Walking Infrastructure

The existing walking infrastructure network in the city consists of paths, road crossings and associated infrastructure such as seating, bus shelters, awnings and signage.

Footpaths

Wollongong has some 420km of publicly owned footpaths that include paths on public roads and through open space. The figures below provide a snapshot of footpath quantities and condition in the city.

Excellent - 5%
Very Good - 19%
Good - 57%
Average - 13%
Poor - 6%

Footpath quantity and condition from 2011 Asset Strategy

Asset Type	Quantity
Cycleway / Shared Paths	87km
Off-Road Footpaths	52km
Roadside Footpaths	368km
Roads	897km

The grade, cross fall, width and surface condition of footpaths are all critical aspects that, when combined with the surrounding environment, contribute to a favourable walking experience. Each year, Council spends up to $3M renewing footpaths to ensure they provide a safe and comfortable walking experience.

Many streets across the city don't have footpaths on one or both sides. Each year, Council plans and prioritises where new paths would most effectively help to achieve a safe and convenient footpath network that generally services the greatest number of users. Paths can also be built as part of larger projects including new developments, where there is population growth and significant road works projects.

Stairs

Some established urban areas of the city have a landscape that doesn't suit the provision of accessible pathways. That's why it has been necessary to build stairs to link pathways or connect footpaths to adjacent land uses. Natural areas, such as beaches, also often require the use of stairs to provide pedestrian access. Stairs must be compliant with relevant building standards including consistent step heights, railings, landings and non-slip surfaces.

Shared Paths

The vast majority of the city's bicycle path network is shared paths, which are used by both cyclists and pedestrians. On shared paths pedestrians have right of way, but are expected to keep left to allow other users, including cyclists, to pass them. The success of shared paths relies on the appropriate behaviour of all users. Cyclists need to travel at safe speeds, particularly in areas with large numbers of pedestrians.

Grand Pacific Walk

Grand Pacific Walk

The vision of this major project is to create a pathway along our coastline, from the Royal National Park to Lake Illawarra. Council is currently working on Stage One which will establish a close to 3km walking and cycling connection between Coalcliff and Stanwell Park. This part of the route is considered a high priority by Council. There are no existing pathways for much of this section and it has steep and sometimes unstable land, narrow roads and a lack of provisions for pedestrians and cyclists.

Crossings

The footpath network is closely tied to a number of other systems including the road and bicycle networks and access points to properties. The following facilities aim to enable the safe overlap of these networks:

Pedestrian crossing aids
Refuge islands
Kerb blisters
Fencing

Spatially Separated
Overpass
Underpass
Pedestrian Malls

Time separated (traffic controlled) facilities
Traffic signals
Marked foot crossings
Children's (school) crossings

Driveway crossings

Shared Zones

With all these facility types, any ambiguity about who has right of way can significantly increase the risk of a collision. Accordingly, meeting relevant design standards, including the clear delineation of areas - such as where driveways cross a footpath - where pedestrians have priority over other road users is of particular importance to pedestrian safety.

Refuge Islands

Refuge islands provide an area in the centre of the road where pedestrians can wait, making it easier to safely cross a road. The refuge area should be large enough to accommodate wheelchairs, mobility scooters, prams and bicycles and users should give way to vehicles.

Pedestrian Refuge

Kerb Blisters and Road Narrowings

These facilities reduce the crossing distance by bringing the kerb out into the road way. They significantly reduce the gap needed by pedestrians to cross safely, and provide better visibility for pedestrians and drivers. Kerb blisters or road narrowings are often used with other crossing types to improve safety outcomes.

If there is an increase in the number of pedestrians using these facilities, an upgrade to another type may be required to increase the ease of crossing.

Kerb Blisters

Fencing

Fencing is often used to encourage the use of a designated crossing point rather than crossing at other less safe locations nearby. Fencing can create a safety hazard as a pedestrian, crossing at an incorrect location, may be trapped on the road behind the fence. Fencing can also hinder sightlines, reduce the appeal of business centres and the connectedness of land uses either side of the road.

Shared Zones

A shared zone is an area on a public road where pedestrians have right of way over vehicles. They have a 10km/hr speed limit, a road environment that strongly encourages low speed and forces pedestrians and vehicles to share the same space with a single continuous surface across the road (i.e. without kerb and gutter). Sight distance to pedestrians needs to be maintained throughout the shared zone. Shared zones are not usually suitable for large vehicles such as buses or trucks.

Shared Zone

Marked Foot Crossings

Marked foot or 'zebra' crossings are a road area where pedestrians have right of way over all other road users. As these crossing types require vehicles to see and stop safely for pedestrians about to cross or crossing the road, there a number of requirements which need to be met. These include:

- Sufficient sight distance (often achieved through building kerb blisters and/or removing on-street parking)

- Appropriate street lighting

- Enough pedestrians using the crossing that motorists could expect pedestrians and are prepared to stop as necessary

- Location where pedestrians want to/must cross

- Lack of anticipated vehicle queuing over the crossing

- One vehicle travel lane each way

Current best practice sees marked foot crossings installed with supporting infrastructure such as a raised platform.

Marked foot crossing on raised platform

Children's Crossings

These are located outside primary and secondary schools. They operate around the start and finish of the school day during which timed parking is banned adjacent to the crossing and crossing flags are erected. Users have right of way over vehicles on the road and school crossing attendants often assist pedestrians.

Childrens Crossing Flag

Traffic Signals

There are many locations where the number of pedestrians and vehicles using the area and the sight lines mean traffic signals provide a safer pedestrian crossing option to roundabouts or stop/give way signs. Traffic signals allocate and visually convey the time during which pedestrians and vehicles use the part of the road over which the pedestrians cross. The time pedestrians wait for their turn to cross a road can significantly impact the convenience of a walking trip, particularly along a route with numerous traffic signal crossings. Adjustment of traffic signal timings can increase the throughput of pedestrians compared to motors vehicles. Walking routes in key activity centres which have or should have high numbers of pedestrians moving safely and quickly would benefit from this approach, even if vehicle trip times are increased.

Traffic signalised pedestrian crossings are occasionally provided midblock and away from road intersections. These provide a safe crossing opportunity in areas where there is significant pedestrian demand and high traffic volumes, or other factors that make other crossing types undesirable.

Pedestrian Countdown Timers

Pedestrian countdown timers were recently installed in three locations in Wollongong City Centre. These timers replace the flashing don't walk red person symbol with a number counting the seconds left to cross until vehicles get a green light. Trials in Sydney's CBD have indicated the majority of pedestrians using the crossings feel much safer and the crossings are easier to understand.[9]

Public Transport

Public transport plays a very important role in how much walking people do because people walk more at either end of a bus or train trip than when using a private vehicle. As a result, increasing public transport use will also significantly increase levels of walking. In suburban areas where housing is located outside the walkable catchment of key services and employment, public transport (usually bus transport) plays a key role in enabling active travel for a large part of the local community.

Pedestrian infrastructure that integrates with public transport includes bus shelters and seats, as well as paths and crossings that link to bus stops, railway stations and taxi ranks to residences and other land uses.

The generally accepted average distance a person is willing to walk to a railway station for transport is 800m. As shown in the figure on the next page, much of the city lies outside the 800m catchments of its railway stations. In addition, much of the city does not have available footpaths reducing this accessibility further. As a result, walking to rail transport is an attractive option for a relatively small portion of the travelling public. The bus transport system therefore plays a key role in extending rail station catchments to much of the remaining areas of the city.
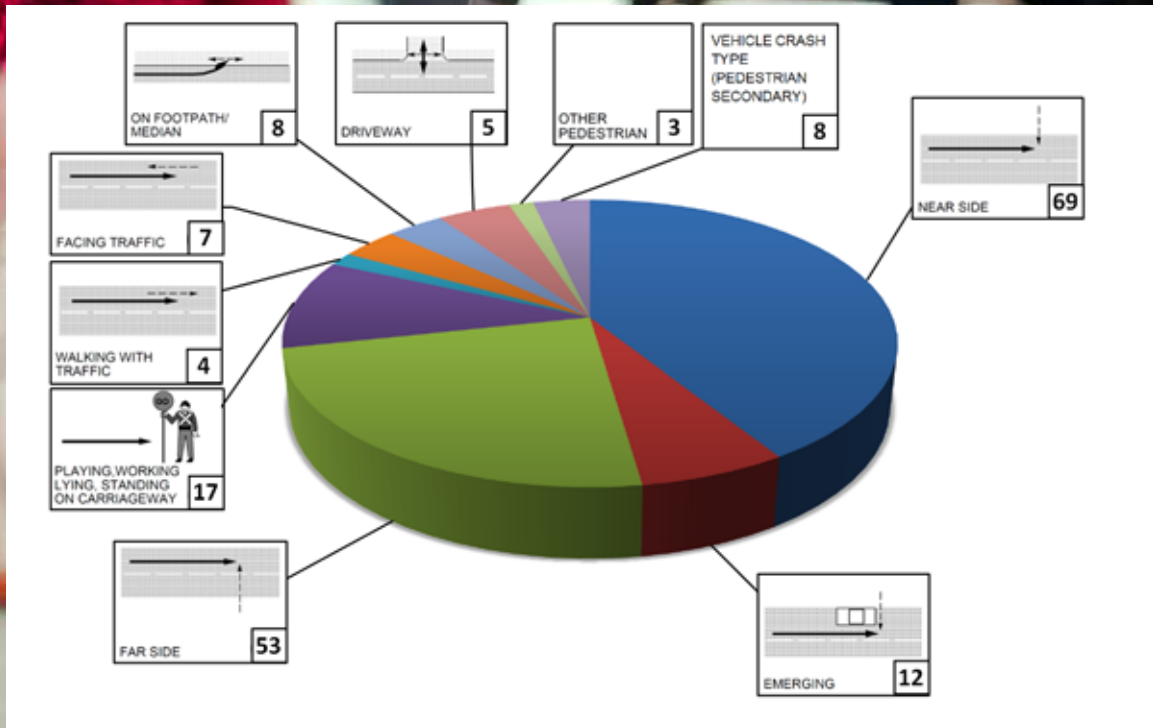
800m Railway Station Catchments

Map Data Source: Google

Pedestrian Crashes

Data provided by NSW Police for crashes in the City of Wollongong shows some 197 road crashes occurred that involved injury to pedestrians during the five years between July 2011 and June 2016. Within these crashes there were 9 pedestrian fatalities and a further 110 seriously injured pedestrians.

While these figures capture the most significant pedestrian accidents they do not include unreported incidents, those on private roads and crashes that did not involve injury or death.
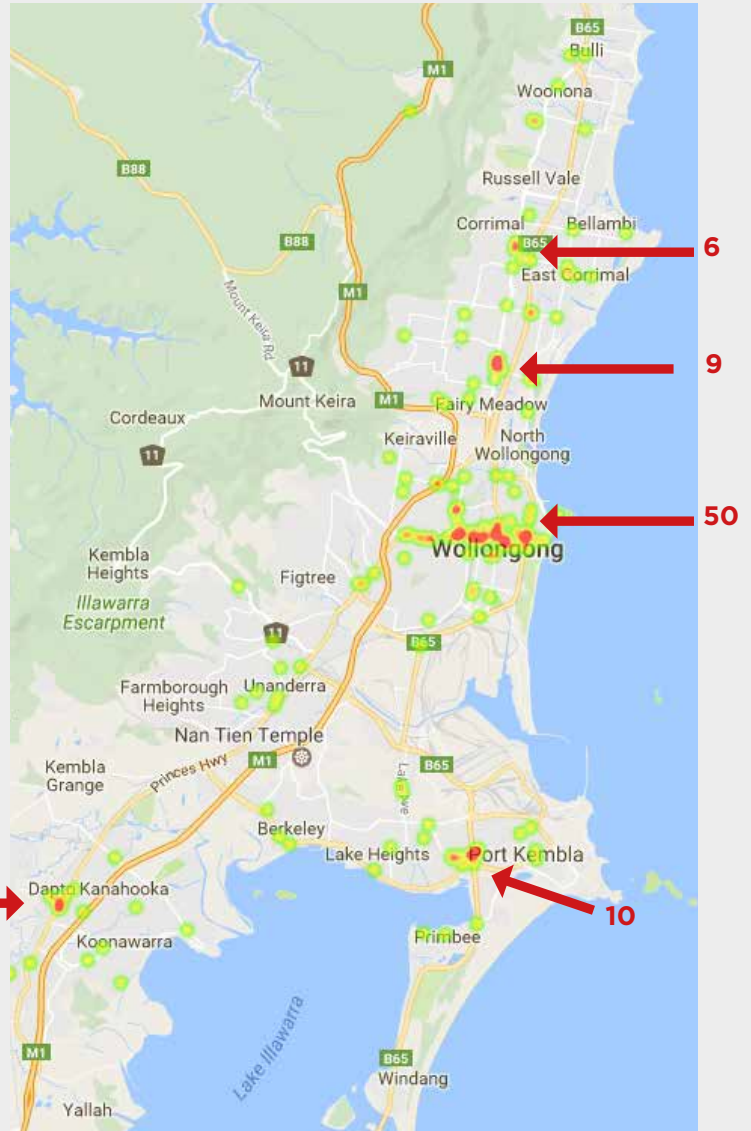
Number of Pedestrian Crashes by Crash Type

Crash Type	Number
ON FOOTPATH/MEDIAN	8
DRIVEWAY	5
OTHER PEDESTRIAN	3
VEHICLE CRASH TYPE (PEDESTRIAN SECONDARY)	8
NEAR SIDE	69
FACING TRAFFIC	7
WALKING WITH TRAFFIC	4
PLAYING, WORKING LYING, STANDING ON CARRIAGEWAY	17
FAR SIDE	53
EMERGING	12

While the statistics show the majority of crashes occurred when pedestrians were crossing roads there were significant numbers of crashes where pedestrians were walking along roads (11) or were relatively stationary on a roadway (17). There were 13 crashes off the road and in areas where pedestrians have right of way. Analysis of the crossing road type crashes (near side, far side and emerging) shows that 80% occurred away from designated pedestrian crossings.

Measures that help reduce the severity and frequency of pedestrian accidents are varied and include crossing points, reducing vehicle speeds and volumes, and improving alternate routes by offering new or wider paths. Other proactive measures include safety, promotion and education campaigns such as the "look out before you step out" campaign.

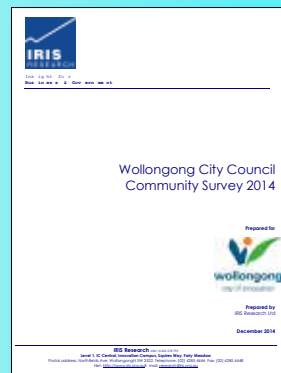**Number of pedestrian crashes at hot spots across city**

Map Data Source: Google

Community Views

Community consultation has consistently shown that moving around the city safety and conveniently is a major concern for pedestrians. This sentiment has been reflected in a range of Council documents including our biannual Community Survey that indicated footpaths and their maintenance was of key importance.

Wollongong City Council Community Survey 2012

- "Maintenance of footpaths" was as an area for improvement in 2008, 2010 & 2012

- "Maintenance of footpaths" was of high importance, with medium satisfaction

- Both "Footpath maintenance/improvement" and "more footpaths" were noted as being key priority issues

Wollongong City Council Community Survey 2014

- "Footpaths/cycleways" were listed as the 3rd highest "priority area" identified in the survey

- "Maintenance of footpaths" was noted in quadrant analysis of being an area for improvement in 2008, 2010, 2012 & 2014

"Better footpaths in the suburbs and more of them"

Wollongong City Council Community Survey 2014 respondent

Unanderra Town Centre Community Engagement

Many concerns relayed regarding pedestrian safety in the Unanderra Town Centre, particularly crossing Tannery St

"Want to have a pedestrian link from Woolies car park through to Central Road."

"Footpaths on northern side of Tannery Street need to be updated."

"Need footpaths in residential areas."

Wollongong A City for People Engagement

Support for making the City Centre more pedestrian and cyclist friendly. Many submissions highlighted issues with the city's existing pedestrian infrastructure (maintenance of the streetscape was another common theme), with requests for more shared paths, improved walkability, and greater use of public transport....

Other popular themes identified were: ..."improve the accessibility of the centre for people with a disability and older people;" ... "improving safety"; ... "improved connectivity between the City Centre and railway station and foreshore".

Wollongong Play Strategy

"What the community told us....

Consultation has highlighted the importance of good connection to walking routes, pathways amenities and parking, to increase the accessibility of a play space. Children need support to independently access play spaces in their own areas, close to home."

Community Views

Warrawong Town Centre Community Engagement

"Confusing on (pedestrian) crossing near Westfield – this should be clear – a zebra crossing or nothing."

"Pedestrian crossings – need to make safe for elderly people to cross roads"

"The roundabout on Cowper Street and Shellharbour Road is too big and a nuisance to walk around."

Figtree Town Centre Study Community Engagement

"Need (safe) pedestrian crossings – especially along the Princes Highway."

"No footpaths on residential streets. It is too hard to walk to the town centre – I live up the hill."

"To be able to live in city area that is well connected and offers all services within a walkable distance."

"We need to walk on the road with prams in Figtree Heights."

"I would like to see one pedestrian crossing from Crinis to Westfield, instead of two."

"There needs to be better pedestrian connection across town, particularly east-west (across the highway)."

Disability Inclusion Action Plan Engagement

"Roadway crossings for people in motorised scooters are inadequate or too few"

Community Views

Challenges

The following factors discourage or prevent individuals from choosing walking in the City of Wollongong as a key mode of transport:

- Our ageing population increases the need for accessible pedestrian infrastructure

- Council has limited data on pedestrian volumes

- Traffic signal timings and phasings in major centres are focused on vehicle movement rather than pedestrian throughput

- Areas of high pedestrian activity have low numbers of pedestrian priority crossings

- Walking rates to school have been in decline for decades despite increases in footpaths[11]

- Town centres have significant clusters of pedestrian accidents

- Pedestrian crashes mainly occur away from designated crossings

- Footpath maintenance/improvement and the need for more footpaths are key priority issues for the community

- A large proportion of suburban streets lack footpaths

- Many residential streets are unsuitable for footpaths due their steepness.

- Distance between residential streets and public transport or local destinations makes walking unattractive even if footpaths were to be provided

- Key town centres' accessibility is hindered by some substandard kerb ramps

- Town centres lack wayfinding for pedestrians

- Busy roundabouts prevent safe crossing by pedestrians

- Vehicles parking on nature strips or driveways obstruct pedestrians, with or without an adjacent footpath

- City's topography can be a hindrance to walkability

- Obstructions such as bins, vegetation, parked cars and signs impede pedestrian access in many parts of the city

- Limited access to frequent public transport.

General Barriers to Walking[11]
Distance
Terrain
Time
Carrying heavy bags
Lack of motivation
Level of fitness
Poor quality footpaths
Multi-destination/purpose trip (especially dropping children at school or childcare)
Habit (especially car use)
Safety and security concerns.

GOALS

The five goals listed below form the basis of the City of Wollongong Pedestrian Plan. These goals will assist Council to achieve its vision for walking in the city and address a series of issues that reduce participation in walking. A range of objectives and supporting strategies are proposed that will help achieve these goals.

GOAL 1 – Encourage Walking

GOAL 2 – Create Pedestrian Friendly Places

GOAL 3 – Make Walking Safe

GOAL 4 – Make Walking Easy and Convenient

GOAL 5 – Work Effectively to Implement the Pedestrian Plan

Goal 1 - Encourage Walking

While there are numerous benefits of walking for individuals and there are extensive networks of paths to and within key activity areas around the city, travel by private motor vehicle is the most popular travel mode, even for short trips. Although optimising the layout of land use and surrounding transport networks as well as improving infrastructure will be necessary to increase walking, promotion and education are also effective ways of encouraging people to walk rather than use a car.

In order to increase the proportion of all trips completed by walking, the daily travelling routines which facilitate movement to schools and workplaces need to change. The following four objectives and supporting strategies seek to educate and promote walking in a way that targets these trips as well as provide information that makes walking more attractive and convenient.

Objective 1.1 More children walking safely to school

Strategies

1.1.1	Determine principal safe school routes to primary and secondary schools
1.1.2	Pilot safe routes to school programs at selected primary and secondary schools
1.1.3	Conduct education campaigns to change perceptions of walking to schools

Objective 1.2 More walking in everyday life

Strategies

1.2.1	Develop and conduct promotional campaigns that encourage more active travel to work
1.2.2	Provide information to the community about the various benefits of walking for individuals
1.2.3	Investigate mechanisms to increase off-site parking provision in Wollongong City Centre and town centres

Objective 1.3 Information that supports walking is readily available

Strategies

1.3.1	Show footpaths and crossing points available on Council's interactive maps
1.3.2	Provide walking information on Council's website
1.3.3	Provide GIS information of footpath and crossing locations to key external trip planning platforms
1.3.4	Produce a Travel Smart Map for the City of Wollongong

Objective 1.4 Initiatives that encourage walking are supported

	Strategies
1.4.1	Support workplace walking initiatives including Walk to Work Day
1.4.2	Support local walking groups
1.4.3	Investigate the development of self-guided walks for locations outside of Wollongong City Centre and foreshore

Objective 1.1

More children walking safely to school

There are 66 primary schools and 19 secondary schools in the Wollongong local government area. It is considered that a student will generally walk up to 800 m from school to home and so provision of paths and crossings within this walking catchment is important with respect to walking levels. Given the sheer number of schools in the city as well as the often unfavourable local topography, it is unlikely to be feasible to deliver paths across the complete walking catchments of every school in the LGA in the short or even medium term timeframe. A more focussed approach is needed to deliver walking connections that will be feasible within a reasonable timeframe as well as located where they will be attractive to the most students and address the most safety risks.

Principal Safe Walking Routes to Schools

An emphasis on a small number of walking routes (i.e. principal routes) to schools will enable this focus. Once determined, a principal walking route to a school can be prioritised with respect to infrastructure improvements. Furthermore the route can be recommended to users within school communications and targeted education campaigns.

Identification of principal routes will involve consideration of a number of aspects including

- Traffic volumes on road
- Number of crossing points
- Density of school students along or close to walking route
- Passive surveillance
- Steepness
- Existing walking infrastructure
- School bus stop locations

Public schools tend to have higher proportions of students that live within the area surrounding a school whereas independent schools tend to have wider catchment areas. Other aspects being equal, the attractiveness of walking to schools is greater for public schools rather than independent schools due to the proximity of student residences.

"Parental behaviours and attitudes are the key determinant for travel to school. Measures which target parents travel needs are likely to be most successful in influencing children's travel. However schools must be a walkable distance from homes or behavioural change programs will be unsuccessful." [7]

Safe Routes to School Programs

Behaviour change will require specific programs to increase awareness of the benefits of active travel for the school community and involve students, teachers and parents. The programs will need to address issues that impede such travel to school such as existing travel patterns and preferred potential routes. Safe routes to school programs can facilitate these discussions and include the coordination of participation measures such as walking to schools days and walking buses.

Perceptions of walking to school

Walking and cycling to school rates have declined dramatically over the past couple of decades. Over this same time, pedestrian accident rates have fallen (more so than the reduction in walking), footpaths have improved significantly and vehicle speeds around schools have dropped with the implementation of 40km/hr school zones. The reduction in active travel to school has occurred in spite of these safety and amenity enhancements. A change in perceptions of the safety of walking to school is likely to be a major contributor to the reduction.

Fears relating to abduction of children walking to school and dangers arising from car accidents have contributed to the greater use of vehicle travel to school, which itself carries greater risk of injury and poor health outcomes over the longer term when compared to active travel. Promotional campaigns with messaging that highlights the many benefits and ultimately safer outcomes for children is needed as part of a suite of measures to raise walking and cycling rates to school.

Objective 1.2

More walking in everyday life

Promotion of active travel

Increasing the walking component of commute trips would result in a number of positive outcomes for individuals and communities. By reducing commuters' reliance on motor vehicles, there will be less peak traffic congestion in most activity centres in the city, and a reduction in traffic congestion, air pollution and lost productivity. The physical activity would, meanwhile, improve public health. Promotional campaigns have the potential to change attitudes of the travelling public and encouragement of active travel to work.

Similarly, promoting short non-work related trips, as another opportunity for individuals to increase the amount of walking they do is a valuable idea. Key messages could include highlighting a number of health benefits including social interaction, and fitness.

Off-site parking provision in major centres

Commuters who drive door-to-door miss the benefit of incorporating any significant walking into their work trips. Locating parking in off-site parking stations rather than within the workplace property brings about a number of benefits with respect to reduced infrastructure costs, sharing of parking and less road congestion. Another benefit is the opportunity that is created for walking between the car park and the workplace resulting in more activity on city streets and greater physical activity for the working population. Investigation is needed to determine appropriate mechanisms to increase such off-site parking in key town centres.

Information that supports walking is readily available

Mapping of Pedestrian Infrastructure

Council's interactive maps provide a valuable resource for the community and include information on property and suburb boundaries, aerial photography, Local Environmental Plan (LEP) features and bicycle network infrastructure. The mapping of walking infrastructure including path and crossing points can be added to the interactive maps to improve their usefulness.

Walking Information on Council's website

Council's website receives some 2.9 million page views per year and is a destination for a wide range of information needs. New visitors and residents alike use the site when making decisions about places to visit and how to travel to them. The presence of useful and convenient active travel information on Council's website will be important for encouraging walking as a transport option. Examples of such information could include: this Plan, information on the benefits of walking, links to walking maps, safety messaging and information, walking to school promotions and walking event information.

External Trip Planning Platforms

Many online applications on a range of platforms exist to guide motorists on their journey. The functionality and usefulness of an application for walking journeys is largely dependent on the quality of geographic information that feeds it. Trip planning or guidance applications that do not include path networks or crossing points may direct users to routes without sufficient infrastructure potentially causing safety risks. The provision of GIS information of footpath and crossing locations to key external trip planning platforms will allow for the creation of applications that can provide more meaningful and safe route recommendations.

City of Wollongong Travel Smart Map

Making available information of the range of transport options aside from the private motor vehicle will significantly encourage walking, albeit indirectly. Public transport trips have more lengthy walking trips at the origin and destination as compared to private motor vehicles. Research of several major centres found that "Roughly half of the kilometres walked are associated with a public transport trip"[7].

'Travel Smart' maps have been developed in other locations around Australia to serve this purpose and provide a 'one stop shop' resource for active travel options in a city and are generally free and can be taken anywhere. A travel smart map for Wollongong would encourage walking directly by containing specific walking information but also indirectly through the encouraged use of various public transport modes.

City of Melbourne TravelSmart Map

Initiatives that encourage walking are supported

Workplace Walking Initiatives including Walk to Work Day

There are several types of workplace initiatives that foster communal walking experiences on a single day or over a longer period. Walk to Work day is one long running example however 'challenge' type events are another popular variant. A common benefit of such schemes is that they can increase awareness of how pleasurable and convenient walking can be and how it can be incorporated into work day routines in the long term. Council can support such initiatives by facilitating such events for its own staff and proving in-kind support for events in the wider community.

Local Walking Groups

Walking groups can provide an attractive option for people to increase their walking in a social context. A number of focuses for such groups can exist including recreation, social interaction, commuting and physical health.

Self-Guided Walks

The city centre heritage walk is a self-guided tour showcasing the history of Wollongong City Centre. Such tours provide tourism opportunities for visitors and residents and help to build connections between community members, heritage items and the city's history. Other aspects of the city which could be the basis for additional self-guided walks include:

- Wollongong City Centre architecture

- Heritage in locations outside Wollongong City Centre

- Street Art

- Escarpment and coastline views

In addition to showcasing the features of the city that are best experienced as a pedestrian, such tours would encourage walking for the purposes of recreation, tourism and education.

Online technologies can be used to facilitate self-guided walking experiences. One such example would be the development of a smart phone app that utilises real time GPS location data of the user to provide wayfinding information and tour commentary.
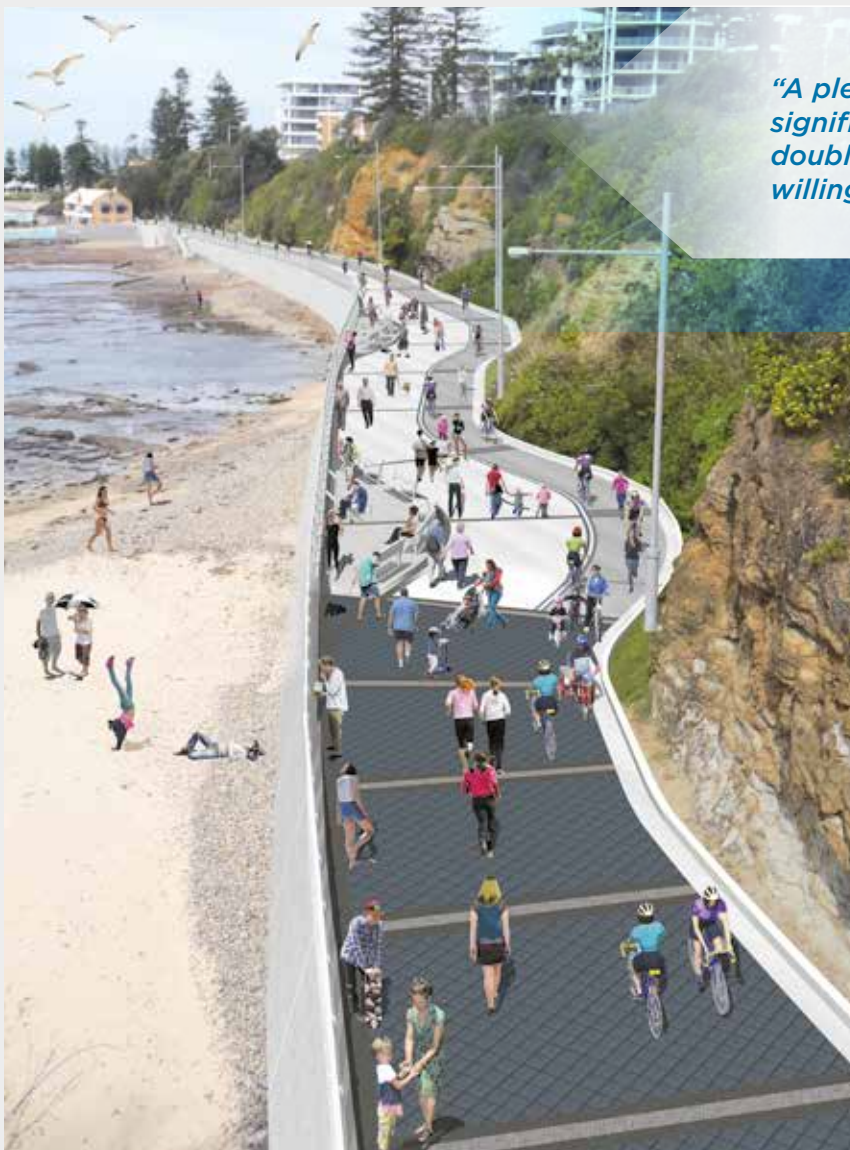
Goal 2 - Create Pedestrian Friendly Places

Walking more than other transport modes provides the opportunity to actively experience the surrounding environment while traveling. Walking speed and the level of exposure to the environment are the main factors that facilitate this characteristic.

Pedestrian friendly places provide an interesting and varied environment for walkers. Council's Town and Village Plans such as the Wollongong City Centre Planning Policy 'A City for People' emphasise these aspects and include proposals that aims to create vibrant places that are best enjoyed as a pedestrian. Main street improvements recommended in these plans form the basis for commercial centre upgrades listed on Council's Capital Works Program. Pathway renewals in special use activity centres also present opportunities to create new pedestrian friendly places such as the Blue Mile shared path upgrade.

Crown Street Mall.

"A pleasant environment can significantly extend (perhaps double) the distance people are willing to walk."[7]

Artist impression: Tramway Seawall & Shared Pathway.

Pedestrian friendly places are designed, built and maintained in ways that enable walking by the people with a wide range of mobility needs such as children, pram users, those in a wheelchair and mobility scooter users. In this respect, Council aims to provide footpath infrastructure that meets all relevant standards for accessibility.
For paths this means ensuring that they are:

- Wide enough to cater for the volume of expected pedestrians and that wheelchairs can easily pass other path users travelling in the opposite direction

- Unobstructed and reach their destination

- Not too steep

- Have smooth, non-slip surfaces

- Contain utility lids that are also smooth and non-slip

- Have narrow grid grates where stormwater inlets are unavoidable

- Avoid adjacent plantings that may create a hazard for path uses, for example spiked plants, vegetation that blocks important sight lines or sheds significant leaf matter onto paths

Ancillary walking infrastructure also features prominently in places that are conducive to walking for all abilities and include:

- Regularly spaced street furniture that allows rest such as seating

- Trees and structures that provide weather protection

These characteristics are important not only for existing areas of high pedestrian activity but also in new subdivisions and existing suburban areas.

The following objectives focus on a number of aspects raised above to help improve the amenity of key locations for pedestrians.

Objective 2.1 Pedestrian activity centres have high quality walking environments	
Strategies	
2.4.1	Improve the pedestrian amenity and accessibility at and between Council buildings
2.4.2	Improve weather protection in major activity centres
2.4.3	Improve rest opportunities in major activity centres
2.4.4	Incorporate Public Art along key pedestrian routes in major activity centres and special use activity centres

Objective 2.2 Pedestrian infrastructure is accessible	
Strategies	
2.4.1	Ensure continuous accessible path of travel preferably along building lines
2.4.2	Replace non-compliant pedestrian crossing kerb ramps in Wollongong City Centre, town centres and village centres
2.4.3	Provide bus stop shelter seating with back and arm rests

Objective 2.1

Pedestrian activity centres have high quality walking environments

Pedestrian amenity and accessibility at and between Council buildings

Council provides many of its services to the community through a range of buildings across several activity centres in the city. Improving the walking linkages of these buildings to the surrounding pedestrian network, public transport nodes and local car parks will assist in improving the accessibility of the services provided in these buildings to the community.

Weather protection in major activity centres

Weather protection is a key element in increasing the amenity of the walking environment of a centre. Awnings along building frontages provide the main component of weather protection along footpaths in significant town centres.
DCP requirements for awnings on new buildings in particular locations do aim to expand the coverage of weather protection. However, there are many locations which do not have awnings and are unlikely to for decades until redevelopment occurs. An investigation of means to provide weather protection in the interim is needed. Covered walkways may provide an option in this respect however impacts on aesthetics and the creation of obstructions on the path to support such structures would need to be carefully considered.

Rest opportunities in major activity centres

Rest opportunities can serve a number of needs. The distance people are willing to walk generally increases where adequate rest opportunities exist such as seating, shade and water drinking facilities. Such facilities are particularly beneficial to seniors and children. Public toilets also enhance the capacity for pedestrians to travel further distances in a walking network.

Public art

Public art adds interest, makes places more memorable, creates a sense of fun and is an important part of urban renewal. It creates a welcome interface in the public domain that encourages pedestrian activity, enhances safety, and animates spaces for the pleasure of locals, workers and visitors.[19] Incorporation of public art into pedestrian and other infrastructure projects on key routes will assist in making walking more attractive than other transport modes and increasing the distance people will walk.

Objective 2.2

Pedestrian infrastructure is accessible

Continuous accessible path of travel

Fixed obstacles on paths can take many forms and include sign posts, overgrown vegetation, utility posts, seats, bus shelters, folding signs to name a few. These obstacles create, at best, an inconvenience for most users, but can be hazardous to impaired pedestrians or when volumes of pedestrians reach a significant level. A continuous accessible path of travel that is free from such obstructions should be incorporated as a key component of projects that include pedestrian connections. This concept also includes a requirement that the path of travel links an origin to the destination completely and is not broken up by an intermediate missing path section or that the path falls short of its destination.

Pedestrian Crossing Kerb Ramps

Kerb ramps, especially at pedestrian crossings are a critical element of an accessible pedestrian network. Ramps that don't meet the relevant design standards can be inconvenient or uncomfortable at best, or pose significant safety risks at worst. Problems can include steepness, misalignment, poor sizing or lack of definition. Numerous kerb ramps are either missing or in need of replacement in Wollongong City Centre, town centres and village centres around the city. A program of replacement at these locations is needed to progressively improve the most critical locations in the city.

Bus stop infrastructure

Most public transport trips are bookended by significant amounts of walking. Increasing the amenity of bus stop infrastructure can increase its utilisation and hence walking to/from the stop. Most seating within bus shelters in the city lack back and arms rests. Opportunities to retrofit such seating elements to existing shelters and to provide them for new bus stop shelters should be pursued. Town centres and village centres around the city as well as adjacent to seniors living communities should be prioritised in such a replacement program.

Goal 3 - Make Walking Safe

Pedestrians represent the largest group of vulnerable road users. In an accident between a vehicle and a pedestrian, the latter often sustains severe injuries due to a lack of protection. There are around 40 pedestrian crashes a year in the city. Making improvements to crossing facilities will contribute greatly to making walking safer in the city.

Objective 3.1 Pedestrian crossing opportunities are improved

Strategies

3.1.1	Increase formal crossing opportunities including pedestrian priority crossings in area of high pedestrian activity
3.1.2	Increase formal crossing opportunities on principal walking routes to schools
3.1.3	Investigate opportunities for 'continuous footpath' treatments in Wollongong City Centre and in town centres of Dapto, Warrawong, Corrimal, Fairy Meadow, Figtree and Unanderra
3.1.4	Develop and implement proactive programs of zebra crossing maintenance and upgrades to address non-compliances and improve pedestrian safety

Objective 3.2 Conflicts between pedestrians and other road users are reduced

Strategies

3.2.1	Conduct audit of pedestrian safety at roundabouts and program improvements
3.2.2	Continue shared path user behaviour initiatives
3.2.3	Develop and deliver pedestrian safety education campaigns

Objective 3.3 Pedestrians feel safe in the city

Strategies

3.3.1	Undertake Crime Prevention Through Environmental Design (CPTED) assessments of major town centres and program priority recommendations
3.3.2	Street lighting improvements

Pedestrian crossing opportunities are improved

Formal crossing opportunities

Pedestrian crash data shows the majority of pedestrian accidents occur where there is no crossing facility. Formal crossings are located where there is demonstrated pedestrian crossing demand and are designed with safety as the key objective. Several crossing types are available for use and a range of characteristics such as vehicle volumes and movements, road geometry and numbers of pedestrians are considered when selecting the appropriate type.

Where pedestrian volumes are high and there is a desire to encourage walking over vehicle use there may be an opportunity to provide pedestrian priority crossings such as a marked foot crossing, traffic signals or a continuous footpath treatment. A number of crossing operation types can be used at traffic signals including exclusive pedestrian phases where all traffic is stopped and pedestrians can use all available crossings. Pedestrian refuges, kerb blisters and road narrowings are generally used in lower volume locations, but may also be useful in areas of high demand where site characteristics do not support the use of other crossing types.

Crossings on walking routes to schools

Principal walking routes to school that are convenient and promoted by schools will concentrate walking activity. The provision of formal crossing opportunities along these routes will increase safety and amenity of these routes.

Marked Foot Crossing Safety

Marked foot crossings, also known as zebra crossings, provide the highest level of priority for pedestrians over vehicles. As pedestrians have complete right of way at such facilities, their safe operation relies on the driver's ability to detect the crossing or approaching pedestrian in time to stop safely. Infrastructure non-compliances may compromise pedestrian safety and a program of maintenance and upgrades is suggested for the city.

Placement of marked foot crossings on raised platforms is preferred as the treatment is effective at reducing vehicle speed and increasing driver awareness of the pedestrian crossing. The upgrade of an existing marked foot crossing can include placement on a raised platform if site conditions allow such a change.

Marked Foot Crossing

Conflicts between pedestrians and other road users are reduced

Pedestrian Safety at Roundabouts

Roundabouts can hinder pedestrian amenity and safety for a number of reasons including:

- Unpredictable vehicle speeds and manoeuvring in a roundabout.

- Left turning drivers tend to check their right side only for approaching vehicles and not for pedestrians crossing on their left. Left turn manoeuvres can also happen more quickly that at a regular intersection.

- Where there is a lot of traffic, pedestrians will find crossing difficult as they are required to give way to vehicles on all sides of the roundabout.

- Pedestrian routes through a roundabout intersection tend to be less direct that at other intersection types.

These aspects can make crossing roundabouts less safe for pedestrians than give way or stop controls at cross or T intersections. Improvements can be made to roundabouts such as providing splitter islands that include a refuge area or moving crossing points away from the intersection edge. An audit of roundabouts in the city with respect to pedestrian safety would help to identify opportunities for improvements.

Shared path user behaviour initiatives

The shared path network provides an extensive set of paths along the coast and in key inland locations for a range of user groups. By not following key shared path rules, conflict can quickly arise due to the range of speeds between user types on these paths. Wollongong Council has worked in partnership with Shellharbour and Kiama Councils as well as the Illawarra Bicycle User Group and Healthy Cities Illawarra Inc to develop a 'Share the Track' education campaign encouraging user practices that result in a safe and convenient path environment. Council will continue to deliver material and events as part of this campaign leading into and during peak periods of shared path use. Furthermore, Council will continue to provide centreline markings on the shared path network that have been shown to improve user behaviour[16]

Share the Track Flyer

Pedestrian Safety Education Campaigns

Road user behaviour has a major influence on pedestrian safety outcomes. As such, pedestrian safety is not only the responsibility of pedestrians but other road users including drivers and cyclists. Council regularly delivers education campaigns focusing on improving pedestrian, driver and cyclist behaviour to help reduce the number and severity of pedestrian injury crashes and address behaviour that hinders pedestrian access. Council will continue the delivery of a range of education campaigns that target specific user groups, problem behaviours and misunderstood road rules. Potential areas for future attention include:

- Distraction caused by mobile devices

- Parking on nature strips and over driveways on the footway

- Drivers giving way to crossing pedestrians when turning at intersections

- Crossing at designated crossing facilities

Objective 3.3

Pedestrians feel safe in the city

Crime Prevention Through Environmental Design

How public places and the paths which connect them are designed can have an impact on crime rates. Carrying out an assessment of major town centres from a crime prevention perspective will identify locations where improvements could be made to make pedestrians feel safer and more likely to use city streets night and day.

"Crime prevention through environmental design (CPTED) seeks to influence the design of buildings and places by:

• increasing the perception of risk to criminals by increasing the possibility of detection, challenge and capture

• increasing the effort required to commit crime by increasing the time, energy or resources which need to be expended

• reducing the potential rewards of crime by minimising, removing or concealing 'crime benefits'

• removing conditions that create confusion about required norms of behaviour." [12]

Street lighting improvements

Street lighting can make a location more attractive for walking at night by improving passive surveillance potential as well as enhancing pedestrians' visual perception of the path location, other users and obstructions or surface damage. Lighting can also make pedestrians more visible to drivers, improving safety when a pedestrian is crossing a road. Council will continue to improve street lighting along key pedestrian paths and in significant public carparks.

Goal 4 - Make Walking Easy and Convenient

The simplicity and convenience of a footpath network is interlinked with users being able to choose suitable direct walking routes to their destination. This is often referred to as an area's walkability. The layout of paths in a way that maximises is the number of route options is of prime importance in a walkable precinct. Being able to see visual information conveying route options to local destinations is also crucial.

Convenient walking networks also need points where pedestrians can comfortably switch to other modes of transport for parts of their journey that are less suited to walking. There are several areas where Council can facilitate effective integration of pedestrian infrastructure with public transport systems and car parking.

"A major reason for walking in urban areas, is walking to and from transit. Better transit, including community or urban design to support such transit, can likely increase walking." [7]

Objective 4.1 Walking is well integrated with other transport modes

Strategies

4.1.1	Provide timetable information bus stops
4.1.2	Provide weather protection at taxi ranks
4.1.3	Provide footpath connections to bus shelters

Objective 4.2 Wayfinding is available in areas of pedestrian activity

Strategies

4.2.1	Develop and implement a wayfinding signage system for pedestrians in the town centres of Dapto, Warrawong, Corrimal, Fairy Meadow, Figtree, Unanderra
4.2.2	Develop a consistent city wide approach to wayfinding signage for pedestrians in key special use activity centres
4.2.3	Develop a consistent city wide approach to wayfinding signage for railway stations walking catchments

Objective 4.3 Walkability in the city is increased

Strategies

4.3.1	Investigate opportunities to increase pedestrian permeability in the town centres of Dapto, Warrawong, Corrimal, Fairy Meadow, Figtree and Unanderra
4.3.2	Establish targets for the percentage of households within walking distance of open space and corner shops or higher order retail within new subdivisions

Walking is integrated with other transport modes

Timetable information at bus stops

Many bus stops around the city lack timetable information and/or the infrastructure to display information without it getting damaged by the sun and rain.

Timetable information can be improved by providing information that is legible for a range of users, and with supporting information such as a local map.

The city has a hierarchy of bus stops and more significant stops, such as those in town centres, have a higher level of infrastructure including seating, a larger bus shelter and a waste bin. Accordingly, the standard of timetable and other information should reflect the importance of the bus stop. Whichever standard is applied, consistent quality with respect to legibility and currency should be maintained for all stops.

Weather protection at taxi ranks

Taxis provide a service for many users, and the amenity of taxi ranks would be improved with weather protection, particularly where users have luggage or shopping.

Footpath connections to bus shelters

Council is running a bus shelter installation program that has seen approximately 350 bus shelters provided at the most used bus stops. In addition to this, the presence of good walking infrastructure at and around a bus stop is important for the safety, function and attractiveness public transport. Accordingly, new footpath connections should be provided between bus shelters and existing footpath networks and/or key local destinations.

Objective 4.2

Wayfinding is available in areas of pedestrian activity

Wayfinding helps people to understand where they are in a particular area, what destinations of interest are nearby and how to get to them. Generally wayfinding is provided via a number of different types of signs that have different functions including map signage, information signage (often combined with map signage) and directional signage at intersections of paths and/or roads.

Fundamental principles for wayfinding signage include:

Pedestrian information sign

- showing accessible paths to destinations, if different from main pathway

- maintaining a hierarchical level of information for the user (i.e. do not direct to all destinations from all locations)

- providing 'you are here' maps that are oriented towards the viewer's view (not north)

- providing other signage that regulates behaviour and activities where required

- using internationally recognised pictograms and English text

- using consistent names and terms that are user friendly and easily understood

- continuing the signage through the whole visitor experience from arrival to destinations to exit.[13]

Distances to destinations should also be shown on directional signs. A system of wayfinding signage for pedestrians in the town centres of Dapto, Warrawong, Corrimal, Fairy Meadow, Figtree and Unanderra should be developed and implemented.

Special use activity areas such as popular tourist precincts or destinations also require wayfinding as they may have a significant public transport hub but no signage that directs people from their drop off point to the destination. Tourist precincts that contain a number of activities or uses would require wayfinding that is part of the gateways or main entry points to these areas that would direct visitors to the various destinations using a network of signs. Example locations include:

- Nan Tien Temple and University

- Blue Mile Precinct

- Lake Illawarra.

Many railway stations in the city have a range of services and attractions within walking distance. A consistent city wide approach to wayfinding signage for railway station walking catchments would simplify implementation and provide users with a level of familiarity across different locations.

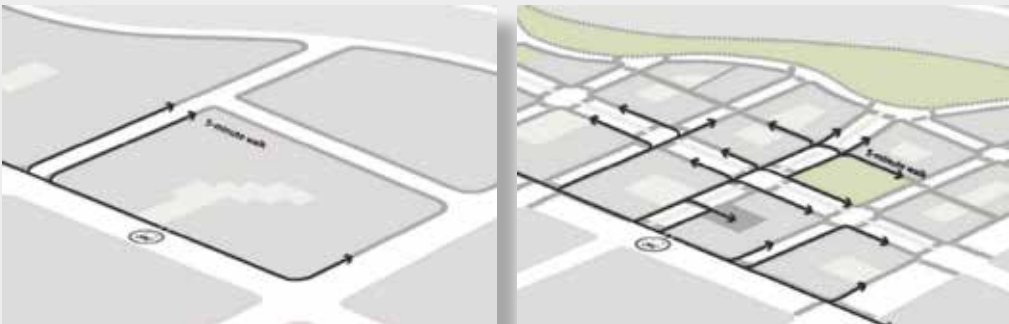Wayfinding at Wollongong Railway Station

Walkability in the city is increased

Pedestrian network permeability

A key aspect of walkability is the number of available pedestrian routes or permeability through a network which result in shorter and quicker walking trips for all users. This characteristic should be greater for pedestrians than for vehicles particularly in areas of high pedestrian activity such as our town centres. Laneways, arcades, public open space and shared zones are some options that increase permeability.

Ethel Hayton Walk increases pedestrian connectivity in Lower Crown Street

Low vs High Permability in Pedestrian Network [14]

Much of Wollongong City Centre's pedestrian network is permeable through current and historic planning efforts. The investigation of opportunities to further increase pedestrian permeability in Wollongong City Centre as well as higher order centres such as Dapto, Warrawong, Corrimal, Fairy Meadow, Figtree and Unanderra is also needed.

Neighbourhood planning

Another feature of urban networks that impact walkability is distance between popular origins and destinations. In the residential neighbourhood context, local centres are often outside the walking catchment of many residences. Public spaces and smaller retail can be more numerous and service more residences if located correctly. Planning of neighbourhoods including local centres should seek to maximise the number of households within walking distance to 'everyday' services. A target for the number of households in walking distance of open space and corner shops or retail within new subdivisions can help to prioritise walkability in the planning phase. One way to increase the number of households within walking distance to local services is to increase the density of housing around these uses.

Goal 5 - Work Effectively to Implement the Pedestrian Plan

Implementation of this Plan will depend on the availability of local data and information relevant to pedestrian infrastructure planning and delivery. It will be necessary for Council to work with NSW Government partners where there is an impact on state property or infrastructure, and to secure grant funding to supplement Council's limited funds for new pedestrian infrastructure.

Objective 5.1 Good data is used to inform decision making and monitoring	
Strategies	
5.1.1	Establish ongoing pedestrian count data collection program
5.1.2	Collect Public Life Data at town centres, regional play spaces and key tourism destinations
5.1.3	Collect data on school student populations

Objective 5.2 Pedestrian Infrastructure Capital projects contribute to Pedestrian Plan Objectives	
Strategies	
5.2.1	Give priority to pedestrian infrastructure within walking catchments of activity centres, public transport hubs and along principal school routes
5.2.2	Give priority to pedestrian infrastructure that creates continuous accessible paths of travel to key sites
5.2.3	Provide separate funding allocations for pedestrian infrastructure works within and outside of activity centre catchments

Objective 5.3 Work with the NSW Government to facilitate delivery of Pedestrian Plan and complimentary programs	
Strategies	
5.3.1	Work with NSW Roads and Maritime Services to improve pedestrian amenity and safety at traffic signals
5.3.2	Work with Transport for NSW to improve pedestrian safety and amenity around railway stations and level crossings
5.3.3	Work with the NSW Government to progress Safe Routes to Schools initiatives
5.3.4	Work with NSW Roads and Maritime Services to reduce vehicle speeds
5.3.5	Pursue the provision of frequent and convenient public transport services emphasizing areas of high demand

Objective 5.1

Good data is used to inform decision making and monitoring

Ongoing pedestrian data collection

Council has a rolling program of traffic data collection that is used to plan, prioritise, design and implement a range of road works types. Council currently does not have such a program for pedestrian data. Instead, this information is collected on a site-by-site basis as part of specific planning studies or capital projects. A rolling program of pedestrian data collection would help to identify trends of pedestrian usage and high demand areas in need of attention. This information would also help to respond to community requests, prioritise pedestrian infrastructure delivery and assess the benefits of new infrastructure or education/promotion activities.

As well as collecting traditional pedestrian movement data like the number of pedestrians passing a certain location, gathering more holistic "Public Life Data" that records stationary activities as well as origins and destinations would help in the planning of quality streetscapes rather than just footpaths.

School population data collection

Increasing the numbers of pupils walking to schools will rely on a number of factors including the number of students that live within walking distance from the school. Data would help to identify schools with large numbers of students within walking distance and allow Council to target those most likely to benefit from both infrastructure and non-infrastructure walking to school initiatives.
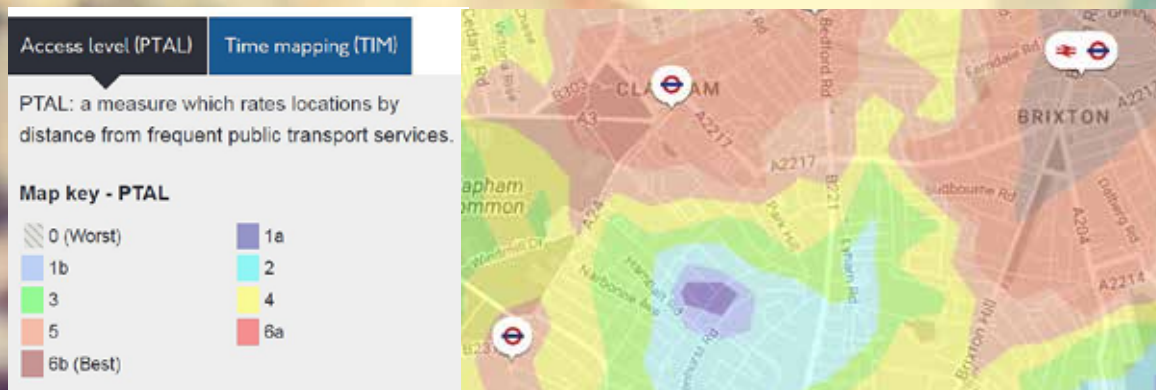
Public Transport Accessibility Levels

Public Transport Accessibility Levels are calculated based on the proximity of a location to a bus stop or railway station and the frequency of services at that stop/station. This provides a means of mapping the level of public transport access at a particular location and can be used to help identify and prioritise pedestrian network improvements, and indicate sites where opportunities to limit car parking exist.

Public Life Data

A Public Spaces Public Life Study was undertaken in Wollongong City Centre to inform the creation of the overarching plan for the centre called "A City for People". "Public Life" data not only included pedestrian movements in locations of interest but also stationary activities such as children playing, café seating, bench seating, waiting for transport and lying down.[18] These are a good indicator of the quality of an urban space.

Public Transport Accessibility Level Mapping[17]

Objective 5.2

Pedestrian Infrastructure projects contribute to Pedestrian Plan Objectives

Pedestrian infrastructure project prioritisation

To support this Plan and meet its objectives it's suggested that projects within the following areas be targeted as priorities when developing of forward pedestrian related infrastructure programs:

- Walking routes to schools with significant student populations within 1km of the school

- Walking catchments of Wollongong City Centre , major town centres of Dapto and Warrawong and town centres including Corrimal, Fairy Meadow, Figtree and Unanderra

- Walking catchments of special use activity centres in the city including the University of Wollongong, Wollongong Hospital Precinct, Innovation Campus, Lake Illawarra, Blue Mile Precinct (Wollongong – North Wollongong Foreshore) and Nan Tien Temple & Institute.

- Walking routes from public transport nodes to significant education sites and seniors living developments

- 800m walking catchments of railway stations

- 400m walking catchments to high service frequency bus stops

- Continuous accessible paths of travel for people with a disability to key Government (Local and State) facilities and infrastructure including playgrounds, libraries, facilities, parks, health services and social services

- Walking routes between high density residential precincts and local destinations

Apportionment of funding for capital works footpath projects

In order to maximise the community benefit of infrastructure works, projects at high use sites are often prioritised. Quarantining of funding each year for works outside of activity centre catchments would help to ensure distribution of work across the local government area.

Objective 5.3

Work with NSW Government to facilitate implementation of strategies and complimentary programs

Traffic Signals

NSW Roads and Maritime Services is responsible for the operation of all traffic signal sites. Traffic signals that provide pedestrian crossings are very important as they enable safer crossing of roads with medium to high volumes of traffic.

Suggested improvements to the operation of traffic signals include increases in pedestrian green times and automatic pedestrian call up in high demand areas, additional pedestrian crossings at existing signal sites and additional pedestrian count down timers at suitable sites.
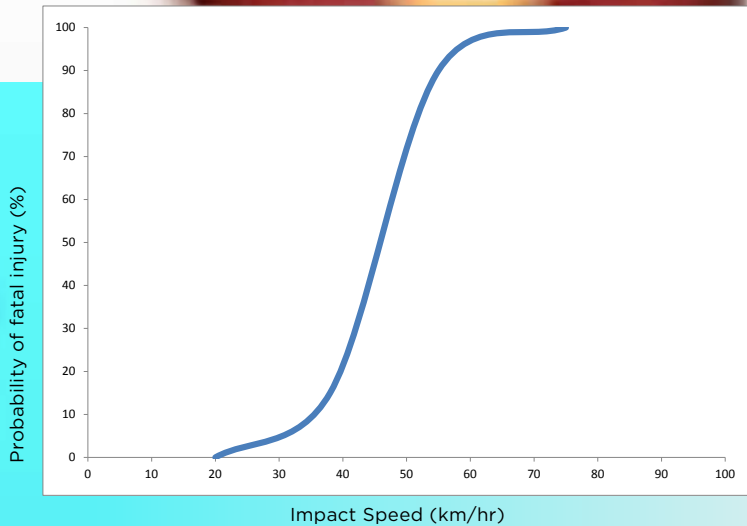
Bus and Rail Services

Bus and Rail Services are essential for a significant portion of the community to access the services they need. For many others, the availability of convenient public transport can result in significant time spent walking to access bus or rail as part of everyday life. Council in its capacity as the local roads authority, works with the NSW Government and bus operators to ensure our road system supports efficient bus operations. Aside from these road network management aspects, bus and rail frequency, coverage and pricing are determined by the NSW Government. Council will continue to pursue the provision of frequent and convenient public transport services emphasizing areas of high demand.

Speed Limits

Road speed limits are managed by NSW Roads and Maritime Services and therefore, Council cannot change speed limits on any classified or local roads. The likelihood of pedestrian survival during a crash is strongly related to the speed of the vehicle at impact. It has been found that survivability falls rapidly once impact speed goes above 40km/hr. Many European cities as well as New York and many UK municipalities have introduced 30km/hr speed limits to further reduce the number and severity of pedestrian crashes. Council will continue to work with NSW Roads and Maritime Services on arrangements that reduce speeds in areas of significant pedestrian demand such as 40km/hr High Pedestrian Area schemes and 10km/hr Shared Zones.

"The pedestrian crossing times across the highway do not give people sufficient time to cross." Figtree Town Centre draft Study respondent.

Probability of Fatally Injuring a Pedestrian by the Speed of the Car on Impact[15]

The Railway Network

Railway stations attract large numbers of pedestrians and, at minimum, require a corresponding level of pedestrian infrastructure to cater for this demand. An increase in the use of rail travel can be achieved by improving pedestrian amenity and safety at key locations surrounding railway stations throughout the city. Enhanced pedestrian connections and crossing opportunities are the key infrastructure measures that Council will seek to introduce in cooperation with Transport for NSW and NSW Roads and Maritime Services.

The railway network is also significant with respect to pedestrians at any interface between it and the road and/or pedestrian network. Bridges, underpasses and level crossings funnel vehicle and pedestrian traffic as they facilitate crossing points of railway lines. Railway level crossings present unique safety risks and although improvements have been made at a number of them in the city in recent years, there is a general consensus that new level crossings are not supported and ultimately sites with significant road or foot traffic will be closed either with or without some grade separated crossing for pedestrians and/or motor vehicles.

Council will continue to work with Transport for NSW and NSW Roads and Maritime Services on new bridges that cross railway lines or the improvement of existing underpasses or level crossings to enhance safety or all users including pedestrians.

Walking to School

Data on school populations will need to be obtained in order to determine the density of school students that live along or close to particular walking route. Collaboration with the NSW Department of Education will be necessary to acquire and analyse such data.

The planning, development and delivery of safe routes to schools initiatives will require liaison and coordination with the Department of Education and Transport for NSW.

NSW Government Walking Communities Program

The NSW Government provides funding to local councils for improvements to walking infrastructure within two kilometre catchments of centres and transport interchanges.[5] Projects should be planned within these catchment areas to be eligible for this funding program.

2km walking catchments shown in purple

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