GROWING PAINS

The Crisis in Growth Area Planning

WE CAN DO BETTER THAN THIS!
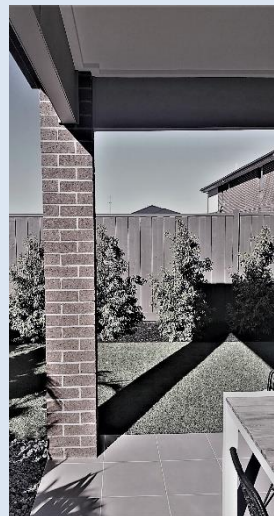
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CHARTER 29 is a group of environment professionals who believe that planning in Victoria is failing in many of its fundamentals. This report is their call to action on the topic of growth area planning.

The name CHARTER 29 is inspired by Melbourne's 1929 Plan of Development, and the fact that the centenary of this plan is approaching. If implementation of the 1929 plan – and the other metropolitan strategies that have followed it – had been carried out with greater determination and resolution, Melbourne today would be a more compact, better functioning and a more liveable city for *all* its citizens.

Regrettably, much that has happened to the city since 1929 has allowed Melbourne to develop into a very large, low density metropolis, with a sharp divide between the accessible, high quality environments of the inner suburbs, and the sprawling outer suburbs, where residents need two or more cars, and must travel long distances to work.

This report is an attempt to show how the failings of the recent past can be turned around in Melbourne's growth areas, given political will and enlightened entrepreneurialism.

This version dated 4 September 2020

Growth area planning should deliver:

Access to jobs

Sustainable dwelling design

Social connection and community

Walkability

Public transport and services

Quality environments

<u>At present it is failing in **all** these respects.</u>

EXECUTIVE SUMMARY

Good planning anticipates risk, prevents harm and provides the capacity to adapt to change. Current land use planning in Melbourne fails comprehensively on all fronts. Governments are combining inner urban high rise with extensive low density, poorly serviced outer urban development. Both types of construction are occurring on a massive scale and have little adaptive capacity to the fundamental changes which will inevitably follow the COVID-19 epidemic.

THE GROWTH AREAS CHALLENGE

Despite three decades of renewed urban consolidation within the existing metropolitan area, **Melbourne continues to expand outward at an unprecedented rate**. While growth is being spread across the city, the greatest population increases occur in Melbourne's outer growth corridors.

The quality of our physical, natural and social environments influences our personal wellbeing. Liveable neighbourhoods, defined in terms of attractive environments, increase self-reliance and adjustment while reducing crime, unhealthy lifestyles, anti-social behaviour and the need for social support. **The growth of Melbourne's new outer urban corridors runs counter to Government policy, which aims to provide liveable neighbourhoods resulting in a vast gulf between policy and practice.**

In vast car-dependent new suburbs, the lowest income and least tertiary-educated groups endure long journey to work times, a lack of diverse housing choices and Melbourne's worst services and social and physical infrastructure. Relatively few jobs are available, particularly jobs in the higher income brackets.

There is still time to change this trend. But without a radical new direction in planning and development, the "new Melbourne" being constructed is a city likely to fail.

In the past decade or so subdivision design has been dominated by detached housing with low population and housing density constructed on single lots. Little consideration has been given to the provision of higher density dwellings close to public transport and services or a gradation of house sizes.

A 29 year supply of land exists in the growth corridors, or 422,963 lots based on the long term average of 14,566 lots released a year. Average densities of Precinct Structure Plans are static with average densities the same in 2017 as 2007. Average lot size is falling, with 78 percent of new lots below 500 m2. However, 57 percent of these lots are between 300-500 m2 in size and only about 20 percent of new lots are under 300m2 suitable for townhouses or apartments, about the same number as lots between 500 m2 and 650 m2.

About 38 percent of all new Melbourne's dwellings are built in growth corridors, significantly higher than the 30 percent aspiration in the government's planning strategy, another indication of the unsustainably large numbers of people being located in poorly serviced growth corridors.

There is little relationship between project homes and a site's attributes or houses on adjacent lots. Site coverage is high. Land uses are segregated, with housing separated from car-based shopping malls and jobs, and poorly connected to public transport. Urban design ignores the advantages of street-oriented, walkable centres for jobs, amenity and health.

The design of the circulation and local movement systems has primarily focussed on the efficient movement of vehicles rather than people. The past emphasis on local

residential streets and employment-focused high streets and regional roads has given way to a road structure of local streets, collector roads, arterial roads and motorways. Consequently, the ability to deliver mixed-use, street-oriented, walkable town centres has been lost and replaced by shopping centres which deliver a poor level of amenity for customers and relatively low waged employment.

No objectives or related elements of the Victorian government's *Precinct Structure Planning Guidelines* **are being achieved.** Their emphasis on greater housing diversity, accessible activity centres, local employment and business activity centres, public transport and community infrastructure and environmental sustainability are all contradicted every week by what is being built on the ground. New jobs available predominantly directly service residents. Many of these jobs are low-waged and often part-time.

Physical design elements play an important role in promoting social cohesion by including a mix of housing types, uses and density that encourage pedestrian use, public spaces that draw people together, and well-located social services. **Growth area planning on the fringes of Melbourne and regional cities is not satisfactorily integrating social needs with land use and infrastructure planning**, resulting in physically and socially isolated communities, poverty and limited social connections.

WHAT NEEDS TO CHANGE?

Street layout should feature circulation systems based on an interconnected network of local streets integrated with higher density housing and mixed uses providing walking and cycling access to services instead of rigidly separated uses requiring car travel. Such systems are essential for a return to employment focused high streets located on heavy rail systems as destination points containing a proper mix of retail outlets and recreational facilities and services.

Higher average densities should be mandated at a minimum of 35 dwellings per hectare and include attached townhouses and apartments close to public transport and services.

House design should better relate dwellings to their site and neighbours by fundamentally changing the model of detached houses built almost to boundaries and consuming most of the site. Alternative models would require sunlight access to living rooms, energy efficient materials and design, lower long-term environmental footprints and greater dwelling variation in building types and sizes.

The principles of **energy efficiency and water sensitive design** should be made integral features of suburbs needing low car use and resource consumption. Parkland planning should provide a range of open space locations for varied use.

CRITICAL SUCCESS FACTORS

DENSITY

Australian state governments have persisted in permitting development on the fringes of the capital cities and regional centres at densities that are among the lowest in the world. The government's strategic plan, Plan Melbourne, proposes that 610,000 new households will be built in urban growth corridors by 2051 accounting for 40 percent of new residential development.

Current density ratios remain well below the averages for greenfield development achieved in most countries. Locating the highest densities near public transport and mixed-use activity centres would promote connectivity, local employment, and public

transport use, and lead to significantly improved health benefits. A range of dwelling sizes and types can improve housing affordability. Significant land savings are evident from even moderate density increases.

INFRASTRUCTURE-CONSTRUCTION COSTS AND EMISSIONS

Societies that consume less land for urban purposes tend to use infrastructure more efficiently, consume fewer resources, and transfer more investment to productive public and private uses. Compact city models deliver the lowest output of carbon dioxide emissions due to greater use of public transport and fewer vehicle kilometres travelled. The economic case for urban infill rather than greenfield development is clear. Construction costs are lower for greenfield locations than higher-density infill sites. However, **greenfield development is more expensive in aggregate when the real costs – including those for infrastructure, transport, health and greenhouse gas mitigation – are included.**

LANDSCAPE AND OPEN SPACE

The provision of canopy trees in new growth areas is important to liveability especially and under climate change scenarios. The amounts of private open space and tree cover on house lots are declining, particularly through larger house footprints on smaller lot areas. **This helps deliver imperviousness rates of 90 percent compared to rates of 45-70 percent observed in older suburbs.** Survival of vegetation on public open space is affected by the failure to maximise infiltration of water using water sensitive design techniques. Tree canopy targets have been set for future development of Melbourne's urban areas to help maintain liveability and biodiversity to counter the influence of climate change but the principles outlined in Living Melbourne need to be funded and implemented.

SOCIAL FACTORS AND COMMUNITY

Different types of urban form are one reason for rising social differences between inner and outer urban areas. A divided Australia exists with major disparities in the health and wellbeing of suburbs and their communities. **The most vulnerable populations are being concentrated in car dependent outer urban suburbs with the most inadequate services and job opportunities.** Average energy use in new outer urban dwellings is higher than those of existing dwellings. The high proportion – at 90 percent - of large detached houses instead of other housing types of varying sizes and prices does not adequately meet the need for housing diversity.

INTEGRATING TRANSPORT AND LAND USE

Although the role of specific variables such as density and public transport is debated, the type of urban form is a major contributor to the choice of vehicle travel. Changing from an urban sprawl model which entrenches car dependency and high greenhouse gas emissions to more compact models is essential to reduce the transport sector contribution to greenhouse gas emissions. The form and function of a city should guide the planning of transport networks linked to integrated uses, denser housing, local jobs and traditional main retail streets. But **two-thirds of growth corridor residents live outside walking distance from frequent public transport.** No Melbourne transport plan exists and the land use plan, Plan Melbourne, continues a failing model of outer urban growth unrelated to transport needs. Serious public transport infrastructure deficits exist in all growth corridors. Large scale infrastructure improvements are urgently needed to connect growth corridor residents to the polycentric clusters and activity centres and to the broader rail system.

PLANNING GOVERNANCE

A failure of planning governance is the root cause of Melbourne's planning failure. Governments have failed to adhere to a consistent plan, with 10 different strategic plans adopted from 1971. The politicisation of planning has undermined long-term, evidence-based planning in the community interest. No agency has responsibility for balancing dwelling numbers and types constructed in both the established and new suburbs, and for limiting outer urban growth. Institutional fragmentation is illustrated by the fact that **seven different agencies are involved in Melbourne's planning**.

This failure of strategic metropolitan planning **devolves effective power to a deregulated statutory planning system designed to advantage the development industry** and sets up a disastrous future for a city of an estimated 8 million people by 2050.

New regulatory regimes are needed in growth areas to achieve high environmental performance, walkable urban design, diverse housing types, higher density, local jobs and traditional multi-purpose main retail streets connected to residential areas. Most of the full uplift in land value occurring as a result of growth area rezonings should fund essential infrastructure.

THE REPORT'S RECOMMENDATIONS (SEE CHAPTER 5)

1. Growth area suburbs and streets should henceforth be designed to facilitate healthy exercise and eliminate car dependency.

2. When uplift in land value occurs as a result of growth area rezonings, the proportion captured by the community should be sufficient to fund provision at the outset of adequate community facilities and a dense network of frequent public transport services.

3. The development and regulatory regimes in growth areas should be reformed to mandate the delivery of solar-oriented, environmentally sustainable dwellings, and to facilitate the development of zero-lot-line, patio-style housing in which private open space is agglomerated into useful garden space, not disaggregated into side alleys and token landscaping.

4. Street-based, multi-use, employment-rich, sustainably accessed places with opportunities for urban living, should henceforth become the model for growth area activity centres, in place of private shopping malls separated from their hinterland by large car parks.

5. Growth areas should in future attain a residential density sufficient to foster walking and cycling to local destinations, and to support a dense network of frequent public transport services

6. A much greater diversity of housing mix should be provided, with dwelling types located to support the needs of the occupants, equitable access to facilities and services, and sustainable transport options.

7. The Australian Institute of Architects should be encouraged to re-establish the Small Homes Service.

8. Simplified governance arrangements with broad-based political support should be introduced, with the power to deliver effective implementation of metropolitan strategic objectives in growth areas.

CONTENTS

1 THE GROWTH AREAS CHALLENGE

> If we continue with business as usual in Melbourne's growth area planning, the new suburbs will remain poorly connected with the rest of the metropolis, dependent on congested road systems, poorly serviced and cut off from employment. There is still time to modify this scenario. But a radical new direction will require a fundamental change in governance and decision making.

1.1 GROWTH AREAS IN THE METROPOLITAN CONTEXT

Despite three decades of renewed urban consolidation within the existing metropolitan area, Melbourne continues to expand outward at an unprecedented rate. Melbourne is growing by about 120,000 people a year at one of the western world's highest growth rates of about 2.75 percent. Greater Melbourne is projected to grow from 5.0 million in 2018 to 9.0 million in 2056. While this growth is being spread across the city, the greatest population increases are occurring in Melbourne's growth corridor municipalities.

From 2018 to 2036, the highest growth is expected in the cities of Wyndham (203,900 people), Casey (181,800), Melton (173,300) and Whittlesea (141,100) at an average yearly rate of three percent a year, with some up to 4.3 percent (DELWP, 2019a). The Melton-Wyndham corridor will add 660,000 residents and Casey-Cardinia will add 500,000 by 2031. **Total planned new development in nominated outer urban corridors will extend the Melbourne metropolitan area by about one-third by 2050,** providing up to 422 000 new dwellings for up to 1,190,000 people (VPA 2018).

A PLAN LIKELY TO FAIL...

Melbourne is sprawling outwards while high and medium rise development dominates growth in inner and middle ring areas. Urban sprawl also accounts for most growth in regional centres in Victoria, particularly within commuting distance of Melbourne.

No national housing or population strategy guides development in Australia. The Victorian state planning strategy, *Plan Melbourne*, does not satisfactorily integrate spatial planning with efficient transport and service delivery to outer urban areas; preservation of arable land, biodiversity and landscapes; and provision of water for domestic/ industrial/ agricultural uses.

Both the type and rate of growth is leading to serious problems, particularly the failure of social and physical infrastructure to maintain services to this increased population (Infrastructure Australia, 2019) – a concentration of lower income, least tertiary-educated groups in new suburbs with the worst services.

A particular problem is that in outer urban growth areas, the population is growing away from jobs. Higher income, professional and advanced business service jobs are located in the Central Business District and inner urban areas, and fewer jobs proportionally are available in the growth areas. Car dependent suburbs and long journey to work times place further pressure on household budgets and lifestyles. The fastest growing growth corridor suburbs "have all gone backwards", relative to the state as a whole, in their capacity to capture income per working age adult, in social outcomes and an infrastructure backlog (Brain, Stanley and Stanley, 2019).

Without a radical new direction in planning and development, the new Melbourne being constructed is a city likely to fail. New outer urban municipalities will be worst affected by inadequate planning and infrastructure. They will remain poorly connected

with the rest of the metropolis, dependent on congested road systems, poorly serviced and cut off from employment. Nelson (2013) has predicted a cycle of low income, high cost outer suburbs in the United States leading to falling values, suburban blight and possibly eventual abandonment.

There is still time to modify this scenario. But radical changes are necessary to the ways that Melbourne's growth areas are being developed if they are to avoid a similar long-term fate.

1.2 WHAT'S GOING WRONG WITHIN THE GROWTH AREAS?

Melbourne's new outer suburbs are **dominated by detached housing with low population and housing density** constructed on single lots. Most new housing is large and detached with **little diversity**, associated with **inadequate physical and social infrastructure**. Little consideration is given to provision of higher density dwellings close to public transport and services and a gradation of house sizes. There is no relationship between the selected project home and the site's attributes or the houses on the adjacent sites.

Land uses are segregated, with housing separated from shopping malls, jobs and rail lines. **Public transport** within suburbs is inadequate or non-existent and heavy rail provision to growth corridors is the most inadequate in the city. Pedestrian and cycle networks are afterthoughts.

Retail shopping malls require extensive car use. **Little local employment is available**.

As a result:

> **Subdivisions are car dependent, not walkable**, characterised by road congestion, inadequate public transport and pressure on parking at rail stations and many town centres

> Most subdivisions are dominated by **houses set back from side and rear boundaries** to achieve some light and ventilation on all sides; an inefficient use of land.

> **Site coverage is high; landscaping opportunities are minimal, tree cover is lost**, and passive environmental design is not considered.

> Many project homes are larger than owners need, **inflating the price, increasing mortgage stress** and leading to capital value being lower than the mortgage.

A new subdivision in Melbourne's outer west, typical of the pattern of growth area residential development that has been occurring for the last decade or two. The great majority of the land is taken up by space for cars (roadway, driveways, garages) and the

dwellings themselves. There is very little space for tree or other amenity planting, and backyard play space is minimal.

A Melbourne subdivision (Burwood) typical of the inter-war and post-war years. It shares a grid street pattern with current growth area developments, but there is plenty of space for back yards and mature trees. The net density is lower than in the current growth areas, but so is the site coverage of most of the dwellings.

Vermont Park, Vermont South: an example from the 1970s of good planning achieving a high quality suburban environment (refer to the Appendix for further details). An integrated development that replaces the rigidity of the street grid with an informal layout of paths, open spaces and garage courts.

1.3   VPA'S OBJECTIVES AND ELEMENTS

The Victorian Planning Authority's publication *Precinct Structure Planning Guidelines: Overview of Growth Area Planning* sets out seven Objectives for Precinct Structure Plans, each with several Elements that support each Objective. These seven Objectives are designed to guide the planning and construction of growth areas in Victoria.

1: To establish a sense of place and community

Easy to walk or cycle to local facilities

Strong local character

Design and buildings are high quality

2: To create greater housing choice, diversity and affordable places to live

New density of 15 dw/ developable hectare

Higher density on bus routes and at railway stations

Range of lot sizes and housing styles

Affordable housing

Jobs close to home

Range of transport options

Walk to local food shops

3: To create highly accessible and vibrant activity centres

Activity centres: jobs, retail, services, accessible by public transport

4: To provide for local employment and business activity

Jobs in the precinct

Easy access to jobs

Vibrant mix of uses in activity centres

Work from home options

Variety of built forms and land uses, flexible

5: To provide better transport choices

Efficient public transport, direct connections to activity centres

Efficient and adequate bus services

Urban form designed for walking, cycling, public transport, car

Encourage walking, cycling, public transport to reduce carbon emissions

6: To respond to climate change and increase environmental sustainability

Reduce car use

Minimise environmental footprint

Renewable energy is promoted

Responsive to climate change

Water sensitive urban design

The planning responsive to waterways, etc.

Biodiversity is enhanced

7: To deliver accessible, integrated and adaptable community infrastructure

Services are provided early

Facilities are easily accessed

Land is used efficiently for utilities and services

People can contribute to community

These objectives are laudable, and we commend the VPA for establishing them and pursuing them in their approach to growth area planning. **The problem is, they are not being delivered on the ground**. The next section provides a comparison of Clyde North and Merrifield West against VPA objectives and elements.

1.4 THE VPA'S OBJECTIVES IN ACTION

The Melbourne metropolitan strategy, Plan Melbourne, provides the overall strategic basis to Melbourne's development including for the growth corridors, repeating many of the statutory policies. The Victoria Planning Provisions provide the policy framework for growth areas and the VPA's Precinct Structure Plan Guidelines. Clause 11.03-2, for example, includes the policy framework for growth areas "to encourage average overall residential density at a minimum of 15 dwellings per net developable hectare" and "to provide for significant amounts of local employment". Clause 56 on residential subdivision similarly outlines discretionary policies on matters such as dwelling diversity, lot area and solar orientation.

The guidelines intend that 80-90 percent of dwellings are located within one kilometre of a town centre, and that 95 percent of dwellings should be located not over 400 metres from an existing or proposed bus stop. The Small Lot Housing Code 2019 removes the need for a planning permit in growth areas on lots less than 300 square metres where house design and siting standards are met. All these clauses and codes are subject to the same flaws – they are general, discretionary policies that are too often not implemented.

The Victorian Planning Authority's publication *Precinct Structure Planning Guidelines: Overview of Growth Area Planning* sets out seven **Objectives for Precinct Structure Plans**, each with several elements that support each Objective. These seven Objectives are designed to guide the planning and construction of growth areas in Victoria. It could be expected that these seven Objectives would be implemented throughout Victoria's new residential areas.

To assess how well this has been achieved, we considered two such areas for which Precinct Structure Plans have been approved and where construction and occupation occurred in 2019-2020:

> **Clyde North** located in Melbourne's outer south-east (City of Casey), some 5 kilometres east of Cranbourne and 20 kilometres south-east of Dandenong, and

> **Merrifield West** located beyond Melbourne's current northern outskirts (City of Hume), about 5 kilometres west of Donnybrook and 8 kilometres north of Craigieburn.

The Table below sets out each of the seven Objectives of the VPA and identifies how these two residential precincts perform against those seven Objectives and the elements that escribe each.

PERFORMANCE OF EXAMPLE RESIDENTIAL AREAS AGAINST VPA OBJECTIVES

VPA Objectives & Elements	ACHIEVED VERY WELL	PARTLY ACHIEVED	FAILED TO ACHIEVE	TOO EARLY TO ASSESS OR N/A
1: To establish a sense of place and community				
Easy to walk or cycle to local facilities		●		
Strong local character			●	
Design and buildings are high quality			●	
2: To create greater housing choice, diversity and affordable places to live				
New density of 15 dw/ developable hectare		●		
Higher density on bus routes and at railway stations			●	

VPA Objectives & Elements	ACHIEVED VERY WELL	PARTLY ACHIEVED	FAILED TO ACHIEVE	TOO EARLY TO ASSESS OR N/A
Range of lot sizes and housing styles		●		
Affordable housing			●	
Jobs close to home			●	
Range of transport options			●	
Walk to local food shops			●	
3: To create highly accessible and vibrant activity centres				
Activity centres: jobs, retail, services, accessible by public transport			●	
4: To provide for local employment and business activity				
Jobs in the precinct			●	
Easy access to jobs			●	
Vibrant mix of uses in activity centres				●
Work from home options		●		
Variety of built forms and land uses, flexible			●	
5: To provide better transport choices				
Efficient public transport, direct connections to activity centres			●	
Efficient and adequate bus services			●	
Urban form designed for walking, cycling, public tpt, car			●	
Encourage walking, cycling, public tpt to reduce carbon emissions			●	
6: To respond to climate change and increase environmental sustainability				
Reduce car use			●	
Minimise environmental footprint			●	
Renewable energy is promoted			●	
Responsive to climate change			●	
Water sensitive urban design		●		
Site planning responsive to waterways, etc.	●			
Biodiversity is enhanced				●
7: To deliver accessible, integrated and adaptable community infrastructure				
Services are provided early		●		
Facilities are easily accessed			●	
Land is used efficiently for utilities and services			●	
People can contribute to community				●

Clyde North and Merrifield West fail to successfully implement the seven Objectives.

The physical and social environments of these two areas are not unique. They are just two typical examples of most other residential precincts in the growth areas on the fringes of Melbourne and regional cities and towns which have been similarly planned and laid out and hence incorporate the same inherent shortcomings.

The admirable intent of the VPA as expressed in its seven Objectives is not being implemented in many places. This suggests a failure of process and commitment on behalf of the VPA to ensure its Objectives are achieved.

No alternatives are being provided to these standardised outcomes. Would-be residents are given almost no choice of residential experience. Despite the many alternative models for neighbourhood and community living which urban history has demonstrated can provide for a rich living experience, virtually all new residential areas produce the same inadequate model.

The consequences of this failure to deliver an optimum physical street and lot plan are evident in such aspects of the life of occupants as:

- Inadequate and poorly located private open space
- Reliance on private vehicles for short trips and commuting
- A lack of social engagement
- Environmentally inefficient housing
- Development occurring ahead of community facilities
- The separation of residential areas from local community facilities and jobs

1.5   CONCLUSION

Clyde North and Merrifield West fail to meet many of the Objectives promoted and required by the VPA. They are typical of most, if not all, new growth area residential precincts. The strategic and planning approvals process, from greenfield sites to a vibrant residential community, is failing our new communities.

Despite laudable intent and the suite of rules, guidelines and statutory approvals that are in place these newer estates perform poorly in comparison with established residential areas of the nineteenth and twentieth centuries in Australian cities. They perform poorly in the critical areas of walkability, presence of adequate public transport, provision of local shops and safe and easy access to them, environmentally efficient house design and siting, a diversity of housing serving all household types and stages of life, early provision of community facilities and, as a consequence, a low level of community cohesion and integration is the result.

Established suburbs and towns generally perform better against the VPA's Objectives even though they were established when there were few defined objectives for the planning of residential areas or for the integration of estate planning with house design or access to community facilities.

This analysis demonstrates that:

- Whichever criterion is applied, **new urban growth areas are housing people** in ways which will lead to a range of detrimental impacts over time.

- New growth areas perform less adequately on a range of criteria that suburbs constructed over the last 150 years in urban Australia. A simple comparison with established neighbourhoods such as nineteenth century North Melbourne or inter-war Burwood, amply demonstrates this.

- **We cannot afford (on many measures) to continue repeating this unsustainable outcome.**

- **The VPA's Guidelines, while admirable, are not being implemented.**

- Looking at new suburbs such as Merrifield West and Clyde North it is apparent that, while partly successful, they could be significantly improved. We are building unsustainable suburbs that may become undesirable in the future due to their layout, lot sizes and limited housing range and may require significant retrofitting to improve their social and environmental attributes.

EXTRACT FROM THE VPA WEBSITE: GREENFIELDS

Since 2006, the Victorian Planning Authority (VPA) has been planning new suburbs across greater Melbourne. When designing a suburb, our philosophy is that the area must have great amenity, including ample open space, community facilities and bustling neighbourhoods.

To do this, we ensure that each community has its own local town centre to cater for everyday shopping and grocery needs, local services and employment as well as an integrated network of parks linked by pedestrian and cycle paths.

In addition, our plans for new walkable suburbs include land that is reserved for future schools, community centres, sports precincts and bus services, so future residents live in lively suburbs with world-class services and infrastructure.

Finally, we make a concerted effort to weave in key environmental features into development plans, incorporating each area's unique topography into its design. We protect an area's cultural heritage by preserving places of spiritual significance to the local traditional owners and retaining and reusing key post-contact buildings and landmarks.

We have completed 70 Precinct Structure Plans (PSPs) for new communities and a couple of industrial areas in the municipalities of Cardinia, Casey, Hume, Melton, Mitchell, Whittlesea, Wyndham and Latrobe City.

The VPA will continue to plan Melbourne's new greenfields suburbs into the future consistent with Plan Melbourne 2017-2050, to ensure land within the urban growth boundary offers a diverse range of efficient and affordable housing options.

LAND SUPPLY UNDER PRECINCT STRUCTURE GUIDELINES

An exceptionally large 29 years of land supply exists for outer urban development in the growth corridors, or 422,963 lots based on the long-term average of 14,566 lots released a year (DELWP 2019b). By 2017, the land area without approved Precinct Structure Plans (PSPs) was 39,430 ha, while the land area with approved PSPs totalled 29,426 ha. The VPA and government have been hastily completing inadequate PSPs since then despite the extensive land supply and completed PSPs. The VPA has not yet commenced work on 25 residential PSPs.

Precinct Structure Plans status 2018

Source: https://vpa.vic.gov.au/strategy-guidelines/open-data/
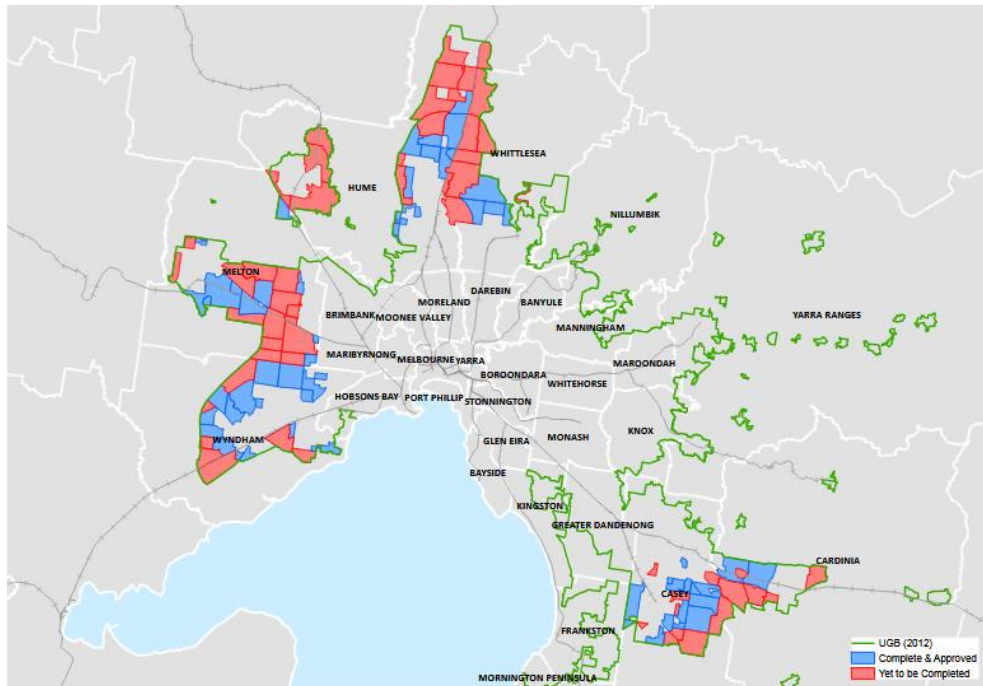
At the end of the 2018 calendar year 45,300 broad hectare lots existed and 20,602 lots were released for purchase in the growth areas. Average lot sizes are falling but the vast majority of lots are still used for large detached houses although on separate lots of declining average size. In the 2006-07 period a third of new growth area lots released were below 500 m2 but by 2018, the percentage below 500 m2 had risen to 78 percent. This trend will continue in the near future with 83 percent of new lots expected to have an area of less than 500m2. However 57 percent of these lots are between 300-500 m2 in size and only about 20 percent of new lots are under 300m2 suitable for townhouses or apartments, about the same number as lots between 500 m2 and 650 m2 (UDP, 2019). Unless the government insists that more varied house design is matched to smaller lots, such as through provision of more townhouses and smaller more affordable houses, this trend will continue the process of cramming large houses onto progressively smaller lots which often take up to 80 percent of the lot area.

Average densities of PSPs are static. In the 10 years to 2017 the average density was 17 lots per hectare at about the same density in 2017 as in 2007. The area of land reserved for future release could accommodate many more lots if average lot densities increased, or alternatively, the area of land reserved for development could be reduced substantially and still achieve a large increased outer urban population. The government's practice of locating such a large population in future decades on land so far from adequate services and jobs, in poorly designed subdivisions with little housing choice, is the worse option for future urban development.

The government also is not achieving its targeted ratio of 70 percent of new housing to be constructed in Established Melbourne and 30 percent the Growth Areas, set as the aspirational distribution in Plan Melbourne. The ratio in 2018 was 62 percent to 38 percent, a significant failure. In approving such a large reserve of developable land in growth corridors, the government continues to encourage development well beyond the limits set in its own planning strategy and it appears uninterested in achieving this target. This failure repeats the failure in implementing the same targeted ratio in the 2002 planning strategy,

Melbourne 2030, resulting in the proportion of outer urban development rising by 2007 to almost 50 percent of new housing.

1.6 THE REALITY ON THE GROUND...

The following images, and those on the front cover of this report, show the kind of housing still being rolled out across Melbourne's growth areas:

A typical new home of 26 squares in Melbourne's outer western suburbs* comprises:

- 4 bedrooms
- 2 bathrooms
- Double garage
- Kitchen with walk-in pantry
- Dropzone and laundry
- Linen closet
- Meals area
- Family area
- Alfresco area
- Home theatre
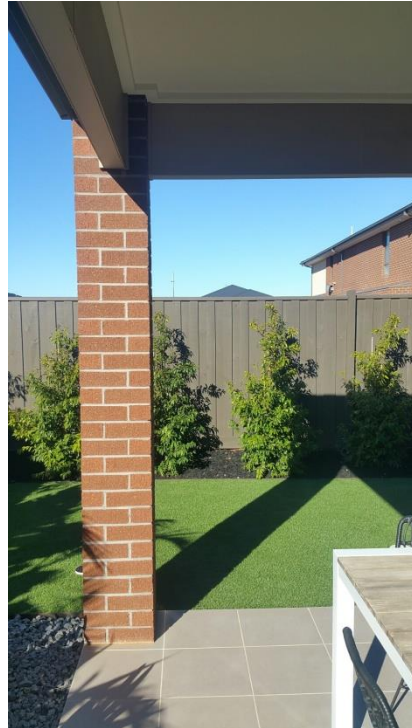
Not included in the JG King sales brochure is the following information:

- Ultra small garden
- Sunlight to living areas unlikely to have been considered
- Outlook only to high, solid fence
- Six star rating achieved without regard for solar orientation
- No space for substantial vegetation
- Most garden space wasted on side setbacks and car access
- Necessary to drive to shops, schools, parks, work
- Local main roads are over-capacity at peak times
- Two reliable cars essential

* Maya display home, JG King Homes, Atherstone Estate, 11-13 Olympic Circuit, Strathtulloh, VIC 3338.

2 THERE IS A BETTER WAY

Current residential densities in growth areas can be comfortably exceeded, along with greatly improved living environments, walkability, access to services and public transport, provided government and industry do things differently. Here are some suggestions as to how.

2.1 JOBS, ROADS & TOWN CENTRES

Employment growth and type varies significantly between Melbourne's inner and outer suburbs. Outer suburbs contain about one third of jobs but 60 percent of population growth between 2011-16 and only 389 jobs for each 1,000 residents. In contrast, inner suburbs contain the same proportion of jobs for only 20.2 percent share of population growth and 1,229 jobs for each 1,000 residents (Brain, Stanley and Stanley, 2019).

Manufacturing in Melbourne and Australia has continually declined since the 1970s. In 2013–14 manufacturing's share of gross domestic product (GDP) was 5.5 percent, less than half its level four decades earlier. Moreover, the decline in the manufacturing industry shows no sign of abating, with the industry's share of GDP falling at a more or less constant rate since the 1970s.

This trend in manufacturing has meant that urban centres have been required to make the major contributions to employment in growth suburbs. In general, two types of centre exist: car-based malls and 'bulky goods' stores; and walkable, street-oriented town centres often close to public transport. Apart from a few attempts at hybrid centres such as at Point Cook and Rouse Hill, true street-oriented town centres have not been constructed in Australia since the1970s.

NEW JOBS IN THE OUTER SUBURBS

New jobs available in new outer urban suburbs are predominantly jobs which directly service residents, such as retailing jobs in the large car-based shopping centres, specific service jobs such as supplying trade, banking and other local services, and a limited number of mainly lower skilled jobs such as in warehousing. Many of these jobs are low-waged and often part-time. Research undertaken for the West Australian Planning Commission by Mike Cullen (Urbacity Pty Ltd, 2014) shows the advantages of street-oriented, walkable centres. In shopping centres, 1 non-retail job exists for every 2 retail jobs; in mall-dominated town centres, 2.4 non-retail jobs for every 2 retail jobs, while in street-oriented town centres 5.2 non-retail jobs for every 2 retail jobs. Cullen puts this down to the "address value" a street gives businesses.

ROAD PLANNING AND SHOPPING CENTRE DESIGN

The design of the circulation and local movement systems have primarily focussed on the efficient movement of vehicles rather than people. Planning and traffic management of streets and roads has changed dramatically over the past century to reinforce car dominance. The former emphasis on local residential streets and employment-focused high streets and regional roads has given way to a road structure of local streets, collector roads, arterial roads and motorways. Traffic engineering policy prevents close intersection spacing, narrow well-connected streets and appropriate zoning for commercial and retail uses. On arterial roads, land uses such as commercial and retail uses are prevented from having direct access to the road, while motorways prohibit any form of direct access to commercial uses. As a result, the ability to deliver mixed-use, street-oriented, walkable

town centres has been lost and replaced by shopping centres which deliver relatively low waged employment.

A return to employment focused high streets will require the redesign of circulation and movement systems for neighbourhoods to make walking, cycling or a short public transport trip the most used means of access to local destinations.

Ultimately local street networks in the new growth areas should feature a dense network of pedestrian and cycle friendly local roads to create an urban environment where people of all ages and abilities can safely walk and cycle instead of using cars for local trips.

The key to achieving and sustaining these objectives is the creation of neighbourhoods with a sufficient mix of stores, supermarkets and other retail outlets, as well as recreational facilities and job opportunities to provide the necessary land use mix to promote active travel.

Vibrant and sustainable communities will offer a range of jobs and services that support local living. These communities will be characterised by housing and population densities that make local services and transport viable and are able to facilitate thriving local economies.

Although most employment growth occurs as non-retail jobs, growth area spatial planning limits the locations for these businesses. The alternative is street-oriented town centres located near railway stations and accessible by an interconnected network of streets with footpaths on both sides, and dedicated bike paths on major connecting streets.

To achieve this, we must:

Change the way we view streets and movement, prioritising walking and cycling in the design of streets, and the buildings facing streets

Integrate places of work, shopping and living to reduce travel distances by reconsidering traditional zoning to encourage mixed uses and revising our notions of urban form and design

2.2   THE FAILURE OF OUTER URBAN SOCIAL PLANNING

The concept of "liveability" refers to "the many characteristics that make a location a place where people want to live" (VCEC, 2008: xxv). Physical features, economic and social factors all affect the attractiveness of places. Liveability can be defined in terms of objective factors such as diverse and affordable housing, physical infrastructure (for example, transport and communication systems), social infrastructure (for example, health care and education), acceptable living costs, safety and stability. But liveability is also measured by citizen satisfaction, a subjective factor, determined by connectiveness to family and friends and a sense of personal and community 'wellbeing'.

Extensive evidence exists that the quality of our physical, natural and social environments influences our sense of personal satisfaction and wellbeing. Liveable neighbourhoods, defined in terms of such attractive environments, increase self-reliance and adjustment, and reduces the need for social support and negative outcomes such as crime, unhealthy lifestyles and anti-social behaviour.

The RMIT *Creating Liveable Cities in Australia* report (Arundel et.al, 2017:20) developed a liveability index for new outer suburban areas as a spatial assessment of the urban form needed to improve community health across seven indicators: walkability, public transport, open space, housing affordability, employment and food environments. It found no liveability targets are being met in the new suburbs on the urban fringes of any city.

Brain, Stanley and Stanley (2019:21) also found similar results for outer suburbs on a range of other indicators of well-being, including for youth unemployment and health arguing that:

> *Melbourne's current high rate of population growth in under-resourced outer urban LGAs seems to be compounding existing personal socio-economic costs of residents and society*

Growth area planning is not satisfactorily integrating social needs with land use and infrastructure planning, and as a consequence, many areas of high poverty and limited social cohesion are emerging. While people are searching for community and greater social ties and networks, the government's strategies for achieving social, economic and environmental goals are not being met.

Melbourne is an economically and socially polarised city. The highest proportion of the metropolitan population, 46.6 percent, is located in the outer local government areas, a share that is increasing as population grows, accounting for 57.5 percent of the growth between 2011 and 2016. But outer LGAs have the fewest jobs per 1,000 residents, 389 compared to 1229 for inner LGAs, or 4 jobs per 10 residents compared to 11 jobs per 10 residents (Brain, Stanley and Stanley, 2019). Income from economic activity in the six fastest growing outer suburbs of Cardinia, Casey, Hume, Melton, Whittlesea and Wyndham fell relative to the state between 1992-2017. Brain, Stanley and Stanley (2019) suggest a projected average infrastructure shortfall of $9 billion annually over the 1992-2031 period for the six growth corridor LGAs.

Urban design, physical planning and social goals need to be integrated to improve social equity and common good. Good design can attract a diverse range of households and create communities. **Social contact and cohesion are facilitated by physical elements including small scale, well-designed neighbourhoods; a mix of housing types and density; a mix of residential uses with shops and services; streets, pathways and layouts that encourage pedestrian use; and public spaces that draw people together.**

These physical elements in many of our growth area suburbs, for example, fail to meet social objectives including development of social networks and interaction, social equity, and sense of community. The provision of community infrastructure such as schools, community and recreational buildings, is often inadequate as governments try to catch up with the high population growth. This failure, coupled with little public transport and a lack of local jobs can detrimentally affect the ability of residents to sustain themselves. This has led to physically and in turn socially isolated communities on the fringe of Melbourne.

2.3   CURRENT AND RECENT DESIGN PRACTICE

To illustrate the potential for more efficient models for residential settlements, planning in sample areas in the growth area suburbs of Tarneit and Merrifield was compared to areas of similar size in the established suburbs of North Melbourne and Coburg, and to where alternative designs had been used in South Vermont and in Tullimbar NSW, Accordia Cambridge UK, and Orenco Station Portland USA. They are analysed in terms of their net density, provision of private open space and lot size. Apart from the UK example, the Australian and American examples were produced under the same separation of land and dwelling development.

TARNEIT

Plot Size – 416 sqm
Private Open Space – 78 sqm (18 percent)
Net Density – 17 Dwellings per Hectare

NORTH MELBOURNE

Plot Size – 223 sqm
Private Open Space – 64 sqm (29 percent)
Net Density – 29 Dwellings per Hectare
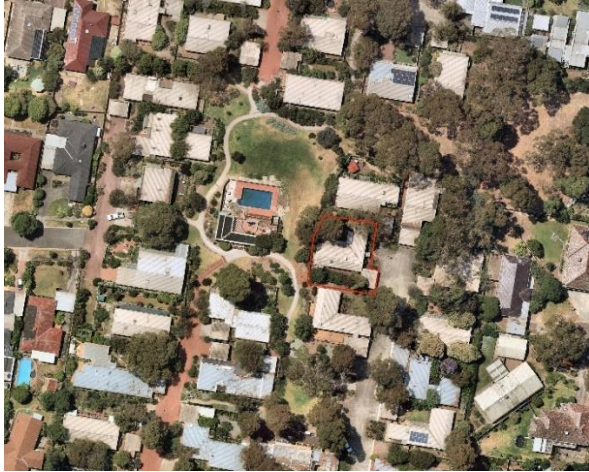
COBURG

Plot Size – 480 sqm
Private Open Space – 170 sqm (35 percent)
Net Density – 14 Dwellings per Hectare

VERMONT PARK

Plot Size – 460 sqm
Private Open Space – 198 sqm (43 percent)
Net Density – 14.5 Dwellings per Hectare

TULLIMBAR, NSW

Plot Size – 285 sqm
Private Open Space – 72 sqm (25 percent)
Net Density – 23 Dwellings per Hectare

ACCORDIA, CAMBRIDGE, UK

Plot Size – 174 sqm
Private Open Space – On-Site 62sqm (35 percent) plus communal open space
Net Density – 38 Dwellings per Hectare

ORENCO STATION, PORTLAND, USA

Plot Size – 350 sqm
Private Open Space – 93 sqm (26 percent)
Net Density – 19 Dwellings per Hectare

CONCLUSION

Density levels at the Tarneit and Merrifield sites were generally lower than the other sites. The Tarneit site net density is 17 Dwellings per Hectare; North Melbourne 29, Coburg 14, Vermont Park 14.5, Tullimbar 23, Accordia 38, Orenco Station 19 dwellings per hectare.

From these examples, it is clear that there is a significant under-provision of private open space at Tarneit. The net residential density in Tarneit and Merrifield varies somewhat between areas but the density of large areas is about 15 dwellings per hectare. Developments in these suburbs are clearly wasteful of land when compared to other greenfield developments such as at Tullimbar, New South Wales, and Orenco Station, Portland Oregon. This is a missed opportunity given the proximity to a future town centre at Tarneit.

Vermont Park provides an alternative approach to dwelling design and street layout where lot sizes and dwelling types are more varied, green space is increased and streets provide access to dwelling clusters. At Tullimbar, green space is high while housing design provides high levels of surveillance and rear laneways remove garages from the street and provide opportunities for affordable accommodation above garages.

3   TWO CASE STUDIES

3.1   TARNEIT: RE-THINKING TOWN CENTRE DESIGN

The residential growth area of Tarneit has been under construction for some years, but the site identified for a town centre remains undeveloped. Here we examine what's proposed, and how this plan could be improved.

Tarneit is being developed as another car-dependent suburb despite government policies to develop "20-minute suburbs" where living, working and shopping are available locally. The widespread use of standardised housing types and a subdivision design comprising uniform lot sizes and high site coverage coupled with little local employment results inevitably in the dominance of motor vehicles. A large self-contained shopping centre has been built but the proposed town centre remains undeveloped. The suburb is served by a non-electrified rail line.

An alternative layout would emphasise the role of a future main street and high street well-connected to surrounding areas and providing the "armature" for future business location. This urban structure would provide a wider range and diversity of housing types linked to retailing, services and public transport.

This detailed analysis of a recently developed residential area of Tarneit examines some of the metrics associated with this development and compares this to an alternative approach and the metrics associated with this.

The metrics associated with this development are as follows:

Area measured:	19.94 Hectares
Dwellings:	327 Dwellings
Net Density:	16.4 Dwellings per Hectare
Length of Road:	4,422 metres
Road per dwelling:	13.5 linear metres
Percentage of useable Greenspace:	0 percent

This development demonstrates the provision of a restricted variety of plots and a limited range of housing types. Two sets of townhouses have been built within the study area, however the bulk of the development (99.95 percent) is detached single storey houses. Access to almost all houses is from the street and as most plot frontages measure between

13 to 15 metres, the double garages are a significant visual feature of all streets. Not only is this unattractive, but there is reduced "natural surveillance" of the streets making them feel less safe for walkers.

Tarneit illustrates the potential for change to this paradigm. Tarneit is being developed as yet another car-dependent and ultimately unsustainable suburb, despite government policies to develop "20-minute suburbs" where living, working, shopping and all of the other components of a sustainable suburb are available locally. Little innovation is evident in such a suburb. The widespread use of one standardised housing type and subdivision design coupled with little local employment results inevitably in the dominance of motor vehicles.

Current planning in Tarneit enables retail and other uses to determine urban structure instead of responding to the urban structure and built form. A large shopping centre has been built as well as a commuter railway station but the site identified for a town centre remains undeveloped.

Lessons from street-oriented shopping centres show that effective high streets are continuous, well-connected, relatively narrow, straight and oriented to provide solar access to buildings.

The 'white' area represents the street plan proposed for the greenfield area immediately to the north of Tarneit station, taken from existing Precinct Structure Plans (PSPs).

These designs should be improved by creating regular, well connected grids of streets with meaningful links to existing streets and public transport. The street blocks should be designed to accept higher density dwelling typologies to ensure that many more people are able to live close to the future town centre and public transport. In this way people will be able to choose how they access the centre and public transport. Appropriate planning provisions should encourage mixed use development.

3.2   RE-PLANNING TARNEIT'S CENTRE

The diagram below shows a possible layout for the future town centre and undeveloped areas about one kilometre from the existing railway station.

An alternative layout for this area.

Comparison of the proposed (left) and alternative (right) street layouts for this area. The streets in the proposed layout will be poorly oriented as well as being relatively disconnected.
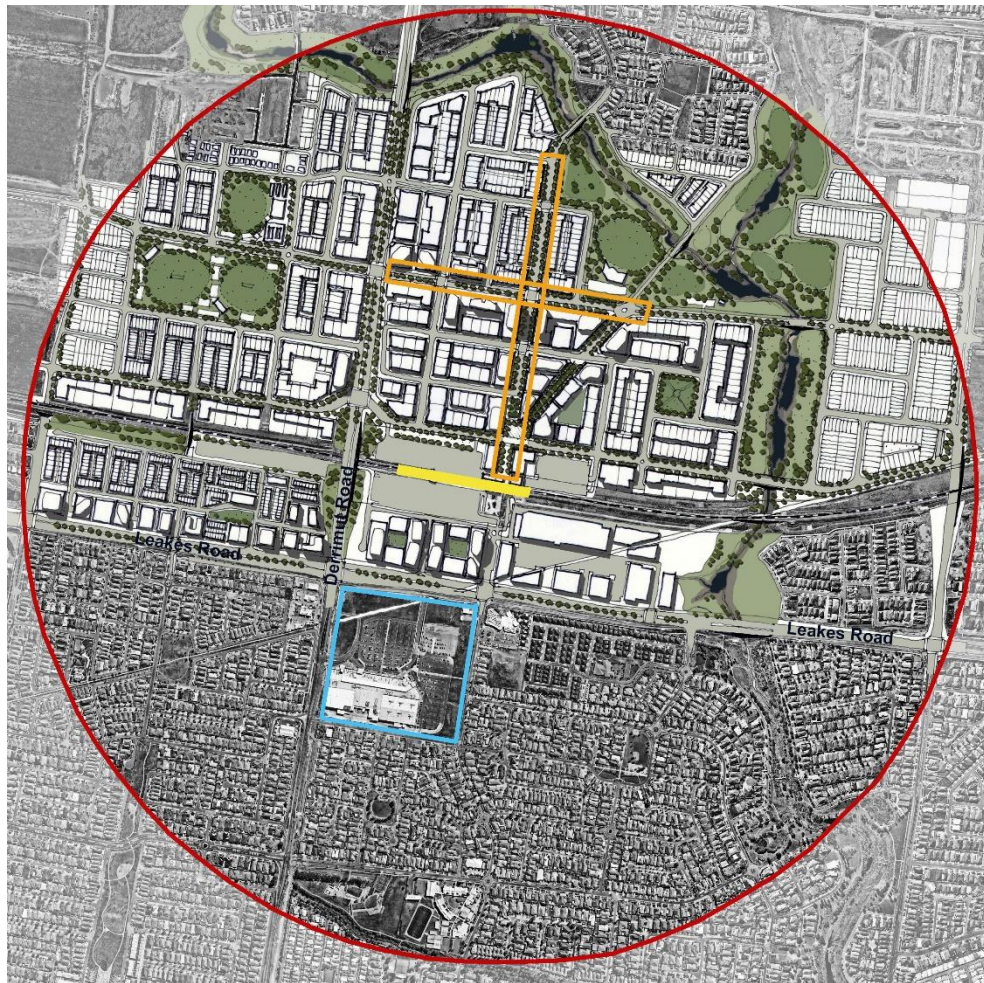
This enlargement shows the existing railway station (yellow) along with the area one kilometre from the station (red circle) and the existing shopping centre (blue). The orange rectangles indicate a future Main Street and High Street. Both are well-connected to surrounding areas and these links provide the "armature" for future business location. Note also the larger plots in the town centre to enable change over time from early development to more intensive development in the future. The urban structure provides for a wider range and diversity of housing types and is a better use of land close to a significant public transport node.

Comparing the street layout to that of the current PSPs shows that solar orientation is improved as well as connectivity to surrounding development. Active frontage is optimised by the introduction of rear laneways which give access to properties without disturbance to the street frontages. Development faces onto important natural environments such as creek environs providing a high level of passive surveillance which leads to improved safety outcomes. The diagram shows the potential for place-making in the town centre with a partially pedestrianised Diagonal Street as well as a major public square near the railway station. Unlike many parts of Melbourne a significant amount of active open space is provided anticipating future medium and higher density development.

3.3   MERRIFIELD: RE-THINKING RESIDENTIAL AREA DESIGN

This section takes a portion of the Merrifield housing estate as a case study to demonstrate an alternative, more sustainable approach to residential area design in the growth areas.

On the evidence of the publicity material, the promoters of Merrifield seek to place a high value on achieving a good quality living environment. We have taken it as a case study to demonstrate a practical application of the approaches advocated in this report because it is reasonably typical of residential development now occurring across the growth areas.

Merrifield seeks to provide a more diversified range of housing types than most new outer suburbs along with 30,000 new jobs and 110 hectares of open space. However, it is **highly road dependent, situated between the Hume freeway and the planned Ring Road, and a 10-15 minute bus ride from a non-electrified country V-line station, a situation unlikely to be improved for decades**.

Its subdivision design features a large shopping centre based on a mall and 'big box' retailing, a civic hub with office and a range of civic uses and a 350 hectare business park located adjacent to each other but separated from the main residential areas, schools and other community facilities. An area of higher density housing is located between these uses and the main residential areas.

The main residential streets define a pattern of subdivision which favours the construction of generic hipped roof standardised project homes laid out randomly oriented to sunlight. A 6 star energy rating can be achieved through such features as double glazing to overcome the effects of poor orientation and a lack of eaves. Detached houses are set back from the street with conjoined double garages. Private open space may face any direction. The close proximity of housing boundaries allows noise intrusion and prevents sunlight access. The higher density housing similarly has no necessary northern orientation.

Alternative street and dwelling design could ensure access to northern sunlight through careful orientation of streets along an east-west access, and of indoor and outdoor living areas. Two story dwellings, attached or detached, could be designed around courtyards grouped with a northerly aspect, achieving a density of 28-32 dwellings per hectare. Apartments could increase average densities by forming part of mixed-use developments in or near the city centre and provided with a northern orientation.

Construction materials, solar energy use, energy efficient appliances and other techniques could be used to reduce carbon emissions.

Merrifield represents the latest in growth area residential design, and because it is recent, **community services and infrastructure are yet to be fully developed. Much of this is due to government policy, not the developer**. In future, more services should be provided in tandem with, or in advance of, the residents.

ARRIVING AT MERRIFIELD

By car the journey to Merrifield will take up to 30 minutes from the established suburbs via the Hume Freeway or Tullamarine Freeway through open countryside. A new bus service runs between Donnybrook and Craigieburn Railway Stations and normally runs at hourly intervals and at half hourly and 20 minute intervals at peak times. So to reach Merrifield from the city would require taking a Seymour bound train, leaving generally every three quarters of an hour to one hour and alight at Donnybrook, then a bus for a 12 to 15 minute ride to the Merrifield area.

A large number of houses have been constructed but no community facilities as yet apart from the child care/kindergarten facility.

The town centre features a large shopping centre based on a mall and 'big box' retailing, a civic hub with office and a range of civic uses and a 350 hectare business park located adjacent to each other but separated from the main residential areas, schools and other community facilities

At present, a service station exists on Donnybrook Road where milk and bread and general service station fare are available and "pop-up" freight container coffee shop is open daily, and on the fourth Saturday of the month a produce market from 9am to 1.30pm. Two playgrounds are provided.

The street patterns and construction are the generic concrete foot paths, driveways and kerbs, asphalt roads with parking lanes and two-way traffic lanes and bike lanes on the more major streets. These streets define a pattern of subdivision which favours the construction of one and two storey project homes laid out back to back with no consideration of orientation. Some higher density development is included in areas near the parks and at entries to the neighbourhoods.

Cars are a dominant presence particularly at weekends, on the roads, 'nature strips', driveways, parked across the pebble landscaping and often multiple cars parked outside many houses even though each house includes a double garage.

HOUSING STOCK

The houses are the generic hipped roof single and two storey villas with conjoined double garages and a setback wide enough to park a car on with a small amount of permeable landscape area.

NORTH

0 — 50 SCALE METRES.

TYPICAL CURRENT LAYOUT PART MERRIFIELD.

The houses here are designed for land that is flat and divided into rectangular blocks. Lots and dwellings are designed so that a living space may face south or east or west and the house still achieve a 6 star energy rating using the inclusion of double glazing to overcome the effects of poor orientation and a lack of eaves to shade the windows. They satisfy regulatory site planning and building controls better suited to more established residential suburbs where the achievement of higher densities is not at issue. Limited zero boundary setbacks and 1 metre setbacks to side boundaries are enforced in these suburbs and lead to wasted side setback space which in turn leads to smaller private open space areas.

The use of waffle pod slab floor systems which require stable foundation conditions and a back-up concrete slab apron around the building to limit the possibility of clay foundation movement (often unsuccessfully) means that the setbacks become unusable except for hot water units, air conditioner compressor units and clothes lines. Trees cannot be planted in these setback areas because they will also cause stability problems with the floor slabs and thus the structures as a whole.

Internal spaces have an outlook onto these spaces and so paling fences are built on the boundary line between properties where the two setbacks adjoin in an attempt to give privacy to these spaces. Many internal spaces therefore have an outlook to a paling fence and probable noise intrusion from next door when windows are open.

Front setbacks are not generally well used; the space could be better used at the "rear" of the site as private open space. Open space in this type of development is not seen as relating to internal space use or orientation. For example 'alfresco' areas are generally attached to living areas but may face in any direction and the Private Open Space may or may not relate to the 'alfresco' area and may also face in any direction. It is not uncommon for these spaces to face south and so be constantly in shade. Link have been established between mental state and the aspect of living spaces both internally and externally in a dwelling. Northerly aspect to living spaces in dwellings will increase an individual's feeling of wellbeing.

Where higher density housing solutions are inserted, they bear no necessary relation to north orientation or to the surrounding housing in terms of car access. No attempt is made to share parking with adjoining properties so low grade interfaces are created. Car parking to adjoining properties being part of the standard format provided by the house builders remains accessible from the front street closing off options of more activation of the parking areas and more solar access and views to the street at the "front" of these houses.

Building companies design generic houses which they sell as a package with little chance for purchasers to vary the basic layouts and specification. They are timber or steel framed with a brick external veneer and plasterboard internal lining and the roofs are timber or steel trusses with concrete tile or corrugated steel roofing, all insulated with batts and sarking. Roofs are generally corrugated Colorbond or concrete tile roofing and usually in a dark colour which is stipulated by planning and title controls imposed by councils and developers. This leads to a huge area of black and charcoal coloured roofing which is heat absorbent and affects the sustainability of these developments.

Water and space heating is provided by gas instantaneous water heaters and ducted gas space heating systems. Solar water heating panels are becoming more common of late but generally the whole house package is designed to just satisfy 6 star energy ratings, and no more. The random orientation of the houses and lack of eaves must lead to some uncomfortably hot or cold spaces leading to the installation of reverse cycle air conditioning which will counteract the energy ratings of the individual houses and cause power peaks which are difficult for electricity suppliers to cope with.

House and land packages are an expectation sold to young purchasers which are seen as culturally acceptable. The houses in the fringe suburbs such as Merrifield are all built by the

larger project house builders so there is little variety in the type of "product" provided. The inclusions, by developers, of higher density groups of dwellings, are not integrated in the initial planning.

3.4 A NEW LOOK AT MERRIFIELD

This alternative plan for a part of Merrifield has assumed that the published structure plan would be followed with the Town Centre, rail corridor and schools as a given. The aim is to show that it is possible to provide an environment where trees can grow and a variety of family types can make up a community which can live a lifestyle where walking and cycling are the main forms of transport for access to child care, schools, shops and other services.

VILLA-TYPE DWELLINGS
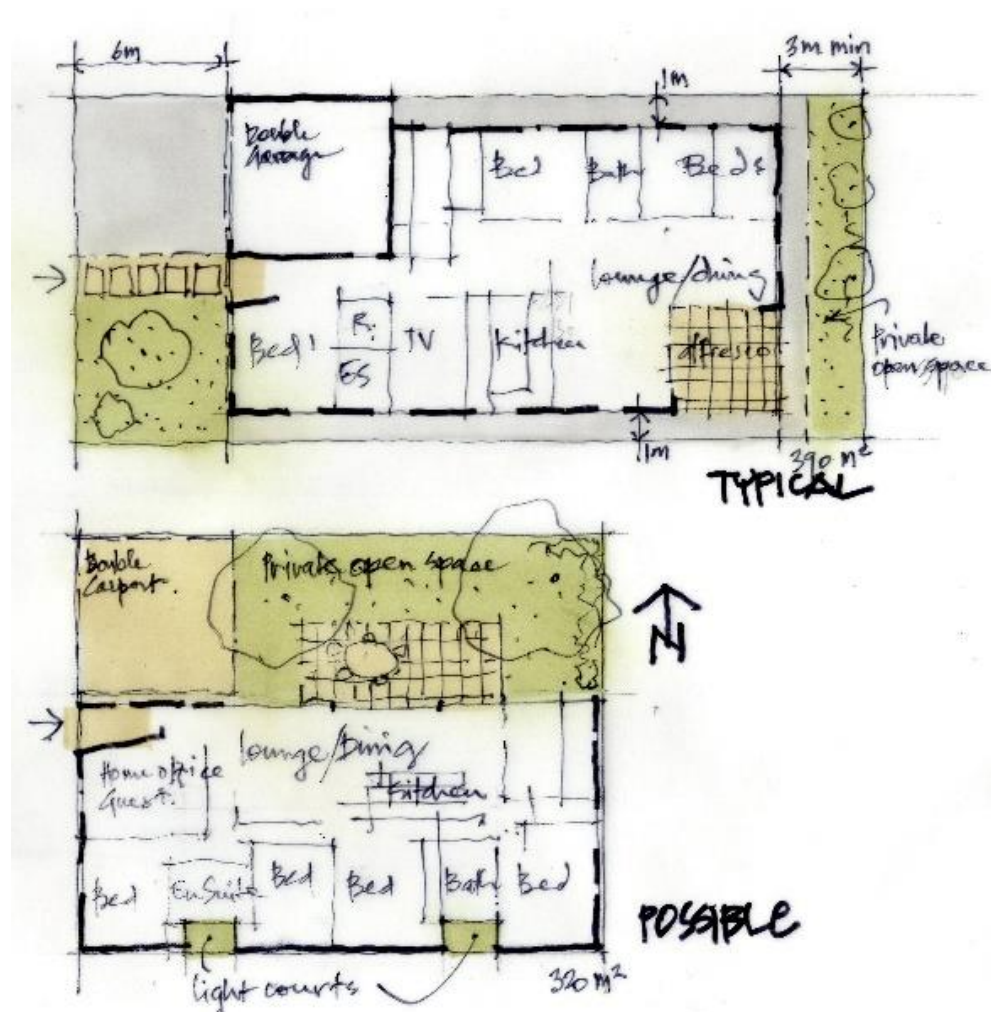
The typical plan above shows the type of dwelling plans that are being built by the 'volume' builders throughout the state in areas around Melbourne, Ballarat, Bendigo and other regional centres as well as at Merrifield. The orientation of these dwellings is random so some will have better passive energy characteristics than others but all are blighted by a lack of appropriate eaves.

The lower plan shows what is possible by eliminating the front and side setbacks and using this space on the north side of the house as private open space. This type of plan means that the living spaces in the dwelling can relate directly to the private open space which can

be large enough to allow for the planting of good sized trees. The Carport space may become outdoor living. And the overall area taken up can be quite a bit less so as higher density built form can be achieved.

When a number of these dwellings are brought together as in the plan below it would be possible to address all the dwellings and car parking to a shared street where limited speed car access, cycle lanes, pedestrian friendly spaces and landscape areas combine. The address and car parking of all the dwellings is off this street and car parking areas would need to be provided for visitors.

This plan also provides the possibility of all these dwellings having access to a green pedestrian/cycle link space (on the left in the plan below) where families can walk and ride to schools, parks, shops, work spaces and community facilities through garden and paved areas. These link spaces would also provide the opportunity for the planting of large trees, the provision of community gardens, meeting spaces such as bike repair/café facilities and quieter garden areas.
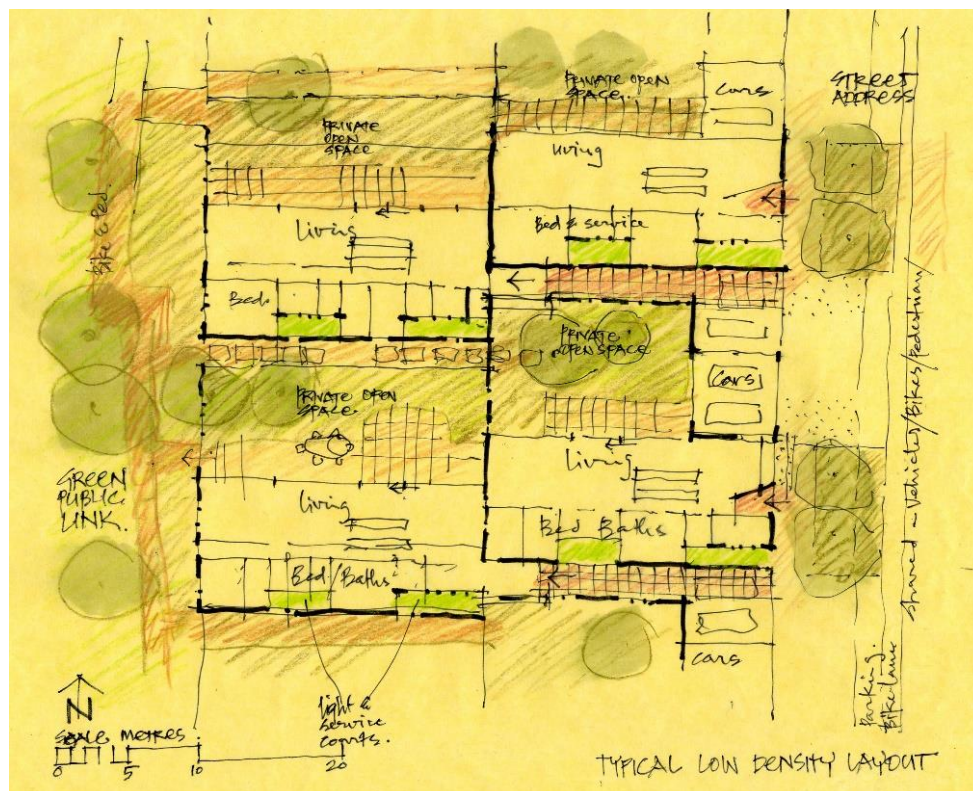

The development of this type of built form requires careful design which could be somewhat standardised to allow for construction by 'volume' builders. Integration of architecture and landscape design would be important in providing private and public spaces where safety and passive surveillance parameters are maximised. Access to light courts for maintenance and service will need to be carefully considered along with privacy issues between dwellings.

View of shared access street

PATIO HOUSES

These are higher density two storey dwellings with two or three bedrooms arranged around courtyards which can be configured in groups so as they all have northerly aspect. Car access would be off the west or south sides of the dwelling groups and the car spaces can also double as outdoor living spaces. The notional plans below show a two bedroom dwelling (left) and three bedroom (right).
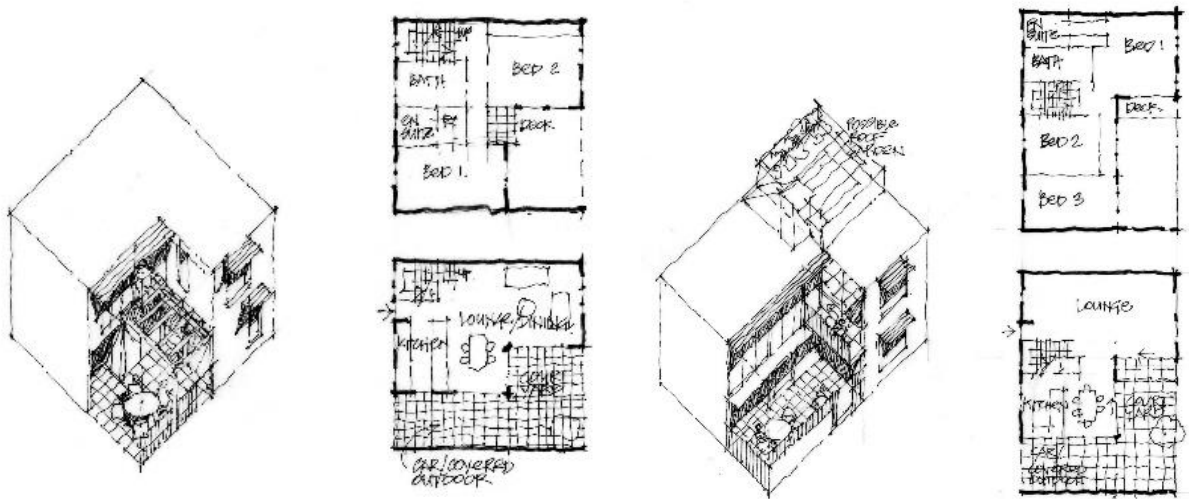

A combination of these dwellings and the villas which are shown on the overall axonometric view following will provide a density in the order of 28 to 32 dwellings per hectare. These dwellings in a mews arrangement can be given aspect onto the green link spaces and provide significant life and surveillance to the green spaces. These mews houses are shown on the right in the view below.

View south along green link space with Villa housing on the left and Patio houses on the right

TERRACED HOUSING, RETAIL, CONSULTING AND 'START UP' SPACE

Shown on the overall view that follows as a higher density spine that is arranged along a road leading to the town centre these buildings may be three or four storey and contain retail and community facilities at ground level. The space above ground level in these buildings would contain single bedroom dwellings, separate areas with consulting rooms and 'start up' office/work/studio spaces. All these uses would need lift access. Some of these terraces may also be developed as large residences for extended families or as group dwellings in which case lifts would not be a necessity.
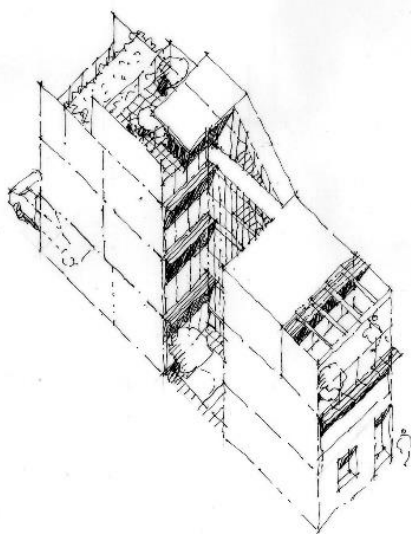
Terraced building type
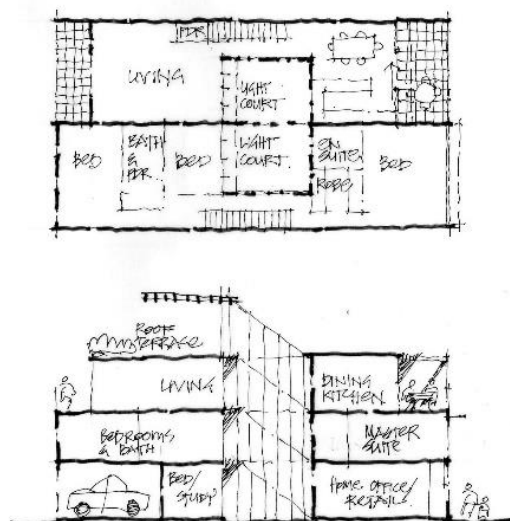
OVERALL SCHEMATIC VIEW

This view shows a part of the Merrifield developed area as it could have been using sustainable design principles to develop a higher density solution with more tree planting, more pedestrian and cycle connectivity and a diminishing of the effect of motor vehicles on the community environment.

All dwellings have north orientation to living spaces and private open space, and all dwellings have access to public green space. All dwellings could be designed using the principals that follow.

SUSTAINABLE DESIGN PRINCIPLES

There are simple principles that if applied fairly rigidly in the design of all buildings can cut up to two thirds from energy consumption in year round living. They are principles that to some degree could be mandated by government and would also give residential buildings much desired comfort and a more pleasant aspect. They would make the computerised 6 star system redundant to some degree but it should be kept and adjusted to make sure basic standards are maintained.

BUILDING FORM

It is generally advantageous for buildings to be longer in the east-west direction although north facing facades on buildings of different proportions can be used, combined with east and west facades with proper shading and the use of clearstory windows.

FENESTRATION

Large windows on the north faces of buildings with roof overhangs or sunshades of a size which will allow sun penetration in winter and eliminate it in summer are desirable. The altitude of the passage of the sun across the sky in winter is lower than in summer so an eve of about one metre will shade a full height window in summer and allow sun into a space in winter.

Minimal windows on the south faces of buildings should be openable to allow cross ventilation and minimise heat loss in winter.

East and west facing windows should be shaded with vertical slats or adjustable blinds. Morning and afternoon sun can be desirable in spaces in winter but needs to be controlled in summer. Direct sun in the morning in summer will heat a space to an uncomfortable degree and uncontrolled afternoon sun can make a space unbearably hot in the afternoon.
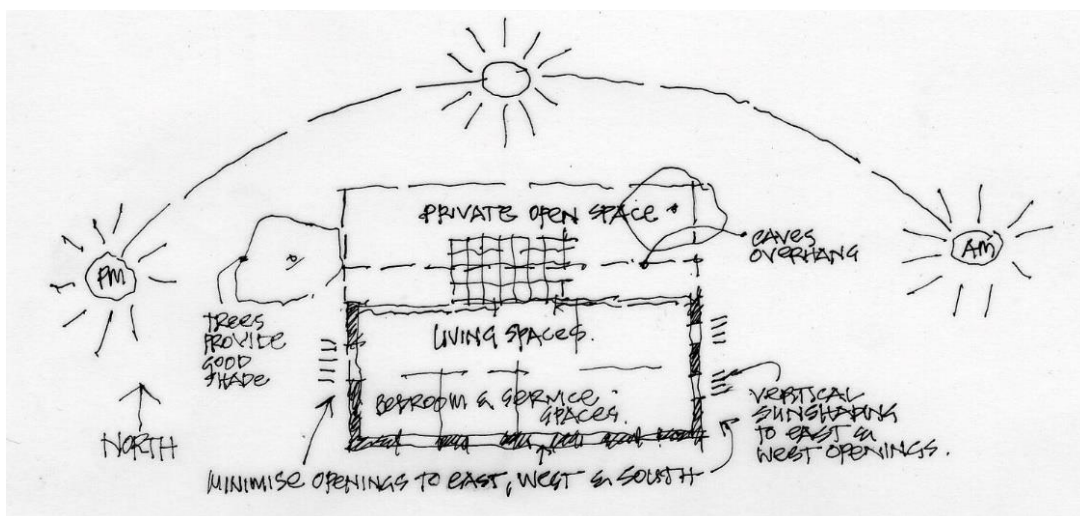

INSULATION

Attention needs to be paid to providing efficient and continuous insulation on the outside of buildings so as to keep heat in in winter and out in summer. This aspect is taken into account in the star rating system. Double glazing is important to complete the insulation of the spaces.

MASS

It is important in Victoria's climate that buildings incorporate internal mass which can be in the form of a concrete slab or brick or concrete walls. These elements will perform the function of a heat sink which will absorb heat and then reradiate it into the internal spaces. This function will work in different ways in summer and winter. In summer the internal mass will absorb heat out of the spaces, cooling the rooms during the day. At night, by opening windows and encouraging cross ventilation, the mass will give up its heat, cooling overnight ready to absorb heat the next day. In winter, if the mass is placed to be in sunshine during the day it will absorb heat and then reradiate it into the space when the sun has stopped shining. Generally having mass inside a residence will moderate the

temperatures all year round; drawing heat out in summer then reradiating it at night and storing heat in winter.
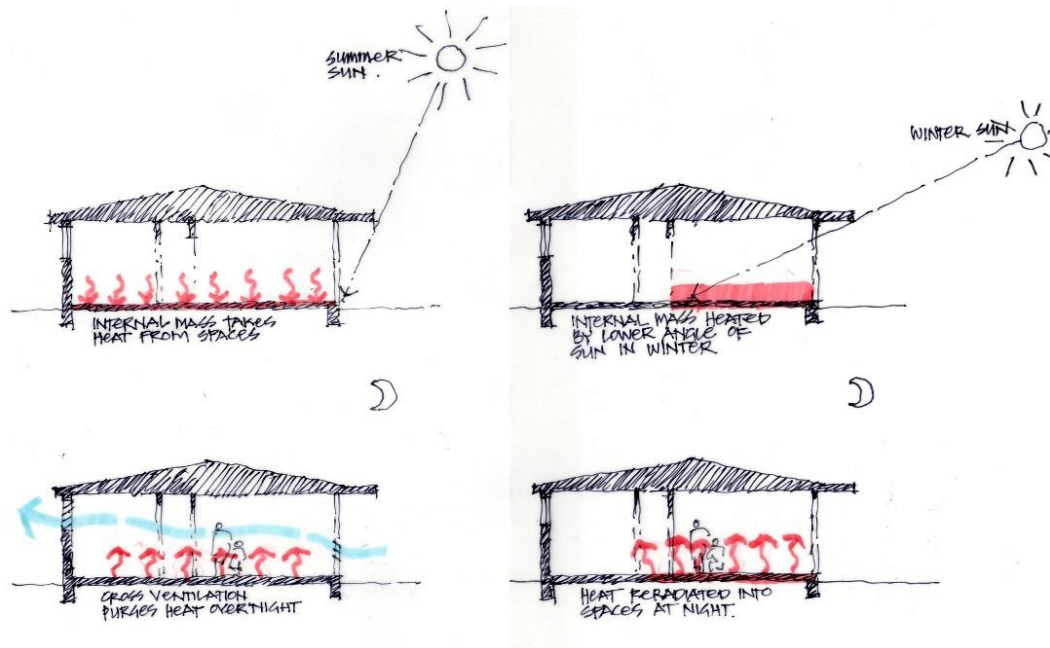
SITE PLANNING

A sustainable and healthy house design can be planned on a piece of land of any shape and orientation however efficiencies can be gained if the site has a longer east/west dimension allowing for the orientation of living spaces to the north and overlooking green and useable private open space. More use should be made of zero lot line planning to minimise 'sideways' but still allow for natural light and ventilation to bedrooms and service areas by the provision of court spaces on the southern edges of the site.

Within the existing system of house building in the new suburbs, it would be possible to design a couple of standard designs which could be mirrored if necessary and provide north orientation to living spaces, limit east and west heat loads and allow for through ventilation for maximum cooling.

SYSTEMS

Hot water and climate control systems are developing on an ongoing basis and installations should reflect the latest efficiencies as the use of these systems has great ongoing cost implications for individual home owner/occupiers and the community generally.

CAR USE AND RELATIONSHIP TO ACCESS TO TRANSPORT INFRASTRUCTURE

Electric local neighbourhood bus services connecting to suburban trains/trams/buses will reduce the car parks required per dwelling. They would also make for a more sustainable and economical solution to the transport needs of communities.

An alternative approach is drawn from lessons learned from the Merchant Builders housing delivered in Vermont South (see appendix). Here the streets provide access, yet the network available to walkers and cyclists is extensive. The alternative approach shown here includes an increase in the range of plot sizes and dwelling types. It also dramatically increases the amount of green space in the development and creates a

number of "green streets" as well as local parks. The green streets and parks add significantly to the permeable surface available for water penetration as well as allowing the planting of a significant number of trees, thereby cooling the development.

The metrics for this plan are as follows:

Area measured:	23.3 Hectares
Dwellings:	527 Dwellings
Net Density:	22.6 Dwellings per Hectare
Length of Road:	2,857 metres
Road per Dwelling:	5.42 linear metres
Length of Lane (cheaper to build):	2,142 metres
Area of Park:	5,695 square metres (0.5695 Hectares)
Area of Greenstreets:	31,625 square metres (3.1625 Hectares)
Percentage of useable Greenspace:	16 percent

Rear laneways remove the garages from the street and provide opportunities for affordable accommodation above garages. An example of a house designed in this way is shown below.

The plot is 12 metres in width, has three garages opening to the lane, and a single bed studio above the garages. In this way affordable accommodation is provided for rent. The rent is also able to offset mortgage payments.

Tullimar NSW provides an example of streets designed with these types of dwellings resulting in a very high level of natural surveillance owing to the removal of garages from the frontage. This improves the perception and reality of safety in the neighbourhood.

Tullimbar, NSW

3.5   CONCLUSIONS

The standardised model of large detached houses on smaller individual lots should be rejected in favour of varied house and lot designs, sizes and types. The detailed design of development areas should match housing to proximity to public transport with mandatory, and safe, active transport (walking and bikes,) links to rail stations, employment, shops and community facilities. Urban design is a key factor in delivering successful, walkable neighbourhoods. Co-ordinating the design of subdivisions and dwellings to achieve a match between the two, would result in:

Houses designed to be better suited to the site and its neighbours,

Enhanced passive environmental sustainability

Smaller average lot sizes and a range of lot sizes, house types and sizes

More efficient services leading to lower cost per lot, coupled with more extensive infrastructure provision

Higher average densities

Public transport becomes more viable

Reduced average distances to community facilities and public transport.

Cars and parking need to be detached from dwellings and grouped more efficiently with more limited construction of road space. The density of these development areas must be much higher to a minimum 35 residences a hectare but ideally considerably higher close to transport and amenities. Streets and parks need to be designed and developed integrally with these new urban areas so canopy cover and Water Sensitive Urban Design are maximised.

4   THE CRITICAL SUCCESS FACTORS

This chapter analyses the factors that are essential to successful growth area planning, and compares the approaches in existing growth areas like Tarneit and Merrifield with the design approaches advocated in this report.

4.1   DENSITY

A common characteristic is the high level of consumption of land compared to population density (Bullard et al., 2000; Robinson, Newell and Marzluff, 2005).

Australian state governments have persisted in permitting development on the fringes of the capital cities at densities that are among the lowest in the world. Recent Precinct Structure Plans aim to achieve a density of about 16 lots per hectare which would meet the government density objective. However this is a net figure and well below the figure required for walkability assessed by Davern et al (2018) as a minimum of 25 lots per hectare.

DENSITY AND LIVEABILITY

Higher average densities in new outer urban suburbs can be associated with improved spatial planning techniques to achieve more liveable suburbs. The highest densities can be located near public transport and mixed-use activity centres promoting connectivity, local employment, and public transport use. Such densities should be linked to traditional main street retailing, replacing car based big box retailing which is segregated spatially from housing in a pattern of rigidly separated land uses. A range of dwelling sizes and types can improve housing affordability. The resulting more connected, varied and walkable suburbs lead to significantly improved health benefits.

The RMIT Creating Liveable Cities in Australia report (Arundel et al. 2017:20) argued that urban density is an important factor in achieving walkable suburbs with easy access to public transport, jobs and services: It showed that **despite Australian governments setting only modest targets for dwelling density, there is little evidence that these policies are actually being implemented** with average dwelling densities in all Australian cities very low and, with the exception of Sydney, well below each state's respective suburban-density targets.

LAND SAVINGS

Increased outer urban densities leads to significant land savings which limit the need for further urban sprawl. There is considerable potential for increasing the number of dwellings per hectare in urban growth corridor municipalities. **Current density ratios remain well below the averages for greenfield development that are achieved in most countries.** Highly significant land savings are evident from even moderate density increases.

A 2005 analysis of potential lot yield scenarios on the same area of land modelled the impact of increased densities on dwelling numbers and land savings (Buxton and Scheurer, 2005). It showed potential dwelling intensification at increased densities from 180,382 dwellings at 10 dwellings per hectare, to 201,962 dwellings at 12.5 lots per hectare (an increase of 11 percent), to 237,841 at 15 dwellings per hectare (+32 percent), to a projected 295,275 at 20 dwellings per hectare (+64 percent). Land savings of 35 percent would be achieved under the 20 dwellings per hectare scenario. This scenario would have prevented the need for the 2010 expansion of the urban growth boundary of 43,000 hectares while

providing better urban design and greater housing choice and affordability through a mix of lot sizes and building types.

PLAN MELBOURNE

Plan Melbourne proposes that 610,000 new households will be built in urban growth corridors by 2051 accounting for 40 percent of new residential development, a substantial proportional increase from the more regulatory aim of 31 percent of Labor's *Melbourne 2030* plan. The Kennett government in 1993 repealed a Ministerial Direction introduced by the former, Labor government, which required a density of at least 15 lots per hectare on average in the outer urban growth corridors. This wasted an opportunity to reduce the inefficient use of urban fringe land and to contain Melbourne, continuing the traditional approach towards the wasteful use of outer urban land that has been followed since planning in Melbourne had commenced.

The results of this failure to implement the 2002 plan were soon evident. **By 2008, the proportion of outer urban land development, instead of falling to 31 percent of new development under Melbourne 2030, had risen from 39 to 48 percent,** while average housing densities had increased only marginally from 11 to 12.5 lots per hectare (AEG, 2008). The provisions of Clause 56 of planning schemes, aimed at reducing car-dependent urban design were being largely ignored.

4.2 COST OF INFRASTRUCTURE

Societies that consume less land for urban purposes tend to use infrastructure more efficiently, consume fewer resources, and transfer more investment to productive public and private uses. The post-war spread of Australian cities up to the 1990s exceeded one million hectares and at a cost of $4.2-5 billion annually compared to the $3-5 billion invested annually in new manufacturing plant and equipment (AURDR, 1994). Planned growth along corridors, even in their broadened form, has led to substantial infrastructure savings.

For example, a rather more policy driven, interventionist approach for Melbourne under the **Melbourne 2030 policy could have reduced vehicle trips by 12 percent and travel time by 23 percent over a period of 25 years, and delivered savings in housing construction and infrastructure to a present value (net) benefit of between $25 billion and $43 billion** (Spiller, 2006). Newton (2000) has argued that all forms of strategic regulated planning designed to deliberately channel and concentrate additional population and industry into specific areas out-perform laissez-faire development when supported by upgraded transport infrastructure.

IMPACT ON POLLUTION

These analyses of urban development scenarios revealed that the compact model delivers the lowest output of carbon dioxide emissions due to greater use of public transport and fewer vehicle kilometres travelled, with emission savings of 11,500 tonnes each day. Greater compactness also results in lower pollutant emissions for Volatile Organic Compounds (VOC), oxides of nitrogen, carbon monoxide and sulphur dioxide. Cervero and Gorham (1995) showed that reduced car travel by residents of mixed-use centres served by multiple transport modes leads to lower air emissions compared to similar day-to-day activities in car-based, single-use suburbs. Masnavi (2000) found lower car use overall in higher-density, mixed-use suburbs. Typically, households in higher-income inner areas of Australian cities own fewer cars per capita than households in the outer suburbs, and they use them less for work commutes.

CONSTRUCTION COSTS

Construction costs are lower for greenfield locations than higher-density infill sites, which enhances the attractions of development at a distance from the centre for many developers. However, greenfield development is more expensive in aggregate when the real costs – including those for infrastructure including power, water, increased transport and health costs and greenhouse gas mitigation - are properly accounted for in the city's development outlays (Trubka et al., 2008). The cost differences in developing the 'fringe' and 'infill' locales are striking: for 1,000 dwellings, a differential of over $340 million ($309 and $653 million respectively) (Trubka et al., 2008: 3). The economic case for a planning emphasis on infill rather than greenfield development is clear cut. If the next one million Melbournians were located within existing, developed areas, the Victorian community would effectively be saving $110 billion over the succeeding 50 years (City of Melbourne, 2009: 9).

4.3 LANDSCAPE & OPEN SPACE

The issue of urban greening, especially canopy trees in both existing and new growth areas is important to liveability now, and increasingly in the future under climate change scenarios. The western and northern suburbs of Melbourne are particularly disadvantaged when it comes to trees and quality public open space.

PRIVATE OPEN SPACE IN NEW SUBDIVISIONS

The amounts of private open space and tree cover on house lots are declining, significantly altering urban landscapes. **Larger house footprints on smaller lots area are now normal in new subdivisions with site coverages up to 80 percent common.** They are delivering imperviousness rates of 90 percent compared to rates of 45-70 percent observed in older suburbs.

This has real implications for urban greening especially on basaltic soils. The loss of vegetation in established suburbs from multi-unit and detached dwellings is reinforcing the relative lack of tree cover in growth areas. About 18,000 dwellings and 9,000 new detached dwellings a year are being built a year in established suburbs leading to extensive vegetation loss. Soil moisture also is crucial for the survival and growth of vegetation. It is important to enforce provision of infiltration systems as part of development as a means to provide sufficient moisture to soils to support vegetation, especially canopy trees (The Nature Conservancy and Resilient Melbourne 2019).

ROAD LANDSCAPES

Residential streets and access roads are a key opportunity for greening, especially the establishment of canopy trees that enhance biodiversity and liveability.

It is usual in suburban development to provide nature strips and street trees as part of new subdivisions. However, design of new streets to maximise infiltration of water into nature strips using WSUD or other techniques is not common and is often discouraged by Councils. Informal car parking on nature strips often leads to loss of street trees in the longer term.

PUBLIC OPEN SPACE

The extent of tree canopy and flora that enhances biodiversity public open space is variable. Design of new growth areas often considers existing trees, sensitive environmental areas, drainage and other services. Standards of size and accessibility of local open space, including sports areas and local play areas are proscribed. School grounds

also potentially contribute to local open space. Local open space provision is supplemented in growth areas by large regional parks developed and maintained by Melbourne Water or the State government.

Design of commercial and higher density mixed use areas needs to provide high quality public space for cultural events and outdoor active street life as found in modern cities around the world. Internal shopping centres and surface car parks that are standard in Melbourne's low-density growth areas do not provide this important form of urban open space.

The capacity for public open spaces to provide for extensive fully separated path systems for walking and cycling, varies within local government areas, with limited coordination across local government boundaries. Availability of water for maintenance of open space networks using WSUD techniques and capture and storage seems limited and should be mandated. Developments should have a second-class harvesting, storage and distribution system for landscape maintenance as well as WSUD techniques that minimise storm water drainage and maximise ground water recharge.

TREE CANOPY COVER

Natural factors, including expansive basaltic clay soils, lower rainfall, higher temperatures and flat topography, affect the capacity for vegetation growth, the choice of planted species and the location of plantings. Tree canopy targets have been set for future development of Melbourne's urban forest to help maintain liveability and biodiversity to counter the influence of climate change.

To achieve best outcomes the following principles outlined in *Living Melbourne* need to be funded and implemented:

> No net loss of tree or shrub cover on public or private land in each metropolitan region
>
> Regional targets for canopy cover must apply to both public and private land
>
> Implementation partners must strive to achieve the targets set for each category of public open space, road reserves, and private land
>
> No more than 70 percent of the additional canopy and shrub cover planted to achieve targets should be on public land
>
> At least 30 percent of the additional canopy and shrub cover planted to achieve targets should be on private land
>
> Table 2 below is organised geographically. Achieving the targets across private and public land will require government-wide action in partnership with councils, water authorities, the wider community and the land development industry. Figure 15 illustrates the relative commencement points and potential progress towards targets for each region.

4.4   CIRCULATION / LOCAL MOVEMENT

The vital relationship between transport, land use and urban form of the growth areas has been covered in chapter 2 of this report. The disconnect between the vision promoted in this report, and the reality of current transport planning arrangements, is well illustrated by the example of the government's road guidelines for growth areas.

Most of Melbourne's inner and middle suburbs are laid out within a one-mile (1.6km) grid of 20m main road reservations. These roads are commonly marked with one traffic lane plus one parking lane (sometimes a clearway at peak times) in each direction – total four

lanes. VicRoads' *Guidance for Planning Road Networks in Growth Areas* (VicRoads 2015) proposes a similar grid in the outer growth areas, but with one significant difference: the roads are six-lane divided highways, with 9 or 10 lanes to be crossed at main intersections.

The following extracts from *Planning and Design Principles for promoting Active Transport in the Northern and Western Geelong Growth Areas* (Movendo for City of Greater Geelong, 2017) are instructive:

PRINCIPLE 1 – PRIORITY FOR ACTIVE MODES

Design neighbourhoods to make walking and cycling to key destinations always shorter than 'driving' alternatives. More specifically, walking and cycling trips to grocery stores/supermarkets, open spaces, child care centres, cafes/restaurants, and primary/secondary schools always shorter (in terms of distance) than motorised trips

PRINCIPLE 2 – LAND USES AND DISTANCES

Identify desirable distances to support the 5-minute neighbourhood living concept – to give people the ability to 'live locally' – meeting most of their everyday needs within a 5-minute walk, cycle or local public transport trip of their home. More specifically, distance thresholds (from each home) for the main land uses, as follows:

A grocery store or supermarket – 500 metres

Open space – 1 kilometre

Child care – 1 kilometre

Cafes/restaurants, general retail and personal care establishments – 1 kilometre

Primary school – 1.5 kilometres

Secondary school – 2 kilometres

PRINCIPLE 3 – CONSOLIDATED RESIDENTIAL PARKING

Provide communal/consolidated parking facilities to replace on-street and on-site parking. More specifically, establish centralised communal parking on neighbourhood edges, rather than providing car parking on individual residential lots, to discourage excessive reliance on the use of cars.

PRINCIPLE 6 – DAY ONE PUBLIC TRANSPORT

Establish public transport services, in the form of shuttle bus services that link to/from Geelong CBD in the morning and afternoon peaks seven days a week – to discourage reliance on the use of cars for commuting trips

PRINCIPLE 7 – ROAD DESIGN AND TRAFFIC MANAGEMENT

Establish a network of pedestrian and cycle friendly local roads, in the form of pedestrian-bicycle priority spaces and shared zones – to encourage the use of roads as spaces for people (on foot and bike), create an urban environment where people of all ages and abilities can safely walk and cycle, and discourage the use of cars for local trips

PRINCIPLE 8 – PEDESTRIAN VILLAGES

Design neighbourhoods where the frontages of homes face a network of linear pedestrian/cycle park paths that connect all homes to commercial areas, parks, schools, recreation and other amenities – to provide full separation for pedestrians and cyclists for the majority of their local trips

4.5   SOCIAL & COMMUNITY

Different types of urban form are associated with increasing social differences between inner and outer urban areas. Higher-income, tertiary-educated, professionally employed households are concentrated in inner and middle ring suburbs, and selected outer urban areas, while lower income households without tertiary qualifications are concentrated primarily in outer urban areas. The Australian Bureau of Statistics' 'Socio-Economic Index for Areas' (SEIFA) makes clear the general distribution of socio-economic disadvantage in Melbourne, drawing on income, education, employment, occupation and housing data. **There is generally a strong correlation of socio-economic disadvantage with areas that are rated as less liveable due to shortfalls in basic infrastructure and services.**

The SEIFA Index affirms the evidence of other studies. The 2014 State of Australian Cities report described a divided urban Australia between those in dense inner city areas with access to high-wage jobs and quality services and those living in sprawling outer urban suburbs with inadequate services or ready access to higher paid employment. The report also found that housing price had risen disproportionately in relation to proximity to city centres causing cities to fracture on lines of income, education levels and access to services (Department of Infrastructure, Regional Development and Cities, 2015). The disadvantages from inadequate services are being concentrated in outer urban suburbs which are home to the most vulnerable populations (ABS, SEIFA, 2006; Outer Suburban/Interface Services and Development Committee, 2012). Such disparities in the health and wellbeing of suburbs and their communities will remain entrenched without substantial government policy intervention.

LIVEABILITY INDEX

The RMIT Creating Liveable Cities in Australia report (Arundel et al. 2017:20) developed a liveability index for new outer suburban areas as a spatial assessment of the urban form needed to improve community health. The report provided baseline measures of liveability in all Australia's state and territory capitals across seven indicators: walkability, public transport, open space, housing affordability, employment, alcohol access and food environments. It found that no Australian city performed well on all indicators. No liveability targets are being met in the new suburbs on the urban fringes of any city.

Measurable spatial policies were identified for only three of the seven liveability indicators with none for local employment, housing affordability, promoting access to healthy food choices, or limiting access to alcohol outlets. For example, **only a minority of the working population in all new urban fringe suburbs worked near home.** There is little evidence that Australian cities are meeting current policy targets for even the best-performing indicators – walkability, public transport and public open space – across cities and on the urban fringe.

Other studies have reinforced such findings. Infrastructure Australia has shown that over 4 million people in outer suburbs live beyond acceptable walking distance from frequent public transport. Accessibility is worst in Melbourne, with 1.4 million or 62 percent of people on the urban fringe disadvantaged. The State of Australian Cities 2014–15 report presented a picture of an Australia divided between denser inner-city areas providing ready access to higher-paid jobs and services, and sprawling outer urban areas with significant social disadvantage. **Melbourne showed the largest population growth in fringe suburbs containing concentrations of social disadvantage pushed further towards the city edge.**

OPERATING COSTS OF LARGER HOMES

Another factor compounding affordability for residents is the operating cost of larger houses. **Gains in energy efficiency through building code regulations are outweighed by the growth in house size over recent years.** Despite the introduction of building code regulations which comprised minimum thermal performance standards, water saving measures and the requirement to install either a rainwater tank or a solar water heater, energy use in new dwellings is higher than those of existing dwellings. The energy drain from lighting was addressed with a new '6-Star' standard, which from May 2011, limits lighting energy usage in new homes.

However, **the star rating system has no impact on the size of the housing constructed**, Wilkenfeld (2007) concluded that "a major driver for increasing emissions from lighting, and a restraint on reductions from heating and cooling, is the increasing size of dwellings – the average new dwelling is estimated to have a 30 percent larger net conditioned floor area than the average existing dwelling" and recommends placing "some restraint on floor areas". There is a positive correlation between house size and the number of energy consuming appliances (Newton, 2011).

The perceived higher resale value of larger homes and the way that the construction costs of new homes are calculated by per m2 appear to be key factors promoting demand for larger homes (Moloney and Goodman, 2012). Pears (2011) analysed data which compared house size with cost per m2 and concludes that larger houses appear to be better value for money when marketed as a cost m2 because fixed costs that are independent of house size can be spread over the larger floor area. Pears concludes that **buyers rarely factor in the long-term costs of maintenance for larger houses or the costs involved in heating and cooling them.**

A survey by the Organisation for Economic Co-operation and Development (OECD, 2011) showed that **Australians are the least likely among western countries to consider energy use when buying a home, and the most likely to leave appliances on standby, or use cars for short trips.** Making accurate, ongoing costings of maintaining and servicing larger homes explicit at the time of purchase through a mandatory disclosure system might shift buyers' understanding of the true value of purchasing a larger home (Moloney and Goodman, 2012). The challenge is to change the priorities of home buyers and home builders, and how large or small and houses are rated and assessed for sustainability.

4.6   INTEGRATING TRANSPORT WITH LAND USE

EMISSIONS

The Australian transport sector contributed 20 percent of Australia's GHG emissions in 2019 (DEE, 2019) and grew by 55 percent between 1990-2015 (DELWP, 2019c). Road transport contributes 84 percent of transport sector emissions and must play a lead role in sector emissions reduction. Total vehicle kilometres across all Australian vehicle types and areas increased by 12.4 percent over the decade to 2015 (BITRE, 2016). Stanley, Ellison, Loader and Hensher (2018) show that although car travel in Australian cities is growing only slightly, urban car use is the major contributor to VKT, at 43.5 percent in 2015, and of road transport GHG emissions.

Reducing vehicle travel, including private car use, is therefore an essential element in any strategy to reduce Australia's greenhouse gas emissions. Although the role of specific variables such as density and public transport is debated, the type of urban form is a major contributor to the choice of vehicle travel. Changing from an urban sprawl model which entrenches car dependency to more compact models is essential in any strategy to reduce the contribution from the transport sector to greenhouse gas emissions.

PLAN MELBOURNE

An integrated metropolitan land use and transport plan will relate development in different areas of the metropolis to an overall plan and to transport needs for these areas. A strategic metropolitan land use plan, *Plan Melbourne*, exists. However, it does not relate outer urban growth effectively to broader metropolitan planning and continues a failing model of outer urban growth unrelated to transport needs. No transport plan exists for metropolitan Melbourne or for its outer urban growth corridors. Instead, a series of poorly connected transport projects are proceeding with little integration to an overall strategic plan.

Plan Melbourne seeks to re-shape greater Melbourne from a monocentric to a polycentric city through development of innovation and employment clusters and activity centres, and to encourage urban intensification across the established metropolitan area. However, it maintains extensive outer urban corridor development through car-based, relatively low-density housing separated from retail and other services with little local employment.

POOR ACCESSIBILITY

Infrastructure Australia has shown that over four million people in outer suburbs live outside acceptable walking distance from frequent public transport. **Accessibility is worst in Melbourne, with 1.4 million or 62 percent of people on the urban fringe disadvantaged.** Most new outer urban growth is occurring in areas without adequate or planned provision of public transport, with only around 12 percent of all current trips made on public transport. High capacity heavy rail services only 4 percent of the area and 24 percent of the population of Melbourne's outer suburbs, yet these suburbs contain 44 percent of Melbourne's population.

Most freeways and major arterial roads are at or near capacity. The proliferation of car-based retail centres further increases demand for car-based travel. Most outer urban retail centres are not linked to the rail system. Without bus or new transit technology links to rail stations and major activity centres, outer urban development will further isolate the 1.5 million new residents in growth corridors and maintain car dependency on increasingly congested roads.

Provision of new transport infrastructure which perpetuates a sprawling land use development model will fail to meet the transport needs of residents and perpetuate

current problems. A new development model of integrated uses, denser and more varied housing, walkable streets and town centres must determine transport needs. Major transport projects have such large city-shaping potential that **decisions about the form and function of a city should then guide the planning of transport networks** (Cervero 2014). Public transport infrastructure decisions can then meet these needs according to clear principles.

PUBLIC TRANSPORT

Firstly, all public transport services must be integrated so that local services such as tram, or medium capacity transit or bus services move people around neighbourhoods and connect people to activity centres and mass transit heavy rail stations. The idea of 20-minute neighbourhoods suggests that around 20-minute headways (3 services/hour) should be a minimum acceptable service standard for a local public transport service. If that frequency is applied from ~5.00am until ~11.00pm, to broadly integrate with train operating times, then 55 stops a day would be expected in each direction, as a minimum service level.

Service levels of below 40/services a day are the norm in outer suburbs, well below the benchmark 55 services/day. Services should be provided within 400 metres of all urban residences. **To reduce the need for multiple household vehicle ownership, areas to be served should be based on expected resident numbers/locations in two years' time, and provided ahead of development.**

Secondly, major new infrastructure aims to increase the capacity, attractiveness and efficiency of the existing network. Serious public transport infrastructure deficits are evident in all growth corridors. Large scale infrastructure improvements are urgently required to connect growth corridor residents to the polycentric clusters and activity centres and to the broader rail system. Melbourne Metro, for example, will link the northern and western lines with the south east and eastern lines, while the circular rail will provide additional connections to outer suburbs. The following works are needed:

Electrification of services to Wyndham Vale, Melton, Clyde, Roxburgh Park and Wallan

Duplication of line to Cranbourne.

Thirdly, **further segregation of regional from metropolitan rail services** through network re-configuration and selective track amplification can also add to the capacity of the metro system to service growth corridors. The use of an elevated two track system on the Dandenong line has removed the capacity for a dedicated express rail track to outer suburbs and a separated regional track.

Fourthly, the accelerated procurement of **higher capacity trains and trams** will also add to capacity of rail services to outer suburbs.

4.7   URBAN FORM

The urban form adopted for cities is a crucial factor underlying the performance of urban systems. In the mid-1990s the Australian Urban and Regional Development Review pointed to the imposition by the development industry of a "rigid conservatism" in outer urban housing design (AURDR, 1995: 127), a comment of enduring relevance to Australia's major cities

Houses often face inwards behind garage doors and are separated from work places and retail centres. Movement is largely restricted to the road network and is dependent mainly on private vehicles. Substantial distances must be travelled to reach even geographically

near destinations. This pattern has determined a generation's expectations of subdivision layout and housing type rigidly designed for a certain block size, and has reinforced conservative attitudes by the development industry of what will sell. Market choice is locked into a conservative and mutually reinforcing set of seller and buyer expectations.

The type and range of housing provided does not adequately meet Melbourne's housing needs. The National Housing Supply Council in 2011 noted two trends indicating the need for a greater diversity in housing. First, households of lone persons or couples without children are projected to grow in number at a far greater rate than those of families with children and in all regions; and second, that most regions will see a greater increase in demand for flats, apartments and townhouses than for detached houses (National Housing Supply Council, 2011: xv). Randolph (2004: 491) similarly outlines a disjuncture that can arise between social needs and the dynamics that emphasise a narrow range of housing stocks.

New suburban housing developments are increasingly marketed to a very limited range of households, with little variety in housing choice and tenure. The communities being produced are therefore imbalanced, and will continue to be so, for **estates of large single dwellings will be difficult to re-tool in later years for smaller households**.

LARGE, DETACHED HOUSES

Yet outer urban housing is still predominantly built as large detached houses. **The relative lack of dwelling diversity unnecessarily increases the price for many home buyers by forcing them to buy more expensive and larger houses than required.** There is a significant mismatch between the increasing size of outer urban houses and average household size. Between 1990 and 2008 outer urban houses grew by 39 percent reaching a mean size of 245m2, larger than any other country (Santow, 2009).

At the same time average household size is projected to continue to decline to below 2.3 people by 2026 (ABS, 2009-10). Large houses accounted for 44.7 percent of the market in 2007, a dramatic increase from 16.9 percent in 1990 (Goodman et al., 2010: 46). Detached housing made up around 90 percent of new houses built and the proportions have not changed significantly. There had been a shift from three to four-bedroom dwellings as the normal dwelling size on the fringe.

The vast majority of new dwellings (91.1 percent) contained three or more bedrooms, with those with four or more bedrooms comprising 52.4 percent of the total (Goodman et al., 2010). In recent years, average house lot sizes in growth areas have reduced because of a larger proportion of 350-450 square metre lots and a small proportion of attached dwellings, townhouses and apartments. However, this has meant cramming large houses onto ever smaller lots.

4.8   GOVERNANCE AND OUTER URBAN DEVELOPMENT

Many world cities have been able to achieve certainty of investment, development, infrastructure protection and amenity protection by gaining agreement between political parties, governments, industry and community on a strategic land use plan that is implemented over long time frames. Melbourne is not one of these cities. Victorian governments have developed 10 strategic metropolitan plans since 1971. Every one since 1992 has made fundamental changes to the previous one. Governments have failed to adhere to a consistent plan. In particular, the failure to adopt higher urban densities for new suburbs led to high consumption of corridor land and pressure to vary corridor boundaries. Governments were unable to resist rezoning ever more outer urban land to cater for forecasts of population increase.

POLITICISATION OF PLANNING

This path dependent approach has defined Melbourne's planning. **Even a legislated urban growth boundary introduced in 2003 was expanded five times between 2004 and 2013, and the original growth corridors broadened.** The politicisation of planning has undermined long-term, evidence-based, planning in the community interest. Such short-term horizons make long-term, infrastructure planning and integrated land-use-transport planning for a city of 6 to 8 million people impossible.

The capacity for Victorian governments to develop a metropolitan wide plan contrasts strongly with the fragmented governance arrangements of American cities. But the benefits of metropolitan-wide planning have been squandered through the adoption of fragmented governing structures. The 2002 plan, *Melbourne 2030*, objective of limiting outer urban growth to 30 percent of new housing required metropolitan wide governance to control land markets by shifting a large proportion of business-as-usual dwellings from growth corridors to the established city.

GROWTH AREAS AUTHORITY

However, the government established a Growth Areas Authority (GAA) with responsibility for outer urban development. This authority quickly promoted outer urban development as a measure of success. **No agency was given the responsibility for balancing dwelling numbers and types constructed in both the established and new suburbs, and limiting outer urban growth.** The Victorian Planning Authority (VPA), which succeeded the Growth Areas Authority, similarly promotes outer urban growth in isolation from broader metropolitan planning. The VPA's main instrument is the use of Precinct Structure Plans.

The Victorian government outlined its principles for improved outer urban growth corridor planning in a 1999 *State Planning Agenda: A Sensible Balance* as diverse housing types and sizes in walkable, better connected streets and mixed-use suburbs emphasising traditional retail precincts linked to public transport. However, the Precinct Structure Plans broadly fail to meet these objectives and continue to promote large scale outer urban growth regardless of the government's strategic objective of limiting such growth.

THE HOUSING MARKET AND THE DEVELOPMENT INDUSTRY

A metropolitan plan based on market intervention contradicts a planning system and market-based ideology designed to deregulate. Metropolitan plans which sought to shift market preferences and housing supply by limiting the supply of outer urban housing required intervention into land markets. A concentration of a small number of large development companies can also restrict the choice of housing products available to consumers (Evans, 2004) so determining housing preference. The Melbourne house construction industry is segmented into largely detached outer urban, medium-density infill housing in middle ring suburbs, and high and medium-density housing in inner suburbs.

Melbourne's outer urban housing market has been dominated for decades by a limited number of large companies. This market concentration can undermine the aim of metropolitan strategies to shift a high proportion of planned outer urban growth to activity centre locations. Metropolitan strategic plans require greenfield companies to modify long-established business plans and extend operations into unfamiliar construction types by shifting a significant percentage of their activity to the established city, and by increasing average residential density in greenfield development. **Instead, they purchased land adjoining the urban growth boundary around growth corridors and lobbied successfully for an expansion of the boundary.**

Property interests have long exercised a strong influence over the process of land release. In Victoria, governments identify land designated as 'future urban' but the process of land release is controlled primarily by a limited number of large development companies which own or otherwise control most of the greenfield land inside the UGB (AEG, 2008). The control of large areas of land by so few development companies has led to claims of uncompetitive behaviour in some of the outer urban areas, such as land banking and price control (Millar, Schneiders and Lucas, 2007).

Development companies develop the detailed planning for new suburbs and determine the timing and scale of land release. Instead of maintaining its strategy of redirecting growth, successive governments have returned to a policy of incremental suburban expansion. The 2008 strategic plan, *Melbourne @ 5 million* expanded the growth boundary by 43,000 hectares. The Baillieu Coalition government then expanded the UGB still further, by another 6,000 hectares in 2012 providing a thirty-year land supply at a low residential density. The effective abandonment of the growth boundary was among the most serious failures of metropolitan planning in Melbourne. This reversion to the business-as-usual model, coupled with State and Commonwealth financial policies and subsidies that foster outer urban development make a boom and bust housing cycle more likely, placing lower income house buyers at great risk.

5   NEXT STEPS

Despite attempts at reform and improved practice, certain fundamentals about the way we deliver growth area communities in Victoria have been entrenched for decades. Some of these will need to change if we are to create truly sustainable, liveable new communities. This will not be easy – but there are practical steps that can start us along a more enlightened pathway. Here we summarise What Needs To Change and Who Are The Government Players.

5.1   WHAT NEEDS TO CHANGE?

These are the fundamentals we seek to change:

Transport planning driven by road requirements

Value uplift capture insufficient to fund community infrastructure

Development and regulatory regimes not fit for purpose

Absence of town centres

Inadequate housing mix and density

TRANSPORT PLANNING DRIVEN BY ROAD REQUIREMENTS

Growth area suburbs and streets should henceforth be designed to facilitate healthy exercise and eliminate car dependency.

It may seem strange for a report about planning and development to highlight transport planning as its first issue. Several factors influence this stance. The majority of investment in transport infrastructure since 1945 has favoured roads over public transport, with the result that suburban growth in the last seventy years has occurred under the assumption that most residents will rely on cars for all their travel needs. The commencement thirty years ago of the Metropolitan Ring Road cemented this trend into place, reinforcing a reliance on cars that was already inbuilt into the design of the mall-based shopping centres.

While government infrastructure priorities have changed markedly in recent years, the planning of the growth areas continues to assume that the great majority of trips – even eminently walkable very short trips – will be by car. Hence the one-mile grid of 80kmh six-lane main roads upon which the growth areas continue to be structured, which effectively ensure that the new suburbs will remain islands of car use separated by highway barriers.

VALUE UPLIFT CAPTURE INSUFFICIENT TO FUND COMMUNITY INFRASTRUCTURE

When uplift in land value occurs as a result of growth area rezonings, the proportion captured by the community should be sufficient to fund provision *at the outset* of adequate community facilities and a dense network of frequent public transport services.

Ever since John Batman outflanked the colonial authorities by declaring Melbourne as the site of a village, speculation ahead of development has been a feature of planning in the state of Victoria. The growth areas are no exception to this rule. Melbourne's growth has mushroomed numerous times in its history, always in a context where the next ring of rural landowners anticipate and lobby for the rezoning that will uplift the value of their land by an order of magnitude. Even the introduction of the Urban Growth Boundary has not stemmed this impulse, with additions granted well ahead of the need for housing land in some instances.

The entrepreneurial spirit of speculation requires incentive to keep its flame alive. But the act of rezoning is a right bestowed by the community, and the community will carry the burden of funding much of the infrastructure and services necessary for the development. While progress has been made in recouping the cost of many of these services, more needs to be done to fund the community and public transport facilities and services that need to be in place from the outset. Their provision needs to be planned in advance in an integrated manner, across all the development streams.

DEVELOPMENT AND REGULATORY REGIMES NOT FIT FOR PURPOSE

The development and regulatory regimes in growth areas should be reformed to mandate the delivery of solar-oriented, environmentally sustainable dwellings, and to facilitate the development of zero-lot-line, patio-style housing in which private open space is agglomerated into useful garden space, not disaggregated into side alleys and token landscaping.

The split between land developer and builder has frustrated attempts to create truly sustainable housing in growth areas. Principles of good environmental design, particularly orientation of rooms and windows, count for less than features like size and style when purchasers choose a dwelling to sit on the lot they have bought. The bias in favour of detached dwellings is supported by a regulatory regime largely predicated on dwelling separation, resulting in useless side access passages that should be amalgamated into useable private open space.

It is debatable whether the radical reform of residential area design advocated in this report can be achieved with the present split between subdivider and builder. Nevertheless, we recognise the important role played in the economy by the house builders, some of whom provide an important outlet for small-business enterprise. Therefore we have attempted in our action plan, to propose reforms to the planning and building regime that might achieve at least some of the benefits advocated, assuming a continuation of the present housing industry arrangements.

ABSENCE OF TOWN CENTRES

Street-based, multi-use, employment-rich, sustainably accessed places with opportunities for urban living, should henceforth become the model for growth area activity centres, in place of private shopping malls separated from their hinterland by large car parks.

It is difficult and perhaps impossible to envisage a sustainable future for our growth areas without questioning the future of mall-based shopping centres. Before the motor age, we built multi-purpose town centres or shopping strips. These form the heart of the communities they serve; they are laid out on a public street system that is contiguous with the residential areas they serve; they include shops, but also civic and social activities, offices and (at least in the past) industries and people living above the shop. Want to start up a small business? You can dip your toe in the entrepreneurial water, or set up an op shop, by renting cheap premises on the fringe of the centre.

In a mall-based shopping centre, you can shop and grab a bite and not much else; access other than by car requires an eccentric perseverance, involving circuitous streets (*if* you happen to live close enough) and a walk across a large car park devoid of pedestrian pathways. Want to start a small business, work in an office or small service business? You'll likely have to find a segregated light industrial business park well-away from the residential area.

INADEQUATE HOUSING MIX AND DENSITY

Growth areas should in future attain a residential density sufficient to foster walking and cycling to local destinations, and to support a dense network of frequent public transport services

A much greater diversity of housing mix should be provided, with dwelling types located to support the needs of the occupants, equitable access to facilities and services, and sustainable transport options.

Growth areas may appear to offer affordable house-and-land packages, but the costs associated with multiple car ownership to access jobs, shopping, education and social life are high. Alternative housing configurations could provide the same standard of accommodation on smaller lots *and* provide more usable garden space. Many buyers would welcome the opportunity to save money on a smaller home, flexible enough to be extended when funds allow.

Currently the great majority of growth area housing is large, detached family dwellings. Yet we have known for years that households have been getting smaller and more diverse in their make-up and accommodation needs. Contemporary estates include an occasional terrace of town houses, in a location that seems randomly chosen. In future, a more balanced spread of housing types, from family houses to town houses and apartments, should be provided. The location of each house type should make sense in relation to proximity to facilities such as open space, shops, schools and so on.

HOUSING DESIGN

The Australian Institute of Architects should be encouraged to re-establish the Small Homes Service.

A Small Homes Service was established by Robin Boyd in the 1950s, offering simple, economic and environmentally suitable house plans. The Australian Institute of Architects could set up a new version of this service, as a way of shifting growth area homes into an era of design commensurate with the challenges described in this report. The government could promote this service, and could go as far as requiring this in all new estates as a condition of planning approval. The service would need to provide a clear link between the designs and the orientation and other characteristics of each residential lot.

5.2   WHO ARE THE GOVERNMENT PLAYERS?

The way our growth areas are planned and developed is determined by the State government and the housing industry. There are a bewildering number of State government ministers, departments and agencies involved in metropolitan and growth area planning. The major planning and regulatory agencies are:

    Victorian Planning Authority (VPA)

    Department of Environment, Land, Water & Planning (DELWP)

    Department of Jobs, Precincts & Regions (DJPR)

    Development Victoria (DV)

    Infrastructure Victoria (IV)

    Department of Premier and Cabinet (DPC)

    Department of Treasury & Finance (DTF)

    Department of Transport (DOT)

This dispersal of effort and fragmentation of responsibility undermines the effectiveness of State planning, and contributes to the difficulty of securing bi-partisan commitment to long-term metropolitan planning goals and policies. The politicisation of planning has

undermined long-term, evidence-based planning in the community interest. No agency has responsibility for balancing dwelling numbers and types constructed in both the established and new suburbs, and for limiting outer urban growth.

Simplified governance arrangements with broad-based political support should be introduced, with the power to deliver effective implementation of metropolitan strategic objectives in growth areas.

VICTORIAN PLANNING AUTHORITY (VPA)

This statutory authority grew out of the Growth Areas Authority (established in 2006) and has retained throughout the primary responsibility for growth area planning and development. The VPA reports to a Board chaired by Jude Munro, through its CEO Stuart Moseley. The responsible Minister is Richard Wynne, Minister for Planning.

DEPARTMENT OF ENVIRONMENT, LAND, WATER & PLANNING (DELWP)

The Minister for Planning, Richard Wynne, and his supporting department are responsible for administering the Victoria Planning Provisions and much of the Planning and Environment Act. Implementing our change agenda will require changes to relevant planning controls.

DEPARTMENT OF JOBS, PRECINCTS & REGIONS (DJPR)

Six Ministers lead specific aspects of this department's responsibilities, including the Minister for the Coordination of Jobs, Precincts and Regions (Martin Pakula), the Minister for Suburban Development (Shaun Leane) and the Minister for Regional Development (Jaclyn Symes). None of these has direct responsibility for growth area planning, but each plays (or could play) a significant role.

The Minister for Suburban Development is "...tasked with delivering More Liveable New Suburbs, and ensuring that Melbourne's newest suburbs are designed and developed to provide residents with the infrastructure, services and local job opportunities needed to create liveable and sustainable communities."

Regional Development Victoria (RDV) "...is the Victorian Government's lead agency responsible for rural and regional economic development. RDV operates in partnership with regional businesses and communities, and all tiers of government to deliver the Government's regional development agenda and instigate positive change for regional and rural Victorians."

DEVELOPMENT VICTORIA (DV)

DV takes on Declared Projects and projects referred by Ministerial Directive. At present none of these is in a metropolitan growth area.

INFRASTRUCTURE VICTORIA (IV)

Infrastructure Victoria is a statutory authority that carries out long term infrastructure planning for the State government.

DEPARTMENT OF PREMIER & CABINET (DPC)

The Premier and Cabinet have a direct interest in growth area planning in relation to macro political and economic issues like housing supply and housing affordability. Realistically, changes of the magnitude proposed in this report would need the backing of Premier and Cabinet to be fulfilled. In view of the political leverage at the disposal of the housing industry, this is no mean task.

Potentially, support for change might be forthcoming from the Office of the Victorian Government Architect, which is located in the DPC.

DEPARTMENT OF TREASURY & FINANCE (DTF)

The Treasurer of Victoria, Tim Pallas, and his department will have an interest in any changes mooted to the development contributions regime, or changes to land taxation. The revenue and spending implications of changed growth area planning methods will also be of interest.

DEPARTMENT OF TRANSPORT (DOT)

The Department of Transport is a major player in growth area planning and development, for reasons explained in this report. In 2019, the department was reorganised to integrate all road and public transport activities, including absorbing the previously independent authorities of Public Transport Victoria and VicRoads. The department now has an organisation structure that includes Network Planning, Network Integration and Transport Operations.

5.3   INTERACTION WITH THE VPA

An advance copy of the report was sent to the CEO of the VPA (Victorian Planning Authority) Stuart Moseley, as a result of which a meeting took place on 3 September 2020, using remote technology due to the COVID-19 lockdown. The meeting was attended by the five lead authors of this report, and Jude Munro (Chair of the VPA Board), Trevor Budge (VPA Board member), Stuart Moseley, Rachel Dapiran (Executive Director, Planning, Infrastructure & Technical) and Paul Cassidy (Director, Outer Melbourne).

The aims of the meeting, from Charter 29's perspective, were to check in with VPA's reaction to this report, and the extent to which VPA shares its concerns about the outcomes being achieved 'on the ground' in the growth areas; and to open discussion on the opportunities for improvement, and the role Charter 29 could play in generating a momentum for change.

The meeting was positive and constructive, and there was agreement on a number of the challenges confronting the VPA, and information conveyed about the VPA's recent progress in achieving improvements. The CEO suggested five key questions for collaboration, on the topic: How can Charter 29 achieve real change? These included:

- How to achieve the 70 percent proportion of residential growth, with more housing choice, in established Melbourne;
- Inputting to the VPA's current review of the PSP Guidelines;
- How to achieve a 'step change' in growth area density;
- Getting better infrastructure and services sooner; and
- Ensuring that execution is as good as the plan.

The VPA was keen that readers of this report should be clear about the Authority's role and functions, particularly the limitations. The role of the VPA is to adopt guidelines for development in growth corridors and to act as the strategic planning authority through Precinct Structure Plans (PSPs) to guide eventual development. It is not a development authority. Development approvals are made by local authorities in conjunction with a review of development plans by independent panels.

Charter 29 believes that this gap between strategy and development approvals is contributing to the often inadequate standard of growth area development. Improved

PSPs and a requirement for their implementation are both needed to improve the standard of development on the ground.

The VPA were also keen to convey that they are taking steps to pursue a number of shared goals, including achieving higher densities and increased walkability and open space. The PSP guidelines stipulate a minimum average density standard of 15 dwellings per developable hectare. About 120 separate PSPs have been adopted or are in the process of being prepared, generally meeting this standard. Many PSPs were adopted up to eight years ago and some more recent PSPs have included higher average densities. Up to 20 percent of some new developments is now being set aside as public open space.

Some possibilities of cooperative action between Charter 29 and the VPA were discussed, and these may come to fruition in parallel with Charter 29's plans to disseminate this report widely and, above all, to push for real change 'on the ground' in Melbourne's growth areas.

APPENDIX: AN EXEMPLAR FROM THE 1970s

Vermont Park on the Burwood Highway is one of a number of innovative residential developments by Merchant Builders, a firm whose founder eventually became Victoria's Secretary for Planning (in the 1980s). While it is of a much lower density than should be countenanced today, nevertheless it provides a powerful, practical example of benefits of integrating the design of homes with the 'public' spaces in which they are situated.

Instead of designing a housing development of 20 houses with a road down the middle and 10 houses on each side, Merchant Builders placed clusters of four groups of five houses on the corners of the Winter Park estate with a shared park running in between. Each home retains a small private garden but the main space is shared, run by a body corporate. (Ray Edgar, SMH, 02/11/2016)

Winter Park in Doncaster is by the same designer as Vermont Park – Graeme Gunn – and is broadly contemporary with Vermont Park.
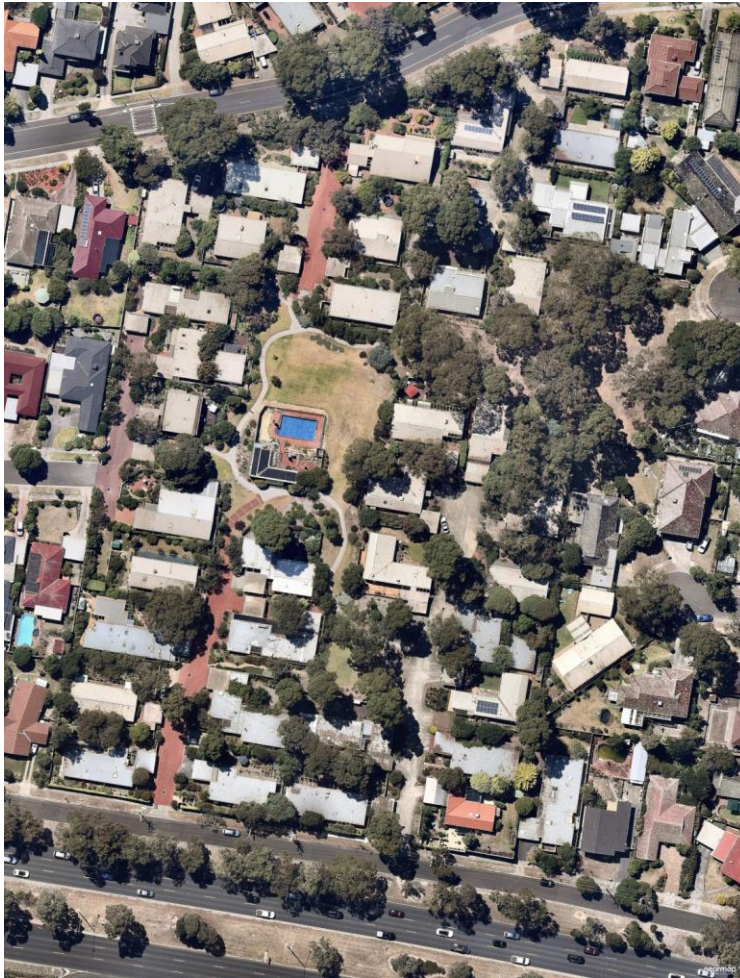
The ground plan of Vermont Park includes extensive communal areas, landscaped and maintained to a high standard more than forty years after construction. The vehicular access areas are landscaped to such a high standard that they contribute positively to the estate's high quality pedestrian circulation systems.

A typical 'garage court' at Vermont Park. Actually, most cars are accommodated under car ports. Even though the car ports can be said to dominate the frontages to the court, the fact that they are open, their spatial arrangement, and the luxuriant landscape make these areas positively attractive as walking environments.
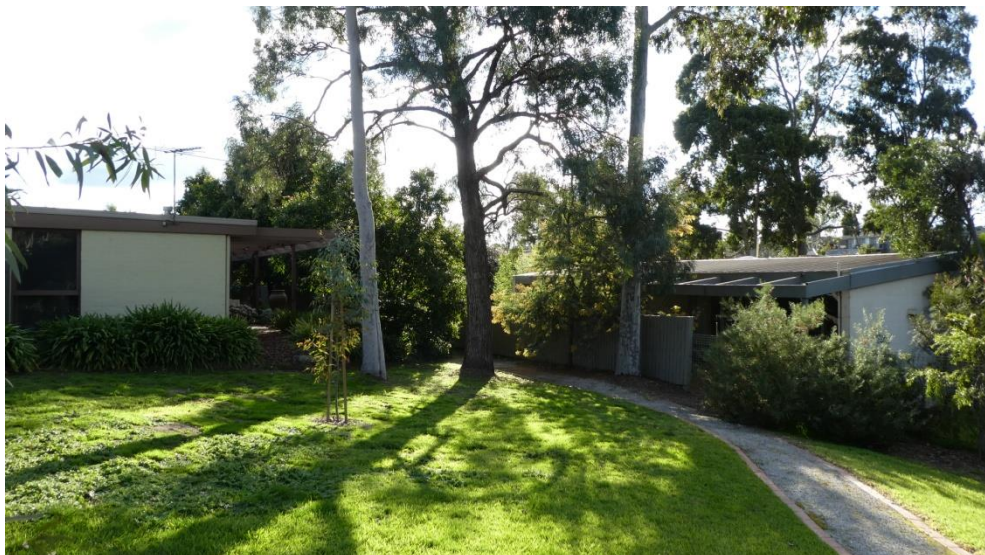
While it is pleasant to wander around the communal areas of Vermont Park, but in today's design syntax there is potential to improve the way the homes interact with the public spaces, particularly in terms of passive surveillance.

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