Walking for travel and recreation in NSW
What the data tells us

Final report
Prepared for the Premier's Council for Active Living (PCAL)
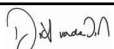
25 January 2011
JS10570

GTAconsultants

Table of contents

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How to use this report

This report complements the previous active travel data studies conducted for the Premier's Council for Active Living.

The format of this report is designed to present, analyse and interpret raw data collected for this study as well as complex data embedded in reports.

The report is self-contained. Raw data utilised to complete the report is available upon request.

Findings:

This box details findings and conclusions, highlighting the issues and challenges to be addressed. Findings are reviewed in the Executive Summary and detailed in the main body of the report.

About the data:

This commentary pertains to datasets and data management. This includes any information regarding:

• data collection

• data storage

• data handling / cleaning / manipulation

• methodology

Relevant data sources:

This provides further information regarding the source of datasets, including relevant data custodians or data embedded in reports or papers.

Supporting reports and articles on walking which complement assumptions and hypotheses advanced in this report are included in this text box, where appropriate.

Notes on the data:

This box is used for commentary on the data collated by GTA for this project.

Any data with significant gaps or processing is annotated in this way.

For further study:

This box indicates where further work is needed to develop appropriate understanding of collected data.

About the data — Baseline — Benchmarking — Potential — Capturing the potential

You are here
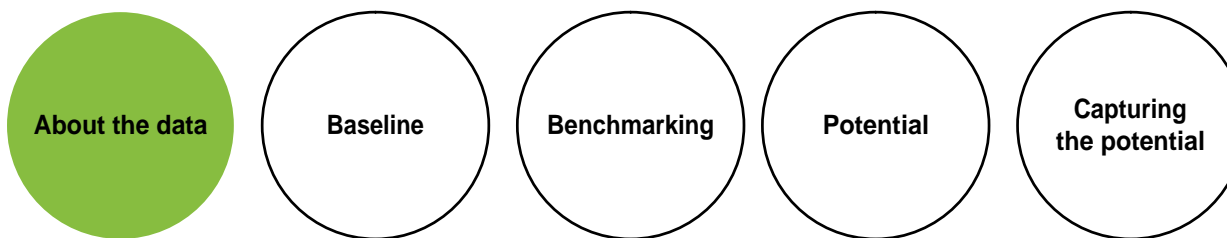
This report is "sign posted" with section headings to highlight the current section of the report, as shown above.

Executive Summary

About the data

What data is available on walking in NSW
What gaps are evident in the existing data

Baseline

Who is walking in NSW (and where)?

Benchmarking

How do walking outcomes in NSW and Sydney perform
against comparable locations?

Potential

What is the broad potential for increasing walking in NSW

**Capturing
the potential**

What data would help to identify ways to grow
walking and track outcomes achieved?
What further research would complete the picture
of walking in NSW?

Executive Summary

About this report:

Walking is widespread, healthy and environmentally friendly. Walking is one of the first recommendations made by physicians – and accepted by patients – to improve health.

Walking is an individual activity. It is free and easy-to-do. Walkers may do so without registration, as is the case in operating a motor vehicle, and without a ticket, as is the case in travelling on public transport. This makes walking a simple and convenient transport choice for short trips, but also makes it difficult to measure.

Walking for travel and recreation is largely overlooked next to more costly travel modes or "big ticket" activities. For all the known benefits, walking is so incidental and walkers are so passive about having walked (cycling enthusiasts are vocal, but walkers just exist) that only sporadic data is collected about the activity.

This data study is the first step in exploring a state-wide strategy for walking. At the inception of this project, it was anticipated that data collection would establish the data required to develop a base case overview of walking in NSW and identify any potential for increasing walking for travel and recreation.

To collect the available data, state agencies and organisations were approached by phone and email and all 152 local councils were contacted to participate in a short questionnaire about any walking infrastructure, policies and programs within the jurisdiction.

This report reviews the extent and quality of the available walking data, analyses this data and attempts to benchmark NSW against other international walking indicators. Where walking data is not collected for international walking indicators, may indicate reporting on the provision of walking infrastructure or walking programs is not a priority.

Each section notes findings based on the available data and analyses. Throughout the report, any relevant projects, papers, reports and raw data are noted as are potential avenues for further study.

Commentary:

There is no clear mandate for walking in policy or practice, nor is there one agency with the responsibility, funding or mandate to enforce such a policy.

The walking data that is captured gives transport planners little to go on to secure funding and forward plan infrastructure programs and walking initiatives, under-counting instances of walking in favour of motorised transport. Other transport modes regularly and rigorously monitor and report network and operational data. There are gaps in these standard indicators for walking: total network kilometres, network connectivity, kilometres travelled, travel time and delay. In fact, just one permanent pedestrian counter is employed by the NSW Roads and Traffic Authority to count walkers.

Whilst some indicators may be estimated in health surveys and the Australian Sports Commission's annual Exercise, Recreation and Sport Survey (ERaSS) found walking was the most popular form of recreation across NSW, the gaps in walking network and operational performance data are barriers to funding walking for travel or recreational activity.

Without a clear mandate for walking nor a target for participation in walking, walking must be monitored closely, and regularly. The resulting data must develop walking targets and an effective business case to plan, fund and maintain connected walking networks and programs to encourage more walking.

The footpath and walking network could be operated, maintained and evaluated. A holistic change to the traffic assessment process could reprioritise walking and alter the consideration given to pedestrians during the process, providing priority to active travel and changing the emphasis from the continuous movement of vehicles to the continuous movement of people.

This change requires a completely different terminology: a shift from a Traffic Impact Assessment to a single, holistic "Transport Impact Assessment " assessed against multi-modal level of service, with priority or at least equal weight to walking for travel.

There is a real opportunity for NSW to shift existing short trips to walking and to generate more walking trips by planning, or retrofitting, built environments conducive to walking for pleasure and for travel to our everyday destinations.

Basis for this study

Call to action:

Just over half of all New South Wales (NSW) adult residents obtain the recommended, health-enhancing, 30 minutes of physical activity per day. Walking is a nearly universal physical activity to reach this target.

In a February 2009 article for the Journal of Preventive Medicine, *Are messages about lifestyle walking being heard? Trends in walking for all purposes in New South Wales, Australia,* authors found that more than 80% of NSW residents walked for exercise, recreation or to get to destinations at least once in the past week. However, only 36% walked 30 minutes a day on most days of the week, the minimum recommended amount for health.

The purpose of this report is to review available walking and pedestrian data.

About the types of walking

There are three types of walking :

• Walking for travel (A-to-B)

• Walking to access public or private transport (A-to-B-to-C)

• Walking for pleasure / recreation (loop)

All three types of walking have a potential health benefit. Environmental benefits are realised in the first two trips: walking for travel and walking to public transport. The walking that has the greatest decongestion benefit is the first type, walking for travel.

About walking for travel

In a 2007 presentation to the Walk 21 conference in Toronto, Adrian Bell presented Transport for London's business case for walking for travel. Mr Bell reported that, as a transport mode, walking is an efficient use of space. Without a bulky vehicle, walking for travel can move *three times* more people per minute per metre width allowing for more commuters including:

•75 walkers

•28 cyclists

•24 bus passengers

•4 car/ taxi passengers

Walking and cycling are distinct to other forms of travel, with a proportion of trips conducted "just for fun", fitness or recreation.
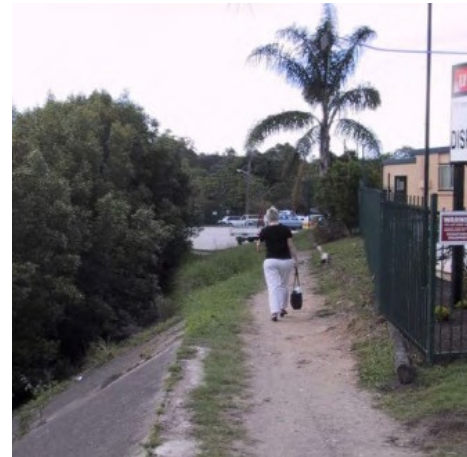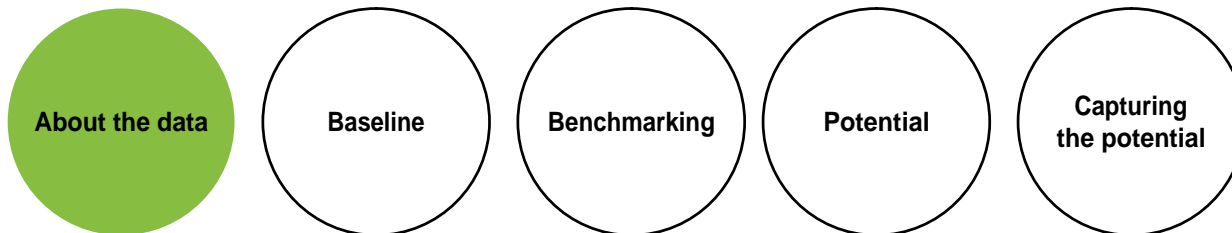

Photo courtesy of Dick van den Dool

Photo courtesy of Dick van den Dool

About the data

About the data • **Baseline** • **Benchmarking** • **Potential** • **Capturing the potential**

What data is available on walking in NSW?
What gaps are evident in the existing data?

Walking data can be categorised according to infrastructure, pedestrian characteristics, safety and security. These categories form the basis of walking indicators. Transport planners rely on mode share, the percentage of walk trips compared to all other travel modes. Health practitioners rely on participation rates and time indicators, including the proportion of people walking at least 10 minutes. A review of NSW walking data sets shows:

• Walking data categorisations include infrastructure, pedestrian characteristics and safety

• A range of walking data sources are available in NSW

• The extent and quality of walking data collected varies across NSW

• Pedestrian data may be managed by different departments and staff

• The extent and quality of the walking network is unknown

• Land use and urban design affect pedestrian accessibility

• Walking data collection and measurement could be improved

• Moderate and minor injuries to pedestrians may be both under reported and double counted

Walking data can be categorised according to infrastructure, pedestrian characteristics and safety

Category	Infrastructure	Pedestrian Characteristics		Safety and security

Fundamental data

Infrastructure

Network

Total kilometres

Connectivity & permeability

Change room facilities

Lockers, showers and change rooms provided

Use of end-of-trip facilities

Aesthetic

Variety & quality of destinations

Proximity to parks

Total lighting

Greenery

Pedestrian Characteristics

Infrastructure use

Total trips

Trips per day

Level of service

Walking participation

Proportion of all travel

Regular participation

Walk duration, walk length

Travel time

Trip distance

Walking intensity

Delay

Walk purpose

Origin and destination

Transport

Recreation

Demographics

Age

Gender

Ethnicity

Safety and security

Injury / morbidity

Fatalities

Injuries (major and minor)

Crashes

Infringements

Total citations

Total fines

Security

Incidence of violence

CCTV cameras

Perceptions of safety

Relevant reports:

This table of indicators is adapted from the 2000 *Cycling Data and Indicator Guidelines* by the Federal Department of Health and Aged Care and the Australian Bicycle Council; the 2008 PCAL report *Cycling in NSW – what the data tells us* and the 2010 *Bicycling and Walking in the United States 2010 Benchmarking Report* by the Alliance for Biking and Walking.

Further study:

Assembling walking data in categories provides the basis for walking indicators, often expressed as rates or proportions.

Responses to the European environmental questionnaire *ALPHA* have linked an individual's physical activity to the perceived quality of the neighbourhood walking environment.

Collecting data for the "aesthetic" indicator in NSW, would help quantify this indicator.

2 3 4 5

A range of walking data sources are available in NSW

Category	Infrastructure		Pedestrian Characteristics					Safety and security	
Fundamental data	Network	End-of-trip facilities	Infrastructure use	Demographics	Walking participation	Walk duration Walk length	Walk purpose	Injury / morbidity	Infringements
Federal level	National parks		Bureau of Transport Research Economics	Australian Bureau of Statistics — Journey to Work		Australian Sport Commission "ERaSS"		Austroads	
				Australian Bureau of Statistics — National Health Survey					
State level	State parks	Major employers	RTA permanent counter	Bureau of Transport Statistics — Household Travel Survey				RTA Traffic Accident Database	Bureau of Crime Statistics
			DECCW Smile project	State parks visitation survey		NSW Health Schools and Physical Activity Survey	State parks visitation survey	Injury Risk Mgt Research Centre	
				Participation in walking events		NSW Health Adult survey		Insurance claims	
Local level	Asset manager or transport planner	Owner or building manager	Counts for development approvals		Parks and recreation				
	PAMP or TMAP (see p12)	Planner			Walking clubs				
	DDA committee (see p10)								
	Local Park Quality Audit								

Relevant sources

Data was collected from stakeholders identified in the inception process and through web searches, phone interviews and emails.

About the data:

Primary data relied on for this review are shown in green boxes.

Some secondary data sources could not be assembled from the identified sources in time for consideration in this study.

Key finding:

All three levels of government collect some data on walking. Many private businesses and community organisations also collect walking data. Important walking data may be collected, but embedded in reports.

There is no centralised source to store and review this information.

The extent and quality of walking data collected varies across NSW Local Councils

Local councils play a role in the delivery of pedestrian policy, programs and infrastructure.

Each council has different departments responsible for the footpaths and walking programs. During the delivery of the questionnaire, our team frequently began the questionnaire with the Road Safety Officer (RSO), though the RSO is not responsible for any paths through parks.

Chart:

Category	Yes
Response rate	115
Footpaths mapped in a Geographic Information Systems (GIS)	74
Footpath maintenance program	88
Current Pedestrian Access and Mobility Plan (PAMP)	73
Pedestrian counts	42
DCP/ LEPs require shower, locker and change room facilities	15
Community walking programs	48

Legend:
- ■ Yes
- ■ No
- ■ Unsure

X-axis: 0, 20, 40, 60, 80, 100, 120
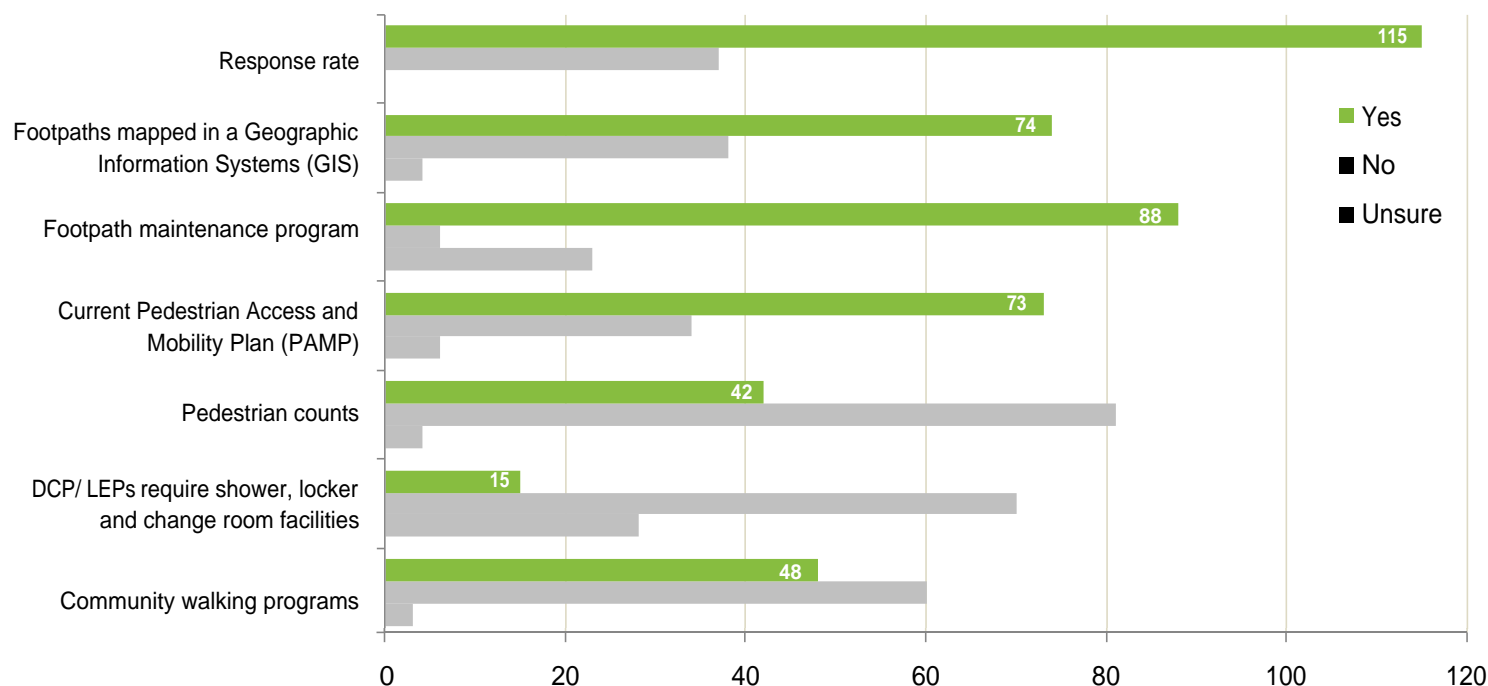
About the data:

A telephone survey of all NSW local councils was conducted to develop a picture of pedestrian infrastructure data held by all 152 local councils.

The questionnaire transcripts and any local footpath and pedestrian data collected during this study, are available upon request.

About the data:

There is no clear position that defines the management of footpaths across local councils Departments which may have a role in footpaths include:

- Asset management
- Transport or traffic engineering
- Planning
- Parks and recreation
- Sustainability
- Accessibility and disabled access

Further departments may be involved in developing walking encouragement programs or conducting walking events.

Key finding:

The 1992 Disability Discrimination Act (DDA) legislation are the only mandates for a minimum standard of pedestrian environment. This includes a footpath width of 1.2 metres in regional areas and at least 1.5 metres in urban areas – sufficient for two wheelchairs to pass.

Also, Section 117 of the *Environmental Planning & Assessment Act* requires local councils to address Integrated Land use and Transport Policy when preparing Local Environmental Plans. Visit:
http://www.transport.nsw.gov.au/abouttrans/planners-land-use.html

Notes on the data:

At regional or rural local councils, providing pedestrian facilities and encouraging walking may be impractical given the large geographic size or small population within a walk-able area.

2 3 4 5

At the local level, pedestrian data may be managed by different departments and staff

Due to the many types of walking and varied walking outcomes, a local council may fund some extent of footpath or pathway infrastructure or walking programs through different departments.

The local council questionnaire revealed limited mandate and funding to upgrade poor quality footpath pavements, widen footpaths or audit networks for connectivity and accessibility.

About the Road Safety Officer

The Road Safety Officer (RSO) is one of the chief instruments of pedestrian policy and programs at a local level. The staff in these positions are the link between local governments and the state-wide roads agency.

The NSW Roads and Traffic Authority (RTA) funds 50% of the RSO position. Where a local council is unable to match the funding for the role, or where the road safety matters in the area do not warrant a full-time staffed position, this may be a part time role or the RSO may be shared between another local council.

About the Asset Manager:

Some councils have a staffed Asset Manager position, which tracks the councils′ physical infrastructure. In this capacity the Asset Manager may know more about the extent of the entire walkable network, both recreational walking pathways and footpaths adjacent to the road network.

About the Town Planner

In the development application process for new urban developments, the assessing officer may be a Town Planner. There is some overlap between the responsibility of assessing the footpath as part of the public realm or as part of the transport network.

About the Traffic Engineer/ Transport Planner

This role varies between local councils – with the Traffic Engineer largely focused on the performance of the motor vehicle network and on-street car parking. Transport Planners may have the additional responsibilities for bus stops and bicycle parking.

About the Parks and Recreation (or Sport and Recreation) team

This team manages the community parks, sports fields and associated facilities. The pathway network linking these recreational spaces are overlooked as part of a functional walking transport network. This team may know the most about car parking problems and short car trips at recreational facilities and open spaces.

About the Office Manager

The Office Manager may have a degree of knowledge about staff active travel patterns. Many local councils have shower and change room facilities. In inner urban areas these facilities may be for end-of-trip facilities for staff using active travel to work– whilst regional offices may be integrated with the works depot (for depot staff). Several noted that lockers were over subscribed, with new participants unable to get a locker.

Key finding:

The questionnaire identified that there was fragmentation of walking-related responsibilities across the responding local councils.

There are opportunities for departments to work together in mutual efforts to collect walking data and close some gaps in the data collection.

This could achieve synergies in the use of existing funding and staff time, particularly if the council sets a target to increase walking for short trips and pursues a walking encouragement program.

Further study:

Walking events or promotional programs sometimes bounce between departments (Events, Community Services, Parks and Recreation etc).

Walk to Work Day was the most reported walking promotional program. This program was conducted at the beginning of October, 2010. Data is not available yet on rates of participation nor the cost per walk trip.

Further study would establish whether this program or other 'one off' events contribute widely to an increase in walking trips.

The extent and quality of the walking network is unknown

The footpaths and pathways comprise the walking network. This data is not collected at a state level. At a local level, information about the walking network can be found in a local council's Pedestrian Access and Mobility Plans (PAMPs) or in a Geographic Information System (GIS).

About Pedestrian Access and Mobility Plans (PAMPs)

PAMPs are prepared with partial funding from the NSW Roads and Traffic Authority. PAMPs often have static or embedded maps of the local footpaths and locations of pedestrian crashes. PAMP maps are up-to-date at the time of publication, but are sporadically updated.

About Transport Management and Accessibility Plans (TMAPs)

TMAPs are prepared by the proponent of major urban development sites, to assess transport demand at the new development. Static maps are used to identify a package of infrastructure, services and initiatives required to manage travel demand, and in particular, reduce travel by private car and commercial vehicle to and from the development.

About Geographic Information Systems

A Geographic Information Systems (GIS) is a powerful tool for managing spatial data, including infrastructure assets like footpaths and pathways. Other spatial data, including residential data or crash information can also be stored and managed using a GIS. When used with use and crash data, spatial data is used by planners to identify missing links, hot spots, obstacles and opportunities.

During the questionnaire, half of local councis in NSW reported that footpaths and crossings are mapped in a Geographic Information System (GIS). However, the breadth and depth of coverage varies between local councils. Whilst a GIS is more dynamic than a PAMP, the quality of the data in either location relies on regular updates, which requires funding, time and interest.

Infrastructure indicators are an integral part of measuring transport performance

Across motorised transport modes in NSW, planners use GIS to track the performance of the transport network. The first reported indicator is network length, measured in kilometres. Indicators of use, performance, exposure and risk are often reported against network kilometres. Not knowing the extent of the footpath and pathway network is an unexpected oversight – considering that the footpath network could comprise up to 10% of a road corridor!
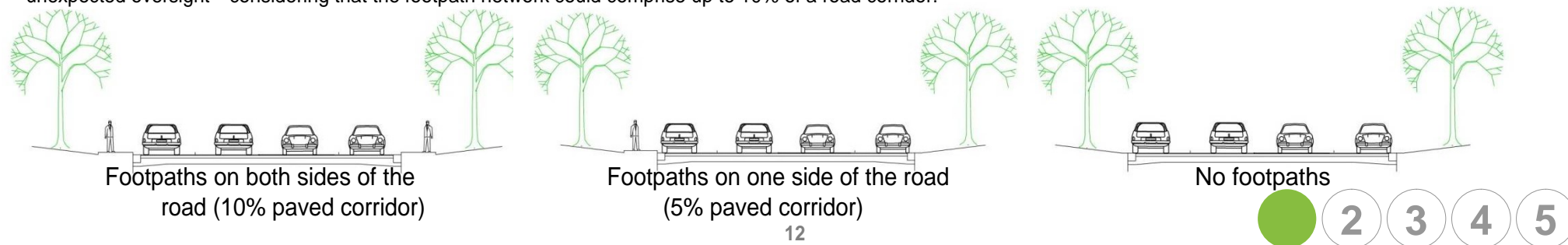
Key finding:

There is no state-wide database of the walking network or other assets pertaining to or placed in the walking network. This is a significant barrier to a statewide assessment of walking and walkability using the footpath network.

A state-wide database would establish the total kilometres of walking network. At a policy level, the database could be used by Road Safety Officers, Transport Planners, Asset Managers and the Sport and Recreation team, forming the base network for pedestrian crash analysis, future network planning, DDA compliance reporting and maintenance prioritisation.

The database could also form the basis of a walking trip planner or allow residents to report hazards on the footpath network.

For further study:
Other spatial factors of walking can also be tracked in a GIS. In the *International Physical Activity Prevalence Study SELF-ADMINISTERED ENVIRONMENTAL MODULE*, trained auditors establish the quality of the walking environment. The spatial components of these factors are managed in a GIS.

Footpaths on both sides of the road (10% paved corridor)

Footpaths on one side of the road (5% paved corridor)

No footpaths

2　3　4　5

Land use and urban design affect pedestrian accessibility

Current NSW planning guidance notes the importance of a permeable, connected pedestrian network. Without collecting and reporting on the total footpath and pathway provision or the routes chosen by pedestrians, it is difficult to know the permeability or connectivity of the network.

In the maps of Green Valley **Fig 1:** (south western Sydney) and Eastwood **Fig 2:** (north western) Sydney below, from the 2004 *Planning Guidelines for Walking and Cycling (p19)*, the inner red circle illustrates the notional "crow flies" 400 metre walking catchments.

The shaded land uses indicate the permeability of the walking network near the rail station, by shading the actual land uses accessible by walking.

The Eastwood network **Fig 2**, has short blocks with connected streets. As a result, 51% of the notional walking catchment is accessible in a five minute walk.

The Green Valley network **Fig 1**, is a physical network that accommodates the needs of motor vehicles. Just 12% of the notional walking catchment is actually accessible in a five minute walk.

The maps demonstrate that permeability impacts the station's walking catchment. The operations of the road network may further affect the catchment.

Key finding:

In NSW, the *Planning Guidelines for Walking and Cycling* are scheduled for review in 2011. This is an opportunity to strengthen, and possibly mandate, the assessment of pedestrian connectivity and amenity in new urban development, similar to the current evaluation of traffic generating developments in NSW.

In green field developments, this would ensure an appropriate walking network was established from the beginning.

In urban renewal locations, this would provide an opportunity to retrofit existing urban areas which may have less permeable networks.

The 2010 Premier's Council for Active Living (PCAL) *Development and Active Living Resource* provides detailed guidance on how to provide for walking as part of project design and within the assessment and approval process. An accompanying developer's checklist is slated for release in 2011.

Additional guidance:

The 2010 UK *Manual for Streets 2: Wider Application of the Principles* by the Chartered Institution of Highways & Transportation (CIHT) is a framework to remove unnecessary signs and advertising in the footpath network and public realm.

The report identifies 'de-cluttering' the pedestrian environment will make walking more palatable to residents.

Notes on walking environments:

In 2008, the *Pedestrians' Quality Needs (PQN) Benchmarking and 20 pedestrian-friendly cities* paper acknowledged that people choose to walk more when the walking environment is:
Connected
Convivial
Conspicuous
Comfortable
Convenient
This is not currently part of the assessment criteria.

Fig 1: Green Valley, outer south western Sydney

Fig 2: Eastwood, north western Sydney

(1) (2) (3) (4) (5)

Walking data collection and measurement could be improved

The nationwide benchmark for transport is the Australian Bureau of Statistics (ABS) five-yearly Census Journey to Work (JTW). The Census is a 100% sample, which increases the importance of the JTW benchmarks in the allocation of funding and forward planning. However, walking is such an essential component of trips by all travel modes, that the ABS must differentiate walking for the entire trip (marked as "walk-only"). In trips using two or more modes, walking is not reported. This diminishes the importance walking to and from the other transport modes and could result in serious undercounting of walk trips. To try to fill this gap, estimates are conducted to calculate the total walk component of these trips.

Another issue with the JTW holding such importance, is that people travel substantially more than just their journey to work. The next reliable data source is the NSW Bureau of Transport Statistics' Household Travel Survey (HTS), which measures all types of travel in a small, representative sample size of the Greater Sydney Metropolitan Area. This survey shows a much higher degree of walking when all types of travel and multi-modal trips are considered.

Total trips, trip length and travel time are standard measurements in transport planning or planning recreational walking pathways. To arrive at indicators of the walk's purpose or the walker's destination, this may be calculated from other existing data sources, usually the HTS for transport. The Australian Sports Commission's annual Exercise, Recreation and Sport Survey (ERaSS) does not allow for this type of factoring, merely surveying *whether* people walked for recreation, rather than *where* recreational walking took place.

When considering walking in a health context, frequency and duration of the walking trip is an important factor when assessing whether a bout of walking is "health enhancing" – contributing to an individual's recommended 30 minutes of physical activity per day. Data for these indicators is collected in NSW as part of the NSW Adult Health Survey or the Schools Physical Activity and Nutrition Survey (SPANS), both conducted by NSW Health.

Whilst these data sets can be used together to give a general picture of walking trends, travel time and frequency, the information about where the walking trip was actually conducted is not available. This can seriously under-report walking and does not provide any information about the actual route for the walk.

About the data:

To measure trip length, travel time and intensity, the measurement tool (or tools) have to travel with the walker. Unlike cars and public transport vehicles, walkers do not have inbuilt speed0metres.

Measuring of travel time and speed on the road and public transport network is an unobtrusive process, using counters embedded in the road network or counters in the ticket barriers.

Measuring the same factors for pedestrians can be invasive and intrusive, particularly when coupled with measurements of trip purpose and travel time.

These are critical factors in measuring bouts of walking for health benefits.

Relevant data sources:

The 2010 *Measuring Active Travel* project (on-going) is trialling a more robust picture of active travel for the Greater Sydney Metropolitan Area. The data from this survey is not currently available.

For this information to become a useful tool for practitioners and policy-makers, this data collection must be regularly updated in order to identify trends in the data.

Key finding:

In a 2006 Walk 21 paper *Walking and public transport – a natural partnership*, Garry Glazebrook found that "roughly half of the kilometres walked were associated with a public transport trip". By downplaying the importance of walking to other transport modes, nearly half of all kilometres walked are not factored into transport planning.

Serious, moderate and minor injuries to pedestrians may be both under reported and double counted

Double-counting and under-reporting the rate of injuries may result in a distorted picture of the risk of injury whilst walking. An iceberg is a metaphor for the problem: all fatalities are known, the tip of the iceberg above the surface, whilst the degree and extent of injuries are not well understood, the part of the iceberg below the surface.

More severe pedestrian injuries have the potential to be counted twice. Data "cleaning" for compliance with privacy laws, creates the potential for the same pedestrian injury to be counted three times, by:

RTA Traffic Accident Database System (TADs)

This database tracks 100% of pedestrian fatalities where a motor vehicle is involved. The database also contains pedestrian crashes resulting in at least $500 worth of damage and the involvement of the NSW Police.

**NSW Health and the Injury Risk Management Research Centre (IRMRC)**

NSW Health collects hospital separation data which provides information on hospital stays relating to injury, including pedestrian related injuries.

Insurance claims

Claims for minor accidents and falls, where a patient may be treated by a GP only, could be counted from insurance claims. Accessing this information is fairly difficult due to privacy constraints.

Moderate and minor injuries to pedestrians which do not involve a motor vehicle or are not reported to the NSW Police are not well understood from a transport planning perspective. However, in the 2010 NSW Health *Falls Prevention Baseline Survey ,* 26.7% of older Australians, aged 65 and older, reported limiting their walking *because of fear of falling* whilst walking over rough or uneven surfaces, steps or stairs.

Where these trips could have been conducted ordinarily by walking, these trips are now conducted on other modes – often as a vehicle passenger. Given the incidence of vehicle trips conducted only to "serve passenger" (e.g. the driver is only making the trip because the passenger must travel, not because they are travelling). These trips have real road congestion implications.
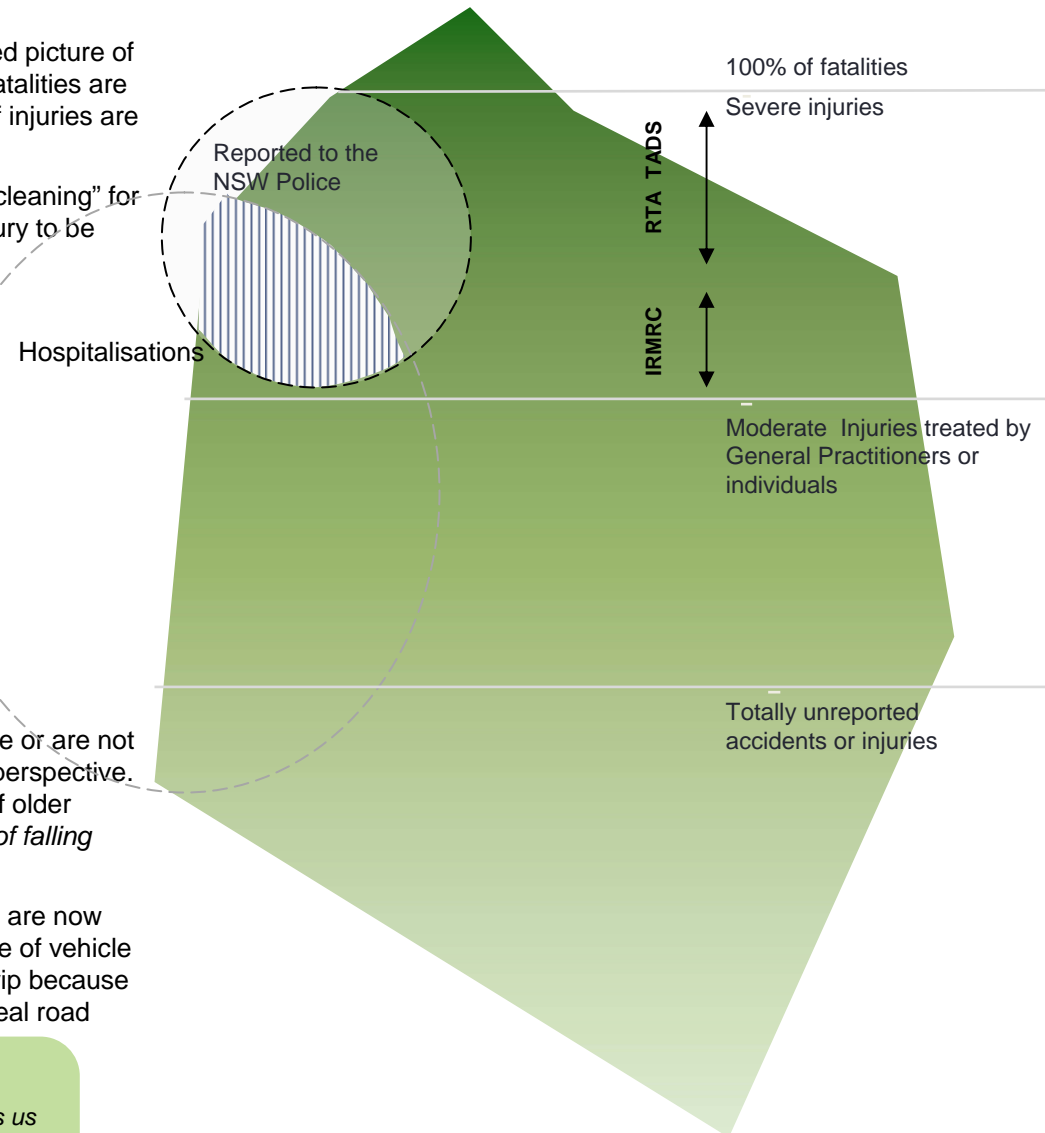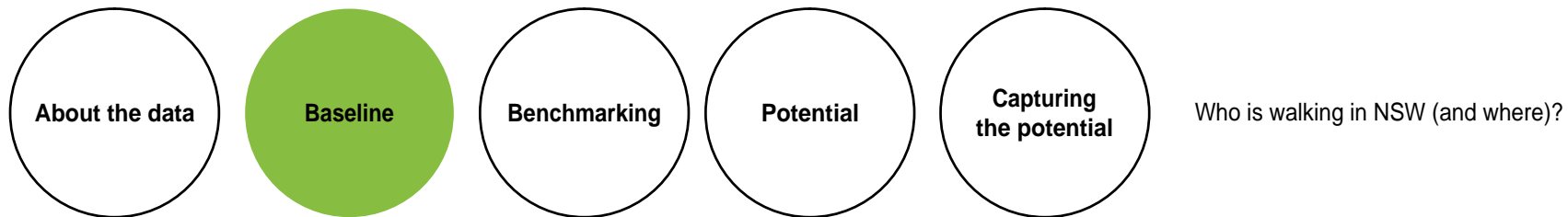
Relevant data sources:

The 2008 *Cycling in NSW – what the data tells us*

The 2010 NSW Health *Falls Prevention Baseline Survey*

The NSW *Traffic Accident Database*

Reported to the NSW Police

Hospitalisations

100% of fatalities

Severe injuries

RTA TADS

IRMRC

Moderate Injuries treated by General Practitioners or individuals

Totally unreported accidents or injuries

15

2 3 4 5

Baseline

| About the data | **Baseline** | Benchmarking | Potential | Capturing the potential | Who is walking in NSW (and where)? |

The walking data that is collected across NSW is used to establish the baseline of walking. Analysing the data indicates:

- Rates of walking to work in Sydney and NSW are on par with other capital cities, states and territories

- Rates of metropolitan walking have increased over time

- Walking for travel is more common in denser, inner urban areas

- Walking is the most popular recreational activity – but people are less likely to walk regularly (at least three times per week)

- School children are walking less and being driven more

- Highest rates of fatal pedestrian crashes are in urban centres

- Pedestrians experience a poor quality of walking environment (and low level of service) in Sydney

Rates of walking to work in Sydney and NSW are on par with other capital cities, states and territories

- In 2006, the rates of walking in Sydney were on par with other capital cities and tied with Canberra
- For the same year, the rates of walking in NSW were slightly higher than Canberra
- The state-wide rate for walking to work in NSW was slightly higher than the Sydney rate of walking to work.
- The rates of walking do not include trips which involved walking and one other mode (e.g. walking from public transport or parked cars).
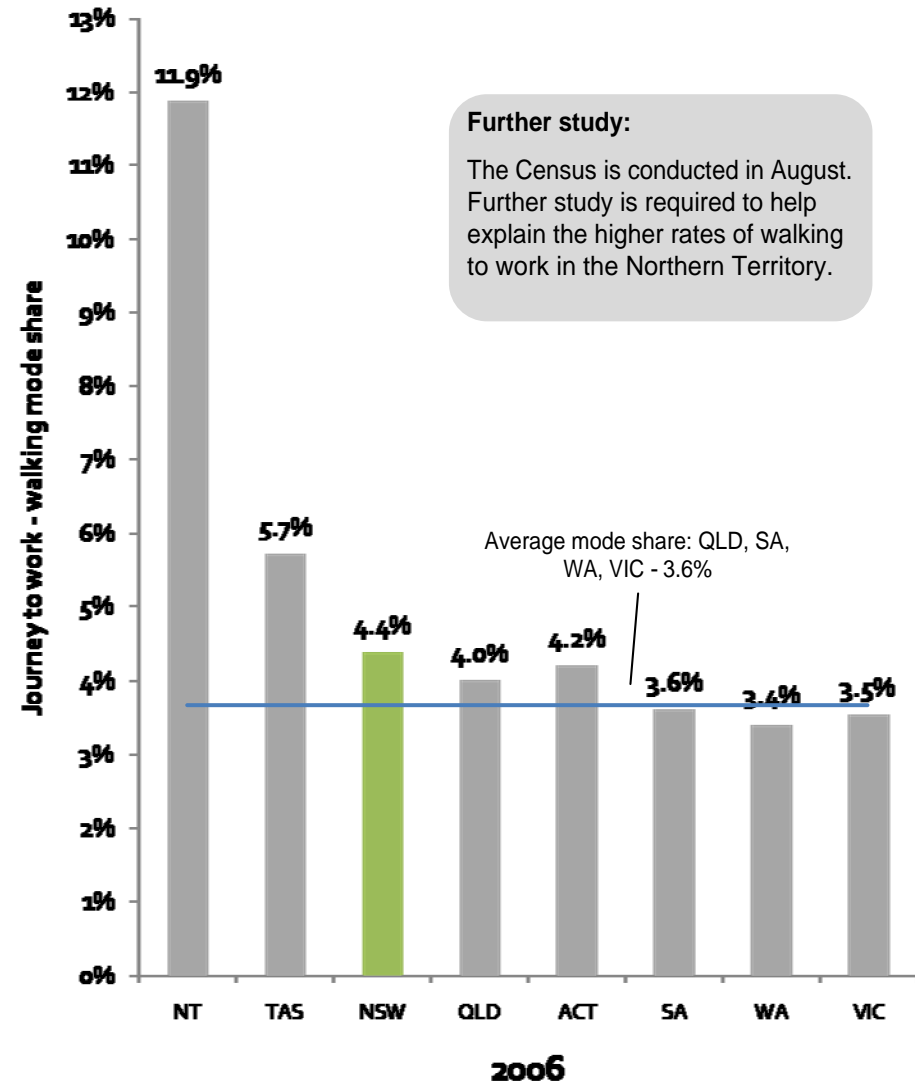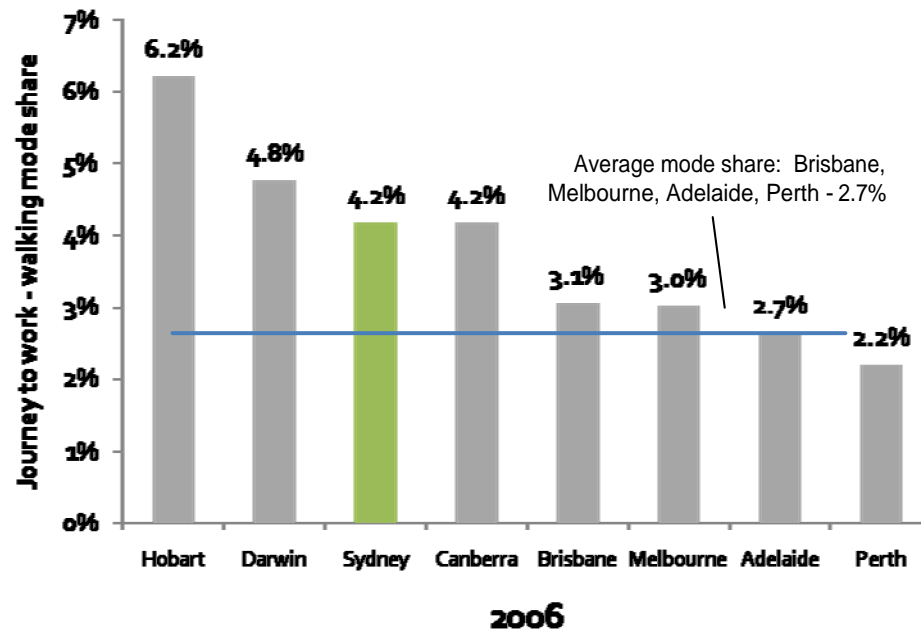
Further study:

The Census is conducted in August. Further study is required to help explain the higher rates of walking to work in the Northern Territory.

Journey to work - walking mode share

Average mode share: Brisbane, Melbourne, Adelaide, Perth - 2.7%

Hobart 6.2% | Darwin 4.8% | Sydney 4.2% | Canberra 4.2% | Brisbane 3.1% | Melbourne 3.0% | Adelaide 2.7% | Perth 2.2%

2006

Journey to work - walking mode share

Average mode share: QLD, SA, WA, VIC - 3.6%

NT 11.9% | TAS 5.7% | NSW 4.4% | QLD 4.0% | ACT 4.2% | SA 3.6% | WA 3.4% | VIC 3.5%

2006

Rates of metropolitan walking have increased over time

Rates of walking for travel
(all trips, average weekday, 1999-2008 Household Travel Survey)

Legend: Other, Bicycle, Taxi, Ferry, Bus, Train, **Walk only (a)**, Vehicle passenger, Vehicle driver

Walk only percentages by year:
- 1999: 20.8%
- 2000: 20.9%
- 2001: 21.3%
- 2002: 21.5%
- 2003: 21.4%
- 2004: 21.2%
- 2005: 22.2%
- 2006: 22.3%
- 2007: 22.2%
- 2008: 22.4%
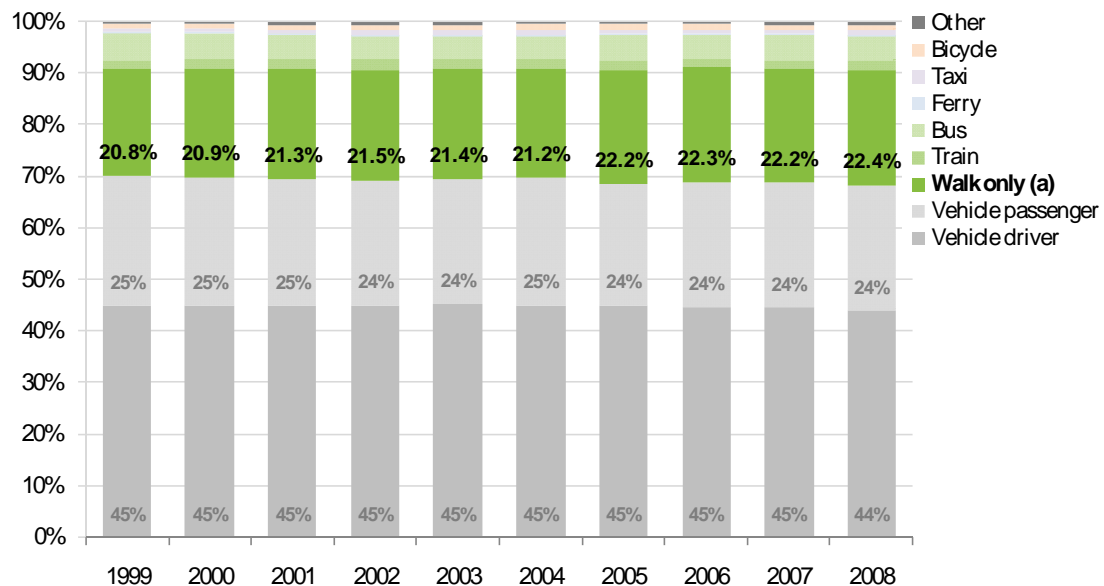
Total trips by trip distance, by travel mode, on an average weekday
(2008 Household Travel Survey)

Millions of trips (HTS 2008 average weekday)

Distance legend: 10km+, 5-10km, 2-5km, 1-2km, 0-1km

Trips of 1-2 km
Trips of 1 km or less

Vehicle driver: 879,632 / 565,933
Vehicle passenger: 550,776 / 316,312
Walking: 736,931 / 2,771,496
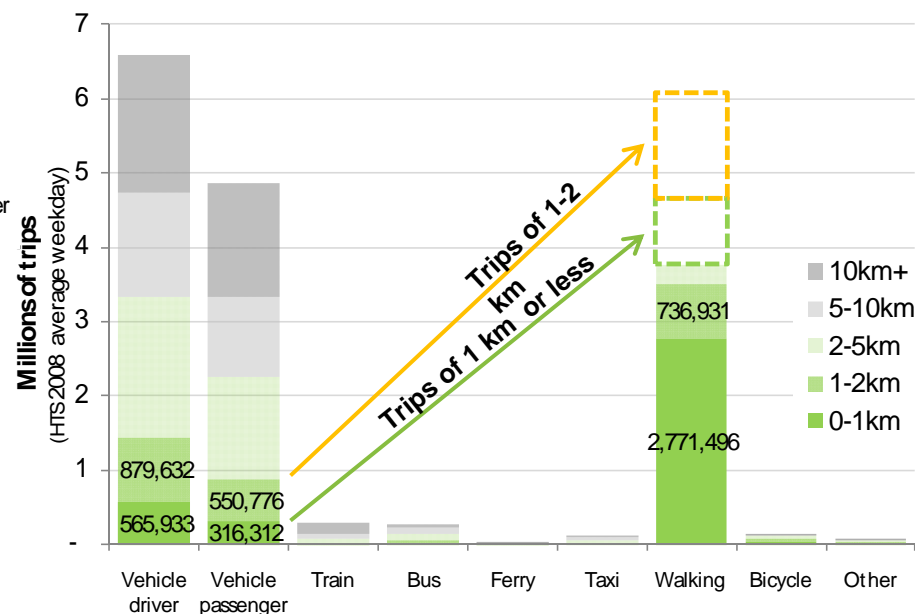
Findings:

Converting complete short car trips and serve passenger trips to walking – or adding to or increasing the walking component of longer car trips – contributes to the bouts of physical activity recommended by health practitioners and has a decongestion benefit for the local neighbourhood road transport network.

Relevant reports:

The charts on this page were prepared using the Sydney *Household Travel Survey* data from *1999-2008*, conducted by the Transport NSW, Bureau of Transport Statistics and the 2010, *NSW Metropolitan Transport Plan.*

(a) The Household Travel Survey *does not* collect data for trips which include walking in combination with another mode

Notes on the Data:

The Austroads *Guide to Traffic Management, Part 9 Traffic Operations,* p 165 identifies a pedestrian design speed used by Australian states and territories: a pace of 1.2 metres/ second is used in NSW.

At this pace, a trip of 1 kilometre is *less than a 15 minute walk* and a 2 kilometre walk is *less than a 30 minute walk*.

1 2 3 4 5

Inner Sydney activity centres have higher rates of walking
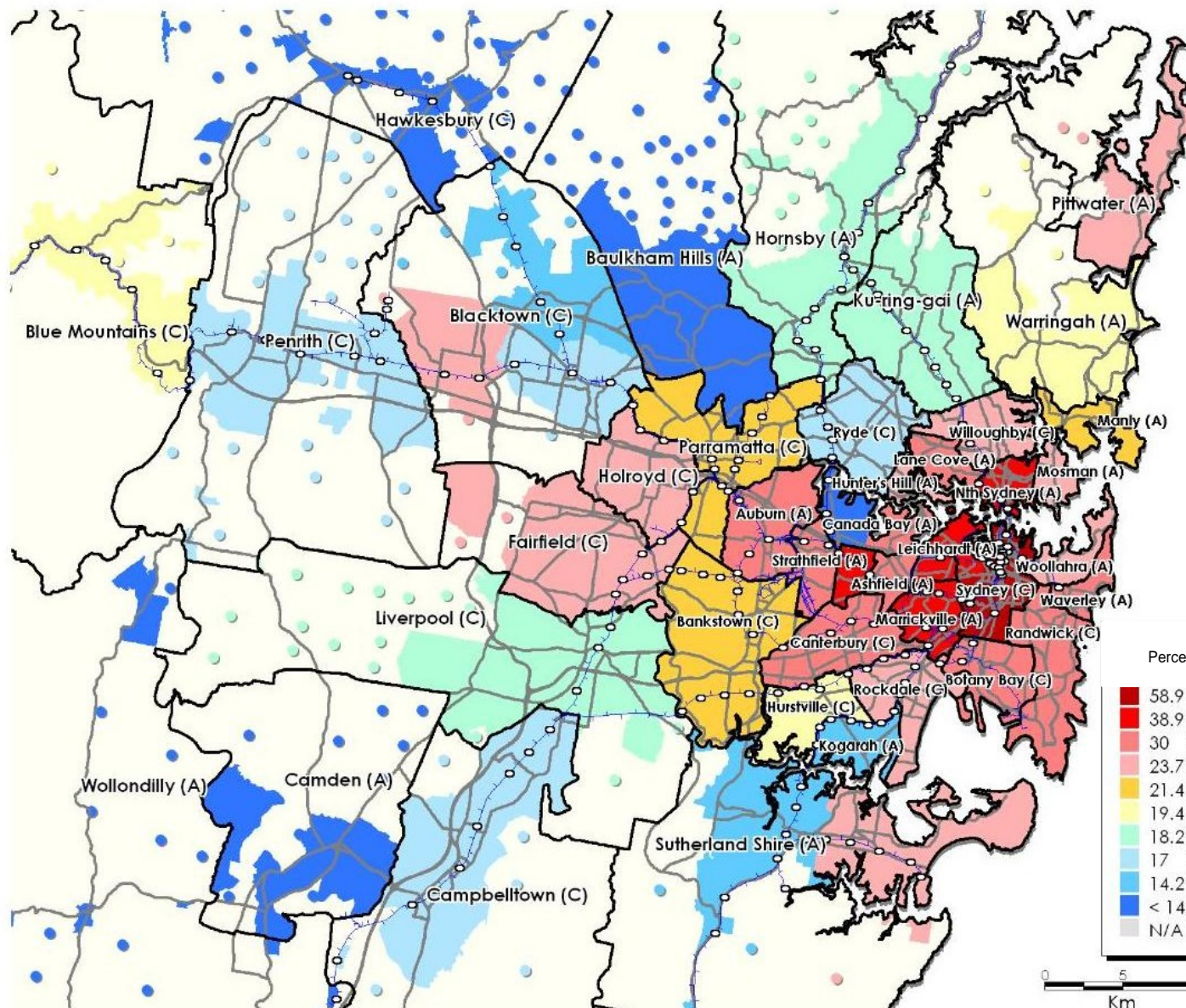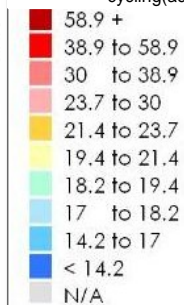

Notes on the map:

The Department of Environment, Climate Change and Water (DECCW) is undertaking a pilot project – Sustainable Mobility Initiatives for Local Environments (SMILE). SMILE is designed to support local governments implement low cost, effective sustainable transport solutions.

In September 2008, market research was undertaken by Rare Consulting to understand the motivations of different transport users. The research found reported patterns of non-work active travel focused on inner Sydney activity centres. The SMILE Transport Initiative 3, to increase the mode share of cycling and walking trips, describes four active travel encouragement projects which could contribute to higher rates of active travel: bike rental, bike parking, walking school buses and focus on major trip generators and activities.

The SMILE report and modelling tool is due to be released in Autumn 2011.

Mode Share: Active Modes (SMILE 2008)
Percent of average weekday non-work trips conducted by walking and cycling(active travel) modes where trip started from home

- 58.9 +
- 38.9 to 58.9
- 30 to 38.9
- 23.7 to 30
- 21.4 to 23.7
- 19.4 to 21.4
- 18.2 to 19.4
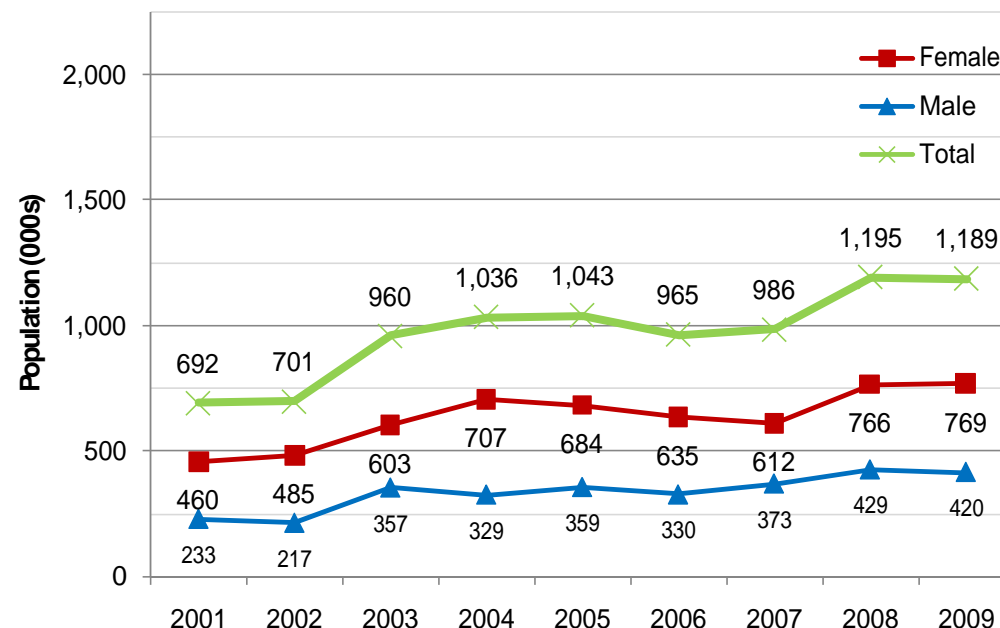- 17 to 18.2
- 14.2 to 17
- < 14.2
- N/A

1 2 3 4 5

Walking is the most popular recreational activity – but people are less likely to walk regularly

NSW residents reporting walking for recreation *once* during the past year
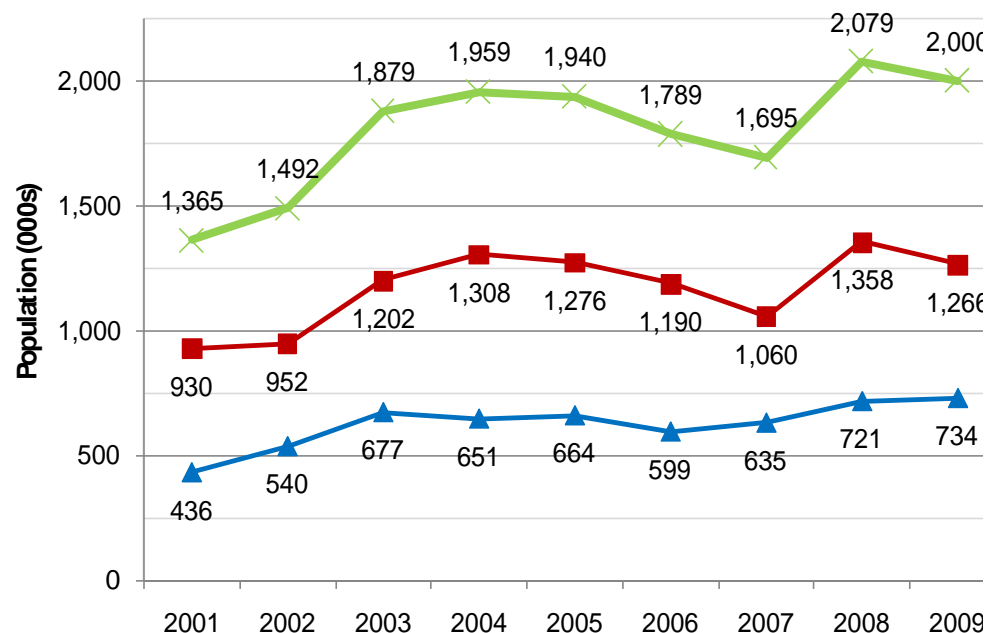
NSW residents reporting *regular* walking for recreation during the past year (*at least three times per week*)

Relevant data sources – ERASS

Each year the Australian Sports Commission, and state and territory government agencies responsible for sport and recreation, conduct the *Exercise, Recreation and Sport Survey* (ERaSS).

The survey collects participation information on the frequency, duration, nature and type of physical activities by persons aged 15 years and over for exercise, recreation or sport during the 12 months prior to interview.

Further study:

The difference in reported rates of walking once and walking regularly in the past year may represent under reporting in the survey or a real opportunity to increase recreational walking in NSW.

Further research would identify any factors which explain why residents walk once for recreation but do not undertake the activity again.

Key finding:

Walking *is* the most popular recreational activity reported by NSW residents in the annual ERaSS, with an estimated 2 million trips in 2009. Another 307,300 people are estimated to have bushwalked at least once in the past year.

However, respondents were less likely to walk *regularly*. **For the purposes of ERaSS, regular walking occurs three times per week or more.**

School children are walking less and being driven more

The Short Report of the NSW Health *Schools Physical Activity and Nutrition Survey (SPANS)* conducted in 2004, highlighted a substantial, downward trend in the Journey to School (below). The Sydney *Household Travel Survey* data (right) for the same year showed the largest increase in motor vehicle travel coincided with the end of the school day during the afternoon peak.

In the 1985 survey nearly 25% of girls in year 8 and nearly 30% in year 10 walked to school *four times* a week. By 2004, the rates of active travel to school – for boys and girls – fell in *both* year 8 and year 10 groups. The decline for year 8 girls was steeper than that of year 8 boys (p.17 of the Short Report).

Rates of children walking to school in 1985 and 2004 (SPANS)

Number of people travelling, by time of day on weekdays (2004 HTS)

Motorised travel only
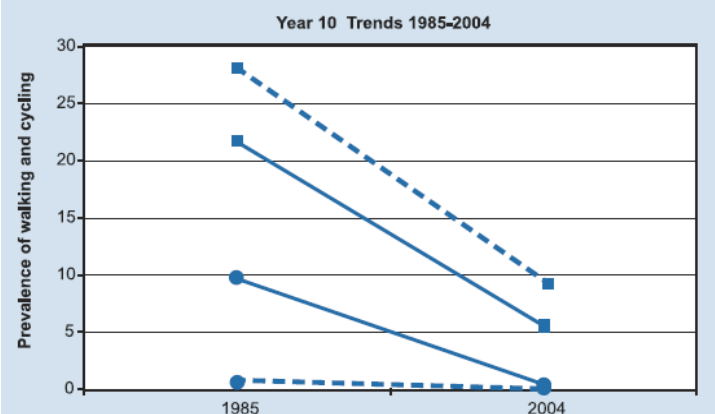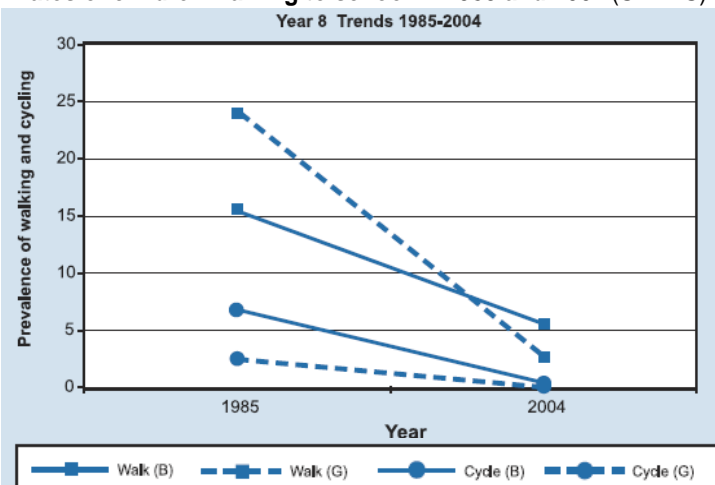
Relevant data sources:

The NSW Health Schools Physical Activity and Nutrition Survey (SPANS) data was reported within the 2004 Short Report. Full results of 2010 (SPANS) data are expected to be released in 2011.

Finding:

The NSW TravelSmart Schools Program 2006-07 confirmed parent journey to work as a key factor that influences parent's decisions on how they and their children travel to and from school.

Relevant data sources:

The 2004 *Household Travel Survey Summary Report* (2006 release, produced by the Ministry of Transport's, Transport Data Centre) showed the impact of the Journey from School trips – with the growth in close of school day afternoon peak travel surpassing the close of work day evening peak travel.

For further research:

Walking School Bus programs are one initiative to foster community ties and encourage walking across school children and their parents.

Further study of walking school buses delivered in NSW by Landcom, would indicate the success of the program and wider, practical applications across NSW.

(1) **2** (3) (4) (5)

The highest rates of fatal pedestrian crashes are in urban centres

Activity centres are hot spots for pedestrian fatalities. Local councils surrounding the Sydney Metropolitan Area had more fatalities than coastal and regional centres.

As more is known about the footpath network, more robust analyses of pedestrian crash locations may be conducted.

Notes on the data

The NSW RTA *Traffic Accident Database* is a record of all motor vehicle accidents across the state. A crash involving a pedestrian is recorded if it is reported to the NSW Police, results in hospitalisation or causes more than $500 worth of damage.

Total Fatal Crashes (Jan 2005-Dec 2009)

- ■ 15-20 Fatal Crashes
- ■ 11-15 Fatal Crashes
- ■ 6-10 Fatal Crashes
- ■ 1-5 Fatal Crashes
- □ 0 Fatal Crashes
- ■ No Data

Tweed (A)

Moree Plains (A)

Bourke (A)

Coffs Harbour (C)

Cobar (A)

Greater Taree (C)

Dubbo (C)

Lachlan (A)

Lithgow (C)

Cowra (A)

Goulburn Mulwaree (A)

Wagga Wagga (C)

Murray (A)

Albury (C)

Snowy River (A)

Bega Valley (A)

Sydney Inset

Parramatta City

Fairfield City

City of Sydney

Bankstown City

① ② ③ ④ ⑤

Pedestrians experience a poor quality of walking environment (and low level of service) in Sydney

In traffic engineering, there are many different design vehicles ranging in size and performance from a small car to a B-triple trailer truck. The 2009 update to the Austroads *Guide to Road Design, Part 4 Intersections and Crossings – General* p 26 has four design vehicles, but no "design pedestrian". The Austroads *Guide to Traffic Management, Part 9 Traffic Operations,* p 165 identifies two pedestrian design speeds used by Australian states and territories: 1.2 metres/ second or 1.5 metres/ second. In NSW, 1.2 metres/ second is commonly used. This assumes every pedestrian walks at the same speed.
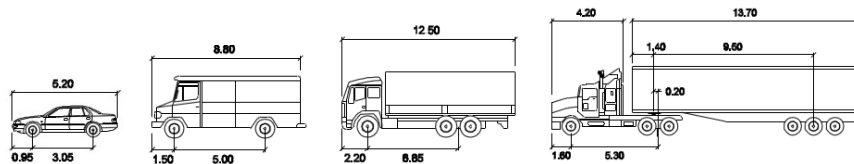
In 2007 Professor Jan Gelh of Gehl Architects was engaged by the City of Sydney to conduct the *Public Spaces – Public Life* survey for Sydney CBD. Gehl Architects found that pedestrians have a low degree of priority compared to other modes. The results of a timed walk on Hunter Street in Sydney during the morning peak (shown on the right) shows that pedestrian delays at traffic signals increase the walking time by 60% – reducing travel speeds from 6.5 km/h to just 4 km/h.
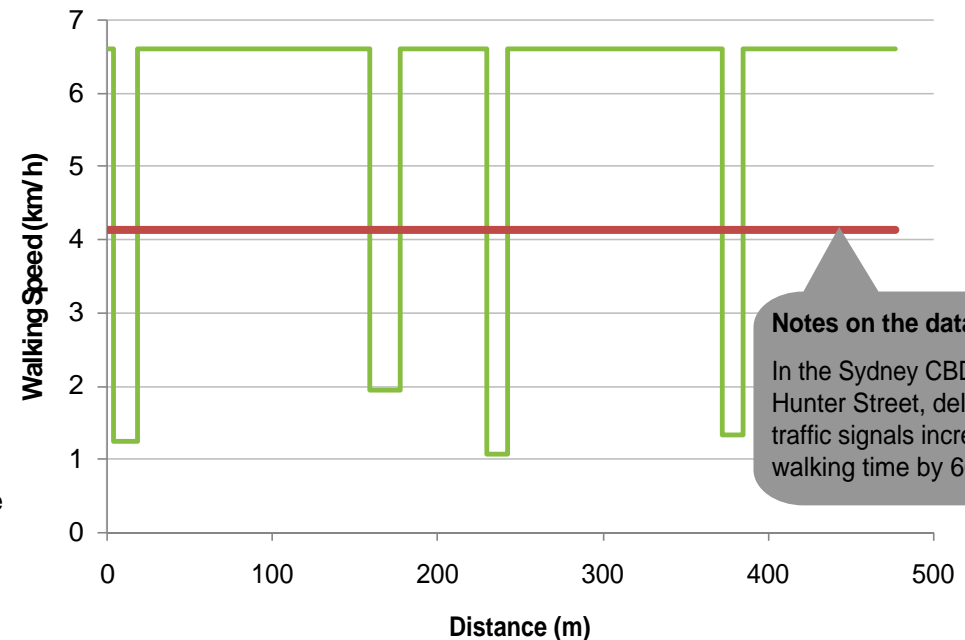
Further, Gehl Architects found CBD footpaths are cluttered with payphones, posts and unnecessary footpath interruptions, further reducing the quality of the walking environment. In just the city centre, there are 178 payphone and advertising units – which are installed in the footpath, blocking travel.

Additional guidance:

The 2004 Dutch guideline *Recommendations for traffic provisions in built-up areas,* identifies five design pedestrians. The various walking speeds vary between 0.8 metres/ second to children at 2.1 metres / second. These rates are used to design the walking network around destinations, ranging from child care to aged care facilities.

Pedestrian travel time surveys in the Sydney CBD, Hunter Street, 8.00 am weekday (Gehl Architects, 2007)

Notes on the data:

In the Sydney CBD, on Hunter Street, delays at traffic signals increase walking time by 60%

For further study:

The City of Sydney and the NSW Government recently signed a Memorandum of Understanding (MOU) addressing all transport in the Sydney CBD, including opportunities to improve the environment for walking. Agreed initiatives include:
• Begin a trial of pedestrian countdown timers.
• Create seven 10kph shared zones in streets and laneways to mix uses.
• Reduce the speed limit in the City Centre to 40 kph.
• Improve pedestrian priority at major pedestrian intersections.
• Reduce wait times for pedestrians in peak periods.
• Identify further roads and lanes to convert to shared zones.
The lessons learnt through these activities as a result of this MOU will have practical applications for the other local government areas.

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Benchmarking

About the data   **Baseline**   **Benchmarking**   **Potential**   **Capturing the potential**
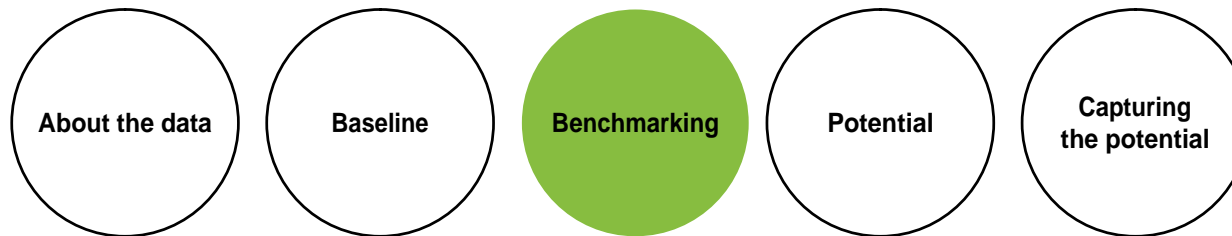
How do walking outcomes in NSW and Sydney perform against comparable locations, including other Australian states and capital cities?

NSW has a strong track record, reporting on pedestrian safety indicators. In the absence of detailed network data or comparable trip data, injury benchmarks are the strongest for international comparison.

• In 2001, on international pedestrian road safety indicators NSW was average

• Since 2001, pedestrian crashes have reduced across NSW

• Low car speeds correlate to improved pedestrian safety

In 2001, NSW was average against international pedestrian road safety indicators

The Organisation for Economic Co-operation and Development (OECD) compiles international indicators to compare member countries. In a 2001 review of road safety, researchers recorded pedestrian fatalities as a factor of 10,000 registered motor vehicles. In the same period, pedestrian fatalities in NSW matched the Australian indicator and OECD median – ranking behind that of Northern European countries with a favourable track record of pedestrian priority but also below that of Eastern European countries with a growing culture of motoring (see chart below).

Finding:

Participating in international benchmarking returns useful comparisons and performance measures.

Rates of pedestrian fatalities per 10,000 registered motor vehicles (OECD 2001)

2001 OECD median

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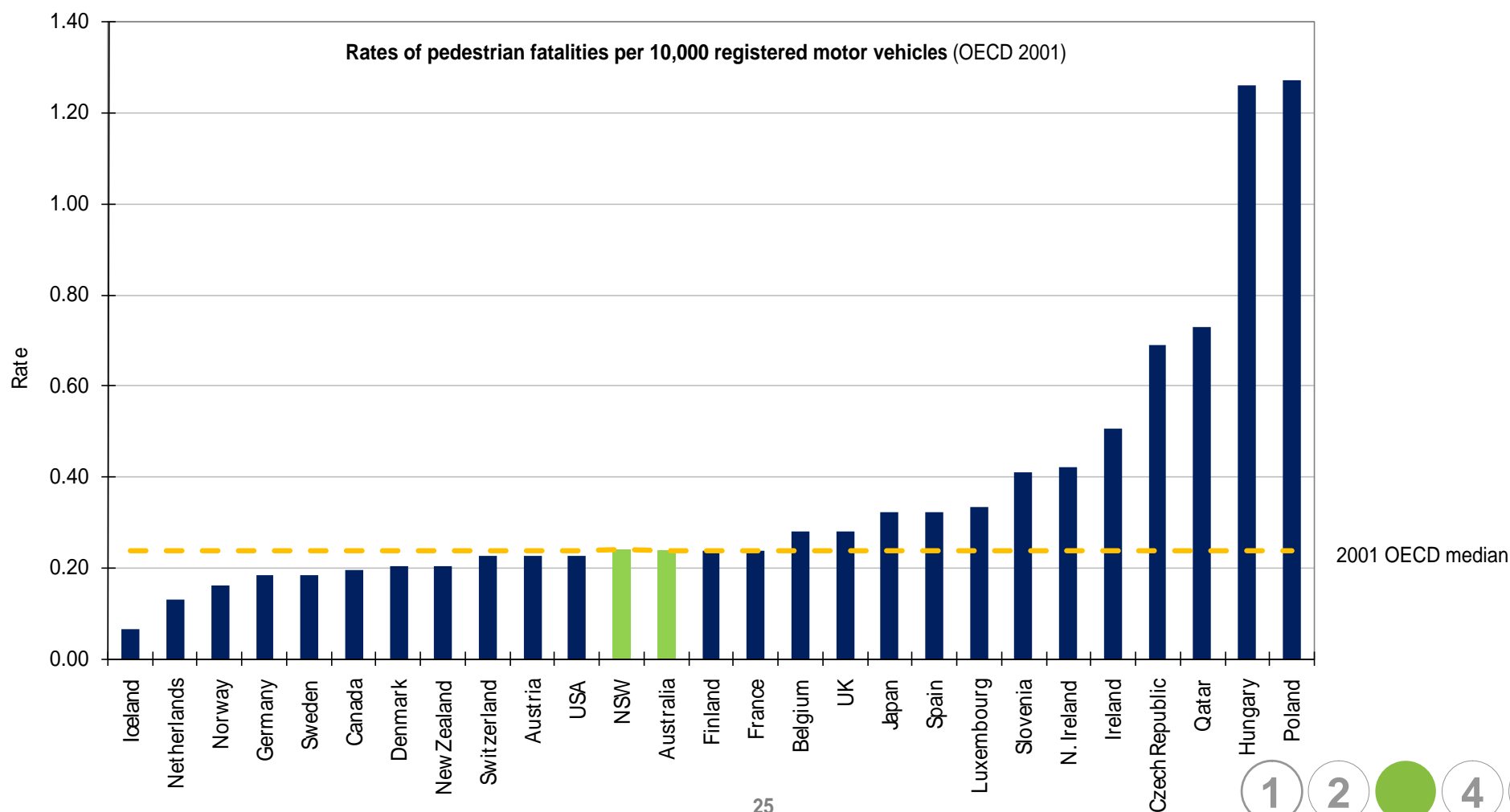
Since 2001, pedestrian crashes have reduced across NSW

Pedestrian fatalities and reported pedestrian injuries have steadily decreased in NSW. The rate of pedestrian fatalities per 10,000 vehicle registrations continues to trend towards zero (see chart below). Increasing vehicle registration could explain the steeper decline in the rate per 10,000 vehicle registrations compared to the slower decline in rates of fatalities and injuries.

The Roads and Traffic Authority continues to fund the preparation of Pedestrian Access and Mobility Plans (PAMPs) by local councils. PAMP projects include installation of measures to improve pedestrian safety such as:

•Pedestrian refuges

•Pedestrian fencing

•Pedestrian crossings

•Signalised intersections

Finding:

Although the NSW Roads and Traffic Authority typically funds 50-100% of costs associated the implementation of local PAMP pedestrian safety projects, no state-wide asset layer exists for these assets.

Mapping these assets would provide the basis for desktop walking analyses of annual crash data, walkability, missing links and walk quality.

Rates of pedestrian fatalities and injuries in NSW motor vehicle crashes (RTA annual reporting)

Legend: Fatalities — Injuries — Fatalities per 10,000 Registered Vehicles — 2001 OECD Median
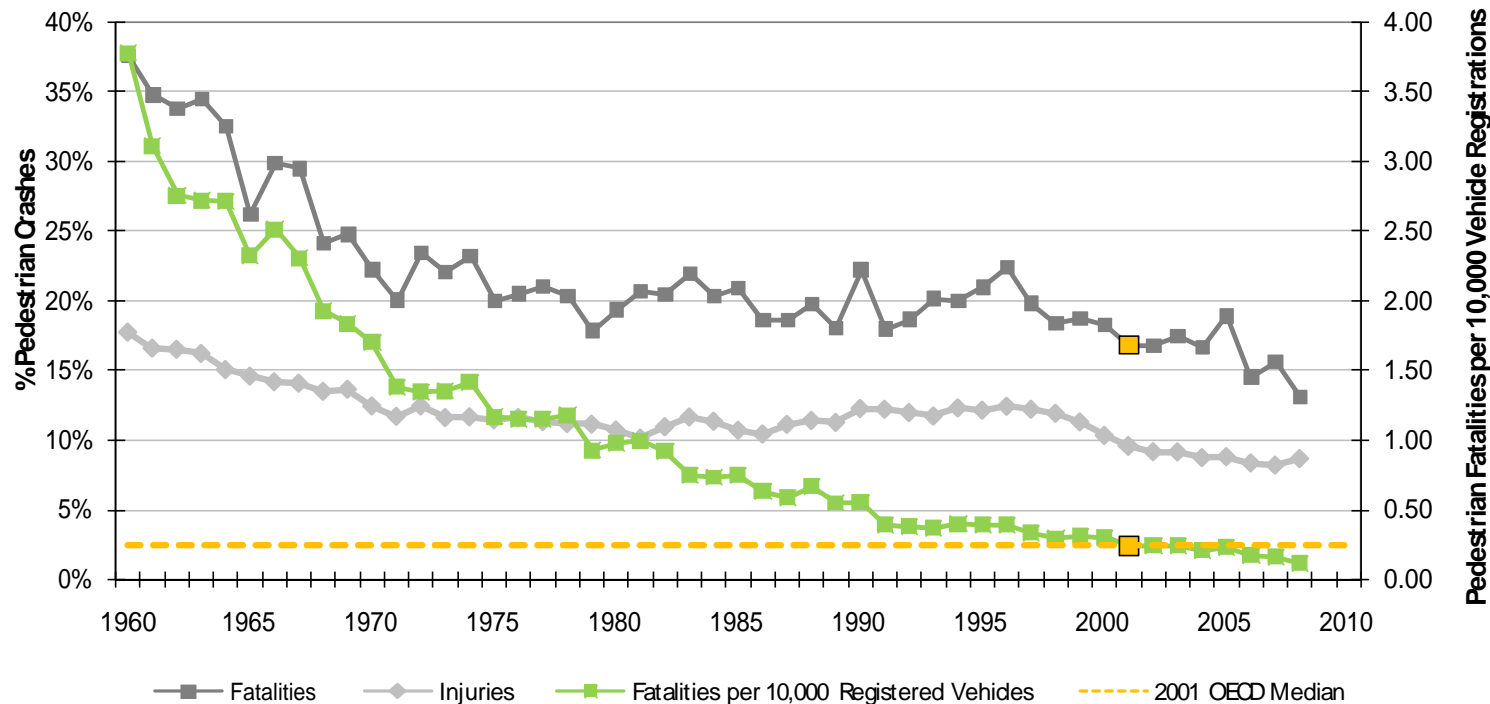
Further study:
The pedestrian safety facilities installed next to roads do not necessarily improve the pedestrian experience but rather maintain vehicle speeds by fencing off pedestrian desire lines.

The remaining environment for walking is often less direct, cluttered, constrained and unpleasant.

Further data collection and analysis is required to identify if pedestrian volumes remain constant after "remedial" interventions like fencing and barriers or if fewer people are choosing to walk.

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Low car speeds correlate to improved pedestrian safety

In 2004 road safety research, a comparison of Australian and Dutch road safety indicators showed that lower vehicle speeds strongly correlate to the pedestrian's chance of surviving a crash (right). This chart compares international and historic data to illustrate the increased likelihood of a pedestrian surviving a motor vehicle crash in lower motor vehicle speed environments. Several trend lines test the correlations between low vehicle speed and survival rates.

In 2010, this theme was recently explored again in a paper for the Australasian Road Safety, Research, Policing and Education Conference *Casualty reductions in NSW associated with the 40 km/h school zone initiative.* The school speed zone reductions were "found to be associated with a significant reduction in child pedestrian trauma in the identified school zones." However, it is possible that these reductions are a reflection of fewer children being unsupervised near the road.

Case study: Vision Zero philosophy, Sweden

Adopted in 1997, *Vision Zero* is a Swedish Road Traffic Safety Bill. The vision is that no one will be killed or seriously injured within the road transport system. Vehicle mobility can not be obtained at the expense of safety: "the speed limits within the road transport system should be determined by the technical standard of vehicles and roads *so as not to exceed the level of violence that the human body can tolerate*".

The first principles in Vision Zero pertain to vulnerable pedestrians:

1. Vulnerable road users should not be exposed to motorised vehicles at speeds exceeding 30 km/h

2. If 1. cannot be satisfied then separate or reduce vehicle speed to 30 km/h

Applications of Vision Zero were considered for an Australian context in a 1999 Institute of Traffic Engineers paper *Vision Zero – an ethical approach to safety and mobility*

Likelihood of a pedestrian surviving a motor vehicle crash (RTA and CROW)

Data for this chart compiled from four sources:

NSW RTA Pedestrian Safety Action Plan 2002-04,

RE 40km/h High Ped Program Letter March 2004,

Langzaam Rijden Gaat Sneller Een Handreiking voor Verkeerskundigen CROW, 2004,

Driving Speeds and Pedestrian Safety: a mathematical model E Pasanen, Technical University of Helsinki, 1992.

Legend:
- ◆ Australia
- ✳ Australia
- ■ Historic
- ● Historic
- ▲ Netherlands
- + Netherlands

1 2 ● 4 5

Potential

About the data | **Baseline** | **Benchmarking** | **Potential** | **Capturing the potential**

What is the broad potential to increase walking in NSW

Based on the data collected and analysed, the project team established a baseline of available data relating to current walking levels and walking infrastructure in NSW. This baseline may be used to set goals to increase the infrastructure provision for walkers and the rate of walking in NSW. These goals could be formalised in the State Plan as:

•Shifting short car trips and car passenger trips is a market to increase walking trips

•There is a relationship between the built environment, transport planning and walking

Shifting short car trips and car passenger trips is a market to increase walking trips

On an average weekday, the 2008 Sydney Household Travel Survey (HTS) indicates there were nearly 566,000 car trips and 316,000 more vehicle passenger trips of less than one kilometre in the Sydney Metropolitan Area. As a result, there are a total of over 880 000 short car and passenger trips of less than one kilometre each weekday (see 'Total trips by distance', pg 20 of this report).

At the Austroads *Guide to Traffic Management, Part 9 Traffic Operations,* p 165, average walking speed of 1.2 metres/ second, a trip of one kilometre is *less than a 15 minute walk*!

Whilst a portion of these car trips may be unavoidable due to infirmity or disability, many of these trips are ideally suited to active travel modes, including walking.

Converting 5% of short car and car passenger trips (44,000) to walking for travel trips could increase the Sydney walking mode share to **7%** in the 2016 Census Journey to Work.

Converting 10% of short car trips (88,000 trips) to walking for travel trips could increase the Sydney walking mode share to 8.8% in the 2016 Census Journey to Work.

For further research:

Further analysis is required to establish an equivalent recreational walking goal.

A recreational walking goal could be developed and measured using the annual Exercise, Recreation and Sport Survey to measure growth in regular and occasional walking indicators.

Finding:

The 2010 NSW State Plan (p11) sets a priority to increase both walking and cycling, but does not set a specific target for walking.

The 2010 Metropolitan Transport Plan (p15) forecasts an increase on 2010 "walk only" trips by 7.4% to 3,790,000 "walk only" trips. This excludes walking to access all other travel modes, including walking to parked cars, bus stops, ferry wharves or rail stations.

Walking to motor vehicles or public transport should be incorporated in these plans and reported on regularly.

Based on the walk to work mode share in the 2006 Census Journey to Work, an additional 44,000 or 88,000 walk to work trips could double the walking mode share by the 2016 Census.

8.8% (shift 10% of 1km car trips)

7% (shift 5% of 1km car trips)

2016
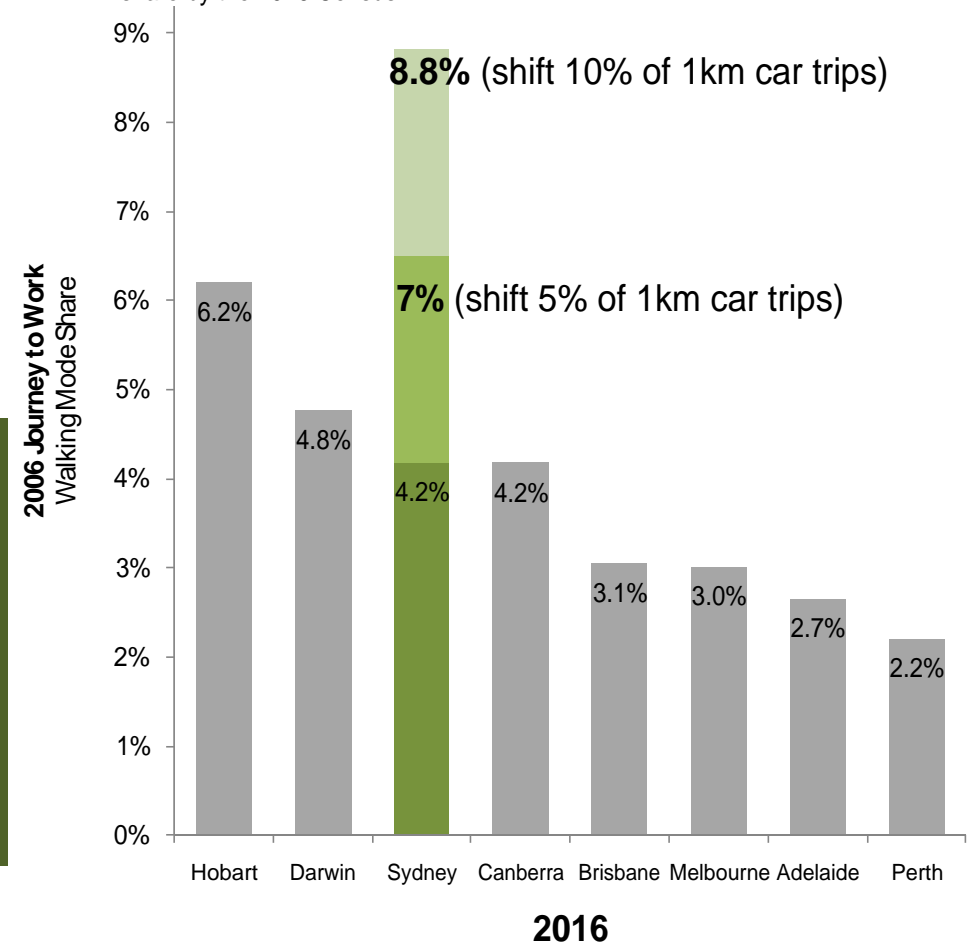
There is a relationship between the built environment, transport planning and walking

The 2010 Metropolitan Transport Plan (MTP) anticipates a 7.4% increase in walking trips by 2020 – excluding walking to the start or from the end of public transport and car trips.

However, to ensure rates, duration and frequency of walking increase to the benchmark of 30 minutes of physical activity per person, per day – new walking trips and recreational walks must be generated in addition to walking for trips to work, errands and journey to school.

To generate completely new walking trips and recreational walking, requires a connected walkable network and quality destinations. A suite of walking infrastructure, encouragement programs and policies are required.
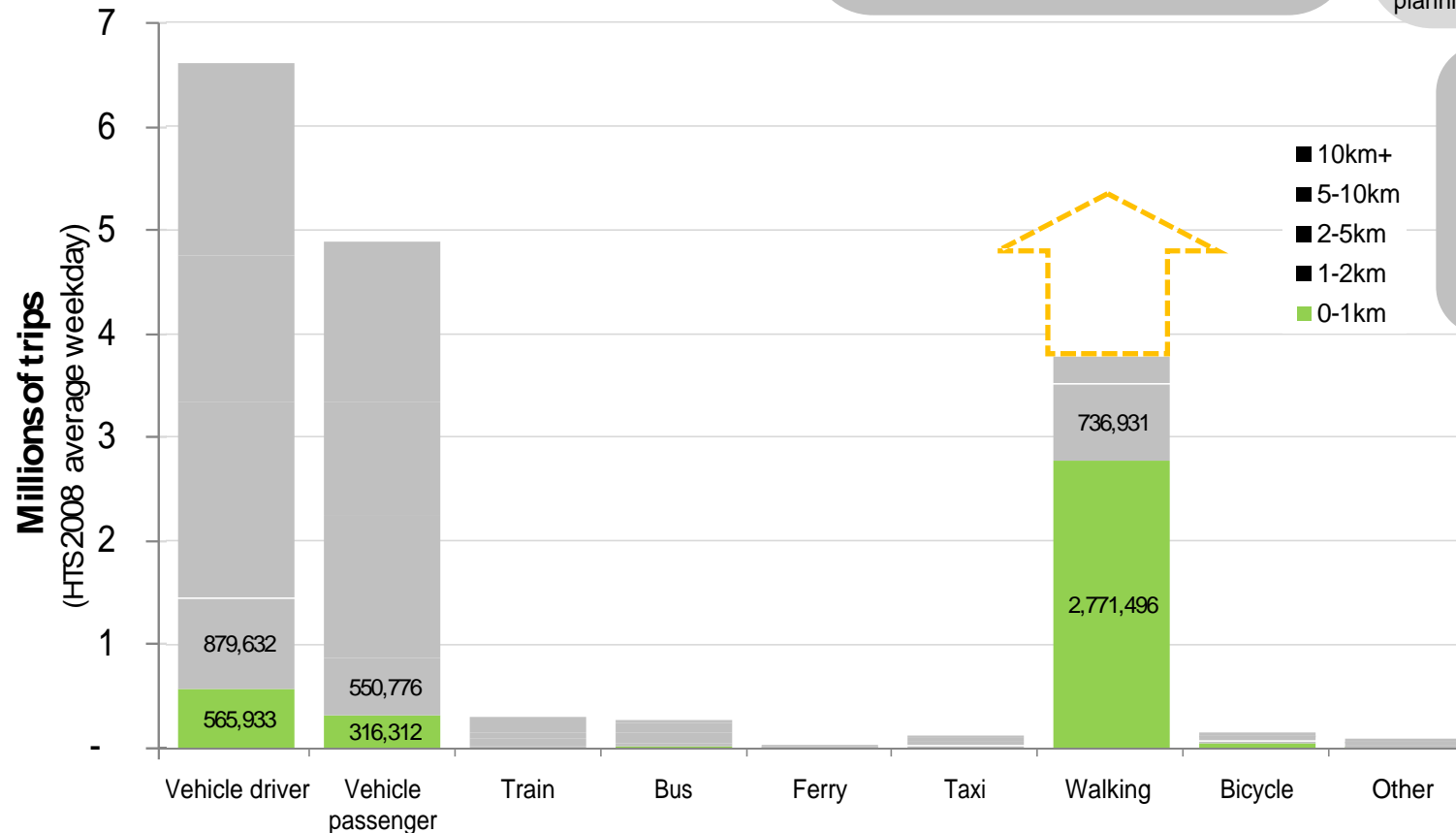
Relevant data sources:

In 1997, *Advice on a Strategy for Walking in London* found that rate payers' willingness-to-pay increased for recreational walking, rather than walking for transport, for all values: clean, well-lit, even pavement, less crowded, info panel or way-finding signs and kerbs.

The report also found delay to pedestrians could be no longer than 96 seconds before pedestrians crossed illegally.

For further study:

In a 2005 article in the American Journal of Preventive Medicine, *Increasing walking: How important is distance to, attractiveness, and size of public open space?* Giles-Corti, Broomhall and Knuiman reported that proximity to park and the quality of the park, relate to rates of walking. Using the POST tool developed for this research, could establish a park "minimum" for locating and planning parks in NSW.

Relevant data sources:

In the 2010 Heart Foundation *Position Statement on the Built Environment and Walking* notes that compact, connected urban environments with a mixture of densities and land uses, create shorter distances between desired destinations, encouraging transport related walking.

For further study:

Estimates of walking to public transport services seem to indicate passengers are willing to walk further for more direct trains or buses. Further study would establish the factors that influence this decision and indicate improvements or programs to increase walking (i.e. increasing express public transport services or amalgamating express bus stops).

Millions of trips
(HTS 2008 average weekday)

Legend:
- ■ 10km+
- ■ 5-10km
- ■ 2-5km
- ■ 1-2km
- ■ 0-1km

Vehicle driver: 879,632 / 565,933
Vehicle passenger: 550,776 / 316,312
Walking: 736,931 / 2,771,496

Categories: Vehicle driver | Vehicle passenger | Train | Bus | Ferry | Taxi | Walking | Bicycle | Other

1 2 3 4 5

Capturing the potential

About the data

Baseline

Benchmarking

Potential

Capturing the potential

What data would help to identify ways to grow walking and track outcomes achieved?

What further research would complete the picture of walking in NSW?

To capture progress towards a potential walking benchmark, NSW agencies and organisations must:
Car trips of less than 2 kilometres are a market to increase walking trips

- Establish a baseline and set targets to increase walking

- Measure improved pedestrian indicators

- Measure and add to the walking network

Establish a baseline and set targets to increase walking

Report on walking

To set meaningful targets to increase walking, walking baseline indicators must be established by completing gaps identified in this study. Within the three categories of pedestrian data, five baseline indicators are proposed:

•Length of footpath and the extent of the footpath network

•Frequency of walking trips

•Walking kilometres travelled (WKT)

•Duration of walking trips

•Minor injuries whilst walking, including falls and near misses

Following the initial baseline data collection, these indicators become the basis for setting appropriate and ambitious targets to increase walking for transport and health.

Report on walking programs and spending

In addition to indicators to track walking for health and physical activity, the *Bicycling and Walking in the United States 2010 Benchmarking Report* tracks walking performance based on allocated funding and full-time staff.

Category	Infrastructure	Pedestrian	Safety and security	Funding	Staffing
Fundamental data	**Network** Kilometres Network connectivity and permeability	**WKT** Trip length (km) Origins and destinations Linked trips	**Safety** Crashes Injuries Falls	**Spending** Infrastructure Programs	**Staff** Full-time Part-time

Travel time

Total time

Delay (crossings and midblock)

Peds / metre / minute

Frequency

Trips and walks

Participation

For further study:

As the RTA handbook is widely used in the assessment of new development, this guide should be revisited and brought up to international standards, with more than one "design pedestrian".

Relevant data sources:

The Austroads *Guide to Traffic Engineering Practice* uses the international best practice pedestrian Level of Service, established by Fruin in 1971.

The 2002 RTA *Guide to Traffic Generating Developments* handbook uses the 1985 *Highway Capacity Manual* to assess pedestrian Level of Service.

1 2 3 4

Measure improved pedestrian indicators

Category	Infrastructure	Pedestrian			Safety and security	Funding	Staff

Fundamental data	Network	Frequency	WKT	Travel time	Safety	Spending	Full-time equivalent

	Map and measure **X**	Household Travel Survey **++**			RTA Traffic Accident Data **X ++**	Annual reports **X**	Key Performance Indicators (state and local) **X**
		Permanent pedestrian counters **#**	Measuring Active Travel Survey **++**				
		Temporary pedestrian counts **#**	Pedometers **#**				
			Bluetooth/ Smart phones/ GPS applications **#**				

For further study:

Smart phones and Bluetooth devices provide an opportunity to collect walking travel data in an unobtrusive way.

Applications like "map my run" collect pedometre-like data about trip length and travel time. Bias is inherent through this data collection methodology (due to market penetration of smart phones and due to the type of user likely to provide data through this type of application).

Greater investigation is required before considering this application for transport planning or health planning purposes.

Key finding:

Data collection across these indicators is advancing in various degrees. Advanced data collection programs are required where data is currently available or technology exists to conduct data collection today.

X Improve data collection

++ On-going

* Data currently available, data collection required

Technology available to collect data, program required
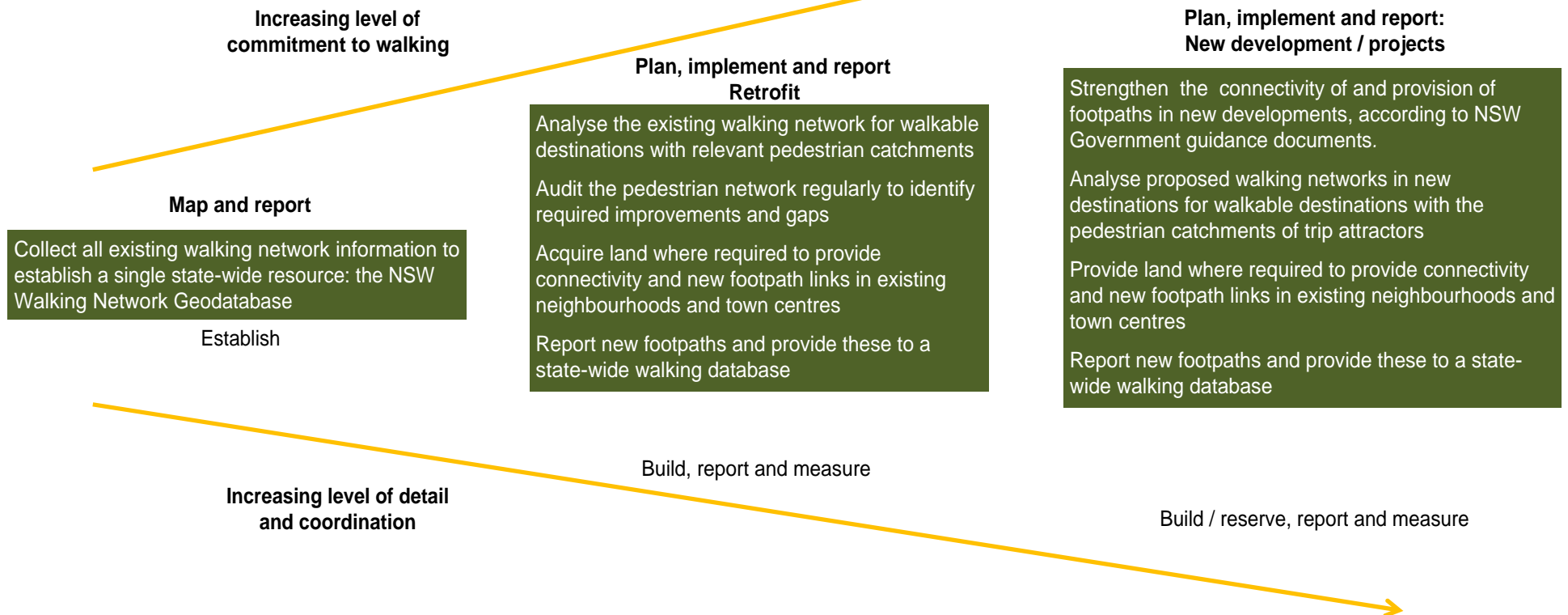
Measure, plan and provide the walking network

Current maps and measurements of the walking network form part of the walking baseline. Without a consistent and comprehensive state-wide database of the walking network, it is difficult to measure the performance of the walking network and establish the essential walking indicators for the state.

Collecting this data and reporting regularly against infrastructure and usage indicators support the mandate to increasing walking and increasing places to walk.

Proposed measures of walking are infrastructure kilometres, use of existing instruments to increase the network and funding.

Finding:

Map the existing footpaths and pathways across NSW.

Add to the network by retrofitting existing, and building footpaths in new neighbourhoods and town centres.

Increasing level of commitment to walking

Plan, implement and report: New development / projects

Strengthen the connectivity of and provision of footpaths in new developments, according to NSW Government guidance documents.

Analyse proposed walking networks in new destinations for walkable destinations with the pedestrian catchments of trip attractors

Provide land where required to provide connectivity and new footpath links in existing neighbourhoods and town centres

Report new footpaths and provide these to a state-wide walking database

Plan, implement and report Retrofit

Analyse the existing walking network for walkable destinations with relevant pedestrian catchments

Audit the pedestrian network regularly to identify required improvements and gaps

Acquire land where required to provide connectivity and new footpath links in existing neighbourhoods and town centres

Report new footpaths and provide these to a state-wide walking database

Map and report

Collect all existing walking network information to establish a single state-wide resource: the NSW Walking Network Geodatabase

Establish

Increasing level of detail and coordination

Build, report and measure

Build / reserve, report and measure

(1) (2) (3) (4) ●

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