One step ahead... Planning for Accessible Centres and Connected Stations

Rethinking walk access to Main Streets, transit and parking
May 2018.

This report was prepared by Dr David Mepham of David Mepham Consulting, (email mepham.consulting@gmail.com) for Victoria Walks Inc. The content of this report remains the intellectual property of David Mepham Consulting.

The report considers good to best practice urban planning and design interventions to improve local accessibility and walkability in 'Main Street' shopping centres and connected transit precincts.

Victoria Walks Inc. is a walking health promotion charity working to get more Victorians walking every day. Our vision: *People walk whenever and wherever possible, within strong and vibrant communities, with resulting health benefits.* Victoria Walks is supported by VicHealth.

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Introduction

Main Street shopping centres are a key feature of the city and a significant part of the retail economy. Their attractiveness is typically related to an authentic place experience with good, easy walkability and convenient access to transit.

The future of Main Street centres is now under a cloud. On-line shopping is slowly pulling money out of local economies and there is growing competition from larger shopping malls which are quickly adapting to meet the online shopping challenge.

The focus of this paper is on the way in which the Main Street - access/place experience can be harnessed to better realise the dynamic, reciprocal relationship between walkable centres and adjoining transit precincts.

Rail patronage data shows where rail stations are well connected into attractive Main Streets there is typically a higher walk up patronage. When we walk to and from stations we also animate the street, spend money, support local business and contribute to a better place experience.

This walk-transit-place reciprocity can be supported and enhanced by councils working with the community, local business and traders in the planning, design and delivery of better Main Streets and connecting side streets, laneways, paths, parks, crossings and placemaking.

There are also considerable opportunities arising from new wireless car parking technologies which enable better management of parking and related congestion. Better parking data, pricing and car park wayfinding can improve Main Street access, amenity and experience.

'One Step Ahead… Planning for Accessible Main Streets and Connected Stations' notes the challenges and opportunities for our local Main Street places and explores issues, ideas and opportunities for improved walk access and place quality.

It considers a range of ideas under the headings: planning for walking, transit precinct accessibility, safer side streets and smarter parking management.

The ideas are applied in several case studies which highlight initiatives that have improved Main Street and side street connectivity, place quality and station access.

The case studies are:

- Sydney Road and Coburg Station.
- High Street and Northcote Station.
- Wilson Avenue and Jewell Station.
- Chapel Street and Windsor Station.
- Greville Street and Prahran Station.
- Yarraville Station and Anderson Road.

The cases studies illustrate the potential or actual application of good/best practice ideas in Main Street and station locations across Melbourne.

This paper is premised on the idea that improved walk access to goods, services and transit is economically smart, socially beneficial and is a healthy and sustainable urban planning and design solution.

Terms such as 'transit' or 'Main Street' are regularly used throughout this paper as shorthand for public transport and local "Main Street" or "High Street" shopping strips. While these terms are mainly North American they are well understood and used in Australia.

1. Planning for Walking

The trend to urban planning and design to improve local access and walkability is often justified on the grounds of improved economic activity and land values.

The correlation between walkability and land value is evident in tools such as 'WalkScore'. Table 1, below, shows the relationship between WalkScore and median land price per square metre.

Image 1 – WalkScore and land value[1]

Figure 3: Walkscore VS Price Per Square Metre

According to Market Watch a WalkScore point can add nearly one per cent to the price of a property.[2] The higher WalkScore suburbs are typically dense, inner urban suburbs that are naturally oriented to walking and transit with fine-grained, grid street networks and Main Streets providing easy walk access to transit, goods and services. Good walkability is also strongly linked to business activity – the slower we move the more we spend.

While achieving walkable, attractive places seems like a positive objective, all too often conflicting mode outcomes prevail. Improving urban walkability requires a strategic approach to planning, design and investment in local walking plans and strategies.

Walking Plans

Most major cities have comprehensive walking plans and strategies. They will normally enable a detailed study of the walking environment with planning, design and investments to support the walking experience. Walking Plans will complement other strategic objectives.

The Victorian Government's, "Guidelines for Developing Principal Pedestrian Networks", July 2015, (PPN) advises local governments on planning for improved pedestrian accessibility.[3]

Image 2 Principal Pedestrian Networks
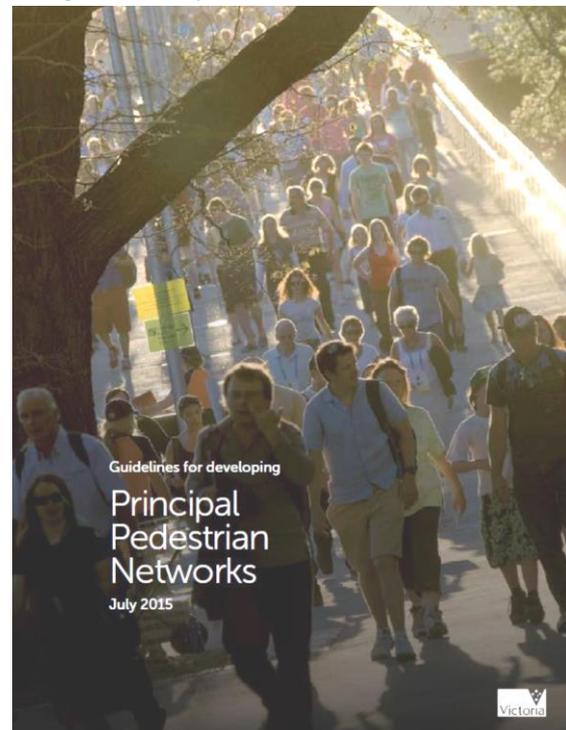
The PPN approach will map key land uses and destinations, streets, paths, crossings, desire lines and identify obstacles, issues and opportunities. This provides a basis for long-term planning and investment strategy for programs and capital works.

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[1] http://secretagent.com.au/wp-content/uploads/2013/11/Secret-Agent-Research-August-2013.pdf

[3] Principal Pedestrian Networks (July 2015) http://economicdevelopment.vic.gov.au/__data/assets/pdf_file/0010/1199674/Guidelines-for-developing-Principal-Pedestrian-Networks.pdf

A strategic approach to walk planning will challenge our assumptions. For example, we know that by improving the quality of the walk environment people will walk longer than the 400 metres/five-minute walk 'rule' assumed in many planning documents.

The PPN provides guidance for the development of local walk plans, note the Port Phillip Walk Plan 2011-2020, below.

Image 3 City of Port Phillip Walk Plan
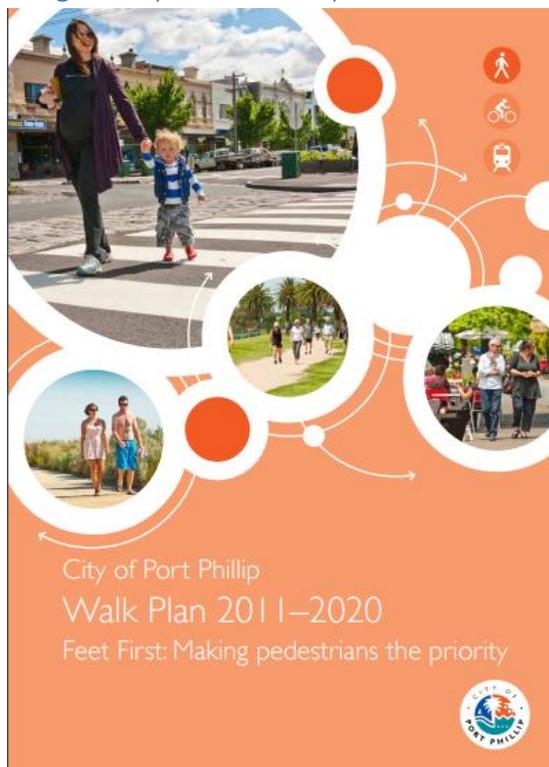
Local walk plans will typically apply and refine the principles and tools of the high level PPN to address local conditions. Planning will map destinations and walk routes to focus design and investment, note the map from the Port Phillip Plan below. At the local level there will be a variety of destinations and preferred walk corridors with a series of specific walk issues to be noted for action.

Image 4 City of Port Phillip Walk Plan Map
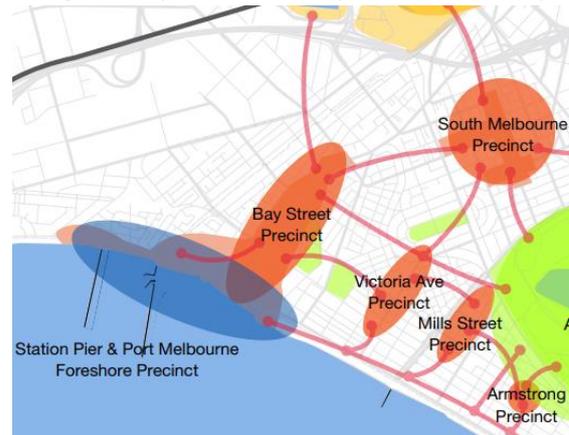
Walking plans are often created to support significant urban public transport investments. An example of this is the Sydney City Centre Access Strategy which complements the Sydney light rail project.

The Sydney Strategy notes 92 per cent of trips in the CBD are walking trips and this will continue to grow.[4] Investments in walking include the pedestrianisation of forty per cent of George Street with a fully accessible pedestrian link between busy Wynyard Station and the developing western city centre, including Barangaroo. The strategy proposes to reduce speed limits to 40 km/h in parts of the CBD to improve pedestrian safety.

The Strategy notes:

"We are taking action to make walking easier by providing better signage; de-cluttering footpaths; reducing waiting times at traffic lights and rolling out a series of footpath improvements at priority locations…"

The Strategy shows different locations and times with different mode priorities. This informs the allocation of street space and access rights for the preferred mode.

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[4] Sydney City Centre Access Strategy (2013) https://www.transport.nsw.gov.au/sites/default/fi

les/media/documents/2017/sydney-city-centre-access-strategy-final-web.pdf

Image 5 Allocation of street space[5]
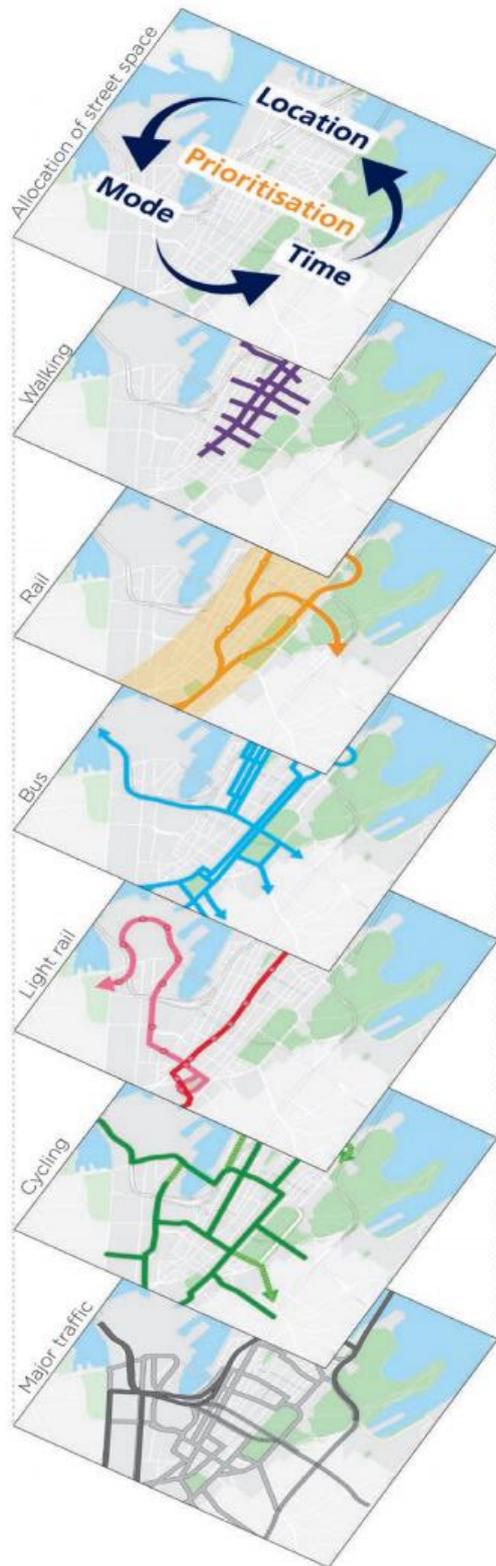
Image 6 Sydney light rail, George Street

Universal Access

The idea of 'universal access' goes beyond compliance with minimum legal disability standards. It is a philosophy that ensures real access in urban planning and design. This approach could be called empathetic design as its focus is on the diverse needs of people in public space. The approach is less about the 'disability' of the individual and more about the way in which the urban environment may be disabling.

Those who plan and design public spaces and places are usually not those who are disabled by the urban environment. An approach to achieving universal access may lie in the planning processes we employ. It makes good sense to involve and collaborate with those who have differing needs due to age, gender, class, ethnicity or physical ability or for people with children, frail aged and vulnerable.

[5] Source - Sydney Centre Access Strategy

An example is a library or health services, fully compliant with DDA requirements, with ramps, wider doors, disabled car parking spaces, etc. but located out of centre on cheaper land. This outcome may be fine for those with convenient car access but is not an accessible solution for those who have low/no access to a car.

Image 7 Where is that accessible building?

Placemaking interventions

Project for Public Spaces (PPS), leads discussion about placemaking in the United States. Their formulae for success includes 'access and linkages' as one of four place elements with sociability, uses and activities, comfort and image.[6]

Assessing access and linkages, with the other place qualities, considers the quality of walking infrastructure, comfort, convenience and activity and transit or parking infrastructure and level of use.

Public space and buildings are legally required to comply with specific design outcomes that ensure access for people with disability.

The logical next step for planners and designers in progressing and improving access must be to consider wider access issues such as the physical location of key goods and services, especially welfare, health, housing, recreation and education. It is not uncommon to find these services located out of centre on cheaper land, isolated from transit and with walk access compromised by large car parking areas.

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[6] Project for Public Spaces https://www.pps.org/

Designing for safe access

Safe places are more likely to be attractive places that in turn attract other people. The sense of safety underpins the type and frequency of place activities, notably, economic activity. People are unlikely to spend any more time, or money, than necessary in places that feel unsafe.

Safety is a complex issue that has as much to do with feeling as it does with reality. It is not uncommon for people to be afraid of crime when the facts are completely contrary to these feelings.

Place safety can be improved through interventions such as 'Crime Prevention through Environmental Design' (CPTED) which considers surveillance, legibility, territoriality and place management.

Crime Prevention through Environmental Design:

Surveillance: Passive or "natural" surveillance, i.e. buildings/activities, put eyes on the street, day/night.

Legibility: A legible urban environment allows people to know where they are and how to get to where they are going.

Territoriality: This contributes to ensuring that others do not trespass without invitation or by accident.

Place Management: Places are well looked after and send a message that the community cares and protects the place.

In many cases these interventions are simple. Typically places that are well defined, well maintained, socially active and where people can see and be easily seen contribute to a sense of safety.

Designing for public safety should also consider trip hazards. The Victoria Walks research, 'Fall-Related Injuries While Walking in Victoria', notes "that while ageing results in an increased risk of falling for many older people, the primary impact of ageing is that they are much more likely to sustain an injury in the event that they do fall, and less able to recover from an injury when it occurs."[7] The cost of falls are estimated to rise to $1.4 billion by 2051.[8]

Road safety remains a significant problem. Over the last decade an average of 47 pedestrians were killed in Victoria each year and more than 690 seriously injured.[9]

Main Streets shopping precincts require an appropriate level of walking safety to be attractive places to visit. This requires safe, permeable Main Streets, slower traffic, regular breaks in traffic, regular placement of pedestrian crossings on desire lines, mid-lane medians with a range of interventions that indicate a pedestrian first environment to drivers.

A good practice example is fairer crossing time for pedestrians to improve crossing compliance at signals. Where the times are too long, then it is more likely that pedestrians will walk against the signal.

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[7] 'Fall-Related Injuries While Walking in Victoria' http://www.victoriawalks.org.au/Assets/Files/FINAL_Falls_Research_designed.pdf

[8] 'The problem and prevalence with falls', Australian and New Zealand Falls Prevention Society, http://www.anzfallsprevention.org/info/
[9] https://www.vicroads.vic.gov.au/safety-and-road-rules/safety-statistics/pedestrian-statistics

2. Transit Precinct Accessibility

A review of research on rail station access highlights a common failure by transit agencies to plan and invest in safe, easy walking in the wider station precinct. This is contrasted with significant investment in station 'Park and Ride' and associated parking/traffic infrastructure.

"Improving Access to Urban Passenger Rail Stations in Australia", notes this planning oversight and recommends:

> *Station access planning should be an integral part of the station development effort, especially for improving existing facilities and for designing new facilities.[10]*

Barriers to walking in the station precinct include the impermeable rail line and busy roads with park and ride, kiss and ride and related traffic congestion plus cruising for parking in local streets – 'Park and Hide'.

Planning in the immediate station precinct is a matter for the transit agency but the wider walk-up to the station is more likely to be left to local government.

Local government is largely responsible for fixing the problems that can arise in the transit precinct. Alternatively, they are able to reap the opportunities associated with station patronage, including the economic benefits associated with the station precinct walk-up and value capture of higher and better land use.

Safe access to the station

Melbourne's urban rail stations typically attract sixty to seventy per cent of their passengers entirely on foot, and in some inner urban stations, as much as eighty per cent of passengers, with many others interchanging from other transit services.

Underpinning this walk-up behaviour is the quality of walk access in the station environment. A number of issues affect the decision to walk, including the actual or perceived level of safety, especially outside of daylight hours.

Stations may be isolated from surrounding activities by back of house activities, car parking or poor orientation of local buildings so there is little to no activity or surveillance onto the station or pathways. Laneways may provide convenient access between the station and nearby streets but, if located between the rail line and back of house, may be isolated and feel like an entrapment risk.

In spite of the problems of transit precinct accessibility there are many good/best practice examples across Melbourne. Many are due to economically driven planning decisions to locate stations with Main Street/cross street shopping and tram/bus services at the time of the planning of the network. The combination creates a strong reciprocal relationship with excellent local access conditions. There are also enhanced solutions where councils have intervened to refine the transit precinct access experience.

Consider the example of the Sandringham rail line, see below, where many stations

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[10] Cooperative Research Centre (CRC) for Rail Innovation, "*Improving Access to Urban Passenger*

Rail Stations in Australia Improving Access to Urban Passenger Rail Stations in Australia, P3.

draw substantial patronage by foot. These are stations located on or in proximity to activated and attractive Main Street environments where walking is safe and comfortable in the day and the evening.

Table 1 Sandringham Line Walk Access

Station	% Walk-up[11]
Balaclava	78.1
Brighton Beach	32.3
Elsternwick	60.2
Gardenvale	69.9
Hampton	60.3
Middle Brighton	66.3
North Brighton	57.0
Prahran	90.8
Ripponlea	86.2
Sandringham	43.0
South Yarra	50.0
Windsor	78.5

The station where walk up is lowest is Brighton Beach which is located out of centre and substantially surrounded by commuter parking.

Stations such as South Yarra have good walk-up but, as a major rail interchange, many passengers access this station from other transit services.

Not all high walk-up stations are located on vibrant Main Streets. Prahran Station is set back several blocks from busy Chapel Street and tram services. A great walking experience is provided via the attractive Greville Street connection between Chapel Street and the station with park connections and places to sit, watch, eat or shop. Note the Prahran Station case study later in this paper.

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[11] Based on PTV data – passengers walking the whole of the trip to station on foot.

Previous research into walk access

Previous research investigating pedestrian access issues at level crossing removals and associated station upgrades highlights a range of issues for major new transit projects as well as opportunities for local governments to improve station precinct place, parking and walk access outcomes.

Image 8 LXRA elevated station concept

The report, "Planning for Pedestrian Accessibility at Level Crossing Removals and Railway Stations", explores issues and opportunities for the Level Crossing Removal Authority (LXRA) project and makes a series of findings based on a study of at grade, elevated and trenched stations and transit concepts. The report includes a detailed analysis of the walk access issues associated with the Carnegie Station/Koornang Road LXRA concept.

The study shows that in spite of significant walk patronage to stations there was relatively little interest in investing in better walk access or to tap into the local planning and design experience of councils. Again, this can be contrasted with the very significant planning and investment in car parking and vehicle access to stations.

Image 9 Pedestrian access to stations[12]

Planning for Pedestrian Accessibility at Level Crossing Removals and Railway Stations.

December 2016

Victoria walks

M E P
H A M
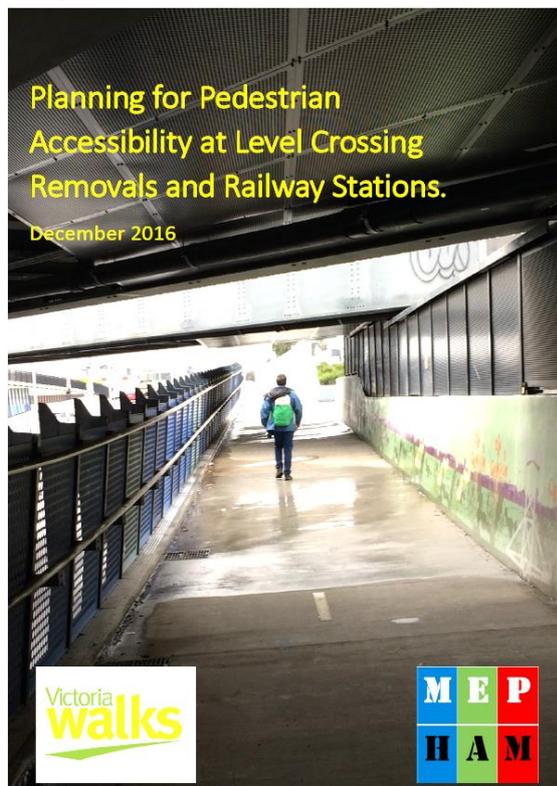
The Report notes station parking facilities lacked basic way finding technologies, often utilised by major parking providers.

The lack of real time car parking space information leads to cruising for parking and increased congestion in the station precinct.

Peak period station precinct traffic is particularly problematic where the congestion overlaps into school traffic congestion so the safety and amenity problems extend into residential streets.

Other access problems include the provision of shared cycle/walking paths in the rail corridor where it is evident from different travel speeds and the extent of

commuter cycle and pedestrian traffic that separate paths were required.

Station car park design typically perform poorly in social and environmental terms. They lack dedicated walking paths within the car park. There is rarely provision for trees, shade or water sensitive urban design. Again, this is out of step with current 'good practice' car park design.

The Victoria Walks report concludes that billions were being spent on urban rail transit projects in Melbourne and much of this goes on replacing park and ride facilities on public land but with no publicly available economic analysis or informed debate on the cost/benefit or opportunity cost of this 'investment'.

Significant new investment in transit in Australian cities makes it timely to discuss parking costs/benefits and alternatives to ensure better access to transit.

Given the significant rail patronage that comes from walking, it seems reasonable that more be spent on station precinct walk access. There is a case for greater transparency and debate about actual park and ride costs. Access budgets might better reflect the actual station access split. New funding might be made to local governments in the form of tied grants for precinct walking plans and infrastructure.

The Report, "Planning for Pedestrian Accessibility at Level Crossing Removals and Railway Stations", is available on the Victoria Walks website – note the link below. The Report recommendations can be found in Appendix A of this paper.

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[12] Victoria Walks: Planning for Pedestrian Accessibility at Level Crossing Removals and Railway Stations.

http://www.victoriawalks.org.au/level-crossing-removal/

Developing station place and access

High access land around stations is increasingly being recognised as high value. This ties into ideas like 'transit oriented development' (TOD) and New Urbanism which have challenged many established urban planning ideas.

TOD principles promote higher density, mixed use development with quality urban design solutions and attention to walkability in the station precinct.

TOD can be seen as an urban planning idea that transcends siloed transport and land use planning practice and looks to a more integrated planning process to achieve integrated planning outcomes.

TOD with its primary focus on walk/transit access treats parking as optional rather than essential, it is therefore a vehicle for more affordable housing. Car parking adds significant extra costs to higher density buildings, especially when located in structure or underground.

Low to zero parking rates for housing and commercial space near stations may be complemented with station precinct parking plans and local traffic plans, car or cycle share schemes, secure bicycle facilities or 'unbundled parking' where parking is provided off site.

Where low to no parking projects exist, councils may apply parking conditions to manage on-street parking issues, such as resident parking permits and limited day time stay.

Smarter planning and design opens the way for more sustainable, accessible and affordable housing options.

Transit Oriented Development

Density – The highest density will be focused closest to the transit node/centre with lower density uses and spaces to the edge. Density will be subject to local conditions, i.e. urban infill targets and housing market conditions.

Design – When people live closer together there is a need for better urban design to manage noise, visual/privacy and orientation. A strong focus on walkability and local accessibility will be reflected in the design of the building and spaces.

Diversity – Typically, the TOD will provide for housing with shops, offices, public space and community uses. The high access location will enable lower parking ratios, lower build costs and more opportunity for affordable housing. Residents may include those with lower mobility, disability, young and old, rich and poor.

Image 10 Queensland Guide to TOD
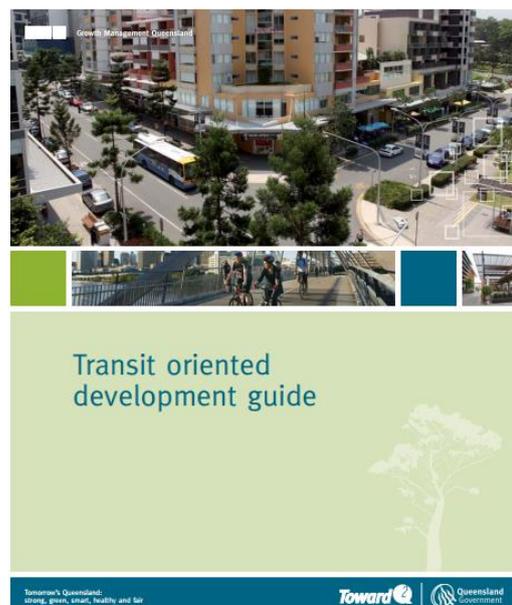
3. Main Street Walkability

Main Street shopping centres are a key part of the retail economy, providing almost half of all retail floor space in Victoria.[13] They connect us to local goods and services and enable us to walk, rest, eat, socialise and spend. When we plan for better Main Streets we plan for better place, economy and community.

Walkable Main Streets also provide for trees, shade and gardens, places to sit and relax, places for art and play. Great, green, fun Main Streets attract people to visit. A city's reputation as an attractive, liveable city is often based on its easy accessibility and the quality of its Main Streets.

This section focuses on the Main Street and the way in which it can enable walking. It does this under three themes:

- Main Street footpaths
- The Main Street road experience
- The streetscape experience.

Image 11 Kerb build outs as places

3.1 Main Street Footpaths

Wide, generous footpaths are a key element in successful shopping precincts. It is increasingly common to find Main Street footpaths widened to provide appropriate space for pedestrians and space for dining and placemaking.

Better footpaths improve the ease of walking and the wider place experience. A rule of thumb is to assume a 400 metre or five-minute walking distance but a footpath that provides conviviality, comfort and activities will encourage longer walk distances and times and complementary activities.

Alternatively, poor footpaths - lacking safety, comfort or activity - discourage walking and encourage less sustainable modes. Poor footpaths are a particular problem for vulnerable pedestrians who fear being bumped, tripping or falling.

Problems for walking include obstructions such as motorbike parking, advertising signs and bus shelters, poorly located or regulated footpath dining, seating, rubbish bins, utility poles and boxes which obstruct pedestrian access in busy areas.

Ideas flagged to improve the Main Street footpath experience include vibrant local economy, easy access, place maintenance, signage, Main Street corners, build outs, pocket parks, seating and furniture, public toilet facilities, avoiding footpath pinch points, wayfinding, better footpath dining, management of cycling on footpaths and avoiding motorcycle parking on footpaths.

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[13] The Economic Value of Main Streets, by Essential Economics for Mainstreet Australia – https://www.parliament.vic.gov

Footpath Level of Service

Ensuring a quality walking experience requires adequate walking space, protection of desire lines/pathways and minimisation of pinch points to provide a better footpath 'Level of Service' (LOS), that is the level of pedestrian traffic relative to the amount of walking space.

Fruin's LOS diagram, note image below, shows six scenarios. Scenarios A, B, C and D show convenient walking with no to minimal bunching. Scenarios E and F show more obstruction and congestion which may be tolerated in exceptional peak periods and on some constrained paths but is generally undesirable. These high congestion sites such as footpath corners, need to be rethought and replanned.

High congestion may be due to narrow footpaths, relative to the traffic, or the location of activities or infrastructure on footpaths. These incursions may need to be rethought to improve LOS.

Footpath dining and signage are obvious problems impacting on footpath LOS but there are also problems with the location of public infrastructure such as bins, lighting poles and signage.

The location of bus shelters can reduce LOS below desirable standards, especially where footpath width is limited. The trend to increase shelter size to accommodate large advertising signage has increased this problem to the point that other access can be unreasonably restricted.

Image 12 Motorcycle blocks tram stop[14]

Image 13 Fruin's 'Level of Service'.
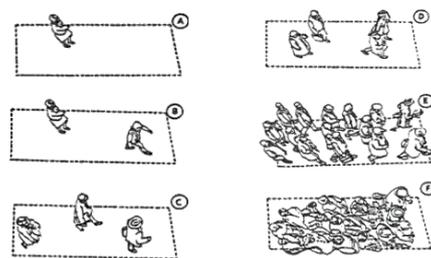
Image 14 Shelter versus walk access.

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[14] Photo from www.danielbowen.com

Main Street economy and access

Main Streets provide a range of social and community functions and, importantly, a significant local economic function and this is often linked to their walk access.

The City of Melbourne 'Walking Plan 2014-17' notes "a 10 per cent increase in the connectivity of the pedestrian network in the city would add $2.1 billion to the City of Melbourne's economy."[15]

Analysis by the economics and planning specialists SGS confirms pedestrian connectivity as very important for business-to-business interactions in the Melbourne CBD's $32 billion economy.

Research by Essential Economics for Main Street Australia shows that Main Street economies provide almost half of all retail floor space in Victoria, approximately, 370,000 jobs and some $15.5 billion in wages each year.[16] Walkable Main Streets are a catalyst for small business and innovation. Main Street businesses may develop into larger national chains, note Coles, Myer, JB Hi Fi, Grill'd and Spotlight.

Walkability is seen as especially conducive to boosting potential face-to-face interactions. Melbourne's streets, laneways and arcades create a dense network of pedestrian access that enables face-to-face connections fundamental to the knowledge economy.[17]

Attractive, comfortable footpaths provide an opportunity to sit, socialise, eat, chat and watch the world go by. Cafes, restaurants and bars rely on walk traffic and contribute to the activation and animation of the street. This is especially the case in the evening where people socialising on the street can contribute to the sense of surveillance and safety.

Alternatively, footpath dining may be an impediment to safe, easy access. Poorly located footpath dining, including seating that can be pulled back into the walking path, may pose a trip risk and obstacle to easy, safe walk access.

There are a range of solutions that might be considered including footpath design and/or footpath dining standards that are enforced to protect the walking path and maintain an acceptable LOS.

Being able to measure footpath traffic is useful in an argument for investments in footpath space and place treatments. New technologies enable collection of anonymous real time and place data, such as location and stay duration based on the presence of active mobile phones.

This type of data might inform when to close laneways or side streets from car traffic or when to clear footpath dining or other obstacles to maximise footpath LOS similar to a peak period 'clearway'. This opens the opportunity for flexible, pop up evening/weekend places for markets, food, entertainment – fun places that attract and entertain the money out of our pockets.

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[15] City of Melbourne, "Walking Plan 2014–17", p2.
[16] "The Economic Value of Main Streets.' May 2011, Essential Economics/Main Street Australia. https://www.parliament.vic.gov.au/images/stories/committees/edic/local_economic_initiatives/subs/46A_-_The_economic_value_of_main_streets.pdf

[17] SGS Economics and Planning, 'Valuing City of Melbourne's Walking Economy' https://www.sgsep.com.au/publications/valuing-city-melbournes-walking-economy

Cleaning and maintenance

Popular streets and places can become untidy with rubbish or feel like they are not being cleaned or maintained. This impacts on the attractiveness of the destination and when a place feels shabby then others may not show respect for it.

Some toxic rubbish, such as cigarette butts, if not cleaned up will run into storm water drains, polluting the water system. Businesses that generate rubbish need to be accountable for the cleaning and costs associated with the loss of place amenity.

The selection, design and placement of furniture, fittings, bins, etc. affects the ability of asset managers to maintain cleaning and longer-term maintenance.

Image 15 Poor servicing degrades place

Public toilet facilities can be provided on reclaimed space, parking space, or more discretely set back from the footpath.

Well serviced public toilets minimise the prevalence of unpleasant sight and smell in public spaces. This is particularly important where local business is oriented towards alcohol consumption.

The cost of public toilets may be offset by reduced cleaning costs and the costs associated with loss of visitation due to anti-social behaviour and unattractive, smelly, poorly kept places.

Main Street corners

Main Street footpath corners are places where we stop to cross the road and have a minute or two to notice our space and those in it. These places are more often highly valued, more highly developed, may have a higher density of uses with notable architectural features and therefore provide excellent way finding.

Busy footpath corners are also prone to over-crowding with people waiting to cross the road and may therefore become uncomfortable and feel unsafe. Corner crowding tends to be problematic in busy transit precincts. Where corners are crowded the LOS will be low and others walking through will be inconvenienced. There is a need to review and replan congested corners to ensure reasonable peak period comfort and safety.

Solutions for busy intersection corners include limitations on seating and walk impediments closer to the corner. New developments on the corner should have chamfered corners to increase the corner space and access for through traffic.

Where corners are extended or have slip lanes reclaimed for slower, safer traffic there may be opportunities for improved access, space for seating, public art and landscaping.

Image 16 Landscaped kerb extension

Main Street and side street build outs

Mid-block and side street corner build outs – kerb extensions increase space for desirable uses, including crossings, cafes, seating, artwork and landscaping.

Build outs enable shorter and more conveniently located crossings. They are often complemented with a raised path to align with the footpath creating a speed bump to slow traffic and reduce trip risks. Mid-block build outs are highly visible and invite people to cross formally. They are ideal for traffic signals and street lighting.

Build outs extend beyond the overhead weather protection so enable mature trees for greenery, shade and bird life. As average temperatures increase the need for shade will increase. Larger trees may also be used for lighting to enhance the evening experience.

The image below shows Bay Street, Middle Brighton where a buildout creates space for trees, a place to sit and for bins that do not impede on the footpath. This street provides an easy walk connection to the Middle Brighton rail station.

Image 17 Mid-block Build out.

The build-out on Chapel Street, image below, provides a leafy green space for a corner café and a memorable point of difference in the street. It is animated by people stopping for lunch or coffee which improves the perception of safety in this section of the street.

Image 18 Chapel Street corner build out

Pocket park connections

Many suburbs lack easily accessible, usable space for rest or recreation. In many cases the solution to this problem is in front of us, possibly in our own street.

Small parks, or 'pocket parks' can be created through the closure of sections of the street network. Parks and small public spaces created from closed side streets, often adjoining Main Streets, increase walkability, amenity and safety and act as a local traffic management device.

Because they are easily accessed they provide attractive spaces for young and old, kids and pets. They provide convenient opportunities to stop, relax and watch the world go by. These are relatively easy to create spaces that are valued, used and loved by the community.

These parks and spaces can be fun and support trees, gardens, vege patches, play space, water features and other leisure activities without cluttering the footpath.

Well used parks that are part of the movement network provide good surveillance and enhanced safety. If well located and used, they will work well in the day and the evening.

Image 19 Greville Street park, Prahran

Image 21 Urban pocket park, Prahran #1

The Wilson Avenue pocket park, see image below, was created from the closure of part of the side street which connected to Jewell Station and the station car park, note the case studies. The new public space provides a climbing wall with wall mural, lawn and seating. The closure of the side street removes a car/ pedestrian conflict on Sydney Road to improve the local walking experience.

Image 20 Wilson Avenue side street space

The urban pocket park at Prahran, shown below, provides an attractive walking connection between the rail station and tram services on the Main Street.

Seating and street furniture

The provision of well-located seating may be simple, informal, fun and add to the sense of place. It may be complemented by small investments in paving, public art, water refill or landscaping.

The attractiveness of seating will reflect its positioning. People tend to stop and rest along edges and corners with their back to the wall and a view of the location and other people. People stopping will seek microclimatic benefits such as winter sun, summer shade and wind protection.

Popular seating is often informal and improvised. We find people naturally gathering in busy locations such as the steps of the library, station or post office. By being there people add to the sense of place that makes the space attractive and more interesting for others.

Proper seating is especially important for seniors, frail aged, children and people with some level of disability. Many people are unable to walk long distances without rest and may have special seating needs.

Poorly located or designed seating may not be used or not used as intended, i.e. seating on footpaths with the back to the road may lead to people extending their legs into the walk area creating a trip hazard and inconvenience for others. Kerb build outs are useful to provide attractive seating solutions that socialise the street without impeding pedestrian traffic.

Consistent seating and street furniture design and theming can reflect and reinforce the unique quality of the place and increase the sense of care and quality. Alternatively, the idea of 'pop-up' places tends to rely on a point of difference and may rely more on the informal, fun, colourful or confrontational.

Image 23 Old Melbourne Post Office steps

Provision of wayfinding

The idea of 'wayfinding' refers to the way in which we find our way around. The basic process involves 1. becoming orientated, 2. deciding your best route, 3. monitoring that you are on the right route and 4. recognition of the destination.

Today we are more likely to refer to our smart phones rather than to look and read cues in the urban environment, but what happens when we run out of battery?

The way in which we find our way through the urban environment relies on a range of senses and cues. Signs, signals and signification in buildings, spaces, artwork. These may vary between day and night,

The image below shows five wayfinding elements identified by Kevin Lynch in his book, 'Image of the City'. Lynch notes how these urban features enable us to intuitively interpret and negotiate the urban environment.

Image 24 Kevin Lynch's wayfinding cues
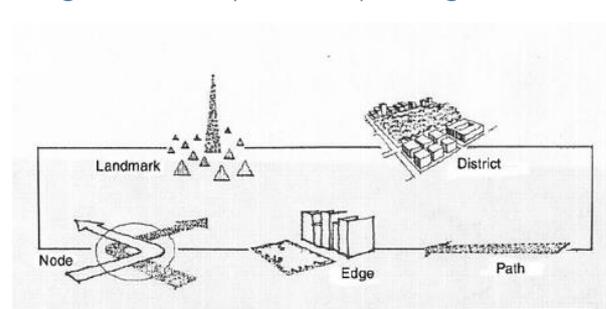
Lynch's work is notable in that it draws on the way we remember and imagine urban places and this may explain the enduring relevance of this idea to urban planners and designers. The elements identified by Lynch are outlined as follows:

• Nodes are entry points to the place such as junctions or intersections.

- Landmarks are notable/memorable physical objects in the environment.
- Edges are the lineal elements in the urban environment.
- Districts are medium to large places that are definable.
- Paths are the channels in which we walk, cycle or drive. They provide access but may also be barriers or edges.

Better footpath dining

Well designed, located and managed footpath dining can animate and activate the street, especially where it is mixed with art, greenery and a sense of fun.

Alternatively, footpath dining can lead to the impression of a privatised, cluttered space. Walking paths may be reduced to legal minimums with no regard for actual walk traffic. There may be problems with public alcohol consumption, anti-social behaviour and cigarette butt rubbish which degrade the walking experience.

Fixed footpath dining may be a barrier and impediment to safe, easy access and, with impermeable edges to the road, it can also be a barrier to safe road crossing.

Image 25 Pretty but not permeable.

Footpath dining occurs on public land and is regulated by Council according to the boundary markings indicating the extent of dining space activity. Protecting the walk path requires enforcement but

Councils may be reluctant to do this due to the risk of alienating traders who profit from the use of the footpath space.

As we utilise smarter parking technologies and improve access to less visible parking in local streets we can improve footpath dining outcomes on the Main Street with build out spaces over the parking space. This creates less intrusive, more flexible footpath dining with an appropriate peak hour footpath level of service, like a road provides peak hour clearways for traffic.

In short footpath dining can bring with it many place benefits but without more careful planning it may compromise safe and convenient walking amenity.

Image 26 Dining impacting on walk access

Footpaths and cycling

Cycling on footpaths can be problematic and is generally illegal. According to VicRoads you can ride on a footpath if you are a child under the age of 12, are an adult supervising a child under the age of 12 or have been given and are following the conditions on a medical certificate that says you have a disability that makes it difficult for you to ride on the road.

Cycling on the footpath is perceived as dangerous by many pedestrians,

especially vulnerable/frail pedestrians who fear falling and serious injury.

It follows that separated, dedicated, safe and connected cycle lanes be improved and extended. It is evident that when these cycling facilities are provided they are well used.

Stations are often accessed on 'shared paths', intended to accommodate both pedestrians and cyclists. The evidence points to a need to separate paths on account of significant cycle/walk speed differences and risk of injury, especially to pedestrians.[18]

These paths may also be isolated and lack reasonable levels of surveillance, often on account of their back of house locations.

Creating a quality place experience enables others to use paths with a greater sense of safety and comfort. Paths might be enhanced and animated with lighting, water fountains, landscaping and shade.

Image 27 Design to protect accessibility.

On-street motorcycle parking

Victoria is unique for allowing motorcycle parking on footpaths, even where this compromises safe pedestrian movement.

From time to time other cities debate this policy but will reject it for reasons of pedestrian safety and footpath amenity. It is difficult to find evidence of expert opinion or public consultation in support of the policy and, to date, the impact of the policy has not been evaluated.

Motorcyclists can ride on the footpath to find a place to park and this seems to extend to obstruction of access to tram and bus stops. Responding to the failure of this policy some councils are now acting to restrict motorcycle parking on footpaths.

Given the many problems with this policy, notably parking on and near transit stops and where a higher level of Main Street footpath service is required, it is desirable that motorcycle parking be restricted to those areas where walk access is not compromised.

Image 28 No motorbikes on footpaths.

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[18] Note the safety issues on shared paths: http://www.victoriawalks.org.au/Assets/Files/Shared_paths,_the_issues.pdf

3.2 Main Street - Road Experience

Main Street road corridors are slower and more permeable and therefore enable easy movement of transit, cyclists and pedestrians with vehicles with more opportunities for formal and informal road crossing.

Main Street corridors have a function beyond mobility with an important social and economic function where people are encouraged to stop, shop, eat, sip and socialise.

Main Streets also attract local car traffic which must safely mix with other modes. When we think of mode we tend to think of mode of travel but mode might also explain our way of thinking when we travel. In 'car mode' drivers are cocooned in their vehicle, disconnected from the social world and face to face social etiquette. Behaviour can be different. Aggression is a regular problem with drivers on the road and in car parks.

Planners and designers involved in the Main Street space need to consider the 'mode' of drivers, where traffic is slower, congested and parking is scarce, all of which contribute to driver anxiety. Pedestrians are vulnerable when having to negotiate their right of way with cars so these conflicts need to be minimised.

Challenges arise from unreasonable driver expectations in Main Streets. The street needs to send a message to drivers to take it easy, give way, slow down. There are a range of strategies to achieve this.

Ideas discussed here include Main Street traffic flow and speed, taming soft/fast corners, issues with roundabouts that facilitate car movement over other access on urban streets, tram stops/Super Stops, fair crossing times and mid-block road crossings.

Some of these ideas are flagged by VicRoads[19] as pedestrian priority actions, other actions fall to councils to consider.

VicRoads pedestrian priority actions include the following:

- introducing more appropriate speed limits in shopping strips;
- encouraging through-traffic to avoid shopping strips and to use feasible alternative routes;
- improving the amenity of areas of intense pedestrian activity alongside arterial roads;
- improving safety and equitable access for pedestrians in high-use areas via the Walk Safe Program and other innovative and cost-effective measures.

Image 29 Roundabout for easy car access.

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[19] VicRoads Pedestrian Priority Actions - https://www.vicroads.vic.gov.au/safety-and-road-rules/pedestrian-safety/pedestrian-priority-actions

Traffic flow and speed

Traffic flow and speed can determine whether a road or street acts as an edge or permeable seam in the urban environment. Edges are characterised by either dynamic (speed) or static (physical) barriers.

Main Streets are typically signed at 40km/h but the actual speed may be faster due to road conditions. Traffic speed should enable cyclists to ride safely and for pedestrians to cross the road safely and with ease.

A study of signalised intersections found that the most significant determinant of pedestrian risk was traffic volume and that *"a 30% reduction in the traffic volume would reduce the total number of injured pedestrians by 35% and the average risk of pedestrian collision by 50% at the intersections under analysis."*[20]

A key factor influencing speed is the design of the road rather than the signed speed. Wider roads invite higher driving speed. Alternatively, a tightly designed, enclosed road corridor with a sense of uncertainty encourages drivers to be more careful and drive with greater awareness of cyclists and pedestrians.

Signage and engineering can be supported with soft or hard enforcement of driving behaviour. In high amenity Main Street places this might extend to the policing of very loud vehicles and motorbikes. Soft speed management may be supported with electronic travel speed information signage.

Taming the corner

Corners are often conflict points between pedestrians and cars. Slowing the corner with physical interventions improves walk safety with modified driving behaviour and contributes to the place experience.

The image below shows a concept plan for changes to the road and side street conditions. The new corner reduces the length of the pedestrian crossing, slows turning traffic and messages a change to drivers about the road environment.

Changes to corners can be complemented with changes to the built environment, such as chamfered building corners to enhance the space and improve the line of sight. They can accommodate small place making projects, landscaping, way finding and space for footpath entertainment.

Image 30 Corners for entertainment

Roundabouts on urban streets

Roundabouts on urban streets provide easy access and better flow for cars but typically poor access for pedestrians and may be especially difficult for cyclists and people with disability. Pedestrian crossings are typically located off the desire line. The roundabout minimises breaks in flow impacting on informal crossing either side of the roundabout.

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[20] Victoria Walks, 'Intersections and Crossings – Pedestrian Safety',
http://www.victoriawalks.org.au/crossings/

Tram Stops - Super Stops

Trams contribute to congestion on Main Streets, frequently stopping and slowing the traffic speed, and therefore improve Main Street pedestrian safety.

Weather protection is typically available on the Main Street. Shelters functioning as advertising bill boards on footpaths can create an impediment to walking.

The challenge is to protect footpath space while providing appropriate access to transit. This will require investment in accessible platforms on urban streets and a rethinking of traffic priorities in highly constrained Main Street environments.

Investments in tram 'super stops' have significantly improved passenger access and comfort but the larger stop footprint reduces access for other vehicle traffic.

An example of a 'Super Tram' concept is shown below. The impact on parking space need to be weighed against the trend to increasing unit densities on Main Street corridors and increasing demand for transit services. The road width is finite but its efficiency can be significantly increased with improved transit services.

Image 31 Sydney Road proposal by RACV

Fair crossing time on Main Streets

Design for safe, easy informal crossing are key features of the permeable Main Street. This important feature is typically complemented with signalised mid-block and intersection crossings.

There are a range of safe access and convenience concerns for pedestrians at signalised crossings. Victoria Walks notes that apart from traffic volume, speed and driver behaviour, problems for pedestrians include:

- excessively long waiting times and inadequate crossing time,
- lack of automatic call up for pedestrian signals,
- 'dropped' crossings, where there is no crossing for certain legs of a signalised intersection,
- staged crossings requiring more than one signal phase to cross arterials, and
- roundabouts, slip lanes and fencing.[21]

The amount of crossing time should reflect the need of slower, less able pedestrians to cross the road. The use of countdown crossing signals give pedestrians certainty on available crossing time and this seems to increase compliance.

Limited trials in Australia suggest that countdown timers contribute to improved convenience and reduced delay for pedestrians.[22]

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[21] Victoria Walks – Intersections and Crossings: Crossing Solutions http://www.victoriawalks.org.au/crossings/

[22] Victoria Walks – Intersections and Crossings: Crossing Solutions http://www.victoriawalks.org.au/crossings/

Main Street crossings

The cohesiveness of the place can be related to the level of Main Street permeability. Streets with faster moving traffic and few breaks in traffic divide the place whilst permeable streets act like a seam that connects the place.

Main Street mid-block crossings improve formal crossing behaviour, especially where the crossing is aligned with desire lines, i.e. connecting into side street places, laneways, malls or transit stops.

Mid-block crossings are improved with kerb extensionss which provide extra space for people waiting to cross without blocking footpath through traffic, they reduce the road crossing distance and create space for street enhancements.

Lower Main Street traffic speed and breaks in traffic flow enable safer informal crossing and this is complemented with medians between lanes, either physically defined or painted, where pedestrians are able to more easily cross through traffic.

Improving the Main Street mid-block and corner crossing experience can be problematic where there is an impact on high access, highly visible on-street parking. Solutions are now being realised with new wireless parking technologies such as in ground sensor pods and real time parking signage. These point drivers to convenient parking in local streets and car parks, freeing up Main Street kerb space for better use.

Image 32 "Equitable' walk signals

3.3 Streetscape Experience

The streetscape experience considers the street edge/building frontages. Edges can enclose the space and create a sense of comfort and the cosiness of a room. The street edge provides a canvas that tells the story of the place, the layers of history, the stories, symbols, language and culture of those who live and trade there.

When shops or building frontages are empty, blank or physically and visually impermeable then the street may feel empty. Blank walls, painted over windows or buildings set back from the street can create a negative space and contribute to an uneasy, lonely feel to the street.

Attractive streets and places feel active and animated. The edges enable seeing and being seen and provide easy passive surveillance and engagement with the activities within the building. Permeable frontages connect internal and external activities and in turn activate the street.

Image 33 Memorable streetscape

"Responsive Environments: A Manual for Designers" [23] provides a palette of ideas that describe place quality based on the concept of 'responsiveness', note box.

> *Responsive Environments:*
>
> - *Permeability – the ability to move through the place.*
> - *Variety – as opposed to the monotony and repetitive nature of space.*
> - *Legibility – being able to make sense of the space, often in an intuitive way.*
> - *Robustness – the ability of the place to withstand wear and tear and vandalism.*
> - *Visual appropriateness – noting cultural factors help us make sense of our environments.*
> - *Richness – the detail in the urban environment – shop fronts, footpaths and public art.*
> - *Personalisation – how is our personality reflected in our part of the urban environment?*

Create a memorable experience
In contrast to privatised shopping centre spaces, which specialise in predictable, familiar, franchised experiences, Main Streets tend to provide the unique, the bespoke, a point of difference via local, small business and often a clustering of service types. The Main Street experience may be accentuated by unique historical or architectural features such as a church, town hall, monument, artwork or park.

A memorable experience is more likely to be an emotional experience and achieving

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[23] PDF extract of Responsive Environments here - http://www.arch.mcgill.ca/prof/luka/urbandesign housing/temp/shaver2015/kulturforum/Bentley&al.1985-intro.pdf

this in a positive way contributes to a sense of connection to the place and provide great wayfinding for visitors.

The sculpture shown below, "Cow up Tree" by John Kelly, provides something quirky and fun and creates a landmark that is difficult to miss, or forget.

Image 34 Memorable artwork, Docklands

The streetscape and wayfinding

Locals may easily find their way around, relying on cues in the built environment. Visitors are more reliant on well located and designed signage and maps. Wayfinding can be complemented with Wi-Fi access and mobile phone mapping.

Where maps are provided it is useful to have them oriented to the direction of view to increase their legibility with real walking time shown to notable landmarks.

Access and orientation to destinations and to transit is important, especially for those places that attract visitors. The naming of stations/stops can assist, or confuse, visitors. In the naming of new Melbourne Metro Rail Tunnel stations, decision makers considered a range of naming options but settled on a simple naming protocol that references local landmarks such as the Town Hall or the State Library.

Investments in wayfinding can also add value to the place experience. Illumination

of significant public art and the lighting of notable building facades enhance the night time wayfinding experience and enhance the evening mood.

Image 35 Melbourne Metro station
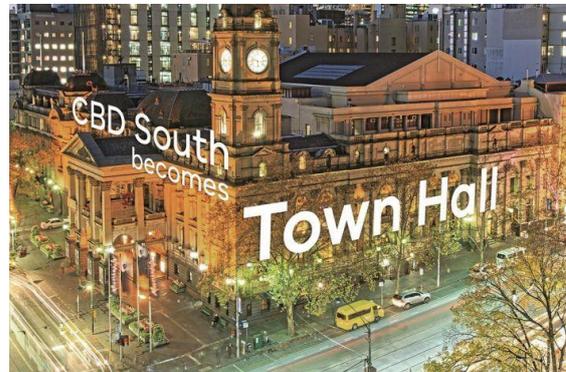
Image 36 Memorable wayfinding signage

Image 37 – Pop-up Park

Building scale and orientation

The orientation of buildings has an impact of the quality of the street. Historical or significant Main Street buildings typically have a notable façade with set back and orientation to the street. Shopfronts may be less notable for their architecture but are likely to provide weather protection and this may contribute to the sense of enclosure and human scale at street level.

New and larger buildings may change micro-climatic conditions at street level. Modelling should identify the potential problems of winter shading, summer sun or wind tunnels that make the street experience uncomfortable.

Civic or religious buildings often provide a distinctive, memorable and even awe inspiring urban experience. The set-back of these buildings - town halls, stations, churches or libraries, may provide an attractive space to sit and relax and can contribute to the life of the street.

Use of fun and festive lighting

Cold and gloomy winter evenings are challenges for evening and night time economies. Some places are defeating the gloom with lighting to lift the mood, other places are just doing it for the fun of it.

A vibrant evening economy is a key urban attraction. Melbourne's laneways provide a memorable evening experience and the annual 'White Night' attracts half a million people with eighty events across the city.

The closure of streets and lighting of significant buildings creates a memorable and exciting urban experience.

Use walls for art murals

Blank walls to the street create a negative, place experience for pedestrians. These walls are however increasingly used to present and view significant street art. Which activates and animates the place.

Big, bold murals can create a memorable experience and a destination. The striking AC/DC Lane murals in Melbourne or the Matt Adnate mural at Warrnambool are two examples of this positive effect.

Image 38 AC/DC Lane, Melbourne CBD.
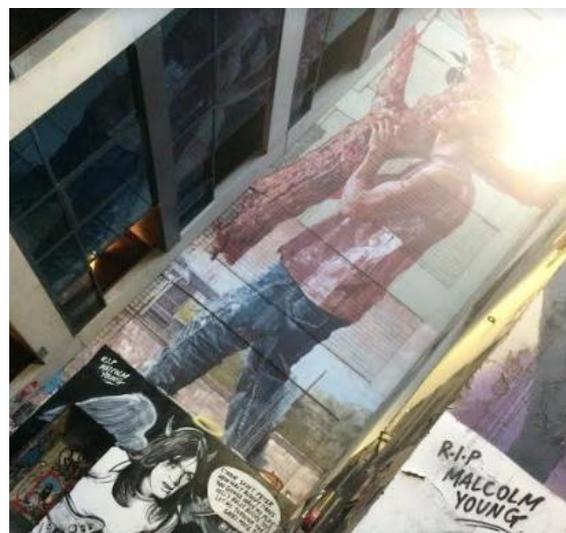
Image 39 Mural by Matt Adnate.

4. Safer Side Streets

Side streets and laneways in shopping precincts typically provide access for car traffic from the Main Street to large off-street car parking sites. These streets may also serve as short cuts or local 'rat running' to avoid traffic lights. For a number of reasons cars on side streets and in laneways can pose particular risks for pedestrians.

Side streets and laneways in shopping precincts draw vehicles across highly trafficked footpaths and therefore create points of conflict with pedestrians. The risks increase with intersection complexity such as simple left turn only compared to more complex right hand turns or crossing the Main Street without signals.

In each situation, there is a 'right of way' to be negotiated between cars and pedestrians.

The problems increase significantly when these streets work as connections to rail stations so there may be high levels of pedestrian traffic mixing with higher levels of vehicles seeking to access parking or Park and Ride.

Ideas flagged here focus on minimising the conflicts between pedestrians and vehicles on side streets and laneways, especially busy walk routes to stations. Interventions include shared zones, local area traffic management and build outs/kerb extensions. Rethinking side street and laneways enables new and improved public spaces to accommodate dining space, trees/shade and play space creating place quality and significantly improving key walking connections.

Shared Zones

Shared Zones can improve side street safety and local amenity. They are useful near stations and at points where many pedestrians cross. Shared Zones use signage with physical interventions, such as horizontal/vertical displacement, often with a change in road surface colour and texture and these changes may be complemented with landscaping. The overall effect improves both safety and the look and feel of the place.

The shared zone may allow for eye contact and some communication and negotiation between the driver and the pedestrian, but this approach requires consideration of those with lower vision.

Shared Zone projects may be a catalyst for local placemaking projects. Note Windsor Station where changed traffic conditions enabled a pocket park with art/wayfinding, a place to sit and bike parking.

Image 40 Windsor Station shared zone
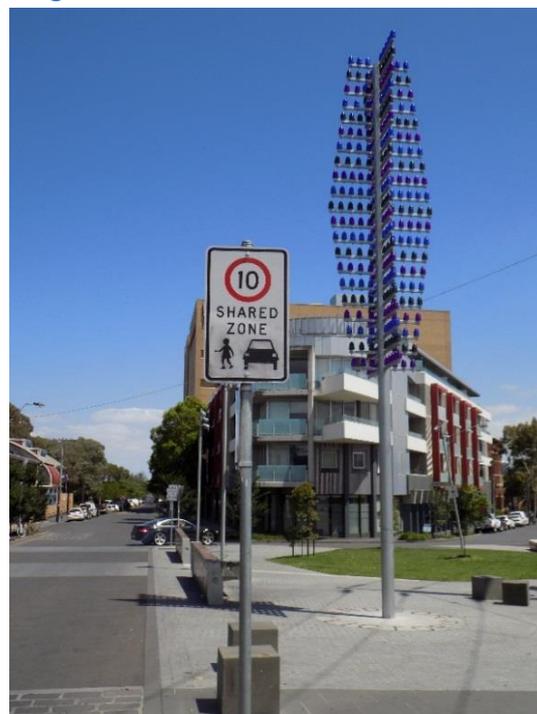
Side streets and Laneways

Street and laneways form a key part of the local movement network. In centres these can be busy with traffic circulating for parking and may also be key walking paths to this parking. Where the side streets and laneway intersects with the busy Main Street they are also points of conflict and accidents between cars and pedestrians.

With relatively simple urban design and traffic management interventions these well-connected and activated side streets and laneways can be transformed into attractive, vibrant local spaces framed by buildings to enable cosy stopping spaces complemented with art, seating, mood lighting. They are perfect for one-off 'hole in the wall' food/drink businesses.

Image 41 Reasons to stop and shop
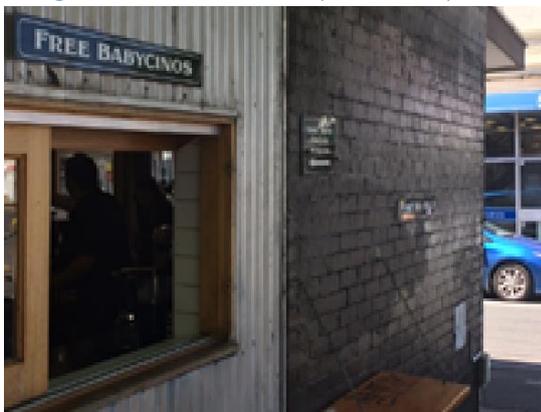
Safety and amenity problems with side street and laneways arise where high levels of vehicular traffic cross over the walk path over the Main Street footpath.

Visual engagement between drivers and pedestrians is typically limited and often occurs after the car has moved over the footpath alignment. At this point cars are looking for other cars with less attention to pedestrians so the risk of accidents tends to be high.

A key design objective is to minimise through traffic, create shared zones or one-way traffic or physical interventions that slow or stop cars prior to the footpath crossing, i.e. 'Stop' signs complemented with vertical or horizontal displacement, build outs and landscaping.

Raised, textured and highlighted crossing paths slow cars and provide easier access for pedestrians. Buildouts narrow the side street crossing distance, highlight the need to stop and improve the line of sight between cars and pedestrians.

Side street traffic can be reduced by changing from two-way to one-way traffic to simplify vehicle movements, minimise conflict with pedestrians and free space for landscaping, wider footpaths, dining or angled parking.

In the evening, the safety risks are higher so quality lighting is essential as well as a highlighted crossing treatment or signals.

A growing practice is to close the side street to vehicles and to create a new public space. This approach significantly improves local place amenity, enhances pedestrian movement on the Main Street and, via the closed side street, improves walk access to other destinations.

One example of this type of intervention can be seen with the Victoria Street Mall project. This project transformed the side street from a busy street feeding car parks to an attractive and well used public space edged with cafes, bakery and providing easy access to the local library and Coburg Station.

The change significantly improves the Main Street experience and level of safety

by removing the car/pedestrian conflict point on the busy Sydney Road footpath. The space runs east/west so winter sun and summer shade are provided. A signalised pedestrian crossing on Sydney Road aligns with the Mall to ensure a convenient crossing experience.

Image 42 Victoria Street Mall #1

The example of Greville Street at Prahran highlights the use of temporary 'pop-ups' as part of a wider consultation on the future of the space, see case studies.

Temporary bollards enable side streets and laneways to realise higher and better uses according to the time of the day/ week. Parking access from laneways can be reviewed over time.

Laneways that have been pedestrianised are a now a staple in any city art tour and provide an opportunity to experience the complementary 'hole in the wall' bars and cafes that have sprung up.

How significant are laneways? Well a 2008 Lonely Planet poll voted Melbourne's laneway art as Australia's top cultural attraction.[24]

The book "Life between Buildings" by Danish architect/planner, Jan Gehl,[25] notes three place/behaviours. See box.

Image 43 Laneway connection

Image 44 Victoria Street Mall #2

'Necessary' movement places for everyday tasks and pastimes. The place lacks distractions/sensations so people are not tempted to stop.

'Optional' activity places where people may sit, relax and enjoy the distractions.

'Social' activity places where people can engage socially – seeing and hearing others, chatting, eating or playing. They tend to feel safe as there are more eyes on the street. They attract and hold people and support local economy as shops tend to prosper where people are slowed and linger in the place.

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[24] http://theconversation.com/melbournes-love-hate-relationship-with-being-australias-street-art-capital-78177

[25] Jan Gehl, Life Between Buildings, https://www.pps.org/article/jgehl

Landscaped intersections

Landscaping interventions allow for the creation of tighter, slower streets and corners to replace soft, faster corners on 'rat-run' streets. These interventions can beautify the space and slow the street for safe walking and cycling which is desirable in school and station precincts.

Image 45 Traffic calming on rat run street
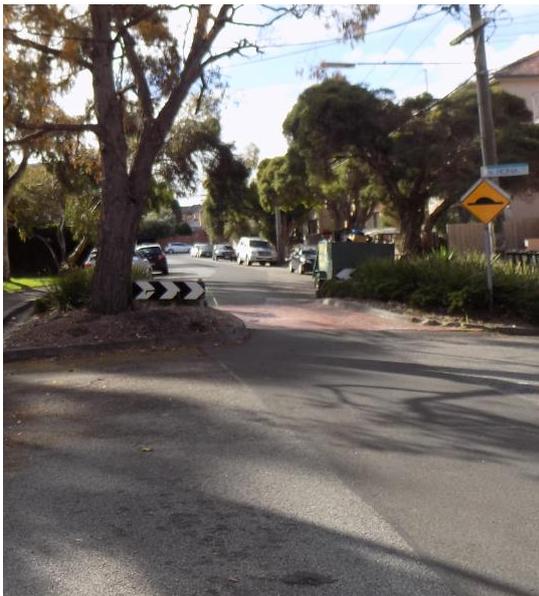
Traffic in the Bridport/Victoria Avenue area has been calmed with landscaping interventions focussed on side street traffic and in the Albert Park Primary School precinct. The works have made side streets attractive and safer with an enhanced 'right of way' for pedestrians and improved safety for children.

As part of these works a once busy road at the entrance to the Primary School has been closed to traffic to provide a new recreational space for children and safer drop off and pick up conditions. Pick-ups and school parking is still available although a slightly longer walk is required.

Image 46 Road closure at primary school[26]

Slower, safer corners

As car ownership increased, many streets, originally designed for transit, cycling and walking, have been redesigned for faster traffic with road widening, slip lanes, roundabouts and softened corners.

More recently, as we have come to appreciate the value of safer, walkable urban streets, there has been a reclaiming of street and road space. The narrowing of streets, widening of footpaths and removal of 'slip lanes' has created opportunities for new landscaping and beautification projects.

The image below shows the enhanced footpath and entrance to Luna Park with traffic calmed by the harder corner. The space was created by the removal of a slip lane. This now easily accommodates large numbers of people who are attracted to gather in this notable location.

Image 47 Slip lane removed, Luna Park

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[26] Albert Park Primary School Precinct, Melbourne by City of Port Phillip.

5. Smarter Parking Management

There has been a virtual revolution in urban car parking in the past decade, enabling improved access and place outcomes. First, is a shift in thinking about parking as a transport/mobility issue to a concern to achieve better urban planning outcomes. Second, is the rise of wireless parking technologies. Third, these new technologies have enabled equitable and efficient urban parking pricing to realise economically rational planning outcomes.

In short, we may be seeing the beginning of the end to the myth of 'free' parking which is prevalent in Australian cities. This 'free' parking is subsidised by one section of the community for the benefit of another – without rational explanation.

This section looks at several urban parking issues with a view to creating more debate and thinking about better, smarter planning for parking.

Smarter land use management points to the critical role for urban planners in planning for car parking. Wireless parking technologies improve data and open the way for equitable pricing of parking and the idea of 'demand responsive pricing'.

Flexible pricing using new technologies then opens a discussion on the idea of sharing of new parking revenue to fund local place and access improvements.

The new technologies improve real time way finding for parking and create an opportunity to rethink the form and function of Main Street road space.

Smarter land use management

When parking is treated solely as a transport planning issue then place quality and attractiveness is easily compromised.

Transport objectives focus primarily on moving cars and may subordinate place objectives to achieve this. In turn car park planning and design create access barriers to local goods and services and to transit.

It follows that land use planners have an important role to play in the planning of urban car parking. Ideally, local councils are able to work with major car parking providers, such as transit agencies and shopping centres, to improve the way parking is provided in and near centres.

Issues that need particular planning attention are car park size - i.e. one big or several smaller sites, location - i.e. centre or edge, duration of stay - i.e. high or low turnover, and vehicle access road design - i.e. access from the Main Street and side streets or from adjoining arterial roads. Each of these factors have consequences for place amenity and the quality and ease of access for other modes.

Local councils can influence the form and function of public and private parking. This can be driven by the need to improve the local walk access experience and access to transit.

The new parking technologies and related planning and design ideas enable councils to shift urban parking practice beyond emotional and anecdotal arguments towards evidence based planning to achieve the highest and best land use outcomes.

Equitable pricing of parking

A notable achievement of new parking technologies has been the ability to price parking according to demand for that parking space. Overhead and in-ground sensors can record the actual level of use of a parking space. This data then informs a parking price for that space or the block.

Image 48 Real time parking signage.

These technologies also enable improved way-finding and real-time information on available parking in different car parks. They therefore reduce congestion from cruising for parking and improve access to smaller and less visible car parking.

New parking technologies have improved the convenience of payment for parking with pay by phone and remote top-up options for longer than anticipated stays.

New technologies provide councils with better information and enforcement capability. This can be used to ensure that parking turns over as planned.

Evidence from earlier trials shows that while enforcement capacity is enhanced fine revenue may not increase as drivers

have improved access to information, including time left on the parking meter.

New parking technologies are usually, but not always, tied to paid parking. It is worth noting that so called 'free' parking is more often lower quality infrastructure with associated problems of poor maintenance, surveillance and safety.

A proponent of parking price reform is Donald Shoup, Professor of Urban Planning at UCLA. Shoup proposes the use of new parking technologies to set parking prices according to demand. This is known as Demand Responsive Pricing (DRP).

DRP is enabled by the car park usage data which informs a price for that parking space. High demand spaces will be charged at a higher rate than adjoining low demand spaces so DRP smooths parking demand across the centre.

DRP was the subject of a trial in San Francisco from 2010, under SFpark, which has since been expanded across the city and to other cities in the United States. The $25 million trial was substantially funded by the federal government. The evaluation findings are as follows:

- Average parking rates were lower;
- Parking availability improved;
- Easier to find a parking space;
- Easier to pay and avoid citations;
- Greenhouse gas emissions decreased;
- Vehicle miles travelled decrease.[27]

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[27] http://sfpark.org/about-the-project/pilot-evaluation/

Image 49 SFpark: Price affects demand

Image 50 Old Pasadena: Revenue sharing

Following the successful SFpark trial other cities have accessed the publicly available trial data trove to inform the introduction of new parking technologies, DRP and to improve parking management efficiency.

Parking revenue to fund improvements

When land provided for public parking is properly valued as a community owned asset and provided and charged accordingly then parking revenue can be raised and used to fund place and access projects, including better car parking.

Examples of this approach are becoming evident internationally and in Australia.

Revenue raised from paid on street car parking has been used to revitalise the Pasadena downtown in California. The new revenue funded place improvements which have enabled the town to transition from a destination in decline to a vibrant and attractive place to visit.

The sharing of parking revenue made it easier for local traders to accept the parking price policy change. The success of the scheme has made Pasadena Town a case study for other centres.

An Australian example of DRP with parking revenue sharing can be found in the Gold Coast 2015 Parking Plan. The Plan proposes a trial of the concept for key streets in the popular tourist centres of Broadbeach and Burleigh Heads. The new parking revenue now funds place and local access improvements.[28]

As was the case in the Pasadena Town example affected traders, business and residents, groups that are typically conservative about paid parking, came on board with the idea of more equitable and tangible benefits to their community.

Image 51 City of Gold Coast Parking Plan

Objectives		
Parking technology Improved parking information and convenience Improve customer service and parking management using real-time/place data to inform where and when to find the right car park.	**Responsive parking pricing** A transparent approach to the pricing of parking Use a consistent and transparent approach to pricing that reflects demand by location, time of day and/or season.	**Investment** Reinvestment into local centres Invest back into centres to fund streetscape and public/active transport improvements.

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[28] City of Gold Coast Parking Plan 2015
http://www.goldcoast.qld.gov.au/documents/bf/City_Parking_Plan_book_WEB.pdf

On-street car parking

Main Street on-street car parking is high access, highly visible and typically high turn-over parking in high demand areas with easy access for service vehicles.

This parking is being challenged by the desire to improve place quality. On-street car parking is being traded for mid-block or corner extensions/build outs and wider footpaths to create better social spaces.

This change is facilitated by technologies that provide real time signage on the Main Street to improve ease of access to other parking in local streets. This reduces the significance of Main Street parking and reduces local traffic. An improved Main Street encourages people to walk longer and spend more locally.

Off-street car parking

Off-street parking is less visible and so are many of the problems that come with this, including the significant cost of off-street parking in buildings, i.e. what is the cost of the car park in the building price?

Parking rates in buildings are generally determined according to set minimum parking rates. For example, the minimum parking rate may be one car park per bedroom or x metres of office space, or seats in a restaurant. Minimum rates are open to criticism on the grounds that they are inflexible and do not reflect significant differences in the urban environment.

Increasingly, especially in high access precincts, councils are pushing back against minimum rates in favour of more flexible and responsive maximum parking rates. As the idea of maximum rates evolves we find a range of innovative responses such as car or bike share

schemes or the 'unbundling' of private car parking.

Developers and buyers are increasingly attracted to low/no car development options, especially in high access areas. Younger people are certainly less wedded to the idea of car ownership than their parents. While these developments are potentially cheaper there is opposition to be overcome. Note the Nightingale apartment developments which have successfully proposed low to zero parking.

Image 52 Nightingale Apartments

Side streets and laneways often provide access to off-street parking. Traffic associated with this parking, especially high turnover parking, impacts on other accessibility. Busy car park driveways are areas of conflict for pedestrians and may therefore detract from the ease of access on a primary walk connection.

Activities with significant parking traffic may be accessed from busier roads to minimise congestion on local streets.

Again, the innovative use of real time signage and way finding technologies with local area traffic management interventions may minimise the negative impacts of parking traffic on local access and place amenity.

6. Case Studies

Six Melbourne case studies are provided to illustrate key ideas discussed in this paper. They cover a range of conditions with actual or potential enhancements on Main Streets, connecting side streets laneways and in station precincts.

The case study locations are as follows:

- Sydney Road and Coburg Station.
- High Street and Northcote Station.
- Wilson Avenue and Jewell Station.
- Chapel Street and Windsor Station.
- Greville Street and Prahran Station.
- Anderson Road and Yarraville Station.

Enhancements are typically in response to amenity issues and access barriers that have developed over several decades – the loss of space for more traffic, more parking and more footpath dining.

New opportunities, new technologies and better data and the need to quickly adapt to survive a rapidly changing retail economy has underpinned the rethinking and revitalisation of local place access.

Solutions to these problems come in different shapes and sizes depending on the place strengths and weaknesses.

A key strength of many Main Street shopping centres is the higher quality walk connectivity to stations and other transit – this is a positive, reciprocal relationship that can be cultivated and improved.

Key themes of the case studies are better planning for walking, access to transit, the function of Main Streets, side streets and laneways and smarter parking solutions.

When people are walking they are more likely to be spending, socialising and activating the urban environment.

Planning for better walking is planning for greener, equitable and prosperous places.

In Melbourne most urban transit is accessed by foot and people seem to be more attracted to this mode where the transit precinct is attractive, accessible with interventions such as shared zones.

Walk access to transit is certainly influenced by strong Main Street and side street connectivity that complements the experience with a range of activities – that is footpath quality, ease of crossing and the quality of the streetscape/street edge.

Side streets and laneways that intersect with Main Streets are also elements in the walk to station experience. These are often areas of conflict between cars and pedestrians. Where connecting side streets and laneways are closed to traffic they can provide safe, attractive spaces.

Where parking is provided there are a range of problems and solutions. Apart from the significant land area dedicated to parking in the centre there are problems with traffic congestion. Solutions to these problems are now available with wireless technologies that improve wayfinding, equitable pricing, the highest and best use of land and contribute to improved walk safety and place amenity.

The case studies indicate how centres are realising better place and walk access outcomes. Investments in place/access improve the attractiveness and the economic vitality of the centre. Other case studies indicate great potential in their planning. Nearly all could do more in relation to better parking and associated traffic management.

6.1 Sydney Road - Coburg Station

Sydney Road and Bell Street are roads surveyed by Robert Hoddle in Melbourne's original 1837 plan. They function as significant roads and public transport routes that frame the Coburg shopping and rail station precinct.

Coburg station is one of several stations on the Upfield Line adjoining Sydney Road and 19 tram route. The station and the centre is serviced by numerous bus routes on Bell Street. A shared path beside the Upfield rail line runs to the CBD.

The precinct land use is dense and reflects early twentieth century planning principles. The land is flat. Streets are laid out in a grid. Local commercial buildings are typically two storeys high and oriented to the street with zero setbacks. Commercial frontages are typically visually and physically permeable. Major street corners are often chamfered and activated.

The urban environment provides good walk access to goods and services, including the station.

Table 4 Coburg Station by mode %[29]

Station	Bus	Car	Cycled	Train	Tram	Walked
Coburg	22.3	23.7	0.0	0.5	0.5	52.9

The data shows nearly 53 per cent of people accessing the station entirely on foot, 22.3 per cent from bus services and 23.7 per cent by car.

The centre provides significant parking for the numerous activities including shops, a library, churches, school and various sport and recreational facilities.

Image 54 Negotiating footpath obstacles

The key lesson to be highlighted in this case study is the closure of side streets to traffic to and from the Sydney Road shopping precinct to create an attractive, pedestrianised mall environment.

Victoria Street Mall provides a key walk connection to other local destinations, including Coburg Station. The closure of this street provides a place to stop in an attractive landscaped environment lined by cafes. The high level of social activity is indicative of the site's success.

Image 55 Car parking information

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[29] PTV Website - Proportional Weekday Entries by Access Mode FY2013-14 (%)

Image 56 Victoria Mall cafes, Coburg

Other side streets along Sydney Road, have been closed to improve walk access to the significant parking areas in the centre. Parking is accessed by car from different streets, streets which do not cross the Main Street footpath.

While the precinct demonstrates walk access innovations the pedestrian Level of Service (LOS) on the Sydney Road footpath is compromised by incursions, such as footpath dining, into a busy and relatively narrow footpath. Secondary and optional functions need to be weighed against the primary function of safe access and reasonable pedestrian LOS. It is noted that the footpath dining is not desirable the furniture tends to be flexible and not fixed in place. In time outdoor dining could be relocated from the footpath onto kerb extensions on into side street places.

Sydney Road Coburg Station.

Sydney Road is a busy road, with tram. Traffic signed at 40 km/h but lacks median/limited crossing opportunities.

Victoria Street Mall, once a car park access road, is now a valuable public space connecting to library/ station. Pedestrian crossing on Sydney Road is aligned on desire line.

Side street access to car park closed to traffic for pedestrian only laneway

Major parking is accessed via busy east west streets - not Sydney Road.

6.2 High Street - Northcote Station

High Street, is a significant 'Main Street' running for several kilometres through a number of northside suburbs. The street runs on a north/south alignment and forms a key part of the No 86 tram route.

The street also runs adjacent to the South Morang rail line and a series of cross roads connect High Street to stations. The cross road intersections typically indicate higher levels of social activity with more significant corners and higher densities.

The High Street economy is focused on the provision of day to day goods and services and food and beverage. The street features a range of ethnically themed services attracting people to visit and shop. Northcote town hall and library are conveniently located on the street.

Northcote Station, like other stations on the South Morang rail line, sits back several blocks from High Street. The flat, walkable and easy to navigate street grid contribute to convenient walk-up.

Over 86 per cent of commuters walk the whole of the way to the station compared to 6.4 per cent for cars. The station place quality is compromised by commuter parking and parking related traffic for the benefit of a minority of rail commuters.

Table 5 % Northcote Station by mode %[30]

Station	Bus	Car	Cycled	Train	Tram	Walked
Northcote	5.1	6.4	0.4	1.8	0.2	86.2

A key walk connection to and from High Street, is via Arthurton Road, this is a key east/west connection for the northern suburbs, running through to Separation Street and Northcote Plaza.

The footpath width/level of service does not meet the needs of commuters when departing trains and these poor conditions are exacerbated by a lack of evening activity and poor passive surveillance.

Image 57 Arthurton Road corner.

The case study highlights opportunities for up-zoning of the significant industrial sites fronting Arthurton Road to enable higher density, mixed use development. This planning policy is consistent with new higher density, mixed use development along High Street. This policy brings residents within walkable distance to local goods and services and contributes to the areas vibrancy and economy. This type of development is less car dependent and can therefore be more affordable housing.

Image 58 Herbert Café, adjoins station

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[30] PTV Website - Proportional Weekday Entries by Access Mode FY2013-14 (%)
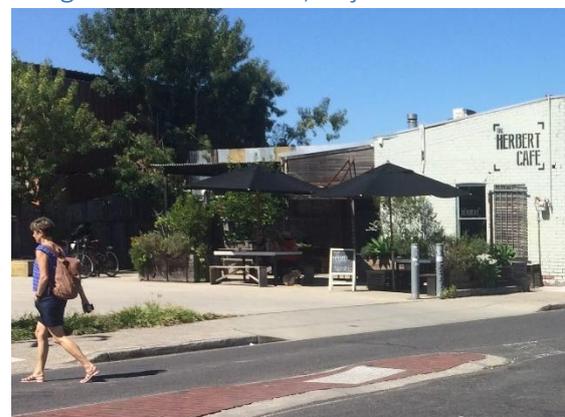
By up-zoning Arthurton Road the corridor can be remade into an attractive walk and cycling environment, enhancing access to and from Northcote Station.

There is already evidence of land use activation and new higher density development on Arthurton Road, possibly indicating the change to come. The new development provides day and evening activation and, by setting back from the street, a wider footpath which, when extended, will better accommodate a more appropriate pedestrian Level of Service.

Image 59 Northcote station parking
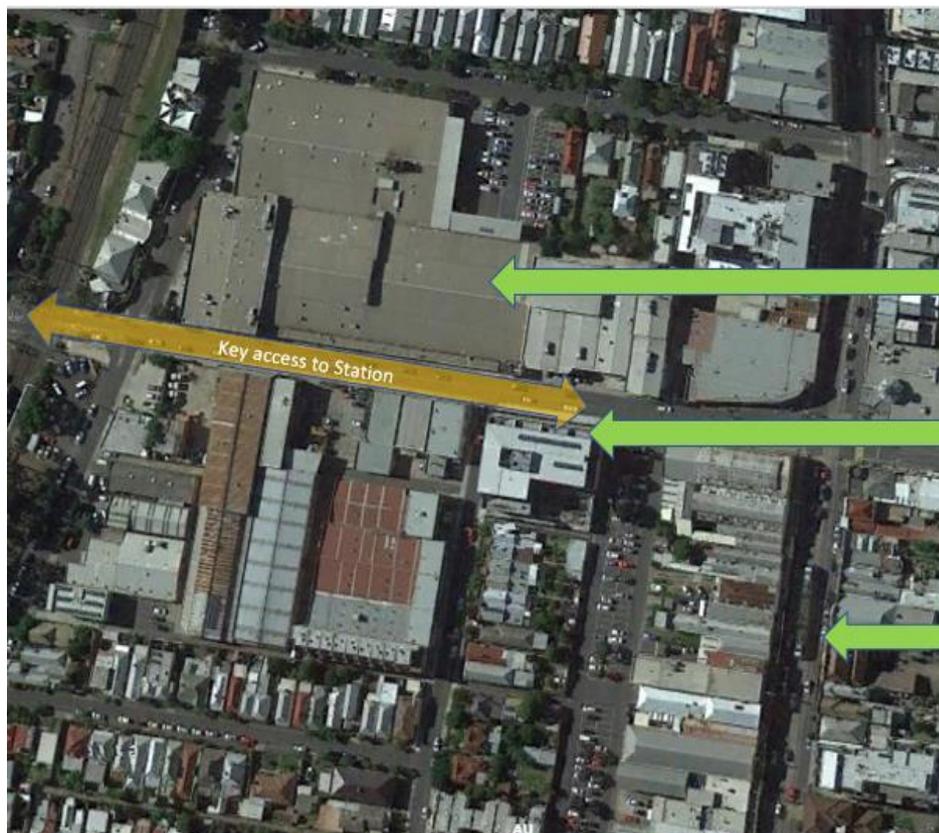
Northcote Station and High Street.

Big box industrial sites near station on Arthurton Road. They provide good sized land parcels for major TOD - mixed use/unit development.

New mixed use on Arthurton Street has been set back for wider footpath – provides street level evening activities.

High Street is a key shopping precinct and walk/transit corridor. It is increasingly being redeveloped for mixed use/apartments.

6.3 Wilson Avenue Park - Jewell Station

The Wilson Avenue park is located on a section of closed side street, just off busy Sydney Road in Brunswick. The project was an initiative of Moreland Council. It includes seating, artwork, landscaping and an urban bouldering wall.

The side street was formally closed to create the park after an eight-week trial and consultation on a 'pop-up park' in early 2014.[31] Pop-up parks are an easy, cheap way to indicate how new, local changes to streets will work. There are typically concerns about local traffic movement and these can be addressed at this early stage in the project.

In some case the community and council may conclude that the changes are not suitable and projects can be dropped before any significant investment. In other cases, these pop-ups may be ideal for temporary closures for markets, street parties, local festivals, etc. Some cities are providing street closure manuals for these types of events., note Seattle's 'Play Street' program.[32]

Image 60 Wilson Avenue Park

The Wilson Avenue pop-up concept was well received by the public. The State Government, concerned to create positive diversions for youth and avoid low level crime, also recognised the value of the concept and provided funding to the Council for the project. The space was built and officially opened in August 2015.

Image 61 Wilson Avenue, pocket park #2

The public space forms part of the walking connection between Jewell Station and Sydney Road and to the Barkly Square shopping precinct. The closure limits vehicular traffic in the station precinct.

While significant land adjoining the station is dedicated to free parking with associated traffic issues and conflicts the substantial mode of access is by foot. Over 90 per cent of Jewell Station commuters walk the whole of the way to the station compared to 6.1 per cent by car.

Table 6 Jewell Station by mode % [33]

Station	Bus	Car	Cycled	Train	Tram	Walked
Jewell	0.0	6.1	1.0	1.8	0.3	90.8

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[31] http://www.moreland.vic.gov.au/about-us/projects/completed-projects/completed-projects-2015/wilson-avenue-brunswick-public-space/

[32] http://www.seattle.gov/transportation/projects-and-programs/programs/public-space-management-programs/play-streets

[33] PTV Website - Proportional Weekday Entries by Access Mode FY2013-14 (%)

The improved walk access between Main Street shopping and tram services and the station complements the change in urban form from industrial to higher density residential and mixed use. Many apartments are geared to active travel with lower rates of parking than the norm.

By closing the street, a pleasant place for visitors and residents has been created, inviting people to stop and play and to animate and humanise an otherwise unremarkable urban space. The Wilson Avenue pocket park project was Winner

for 'Best Planning Ideas – Small Project' at the Victorian PIA Awards 2015.

Image 62 Wilson Ave, from Jewell Station

Wilson Ave
Jewell Station

Park and Ride creates local traffic congestion and pedestrian conflicts in the station precinct.

Side street provided vehicle access to park and ride. Street has been closed to create a pocket park with climbing wall and seating. With no turning vehicle conflicts and increased passive surveillance the walk to the station is improved.

Large industrial sites provide an opportunity for TOD and improve the streetscape.

6.4 Chapel Street and Windsor Station

Chapel Street is a significant Main Street precinct in Melbourne. It runs for several kilometres, north/south, connecting southern suburbs from to suburbs north of the Yarra River via Church Street.

Chapel Street provides the route for the No 78 tram. In the southern area Chapel Street intersects with the Sandringham rail line at Windsor Station.

Windsor Station features higher density, mixed use development which is oriented to the station, enhancing surveillance and activating the station place. This development is complemented with local traffic calming and station place features.

The station platforms are accessed by ramp and a tram stop is located beside the station. The lack of higher quality access at this station, at least consistent with Australian Disability Discrimination Act standards, is a regular problem at many trenched stations in Melbourne.

A signalised crossing on Chapel Street is conveniently located to enable easy, crossing however the longer time loop seems to lead many to cross informally.

The urban form is generally flat in an easy to read grid and street pattern, enables relatively easy walk up. The active Chapel Street – shopping precinct, like many other Melbourne Main Streets, provides a comfortable walk-up to the station. The data shows Windsor Station achieving 77.1 per cent weekday entries by walking and 15.7 per cent by tram interchange patronage.

Table 7 Windsor Station by mode % [34]

Station	Bus	Car	Cycled	Train	Tram	Walked
Windsor	0.6	2.1	1.7	2.7	15.7	77.1

A key lesson in this case study is the effect of significant traffic calming interventions on side streets, adjoining the station, to create shared zones with public spaces at the two station entrances.

Effectively designed shared zones with the complementary placemaking send a clear message to drivers to stop/slow vehicles at the crossing to give pedestrians a safer right of way in the station precinct.

The investments at Windsor Station show a comprehensive treatment with place making that tie the station into the wider urban environment. This investment can be contrasted with the poor walk access/ amenity in large commuter park and ride spaces that are common to other stations.

Image 63 Windsor Station #1

The higher quality shared zone and place treatment signals to drivers to slow and give way to pedestrians to create a safer crossing and improved station experience.

Image 64 Windsor Station #2

While the interventions to calm traffic near the station notably improve the quality of station access there are a range of poor walk access and safety problems in the wider walk-up area that require attention.

These problems are particularly evident in peak periods when the Chapel Street pedestrian level of service is compromised by fixed in place footpath dining furniture. If footpath dining is allowed, then flexible, and removable furniture at least enables a better balance with the primary footpath function of walking.

Windsor Station Chapel Street.

Chapel Street provides an active walking connection to Windsor Station with lighting, weather protection and access to tram services.

New mixed use development with ground floor café enhance station precinct place quality. Includes Public space with artwork, landscaping and seating enhance the shared zones and increase surveillance

Parking at the station is for people with disability and short term stays. Longer term paid parking is available west of Chapel Street

Shared zones ensure that pedestrians have improved access and right of way while crossing side streets.

6.5 Greville Street and Prahran Station

Prahran is a highly gentrified, inner urban suburb, popular for its easy access with train and tram services and ease of walking and cycling on a flat, navigable grid. The area boasts a vibrant day/night economy with a mix of regular and eclectic shopping and entertainment precincts focussed on Chapel Street, High Street and Commercial Road.

Prahran Station is located several blocks back from Chapel Street but well connected via Greville Street.

Greville Street has had a colourful past and is recognised for its artistic, cultural and historical significance. It retains that point of difference with quirky cafes, bars and bespoke shopping which make the street and popular destination for visitors.

The street provides an attractive, easy walk connection to Prahran Station. Table 8, see below, highlights the significance of walk access with 94.4 per cent of all commuters walking the whole of the way to the station.

Table 8 Prahran Station by mode % [35]

Station	Bus	Car	Cycled	Train	Tram	Walked
Windsor	0.7	0.9	0.0	0.9	3.2	94.4

Greville Street connects to Chapel Street at a significant corner anchored by the town hall and library. The street is lined with attractive buildings hosting smaller shops and access to a park and public space area with places to sit and relax.

Proposed street improvements with 'pop-up' changes were the subject of a public consultation process and this led to an extensive upgrade to Greville Street. Changes to the street slow and limit vehicular traffic to one-way to enhance the walking experience and the ease of connectivity to Chapel Street.[36]

The project includes a shared zone at Prahran Station on Porter Street. The improvements include a cobble stone shared zone, widened blue stone footpaths with more greenery, trees, lighting and furniture.

Greville Street is complemented by improvements to Grattan Gardens which provide an attractive place and walk connection from Greville Street to local shopping and the future 'Cato Square'. The Cato Square project is a $60million+ transformation of an at grade car park to create a one-hectare park over a 500+ space underground car park. The project will provide improved visual amenity and station walk access/egress.

Large car parks in the centre with high parking turnover can produce significant congestion and increased car/pedestrian conflicts, especially on side street corners where cars cross the Main Street pathway to access/egress car parks.

Effectively managing parking and parking congestion impacts requires thinking beyond transport and traffic to consider the wider urban planning, design and accessibility issues – specifically a consideration of how parking traffic and pedestrians interact. The development of precinct walk access plans with the utilisation of new parking technologies, pods in parking spaces, electronic signage,

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[35] PTV Website - Proportional Weekday Entries by Access Mode FY2013-14 (%)

[36] Greville Street Upgrade project http://www.connectstonnington.vic.gov.au/grevilleandking

etc. significantly improves the quality of wayfinding for parking and may inform equitable pricing, such as 'Demand Responsive Parking', to better manage valuable parking assets and minimise traffic conflicts with pedestrians.

The Greville Street project demonstrates a best practice planning and design process that turns a connecting side street into a highly attractive walking route that also enhances the local place and its economy.

Image 65 Greville Street upgrade

Image 66 Greville Street upgrade.
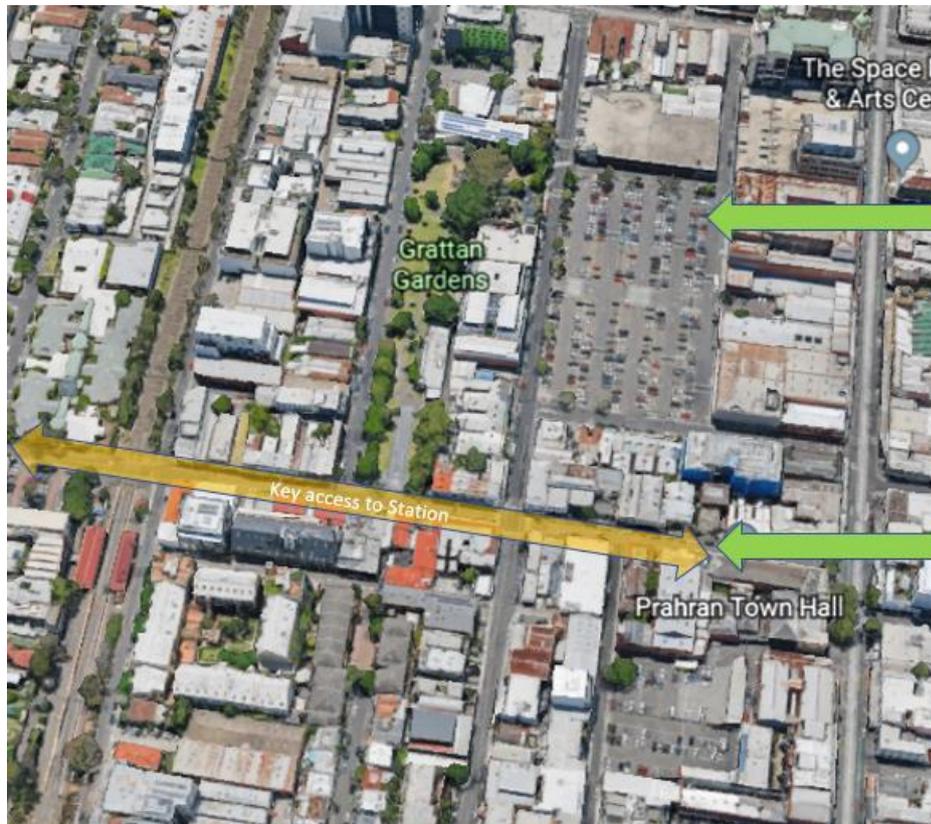
Greville Street Prahran Station

Large car park, servicing big box shopping, pulls significant traffic into the precinct, and across the pedestrian path on Chapel Street. Council plan to transform at grade area into 'Cato Square' with 500 underground car parks.

Greville Street connects Chapel Street into station precinct. New higher density development near station improves surveillance. Parkland connects into Greville Street to further enhance walk connection to the station.

6.6 Anderson Road and Yarraville Station

Yarraville is an inner western suburb, six kilometres from the city. The centre was primarily working class but, due to its close proximity to the city, has undergone rapid gentrification in recent years. The village like shopping centre is noted for its unique character and Edwardian and Victorian architecture.

The shopping activity is mainly focussed on Anderson Road which provides the 'Main Street' walk connection to Yarraville station.

Yarraville station is located on Werribee and Williamstown rail lines. The station provides 56 park and ride spaces. The park and ride area, note image, is of a higher place quality with substantial trees to improve the visual amenity and reduce the heat island effect.

Noting the number of people who stated they drive to the station it is also evident that there is significant 'park and hide' in the station precinct – that is people who park in surrounding streets and walking up to the station.

Table 9 Yarraville Station by mode[37]

Yarraville Station by Mode	Bus	Car	Cycle	Train	Tram	Walked
	9.6%	18.1%	2.1%	0.0	0.0	70.2%
	291	552	64	0	0	2,142

The mode data shows over 70 per cent of passengers walking to the station. The centre is also serviced by several bus routes and almost 10 per cent arrive at the station by bus. The higher walk-up is consistent with the higher quality walking environment, including the higher quality park and ride which lacks many of the

hard and impermeable features and walk barriers typical with at grade parking.

Urban design and traffic management interventions by the Council have contributed to a better local walking experience and access to and from the station and inclusive place features. Café seating is complemented with ample public seating and recreational space.

Image 67 – Landscaped Park and Ride

A key feature in the centre is the Ballarat Street Mall. Maribyrnong Council first closed part of Ballarat Street to traffic to create a pop-up park in 2012. The modest but attractive public space, which fronts the historic Sun Theatre, has evolved with public support to provide a space for community events – music, film and book readings. The space encourages people to stop and relax, is child friendly with well used informal sitting areas.

The Ballarat Street Mall also forms a key part of an attractive local walk network and connection into the station precinct. Complementary private and public place improvements on key routes contribute to a great place and a whole of journey walking experience.

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[37] PTV Website - Proportional Weekday Entries by Access Mode FY2013-14 (%)

Image 70 Ballarat Street Mall

While the improvements contribute to the look and functionality of the precinct there are challenges with low walk access on some narrow footpaths due to dining furniture. Selective build outs into the street for outdoor dining can provide space for furniture and also ensure safe and convenient walk access. The use of new parking wayfinding technologies may assist in freeing up on-street parking space to accommodate kerb build outs for these secondary footpath activities.

Yarraville Station and Precinct

Park and ride is permeable with higher quality paving and trees. Location provides after hours parking for theatre and café precinct.

The Ballarat Street Mall – provides a public space to walk, stop and rest, framed by historic cinema. The space provides an attractive local walk connection.

Anderson Street – 'Main Street shopping and café precinct provides a activated and animated walking experience into the station precinct

7. Conclusion

This paper has considered a range of ideas to improve the Main Street/transit - access/place experience. Ideas are focussed on how to harness the dynamic, reciprocal relationship between walkable Main Street centres and adjoining transit precincts and improved car parking.

The need for improved outcomes is motivated by the threat of on-line shopping and larger centres that are adapting quickly to meet this challenge.

Section 1, 'Planning for Walking', highlights the value of walkable places and the walk planning and design process. Ideas such as universal access challenge us to think about planning for enabling urban environments to meet a range of abilities.

Section 2, 'Transit Precinct Accessibility', highlights the walk-up station patronage from Main Street centres. It considers the real value of station land. Ideas such as Transit Oriented Development, are contrasted with the significant investments in free 'park and ride' and associated problems of traffic congestion.

Section 3, 'Main Street Walkability', contains three themes – Main Street footpaths, the Road Experience and the Streetscape Experience.

'Main Street footpaths' notes the value of footpaths and the idea of footpath 'Level of Service' (LOS). The quality of place and access is compromised when we prioritise other uses such as dining, signage, or on street motorcycle parking when there is a need for more walking space.

The 'Main Street – Road Experience' notes Main Streets as often congested and they therefore enable a variety of modes. Main Streets need to be permeable seams and allow for easy road crossing, accessible tram stops, build outs for trees, seating and for signalised mid-block crossings.

The 'Streetscape Experience', considers the edge of the street. Interesting facades and engaging shop fronts enhance the look and feel of the street, contribute to an enjoyable visual experience and sense of animation and passive surveillance.

Section 4, 'Smarter Side Streets' notes how side streets and laneways are often used to funnel cars into parking from the Main Street with the associated right of way conflicts, especially on corners. Ideas include the full or partial closure of streets to traffic to create new public space and activated pathways to transit.

Section 5, 'Smarter Parking Management' notes parking as land use rather than a transport planning issue, the significant opportunities provided by new parking technologies, the opportunity for equitable and efficient pricing and an end to the myth of the 'free' car park.

Section 6 provides six Melbourne case studies to illustrate a range of ideas. They show how transit precincts and Main Street centres are both improved with strategically planned walk access, smarter parking and more productive land use. This highlights the idea of transit/place reciprocity, that the 1+1=3 solution.

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Appendices

1. LXRA Report Recommendations on Station/Place Accessibility

The literature review, case studies and review of the Carnegie Station concept design inform recommendations, these are as follows:

The Report makes five recommendations which may be applied to LXRA projects:

1. Ensure that pedestrian accessibility, with complementary station place outcomes, is a consideration in the choice of viable options for rail projects, e.g. elevated or trenched rail.

2. Develop pedestrian accessibility plans for each project, engaging with local governments early in the project and in line with the accessibility design principles in this Report and the Victorian Government's 'Principal Pedestrian Network' guidelines. The plans should include:

   a) Provision of formal pedestrian crossings in the vicinity of stations.

   b) Alignment of pedestrian desire lines and pedestrian crossings, including formal crossings where roads intersect with the walking paths along elevated rail corridors.

   c) Where elevated rail provides a new corridor, provide separate walking and cycling paths along the corridor (rather than shared paths) to maximise safety and amenity.

   d) Prioritise pedestrian access over vehicles at entry points to stations.

3. Balance investment on station car parking with pedestrian access to station:

   a) Provide an independent cost/benefit analysis of station parking.

   b) Do not provide additional free car parking beyond existing supply.

   c) Investigate options for paid parking at high demand car parks with income to be allocated to fund local place and accessibility planning and improvements.

   d) Locate and design park and ride and access roads to avoid conflict with pedestrians.

4. Activate the station environment:

   a) Prioritise station land use for commercial and/or community activities with public space.

   b) Maximise day/night activating commercial and community uses.

5. Where an open space corridor is created beneath the railway in elevated rail projects:

   a) Maximise passive surveillance sightlines into the corridor.

   b) Utilise land acquisitions to improve local access and to enhance the corridor experience.

c) Landscape corridor to minimise poor 'back of house' – edge of corridor experience.

d) Provide strong walking path cross-connections to adjoining streets.

The planning and development of railway infrastructure is undertaken by a range of government agencies (including PTV and Transport for Victoria) and private service providers, primarily Metro Trains Melbourne. Management of roads affected by level crossing removal is the responsibility of VicRoads and/or local councils. The relative responsibilities of each agency are complex, so the recommendations should be seen as broadly applicable, so we have not sought to allocate responsibility for implementing them to particular agencies.