Submission to the
Department of Infrastructure

Public Transport Guidelines for Land Use Development

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Overview

The design of suburbs has a major impact on the efficiency, effectiveness and use of walking, cycling and public transport.

Even for short trips where walking should be the preferred mode, suburb designs all too frequently hinder pedestrian movement and give unnecessary priority to private cars. Walking trips that should take ten minutes frequently take twenty, reducing its utility as a practical mode of transport.

Poor urban design can also harm the provision of fast and frequent local bus services. Problems caused include slowness and indirectness of possible routes and difficulty of access to stops. Services may be duplicated in some areas, while other pockets of development are unserved. Extra routes may help, but though socially desirable, are likely to have limited patronage and mode-shift potential, and thus lower overall financial and environmental Metlink system effectiveness.

Most Australians are naturally pragmatic. They will choose whichever transport mode meets their needs best. In the context of the quality of offerings available in many pedestrian and transit-hostile suburbs, the choice made is too often the private car.

Such car-dominance imposes many unnecessary public and private costs. These include motor accidents, opportunity cost as otherwise productive land is wasted on roads and parking, congestion and oil dependence. For public transport the result is an under-used system that has poor patronage, financial and environmental outcomes for a given funding or route kilometres/year allocation.

If we want viable public transport, and for all Melburnians to have transport choice, we cannot afford to keep designing and building new suburbs based around car-only transport, universal motorisation and unlimited cheap oil. Rather, all new suburbs (and redevelopment of existing sites) must be based on efficiently catering for a choice of transport modes.

As a steward of public finances and the primary funder of public transport, the DOI has a vested interest in its operational efficiency. Efficiency and effectiveness is promoted by transit-friendly suburban design so it is appropriate that the Department is its major (but not only) advocate.

This submission strongly supports the need for public transport-oriented development guidelines and their application to all new suburbs and redevelopments. Since there is a public expectation that transit exists in all suburbs, it is fair that at least some provisions become 'rules' rather than simply 'guidelines' to assist service provision.

Secondly it identifies some areas where the Guidelines could be made more specific. Examples include street layout, pedestrian amenity and access to stops.

Finally the inclusion of major points in the Guidelines in checklist form (eg 2.0 & 3.0) is suggested to make them a more useful tool for planners and developers, the majority of whom would not have a public transport service planning background.

1.0 Effect of suburb design on ability to provide quality service

1.0.1 As per the Melbourne 2030 discussion document, the critical components of public transport service quality include (a) Route coverage, (b) Frequency/span of service, (c) Reliability, (d) Speed and (e) Co-ordination.

1.0.2 The form of land development can assist or hinder all five components of providing a quality transit service people will want to use. On a network scale it can make an area more accessible or less accessible from adjoining suburbs. Urban form can also determine the 'success' an individual route, affecting such factors as speed, directness, pedestrian access, patronage and operating economy. The influence of urban form on all aspects of service quality will now be examined in detail:

1.1 Route coverage

1.1.1 The establishment of a new community a kilometre or more off a main road (which already has a bus service) might provide peaceful surrounds for the residents, but may mean that they have no public transport.

1.1.2 Options include: (1) providing a new route, (2) diverting the existing route, or (3) leaving the area without service. Providing the new route leads to additional running costs, diverting the existing route lengthens travel time for existing passengers and leaving the area unserved means that residents are denied transport choice.

1.1.3 Had the development been established along or close to the main road instead, residents would have had public transport service from day one. In addition patronage on the existing route would grow and revenue would increase. Resources earmarked for the new route could be used to double the service frequency of the existing route, thus further increasing patronage, revenue and making public transport more attractive. An added bonus of development on the main road is that the shops would attract business from passing motorists, meaning that a wider range of businesses could be established earlier in the estate's development. This makes the development more self-contained and more walkable.

1.1.4 Coverage within developments and suburbs is also an issue. Extending coverage to parts of some developments may require the buses to double-back. This is an inefficient use of vehicle and driver time. However a failure to do this would result in poor route coverage and people having to walk a kilometre or more to the bus stop.

1.1.5 As well as street layout, the location of important facilities like shopping centres in a subdivision is important so that these can be economically served by public transport. Placement at a site accessible by most bus routes in the area is important. A location near a corner where two intersecting routes intersect is most desirable. Centres should extend to the street so there is direct and sheltered pedestrian access from on-street bus stops without delaying through-passengers by requiring that buses pull in to an interchange. Where an interchange cannot be avoided, it should be sited to minimise deviation or double-backing for the bus.

1.2 Service frequency

1.2.1 Though frequent service can be provided on any street whatever its layout, the driver and vehicle costs can be expensive relative to the number of passengers served. A well-laid out suburb may require two routes for public transport to be within walking distance of all residents. In some cases where roads connect, the routes need not even be new – minor extensions to existing services may suffice.

1.2.2 In contrast, a poorly laid out suburb may require four separate new routes, with wasteful overlaps in some areas and poor coverage in others. Assuming that there is a fixed number of drivers and buses to serve the area, there might be the choice of running the two routes every fifteen minutes or the four routes every 30 minutes. The well-designed suburb receives the frequent service, whereas the poorly laid out suburb gets the poorer service. Because service frequency is the key to attracting patronage, the well designed suburb offers operating efficiencies, lower per-capita fuel use and a lower proportionate public subsidy.

1.3 Speed

1.3.1 Public transport travel speed has two components (i) off-vehicle and (ii) on-vehicle. Off-vehicle time is primarily walking and waiting. Walking times can be reduced by providing a grid-style street layouts (or at least pedestrian shortcuts at the end of cul-de-sacs) so that all residents have a direct walk to the bus stop or railway station. Waiting is reduced by more frequent services, as discussed above. On-vehicle time can be reduced if buses can travel along a straight road rather than negotiate loop streets (or worse still) double-back along cul-de-sacs, as is the case in poorly designed neighbourhoods. Though the actual delay might be 5-10 minutes, the delay as perceived by the passenger is much greater, especially if they are used to driving a car.

1.3.2 Of even greater importance is the interaction between speed, service frequency and operational efficiency. The greater speed possible through more direct services may allow more frequent services with the same number of buses and drivers. This will encourage greater patronage and revenue, especially if the bus service can be made as frequent as its connecting train service and the passenger is assured of a good connection every time. The social and economic benefits of this increased patronage and reduced travel time are obvious.

1.4 Reliability

1.4.1 Neighbourhood design has comparatively small impact on reliability, unless there are streets that are difficult for the driver to turn out of because of traffic. Traffic light priority can assist reliability here.

1.4.2 Also important is the interaction between service reliability and frequency – the cancellation of a bus service that runs every 10 minutes will have less travel time impact than the cancellation of an hourly service. Please refer to 1.2 above.

1.5 Co-ordination

1.5.1 Thus was mostly discussed under 'Speed'. However improved frequency is also important. A grid-style road layout with frequent routes running along each gives scope for passengers to be able to transfer to intersecting routes is user-friendly and encourages use of public transport for cross-suburban trips as well as towards the CBD. To allow easy transfer, main stops should be at intersections and not midblock.

2.0 Elements of transit-friendly neighbourhood design

2.1 The main ingredients of transit-friendly neighbourhood design are:

a. A basic grid layout of major roads every 0.8 to 1.6 kilometres (which allow fast, frequent and direct bus routes)
b. Shops and low land-use community facilities grouped along grid roads, with greatest concentrations at intersections and/or railway stations. In turn, higher density housing (eg villas and townhouses) is clustered around shops to provide an 'urban village' environment.
c. Permeable parallel local streets run within this basic grid pattern, with cross-roads preferred over T-intersections. The use of raised sections, small roundabouts or street plantings may be appropriate for traffic calming on quiet streets providing bus movements are not affected (this creates direct and safe pedestrian/cycle links)
d. Main roads lined with shops and houses (to reduce crime opportunities through passive surveillance)
e. Streets to have shops with verandahs, seats and trees to provide a quality environment for the pedestrian.
f. Traffic lights with pedestrian-actuated signals at intersections (roundabouts pass an uninterrupted stream of traffic and hamper crossing pedestrians)
g. Bus and tram stops are near signalised intersections, or, if midblock, other safe crossing points
h. Railway stations located near intersecting grid streets (to allow easy transfer to buses)
i. An appropriate balance between strip shops, corner stores and large shopping centres to ensure that goods and services are within walking distance of as many residents as possible. The largest centres shall be based around a railway station with bus interchange and other services.
j. Building entrances to address the street and footpath. Any off-street parking that may be required is provided behind (not in front of) main street shops.
k. Main streets are designed for significant pedestrian activity and crossings provided at frequent intervals

2.2 It should be noted that though good neighbourhood design can make public transport services more effective, efficient and economical to run, good design will have little effect on patronage levels if transport services are absent or of poor quality. However once the decision to integrate and improve service is made, it will be more economical to do so if attention has been paid to transit-friendly principles when designing neighbourhoods.

3.0 Elements of transit-hostile neighbourhood design

3.1 The main elements of neighbourhood design that disadvantage pedestrians and public transport services are:

a. Main roads and highways without direct building frontages and therefore little passive surveillance

b. Excessively coarse road grids or 'superblocks' (2-3 kilometre spacing)

c. Junctions comprising staggered streets or T-intersections rather than cross roads.

d. Loop and cul-de-sac streets that restrict direct pedestrian access and the planning of fast, straight bus routes that are within walking distance of all. Instead of being served by one or two frequent, fast and efficient bus routes, the street layout may necessitate three or four slow and meandering routes that are expensive to run economically.

e. Barriers, walls and fences that force pedestrians to walk several times the distance that a more direct route would require.

f. The lack of alleys, laneways and other short-cuts that restrict direct pedestrian access to facilities.

g. Where the suburb has a railway station or bus interchange, main shopping and community facilities are remote from it.

h. Local shopping and community facilities built along loop streets that do not allow fast and direct public transport access.

i. Shopping centres set back from the street, surrounded by parking

j. Strip shops lack verandahs and have parking between the road and the building

k. Large roundabouts that are almost impenetrable by pedestrians because, unlike traffic lights, they provide an uninterrupted flow of traffic.

l. Wide spacing between traffic lights as these provide an uninterrupted flow of traffic mid-block and thence make that section of the road (and associated bus stops) impenetrable for pedestrians.

m. Long traffic light cycles and poor responsiveness of pedestrian buttons.

n. Absence of median strips and crossing points for pedestrians.

o. Bus stops set back from intersections and/or crossing points.

p. Absence of footpaths from some main roads.

3.2 There is much scope for improvements to existing 1960-90s transit-hostile suburbs as these become ripe for redevelopment. Though there are limits on what can be achieved without unacceptable disruptions to existing land uses, all redevelopment projects shall introduce at least some elements of pedestrian and transit-friendly design. More detail is given in Section 4.0.

4.0 Existing suburbs

4.1 Numerous examples of good neighbourhood design exist throughout the inner and middle suburbs of Melbourne, particularly in the north, east and south-east.

4.2 Major areas for the improvement of existing otherwise well-planned suburbs include:

a. Pedestrian crossing facilities to be provided at all tram and bus stops to improve access and enhance safety. Measures can range from zebra crossings to underpasses to pedestrian actuated lights, but in most cases a simple central pedestrian median or refuge (with grab rails for frail people) is sufficient. As well as being cheaper, principles of passive surveillance would tend to favour 'at level' solutions for pedestrians.

b. Small parks are within walking distance of all residents, but larger parks (and schools with large ovals) are located about ten minutes walk away from activity centres to conserve land near transport routes for more intensive uses. Such a distance is sufficient for the park to still be considered transport accessible.

c. To reduce crime, noise, graffiti and increase privacy, no buildings, walls or fences shall back onto railway lines. Instead buildings will front onto a quiet traffic-calmed street running parallel to and abutting the line. Especially where railway stations are spaced more than 1.5 or 2 kilometres apart, a seperate cycleway parallel to the line should also be provided to increase train catchment areas.

d. Where railway stations or bus interchanges are not and cannot be made central to a suburban or shopping centre, a wide pedestrianised path linking the two should be created to provide an open vista and a safe direct link.

e. Where it would speed pedestrian and/or bus access, cul-de-sacs should be opened to through traffic. This could be done in the context of a redevelopment of a tired area. In other cases property resumption may be required, but this can be justified when major passenger flows are involved.

5.0 Recommendations

5.1 To ensure urban design that sufficiently accommodates walking, cycling and public transport is the rule rather than the exception, the following steps are recommended:

a. A requirement for new (and redeveloped) neighbourhoods, subdivisions and estates to follow a strengthened *Public Transport and Land Use Development Guidelines* that include the checklists in 2.0 and 3.0 above.

b. A long-term plan to progressively upgrade established suburbs to conform with the *Public Transport and Land Use Development Guidelines.* This could be done along similar lines to the current DDA-compliance program for public transport.

c. Introduction of a Metropolitan Pedestrian Plan backed by funding to improve pedestrian links throughout Melbourne, but particularly near shops, community facilities, railway stations and bus stops.

d. The abolition of planning regulations that require a minimum numbers of parking spaces be provided for new developments, particularly where developers agree to incorporate transit-oriented design beyond guideline requirements.

e. The above principles to be applied for all land uses, whether these be residential, retail, commercial, special rural, or industrial. In particular attention should be paid to (i) design around local centres even where there are not designated as 'major activity centres' in Melbourne 2030, (ii) introducing pedestrian and transit oriented design elements to existing car-based shopping centres and (iii) light industrial areas (particularly along quality bus routes) which are significant employment generators but which have tended to be neglected by most transit planners.

6.0 Conclusion

6.1 Though many residential and commercial buildings may have a useful life of 50 years or less, other aspects such as street layouts can last for centuries. People will live in these areas long after the developer has made his profit.

6.2 It is often the taxpayer who must foot the bill for bad urban design, whether it be in the form of road accidents, traffic policing or subsidising an excessive number of public transport routes required because a suburb was not economically designed.

6.3 Other times the burden is borne by the homebuyer or resident due to the higher than necessary car use and the poorer quality of public transport offered.

6.4 Good suburban design has many financial and non-financial benefits. In the author's view its effect on the use and efficacy of walking, cycling and public transport is more important than small differences in housing densities, which too often dominate urban debates.

6.5 The *Public Transport Guidelines for Land Use Development* is clearly in the public interest and of community benefit. This submission therefore supports its strengthening and immediate adoption along the lines above.

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