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Draft Medium Density Residential Housing Code

Western Australia

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1. About this submission

1.1 Engineers Australia

Engineers Australia is the peak body for the engineering profession in Australia. With about 100,000 individual members across Australia, we represent individuals from a wide range of disciplines and branches of engineering. Engineers Australia is constituted by Royal Charter to advance the science and practice of engineering for the benefit of the community.

Engineers Australia's response is guided by our Charter and Code of Ethics which states that engineers act in the interest of the community, ahead of sectional or personal interests towards a sustainable future. Engineers are members of the community and share the community's aspirations for Australia's future prosperity.

This submission has been developed by members of Engineers Australia's Transport Australia Society (TAs). TAs is an Engineers Australia technical society for transport professionals in Australia. TAs focusses on key transport decisions affecting the wellbeing, productivity and sustainability of our cities and regions. TAs seeks to improve public debate on strategic transport issues, and to provide valuable expert advice to governments making decisions regarding transport policy, reform, and infrastructure investment.

1.2 Introduction and context

Engineers Australia welcomes the opportunity to provide comment on the proposed new Medium Density Residential Housing Code and thanks the Department of Planning, Lands and Heritage for this opportunity.

The new Code has been developed to encourage better designed housing and provide more choice to match the changing needs and expectations of the community. Feedback and comment has been specifically requested on design with a view to achieving more sustainable, functional and cost-efficient development. The intention is to improve the quality and consistency of housing by promoting a wider range of building types that are more in keeping with their site, the streetscape, and surrounding neighbourhoods. In particular, the Code seeks to ensure housing design makes provision for:

- more trees and gardens
- better solar access and ventilation
- flexible, functioning living spaces
- safe, attractive streetscapes
- increased people spaces with less space for cars

The Code addresses development in relation to:

- land and lot size
- greenspace - trees and garden areas
- building design
- neighbourliness - impact on surrounding neighbourhood

This submission provides comment focused on how the Code addresses the four elements of design rather than detailed review.

Medium density development allows a higher density of development than the traditional single story stand-alone development that has been commonplace in Perth and Western Australia. Medium density development will result in a greater number of people living in close proximity to one another. Whilst this may increase walking and cycling and improve the vitality of an area, it may also increase car use, traffic and adverse parking impacts.

Whilst the amount and impact of generated traffic is related more to general planning than to the design related aspects of the medium density Code, the community expect that traffic and parking issues are properly managed. A context statement on the desired and permitted location of medium density development and the need for an Integrated Transport and Land Use Plan to provide more travel options is required.

1.3 Summary of recommendations

1. As part of implementing the regulations, Local Governments are given the power to restrict medium density housing with a density of R30 or above to designated mixed use centres, corridors, and precincts where it is demonstrated, through the preparation of an Integrated Transport and Land Use Plan, that there are adequate public and active transport options available or planned in the near term.
2. Substantial travel mode share changes will be necessary in urban centres, activity centres and station precincts where most medium and high-density housing is proposed. A context statement is required in the Code on the desired and permitted location of medium density development where an Integrated Transport and Land Use Plan is provided for more travel options.
3. Integrated transport and land use plans are undertaken in centres, corridors and station precincts to determine what transport, street network and land use changes will be necessary in the future to make these areas suitable and attractive for medium density housing. A 5-year plan to meet the development needs over this period is to be approved for implementation.
4. Outside of these centres, corridors and precincts, medium density housing should not be permitted, unless it can be demonstrated that land use changes and transport improvements, that will reduce car driver mode share, will be implemented.
5. The Code clarifies the definition of high frequency public transport services and access to these services (Location A) so that it cannot be interpreted differently by practitioners, as the impact of this on parking provision is significant. In particular:
 - the Code defines the walking distance based on existing or proposed path networks (not straight line measurement between the lot and the public transport stop) takes into account delays at road crossings that can add to walking journey time.
 - the Code defines high frequency bus services as “turn up and go” services - frequency of less than 10 minutes weekdays and less than 15 minutes evenings and weekends. A 15-minute bus service during peak periods does not represent a high frequency bus service.
 - the Code clarifies that a defined boundary of an activity centre is insufficient reason to promote lower parking unless the area is also provided with good public transport.
6. Over the medium term, reduced levels of car parking will be necessary to assist in managing travel demand and to ensure that car parking does not overly dominate medium density housing designs. In the interim period during which mixed use centres and corridors are developed and activated, it may be necessary to permit some additional level of temporary car parking.
7. As the demand for car parking will change over time, a flexible approach to car parking management is needed. Car parking design should incorporate the potential for it to be re-purposed in the future as circumstances change.
8. The Code should be written to enable the number of car parking bays to be reduced over time, where appropriate, in line with future policies. For multiple developments of more than 6 dwellings, consideration should be given to unbundling the parking from the sale of the dwelling. By leasing parking areas to residents over a short period, parking provided for the exclusive use of a dwelling could be reduced progressively, by for example, allocating some dedicated parking to shared parking or visitors parking, as circumstances change.
9. The proposed level of residential parking for bicycles, scooters, and motorcycles is supported at this time, but monitoring of demand should be undertaken to determine if any conversion of car bays to bicycle or motorcycle bays may be required in the future.
10. The Code be expanded to include requirements for integrated public parking to accommodate the parking needs of residential and commercial small retail in mixed use centres and corridors.
11. The Code be expanded to include waste management remedies through a combination of design solutions (accessibility from the network) and waste collection management processes.
12. Engineers Australia is supportive of the inclusion of the Neighbourliness policies, subject to acceptance that poor design and poor location of medium density development has the potential to destroy the intended concept of Neighbourliness. The following changes are requested:
 - Amendment to the section on communal streets to clarify the meanings.
 - Provision of a single Integrated Transport Hierarchy so it cannot be interpreted differently by practitioners, based on existing and intended function, layout, volume and speed.
 - Reference in the Code to good holistic guidance on the design of local streets to support place responsive, attractive streetscapes for Neighbourliness.

2. Planning Context

2.1 The need for Urban Infill: Medium (and High) Density Housing

In 2018, a new strategic planning policy, *Perth and Peel @ 3.5 million* framework, was approved and released by the WA government. This policy outlined the need for additional urban infill as Perth grows from 2 million to 3.5 million people by around 2050. Rather than continue with the previous policy of rapid expansion in outer areas (commonly known as urban sprawl) the new *Perth and Peel @ 3.5 million* policy, released in 2018, proposes 47% of the additional 1.5 million people would be housed in urban infill within established areas. Much of this urban infill would occur within the inner sub region of Perth (roughly within the Reid and Roe Highways). Under this policy the inner sub region would grow by about 66% from 0.75 million in 2016 to 1.25 million in about 2050. There are many benefits from this policy, including reduced infrastructure costs and improved environmental outcomes.

Currently, there is a major imbalance between where jobs are located and the workforce which results in over 400,000 trips each day for work alone, between the outer areas and the inner sub region¹. Most of these occur during peak periods. A continuation of the policy of urban sprawl would see these work trips between the outer and inner region increase to over 1.2 million per day, as the population increases to 3.5 million. The policy to introduce urban infill, as proposed in *Perth and Peel*, would see long distance work trips from the outer to the inner sub regions reduce to about a third. In many cities around the world with a high proportion of jobs in inner areas, significant increases in population in inner areas have occurred without increased levels of traffic. Since the mid 1990s the population of the City of Perth has increased threefold from 8,000 to about 25,000, with reduced levels of daily traffic into the City. This has been a result of changes in how people travel. In these cases, the proportion of travel by car has reduced, more than balancing out the overall increase in travel resulting from higher density. This can only occur if the area is served by good quality, frequent public transport and there is a mix of land uses facilitating more walking and cycling.

The current land use policy to increase urban infill is an improvement over the previous policy.

2.2 Where should medium (and high) density housing be located?

RECOMMENDATION

- As part of implementing the regulations, Local Governments are given the power to restrict medium density housing with a density of R30 or above to designated mixed use centres, corridors, and precincts where it is demonstrated, through the preparation of an Integrated Transport and Land Use Plan, that there are adequate public and active transport options available or planned in the near term.

The *Perth and Peel* framework suggests that most of the urban infill (medium and high-density housing) should be located in centres and along activity corridors that are well served by public transport and contain mixed land uses conducive to higher levels of walking and cycling.

This should include all strategic and district centres, major neighbourhood centres and precincts around rail stations and along high frequency bus and proposed light rail routes. Public transport usage and cycling and walking are already much higher and car driving less in inner areas of Perth than in outer areas, but there is much more that can be done by improving walking and cycling facilities and improving public transport services.

In purely residential precincts, without substantial mixed uses, that are not close to frequent public transport, it will be difficult to achieve mode change with less car use. In these areas it will be preferable to limit (or restrict) the amount of medium density residential that is provided. Medium density housing is occurring now under existing regulations. Single houses are being replaced by three or four units or four to six unit apartment buildings across the suburbs resulting in a loss of tree canopy and undesirable parking, traffic and waste collection problems.

¹ Richardson, E. "Transport Planning and Design for Activity Centres and Corridors". IPWEA Conference, March 2018.

Over the past 30 years, as land values have soared, one form of medium density has dominated Perth. Villa style infill housing, with three or more units squeezed into a single suburban block, has proliferated - often with little concern for neighbours, and so tightly packed it has changed entire streets and suburbs.²

If medium density were to be provided in purely residential areas with low levels of mixed-use development and with low frequency public transport, there would be little prospect of a mode share anywhere close to that required to limit growth of car travel below a level that would result in localised congestion and undesirable traffic and parking impacts.

Engineers Australia supports planning for most medium density housing to be located in centres, along mixed-use activity centres and near rail stations and high frequency³ bus or light rail services.

2.3 Integrated Transport and Land Use Plan is Necessary

RECOMMENDATIONS

- Substantial travel mode share changes will be necessary in urban centres, activity centres and station precincts where most medium and high-density housing is proposed. A context statement is required in the Code on the desired and permitted location of medium density development where an Integrated Transport and Land Use Plan is provided for more travel options.
- Integrated transport and land use plans are undertaken in centres, corridors and station precincts to determine what transport, street network and land use changes will be necessary in the future to make these areas suitable and attractive for medium density housing. A 5-year plan to meet the development needs over this period is to be approved for implementation.
- Outside of these centres, corridors and precincts, medium density housing should not be permitted, unless it can be demonstrated that land use changes and transport improvements, that will reduce car driver mode share, will be implemented.

The Integrated Transport and Land Use Plan would outline a program and timetable of transport improvements to be undertaken, with updates on a regular basis. The objective of these plans should be to change the mode share of travel, to reduce the proportion of travel by car as population increases in the precinct or centre.

It is noted that, in many areas, structure or local area plans have already been undertaken that provide this information, but there are also areas where this is not the case.

The key areas for plan are:

- What is the existing quality and frequency of the public transport system in the areas (centres and corridors) where medium density housing is proposed? What improvements are proposed and when are they likely to occur? What is the existing estimated existing and future mode share of public transport?
- What is the existing mix of land uses in the area? To what extent will future development result in a better balance of land uses in the area and how will this create opportunities for more walking and cycling?
- Do safe routes exist for bicycle travel in the area now and what proposals exist for development of future safe bicycle routes?
- Is the area permeable and attractive enough for safe walking and cycling routes to rail stations, transport hubs and activity centres? If not, are there any proposals to improve the permeability and attractiveness for walking and cycling? This is particularly applicable to station precincts.
- What are the demographics of the area and how will they impact on modal change? For example, a suburb with a high proportion of tradespeople is unlikely to achieve the same level of mode change than a suburb with a high number of office workers as tradespeople need their vehicles for the daily commute and these are often additional vehicles in the household that require additional parking space.
- How will waste collection vehicles access medium density developments and what will the impact of this be on the safe operation of the street? Most councils now offer a three-bin waste system which results in two-bins per residential dwelling. In the case of kerbside waste collection, and the need to space the bins up to 0.5 m apart in a single line, this can result in significant impacts on sight distances at access driveways or along the street as well as obstruct paths and reduce the attractiveness of walking and cycling. On-site collection usually requires that a Waste Collection vehicle turns around on site, further reducing the potential for providing maximum deep soil areas on-site.

² Medium density information pamphlet: DPLH Nov 2020

³ High frequency should be defined as “turn up and go” services.

The objective of the plan will be to estimate the increase in density (and total travel) that is likely to occur over 10-20 years and to estimate the likely reduction in the mode share of car use as a result of improved opportunities to use public transport, or to walk or cycle.

3. Comment on the Design Elements in the Medium Density Code

Comments are provided on the proposals in the Code in respect to land, garden, building and neighbourliness. In the main these comments are restricted to objectives and principles. In some instances, a comment is provided on “deemed to comply” requirements.

3.1 Land

Engineers Australia supports the application of the Code as it applies to ‘Land’ and believes it satisfactorily addresses the objectives in respect to consistency, density, and housing diversity.

3.2 Garden

Engineers Australia believes that the design requirements contained in the Code, as it applies to ‘Garden’ are practical and will make a substantial positive contribution to liveability. The design requirements in the Code related to ‘Garden’ are supported.

3.3 The Building Code

Engineers Australia is generally supportive of the policies proposed in the Code in relation to building design. However, some changes are required to the proposed policies on parking and waste management. These are discussed in Sections 3.4 through to 3.7.

3.4 Car Parking

Engineers Australia agrees that parking should not dominate the development or the streetscape. The level of car parking supplied should be sufficient to meet residents’ needs.

RECOMMENDATION

- The Code clarifies the definition of high frequency public transport services and access to these services (Location A) so that it cannot be interpreted differently by practitioners, as the impact of this on parking provision is significant. In particular:
 - the Code defines the walking distance based on existing or proposed path networks (not straight line measurement between the lot and the public transport stop) takes into account delays at road crossings that can add to walking journey time.
 - the Code defines high frequency bus services as “turn up and go” services - frequency of less than 10 minutes weekdays and less than 15 minutes evenings and weekends. A 15-minute bus service during peak periods does not represent a high frequency bus service.
 - the Code clarifies that a defined boundary of an activity centre is insufficient reason to promote lower parking unless the area is also provided with good public transport.

However, it is acknowledged that car parking on relatively compact sites can have adverse impacts on other aspects of the design and therefore, it will be necessary to limit the supply of parking. Reduced levels of parking implies that residents will have options for travel other than by car. If attractive alternatives to car driving are not provided, a mode change with lower levels of car driving will not be achieved and reduced levels of parking are unlikely to be sufficient.

The mode share of travel, not only changes between cities but also within cities. As an example, public transport mode share in inner Sydney municipality of Inner West (Leichardt, Ashfield and Petersham) is almost three times higher than in the outer municipality of Liverpool, whereas car driver mode share in Inner West is just over half as high as Liverpool. This suggests that, if medium density housing were to be provided in mixed use areas with good quality public transport, lower levels of car parking would be appropriate.

The Code addresses this somewhat by permitting and encouraging reduced levels of parking in areas defined as *Location A*. The current definition of *Location A* will not be sufficient for a resident to reduce their level of car use for a sufficient number of trips for them to reduce their car ownership and therefore it is not a sound basis for reducing levels of car parking.

Hence, the recommendations noted above to change the definition of *Location A*.

RECOMMENDATIONS

- Over the medium term, reduced levels of car parking will be necessary to assist in managing travel demand and to ensure that car parking does not overly dominate medium density housing designs. In the interim period during which mixed use centres and corridors are developed and activated, it may be necessary to permit some additional level of temporary car parking.
- As the demand for car parking will change over time, a flexible approach to car parking management is needed. Car parking design should incorporate the potential for it to be re-purposed in the future as circumstances change.
- The Code should be written to enable the number of car parking bays to be reduced over time, where appropriate, in line with future policies. For multiple developments of more than 6 dwellings, consideration should be given to unbundling the parking from the sale of the dwelling. By leasing parking areas to residents over a short period, parking provided for the exclusive use of a dwelling could be reduced progressively, by for example, allocating some dedicated parking to shared parking or visitors parking, as circumstances change.

The parking needs of residential communities in mixed use centres and corridors will change over time as autonomous (driverless) vehicles are permitted, resulting in a reduced demand for parking and increased allocation for set down for both private and shared vehicles.

3.5 Bicycle, Scooter and Motorcycle Parking

RECOMMENDATION

- Whilst the proposed level of residential parking for bicycles, scooters, and motorcycles is supported at this time, ongoing demand should be monitored to determine if conversion of car bays to bicycle or motorcycle bays may be required in the future.

In activity centres, activity corridors and station precincts with increasing levels of mixed use and higher density development the amount of travel by bicycle, including e-bikes is like to increase as the percentage of travel by car declines. The level of parking for bicycles proposed for residents of medium density development is supported, although as much flexibility as possible should be built into the design to cater for changes in future demand. The design of bicycle parking should take account of e-bikes that are slightly larger than traditional bicycles.

Motorcycle and scooter demand is also likely to increase in the future in activity centres and corridors as localised congestion increases and more people seek more space efficient and less expensive travel than cars. The level of scooter and motorcycle parking proposed in the Code is considered acceptable in the short term, but demand should be monitored, and additional parking created for these users if necessary, either on street or by converting car spaces to scooter and motorcycle bays.

3.6 Integrated approach to residential and commercial / visitor public parking

RECOMMENDATION

- The Code be expanded to include requirements for integrated public parking to accommodate the parking needs of residential and commercial / small retail in mixed use centres and corridors.

It is highly likely that medium density residential and mixed use commercial and small retail will occur in an integrated manner in activity centres and corridors, and this will require an integrated approach to parking. A mechanism will need to be developed to provide public parking for visitor and client parking for residential and mixed uses. This has not been addressed in the Code, but it needs to be as part of an integrated solution.

3.7 Waste Management

RECOMMENDATION

- The Code be expanded to include waste management remedies through a combination of design solutions (accessibility) and waste collection management processes, to avoid negatively impacting on the safety performance of the transport network.

The Code discusses waste management from a building perspective, such as access to internal storage facilities and information for the separation and recycling of waste. However, guidance to designers on how waste collection is to be accessible from the street network for the medium density development is omitted. When designers overlook waste collection accessibility and management at the outset of medium to higher density design, it can negatively impact on the safety performance of the transport network.

The Code needs to consider the increase in Mobile Garbage Bins (MGBs) on-site and on the verge where kerbside waste collection is used and the impact of this on the safe operation of the street. Most councils now offer a three MGB waste system which results in two MGBs per residential dwelling. In the case of kerbside waste collection, and the need to space the MGBs up to 0.5 m apart in a single line, this can result in significant impacts on sight distances at access driveways or along the street. Bin placement, if not designed well, can also obstruct paths and reduce the attractiveness of walking and cycling. Kerbside collection cannot be at the detriment of poorly placed bin collection locations that adversely impact the transport network.

Further, if on-site collection is enforced by local or state authorities and vehicle movement in a forward gear is required to/from the access street, this usually requires waste collection vehicles to turn around on site. This results in increased hardstand areas, detracting valuable space away from other desired elements of trees/gardens, and the potential for providing maximum deep soil areas⁴ on-site. The use of smaller waste collection vehicles is an alternative that has been used in the past to enable medium to high density development sites, serviced more frequently rather than occasionally. Generally, accommodating waste collection vehicles on-site can be detrimental to the aesthetics of a development as wider access driveways and higher headroom is currently required to accommodate this.

⁴ As defined in State Planning Policies, a deep soil area is an area of soil that is free of built structure and has sufficient area and depth to support tree growth and infiltrate rainwater.

3.8 Neighbourliness

RECOMMENDATIONS

- Engineers Australia is supportive of the inclusion of the Neighbourliness policies, subject to acceptance that poor design and poor location of medium density development has the potential to destroy the intended concept of Neighbourliness. The following changes are requested:
 - Amendment to the section on communal streets to clarify the meanings.
 - Provision of a single Integrated Transport Hierarchy so it cannot be interpreted differently by practitioners, based on existing and intended function, layout, volume and speed.
 - Reference in the Code to good holistic guidance on the design of local streets to support place responsive, attractive streetscapes for Neighbourliness.

This element of the Code is intended to minimise the impact on developments on neighbours consistent with the objectives of other elements of the Code. This is a matter that is considered important by many in the community particularly as it relates to building heights, setbacks, boundary fences, visual privacy, and access to and from the site from the surrounding streets.

As the demand for car parking will change over time, a flexible approach to car parking management is needed. Car parking design should incorporate the potential for it to be re-purposed in the future as circumstances change

The medium density information pamphlet (DPLH Nov 2020) notes that “well-designed homes that sit well in the streetscape, that encourage social interaction and that provide community amenity, make it easier for people to live closer together.” The policy includes (DPLH Nov 2020):

- “Context-sensitive design standards for building height and boundary setbacks”
- “Site cover controls to preserve open air between buildings”
- “Consistent street setbacks with space for trees”
- “Protections for visual privacy and overshadowing”
- “Dwellings that face the street with reduced garage dominance”
- “More flexibility in front fencing”

The greatest impact on neighbourliness is the perceived poor design and location of higher density developments by neighbours. In most outer suburbs, the higher density developments are currently resulting in significant problems for neighbours as a result of lack of privacy in backyard gardens and pools, parking on roads and verges and increased delays at intersections due to increased traffic volumes. Council’s and JDAP often ‘impose’ conditions relating to privacy and parking but rarely ensure these are complied with at time of development or after development. This can have a significant impact on achievement of neighbourliness, as defined in the Code, and needs to be addressed.

Engineers Australia is supportive of the inclusion of these policies subject to acceptance that poor design and location of higher density development has the potential to destroy the intended concept of ‘neighbourliness’.

It is not clear whether the Code’s reference to communal streets are public streets adjacent to the development or internal private streets within the development. If they are existing or planned public streets adjacent to the development, it would be better to refer to them as local streets. New or modified local streets should generally be designed for a maximum speed of 30kph. There are many aspects that need to be considered in the design of local streets. While it may not be considered appropriate to address aspects of local street design in the medium density housing Code, reference should be made to good holistic guidance on the design of local streets, such as can be found in the UK Department of Transport’s “Manual for Streets”.

In addition, there are currently inconsistencies in road hierarchy references in the Western Australian Planning system. There are currently up to 5 different hierarchies that can apply to a single medium to high density area:

- Main Roads Functional Classification
- Liveable Neighbourhoods
- Metropolitan Regional Scheme
- Scheme Map
- Local Government



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