Heart Foundation

Healthy Active by Design™

Good for business

The health and economic benefits of making town centres and main streets more walkable

Evidence paper

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for the National Heart Foundation of Australia.

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About this paper

Good for Business is an evidence paper that set outs the economic case for prioritising walkability and active travel in the design of Australian main streets and town centres. The evidence and recommendations provided in this paper are for built environment industry practitioners, policymakers and other key decision-makers, main street business owners and managers, and community members to consider the economic benefits of walkability alongside the health and environmental benefits.

Recognising the potential for walkable neighbourhoods to improve heart health, the National Heart Foundation of Australia (the Heart Foundation) first published *Good for Business* in 2011 to share the economic case for a built environment that supports walking, wheeling and bike riding in the heart of our communities: the town centres, main streets and their surrounding spaces.

This second edition of *Good for Business* published more than 14 years later, builds on the first edition and draws on more than 100 national and international studies, reports and literature sources published in the last 15 years. The paper also broadens the scope to examine two increasingly salient, and often contested, factors affecting walkability in commercial streets: car parking provision and traffic speed.

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Executive Summary

About four in five people in Australia do not get enough physical activity, placing them at higher risk of several chronic diseases, including cardiovascular disease. Studies have shown that people are more likely to get sufficient physical activity if they live in walkable communities, where it is easier, safer and more convenient to walk, wheel, ride a bike and use public transport.

While the health and environmental benefits of walkable streets and town centres are widely recognised, the economic benefits are often overlooked. The result is that land use decisions and business cases often favour car travel despite a significant body of evidence supporting the economic case for prioritising walkability.

Over the past 30 years, many research studies have explored the link between retail spending in town centres and the customer's mode of access. The findings consistently demonstrate that active transport users, especially those on foot, have higher cumulative spending over time than people who drive cars.

Improved walkability and higher quality business districts which offer enjoyable, comfortable experiences result in more people visiting more often, staying longer and spending more.

In this paper, we show that recent developments—such as the rise of e-cargo bikes for last-mile delivery, trials of discounted public transport, and the increase in working from home—have had an economic impact on our town centre. These and other changes continue to support streetscape design that prioritises walking, wheeling and bike riding. We also explore design features that continue to encourage and support walkability in hotter areas or areas at higher risk of heatwaves, and practical approaches to reforms in car parking policies and planning requirements, which are often outdated and lack supporting evidence for economic benefit.

Walking, wheeling and bike riding, including e-bikes, present an opportunity to satisfy about three quarters of mobility demands for short journeys in towns and cities worldwide. However, currently only about one third are walked, wheeled or ridden and more than half of them are made by motorised vehicles. We recommend four key actions to improve the walkability of town centres and main streets to help realise the economic benefits of walkable streetscapes. These actions are predominantly low cost and require minimal intervention, and simultaneously support the environmental, social and health benefits of walking, wheeling and biking in our daily lives.

Recommendations

To maximise the economic benefits for local business, design of town centres and main streets should:

1. **Improve walking, wheeling and bike riding access to town centres and main streets** to deliver greater footfall. Walking, wheeling and bike riding networks must be easy to join, comfortable and safe, with particular attention given to minimising road danger, delays and detours, including at road crossings.
2. **Enhance amenity in town centres and main streets** by ensuring connected, comfortable and attractive environments with places to dwell and 'sticky streets'.
3. **Reallocate some car parking spaces** to create higher quality environments for walking, wheeling and bike riding. Proven methods for achieving more balanced car parking volumes and encouraging acceptance from business interests are to:
   a) revise parking minimums through parking reform;
   b) pilot parklets to replace some on-street parking places – for seating, bike racks, greenery, public art and outdoor dining;
   c) trial the reallocation of underused sections of roadway as public spaces that allow more people to walk, wheel, ride bikes and dwell; and
   d) experiment with activities that temporarily close streets to vehicular traffic while opening them up to other forms of movement and social activity..
4. **Reduce the maximum speed limit of motorised traffic in town centres and main streets to 30 km/hr or less**. Speed limit reductions generally require concurrent interventions to calm traffic such as changes to street widths, alignments and vertical profiles. These can be trialled through pilot projects, which are inexpensive and deliver fast results.

Definitions/glossary:

Active travel/Active transport: Travel in which the sustained physical exertion of the traveller directly contributes to their motion. This includes modes of travel such as walking, bike riding or cycling using a traditional bike or e-bike, skateboarding and kick scootering. Active travel also includes the use of e-mobility devices such as e-bikes even though their use typically requires less physical effort. In this paper we also include wheeling and other micro-mobility devices as these modes often move through pedestrianised environments.

Active travel is primarily used as a verb (action word); and active transport as a noun.

Agglomeration efficiencies: An agglomeration efficiency refers to the broader economic benefits that result from a concentration of businesses and activities that are co-located.

Business district: The main commercial and business area within a town, suburb or city. A business district might include retail stores, restaurants, supermarkets and other food outlets, offices, and a range of community facilities and services. Throughout this paper, the term has been used interchangeably with town centres and main streets.

Car dependency: A situation in which urban design, infrastructure, and cultural norms prioritise car use, making alternative modes of travel such as walking, wheeling, bike riding, or public transport less viable or attractive.

Ciclovía: Also known as open streets, these are where streets are temporarily closed to vehicular traffic and opened to other forms of movement and social activity including walking, wheeling and bike riding. The first Ciclovía was held in Bogota, Colombia in 1974 and continues to the present day.

Cycling: Travel using a bike, including traditional, recumbent and e-bike as well as any form of trike (a three wheeled bike). Although e-bikes require less physical effort to operate, they are typically considered as a form of physical active travel. The term 'cycling' can be used interchangeably with bike riding.

Density: Density measures the number of units within an area of land. Two key measures of density used by planners are population density and dwelling/residential density. Neighbourhoods are often described as being low-, medium- or high-density.

Dwell time: This is the amount of time a person spends, relatively stationery, in a location or area.

Footfall/foot traffic: These two terms are used in this document to describe the amount of people visiting a shopping area or business precinct.

Liveability: Liveability refers to the qualities and characteristics of a place that make it attractive, pleasant and amenable.

Parklet: A parklet is a small area, usually a former car parking space, that has been given over to a different use and often repurposed into seating, bicycle parking, outdoor dining or other people-oriented activities.

Paths: Throughout this document, the following terms are used to describe various types of infrastructure for people walking, wheeling and riding bikes - footpath, cycleways, pathways, cycling lanes, cycle streets, separated bike lanes, cycling infrastructure, pedways, segregated bike riding facilities.

Public transport: Shared transport services for the general public including buses, trains, trams, light rail and ferries.

Ridership: This term is used to describe the volume of people using a particular mode of transport, often public transport.

Riding/bike riding: Includes the use of e-bikes. While less effort is required, e-bikes do require some level of physical effort.

Road space allocation: The process of determining how road space is distributed among different users and modes of transport, including people walking, wheeling, bike riding, using public transport and driving.

Social capital: Social capital refers to the number, strength and quality of relationships between people. A person with good social capital will have strong support networks and people they can turn to for help, connection, companionship and more.

Social inclusion: Social inclusion ensures that all people in a community have access to public life and the opportunities and activities that arise.

Sticky streets: Spaces and interventions that attract community interest and create welcoming places for people to sit, enjoy and stay longer in the business district.

Surveillance: Where used throughout this paper, surveillance can also include 'passive surveillance'. Greater visibility and observation across both public and private spaces. This can be achieved through the presence of people, window placement in architectural design, active street fronts and clear lines of sight, all of which enhance safety and discourage antisocial behaviour.

Sustainable transport hierarchy: This is a framework that adopts a people-first approach when prioritising transport policy, infrastructure and investments. It considers the environmental sustainability of different transport modes and places walking and wheeling at the top of the hierarchy, followed by bike riding, use of public transport, freight and delivery transport and, lastly, personal motorised forms of transport such as private car.

Tactical urbanism: Low cost, minimal intervention approaches for public realm improvements. They are generally temporary changes that are quick and easy to install, often colourful and 'fun', and often involve local community participation.

Trip-chaining: A term used to describe the combining of multiple trips or errands as part of a single journey. This can include any or all of the following combinations, and more: commuting to a place of work or education, shopping, appointments, taking children to or from school and other errands and tasks. Trip chaining can be done using any mode of transport including when walking, wheeling, bike riding, using public transport or private motorised vehicle.

Vertical alignments: This term refers to the road slope, and the way in which a road rises and falls along its length.

Walkability: The extent to which an area supports and encourages walking (as well as wheeling and bike riding). It typically consists of three urban design factors: residential density, street connectivity, and land use mix. Together, these factors combine to create an environment that makes active travel to destinations easier and more convenient.

Walking: Walking by foot. Can include use of walking frames, support animals and other aids.

Walk score: Walk Score is a measure of walking accessibility ranging from 0 (unwalkable) to 100 (most walkable).

Walkshed/walking catchment: The extent of an area a person will normally walk for transport purposes.

Wheeling: The action of moving as a pedestrian or at walking pace, using manual or self-assisted modes of transport including the use of wheelchairs, mobility aids, scooters and others.

Contents

1 Introduction

Towns, cities and suburbs exist to enable the exchange of knowledge, goods, services and social support. This paper presents the evidence that centres that are designed for walking, wheeling and bike riding outperform car-oriented precincts on multiple economic indicators, such as trade, occupancy and local spend.

The previous edition of this paper observed a global 'urban renaissance', with cities investing in pedestrian- and cycle-friendly streets to enhance amenity, viability and vitality. A significant body of research conducted since then has strengthened and expanded on that conclusion demonstrating that safe, attractive environments for walking, wheeling and bike riding underpin economic success for retailers, employers, governments and residents alike.[1]

Walkable main streets benefit a wide range of enterprises – hospitality, retail outlets, cultural venues, accommodation, civic institutions and professional services.[2] These businesses anchor local identity, foster social ties and support community pride. In this sense, town centres function as the heart of a community, with footpaths and cycleways acting as the circulatory system that keeps the heart beating.

Creating such places demands people-centred planning. A healthy, sustainable transport hierarchy places walking, wheeling and bike riding at the top, followed by public transport, freight and, lastly, private cars at the bottom. Prioritising these modes can improve economic performance, environmental quality and public health.[3]

Historically, the design of Australian cities and towns focused on car access, which has produced wide roads and abundant parking with fragmented walking and cycling networks. These design choices diminish public realm quality, disperse land uses and reduce the feasibility of short active-travel trips. Where walking, wheeling and bike riding feel unsafe or inconvenient, customers will drive elsewhere or shop online, losing business to vendors outside the local area.[1,4]

Conversely, town centres that offer continuous footpaths, protected cycling infrastructure and frequent public transport attract higher footfall, longer dwell times and greater local expenditure. Local spending circulates within the community, reinforcing economic resilience.[5]

The core requirement for prosperous main streets is clear: high quality, universally accessible infrastructure for walking, wheeling and bike riding. This paper summarises the latest peer-reviewed and grey-literature evidence on the economic, social and health benefits of walkable business districts. It outlines practical design and policy measures aligned with the healthy, sustainable transport hierarchy.

1.1 Walkable business districts for heart health

Physical inactivity continues to be a major driver of chronic disease, estimated to cost Australia AUD2.4 billion each year in additional health costs alone.[6]

Regular physical activity can reduce the risk of developing cardiovascular disease by up to 20% with walking being the most accessible form of physical activity for people living in Australia.[7]

Research shows that people who live in walkable communities are 1.5 times more likely to get sufficient physical activity for health.[8] A walkable community is one where there is:

- A diverse mix of destinations within walking distance (e.g. shops, social and community services, healthcare, schools, recreation spaces, and public transport with regular service).
- A sufficient diversity and density of housing to support the destinations.
- A well-connected walking network that makes these destinations easily accessible, safe, comfortable, inviting and enjoyable.

Community interactions and street exchanges in a walkable neighbourhood.
Image credit: Heart Foundation, Cameron Murray Photography

2 More walkable business districts

Planning for walking, wheeling, bike riding and use of public transport to access business districts requires a complete network across the whole walking catchment, with direct links to key destinations such as shops, workplaces and services.

E-cargo bikes are expected to play an increasing role in the transport mix in business districts in the future, including in cities where, at present, they may be dismissed as a novelty. Planning should anticipate this shift and provide suitable infrastructure and regulatory settings to accommodate their integration.

Public transport remains a critical enabler to provide equitable and sustainable improved community access to town centres and main streets. Investment in reliable and frequent services – particularly when integrated with walking and cycling connections – can expand access for the community, support the economic vitality of local businesses and increase physical activity levels to improve heart health.

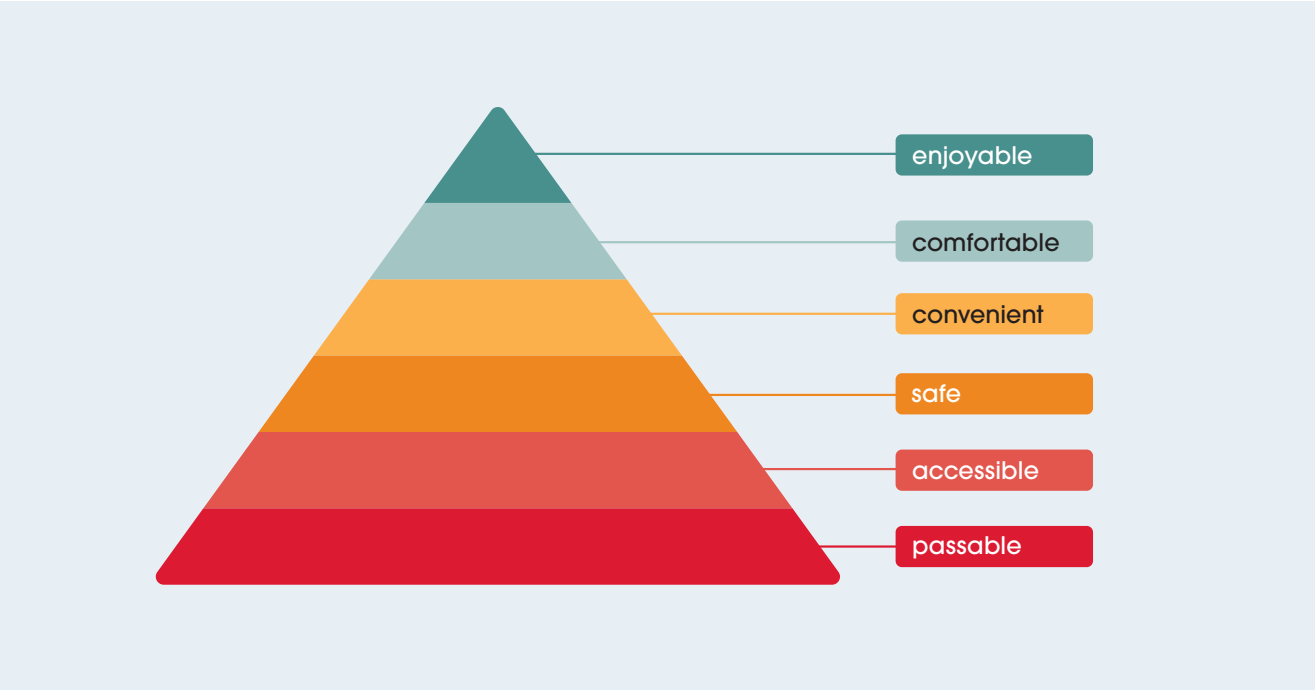
2.1 Walking to and within a business district

High-quality footpaths and protected cycling lanes are the minimum infrastructure needed to encourage active travel to – and within – business districts. Separation between modes enhances safety and supports inclusive access for all ages and abilities.[9]

There is a need to ensure high-quality access *to* a business district by active travel as well as *within* the business district.

Good walking route connectivity to business districts is important to support access.
Image credit: iStock.com; Rudi Suardi

A useful way to assess walking environments is the hierarchy of walking needs. This hierarchy starts with 'passable' and then ascends through 'accessible', 'safe', 'convenient' and 'comfortable', with 'enjoyable' as its apex.[10]



Infographic illustrating the hierarchy of walking needs. Credit: Heart Foundation 2025

Enjoyability is more than just having fun. It relies on experiencing positive sensory perceptions provided by high quality public spaces. Danish urbanist, Jan Gehl, has set out 12 essential quality criteria:

- **'protection criteria'** (3) – against traffic and crashes, crime and violence, and unpleasant sensory experiences;
- **'comfort criteria'** (6) – opportunities to walk, stand/stay, sit, see, talk and listen, opportunities for play and exercise); and
- **'delight criteria'** (3) – scale, opportunities to enjoy the positive aspects of climate, and positive sensory experiences.[2]

These principles apply to connecting zones around business districts, as well as to the arrival facilities (which may be car parks or public transport interchanges) and to gateways to the town centre.

Complementing this, the five Cs of London's walkability framework describes the essential provision for walking:[3]

1. **Connected:** do walking routes provide good connectivity to key destinations and link easily to other routes?
2. **Convenient:** is walking a realistic travel choice in terms of route length and directness? Can streets be crossed easily, safely and without delay by all people walking or using wheelchairs or other mobility aids?
3. **Comfortable:** does the path width, surface, landscaping, rest places, shelter, shade and adjacent scale of development provide an attractive walking environment for all members of the community?
4. **Convivial:** is walking a pleasant activity in terms of passive surveillance, interaction with other road users and the built and natural environments, and are routes clean and free from threat?
5. **Conspicuous:** are walking routes set out in a coherent network, clearly signposted and waymarked, with suitable levels of lighting and delineation?

Applying these principles to approaches, arrival points and gateways ensures seamless active transport access across entire precincts. When these qualities are implemented, places become engaging, safe and welcoming. They provide opportunities for social connection, and they encourage return visits.

Australian jurisdictions, including Queensland and South Australia, have developed walking strategies to help apply these principles in policy and project outcomes. Both strategies apply priorities for walking as a mode of transport distinct from bike riding, in recognition of the specific act of walking, as the most inclusive, equitable and accessible mode of transport and the most popular form of physical activity.[11] By way of example, priority areas identified in these two strategies are:

South Australian Walking Strategy 2022-2032[11]	Queensland Walking Strategy 2019-2029[12]
1. Plan walkable neighbourhoods, towns and cities; 2. Build connected, safe and pleasant walking environments for all; 3. Create a South Australian walking culture.	1. Planning for walkable communities and places; 2. Building connected, comfortable and safe walking environments for all; 3. Encouraging more people to walk as part of their 'everyday'; 4. Working together to deliver for walking.

A 2019 study in Toronto, Canada showed that reducing on street car parking and installing wider footpaths and traffic calming measures increases customer spending and the number of customers visiting.[13] This underscores the economic potential of small, well-targeted infrastructure upgrades.

2.1.1 Cool walkability planning: greening and cooling streets to improve comfort and lengthen dwell times

Due to the climate emergency, people throughout the world are experiencing increases in the frequency, intensity and duration of heatwaves. Since 1890 in Australia, heatwaves have been responsible for claiming more lives than bushfires, cyclones, earthquakes, floods and severe storms combined.[14] On the 4th of January 2020 Penrith, Sydney was the hottest place on earth at 48.9˚C.[15]

People walking in these conditions may suffer severe heat stress because they are physically active while absorbing heat from the sun above and radiation from asphalt or concrete surfaces below. There is a rapid rise in the number of people in urban environments across the world experiencing extreme heat.[16] As a result, walking in many cities is expected to become increasingly uncomfortable, unappealing, and unhealthy, posing an increasing threat to the viability of their business district.

As a planning response, a Cool Walkshed Index (CWI) has been proposed to rate the thermal protection of walking routes in cities to facilitate planning 'cool pedestrian networks'.[17] These might consist of guaranteed shaded footpaths or enclosed climate-controlled pedways in high footfall areas, providing networks of cooler walking routes that offer convenient and comfortable connections between homes, services, and public transport. This may reduce the temptation of potential walkers to drive for trips that could be made on foot and prevent public transport users from otherwise being deterred by the walk to a transport stop or station.

The CWI is an innovative, practical way to rate an area's hot weather active access and to plan improvements to preserve the viability of open-air commercial and business districts.

2.1.2 The ten dimensions of the street

Over recent years new perspectives have emerged on the function of the street in a sustainable city. These recognise the co-benefits engendered by street-space reallocation and the incorporation of these into new street design philosophies. The 2022 *Design Guide – Quality of Public Space*, for the City of Groningen, Netherlands points out that many of our existing city models and guidelines are underpinned by a strategy, integrated into the streets, which could be called the 'survival of the quickest'.[18] Continuing with that strategy entails foregoing all the other options available, such as the rights of children to spend time in the streets or the right to clean air and equality.[18]

Groningen's guideline offers a new perspective, where mobility is not a defining criterion, but is replaced by a combination of the 'ten dimensions of the street', which are:

1. Accessibility
2. Safety
3. Experience
4. Health
5. Social interactions
6. Mobility
7. Ecology/environment
8. Climate adaptation
9. Economy
10. Identity

This creates a situation where each design intervention can leverage other dimensions and build towards a new, human-centred approach to street use and vibrancy.

2.2 Bike riding to and within a business district

Cycling networks require five key design criteria to encourage bike riding to and within business districts[19]:

1. **Safety**: bike riding infrastructure must cater for all age groups and the full range of riding abilities. This can be achieved through segregated bike riding facilities which separate bike riders from other road users.
2. **Coherence**: the bike riding route must be easy to find and intuitive to navigate; consistent in quality; and offer route continuity and completeness.
3. **Directness**: routes must be direct and address desire lines, connecting origins to destinations without significant detour or delay.
4. **Attractiveness**: the bike riding environment along a route should be pleasant and interesting to encourage all people in the community, including beginners, and those riding for recreation and commuting. There should be high levels of passive surveillance and street lighting in order to promote personal safety.
5. **Comfort**: bike riding infrastructure should be designed, built and maintained for ease of use and for comfort, with high-quality surface treatment and minimal conflict with other road users.

These principles support a large variety of bike riding facilities which may be protected, buffered, raised, uni- or bi-directional, contraflow or entire cycle streets, all with signage, wayfinding and dedicated traffic lights. End-of-trip facilities are also important, including secure bike parking and bike repair equipment. For places of work and employment, the provision of change rooms and showers are also needed, to enable more people to ride.

Wherever possible, separated bike lanes should be provided, as these improve perceived and real levels of safety, as well as comfort.[20,21] They are also more attractive for people of all ages and abilities.

Bike riding in shared, slow speed traffic environments.
Image credit: iStock.com; davidf

2.3 E-cycling to and within a business district

E-bikes – battery-assisted two- or three-wheeled bicycles – for which global demand is growing rapidly, sit third on the healthy, sustainable transport hierarchy.

Speed differentials between motorised vehicles and bikes is often cited as a major factor in modal choice.[22] Adding electric power narrows the speed gap, making medium-length trips both practical and more attractive for the user.[23] Transport for London trials showed that a 15 kilometre (km) trip could be 15 minutes faster by e-bike than a motorised vehicle.[24] E-bikes reduce the challenges of hills, hot weather and extends comfortable travel distances beyond 10 km.[23] This can extend the local catchment for people accessing business districts.

E-bikes can provide a viable alternative to use of a personal car for some people, offering health and environmental benefits,[25] as well as being quiet and space-efficient while occupying minimal parking space. Moreover, e-cargo bikes are becoming more common for family transport, increasing the ability to trip-chain, including with children. Trip chaining refers to the combining of multiple trips or errands in a single journey.[26] Examples of trip-chaining include taking children to school, shopping, and other errands.

2.4 E-cargo bikes and last-mile deliveries

Retail centres depend on efficient last-mile delivery, yet vans and trucks compete for scarce kerb space, hinder walking movement and add to congestion.[27] Rising e-commerce volumes and same-day expectations intensify these pressures, forcing cities to reconcile commercial efficiency with public amenity.[28-30] Freight delivery activities in cities must coexist in limited and valuable urban space with passenger transport and other activities, in an already crowded environment.

Last-mile deliveries are important because they are essential to the efficient functioning of businesses, including retail. They also influence the liveability and well-being of residents, the attractiveness of the place to visitors and the economic competitiveness of the city.

E-cargo bikes present a practical compromise. With greater payload capacity than standard e-bikes and near-zero emissions, they navigate bike lanes during peak traffic, occupy minimal parking space and can service multiple addresses rapidly.[31]

In many town centres and main streets, the e-cargo bike is now emerging as the delivery mode of choice, due to its suitability for delivering packages to separate addresses with near zero emissions and minimum space requirements.[31] E-cargo bikes have greater carrying capacity than regular e-bikes and can use bike lanes when streets are congested.[32]

Forecasts indicate that more than half of urban freight trips in Europe could transition to cargo bikes.[32] It is likely that adoption will be slower in Australia's generally low density, car oriented cities. Australian cities lack the safe and connected bike riding facilities which are necessary for current widespread adoption of e-cargo bikes. The global e-cargo bike market is approaching 10% growth per annum, driven by major logistics firms such as Amazon, UPS and DHL.[33] It is likely that this trend will, eventually, impact all business districts.[33]

To harness these benefits, there is a need for cities to plan for impending infrastructure and regulatory changes to meet the needs of operators and commerce, while maintaining the attractiveness of streetscapes for residents, visitors and businesses. Such measures balance the logistical needs of retailers with the liveability and economic vitality of main streets.

2.5 Travelling on public transport to a business district

Public transport is a vital component of town centres and main streets because it uses space efficiently and improves access to shops and services for people who may not otherwise have transport options. However, despite its many benefits, a lack of investment in public transport in many cities has led to reduced service quality, which in turn attracts fewer passengers and generates less revenue.[34] This cycle creates a situation where many people have limited alternatives to private vehicle use. These trends are exacerbated by urban sprawl that has lengthened motorised trips, making car dependency more likely.[35]

Improving public transport – particularly bus services – can contribute to more vibrant centres.[36] There are three main reasons for this:

1. improvements in public transport vehicles, infrastructure, and service operations can increase ridership;
2. because most public transport trips involve some walking, more frequent use of bus or train travel will increase active travel at trip ends, thus increasing vibrancy (more people) in the streets; and
3. public transport tends to integrate more harmoniously with walkable town centre environments than with infrastructure designed primarily for private motorised vehicle movement, such as wide, fast roads and large parking lots.

Further research has shown that women are more likely to use bus services than trains because the distances to access bus stops are usually shorter.[37]

Walking is the most common access mode to public transport. It accounts for 91% of access journeys to train stations and bus stops, and up to 98% of journeys from the public transport stop to a person's end destination.[38] There is a rule of thumb that an acceptable walking distance is around 400 metres (five minutes) to bus stops and 800 metres (ten minutes) to a train station.[39,40] However, this depends heavily on the quality and safety of the surrounding public space on the way to the public transport stop.[41] The incorporation of walking to and from public transport stops contributes to a person achieving the daily recommended amount of physical activity.

Improvements to bus services can show measurable increase in ridership.[42] Decision-making responsibilities of local transport authorities and government can support this by:

- redesigning streets to prioritise buses;
- providing frequent, all-day bus services;
- adopting local policy reforms that support public transport; and
- providing bike racks on buses.

A recent trial of AUD0.50 bus fares in Queensland, which commenced in August 2024, was intended to boost ridership and make public transport a more affordable and enticing option. During the trial period, patronage increased, including on weekends, and fare evasion decreased. As a result of its popularity and the success of the trial, the AUD0.50 fare was adopted as a permanent measure by the Queensland Government in February 2025.[43] Initiatives such as this can help deliver more customers to business districts.

The National Association of City Transportation Officials (NACTO) in the US provides endorsement of the importance of public transport, describing the city bus as 'the most powerful tool leaders have'. This is due to the relative flexibility, simplicity and efficiency of buses; particularly when compared to private vehicle use.[42]

When walking, wheeling and bike riding are coupled with public transport, they form an attractive, healthy, low-carbon option for longer trips. To enable this, access to the bus stop or station must be attractive, safe, direct and convenient.[44] Without this, some potential public transport users may instead choose to drive.

Appropriately planning and delivering first- and last-mile connectivity to a public transport stop or station is essential to support the viability of business districts. High-quality access infrastructure may not only increase patronage, but also may improve customer access to retail services, supporting economic activity in local centres.

Public transport access to main streets and town centres can help support local business. Image credits: iStock.com; Drazen_ and Bernad bodo

First and last-mile walking: planning for quality

Public transport journeys generally comprise at least four segments, walk-wait-ride-walk, with 45–50% of the total journey time taken up by walking and waiting. Where people are interested and stimulated on the walk segments, they are more likely to want to walk there again. Moreover, psychologists note that when individuals experience low levels of stimulation, time stretches – so that walking through a boring environment seems longer than it really is.[45] Therefore, the sensory information from the environment influences our emotions and it influences our perception of time.[41]

In safe, stimulating, attractive, people-oriented environments, people are willing to walk further and longer to stops and stations.[41] The impact of this on potential ridership is significant, as it almost triples the size of the catchment area for a public transport stop. On the other hand, people are less likely to take public transport if they have experienced negative emotions or events when walking, or if the walk seems longer than it really is. This could be through crossing heavily-trafficked streets or having to make detours resulting from indirect networks or barriers along the way.

The good news is that these positive and negative influences can all be altered through urban design and footpath network planning, which can make access to the bus stop or station more attractive, safe, direct and convenient.

3 Retail and business benefits

A growing body of global evidence demonstrates that active travel delivers economic gains for retail and other service-based businesses. Since the first edition of this paper in 2011, successive research and case studies continue to support and expand this finding.

Achieving the benefits of active travel to and within town centres and main streets relies on a high-quality urban environment that encourages more frequent visits, longer dwell times and greater per capita expenditure over time. People need space to walk and spend time in town centres and main streets. Improving access for people makes the walking environment more attractive, which encourages people to walk further to get there, visit more often, spend more and stay longer in 'sticky' streets.

3.1 Economic benefits for retailers

3.1.1 Peoples' mode of access to, and spend in, business districts

Over the past 30 years, a great deal of research has explored the link in retail spending levels in town centres and main streets to the customer's mode of access. Findings consistently demonstrate that, although active transport users (especially those on foot) on average spend less per shopping visit than people who drive cars, they visit more frequently.[46] This increased frequency results in higher cumulative spending over time.[46]

For example, in 2013, data from London's town centres showed that people arriving by car visited an average 1.8 times per week, whereas those who walked visited 3.8 times.[47] Weekly spend by people who walked averaged GBP86 per week (AUD177), compared with GBP73 (AUD150) for bus users and GBP62 (AUD128) for people who drove.[47]

Other international studies highlight similar trends:

- In Berlin, Germany, more than 50% of people walk to their high street, and those people contribute over 60% of the total weekly spend.[48]
- In Portland, United States (US), all businesses – except for supermarkets – reported higher spending from people walking, wheeling, bike riding or using public transport, than those who drove.[49]
- A Netherlands study found that, while people riding bikes spent less per trip, their higher visit frequency led to greater long-term spend.[50]
- A United Kingdom (UK) study estimated that well-planned improvements to public spaces can increase footfall and trading by over 35%.[51]
- A US and Canadian study on impacts of new walking and bike riding investments indicated positive economic impacts on local businesses for most active transport facilities – 57% for bike riding facilities, 100% for walking facilities, and 75% for mixed transport facilities.[52]

Active travel can also enhance broader economic performance. A study ranking walkability in large metro areas in the US showed that per capita gross domestic product of the most walkable cities was significantly higher than in less walkable cities.[53] Cities were measured using data on the occupation rate of office, retail and residential rentals, combined with built environment characteristics and community demographics.[53] These results suggest that walkable urban environments are gaining market share over places that prioritised motor vehicles in economic terms – a reversal of a 60-year trend.[53]

3.1.2 Misperceptions over shoppers' arrival modes and spending

A recent report from AECOM and the Committee for Sydney highlights the business benefits of walkable and bikeable streets that are pleasant and easy to navigate.[54] These environments are associated with increased foot traffic and improved access to local businesses. However, despite the growing body of supportive evidence, some misperceptions persist about the value of active transport to retail areas.

Misperceptions over shoppers' arrival modes and spending

Graz, Austria 1991: This early study identified a strong overestimation by retailers of how many people arrived by car. When asked how they think their customers arrived, retailers in Graz estimated that 58% of people arrived by car. Surveys demonstrated that the actual figure was only 32%. Conversely, retailers underestimated the importance of walking (25% estimated but actually 44%).[55]

Dublin, Ireland 2011: This study showed that retailers on the main inner-city shopping streets systematically over-estimated levels of customers travelling by car, by between 30% and 100%. The amount of walking was underestimated by half on Grafton Street and two-thirds on Henry Street.[56]

Sydney 2024: Data from over 1,700 Sydneysiders, across 21 different high streets, showed that more than 60% of people access high streets by foot, bike, or public transport, rather than private vehicle.[54]

Brisbane 2020: A study found that restaurateurs thought diners arriving by car contributed 58% of their revenue, when in reality they provide less than 20%.[57]

Section 5.2.1 discusses the 'invisibility of walking'. That section notes that walking is often overlooked and under-appreciated for the role it plays as a transport mode to main streets and town centres. The hidden nature of walking, wheeling and bike riding to town centres and main streets may be the cause of some of the misperceptions outlined above.

Another potential cause of misperception about shoppers' arrival mode and spend is consensus bias. This phenomenon occurs when a person's behaviour influences their assumptions about the behaviour of others.[48] This has been reported in Berlin, Germany, where the transport mode used by traders influenced their perceptions of modes of transport used by customers.[48] For example, traders who drove (42.1%) estimated that 28.6% of their customers also arrived by car, while traders who used other modes estimated car used to be between 10% and 19%.[48]

Similarly in Melbourne, Sydney Road traders over-estimated the number of people arriving by car at 61%, compared to the actual amount of 39%.[58] This over estimation may be influenced by consensus bias through the driving rates of traders, which is approximately 66%.[58]

3.1.3 Benefits of business co-location

Concentrating businesses and services within close proximity can generate broad economic benefits through what is known as agglomeration efficiency.[59] This occurs when co-located or nearby businesses enhance access to a mix of shops, services, employment and other destinations, enabling people to complete multiple tasks within a single trip.

However, these benefits are best realised when the built environment supports easy and direct walking access between destinations.[60] As discussed in Section 2.1, limited connectivity between residential areas, town centres and main streets can impede walkable access. For example, an absence of road crossings may force people walking to take long detours to avoid busy roads. Similarly, high volumes or fast-moving motorised traffic can deter some people from walking as far as they would like or even from being able to walk at all.

A great walking environment is a fundamental necessity for collective success in shopping areas. Shopping can only work as a team effort, because the experience of walking from shop to shop is a key element of the shopping experience.[61]

A people-first approach – 'the most economically productive style of development'

An excerpt from "Why walkable streets are more economically productive"

'A walkable street ensures that people can safely cross from a clothing store to a coffee shop and spend money at both. It means that people who live in the neighborhood can grab groceries and other necessities easily, so they'll probably visit nearby establishments more often. Perhaps most importantly, a walkable street is one in which many businesses occupy the bulk of the land, meaning that dozens of destinations can be accessed in a matter of minutes on foot, and that every inch of land is put to economically productive use — not squandered in empty parking lots or unnecessary landscaping.'[62]

Many small shops located together provide ease of accessibility.
Image credit: iStock.com; Anett Flassig

3.2 How other businesses (non-retail) also benefit from improved walkability

Improving the experience of walking, wheeling and bike riding in town centres has been shown to deliver measurable economic benefits. In London, upgrades to walking and cycling infrastructure were linked to a 17% decrease in retail vacancies, and annual rental increases of 4% for office space and 7.5% for retail.[63] Other studies report retail rent increases of up to 20% following improvements to active transport access.[51]

In Washington DC, US, a one-category increase in walkability (based on its Walk Score rating; detailed in Section 4.4), raised retail premiums by USD7 (AUD11) per square foot. Rents have been shown to be up to 54% higher in walkable shopping areas than in areas attracting patronage mainly from people who drove there.[64,65]

These outcomes reflect broader trends in urban investment. Cities are increasingly competing to attract investment in the knowledge economy – the exchange of ideas and creativity through personal interaction.[66] An analysis of 500 US company re-locations (2010–15 period) showed a strong preference for areas that have greater accessibility for active transport modes.[67] This was evident for bike riding and transit and, most impressively, the average Walk Score of companies' locations rose from 51 to 88, with 88 being in the 'very walkable' category. Such locations are increasingly factored into global decisions about inward investment and corporate relocation.[67]

Greater walking connectivity and density have also been shown to benefit productivity in Melbourne and Auckland, New Zealand (NZ).[68,69] Box 1 expands on this. With a desire to attract and retain talented workers, companies are recognising that vibrant neighbourhoods accessible by a range of transport options are becoming a crucial selling point.[70] These are the walkable districts where people want to both live and work.

Box 1: Walkability and the knowledge economy in two Australasian cities: Melbourne and Auckland

Ease of movement on foot has been shown to be an essential requirement for knowledge intensive businesses to be attracted to the Melbourne CBD, promoting close locations and interactions, thus intensifying the value of business agglomeration.[69] For example, it was calculated that improving connectivity on foot across King Street alone would add up to AUD400 million per annum to the economy, but if existing walking connectivity in the CBD were to be reduced by 10% (e.g. through footpath congestion) a reduction to the CBD economy of up to 6.6%, or AUD2.1 billion could result.[69]

The revitalised Melbourne laneways which involve through-block walking connections, have resulted in an estimated AUD600 million boost to the economy. The striking conclusion is that 'there is a direct link between the city's economic prosperity and the safety and convenience of the walking experience'.[71]

In Auckland, NZ, the 'creativity through proximity' phenomenon has shown a 10% increase in walking connectivity can lead to a 5.2% increase in productivity, worth approximately NZD41 million.[68] Here, attractive public spaces and walkable streets support the spread of knowledge by creating a platform for business and social exchange.

Through-block connections in Melbourne laneways allow for walking connectivity and a vibrant business laneway. Image credit: iStock.com; TkKurikawa

3.3 Increasing the vibrancy and attractiveness of the shopping experience

Beyond higher cumulative spending, active transport users can improve an area simply through their presence.[72] Walking around, window-shopping or sitting at a café contribute to the vibrancy of town centres. This visible activity can attract others to visit. People are also more likely to slow down, linger and dwell – behaviours that are associated with increased spending, as illustrated by footpath cafés and alfresco dining.

Footpath cafés

Footpath cafés generate interest and street activity. Whereas a visitor walking along a street may only be there for a few seconds, if they stop for a drink or a meal, they prolong their stay by perhaps an hour or more. As a result, the footpath café may attract people to walk in a place becoming both the cause and effect of places which people want to walk.[73] The café's chances of success increase as the place becomes more appealing and as traffic speeds fall.

"Because it is fuelled by the appeal it creates, the sidewalk café can be considered the "turbo-charger of walking".[73]

Footpath cafes provide places to slow down, linger and dwell.
Image credit: iStock.com; benedek

‘Sticky streets’ initiatives can create vibrancy and help make town centres and main streets busier by enabling existing users to stay longer.

‘Street stickiness’ refers to the qualities that encourage people to pause, interact and spend time.[74] Visually engaging shopfronts, inviting patios and parklets, casual seating, informal food vendors, pop-up stalls and markets, public art and other temporary installations all foster this atmosphere.[74]

As public activity builds, it can spill out into adjacent areas, strengthening the case for reclaiming and reallocating space to people walking and shared community use. Over time, this can support the development of flexible spaces for play, rest and work, as well as venues for community celebrations, night markets and street performances.

Examples of elements that can help create a sticky street for people to linger.
Image credits: iStock.com; Daniiielc and tap10

There is a universal desire to sit and watch the world go by.[75] Places that provide this opportunity by boosting their attractiveness with walkable streets, laneways and squares can entice more residents and visitors. City economies can benefit from this, with the City of Vienna, Austria, providing a good example, as shown in Box 2, below.[76]

Box 2: Vienna, Austria: walkability enhancements to garner worldwide renown

In Vienna, more than a third of people walk every day. In response to a community survey about walkability, the city signed *The International Charter for Walking*[77] and declared a 'Year of Walking' in 2015, which featured events and campaigns and a walking investment program to meet more of the needs of people walking.

This led to a 5% improvement in Vienna's image as a walkable city, giving the city a mandate to further invest in the transformation of streets into more walkable public spaces and inspiring a National Walking Strategy.

When launching its Walking Strategy in 2016, Vienna was clear about its rationale: 'the city of Vienna aims to win international recognition for its attractive public spaces and squares and its excellent conditions for urban walking, thereby maintaining and strengthening its position as a city of eco-friendly traffic modes and superlative liveability'.[76]

People walking in a car-free street in Vienna. Image credit: Rodney Tolley

4 Community benefits

Opportunities to walk in town centres and main streets contribute to both the transport and economic systems. Improved walkability has many benefits for local residents including cost-savings, increased social capital, equity and residential value.

4.1 Liveability and cohesion

Providing more attractive, safe and walkable streets where people live close to transport options, shops and community activities strengthen social cohesion. This can be measured though the level of community connections and interactions – also known as social capital.[78] Conversely, interruptions to residents' use of streets by motorised vehicle traffic has been shown to negatively impact social capital.[79]

4.2 Equity

Walking is the most accessible and widely used form of physical activity in Australia.[80] Improved walkability supports equity objectives including a fair distribution of public resources.[81] Enhancing walkability helps reduce transport costs and helps ensure that people of all ages, genders and of most abilities – including those facing economic or social disadvantage – can access jobs, education, services and fresh healthy food.[82]

Being able to walk to access fresh, healthy food promotes community equity.
Image credit: Heart Foundation, Cameron Murray Photography

4.3 Consumer cost savings

Higher walkability can allow residents to reduce or even forgo the costs of owning and maintaining a car.[83] When people have opportunity to walk, wheel, bike ride or use public transport, spending on fuel, vehicle maintenance, insurance and registration can all decline. One study has shown that households in car-dependent communities spend 50% more on transport costs than those with more accessible land uses.[84]

An additional potential benefit of highly walkable neighbourhoods is that walking, wheeling and bike riding may substitute for paid fitness memberships. More walkable neighbourhoods may also result in lower consumer healthcare costs due to improvements in individual health through increased levels of physical activity and improved air quality.[85]

There is a generalised relationship in cities between people's expenditure on housing and on transport.[84] While housing may be more expensive in central, walkable locations, reduced transport needs can make these areas more affordable overall. For low-income households in particular, the cost of commuting from distant suburbs can significantly impact disposable income.[86] One calculation of the long-term financial gain which can be achieved through living in a high housing cost/low transport cost area, is a household saving of as much as USD1 million by retirement age.[5]

4.3.1 Retail benefits from consumer cost savings

Investing in walkability may allow residents to spend less on transport and enjoy more disposable income.[87] Disposable income can, in turn, be spent on locally produced goods, which has positive impacts for the local economy and business.[88]

A 2020 study in Germany found that, despite up to 41% of the lifetime cost of a car being borne by society, rather than individuals (see Section 5.2), the cost of cars has a significant impact on disposable income. Significant savings from living without a car could be fed back to the local economy.[86]

4.4 Residential value

Walkable and bikeable streets are consistently associated with higher property values.[89,90] In the US, one study found values of up to 50% higher in walkable areas.[65] Other research showed property values close to bike lanes were up to 8% higher than for homes further away.[91]

Australian data reflects similar trends. A Melbourne study from the real estate industry found that every 5-point increase in Walk Score (between 60 and 100) was associated with increased house prices by an average of AUD298 per square metre.[92] A one-point Walk Score increase has been previously shown to increase the price of a home by an average of USD3,250 (AUD5,058) or 0.9%.[93]

Walk Score

The Walk Score algorithm computes the relative walkability of an address by measuring the distance to neighbourhood amenities, such as schools, libraries, restaurants, parks, coffee shops and grocery stores, with ranges from zero (car-dependent) to 100 (most walkable). The aim of the score is to promote walkable neighbourhoods and make it easy for people to evaluate walkability and transportation when choosing where to live. The Walk Score Inc. company's vision is for every property listing to read: 'beds: 3 baths: 2 Walk Score: 84.'[94]

Consumer surveys show that 56% of millennials and 46% of baby boomers prefer walkable communities with a range of housing types amidst local businesses and public services.[95] In addition, households in these areas often spend less on transport and more on homes,[84] further increasing property values.

However, rising property values can raise equity concerns. Gentrification – driven by broader market and policy factors – can lead to displacement in walkable but previously low-income areas. While walkability is not a sole cause, it is important to ensure that improvements are equitably distributed across all communities and supported by inclusive planning.[96]

Australian Urban Observatory

The Australian Urban Observatory has been developed by RMIT University. The digital platform analyses data to produce liveability maps for Australia's 21 largest cities. Nine liveability domains are applied with 42 indicators. The City Scorecard for these 21 cities is 17 pages long, each. Information includes a liveability index, walkability, social infrastructure index, public transport, food environment, alcohol environment, public open space, employment and housing affordability. Scorecards can be used by cities to support understanding and further action. Changes are measured and benchmarked over time. The research knowledge and City Scorecards can be used for residents and decision makers to continue to improve city liveability and community health and wellbeing.[97]

Residential value can increase in walkable neighbourhoods.
Image credit: iStock.com; slovegrove

5 Costs and benefits to government

Travel by private motorised vehicles contributes to external costs, such as road infrastructure. Conversely, trips shifted from motorised vehicle transport to walking, wheeling or bike riding can provide health, environmental and local business benefits.

The costs for municipalities to enable and promote walking, wheeling and bike riding in business districts are relatively low and are exceeded by the potential benefits to the broader community. As summarised by Quednau, 'streets where walking is easy and safe are not just economically significant because of their impact on retail sales or tax values. They are also economically significant because of their incredibly high return on public investment'.[62]

An integrated approach is needed to achieve this, across sectors and considering the broad issues of land use, urban planning and traffic engineering.

Accurate reported measures of walking and walkability can help support investment.

5.1 Health and environmental benefits

5.1.1 Health benefits

Cardiovascular disease is a leading cause of all deaths in Australia.[98] Many cardiovascular disease risk factors can be prevented by being physically active, healthy eating and maintaining a healthy weight.[99] Regular physical activity can reduce the risk of developing cardiovascular disease by up to 20% and dying from cardiovascular disease by 35%.[7,100] Unfortunately, however, four in five people in Australia do not get enough regular exercise.[101] This may be influenced by built environments not being conducive to active living. Physical inactivity is estimated to cost Australia AUD2.4 billion each year in additional health costs alone.[6]

The walkability of a neighbourhood has been found to be closely linked to cardiovascular health. Research shows that the proportion of people with healthy cardiovascular disease risk profiles is significantly higher in neighbourhoods with high walkability when compared to neighbourhoods with low walkability where walking is unsafe, inconvenient or difficult.[102]

5.1.2 Environmental benefits

Creating built environments that are walkable may have positive environmental benefits from local to global scales. Benefits range from decreasing air and noise pollution at the neighbourhood level to lowering energy consumption and vehicle emissions if trips can be shifted from cars.[103]

The transport sector was Australia's third largest emitter of greenhouse gases in 2023, accounting for 21% of Australia's output.[104] Passenger cars and light commercial vehicles contributed 60% of transport emissions and over 10% of Australia's total emissions.[104] Without intervention, the transport sector is projected to be Australia's largest source of emissions by 2030.[104] Increasing walkability can help avoid this outcome.

5.2 Economic considerations for government

Across government, and for local councils in particular, walkability can reduce economic costs by lowering external expenses and using land more efficiently.

The use of any vehicle imposes various public costs (external expenses).[86] These include costs associated with environmental impact, crashes, traffic congestion and road and parking facilities. Comparatively, the costs imposed by walking, wheeling and bike riding are low. A recent estimation suggests that people walking instead of driving provides savings of approximately USD0.25 (AUD0.40) per vehicle-mile reduced, rising to USD0.50 (AUD0.80) under urban-peak conditions.[81]

Land uses in walkable places tend to be more compact, resulting in higher tax revenues per unit of land and lower public service costs than in more spread-out communities.[5]

5.2.1 Invisibility and undervaluing of walking

Walking is often undercounted in transport surveys, contributing to its status as an 'invisible' mode, resulting in poor levels of investment in walking infrastructure.[105,106] This underrepresentation has contributed to a perception that walking is of lesser value, reinforcing the aphorism: 'what isn't counted, doesn't count.' The affordability of walking is sometimes misinterpreted as a sign of its limited importance, rather than recognised as an opportunity for low-cost, high-impact improvement.

Common survey limitations include the exclusion of:

- short trips, which are often walked;
- linked trips, such as walking to a bus stop, which are typically subsumed into other transport modes;
- non-work travel (e.g. school drop-offs or errands); and
- trips made by children or older adults.[106]

One study estimates that there are three to six times more walking and bike riding trips than conventional surveys indicate.[107]

The resulting undervaluation of the importance of walking can have significant consequences, including business cases that favour car-oriented land use patterns whereby the health, environmental and other benefits of walking are overlooked.[81]

The role of walkability in improving mobility options for people who don't drive and in supporting public transport may also be diminished. Further, the role of walkability in supporting traffic management practices and safety outcomes for all road users – such as traffic calming and speed reduction – can also be overlooked.[81]

Further investment challenges can include:

- walking being funded only as part of broader active travel projects;
- underinvestment relative to the level of community service that walkable areas provide;
- a focus on safety outcomes at the expense of broader walkability benefits; and
- fragmented governance, which can result in missed funding or planning opportunities.[105]

Addressing these limitations presents a significant opportunity to strengthen the case for walking as an essential and cost-effect transport mode with substantial co-benefits across urban systems.

5.2.2 Walkability has a small price tag

Improving walkability is a financial investment.

This raises the question of whether the benefits of walkability interventions outweigh the associated costs, such as for route infrastructure (e.g. new construction, re-surfacing and road marking) and ancillary facilities (e.g. signage, lighting and seating).

The relative simplicity and small scale of interventions that enhance walkability in main streets keeps costs low.[108] The costs that would be necessary to cater for the same number of people driving, including for roads, traffic signals and parking provision, are, generally, much higher.[109]

Investment in walking, wheeling and bike riding is therefore more cost-effective than projects that support car use. Further, the maintenance cost of the wear and tear caused by foot traffic is negligible compared to that for roadways.[62]

A study of two cities in New Zealand saw a benefit-to-cost ratio of around 10:1 for city council investment in walking, wheeling and bike riding.[110] Internationally, this has been reported as up to 13:1, and as high as 19:1 in the UK.[111]

These findings reinforce the cost-effectiveness of walkability investments in achieving health, transport, economic and environmental goals.

5.3 The need for an integrated approach

Currently, around 60% of urban trips globally are less than 5 km and a quarter are less than 1 km.[112] This means that walking, wheeling and bike riding have good opportunity to satisfy many mobility demands for short journeys in towns and cities worldwide. Yet currently only a third of these are walked, wheeled or ridden and more than half of them are made by motorised vehicles.[112]

Given that e-bikes routinely extend practical journeys to 10 km or more, the potential for active travel exceeds 75% of all urban trips in the world.[112]

A raised pedestrian crossing to support walking in a main street.
Image credit: iStock.com; Kokkai Ng

Local measures that promote active travel can be quick and straightforward to implement, and their modest costs to local and state authorities are generally outweighed by the gains.[108] To maximise these returns an integrated approach is essential as outlined further in the following sections.

Oklahoma City: once one of the most unhealthy and unwalkable cities in the US

In the early 21st century, Oklahoma City, US, was one of the most unliveable cities in the US. Walkability had been neglected. Obesity levels were high, it had the highest density of fast-food outlets in the country, and one of the lowest life expectancies.

The Mayor, Mick Cornett, himself obese, successfully challenged the city residents to join him in collectively losing a million pounds in weight, using the rallying cry: 'this city is going on a diet!'

However, he soon realised that dieting was not an enduring solution. He pushed through a one percent rise in city sales tax to fund a re-design of the city streets and spaces that would yield better health outcomes. Hundreds of miles of sidewalks, bike lanes, trails and a walk-friendly CBD were constructed, transforming the image of the city and attracting strong inflows of creative young people, from California, Texas and further afield.

At various times in recent years the city has boasted the lowest unemployment rate in the country and the most start-ups per capita. Improved walkability helped in the city to win a place on the list of 'the fittest cities in America'.

5.3.1 The urban village – density and destinations

A walkable commercial street is not a stand-alone environment. It must contain enough services to meet the needs of residents living within walking distance and attract sufficient customers to support those services. These attributes can be seen in the context of an 'urban village'.

Urban villages comprise a town centre (or main street) surrounded by its walkshed (the area within which people normally walk for errands).[113] Urban villages have a familiar land use pattern that dates from a time prior to high levels of car ownership and the prioritisation of vehicle traffic and flow. There must be a sufficient population density in the walkshed to support the services and activities of the town centre or main street.[114]

As people typically walk at 4 to 6 km/h in good walking conditions,[115] an urban village normally has a radius of up to 0.8 km, or a 10-minute walk.[113] Where the streets are laid out in a grid, the walkshed will tend to be diamond shaped.[116] It will be larger where block sizes are small and where walkability is high, as people walk further where the walking conditions are inviting and the environment is stimulating.[41]

On the other hand, natural or man-made barriers, such as busy roads or lack of footpaths, can significantly distort or reduce the size of the walking catchment area.[117]

Urban villages are compact, walkable neighbourhoods where it is easy to get around without driving. They are multimodal places, accommodating travel on foot, by bike, on public transport and by driving.

Urban villages, where the combination of residential density and destinations support walkability and the economic viability of local businesses.
Image credits: iStock.com; Chalffy and Kokkai Ng

5.3.2 X-minute cities, flexible work arrangements and local business

X-minute cities – a concept referring to local neighbourhoods, towns and cities which provide access to daily needs and services within a 5-, 10-, 15- or 20-minute walk – have gained popularity in recent years.[118] A 15-minute city formed part of the successful re-election campaign for Paris Mayor, Anne Hidalgo, in 2020.[119,120]

The concept continues to attract interest following societal changes resulting from the COVID-19 pandemic. A greater uptake and ongoing demand for work from home and flexible working arrangement has had impacts on local businesses in city centres, as well as in suburban areas.

Research conducted by PricewaterhouseCoopers (PwC) in Australia has demonstrated that central business districts in Sydney, Melbourne and Perth are continuing to change in response to the COVID-19 pandemic and ongoing work from home patterns.[121] PwC notes that, while working from home has negatively impacted retail, restaurants, bars and cafes in business districts as a result of reduced foot traffic, it also opens new opportunities for innovation through creative transformation, repurposing and revitalisation.[121]

While some argue that the decline of people commuting to centralised office locations decreases consumer spending in central business districts,[122] contrasting evidence suggests consumer spend remains steady, with shoppers in central business districts in the UK consolidating visits to align with their office-based workdays.[123] To help combat challenges associated with consumer spend, there may be opportunity for centralised businesses to adapt to different patterns of consumer visitation and spending.[123]

Suburban cafés, dining precincts and retailers are said to benefit from more people working from home, remaining in their 5-, 10-, 15- or 20-minute neighbourhood, and supporting local businesses.[123] The trend towards local shopping, generated by work from home patterns, also presents opportunities for walkable neighbourhoods and economic benefit.[124]

X-Minute cities allow people to access everyday needs within a short walk from home.
Image credits: iStock.com; petekarici and slovegrove

6 Car parking in town centres and main streets: re-evaluating needs and provision

The importance of car access and parking in town centres and main streets is often over-emphasised, at the potential expense of otherwise being able to make these areas more walkable and economically vibrant. This occurs due to a misperception about arrival modes, lack of awareness about the downsides of car parking and its negative impact on foot traffic, and lack of awareness that public realm amenity is of most value to people shopping.

Until recently, there have been assumptions about the importance of car access and parking for economic sustainability with limited evidence available.

A growing number of studies – including Australian examples – have provided valuable insights into the supply, demand, and utilisation of car parking in retail and commercial areas. These findings offer a stronger evidence base from which to assess the ways in which parking provision and management practices align with the needs of both traders and customers.

This section explores whether existing car parking policies support or hinder the economic and functional performance of town centres and main streets.

It finds that attractive walking environments is the most important factor for the economic success of town centres, more so than space for car parking. Reallocating some road space can help meet community demand for improved shopping amenity and provide benefits to the community, retailers and government.

Good quality walking environments create attractive and successful retail centres. Image credit: iStock.com; Jonathan W. Cohen

6.1 Disparate views

Proposed changes to car parking arrangements in town centres and main streets to make way for public realm improvements, including walking, wheeling and bike riding, are often controversial and can be met with concern.[125] There are often disparate and conflicting views about whether there is too little, or too much, car parking.[126] Box 3 explores this in more detail.

Research in the US has shown that local business owners can fear that removal or reductions in vehicular parking or travel lanes will reduce patronage by people driving and that any increased patronage from people walking, wheeling or bike riding will not offset lost revenues.[52]

Trial or pilot interventions have proven useful in testing the validity of proposals for change and provide reassurance for those who have concern.[127] This is discussed further in Sections 7.2.1 and 7.2.2.

Box 3: Disparate views over parking needs between retailers and people shopping

- Research from Edinburgh, Scotland, and various cities in New Zealand have shown that retailers want more car parking, whereas people shopping prioritise better crossing facilities and a more pleasant environment at the top of their choices.[4,55]
- In Melbourne, people shopping supported changes to improve amenity and the streetscape by reducing the number of on-street car parks, while traders held concerns about both the current parking situation and the possibility that changes could negatively impact their business.[58]
- Further, only 15% of residents chose 'car accessibility and parking' as important when asked what features attract them to visiting and spending time in a town centre. 'Walking, cycling or public transport options' were more valued by all age cohorts and people shopping tended to value other factors like greenery and cleanliness most highly of all.[58]
- Another study in Melbourne found that nearly half of traders (47%) did not want to lose any car parking for improved amenities at the centre, whereas only 28% of people shopping felt the same.[58]
- In South Melbourne, cleanliness, vegetation, outdoor seating and a feeling of welcome were all among the most important attributes identified by shoppers, while car parking was ranked in the bottom three out of 50 attributes.[58]

6.2 Analysis of parking needs

A lack of agreement over both the arrival modes and spending levels of people shopping has already been discussed in Section 3. Further to this, there are also misperceptions about the catchment areas for people visiting and shopping at main streets and town centres.

A Berlin-based study in Germany showed that just over half (51.2%) of people shopping lived less than 1 km from the shopping street, although traders, on average, estimated that only 12.6% of customers live within this distance.[48] Other research supports the Berlin study, finding that people shopping in a main street or town centre often live close by.[51]

Over supply of carparking can make walking less safe, enjoyable or appealing.
Image credit: Heart Foundation

6.3 The impacts of car parking on walking, wheeling and bike riding

Car parking infrastructure can create physical and perceptual barriers to the free movement of people walking, wheeling, and bike riding in town centres and along main streets.[128] Research has found that car access and parking provisions may discourage walking and are not among the highest priorities for people when shopping.[58] In addition, the presence of parking close to destinations can significantly reduce the distance people are willing to walk, potentially limiting foot traffic and reducing opportunities for casual visitation and associated spend.[41] These effects may constrain the ability of town centres to function as vibrant, economically successful community destinations.

Reducing reliance on car parking can be supported by initiatives that encourage short trips to be made on foot, by bike or public transport rather than by car. Where data indicates that a high proportion of car trips are short-distance, this may suggest an opportunity for local councils to prioritise walking, wheeling and bike riding, as well as the creation of place-based outcomes over vehicle through-movement. Doing so can support higher foot traffic, increased visitation, and stronger economic performance of main streets and town centres.[103]

Carparks can create barriers to accessing local shops. Image credits: iStock.com; ai_yoshi and Steven Tritton

6.4 The cost of car parking

There is a potential source of cost saving for local councils in places where an over-supply of car parking exists. Where savings are passed on, residents could pay lower rates, or a council could repurpose that funding for other public benefits.

Tax revenue is used in many countries globally, including Australia, to provide parking subsidies.[129] In effect, this means that all people visiting a main street, whether they have walked, ridden a bike, caught public transport or driven, pay some of the cost of parking.

The late parking researcher, Donald Shoup, has estimated that people driving in the US park free at the end of 99% of their trips, despite municipalities (and, thereby, tax payers) incurring high costs for such provision.[129] Costs include the land and parking facility, as well as operating costs such as cleaning, lighting, maintenance, security, insurance, labour and administration.

Annualised costs in North America range from about USD600 (AUD933) for a basic surface parking place to over USD5,000 (AUD7,782) for structured parking. Overall costs for parking provision are estimated to average about USD5,000 (AUD7,782) per vehicle per year.[130] This is because local councils provide on average three to eight parking spaces per vehicle. These could comprise, for example, one at a workplace, one off-street at a commercial centre and others at on-street parking spaces. This provision may be partly explained by planning requirements and partly as a response to community demands for convenient parking. This can create an abundance of spaces, reflecting the assumption that when it comes to parking, more is better, regardless of costs.[130]

6.5 Opportunities for parking reform

While often considered as a technical and operational detail, car parking is increasingly becoming understood as one of the most significant tools a city may use in achieving transport and public space objectives, as well as for economic benefit.[131]

In many cities around the world, car parking minimums can create barriers to improving shopping environments for walking. A report from the Institute for Transportation and Development Policy, 'Breaking the code', argues that parking minimums create 'cities for cars'.[131]

The planning system in Victoria, Australia typically requires a rate of car parking of four spaces for every 100 m2 for pubs and restaurants, and 3.5 spaces for offices.[58,132] The City of Melbourne has over 215,000 car parking spaces.[133] However, 40-60% of households in the city do not own a car and around a third of apartment car parking spaces are not used.[133]

The provision of plentiful car parking space can be a powerful incentive to drive.[134] Knowing that there will always be a space to park at the end of a trip can be a pre-condition for making the journey by car in the first place. Moreover, the dedication of that space to private motorised vehicles can prevent the facilitation and increase in the use of other modes of transport by restricting space for bus stops, safe bike lanes and comfortable environments for walking.[135]

Parking reform, which reduces some car parking capacity, can provide space for higher quality outcomes for walkability.[136] This would benefit the people who bring the greatest economic value to the street – those who have walked there (as Section 3 showed) – as well as local businesses.

Parking reform is gaining momentum around the world as a key lever to reallocate valuable public space, to reduce demand for driving, and unlock a myriad of related benefits.[131] Mexico City, Mexico, London, UK, and Seattle, US have replaced parking minimums with parking maximums and reduced the construction of car parking spaces by 20-40% within a few years.[131] Some larger Australian cities are following suit. Further widespread introduction could allow business districts to prosper by creating more people-friendly environments.

6.6 Repurposing car parking space

In some cases, public space can be disproportionately allocated between the various modes of transport and the number of people who use each mode, as well as the value of spend of each mode. Research in Lygon Street in Melbourne showed that most of the public space on the street was allocated to cars. In this case, of the public space allocated to parking, 99% was allocated to car parking and 1% to bike parking.[137] The study showed that incrementally replacing car parking with bike parking makes economic sense, and achieved greater economic benefit for the same public space.[137]

One simple (and proven) intervention is to re-purpose car parking spaces to parklets. Parklets involve converting one or two on-street parking bays into a semi-public space by installing simple amenities such as seating, bike racks, greenery or public art.[138]

Many parklets have been created in retail districts outside restaurants, encouraging visitors to dwell longer and spend more while adding to the area's vibrancy. Such interventions are legalised and facilitated by city governments in many countries, including places in Australia. Most are popular with visitors and successful for traders.

Their modular nature means that they can easily be relocated if local circumstances change or if they are not successful.[139]

Box 4 presents an example of this.

Box 4: Hampden Road parklets, Perth, Western Australia[140]

In 2019 parklets at Hampden Road in Perth, WA replaced some kerbside car parking. They aimed to increase vibrancy, support local business and foster community engagement by offering additional outdoor seating, a free community library and a designated dog area. Evaluation of the trial showed:

- local footfall rose throughout the trial including reaching 35% growth on some days;

- 67% of traders agreed or strongly agreed that the parklets increased visitation to Hampden Road; and

- community and trader sentiment clearly favoured retaining the parklets.

Following these positive reactions, approval was granted for the continuation of the parklets. Since then, others have been successfully trialled, prompting Perth in 2023 to endorse the concept by developing formal policy and guidelines for future parklet installation.[140]

Hampden Road parklet, Perth WA.
Image credit: City of Perth WA, , SHOTBYTHOM-2965 [140]

Other opportunities to repurpose car parking space includes the creation of no parking zones (clearways) at certain times of the day to create space for commuting by active and public transport.[141] A study in Melbourne found a positive relationship between peak hour clearways and the number of people riding bikes and using buses.[141]

7 Creating space and speed reduction for walking, wheeling and bike riding

Reducing traffic speed in business districts is a proven way to provide safety, comfort and attractiveness to support business success. Traffic calming measures combined with limits of 30 km/h or less create safer, more inviting streets for people accessing local shops and services. Reallocating street space for people walking, wheeling and riding bikes is equally important. Converting kerb-side parking, portions of the roadway or even entire streets to people-centred use are ways to achieve this.

These two strategies are mutually reinforcing. Implemented together, speed reduction and space reallocation foster commercially vibrant and popular main streets and town centres.

7.1 The role of speed reduction

This paper has already demonstrated the importance of, need for, and value provided to main streets and town centres from people walking, wheeling and bike riding.

Enabling and encouraging a shift to these modes of transport, for the local business economic benefits outlined throughout this paper, will only succeed when vehicle speeds are actively managed to protect all road users. Slower traffic makes streets safer and feel more comfortable, which in turn increases both the number and frequency of trips by people walking.[142]

A survey of older adults in Victoria found that heavy traffic and short pedestrian crossing signal phases are barriers to walking.[143]

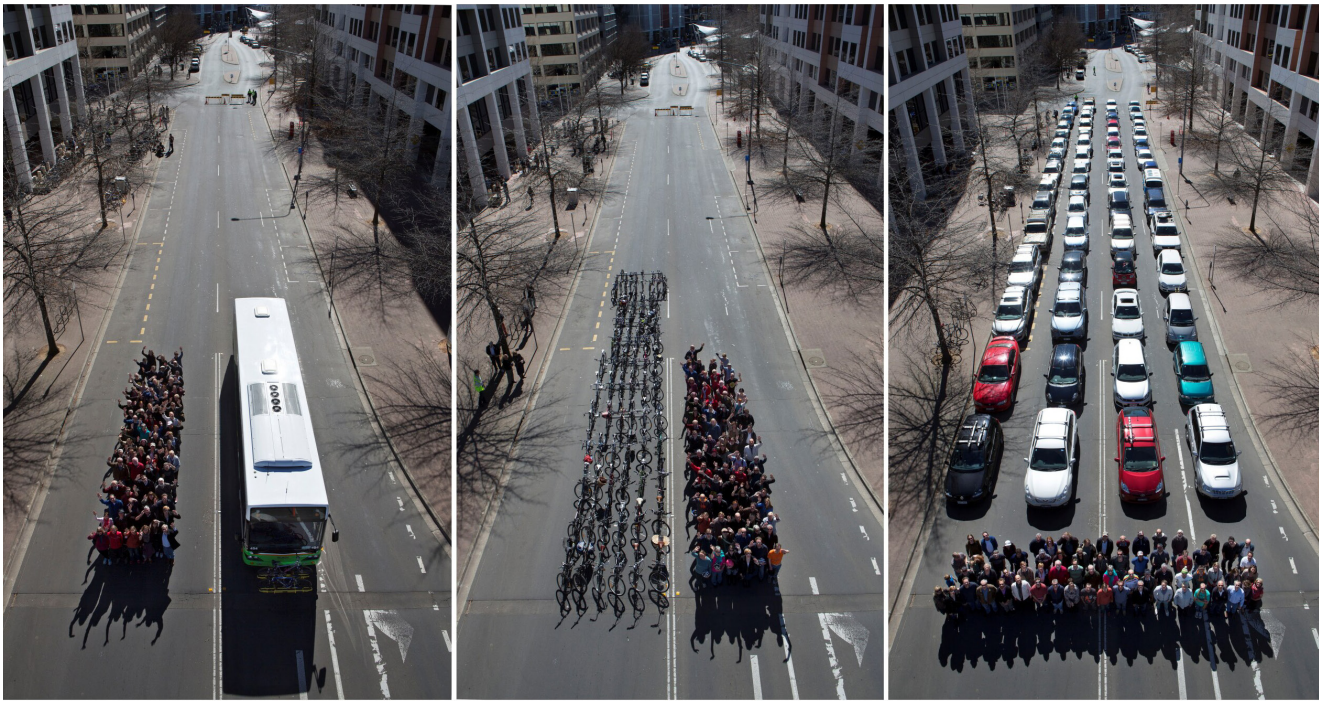
In Bristol, UK, introducing 20 mph (30 km/h) limits led to a 12% rise in walking and bike riding, and 35% of residents reported feeling safer.[144] In addition to the safety gains of slower traffic, a calmer, more pleasant atmosphere is created when vehicles travel at 30 km/h or less.[145] This can create more inviting retail environments and attract more customers.[145]

Slow speeds and shared zones eliminate the need for signal-controlled crossings, guardrails and other barriers, allowing shoppers to move freely between both sides of the street.[146]

Due to cost and space considerations, separated cycling lanes cannot be provided on every street, and may not be necessary in all business districts. Where integration with motorised traffic is necessary, slowing the speed of traffic, and reducing traffic volume, is essential.[9] Improved comfort and safety and 30 km/h zones (or lower) make bike riding an easier choice.[9] Evidence from cities in bicycle-friendly nations such as Germany confirms that 30 km/h streets can be safe and attractive for people riding bikes, who can co-exist with cars travelling at these speeds.[9,147]

7.2 Making space for walking, wheeling and bike riding

People walking, wheeling, bike riding and using public transport take up less space than those driving, as demonstrated in the image below.



An image showing street space requirements by travel mode. The same number of people are represented in each photo but the footprint of their travel mode differs greatly. Image credit: We Ride Australia (formerly Cycling Promotion Fund)[148], image supplied and used with permission

The global impacts of COVID-19 on street-space re-allocation were dramatic and rapid. Over 500 cities, states, and countries around the world re-allocated street space in response to changing mobility demands brought on by the pandemic.[149]

These approaches have often been implemented in low-cost ways with minimum levels of intervention or infrastructure. Tactical urbanist, or pilot projects, can simply but effectively test an idea using cones, planter-boxes, paint and tape, thus providing short-term and scalable interventions to catalyse long-term change.[150]

7.2.1 Re-purposing sections of streets

Re-purposing sections of streets attempts to shift the balance of the city's streets away from vehicle traffic and parking, towards more public space that is accessible and inclusive for all.

New York City's Pearl Street Plaza 'Pavements to Plazas' program closed underused sections of streets to motorised traffic and re-furnished them as public space, often overnight, using minimal resources.[151] Many of the projects within this program showed positive impacts on walking, wheeling, bike riding and use of public transport, as well as positive safety and business outcomes, with neutral impacts on movement flows for motorised vehicles.[151]

Increases in retail sales of 170% for local businesses were reported from the Pearl Street Plaza makeover, with one local business owner saying,

> **'it's pretty good. I like people sitting across from us, watching what we're doing. They see the business. Maybe they don't come in today, but they come tomorrow. They know we're here'.[151]**

7.2.2 Re-purposing entire streets

More than 400 cities around the world now operate 'Ciclovía' (or open streets) programs. This involves closing a network of roads to motorised vehicles and opening it to people on a temporary basis (such as on a Sunday or public holiday). Ciclovía aim to promote physical activity, increase social capital and advocate for bike riding.[152]

Although increasing business activity is rarely articulated as a goal, greater exposure to potential customers along the routes can be an outcome.[153] More importantly, Ciclovía provide an experience of what car-free streets can be like and they increase the opportunity to advocate for space redistribution in the city towards a more people-oriented approach.[152]

Ciclovía, Mexico City, Mexico.
Image credit: Rodney Tolley

In contrast to temporary closure to car traffic in Ciclovía, streets from which all or most motorised traffic is permanently excluded are formally referred to as pedestrianised, or 'streets for people'.[154] These streets have a 100-year history in Europe and are generally economically successful and popular.[155] Usually only one or two city streets are involved, but if there is high quality public transport access, extensive systems of pedestrianised streets may develop, as seen in Munich, Germany.[155] Similarly, in Buenos Aires, Argentina, over 100 blocks have been reconfigured and the higher concentrations of people on foot through the whole area has increased restaurant trade.[156]

Such people-focused areas in city centres support strong retail activity and high levels of footfall.[157] They can also become destinations in their own right. Where associated networks of service laneways and delivery alleys are also retrofitted, walkability is further enhanced, creating new spaces of activity and alfresco dining environments, as Melbourne's laneways attest.[69]

Can it be done? Revitalising the town centre through walking, wheeling and bike riding in Pontevedra, Spain[158, 159]

Pontevedra, in Galicia, Spain is a remarkable example of the resurgence of a city centre economy after walking and bike riding were prioritised.

Up until 1999, the city centre had been plagued by traffic danger, poor air quality, an exodus of young families, and a struggling local economy. Then a former doctor was elected as the new Mayor, promising to care for his city in the same way doctors cared for patients – and immediately set in motion a range of policies aimed at improving the health of the city. Roads were narrowed, footpaths widened, much parking was removed to the town edge, street furniture was installed, trees were planted, and the speed limit was reduced to 30 km/h.

Pontevedra (Spain) after transformation into a 'slower city'.
Image credit: Rodney Tolley

The new policies achieved tremendous success. Nearly three-quarters of car journeys shifted to walking, wheeling or bike riding. The streets became safe: while 30 people were killed in road crashes between 1996 and 2006, the city hasn't had a traffic death since 2011.

All this has boosted its attraction as a place to live. Before 1999 its population growth was flat, but it is now the fastest-growing city in the province of Galicia and from 2016–20 it had the highest net business growth.

A recent survey on local shopping concluded that 95% of the local population prefers to shop within the city, instead of going to large shopping malls in the outskirts. It also found that 92% of the population buy their groceries in stores or supermarkets located close to their homes, and that 53% never use the car to purchase goods.

Elected leaders and decision makers who are concerned about pushback against policies that prioritise walking, wheeling and bike riding should note that Mayor Lores is currently serving in his sixth term as mayor – at 24 years tenure he is the longest-serving large-city mayor in Spain.

Calle Madero pedestrianised street, Mexico City, Mexico[160]

Calle Madero was pedestrianised in 2010 and is notable because it was completed despite fierce opposition from traders who were convinced that the street would decline without access to cars.

The city accepted the advice of their engineer, who was confident that traders' doubts would vanish once they saw the car-free street pilot in action. He said, "let me have just one day, with cones". The pilot pedestrianisation project was hugely successful and subsequently became permanent. Within two years foot traffic in the street was up by 250%; income up by 50%; investment up by 20%; and 28 new stores had opened.

It has since become the second most important retail street in Latin America and merchants in neighbouring streets are calling for the pedestrianisation of their streets too.

7.3 The value of high-quality infrastructure and secure parking facilities for bikes

Reallocating road space to bike lanes can increase the number of people visiting a retail area and customer spend.[54] In 2016, the City of Toronto, Canada removed 136 on-street car parking spots and installed a pilot bike lane on a stretch of Bloor Street, a retail corridor. The number of customers and their monthly spend both increased during the pilot and no negative economic impacts have been reported.[13]

A similar experience occurred in Sydney where retailers believed a cycleway would hinder productivity and impact car parking.[161] Residents, on the other hand, were supportive of the proposed new cycleway, perceiving it to have a positive impact on their quality of life and on the neighbourhood. After construction of the cycleway, retailers' negative perceptions of its impact on productivity and car parking dissipated as more locals used it.[161]

Additionally, allocation of space to bike parking over car parking has previously resulted in up to five times higher retail spend than the same area of car parking.[90] In Australia, this has been calculated to show that each square metre allocated to bike parking generates AUD31 per hour, but only AUD6 if used for a car parking space.[54]

Secure bicycle parking is critical to enable people to ride.
Image credit: Rodney Tolley

8 Conclusion

The evidence presented in this paper demonstrates that walkable business districts are good for business and that efficient and equitable allocation of the public realm can boost economic success.

There is evidence that visitors to town centres and main streets do not put a high priority on car access and parking. Instead, they most value the walkable, amenable, people-oriented public spaces that create safe, welcoming and inclusive environments.

For people to be able to walk, wheel and bike ride to and within town centres and main streets in safety and comfort, there is a need to prioritise two interventions which have received limited attention in the past. One is to **reduce car parking** to increase the opportunities for people on foot to shop, stroll and dwell in comfort. The second is to **reduce traffic speeds to 30 km/h or below** to reduce traffic-related danger and allow easy and safe use of streets.

Improvements to town centre and main street public realms that make it easier for people to walk, wheel, ride bikes and use public transport benefit everyone – local retailers, other businesses, people shopping, the local community and governments.

- **Retailers** benefit from increased expenditure by local customers who bring loyalty and repeat business.
- **Other businesses and workplaces** benefit from being able to attract a talented labour force, having higher tax yields and return on investment, and having less traffic congestion.
- **People shopping** benefit from a more enjoyable experience, with improved opportunities to stroll, to stay longer and to engage with and support local businesses and other people.
- **The local community** benefits through potential reduced vehicle ownership and operating costs, associated higher levels of disposable income, increased residential property values and improved health outcomes with associated reduced healthcare costs.
- **Governments** benefit from cost reductions in parking subsidies, improved public health and environmental outcomes and more cost-effective allocation of transport funding.

Anxiety about change is understandable. However, concerns can be addressed through effective and inexpensive trials and temporary solutions. These allow people the opportunity to experience the change, in their local context, without significant investment or commitment.

Pilot projects that reclaim space for walking, wheeling and bike riding can demonstrate almost immediate impacts. Pop-up parklets and plazas, for example, can be inexpensive and creative ways to reallocate space and test the validity of the approach. These can be quickly removed if they fail to achieve the desired results. But, if they do succeed, they can be made permanent.

More walkable business districts support economic vitality and are good for heart health.

9 Recommendations

Improved walkability and higher quality business districts which offer enjoyable, comfortable experiences result in more people visiting more often, staying longer and spending more. This is good for heart health and for economic vitality.

There is over 30 years of evidence to support the case that a good walking, wheeling and bike riding environment creates a positive economic environment. However, many local businesses, communities, governments and others remain nervous about change.

Throughout this paper, the current evidence clearly demonstrates that, irrespective of country, culture, location or other factors, customers and communities value town centres and main streets that can be easily accessed and enjoyed by walking, wheeling and bike riding and that these features bring economic value to local business.

There are many actions that can be taken to improve the walkability of town centres and main streets to realise the economic benefits for local businesses. Many of these are low cost and require minimal intervention.

To maximise the economic benefits for local business, design of town centres and main streets should:

1. **Improve walking, wheeling and bike riding access to town centres and main streets** to deliver greater footfall. Walking, wheeling and bike riding networks must be easy to join, comfortable and safe, with particular attention given to minimising road danger, delays and detours, including at road crossings.
2. **Enhance amenity in town centres and main streets** by ensuring connected, comfortable and attractive environments with places to dwell and 'sticky streets'.
3. **Reallocate some car parking spaces** to create higher quality environments for walking, wheeling and bike riding. Proven methods for achieving more balanced car parking volumes and encouraging acceptance from business interests are to:
   a) revise parking minimums through parking reform;
   b) pilot parklets to replace some on-street parking places – for seating, bike racks, greenery, public art and outdoor dining;
   c) trial the reallocation of underused sections of roadway as public spaces that allow more people to walk, wheel, ride bikes and dwell; and
   d) experiment with activities that temporarily close streets to vehicular traffic while opening them up to other forms of movement and social activity (e.g. Ciclovía and open streets).
4. **Reduce the maximum speed limit of motorised traffic in town centres and main streets to 30 km/hr or less**. Speed limit reductions generally require concurrent interventions to calm traffic such as changes to street widths, alignments and vertical profiles. These can be trialled through pilot projects, which are inexpensive and deliver fast results.

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