

**URBAN CONSOLIDATION IN  
MELBOURNE 1988–2003:  
the policy and practice**

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September 2004

## Preface

This paper is a continuation of earlier research in 1998–1999 on medium density housing in Melbourne (Buxton and Tieman 1999). The report *Medium Density Housing in Melbourne: A Case Study of Four Municipalities* gained extensive press coverage and received widespread interest. Since then, there has been a lack of research focused at the local scale regarding the development of medium density housing in Melbourne, Miles Lewis' *Suburban Backlash* being one notable exception. Similar research has been carried out for Sydney by Bunker, Gleeson, Holloway, Randolph and others.

Here, we have provided a longer time series for an analysis of trends. The context for this paper is also different to the earlier one. While the earlier research took place in the framework of *The Good Design Guide*, the current context is set by *ResCode* and *Melbourne 2030: Planning for Sustainable Growth*.

This monograph describes the changing nature, location, and extent of urban consolidation in Melbourne in the context of government policy, and the impact on the dwelling stock and populations. It also compares, for two periods, 1997–98 and 2002–03, the amount of medium density development categorised by development size, approved in four municipalities (Boroondara, Stonnington, Port Phillip and Yarra) and its location particularly in relation to public transport, and maps the locations. The paper draws conclusions from these trends for the operation of medium density codes in Melbourne, and for the new metropolitan strategy.

The research was funded by the School of Social Science and Planning, RMIT University as part of the Environment and Planning research program.

The staff at the Building Commission Victoria provided access to 2002–03 unpublished data on municipal building approvals and assisted in many other ways. The project could not have been completed without their cooperation. We also thank the Councils of Boroondara, Port Phillip, Stonnington and Yarra for access to planning approval data for 1997–98. We wish to acknowledge the technical contributions of Lotta Lilja, Damon Rao and Simone Alexander for mapping the location of medium density developments, and mapping and analysis of locations in relation to public transport.

We thank also the Environment and Planning area, and all those who contributed their comments to earlier drafts of the report.

We trust the result justifies the interest and efforts of so many.

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## Executive Summary

### Introduction

This monograph starts from the proposition that if the Victorian government is to achieve its objectives for a more compact Melbourne, a better understanding of recent trends and impacts of medium density developments is needed. Thus, a primary aim is to contribute to this understanding and thereby assist future policy development.

Urban consolidation can occur in three main ways. Firstly, governments can plan for consolidation by identifying suitable locations usually near public transport locations or on redevelopment sites. The former Victorian Kennett government identified 620 redevelopment sites with a potential yield of 60,951 dwellings mainly in the inner and middle ring suburbs. Between 1995 and November 1997, 8143 dwellings were completed on these sites in inner and middle ring suburbs and only 828 in outer municipalities (DOI, 1997). The current Labor government is continuing this approach by nominating mixed use activity centres. Secondly, intensification can occur through incremental market led redevelopment of existing housing and building conversions anywhere in a city, as is provided for under *ResCode* and its predecessor, the *Good Design Guide*. The third method is to require increased urban densities on the urban fringe.

The paper describes the changing nature and extent of urban consolidation in Melbourne in the context of government policy from the late 1980s to 2003. It also compares, for two periods, 1997–98 and 2002–03, the amount of medium density development categorised by development size, approved in four municipalities (Boroondara, Stonnington, Port Phillip and Yarra) and its location particularly in relation to public transport. These elements form an important aspect of the debate on medium density development in Melbourne.

The project defines three main categories of development: small scale development between 1–9 dwellings, further divided into developments of 1–2 and 3–9 dwellings; medium scale development between 10–50 dwellings, and large scale developments containing 51 or more dwellings. High-rise developments and building conversions are also identified.

The Australian Bureau of Statistics (ABS) Building Approvals underestimate the amount of medium density housing by classifying multiple detached housing as “houses” and not as “medium density housing”, when in fact a substantial amount of medium density housing consists of detached housing (such as multiple townhouses) on one or more lots. The four municipalities of Boroondara, Port Phillip, Stonnington and Yarra together account for more than twenty percent of multi-unit dwelling approvals in Melbourne.

## Metropolitan Overview

Residential development in Metropolitan Melbourne over the past fifteen years has been characterised by an increase in multi-unit dwellings, both numerically and as a proportion of total approvals but also by the spatial concentration of these multi-unit developments. Annual multi-unit dwelling unit approvals increased from 1704 dwellings in the national recession year of 1990–91 to 12,362 dwellings in 2002–03, an increase of over 600 percent. In 1988–89 multi-unit developments accounted for 10 percent of total dwelling approvals. However, in 2002–03, they accounted for nearly 35 percent of new dwelling approvals.

The supply of multi-unit development was significantly less volatile than the demand for new houses over the period 1988–89 to 2002–03. Slumps occurred in new, detached housing approvals in Melbourne in 1995–96 to 1996–97, and again in 2000–01, while multi-unit approvals grew steadily with only a minor decrease in 2000–01.

This increase in multi-unit dwelling approvals translated into a modest shift in the composition of Melbourne's dwelling stock. In the ten-year period 1991–2001, multi-unit dwellings as a proportion of the total dwelling stock increased from 21.4 per cent to 24.6 percent, while that of detached housing fell from 77 per cent to 74 per cent (ABS 2003b). While multi-unit developments represented 42 percent of the net increase in the dwelling stock for the period 1991–2001, the impact on the overall housing stock was much less.

The proportions of multi-unit and detached housing are almost inverted when compared between the 15 inner suburbs and 16 outer suburbs. While 90 percent of the increase in dwelling stock in Inner Melbourne was multi-unit forms of housing, in Outer Melbourne 90 percent was detached. Also, for the period 1991–2001, twice as many housing units were constructed in Outer Melbourne compared to Inner Melbourne, 134,479 dwellings and 66,382 dwellings respectively.

Scale alone does not give the full picture of multi-unit development in Melbourne. The spatial distribution of multi-unit housing across Melbourne is highly uneven. Inner Melbourne, made up of 15 municipalities, accounted for 9,923 of 12,386 multi-unit dwelling approvals or 80 percent of all multi-unit dwelling approvals within the Melbourne Metropolitan Region in 2002–03. While Inner Melbourne accounted for approximately 40 per cent of total new dwelling approvals, it accounted for less than 20 percent of Melbourne's population growth between 1996 and 2001, with the proportion of population growth contributed by Inner Melbourne decreasing. Between 1991 and 1996 Inner Melbourne accounted for 17.7 percent of Melbourne's population growth. This fell to 16.5 per cent for the five years 1996–2001 despite a high number of dwelling approvals.

Over the period 1995–96 to 2002–03, a significant shift occurred in the type of multi-unit dwellings approved in Victoria, with a decline in the proportion of attached dwellings and townhouses and an almost doubling in the proportion of flats, units and apartments



from 34 per cent to more than 65 percent of multi-unit approvals. This has been accompanied by a clear trend towards multi-storey buildings. The proportion of flats, units or apartment approvals in a building of four or more stories has been consistently high, and in 2002–03 accounted for 86 per cent of new approvals (ABS 8731.2 various years).

### **Case Study of Four Municipalities**

The four Melbourne municipalities of Boroondara, Port Phillip, Stonnington and Yarra were selected for more intensive study of the trends in urban consolidation and the implications of these trends. They were selected because together they accounted for a significant proportion of Melbourne’s multi-unit developments, 32 per cent in 1997–98 and 23 per cent in 2002–03. The largest number of multi-unit dwelling approvals occurred in the City of Melbourne, which accounted for almost 36 per cent of total multi-unit approvals.

A number of trends are evident in the municipalities of Boroondara, Port Phillip, Stonnington and Yarra from ABS figures (ABS, 2003a) in terms of changes in dwelling stock and population growth, and in the scale and height of medium density developments. These four municipalities experienced growth in their dwelling stock over the period 1991–2001, particularly Yarra and Port Phillip. In the ten-year period, the housing stock in Boroondara grew by less than five per cent, in Stonnington by seven percent, in Yarra by 11 per cent, but by 17 per cent in Port Phillip. Multi-unit dwellings accounted for all of the increase in dwelling stock in Boroondara, Stonnington and Yarra, and 95 per cent of the increase in Port Phillip. This compared to an average of 18 per cent across Metropolitan Melbourne (ABS 2003b). In the first three of these municipalities the stock of detached housing decreased over the period 1991–2001.

The pattern of multi-unit dwelling approvals varied significantly between the four municipalities. The increase in multi-unit dwelling building approvals was highest in Port Phillip, rising from 232 dwellings in 1995–96 to 1711 in 2002–03 a 630 per cent increase. Dwelling approvals in Yarra rose from 250 in 1995–96 to 640 in 1998–99, only to slump to around 450 since 2001–02. Stonnington experienced a fall in dwelling approvals from almost 500 in 1995–96, and 600 in 2001–02 to 315 in 2002–03. In Boroondara multi-unit dwelling approvals peaked at more than 400 in 1999–00 only to slump in the following two years before recovering to 372 dwelling approvals in 2002–03. For the first time, in 2002–03, the number of multi-unit dwelling approvals in Boroondara was greater than that of detached housing (ABS 8731.2).

The trend to higher rise construction is evident in these municipalities. While limited data is available for 1997–98, approximately 50 per cent of the dwellings approved in the municipalities of Port Phillip, Stonnington and Yarra in 2002–03 are four storeys or more, and therefore not regulated by Clause 55 of *Rescode*.

In all four municipalities the number of approvals of 9 units or less is a significant proportion of total “medium density” dwelling approvals but this percentage is falling.

The number of dual occupancy and small scale dwellings (between 1–9 units) as a percentage of total medium density dwellings also varied between the four municipalities. In 2002–03 the percentage ranged from a high of 59 per cent in Boroondara to 42 per cent in Stonnington, 42 per cent in Yarra, and low of 22 per cent in Port Phillip. This compares to 1997–98 where small scale medium density developments represented 87 per cent in Boroondara, 47 per cent in Yarra, 38 per cent in Stonnington and a low of 32 per cent in Port Phillip (Buxton and Tieman, 1999).

There were significant differences also between the four municipalities on the distribution between medium (containing 10–50 dwellings) and large scale (51+ dwellings) developments. Large scale developments comprised a higher proportion of approvals in Yarra and Port Phillip than in Boroondara and Stonnington;. Dual occupancy approvals remained a significant proportion of medium density approvals (comparing 1997–8 and 2002–3) and contributed substantially to the number of development permits issued. The methodology used, in identifying ‘detached’ medium density dwellings, indicated that medium density housing was significantly higher than when relying on ABS figures, particularly in Boroondara, where small scale developments predominated.

### **Location of medium density developments**

The location of development in 1997–98 and 2002–03 varied significantly across the municipalities studied. Medium density approvals in Boroondara in 1997–98 and 2002–03 remain largely dispersed. Developments remained more concentrated in Port Phillip, Stonnington and Yarra, increasing in Port Melbourne and South Melbourne, Beaconsfield Parade, Toorak-Kooyong and Fitzroy/Collingwood. Larger developments tended to be concentrated in the two municipalities closest to the CBD, Yarra and Port Phillip and those parts of Stonnington nearest the CBD. Medium scale and large scale approvals tended to be concentrated around activity centres in all four municipalities.

While the number of medium density development approvals within 400 metres of public transport fell significantly in the four municipalities studied from 607 in 1997–8 to 428 in 2002–03 because of the fall in the approval of small scale dwellings (containing 3–9 dwellings), the proportion of medium density developments in proximity to public transport increased from 85 to 95 per cent.

A low percentage of permit approvals for all categories of development were located within 400 metres of a rail station for all municipalities: in 1997–98, it averaged 11 per cent. This figure increased to 17 per cent in 2002–03, with increased proximity to rail across all sizes of developments. These figures demonstrate that medium density approval proximity to rail is the lowest of all modes of public transport. However, the larger the development, the greater the proportion of permit approvals in proximity to rail transport.

Also, the study found a significant increase in the proportion of dual occupancy developments within 400 metres of public transport, but particularly train and bus, from

85 per cent in 1997–8 to 95 per cent in 2002–03. There were significant differences in proximity by development category to mode. In 1997–98, only 14 per cent of all total small scale approvals in Boroondara (1–2; 3–9 dwellings) and 19 per cent in Port Phillip were within 400m metres of a rail station compared to 39 per cent in Stonnington and 41 per cent in Yarra. For all modes, much higher percentages were located within 400 metres of tram or bus routes in the four municipalities, and a very high concentration of medium or large scale approvals within 400 metres of all modes, with almost identical figures in 1997–98 and 2002–03. This is a consequence of the extensive public transport system in Melbourne’s inner suburbs.

## **Discussion and conclusions**

The continuing rise in the proportion of multi-unit dwelling developments in total new dwelling approvals demonstrates the substantial nature of changes to dwelling preferences in Melbourne. Fewer detached houses were constructed in Melbourne in 2002–03 than in 1988–89 while the number of multi-dwelling developments had increased four and one half times. Medium density housing accounted for the entire 9,000 increase in annual dwelling approvals during this time. Urban consolidation policy is also being implemented unevenly across Melbourne. Higher rise and larger developments have been concentrated in inner urban activity centres with little indication of industry interest in redevelopment of outer area activity centres.

To relate to *Melbourne 2030* projections it is important to consider some dimensions of the impact of this housing development shift. The first impact is that on population trends. Despite the growth in medium density housing and its concentration in inner Melbourne suburbs, more than eighty percent of Melbourne’s growth in population is still occurring in Outer Melbourne where 60 per cent of new housing is being approved. Demographic trends across Melbourne before 1991 showed a steady decline in the populations of middle and inner suburban areas. This trend has since reversed, particularly in inner suburbs, however the proportion of population growth contributed by Inner Melbourne is still decreasing overall. The growth in dwellings may not translate into population targets, particularly in middle and inner suburbs, where dwelling occupancy rates continue to fall and demolitions reduce the net rate of increase in dwelling stock. This divergence has implications for housing construction, for example, implying the need for the construction of an additional 3,462 dwellings within the City of Port Phillip compared to what would have been required in 1991 to house the 1996 population, and a further 3,009 to house the population of 2001. This suggests that the micro population targets set as part of *Melbourne 2030* may be difficult to achieve.

Demolitions affect the total number of dwelling approvals required to meet *Melbourne 2030* targets. In the context of an existing total dwelling stock for Melbourne (MSD) of 1,230,000 dwellings, an efficiency rate (that is, new dwellings minus demolitions of existing stock divided by total dwelling approvals) of 80 per cent will require an additional 531,000 medium density dwelling approvals instead of the 425,000 dwellings

projected in existing suburban Melbourne by 2030. An efficiency rate of 60 percent will require an additional 708,000 dwelling approvals.

The declining proportion of small scale, dispersed developments (3–9 dwellings) in total medium density approvals in the inner and middle ring suburbs of Melbourne reflects the impact of stronger standards in *ResCode* and changing market preferences.

The issue of population gain in the inner suburbs raises further difficulties for the implementation of *Melbourne 2030*, particularly, the concentration of multi-unit development in the inner areas of Melbourne, the shift towards larger and medium scale developments, and the trend to higher rise apartments and attached units in place of other types of multiple dwelling projects. *Melbourne 2030* aims to direct 425,000 new dwellings, 70 per cent of the total, into the existing metropolitan area by 2030, including 255,000 dwellings into over 100 nominated activity centres. Most of these dwellings will be in medium density or high rise developments. The figure of 425,000 dwellings would be almost double the recent urban consolidation rate, as maintaining the current rate of 80,888 medium and high rise dwellings built in the decade 1991–2001 (see Table 2) would yield only 242,664 dwellings over the 30 year period of the strategy. This projected increase in higher rise developments may accentuate the trend to lower average dwelling occupancy rates with implications for the achievement of population targets. The trend towards more multi-storey apartment buildings is likely to continue. Since the mid-1990s this has resulted in an increasing proportion of approvals fall outside the scope of medium density codes. In 1995–96 the *Good Design Guide*, applied to just over 80 per cent of multi-unit development approvals. In 2001–02 *ResCode* applied to 62 per cent and by 2002–03 to only 43 per cent of multi-unit development approvals. This trend, reflects changing cost structures and industry avoidance of *ResCode* requirements which only apply to buildings up to three stories.

The population targets of *Melbourne 2030* raise a number of other difficulties. *Melbourne 2030* proposes the construction of 80,000 additional dwellings in the municipalities of Melbourne, Port Phillip, Yarra and Stonnington (part), an amount equal to the total number of medium density and high rise dwellings constructed in metropolitan Melbourne between 1991 and 2001. Large areas of Melbourne's inner suburbs could potentially be redeveloped under this policy, yet these are already the most compact areas with the highest heritage value. Further concentration in these areas, unless carefully located, is likely to place additional strains on their ability to absorb major population increases. A more targeted program of developing nominated infill sites may be required.

In addition, allowing unregulated higher rise construction outside nominated activity centres could undermine the *Melbourne 2030's* locational strategy of concentrating development in mixed use centres close to public transport and clash with perceived heritage and amenity values. A further 170,000 dispersed multi-unit dwellings are proposed in suburban streets out of activity centres. Typically this form of development favours dual occupancy and small scale medium density developments which with relatively high levels of dwelling demolitions, achieve low efficiency rates. These incremental developments have a greater potential impact on neighbourhood character,

and thus to cause local conflict. This was the experience of middle class suburbia in Melbourne in the late 1990s.

To turn from reasons why the population absorption projections of Melbourne 2030 may be flawed, to transport utilisation policy, urban intensification may not lead to increased public transport use unless other factors, such as controls over car parking and urban design, operate (Frank and Pivo, 1994, Van and Senior, 2000, Hanson, 1982). These findings are supported by the research results in this paper on location of medium density development. The high percentage of total approvals within 400 metres of public transport suggests a high transit orientation. However, it is likely that locational decisions were affected more by factors such as proximity to cosmopolitan centres or the Bay than to public transport. Rail travel is the fastest mode of public transport travel but the lowest frequency of approvals occurs within 400 metres of train stations. Accessibility to bus routes raises the figures for proximity to public transport in all municipalities studied, but travel times for trams and buses are high compared to trains and few bus services operate in the evening or at weekends. A high proportion of medium density developments are gated and provide generous car parking spaces, a model of urban form which promotes car use.

In conclusion, for urban consolidation to have a major impact on population and dwelling density in Melbourne, consistent four to six storey development will be required on nominated development sites and in appropriate locations in activity centres. Higher rise development is likely to continue to be concentrated in inner suburbs located in accordance with new planning controls. Smaller scale dispersed development throughout the metropolitan area will have a more limited impact. In the absence of government intervention and new planning tools, there are likely to be problems in achieving housing diversity and affordability. In the outer suburbs, it may be difficult to attract higher residential densities to activity centres while market resistance to medium density developments there continues. The low proportion of medium density development in urban Greenfield growth corridors discussed earlier is therefore unlikely to change without the State Government requiring a substantial increase in the minimum average gross residential density to at least double the current average of 9.6 lots per hectare. In addition, options for future density increases there are limited because of the extensive use of single dwelling covenants.

In essence the urban consolidation objectives of *Melbourne 2030* will be undermined where there is policy confusion involving some signals which seek urban consolidation and other signals which allow urban dispersal through low outer urban greenfield densities. This confusion will create conditions where the model described by O'Connor and Stimson (1996), O'Connor (1998), and Brothie et. al. (1993, 1995) of a multi centred metropolis based around regionally self-contained suburban areas functionally connected by freeways through an ever widening commuter belt is more likely to describe the future shape of Melbourne than the patterns outlined in *Melbourne 2030*.

## 1.0 Introduction

### The urban consolidation debate

The debate over the costs and benefits of urban consolidation has perhaps never been more important given the rise in the importance of sustainability principles as a basis of planning, the growth of mega cities and development pressure on countryside. Urban consolidation is typically defined as an increase in population and/or dwellings within an existing urban area (Roseth, 1991), or the fullest use of an existing urban area (Lock, 1995). Intensification refers to both built form and activity (Williams, Burton and Jenks, 1996).

Urban consolidation has been justified on economic, social and environmental grounds. The claimed benefits have been broadly classified by Neilson Associates (1985) as improved economic efficiency in the use of urban infrastructure, land and buildings; reduced development costs; better utilisation of existing facilities; structural benefits through improved access to employment and services; and greater diversity in population and housing. To this list can be added the conservation of land and resources by limiting outer urban expansion (Breheny, 1996); the reduction of energy use through energy efficient buildings and less reliance on private vehicle use (ECOTEC, 1993; Owens, 1986; Banister, 1992), greater social interaction (Jacobs, 1961), Katz, 1994), and increased housing affordability.

These claims have been analysed extensively. Searle (2003, 2004), and Troy (1996) have identified constraints in the capacity of the urban fabric to accommodate increased densities. Newton (2000) has pointed to the strong comparative environmental performance of compact city forms, and Frank (1998) and Cervero and Gorham (1995) have shown that reduced Vehicle Kilometres Travelled (VKT) and VKT per hectare by residents of multi mode mixed use centres leads to lower air emissions compared to car based separate use suburbs. Masnavi (2000) found lower car use in higher density mixed use suburbs. Typically, households in higher income inner areas of Australia's cities own fewer cars per capita than households in outer suburbs and are less liable to use them for work. However, even when urban densities are increased, a range of other factors such as car dependent urban form, low public transport quality, lack of local employment and energy inefficient building design can lead to inadequate environmental and social outcomes. Higher density has led also to uneven results in housing affordability and diversity (Burke and Hayward, 2001; Yates 2001). O'Connor and Healy (2001, 2004) argue that Melbourne's inner urban consolidation has not weakened the importance of outer urban regionally self contained centres and that this requires a re-examination of the notion of "urban sprawl". Bunker, Gleeson, Holloway and Randolph (2002) describe urban consolidation in Sydney in terms of location and dwelling type, and Buxton and Tieman (1999) completed the same exercise for Melbourne.

Intensification can occur in three main ways. Firstly, governments can plan for consolidation by identifying suitable locations usually near public transport or on redevelopment sites. The former Victorian Kennett government identified 717 redevelopment sites with a potential yield of 72,175 dwellings mainly in the inner and middle ring suburbs. Between 1995 and November 1997, 8143 dwellings were completed on these sites in inner and middle ring suburbs and only 828 in outer municipalities (DOI, 1997). The current Bracks Labor government has nominated over 100 mixed use activity centres in its metropolitan strategy, *Melbourne 2030*, for development, and has identified 1210 sites with a potential yield of 87,366 dwellings, 57,810 in 15 inner municipalities (DOI, 2002a). Other Australian governments have also moved to identify suitable redevelopment sites. For example, in Sydney, 487 hectares were nominated for redevelopment in the inner south for eventual resident and workforce targets of 20,000 (Spiller Gibbons and Swan, 1998). The current Victorian Labor government is continuing this approach by nominating mixed use activity centres.

Secondly, intensification can occur through incremental dispersed market led redevelopment of existing housing lots and building conversions in a city. The Victorian Minister for Planning's Projects Steering Committee estimated in 1993 that half of Melbourne's projected population increase of 280,000 by 2003, could be accommodated in established areas using a modest target of generally less than five per cent population increase (DPD, 1993). By 1996, new housing starts on the urban fringe in Melbourne had fallen to fifty per cent down from eighty per cent in 1994 (MacLellan 1996). Reynolds and Porter (1998:63) and the Department of Infrastructure (1998a) showed that inner city municipalities gained rather than lost population in the mid 1990s and that this represented "a sharp reversal of past patterns of urban growth". Despite its focus on activity centres, Melbourne's strategic plan also anticipates the construction of 170,000 new dwellings anywhere in existing residential zones by 2030, 28 per cent of the total, compared to 255,000 in activity centres, thus both continuing the former Kennett government's policy of promoting metropolitan wide consolidation, as well as adopting a policy of more targeted consolidation.

The New South Wales government projected an increase in multi-unit housing in Sydney as a proportion of new dwellings from forty two per cent in 1995 to sixty five per cent by 2001 (Holliday and Norton, 1995). Daly (1998) showed that from the middle 1990s inner Sydney suburbs recorded both an absolute and relative population increase, and that a surge in property values occurred compared to middle and outer zones.

The third method is to require increased urban densities in planning approvals for development on the urban fringe. Australian state governments continue to allow development on the urban fringe at densities which are among the lowest in the world. The Victorian government seeks to achieve an increase in average residential density in growth corridors from the current 9.6 lots per hectare to about 15 (DOI, 2002b). Many other states have adopted similar aims without mandating minimum densities. The New South Wales government planned to increase the dwelling density on the urban fringe from 11 lots per hectare to 15 by the year 2011 (Holliday and Norton, 1995). The Queensland state government adopted the same target for its south eastern outer urban

growth areas of Brisbane and South East Queensland (Minnery and Barker, 1998, Buxton and Searle, 1997).

This objective is well below the averages for green field development in most other countries. For example, the U.K. White Paper on urban development argued that the average density of 25 dwellings per hectare “squandered land” at very low densities and compared unfavourably with the 35–40 average of older suburbs and the densities in many other countries (DETR, 2000:43).

Australian state governments generally have facilitated the second approach, avoided the third and are showing increasing interest in the first. If the Victorian government is to achieve its objectives for a more compact city, a better understanding of recent trends and impacts of medium density developments is needed. This paper aims to contribute to this understanding and assist future policy development.

The paper provides a brief outline of the different multi-unit development codes in Melbourne in the 1990s and their evolution. Local strategies for residential development are examined through the response of four Councils to *Melbourne 2030*. The paper also describes trends in urban consolidation in Melbourne and compares, for two periods, 1997–98 and 2002–03, the amount of medium density development categorised by development size approved in four municipalities (Boroondara, Stonnington, Port Phillip and Yarra) and its location particularly in relation to public transport. The paper draws conclusions from these trends for the operation of medium density codes in Melbourne, and for the new metropolitan strategy.

### **Urban consolidation policy in Victoria since the 1990s**

Models of governance affect the choice governments make between the three urban development options outlined above. From the early 1970s until the early 1990s medium density development in the Melbourne metropolitan area, in the State of Victoria, was controlled by municipal council “flat codes”. These were non statutory local attempts to direct and control the type, design, location and density of medium density development, and varied greatly between councils. In effect, they constituted informal local policy. These codes were possible because under the former Melbourne Metropolitan Planning Scheme (MMPS), multi-unit development required a planning permit. The Melbourne and Metropolitan Board of Works also introduced dual occupancy provisions into the MMPS through Amendment 150, in 1981, and other provisions such as clauses providing for on-site car parking, landscaping, and provision of daylight in 1979 under Amendment 30. These provisions were continued in the Regional Sections of all planning schemes after 1988 when local planning schemes replaced the MMPS. These codes represented what today would be called “local variations” but operated in the absence of mandatory state policy. Many codes zoned land in a municipality by differential density controls, using strict density limitations to discourage development over certain areas. Provided they did not seek to prohibit development and were worded precisely, these codes were generally upheld by the appeals body.



*The Victorian Code for Residential Development (Multi-Dwellings)*, or *VicCode 2* was introduced into Victorian planning schemes in December 1993. Metropolitan councils were required to have regard to its provisions where a planning permit was required for three or more dwellings or a dual occupancy in any urban zone or on reserved land. Non metropolitan councils were not required to use the Code.

By mid 1994 considerable opposition to *VicCode 2* had developed with local opposition focused on a number of contentious development proposals (Eccles, 1995). One particularly contentious application was a proposal for six units on a site in Monomeath Avenue Canterbury once owned by former Victorian Premier Sir Rupert Hamer. The house on the site was demolished and the Planning Minister, Robert Maclellan called in an appeal by the applicant against council refusal and directed that a permit for three units be issued. Considerable media attention led the government to recognise that the code was “found wanting in certain aspects, particularly those related to the impact of medium-density development on the more traditional suburban neighbourhoods” (DPD, 1995a:1). In August 1994 the Minister for Planning, Robert Maclellan, announced a review of the code by an independent *VicCode 2* Review Panel (1994) “to identify and remedy any defects in the Code, and to improve it in the light of experience” (DPD, 1995a:1). As a result the government introduced *The Good Design Guide for Medium-Density Housing* (DPD, 1995b), in July 1995. This was a redraft of *VicCode 2* and applied when an application for a planning permit was considered on a site for the use or development of two or more dwellings, other than a moveable dwelling unit, not exceeding four stories, or of one dwelling on a lot less than 300 square metres, extensions to such dwellings, and in the metropolitan area the use or development of a residential building such as a boarding house. The density criterion was the only prescriptive quantified technique in the *Good Design Guide*. This enabled it to be understood and used consistently, and to override the subjective non-mandatory elements such as neighbourhood character (Element 3), and generalised state and local planning policies. The Government made a number of alterations to process by introducing a standing advisory committee to consider local variations, overlooking, and the possibility of neighbourhood agreements.

The government argued that medium density housing would provide greater diversity of housing choice both in established areas and on the urban fringe, better match house size and type with population changes and individual and community needs, increase the supply and diversity of affordable housing, help limit outward urban growth, locate denser housing closer to public transport, and reduce the wasteful use of infrastructure and energy costs (DPD, 1995a:1).

Although the *Guide* was a response to criticism, the government showed little sign of significantly changing its development facilitation position. Public opposition continued such as a public meeting organised by the umbrella resident group Save Our Suburbs at Hawthorn Town Hall on 24 February 1998 attended by one thousand people (Lewis 1999). Prior to the September 1999 Victorian state elections the Kennett government announced a number of further limited changes. For example, Quigley (1998: 4) argued

that the *Good Design Guide* could not be “just a guide” because its application was mandatory. The then Minister, Robert Maclellan, responded by releasing a Medium-density Housing and Residential Development Action Plan through a Parliamentary statement on 25 February 1998. This plan criticised as incorrect the perception that the “Good Design Guide is an inflexible, State Government imposition on local communities which restricts their ability to reject bad development proposals, protect neighbourhood character and improve residential amenity”. It described the *Guide* as a framework for decision making through criteria for assessing applications (DOI, 1998a) repeating the statement in the explanatory report to Amendment SR3 that the *Guide* is “simply a set of guidelines” (DPD, 1995c). A code can be mandated but may still only guide decision making. Subjective, general and discretionary provisions require interpretation and lead to inconsistent decisions no matter how mandatory such subject matter is. Also, *The Good Design Guide* was incorporated into the new format Victorian planning schemes developed under the Victoria Planning Provisions (VPPs), through the requirement for the responsible authority to consider the *Guide* in deciding applications for all medium density developments for appropriate zones.

Thus the Victorian Kennett government (1992–1999) adopted a market oriented planning policy, option two above. Other than nominating development sites, it showed no practical interest in any alternatives to a metropolitan wide imposition of generic standards designed to deregulate land use approvals coupled with restrictions on the control of local government over planning schemes. It rejected strong government regulation or other forms of market intervention, option one, although it identified and promoted some major development sites. It rejected option three in 1993, when it repealed a ministerial direction introduced by the former Labor government which required an average density of at least 15 lots per hectare in the outer urban growth corridors. The Kennett government’s policy on medium density development was part of a new approach to land use planning in Victoria which differed from the tradition of strong strategic planning and central or local statutory control. This “neo-liberal” approach lessens the role of the state and redirects government responsibilities to others, particularly to business and individuals (Healey, 1997, Gleeson and Low, 2000, Costar and Economou, 1999).

Stoker and Young (1993) have described this model’s role for government as that of a “strategic enabler”. The Kennett government’s medium density code, the *Good Design Guide*, and the standardised planning schemes derived from the Victoria Planning Provisions, were enabling processes in that they established rules which facilitated development or which loosely controlled it. They were regulatory processes designed to deregulate, that is, they used new legislation and statutory processes to lessen restrictions over development. Thornley (1993) has described this combination of centralisation and economic liberalism as “authoritarian decentralisation”. Development facilitation was to be the focus of the new planning system. The new emphasis would be “on facilitating rather than inhibiting or controlling” (Maclellan, 1993a:1,4, DPD, 1993). To the Kennett government, the principle of market liberalisation therefore was more important than the need for urban consolidation. Nevertheless, its urban consolidation policy was its most contentious planning initiative.

In opposition, Labor was critical of the Kennett approach, stating that “the ‘use by date’ of *The Good Design Guide* and *VicCode 1* has expired” and promised to provide “clearer and more prescriptive controls”. It also rejected the “Kennett government’s blind faith in allowing the market to rule”, claimed that its experiment with deregulation had “failed miserably” (ALP, 1999). Labor also promised that medium density development would be banned from some areas and directed to activity centres (ALP, 1999, Thwaites, 1999). The same mandatory rules would no longer be applied across urban areas (ALP, 1999).

The Victorian Labor Government introduced its medium density code, *ResCode* (DOI, 2001) on 24 August 2001. *ResCode* introduced layered standards over four categories of application. These categories are dwellings not requiring a permit, single dwellings (clause 54), multiple dwellings on a lot (clause 55), and subdivision (clause 56). These progressively add to and strengthen the level of control. New single dwellings which require only a building permit are not affected by the planning approvals system. They are governed by 14 basic standards in the Building Regulations including building height, setbacks, overlooking, overshadowing, and access to daylight and private open space. A building surveyor issues an approval if an application conforms, but if a proposal does not meet a standard, the local council must consider the application, with appeals made to the Building Appeals Board.

Single dwellings requiring planning permits in addition to building permits must meet 20 standards under Clause 54. These include the basic 14 standards and others which address issues such as neighbourhood character, siting and design, and energy efficiency. The need for a planning permit for a single dwelling usually arises from the application of a planning overlay, such as a heritage control. A single dwelling on a lot less than 500m<sup>2</sup> will also require a planning permit. Clause 55 applies to more than one house on a lot, and includes 34 standards. These add standards such as parking relevant to multi-unit development. Clause 56 applies to residential subdivision. This clause has not significantly altered the previous controls in *VicCode 1*. Clauses 54, 55 and 56 all contain objectives, the need for a design response and decision guidelines.

Rescode contains “similar standards applying on matters such as site coverage, overlooking, overshadowing, setbacks and building height whether one house or more than one house is proposed” (DOI 2001, p.13) specifically to prevent “dual occupancy by stealth” and to encourage development that respects existing neighbourhood character and provides reasonable standards of amenity.

Schedules to the residential zones or to an overlay can vary some standards for individual houses requiring planning permits, or to multiple dwellings. A council can also attempt to vary local policies to encourage multi-unit development in certain areas and may seek to introduce a Neighbourhood Character Overlay which would require permit control over the construction of or alterations to individual dwellings. Neither of these measures will achieve a concentration of development.

Labor in opposition and government promised an alternative to the location of medium density housing. Instead of allowing medium density development to be built anywhere in residential zones, it would be directed to the “right places”. Planning Minister, John Thwaites in his *State Planning Agenda* (Thwaites, 1999) made clear that the right places were around public transport and activity centres where medium density and mixed uses would be concentrated. Labor’s election planning policy stated that medium density development would be banned from some areas, and strictly controlled or encouraged in others. Labor would “no longer apply the same mandatory rules across urban areas”. But *ResCode* continues to apply uniform, often discretionary, standards to all residential zones. It is a powerful statutory tool favouring dispersed instead of concentrated medium density development and does not promote better integration between mixed use development around activity centres and public transport.

Despite some new standards and the different format, *ResCode* continued most of the characteristics of the *Good Design Guide* and did not change the subdivision controls of *VicCode 1* or require increased density in outer urban growth corridors. All its elements must be considered, but many standards are not mandatory. Some standards are quantitative, such as the four-star energy rating for multi-unit housing, and standards for permeability and for the protection of solar access to north-facing windows of existing buildings. However, *ResCode* contains many subjective measures requiring qualitative evaluation, for example, designing streets to minimise travel distances, and designing buildings that address the streetscape and respect existing built form. The possibility of strengthened local policy provisions, schedules to residential zones, and the addition of a Neighbourhood Character Overlay have proved to be largely ineffective to date. All these tools require planning scheme amendments, a lengthy and ultimately uncertain process. Only one Neighbourhood Character Overlay has been approved in Melbourne and many councils have been reluctant to use this tool because its use would add significantly to work loads and costs by requiring the administration of additional permit applications.

Both the *Guide* and *ResCode* have sought consistency through local government assessment of applications against common standards but this has not been achieved because of the discretionary nature of much content, the use of qualitative measures and the lack of clarity.

### **Beyond 2000 – Melbourne 2030 and local strategies for residential development**

The Victorian Government’s strategic plan – *Melbourne 2030: planning for sustainable growth* – is the most important strategic plan for Melbourne in 30 years. Its successful implementation will be significant for Melbourne’s future as a liveable and economically efficient city. It is a ‘plan for the growth and development of the metropolitan area’ and ‘provides a framework for governments at all levels to respond to the diverse needs of those who live and work in work in and near to Melbourne, and those who visit.’ (DOI 2002b: 1). The Plan was given statutory force through Ministerial Direction No. 9 on 8 October 2002. *Melbourne 2030* was written after the VPPs and *ResCode* were introduced.

*Melbourne 2030* continues the commitment of successive State Governments' commitment to a policy of urban consolidation, and complements the State Planning Policy Framework encouraging higher densities around train stations, bus terminals and along tram and municipal bus routes. The focus to date has been on the establishment of the urban growth boundary, the appointment of Smart Growth Committees for the growth areas, establishing regional housing groups, assisting the framing of local government review structure plans for activity centres, protecting the green wedges and implementing integrated transport and land-use strategies. This planning process is a government-led process, with the State government establishing the overall framework, directions and objectives, and seeking to work with local government and interest groups in implementing the plan. An urban growth boundary is an essential element in a policy promoting activity centres and urban consolidation by redirecting investment from land speculation and detached housing on relatively large lots on the urban fringe into activity centres and urban growth corridors.

Of the 620,000 projected households that Melbourne will require by 2030, 70 per cent, or 425,000 are expected to be constructed in existing built up areas within the newly established Urban Growth Boundary, and a further 195,000 in greenfield sites on Melbourne's fringe. New dwellings will constitute a 50 per cent increase in Melbourne's existing 1.23 million dwelling stock of which 74 per cent is presently detached.

*Melbourne 2030* seeks to discourage and reduce 'out-of-centre' developments by 'giving preference to in-centre and edge-of-centre locations for new development. Such out-of-centre proposals will only be considered where it can be convincingly demonstrated that the proposed use or development is of net benefit to the community in the region served by the proposal' (DOI 2002c: 10). With this objective in mind, dispersed urban and non-urban residential development across metropolitan Melbourne is to be reduced from 38 to 28 percent of total new dwellings approved, and 'in-centre' development is to be increased from 24 to 41 percent (Table 1).

*Table 1. Metropolitan dwelling approvals*

Average annual housing starts, 1996–2001		Proposed starts 2001–2030	
	%	%	No.
Greenfield	38	31	195,000
Activity Centre	24	41	255,000
Dispersed	38	28	170,000

*Source: DOI, 2002b.*

In the inner region (defined as municipalities of Melbourne, Port Phillip, Stonnington (part) and Yarra – DOI (2002b)), 89 percent of proposed new households are planned to be in strategic development sites (in-centre). These locations are anticipated to account

for 80,000 (of a total of 90,000) new dwellings over the period 2001–2030. Dispersed development is proposed to reduce from the current 30 to 11 percent.

*Melbourne 2030* strengthens the strategic intent of planning within the metropolitan area. Yet concerns have been expressed about the implications of 2030 for municipalities. Three of the four municipalities in this case study, Port Phillip, Yarra, Stonnington (part), are in inner Melbourne (DOI, 2002b), which already has the highest levels of dwelling and population densities in the metropolitan area. Council responses varied from general support for *Melbourne 2030* to opposition to it.

Council concerns revolve around three key issues. The first concern was the population targets established for each region. The Victorian Minister for Planning Projects Steering Committee estimated in 1993 that one half the projected population increase of 280,000 by 2003 could be accommodated in established areas using a modest target of generally less than 5% population increase (DPD, 1993). Port Phillip, Stonnington and Yarra were concerned that the population and household predictions in *Melbourne 2030* had not been tested at the municipal level. From their perspective, the rate of actual increase in Port Phillip and Stonnington from 1996 to 2001 was higher than the long-term average, but lower than the predicted rate of increase to 2030. They did not believe that the 1996–2001 figures should form the basis of future projections. Yarra believed that the target for inner Melbourne was achievable in a physical sense, however it questioned whether there would be sufficient demand to meet the target.

Second, multiple and varying concerns were expressed regarding the activity centre policy. This included concerns about the process of nomination of activity centres without council involvement or opportunity to review them; lack of recognition of the diversity of activity centres in different areas; varying capacities to absorb new housing particularly where activity centres, particularly in inner Melbourne, already are highly developed and surrounded by medium and high rise housing; lack of specificity regarding the boundary of activity centres and the generality of the identification of areas near activity centres being made available for higher density developments. Boroondara argued for a redefinition of activity centres with the inclusion of a category of “activity corridor”, areas along main roads between or outside activity centers.

The concerns regarding activity centre policy can be summarized by two quotes from these submissions:

- “decisions about the role and function of activity centres should flow from their individual structure planning, not from some preconceived expectation of growth”(City of Boroondara 2003: 3).
- There are problems with the “suburban one-size-fits-all model”(City of Port Phillip 2003; 27 ).

Third, councils were concerned that the planning tools to direct development, particularly into activity centres, are limited. For example, out of centre developments are permitted if there is a “net benefit to the community”. Other concerns included the need for rules to distinguish between types of development allowed inside and outside

activity centres. Stonnington and Yarra Councils expressed concern about the impact of implementing the plan on their neighbourhood character, which would involve demolishing existing dwellings, mainly of a Victorian or Edwardian character and replacing them with modern multi-unit and multi-storey developments. Further, Councils questioned the capacity of existing infrastructure to accommodate the predicted dwelling and population growth in the absence of any supporting documentation or research.

Since 8 October 2002, Ministerial Direction 9 has meant that Councils must consider *Melbourne 2030* in their planning decisions. The Victorian Civil and Administrative Tribunal (VCAT) is applying the strategy to its decisions.

The Victorian Government's metropolitan policy, *Melbourne 2030*, seeks to change radically the traditional pattern of Melbourne's urban development. The Government has legislated an urban growth boundary and has nominated over one hundred principal and major mixed use activity centres in the existing metropolitan area, most close to public transport (option 1 above), as the focus for expanded residential development.

However, the introduction of multi-unit residential codes in the 1990s had already begun this process of modifying patterns of urban residential development, reducing Greenfield activity as a proportion of total new housing starts from 50 per cent in 1996 to 38 per cent by in 2001. The plan is to reduce the proportion of new starts on the urban fringe by a further 7 percent, or one fifth of its existing level. New starts in activity centres will increase 17 per cent or by more than two thirds its current level.

## 2.0 Methodology

### Project aims

The research examines urban consolidation trends in Melbourne, Victoria in the 1990s and early 2000s under regulatory planning regimes which have been primarily based on a market facilitation model enabling medium density development anywhere in the metropolitan urban area as a discretionary use. It also aims to analyse the implications of urban consolidation trends for a new policy context which seeks to alter previous trends and regulatory regimes towards a more compact city model based on mixed use centres around public transport nodes.

This study examines metropolitan wide consolidation along with data from four case studies. The municipalities of Boroondara, Port Phillip, Stonnington and Yarra were selected as case studies because together they accounted for a significant proportion of Melbourne's multi-unit developments, 32 per cent in 1997–98 and 23 per cent in 2002–03. They were also the focus for the most significant resident opposition to medium density development during the 1990s.

The project aims to examine the following aspects of medium density development within an analysis of the policy context:

- at a broad statistical level, the changes in number, type and scale of medium density development and changes in the dwelling stock in the Melbourne Statistical Division.
- the amount of medium density development approved in four municipalities as case studies grouped into four categories by size in 1997–98 and 2002–03
- the location of medium density developments, grouped into four categories by size, within four pilot municipalities in relation to public transport in 1997–98 and 2002–3.
- the numerical relationship between medium density development and existing housing stock and the impact on population

### Data collection and coding

The study analyses the amount, type, scale and location of medium density dwelling approvals for Melbourne. Dwelling approval data was collected for the period 1988–89 to 2002–03 (ABS 8731.2), and census data on dwelling stock was taken from ABS *Community Profile Series (Local Government Areas)* for the municipalities of Boroondara, Port Phillip, Stonnington and Yarra for the years 1991, 1996 and 2001 (ABS 2003a). Detailed data were analysed for the four municipalities of Boroondara, Port Phillip, Stonnington and Yarra as case studies.

This research is also designed to build on and to compare the results of the earlier research on medium density developments in the municipalities of Boroondara, Port



Phillip, Stonnington and Yarra (Buxton and Tieman 1999). It uses ABS figures to identify trends in dwelling approvals in the four municipalities and these are shown in Section 4 and figures 2–6.

It also compares data on the number and scale of medium density developments, categorized by size, in the municipalities of Boroondara, Port Phillip, Stonnington and Yarra in 1997–98 and 2002–03, and compares the location of development approvals in these municipalities for these two years in relation to rail, tram and bus lines. This necessitated the development of comparable definitions of multi-unit development. ABS figures do not include all categories of medium density development (see below). Building Commission figures therefore were used to gain approval figures for the 2002–03 year after compiling a new category called “medium density housing” from Building Commission data for the four municipalities. The 1997–98 figures used by Buxton and Tieman (1999) were gained from the municipal planning registers which include all categories of approval. The Building Commission data for 2002–03 and data from planning registers for 1997–98 were generally comparable and were used to accurately plot location and allow locational comparisons to be made.

Location was plotted by scale in relation to rail, tram and bus lines for these years, using a Map Info base. Municipal data for 1997–98 and 2002–03 was coded according to the number of dwellings approved per permit issued as dual occupancy (1–2 dwellings), small scale developments (3–9 dwellings), medium scale developments (10–50 dwellings) and large scale developments (51 or more dwellings). The definition of ‘dual occupancy’<sup>1</sup> for 2002–3 dwelling approvals is further classified as either being ‘attached’ or ‘detached’. This distinction is not picked up in normal data reporting (e.g. ABS). Dual occupancy dwellings classified as ‘detached’ or ‘attached’ rely on a combination of fields from the data base – the Building Code of Australia reference, the description, and whether the dwelling was additional to an existing house on the lot.

Four types of housing data are collected and presented in this report. ABS Building Approval data, census dwelling stock data, Building Commission building approval data, and data from municipal planning registers. ABS dwelling approvals data was collated for 1988–89 to 2002–03 for the Melbourne Metropolitan Area. Building Commission building approval data was gained for the 2002–03 for the municipalities of Boroondara, Port Phillip, Stonnington and Yarra. This data was broken into four categories, “detached housing”, “multi-unit housing”, “conversions” and “total dwellings”. Conversion approvals were calculated by subtracting the sum of detached and other residential housing from the total number of dwellings approved. Multi-unit housing is labelled “other residential” housing in the ABS figures and includes town houses, row houses, apartments, units and villas. Data for approvals in the four municipalities for 1997–98 was obtained from municipal planning registers.

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<sup>1</sup> The Metropolitan Planning Scheme in 1985 definition of dual occupancy applied ‘whereby a normal house site of at least 450 square metres could have two dwellings created on it as a right, whether by subdividing and/or extending an existing house; building a detached unit in the grounds of a house; or building a new pair of units on a cleared or already vacant site’ (Lewis 2000: xii)

Data fields used in coding Building Commission data for each approval issued were: Building Code of Australia classification, address, nature of the work, number of existing dwellings on the site, number of stories, number of dwellings demolished, and number of the new dwellings. Department of Infrastructure Fact Sheets were also analysed.

The ABS data is not directly comparable to the Building Commission data at the municipal level. The reason for this is in the methods of compiling the data. For example with larger building projects, particularly in Port Phillip, the Building Commission calculates approvals at each stage of application for a project (as a building levy is payable), whereas ABS includes the total project dwelling units when the first significant approval is given.

The census data on dwelling stock is taken from ‘Time Series Profile (Local Government Areas)’ for the years 1991, 1996 and 2001 (ABS 2003a). The dwelling stock data is separated into five categories according to whether it is detached; semi-detached, row, terrace or townhouse; flat, unit or apartment; other, including unstated, and; total. Inconsistencies in the dwelling stock at municipal level between census’ suggests an error in the data collection. It appears that dwellings that were “semi-detached, row, terrace or townhouse” have been classified as “flat, unit or apartment” or visa-versa. This definitional problem is overcome by combining these two categories under the classification “multi-unit” housing stock.

Several problems are incurred in collating the data, which stem from a lack of consistency in the unpublished building approval data (Building Commission 2003). However, a careful process of cross-checking data fields ensured the reliability of the data and results. While building surveyors are required to lodge a copy of the permit form with the Building Commission, it was not compulsory to complete many of the fields on the form. The Building Commission identified this deficiency in the regulations and is in the process of introducing new regulations requiring the fields to be completed accurately. The building classification field is often incomplete or even wrong. For example, an entry may read ‘1a’ – which indicates the building is a single dwelling, but not whether it is detached (1ai) or attached (1aii). The address number of the property is not always complete, for example, whether the permit was for the development of a single or double block. The code indicating the nature of the work may describe the work as a “new dwelling” when actually the work carried out was an extension or alteration. Often there is a discrepancy between the description of the work and the number of dwellings in the “[additional] new dwellings” field. For example, the description entry may be “dual occupancy”, but the “new dwellings” field entry was “0”. A problem that is particular to collating building approvals for conversions from non-residential buildings to residential buildings and for multi-storey apartments, is that they involved several permit approvals. The stages applying to the permits granted are not always numbered sequentially, and the permit may give approval for only a portion of the total dwellings planned or none at all. Thus it is difficult to calculate the total dwellings in the building that have been approved and it can lead to situations of over or undercounting the number of dwellings for the total project. Permits for demolition were often, though not always, separate to the permits for constructing the new dwelling(s), so it was necessary

to sort the data by street to match up permit approvals to determine whether the houses/dwellings were “additional” to existing housing or whether they merely replaced the existing dwelling.

Two sets of information are critical to our research. Firstly, being able to determine whether new dwellings are attached or detached, and secondly, the gross and net new dwelling numbers approved for the period. The first is critical to be able to distinguish between one and two dwelling developments (dual occupancies) that are attached or detached. This is because typically detached dwellings are not counted as “medium density” even though such dwellings may form a significant proportion of the net increase in the number of dwellings in a given location. In collating the data an assumption has been made that a new dwelling approved is detached unless there was indication in the data to the contrary.

The second is important because from an urban consolidation perspective it matters whether the increase the new dwellings is gross or net. If there is simply a recycling of new for old dwellings, there is no net change in the housing stock. The rate of demolition determines the efficiency rate in the creation of new dwellings (Lewis 1999: 116). The fewer the number of new dwellings added per dwelling demolished the lower the efficiency rate. This is a quantitative expression and different to qualitative issues that may concern local residents where the existing housing stock is being lost, therefore altering the character of an area.

## **Mapping**

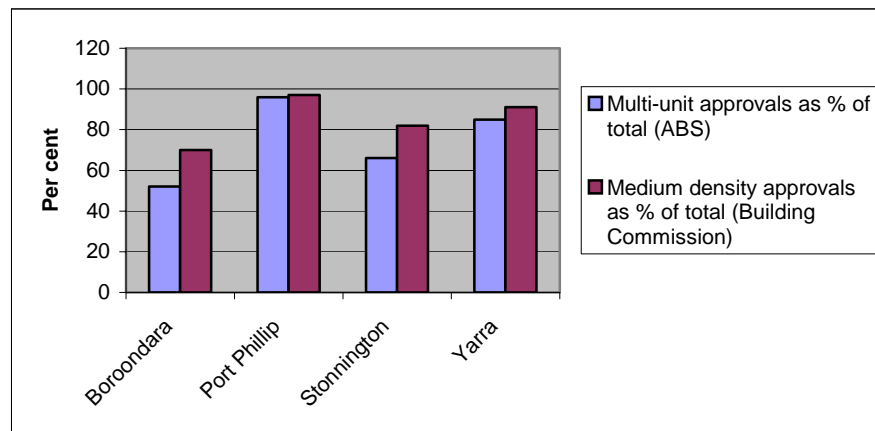
The locations of development approvals in the four municipalities for the years 1997–98, categorised by size were plotted on a P-Data base map using a *Melways* street map of Melbourne as reference. This information was then overlaid on a MapInfo base. For 2002–03, development approvals were plotted using a planning scheme on-line base map. Rail, tram and bus routes were incorporated and a distance of 400 metres from rail stations, tram and bus routes were plotted and the scale identified. Calculations were then made of the number of developments for each municipality and totalled within 400 metres of rail stations and tram and bus routes. This information was grouped as percentages of the relevant size of the development.

## **Definitions**

In the media and in common usage the terms “medium density housing” and “multi-unit developments” are used interchangeably. However, medium density and multi-unit housing are not necessarily synonymous, “because medium density housing can be achieved with one dwelling per site if the sites are small enough, whereas multi-unit development can be of any density” (Lewis, 1999: xv). In practice, then, a variety of definitions are used. Below some of the definitions used to measure medium density housing and the problems and limitations associated with them are shown.

(i) This paper relies on ABS data for “new other residential buildings” for metropolitan wide trends, and in this context used this data as an approximation for medium density housing or “multi-unit” dwellings or developments. The ABS relies on the Building Code of Australia (BCA) classifications and the BCA does not include a category called “medium density housing”. ABS dwelling approval data (ABS 8731.2) distinguishes between detached housing, and attached forms of housing referred to as “other residential buildings” including flats, home units, attached townhouses, villa units and terrace houses, semi-detached houses, and maisonettes. However, this grouping of data is inadequate as a definition of medium density housing, because it omits multiple detached housing approvals (such as dual occupancies or multiple townhouses) on one or more lots, classifying them as detached housing, so understating the true amount of medium density housing. In the case of Boroondara and Stonnington (Figure 1) the underestimation is significant. At the other extreme, blocks of flats more than 4 storeys high are classified still as “other residential”. Therefore, ‘other residential buildings’, or multi-unit developments and ABS figures in attached dwellings, includes both medium and high density dwellings.

Figure 1 Multi-unit vs medium density dwelling approvals 2002–03



Source: ABS 8731.2 and Building Commission, 2002–03.

The problem with the ABS classification becomes apparent with an example. In some municipalities the original (detached) house is demolished and two or more new houses are built. If the dwellings are detached ABS classifies them as “houses” and if attached as “other residential”. This means that the classification “other residential dwelling” potentially understates medium density housing trends depending on the *frequency* of the detached housing form and the lot size.

ii) *ResCode* varies the ABS definition of medium density development by being applied to the construction of more than one residential building on a lot to four stories. *Rescode* applies to both single and multi-dwelling residential developments under clauses 54 (single dwelling) and 55 (multi-dwelling) of the planning scheme, and is triggered by the type of residential developments rather than the lot size. The trigger of 500 sq. metres relates to the need for a permit not the type of housing. The *Good Design Guide* applied

to any application for a dwelling on a lot of less than 300 sq.m. The *Guide*, therefore, did not apply to dual occupancies on larger blocks. Clause 55 applies to an application to:

- Construct a dwelling if there is at least one dwelling existing on the lot,
- Construct two or more dwellings on a lot,
- Extend a dwelling if there are two or more dwellings on the lot, or
- Construct or extend a residential building,

in the Residential 1 Zone, Residential 2 Zone, Mixed Use Zone and Township Zone. These provisions do not apply to an application to construct or extend a development of four or more storeys, excluding basement” (VPP, Particular Provisions – Clause 55).

This means that Rescode (multi-dwelling) also applies to the construction of Class 3 buildings, including boarding houses and aged care facilities. The stated residential policy objective for multi-dwelling development (Clause 55.02-2) is “to support medium densities in areas where development can take advantage of public transport and community infrastructure and services”. This policy objective is then linked to housing policies in the State and Local Policy Frameworks of the VPPs.

(iii) The definition for medium density housing used by the Victorian Department of Infrastructure in the late 1990s was “more than one house on an ordinary block, or any form of attached housing, such as townhouses, apartments or flats” (DOI 1998a: 9). This definition included detached houses and dual occupancies, as *ResCode* does. However, the government does not collect or produce such statistics. In the Governments’ strategic planning document, *Melbourne 2030*, DOI has ceased to use the term “medium density”, instead replacing it with the term “higher-density housing”. This is defined as “housing units on a given area of land that are more numerous than the average in the surrounding locality” (DOI 1998a: 9).

(iv) The Building Commission (Victoria) collects and presents data on building permits approved, but does not attempt to define medium density housing. Like the ABS, the Building Commission relies on the Building Code of Australia classifications. In its monthly publication, *Building Activity Profile*, it distinguishes between domestic building work and residential building work, that is, between housing (attached and detached forms) and other forms of residential buildings including flats and apartments, aged accommodation, and boarding houses.

(v) It is possible to extract Building Commission data identifying the number of dwellings by type being built in Melbourne and to identify different kinds of “detached” housing. This can overcome the disadvantage of the ABS underestimation of the amount of medium density development, by counting multi detached dwellings (such as townhouses) on a block as medium density development. Gaining this more accurate data requires making certain assumptions for incomplete data, and data has to be coded manually.

This study compiles a category called “medium density housing” from unpublished Building Commission data for the four municipalities in 2002–03, identifying medium density housing as any form of attached housing, including residential buildings above

three storeys, and any additional detached dwelling on a single block. This definition allowed data to be obtained which was generally comparable to data gained from municipal planning registers for these municipalities for the 1997–98 year (Buxton and Tieman 1999). The difference in building approvals arising from the use of this category of Building Commission data and ABS data is shown in Figure 1. However, as with ABS figures, Building Commission and planning register figures include both medium and high density dwellings.

## Density

The density of dwelling developments is an important aspect of the medium density debate. However, many definitions are too broad, leading to uncertainty. The Victorian government use of the term “higher density housing” allows a relative measure of the continuous process of housing intensification. What are the upper and lower ranges of density applied to the term “medium density”? What impact has medium density housing, as it is practiced in Melbourne, on suburban residential population densities?

*The Good Design Guide* addressed the issue of density through benchmarks set out as the technique for meeting the objectives and criteria of the “Density Element”. This allowed for a density range of up to 300 sq. metres per dwelling. Higher densities were permitted for sites within a radius of 7 km of the GPO or larger than 2000 sq. metres. This approach proved controversial as it allowed medium density development to occur in any residential area, and it did not target strategic locations such as public transport and employment locations. Also incentives were provided for the development of higher densities across all inner city areas as well as on larger sites.

*Rescode* abandoned the ‘Density Element’ with its contentious 7 km radius provision. Instead, no minimum lot size or incentive for higher density is specified in *Rescode* in its multi-dwelling requirements, and building is restricted to 60 percent of the lot land area. However, the environmental sustainability objectives and standards of *Rescode*’s subdivision clause (56.02-3) provides an incentive for higher lot densities where these can “minimise fossil fuel use by reducing local vehicle travel distances, maximising public transport effectiveness and encouraging walking and cycling to daily activities”. For higher densities on lots of less than 300 square metres, lot sizes are required to “meet the projected requirements of people with different housing needs and to provide for housing diversity and choice [and] ... to enable the siting and construction of a dwelling and associated out buildings, the provision of open space, and convenient vehicle access and parking” [as required for developments in the multi-dwelling scheme].

*Rescode* sits inside the strategic framework of *Melbourne 2030*, to make Melbourne a more compact city. The concept of planning for a more compact city, of supporting higher density housing, should take into account existing dwelling densities or lot sizes. Lot sizes vary considerably across Melbourne. For example, the median lot area in the City of Boroondara is 750–1000 sq metres while in City of Yarra it is 0–249 sq metres (DOI 1998b). On this basis the average housing in the Yarra municipality is already

medium density. So increasing the proportion of new housing approvals into strategic centres tells us nothing about how compactly such housing already is within those municipalities.

Typically much urban land is occupied by non-residential uses such as roads, local and regional open space, community facilities, schools, commercial and industrial land. To increase residential (dwelling and population) densities requires either occupying non-residential land or significantly increasing densities on existing residentially zoned land. Gutjahr (1991) argued that 15–18 dwellings (45–55 persons) per hectare (net residential density) is an appropriate definition of medium density. Greater densities would be considered “high density”. Other studies define medium density development in terms of densities of between 25–40 dwellings per hectare. Cardew (1996), McLoughlin (1991,1992), and Loder and Bayly (1994) have also provided definitions and measures of residential densities. McLoughlin (1992:144) argues that “any increase in net residential density ... results in a much smaller gross residential density ... in the areas devoted to dwellings.”

### 3.0 Patterns of Medium Density Housing in Metropolitan Melbourne

#### Overview

Residential development in Metropolitan Melbourne (Figure 2) over the past fifteen years has been characterised by an increase in multi-unit dwellings, both numerically and as a proportion of total approvals, but also by the spatial concentration of these multi-unit developments and a trend towards multiple storey dwellings or buildings. Table 2 shows that annual multi-unit dwelling approvals between 1991–2003 increased from 2,187 dwellings during the national recession of 1990–92 to 12,362 dwellings in 2002–03, an increase of more than 600 percent. In comparison, the number of detached new dwellings fell. The most marked increases in multi-unit approvals were the years between 1995–96 and 1996–97, and then again between 1998–99 and 1999–2000. Comparing the pre-recession figures, 1988–89, and the most recent figures for 2002–03, the increase in the proportion of multi-unit approvals to total new dwelling approvals is substantial. In 1988–89 multi-unit developments accounted for 10 percent of total dwelling approvals. However, in 2002–03, they accounted for nearly 35 percent of new dwelling approvals.

Table 2 Dwelling units approved – Melbourne Statistical Division

Period	New house (detached)	Multi-unit dwellings (attached and flats)	Conversions* (from other buildings)	New Dwellings (Total)
1988–89	23,826	2,789	Not listed	26,615
1989–90	16,368	1,735	Not listed	18,103
1990–91	12,593	1,704	Not listed	14,297
1991–92	14,915	2,187	Not listed	17,102
1992–93	17,827	2,008	6	19,841
1993–94	18,463	3,334	1152	22,949
1994–95	18,123	3,681	1330	23,134
1995–96	13,035	3,709	617	17,361
1996–97	13,862	6,255	1189	21,306
1997–98	20,045	6,445	1000	27,490
1998–99	20,516	8,100	1550	30,166
1999–00	25,642	11,124	1497	38,263
2000–01	17,237	9,028	1263	27,528
2001–02	25,307	10,298	1125	36,730
2002–03	22,434	12,362	896	35,692

\* includes conversions and dwelling units approved as part of alterations and additions or the construction of

non-residential buildings, except for the years 1988–89 to 1991–92, where conversions were not listed

Source: ABS Building Approvals Victoria 8731.2 (Various Years)

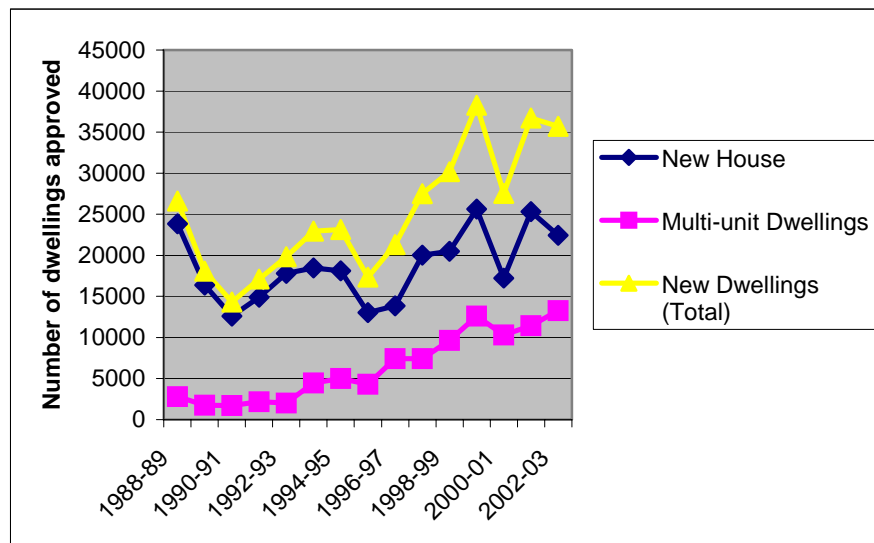
Throughout the 1990s the conversion of existing space within non-residential buildings to dwellings has been an important but minor dimension to the growth in multi-unit



dwelling approvals (Table 2). In inner Melbourne, though, conversions have played a more significant role, particularly with the conversion of old warehouses and factory sites to apartments. In the CBD, following the glut in office space in the early 1990s conversions from office space to apartments were very popular. Between February 1992 and December 1997, 38 per cent of all completed dwelling approvals involved conversions from non-residential to residential use. A mixture of new and conversions accounted for another 17 per cent, while only 45 per cent of approvals involved totally new dwelling construction work (City of Melbourne 1997)

The supply of multi-unit development was significantly less volatile than the supply of new houses over the period 1988–89 to 2002–03. Slumps occurred in new, detached housing approvals in Melbourne in 1995–96 to 1996–97, and again in 2000–01, while multi-unit approvals grew steadily with only a minor decrease in 2000–01.

Figure 2 New dwelling units approved – Melbourne



Source: ABS Building Approvals Victoria 8731.2 (various years). Multi-unit dwellings include town and row houses as well as conversions and dwelling units approved as part of alterations and additions or the construction of non-residential buildings, except for the years 1988–89 to 1991–92, where conversions were not listed.

This increase in multi-unit dwelling approvals translated into a modest shift in the composition of Melbourne's dwelling stock. In the ten-year period 1991–2001, Melbourne's dwelling stock increased by more than 18 per cent (based on Table 3). In the same period, multi-unit dwellings as a proportion of the total dwelling stock increased from 21.4 per cent to 24.6 per cent, while that of detached housing fell from 77 per cent to 74 per cent (ABS 2003b). The significance of the shift in the type of dwelling construction is more easily represented by net changes in the dwelling stock over the period 1991–2001. While multi-unit developments represented 42 per cent of the net

increase in the dwelling stock for the period 1991–2001 (Table 4), the impact on the overall housing stock was much less.

*Table 3 Private dwelling stock – Melbourne statistical division*

<b>MSD</b>	<b>1991</b>	<b>%</b>	<b>1996</b>	<b>%</b>	<b>2001</b>	<b>%</b>
Separate houses	807,395	77.6	851,300	76.3	919,704	74.5
Semi detached, row or terrace houses and townhouse	98,522	9.5	89,652	8.0	127,810	10.4
Flats, units or apartments	125,979	12.1	165,774	14.9	177,579	14.4
Other	8,726	0.8	8,550	0.8	9,099	0.7
<b>Total</b>	<b>1,040,622</b>	<b>100</b>	<b>1,115,276</b>	<b>100</b>	<b>1,234,192</b>	<b>100.00</b>

*Source: ABS (2003b)*

*Table 4. Net change in private dwelling stock 1991–2001.*

<b>Melbourne Statistical District</b>	<b>1991–2001</b>	<b>%</b>
Separate houses	112,309	58
Semi-detached, row or terrace houses and townhouse	29,288	15
Flats, units or apartments	51,600	27
<b>Total</b>	<b>193,570</b>	<b>100</b>

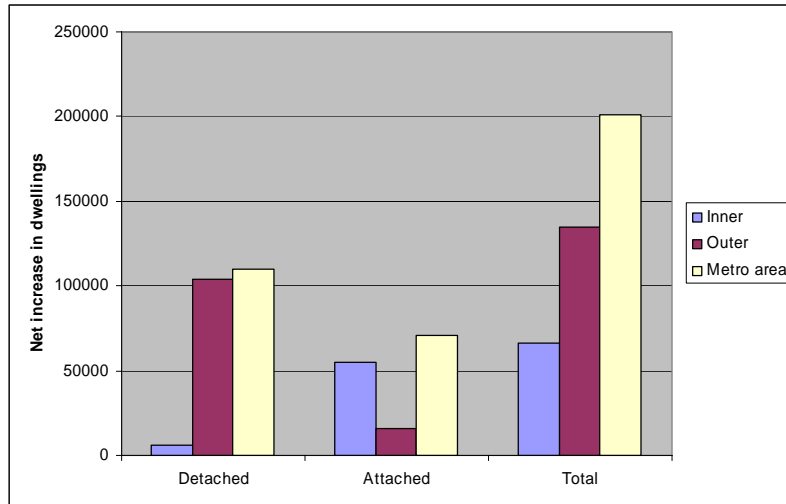
*Source: ABS (2003b)*

Figures 3 and 4 show that the proportions of multi-unit and detached housing are almost inverted when comparing the 15 Inner municipalities and 16 Outer municipalities. While 90 percent of the increase in dwelling stock in Inner Melbourne was multi-unit forms of housing, in Outer Melbourne 90 percent was detached. There is little evidence of consolidation taking place in Outer Melbourne. Indeed, the development trend of the two regions in Melbourne is in opposite directions.

Also, for the period 1991–2001, twice as many housing units were constructed in Outer Melbourne compared to Inner Melbourne, 134,479 dwellings and 66,382 dwellings respectively.

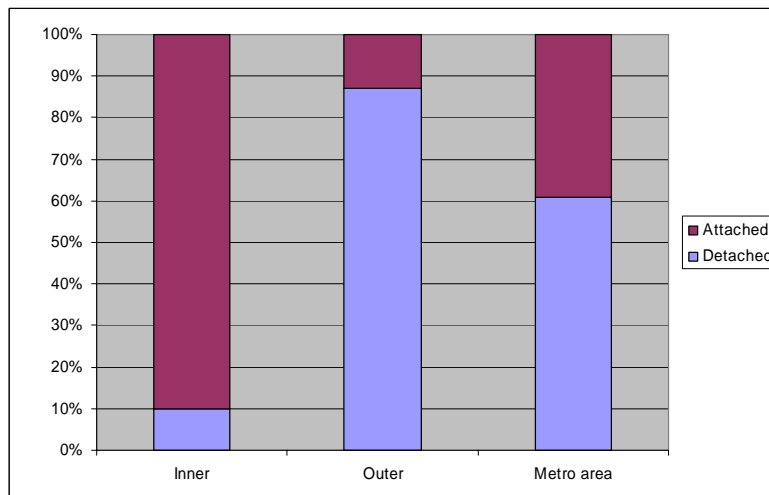
The terms Inner and Outer Melbourne are those of the Victoria Office of Planning, Department of Infrastructure (now part of Department of Sustainability and Environment) Inner Melbourne is defined as the 15 municipalities of Banyule, Bayside, Boroondara, Darebin, Glen Eira, Hobson’s Bay, Maribyrnong, Melbourne, Monash, Moonee Valley, Moreland, Port Phillip, Stonnington, Whitehorse and Yarra. Outer Melbourne is defined as the 16 municipalities of Brimbank, Cardinia, Casey, Frankston, Greater Dandenong, Hume, Kingston, Knox, Manningham, Maroondah, Melton, Mornington Peninsula, Nillumbik, Whittlesea, Wyndham, Yarra Ranges (DOI, 2002a). *Melbourne 2030* defines inner Melbourne as the municipalities of Melbourne, Port Phillip, Yarra and Stonnington (part), and classifies Melbourne municipalities as being Inner, Western, Northern, Eastern and South Eastern.

Figure 3 Growth in dwelling stock, Metropolitan Melbourne 1991–2001



Source: DOI (1995), DSE (2003)

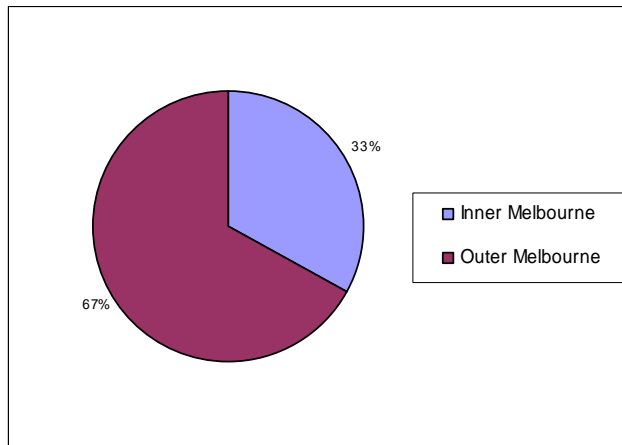
Figure 4 Dwelling type as a proportion of increased dwelling stock, Metro Melbourne 1991–2001



Source: DOI (1995); DSE (2003).

The spatial distribution of the increase in dwelling stock is represented by Figure 5. It shows that Outer Melbourne's dwelling stock grew at twice the rate of Inner Melbourne's. For the period 1991–2001, Melbourne's outward growth outweighed any tendency towards compactness.

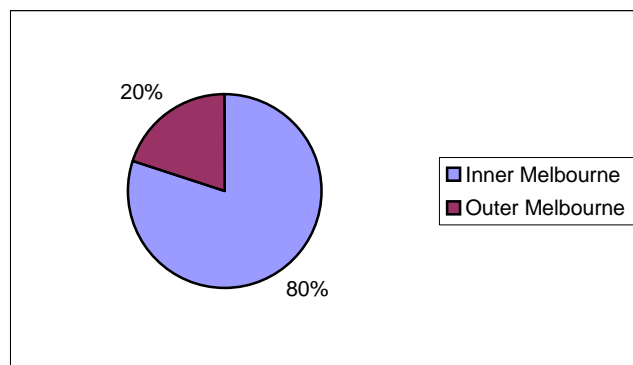
Figure 5 Spatial distribution of dwelling stock increase, Metropolitan Melbourne 1991–2001



Source: DOI (1995, DSE (2003)

The spatial distribution of multi-unit housing across Melbourne is also highly uneven. Inner Melbourne (DOI 2002a), made up of 15 municipalities, accounted for 9,923 of 12,386 multi-unit dwelling approvals or 80 percent of all multi-unit dwelling approvals within the Melbourne Metropolitan Region (Figure 6). This was up from 7713 dwelling approvals (or 75 per cent) in 2001–02. For example in the City of Wyndham (Western Melbourne) 2741 dwellings were approved in 2002–03. Only 213 dwellings or less than eight per cent were classified as ‘other residential buildings’ (or multi-unit). In the City of Casey (South East Melbourne) there were 3667 dwelling approvals in 2002–03. Only 156 dwellings or 4 per cent were multi-unit dwellings. The rest were detached houses (ABS 8731.2).

Figure 6 Spatial distribution of multi-unit approvals, Metropolitan Melbourne 2002–03



Source: ABS Building Approvals Victoria 8731.2 (2002–03)

Over the period 1995–96 to 2002–03, a significant shift occurred in the type of multi-unit dwellings approved in Victoria, with a decline in the proportion of semi-attached, row houses and townhouses and an almost doubling in the proportion of flats, units and apartments, from 34 per cent to more than 65 percent of multi-unit dwellings (Table 5). This shift was influenced by the demand for apartments in the CBD, Docklands and inner suburbs.

This has been accompanied by a clear trend towards multi-storey dwellings. For example, in 1995/96, 32 percent of semi-detached dwellings and townhouses were two or more storeys. In 2002–03 two or more storey dwellings had increased to 51 percent of all semi-detached and townhouses approved. The proportion of flats, units or apartment approvals in a building of four or more stories has been consistently high, and in 2002–03 accounted for 86 per cent of new approvals (ABS 8731.2 various years).

Table 5 Dwelling units approved in new residential buildings (Victoria)

Period	New Houses	Semi-detached, row or terrace houses, townhouses etc ...			Flats units or apartments in a building of ...				Total other Residential building
		One storey	Two or more storeys	Total	One or two storeys	Three storeys	Four or more storeys	Total	
1995–96	18 889	1854	882	2736	319	277	823	1419	4,155
1996–97	19 805	2980	1500	4480	204	298	1823	2325	6,805
1997–98	27 937	2881	2153	5034	425	481	1472	2378	7,412
1998–99	29 227	2484	2415	4899	679	454	2829	3962	8,861
1999–00	36 475	2669	3323	5992	760	453	4840	6053	12,045
2000–01	24 508	2215	2114	4329	337	648	4439	5424	9,753
2001–02	37 020	2591	3285	5876	546	596	4287	5429	11,305
2002–03	33 372	2283	2377	4660	483	737	7687	8907	13,567

Source: ABS Building Approvals Vic 8731.2 various years

From a policy perspective, in 1995–96 the multi-dwelling residential code, *The Good Design Guide*, applied to just over 80 percent of multi-unit developments. In 2001–02, its replacement, *Rescode*, still applied to 62 percent of multi-unit developments, but by 2002–03, to only 43 percent of multi-unit developments. The most significant shift was in the twelve months 2002–03. However, there were three times as many multi-unit developments in 2002–03 than in 1995–96, so while the proportion of developments the code applies to is lower, the absolute number it applies to is higher.

### Population growth and demographic change

Demographic trends across Melbourne pre-1991 showed a steady decline in the populations of middle and inner suburban areas. However, this trend has since reversed, particularly in inner suburbs. While there is no precise relationship between changes in

population and changes in the dwelling stock due to differences in household composition, dwelling stock remains one of the key indicators for population change used by the Australian Bureau of Statistics.

*Table 6 Changes in Melbourne's Population Distribution*

	<b>1991</b>	<b>%</b>	<b>1996</b>	<b>%</b>	<b>2001</b>	<b>%</b>
Melbourne Statistical District	3 155 654	100	3 283 014	100	3 471 625	100
Inner Melbourne	1 553 706	49	1 576 267	48	1 607 539	46
Outer Melbourne	1 601 948	51	1 706 747	52	1 864 668	54

*For definitions of Inner and Outer Melbourne see Figure 3.*

*Source: ABS Regional Population Growth 3218.0 (various years)*

Between 1991 and 2001 Melbourne's population grew by more than 315,000 (Table 6) or ten percent. This compared to an increase in the dwelling stock for the same period of more than 18 percent (see Table 3). The discrepancy is accounted for by falling dwelling occupancy rates. Dwelling occupancy rates continued to fall, with Inner Melbourne (DOI 2002a) on average having dwelling occupancy rates that are significantly lower than the Melbourne average. Table 8 shows the Melbourne Metropolitan average fell from 2.81 in 1991 to 2.69 in 1996 and 2.43 in 2001.

Declining dwelling occupancy rates are one of the key factors driving increased demand for housing in Inner Melbourne. This is significant because an increase in total dwelling stock is required just to maintain a stable population within a given municipality. In turn, changing family structures and fertility rates, increasing income levels and an ageing population are factors influencing dwelling occupancy rates. These factors also have a bearing on housing preferences and choice.

Despite the growth in medium density housing and its concentration in Inner Melbourne suburbs, more than eighty percent of Melbourne's growth in population was in Outer Melbourne (Table 6). Table 7 indicates that the proportion of population growth contributed by Inner Melbourne is decreasing. For 1991–96, Inner Melbourne accounted for 17.7% of Melbourne's growth. This fell to 16.5 percent for the five years 1996–2001, even though in absolute numbers, the figure had increased from 24,500 to 31,200.

*Table 7 Population growth – Melbourne Statistical Division*

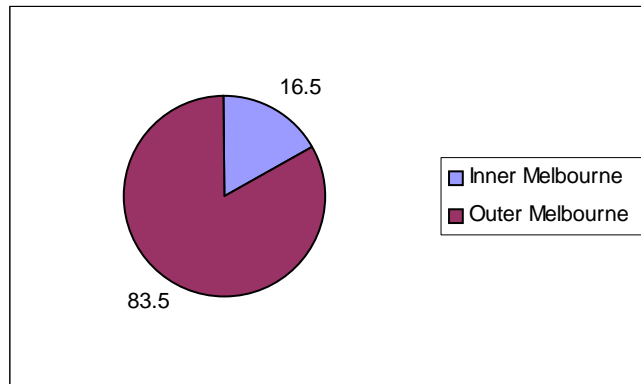
	<b>1991–1996</b>	<b>%</b>	<b>1996–2001</b>	<b>%</b>
Melbourne Statistical District	127 360	100	188 611	100
Inner Melbourne	24 561	17.7	31 272	16.5
Outer Melbourne	104 799	82.3	157 921	83.5

*Source: Figures derived from ABS Regional Population Growth 3218.0 (various years)*

While Inner Melbourne (DOI 2002a) accounts for an increasing proportion of new dwelling approvals, approximately 40 per cent of total new dwelling approvals in 2002–

03, it accounted for less than 20 percent of Melbourne’s population growth between 1996 and 2001, with the proportion of population growth contributed by Inner Melbourne decreasing. From 1991–96, Inner Melbourne accounted for 17.7 percent of Melbourne’s growth. This fell to 16.5 per cent for the five years 1996–2001 (Figure 7) even though the population increased from 24,500 to 31,200, and despite the high number of dwelling approvals.

*Figure 7 Spatial distribution of population growth, Melbourne 1996–2001*



*Source: Derived from ABS Regional Population Growth 3218.0 (various years)*

The steady decline of the populations of middle and inner suburbs before 1991 has been reversed. However, this has led to lower population increases than would have occurred because of declining average household size. The Government is therefore attempting to increase population and dwelling densities at a time when the absorption capacity of dwellings is actually declining.

## 4.0 Case Study of Four Municipalities

### Introduction

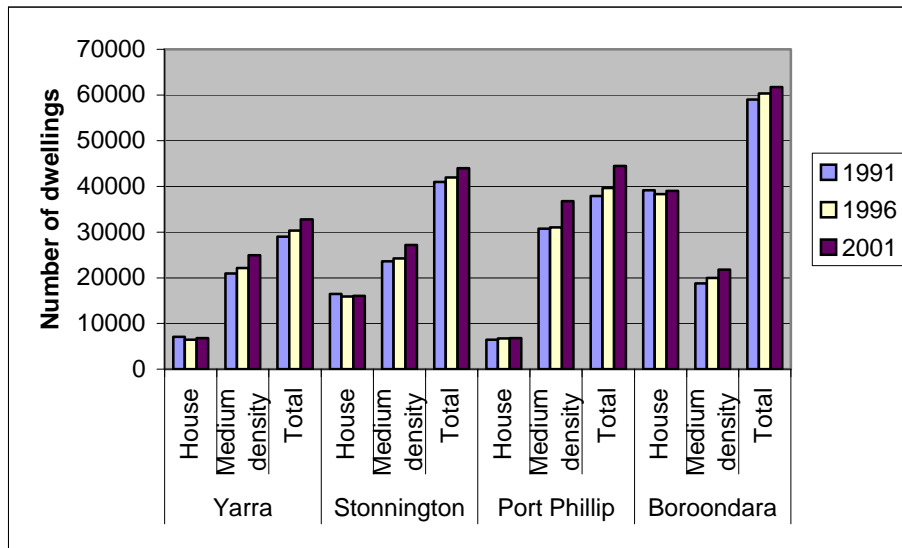
The four Melbourne municipalities of Boroondara, Port Phillip, Stonnington and Yarra were selected for more intensive study of the trends in urban consolidation and the implications of these trends. They were selected because together they accounted for a significant proportion of Melbourne's multi-unit developments, 32 per cent in 1997–98 and 23 per cent in 2002–03. The largest number of multi-unit dwelling approvals occurred in the City of Melbourne, which accounted for almost 36 per cent of total multi-unit approvals.

Three of the four municipalities in this study are close to the centre of Melbourne and abut the City of Melbourne: Port Phillip to the south, Yarra to the East and Stonnington to the South East. Boroondara is in the inner east of Melbourne just beyond the City of Yarra and to the east of the Yarra River. The four municipalities were formed in the mid 1990s through council amalgamations. The City of Yarra consists of Fitzroy, Melbourne's oldest suburb, and Collingwood and Richmond; Port Phillip is made up of the former Councils of Port Melbourne, South Melbourne and St Kilda; Stonnington was formed from Prahran and East Malvern; and Boroondara is the amalgam of Kew, Hawthorn and Camberwell.

The areas of Prahran, Fitzroy, Richmond, Collingwood, Port Melbourne and St Kilda were areas settled by immigrants in the immediate post-war period. Since the 1970s there has been a steady process of gentrification accompanied by rising house prices. Price rises in inner Melbourne have been greater than the metropolitan average during this last housing boom from the mid 1990s. In addition to the increase in new dwellings, much of the dwelling stock in these municipalities has undergone extensive renovations. A number of trends are evident in the municipalities of Boroondara, Port Phillip, Stonnington and Yarra in terms of changes in dwelling stock and population growth, and in the scale and height of medium density developments. These four municipalities experienced growth in their dwelling stock over the period 1991–2001, particularly Yarra and Port Phillip (Figure 8), though lower than the rate of growth for the whole Melbourne metropolitan area.



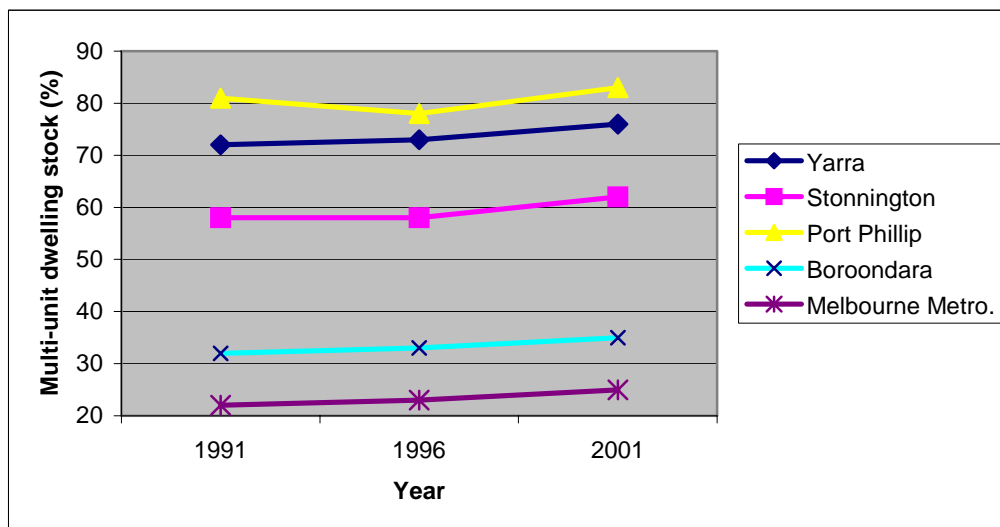
Figure 8 Dwelling stock by municipality



Source: ABS 2001 Time Series Profiles, Local Government Areas.

In the ten-year period, the housing stock in Boroondara grew by less than five per cent, in Stonnington by seven per cent, in Yarra by 11 per cent, but by 17 per cent in Port Phillip. Multi-unit dwellings were the dominant form of dwelling stock in Yarra, Stonnington, and Port Phillip, while in Boroondara houses were the dominant dwelling form. In 2001 in Port Phillip and Yarra, medium density housing formed approximately 85 per cent and 80 per cent of total housing respectively. Also each municipality experienced growth in the proportion of stock of multi-unit dwellings (see also Appendix C).

Figure 9 Changes in dwelling stock (%) – selected municipalities



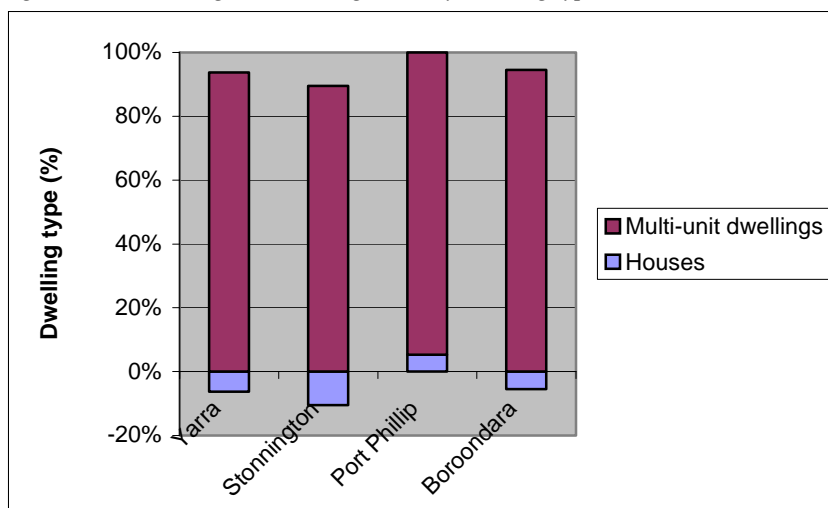
The fall in the Port Phillip multi-unit dwelling stock percentage was due to a greater increase in detached dwellings over attached dwellings for the period 1991–96.

Source: ABS 2001 Time Series Profiles, Local Government Areas.

Growth in the dwelling stock between 1991 and 2001 has been marked by increases in the proportions of medium density housing stock (Figure 9). A number of factors contribute to this change. An increase in the proportion of medium density housing forms in new dwelling approvals will over time change the housing stock mix. Conversions of buildings from non-residential to residential uses also have an impact on the total dwelling stock and the mix between medium density and other forms of housing. Another factor is the level of demolitions of detached housing and the extent to which “detached” housing is being replaced by different forms of “attached” housing with an intensification of the number of dwellings per lot (the section on demolitions later in the chapter contains further discussion on this point). Given the range of factors impacting on municipal dwelling stocks, continuous and incremental change is expected.

Multi-unit dwellings accounted for all the increase in dwelling stock in Boroondara, Stonnington and Yarra, and 95 per cent of the increase in Port Phillip. In the first three of these municipalities the stock of detached housing decreased over the period 1991–2001, represented by the area below the line in the graph (Figure 10). This decrease was primarily the result of the demolition of existing detached houses and their replacement with medium density forms of housing. However, a portion may also be attributed to a change in use of the building, for example, changing use from a residence to a business (doctor’s surgery).

Figure 10 Net change in dwelling stock by housing type (%) – 1991–2001



Source: ABS (2003)

All municipalities in the case study experienced a growth in population between 1991 and 2001 (Table 8). The populations of Boroondara, Port Phillip, Stonnington and Yarra increased in this period by 4.6 per cent, 13.3 per cent, 4.6 per cent and 7.8 per cent respectively, reversing previous population declines in these municipalities, Boroondara

was the exception, its population having increased prior to 1991. The significant increase in the dwelling stock in these four municipalities is the reason for this population increase, with the rise in dwelling stock more than countering the impact of the continuing decline in dwelling occupancy rates.

*Table 8. Estimated resident population – selected municipalities*

<b>Municipality</b>	<b>1986</b>	<b>1991</b>	<b>1996</b>	<b>2001</b>	<b>Growth 1991–1996 (%)</b>	<b>Growth 1996–2001 (%)</b>
Boroondara	147 735	150 351	153 860	157 214	2.3	2.2
Port Phillip	72 328	71 296	76 089	80 552	6.7	5.9
Stonnington	87 533	86 060	88 562	89 978	2.9	1.6
Yarra	64 413	63 975	67 136	68 947	4.9	2.7

*Source: Estimated resident population in statistical local areas ABS 3203.2 and 3218.0 (various years)*

Between 1991 and 1996 the dwelling occupancy rate in the City of Port Phillip fell from 1.96 to 1.91 (Table 9). To maintain the same population of 71,296 in 1991 in Port Phillip required an additional 950 dwellings by 1996. In reality ABS statistics show that the population had increased to 76,089 in 1996 and 80,552 in 2001. Given the fall in dwelling occupancy rates and increasing population this implies the need for the construction of an additional 3,462 dwellings within the City of Port Phillip by 1996 and a further 3009 by 2001.

In the City of Boroondara the population increased by 6,863 between 1991 and 2001 requiring an additional 2,735 dwellings, the City of Stonnington increased its population by 3,918 requiring an additional 3,525 dwellings and the City of Yarra increased by 4,972 persons requiring an additional 4,794 dwellings. Thus a main driver for building activity in each municipality (except Boroondara) has been falling dwelling occupancy rates. As each suburb is well established, increased dwelling numbers can only be achieved by reclaiming non-residential land or by increasing the number of dwellings per residential lot.

Not only was there a variation in population growth rates in the case study, but Table 8 shows that the average population growth rates slowed in the four municipalities. In the case of Yarra there is a significant drop in population growth from 4.9 percent for the period 1991–96 to 2.7 percent growth for the period 1996–2001. The decline in the rate of growth in the other municipalities is less marked. In the Cities of Port Phillip and Stonnington, the fall was from 6.7 to 5.9 percent and 2.9 to 1.6 percent respectively. This compares to the City of Boroondara, where the fall in population growth rate was one tenth of a percentage point, from 2.3 to 2.2 percent.

Table 9 Dwelling occupancy rates\* – selected municipalities

Municipality	1991	1996	2001
Melbourne Metropolitan	2.81	2.69	2.43
Boroondara	2.51	2.47	2.51
Port Phillip	1.96	1.91	1.88
Stonnington	2.20	2.13	2.11
Yarra	2.32	2.21	2.13

\* Refers to persons per occupied private dwelling (excluding overseas visitors).

Source: DOI (1995, 1998), DSE (2003)

The trend to higher rise construction is evident in these municipalities. Limited data available for 1997–98 (Buxton and Tieman 1999), suggests that Port Phillip and perhaps Stonnington were the only two of the four in that year to approve any dwellings in buildings four storeys or over. In Port Phillip highrise developments accounted for less than 16 per cent of dwellings approved in medium density developments. However, five years later approximately 50 per cent of the medium density dwellings approved across the municipalities of Port Phillip, Stonnington and Yarra in 2002–03 were in buildings four storeys or more, and therefore not regulated by Clause 55 of *Rescode* (Table 10). High rise approvals while lower in Boroondara are still significant accounting for 26 percent of medium density approvals in 2002–03

Table 10 Dwelling approvals – four storeys or more – selected municipalities

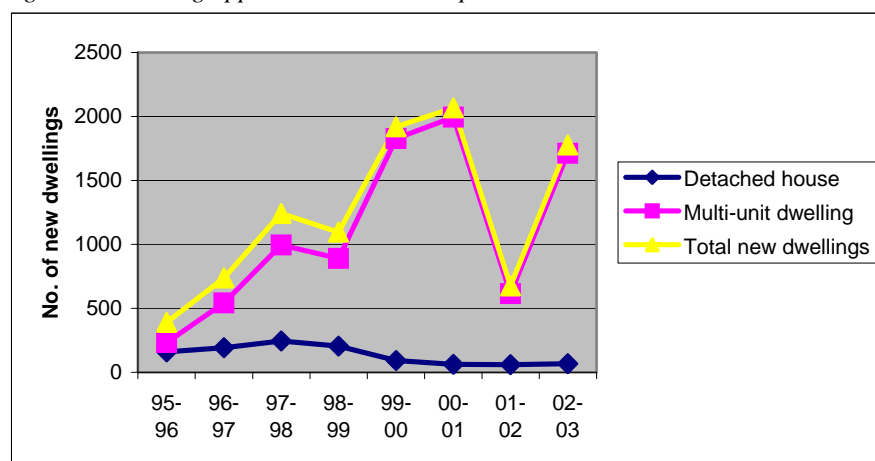
Municipality	No. of dwellings approved in buildings of 4 storeys or more	No. of dwellings 4 storeys or more as percentage of <u>medium density approvals</u> (%)	Total dwelling approvals
Boroondara	135	26	730
Port Phillip	492	64	795
Stonnington	199	44	551
Yarra	189	49	421

Source: Building Commission (2003)

### City of Port Phillip

The increase in multi-unit dwelling building approvals was most significant in the City of Port Phillip, from 232 dwellings in 1995–96 to a peak of 1995 dwelling approvals in 2000–01 (Figure 11). This represented a 750% increase in five years. Thus, for a number of years, Port Phillip has had the highest number of medium density dwelling approvals, including high density approvals, outside the CBD (ABS Building Approvals 8731.2). The other trend that has occurred is the fall in the number of new detached dwelling approvals, from 150–250 annually in the mid to late 1990s to less than 70 approvals for each of the last three years.

Figure 11 Building approvals – Port Phillip 1995/6 to 2002/3



Source: ABS Building Approvals Victoria 8731.2 (various years)

Multi-unit development approvals have been significant in the City of Port Phillip and rose steeply between 1995–96 and 2000–01, from 232 to 1995 new dwellings per annum. At the same time detached dwelling approvals fell from between 150–250 per annum to less than 70 per annum. New dwelling approvals in 2001–02 slumped to a total of 675 only to recover to 1778 in 2002–03. For an established Inner Melbourne municipality, these levels of new dwelling approvals are significant.

Table 11. Small, medium and large building approvals – Port Phillip 2002–03

Type of dwelling	No. Permits	No. Dwellings
Single Detached	24	24
Dual occupancy -detached	30	38
Dual occupancy -attached	22	39
3–9 dwellings	22	39
10–50 dwellings	27	326
51+ dwellings	4	304
<b>Total dwelling approvals</b>	<b>127</b>	<b>822</b>

Source: Building Commission (2003)

Note: For all four municipalities Building Commission figures shown in the tables vary from ABS figures shown in the graphs. See discussion under ‘Data Collection and Coding’ in the methodology section. Building Commission figures have been extrapolated using precise fields discussed in the methodology chapter.

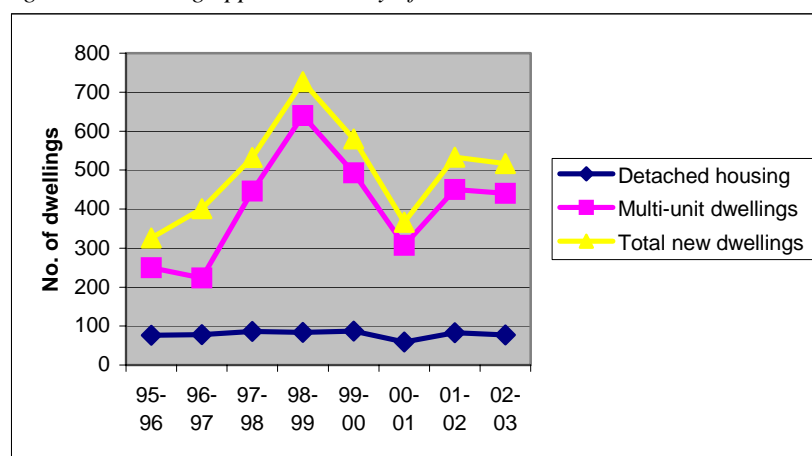
Medium density dwelling approvals accounted for 798 of 822 dwellings approved in the City of Port Phillip in 2002–03 (Table 11). 21 percent (168 dwellings) of the total medium density approvals were dual occupancy and small scale developments, 41 percent were medium size developments and 38 percent were large scale developments.

Sixty one per cent of detached dwellings approvals were dual occupancy and included as new medium density dwellings.

Port Phillip had the lowest “small scale” approvals as a percentage of total medium density approvals. However, small scale developments, remained very significant in terms of the proportion of building permits they generated for medium density dwellings. 72 out of 101 permits were for small scale building approvals.

### City of Yarra

Figure 12 Building approvals – City of Yarra 1995–96 to 2002–03



Source: ABS Building Approvals Victoria 8731.2 (various years)

Multi-unit building approvals in the City of Yarra increased sharply from 250 in 1995–96 to 640 in 1998–99 only to slump then steady at around 450 multi-unit approvals per year since 2001–02. The level of detached housing approvals has been consistently below 90 per annum, and has represented less than 20 percent of total dwelling approvals since 1997–98.

Table 12. Small, medium and large scale building approvals – Yarra 2002–03

Type of dwelling	No. Permits	No. Dwellings
Single Detached	38	38
Dual occupancy -detached	28	34
Dual occupancy -attached	32	46
3–9 dwellings	15	80
10–50 dwellings	5	74
51+ dwellings	2	149
<b>Total dwelling approvals</b>	<b>120</b>	<b>421</b>

Source: Building Commission 2003

Small-scale dwelling approvals were significant in the City of Yarra in 2002–03, both numerically and proportionately (Table 12). Approvals for dual occupancy and small scale developments totalled 160 dwellings or 42 percent of medium density approvals

(Table 12). Medium scale and large scale developments accounted for 19 percent and 39 percent of medium density approvals respectively. 47 per cent of detached dwelling approvals were dual occupancy, adding to the total medium density approvals.

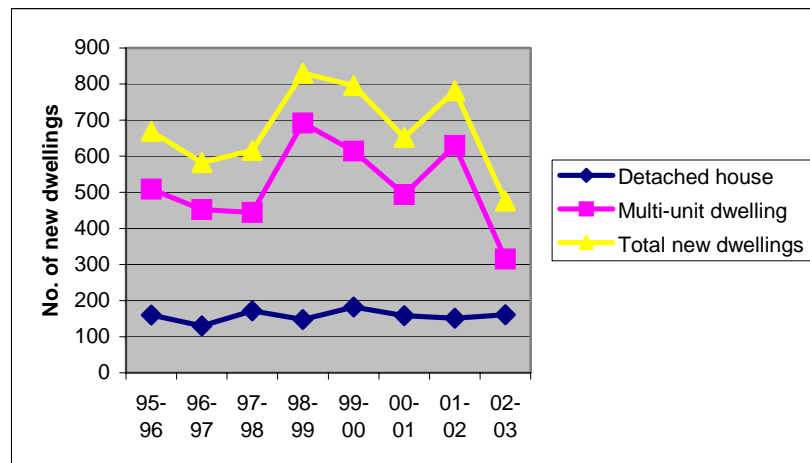
### City of Stonnington

Multi-unit developments have been a significant proportion of new dwelling approvals in the City of Stonnington over the eight years 1995–96 to 2002–03 (Figure 13). In contrast with the metropolitan wide trend, the level of detached housing approvals has been steadier than multi-unit approvals. The proportion of multi-unit developments to total approvals has varied from a low of 66 percent in 2002–03 to a high of 83 percent in 1988–89. In 2002–03, multi-unit approvals fell nearly 40 percent from the level the previous year, hitting a low of 315 dwellings (ABS 8731.2).

Flats, units and apartments represent the largest proportion of Stonnington’s dwelling stock. This situation was unchanged between 1991 and 2001, with apartments, units and flats almost three times the number of semi-detached and row houses (ABS 2003a).

An examination of the distribution of the medium density dwellings in Stonnington shows that of 472 dwellings approved in 2002–03, 192 dwellings (or 41 per cent) were dual occupancy or small scale developments (Table 13). This compared with medium and large scale development approvals which accounted for 39 percent and 20 percent of total medium density approvals respectively. Also 36 per cent of detached dwelling approvals were for dual occupancy, adding to the number of medium density dwelling approvals.

Figure 13 Building approvals – City of Stonnington 1995–96 to 2002–03



Source: ABS Building Approvals Victoria 8731.2 (various years)

Table 13. Small, medium and large scale building approvals – Stonnington 2002–03

Type of dwelling	No. Permits	No. Dwellings
Single Detached	99	99
Dual occupancy -detached	45	56
Dual occupancy -attached	23	42
3–9 dwellings	20	94
10–50 dwellings	12	184
51+ dwellings	1	96
<b>Total dwelling approvals</b>	<b>200</b>	<b>571</b>

Source: Building Commission 2003

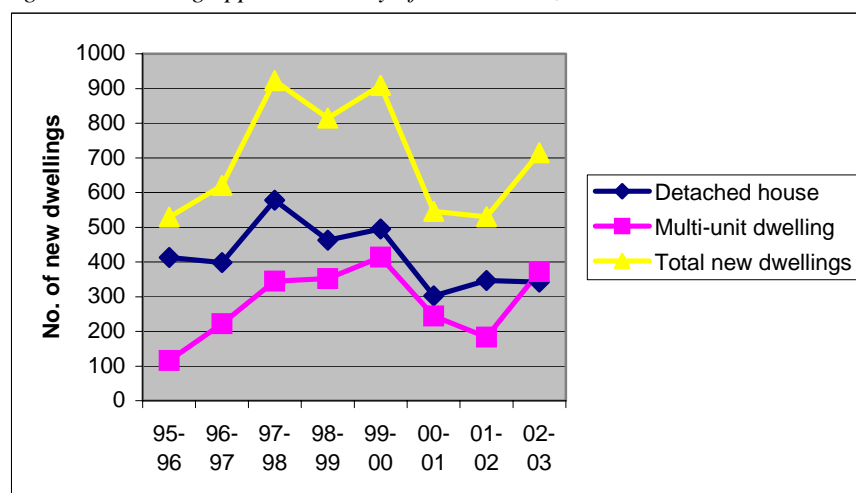
Again, smaller scale dwelling approvals remained very significant in 1997–98 and in 2002–03, both numerically and proportionately (Tables 13 and 15). This is also reflected in the distribution of permit approvals. There were some 101 medium density applications approved in 2003, of which 88 were for smaller scale developments.

### City of Boroondara

The City of Boroondara has had a significant level of dwelling construction activity since the mid-1990s, even though it experienced a serious slump for the year 1999–00 to 2000–01 (Figure 14). After a further year of stagnation total dwelling approvals have increased. Detached housing approval numbers continued to stagnate compared to multi-unit approvals which increased sharply. In 2002–03, the level of multi-unit dwelling approvals had almost recovered to the previous peak, and for the first time was greater than detached dwelling approvals. This may mark a new direction for dwelling approvals in the City of Boroondara. Up until 1999–2000 multi-unit approvals had been increasing steadily, but at a lower level than detached housing approvals. The figures for 2002–03 indicate that multi-unit approvals may now have its own trajectory above the level of detached dwelling approvals.



Figure 14 Building approvals – City of Boroondara, 1995–96 to 2002–03



Source: ABS Building Approvals Victoria 8731.2 (various years)

The dwelling stock in Boroondara and Stonnington contained a higher proportion of flats, units and apartments than semi-attached and row housing. However, this changed in the 1990s with the faster growth of attached forms of housing (Appendix C). Recent dwelling approval figures (Table 10) show signs of a trend back towards apartment type development, with higher rise development an indicator of such developments.

Table 14. Small, medium and large scale building approvals – Boroondara 2002–03

Type of dwelling	No. Permits	No. Dwellings
Single Detached	220	220
Dual occupancy -detached	77	99
Dual occupancy -attached	49	95
3–9 dwellings	27	103
10–50 dwellings	8	174
51+ dwellings	1	64
<b>Total dwelling approvals</b>	<b>382</b>	<b>755</b>

Source: Building Commission 2003

Table 14 shows that 70 per cent of dwelling approvals in Boroondara were medium density in 2002–03. However, smaller scale developments still predominate. In 2002–03, 297 dwellings or 55 per cent of all medium density approvals were for dual occupancy or small scale developments (3–9 units). Medium and large scale dwelling approvals accounted for 33 and 12 per cent respectively. Some 31 per cent of detached dwelling approvals in the municipality were dual occupancy, categorised as medium density for the purposes of this study.

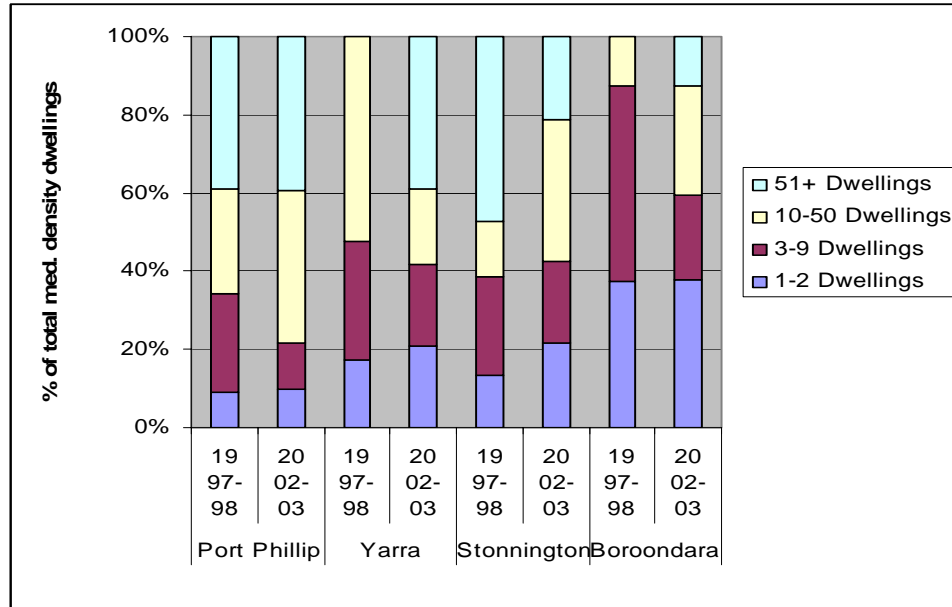
The incremental nature of medium density developments in Boroondara is represented by the distribution of the medium density housing permit approvals. Of the 162 ‘medium density’ building permit approvals only nine were for medium and large scale developments.

### **Boroondara, Port Phillip, Stonnington and Yarra: a comparison**

In the municipalities studied, there is a trend towards large and medium scale dwelling construction, except for Stonnington, which remained much the same when comparing 1997–98 and 2002–03. The proportion of small scale and dual occupancy approvals, together, remained the largest category except for Port Phillip (Figure 11). However, the proportion of approvals of 9 units or less is falling (Figure 13). The number of dual occupancy and small scale dwellings (between 1–9 units) as a percentage of total medium density dwellings also varied between the four municipalities. In 2002–03 the percentage ranged from a high of 59 per cent in Boroondara to 42 per cent in Stonnington, 42 per cent in Yarra, and low of 22 per cent in Port Phillip. This compares to 1997–98 where small scale medium density developments represented 87 per cent in Boroondara, 47 per cent in Yarra, 38 per cent in Stonnington and a low of 32 per cent in Port Phillip (Buxton and Tieman, 1999). Clearly, then, small, incremental style developments remain the dominant form of medium density development in Boroondara.

There were significant differences also between the four municipalities on the distribution between medium (containing 10–50) and large scale (over 50) developments. Large scale developments comprised a higher proportion of approvals in Yarra and Port Phillip than in Boroondara and Stonnington, at 39 per cent each compared to 13 and 22 percent respectively. Yarra contained the lowest proportion of medium density dwellings in medium sized developments. Dual occupancy approvals remained a significant proportion of medium density approvals (comparing 1997–8 and 2002–3) and comprised more than half of all developments under 10 dwellings, thus contributing substantially to the number of development permits generated, and therefore magnifying perceptions of the extent to which medium density developments are occurring. In each municipality, small scale developments generated the most number of building permit applications.

Figure 15 Distribution of medium density approvals by scale of development, 2002–03

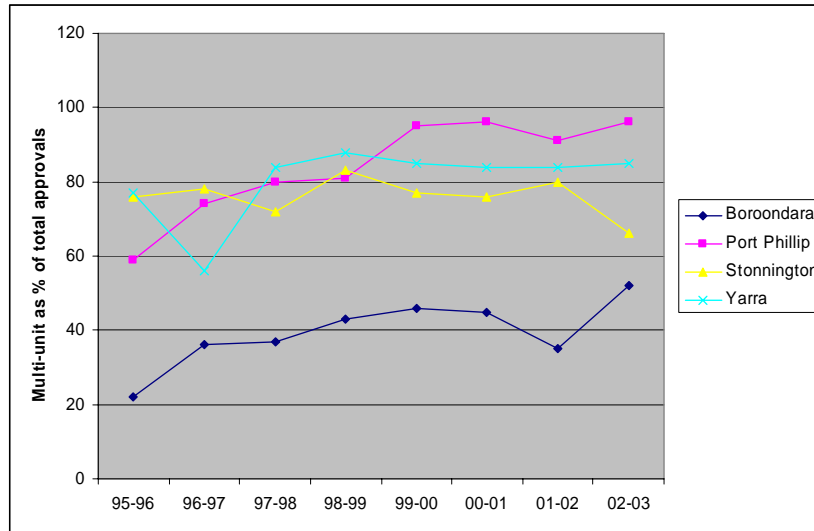


See Buxton and Tieman (1999). 1997/8 figures are based on planning permit approvals, whereas 2002/3 figures are based on building permit approvals. See 'methodology' section for further discussion.

For example in 2002–03, the 730 medium density dwellings approved in the City of Boroondara generated 380 building permits, whereas for the 795 dwellings approved in the City of Port Phillip 183 building permits were generated. Again, it was the 1–2 dwelling approvals that contributed the highest number of permits issued. This pattern was unchanged from the late mid to nineties (Buxton and Tieman 1999). Nevertheless, dual occupancies declined slightly as a proportion of small scale developments in three of the four municipalities. In 2002–03 in Boroondara dual occupancies represented 63 per cent of small scale developments down from 75 per cent in 1997–98, in Port Phillip 46 per cent down from 48 per cent, in Stonnington 57 per cent compared 53 per cent, and Yarra 50 per cent down from 57 per cent.

The change in multi-unit developments as a percentage of total approvals followed a different pattern in the case of each municipality (Figure 16). Multi-unit developments started from a low 22 per cent in Boroondara in 1995–96, steadied in the late 1990s and early 2000s only to increase again to 52 per cent of dwelling approvals in 2002–03. Multi-unit developments in Port Phillip were at below 60 percent in 1995–96. However after 1998–99 multi-unit dwelling approvals increased to around the 95 per cent mark. The trend has been similar in Yarra and Stonnington, with multi-unit approvals hovering around the 85 per cent mark since 1997–98 in Yarra, and some 7–8 percentage points lower in Stonnington.

Figure 16 Multi-unit approvals as a percentage of total dwelling approvals



Source: ABS Cat. No. 8731.2 (various years)

Table 15 Dual occupancy, small, medium and large scale medium density dwelling approvals, 1997–98 and 2002–03

	Year	1–2 Dwelling	No. Permit	3–9 Dwelling	No. Permit	10–50 Dwelling	No. Permit	51+ Dwelling	No. Permit
Port Phillip	1997–98	129	88	368	72	382	14	566	8
	2002–03	77	52	91	20	299	25	304	4
Yarra	1997–98	120	80	211	51	361	15	0	0
	2002–03	80	60	80	15	74	5	149	2
Stonnington	1997–98	118	65	223	51	128	7	417	2
	2002–03	98	68	94	20	164	10	96	1
Boroondara	1997–98	210	152	280	72	71	6	0	0
	2002–03	192	126	111	27	143	6	64	1

	Year	Total Medium-Density Dwellings Approved	Total Permits
Port Phillip	1997–98	1445	182
	2002–03	771	101
Yarra	1997–98	692	146
	2002–03	383	82
Stonnington	1997–98	883	125
	2002–03	452	99
Boroondara	1997–98	561	230
	2002–03	510	160

Source: Buxton and Tieman 1999; Building Commission 2003. Unpublished data

## Demolitions<sup>1</sup>

The level of demolitions is significant for three reasons. First, it has an impact on the net increase in the dwelling stock. In established suburbs, an increase in the dwelling stock indicates an intensification or densification of housing. The lower the demolition of existing dwellings the higher the efficiency rate, and the higher the net increase in dwelling stock. Figure 10, earlier in this Chapter, showed that the stock of detached housing in Boroondara, Yarra and Stonnington fell between 1991 and 2001. Second, demolitions contribute to a change in the type of housing stock – between detached and attached forms of housing – or between medium density and low density housing forms. Changes in the dwelling stock occur when a single detached house is demolished to make way for new row, townhouse or unit or apartment style dwellings. Figure 8 showed that between 1991 and 2001 the housing stock in all four municipalities has shown an increase in medium density housing forms, though the change in the stock percentages was less significant because of the overall increase in dwelling numbers.

The data on building and demolition approvals for 2002–03 was obtained from the Building Commission. The 1997–98 demolition and building approval figures have been taken from Buxton and Tieman (1999), but using the efficiency percentages of Lewis (1999: 116). Comparing the two years 1998–97 and 2002–03 (Table 16) it is apparent that demolitions remain significant in the municipality of Boroondara, particularly as they affect the net increase in dwellings. In 2002–03, Boroondara there were a total of 730 new building approvals. However, because 290 dwellings were demolished, the net gain in the municipality for that year was a more modest 440 dwellings, or an efficiency rate of only 60 percent. The number of demolitions was much lower in Port Phillip and hence the efficiency rate was a much higher 93 percent. The number of dwelling demolitions in Stonnington and Yarra fell between 1997–98 and 2002–03 by an amount of 100 dwellings per annum or more, and while the number of dwelling approvals was also less, the efficiency rate increased significantly (Table 16).

*Table 16. Building approvals and demolitions selected municipalities, 1997–98 and 2002–03*

	Year	Total dwelling approvals	Dwelling demolitions approved	Nett gain of new dwellings	Efficiency rate
Boroondara	1997–98	923	290	633	68
	2002–03	730	290	440	60
Port Phillip	1997–98	1242	96	1146	93
	2002–03	795	59	736	93
Stonnington	1997–98	616	222	394	64
	2002–03	551	106	445	81
Yarra	1997–98	532	167	365	69
	2002–03	421	66	355	84

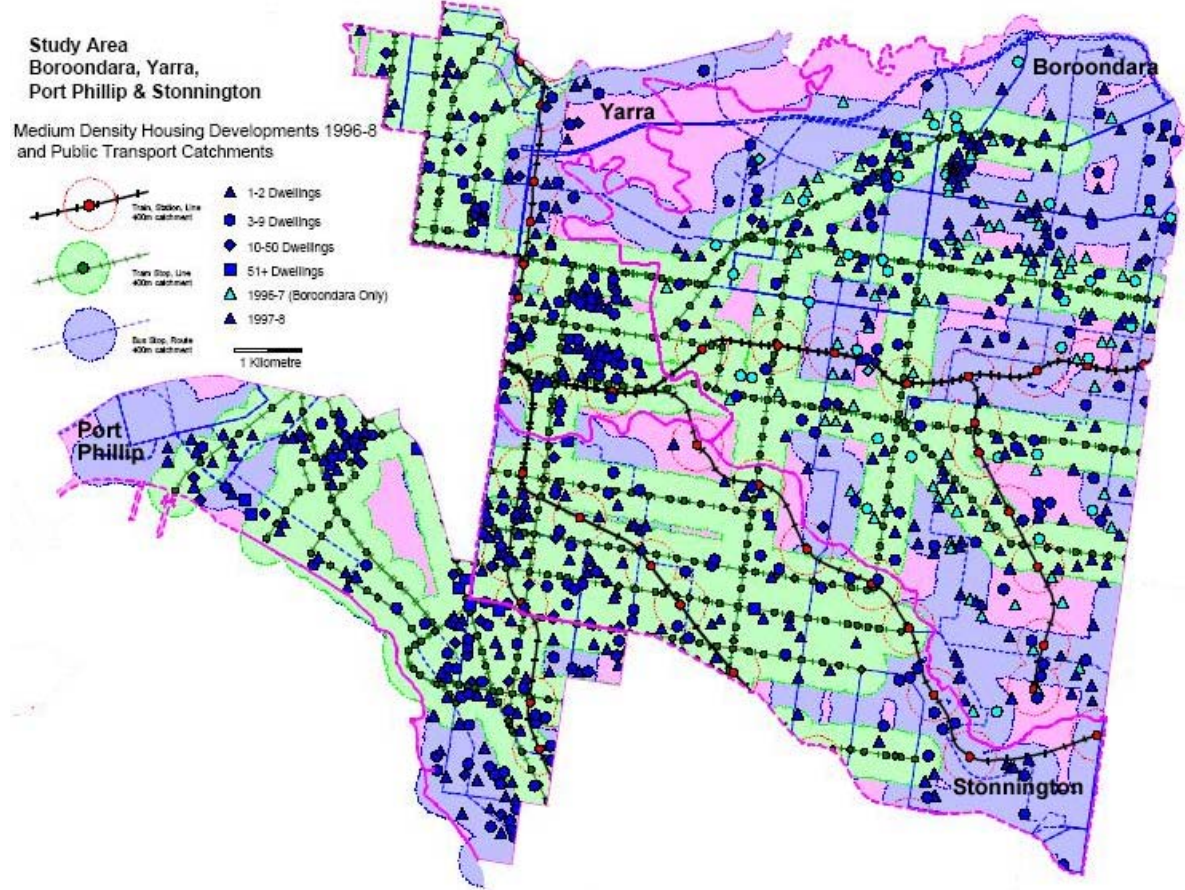
<sup>1</sup> The figures in this section only refer to the demolition of residential buildings (BCA Class 1 and 2).

Third, there is the impact on neighbourhood character and the loss of heritage value. Councils have introduced heritage overlays as a means of controlling dwelling demolitions and preserving urban character. *Rescode* has introduced a Neighbourhood Character Overlay (NCO), which allows councils to introduce an additional level of control. Available data did not indicate the extent to which single dwellings were being replaced with multi-dwelling constructions. Most demolition permits were issued separately from building approval permits, and dwellings were demolished prior to the issuing of the new building permit. Unless the demolition permit and new building permit were issued in the same year (2002–03) it was not possible to correlate the two separate permits.

### **Location**

A mapping exercise, locating medium density approvals for 1997–98 and 2002–03 was completed for all four municipalities (Individual maps for each of the four municipalities are found in Appendix B). All the maps show the location of medium density developments in relation to public transport. Tables 17 and 18 show the number and percentage of developments approved for locations within 400 metres of a train station, or a tram or bus route for each type of development studied. These figures are shown for each municipality and have been totalled for all municipalities.

Figure 17 Location of medium density approvals by scale, selected municipalities, 1997–98



Source: Buxton and Tieman (1999)

Figures 17 and 18 show that the location of development in 1997–98 and 2002–03 varied significantly across the municipalities studied. Medium density approvals in Boroondara in 1997–98 and 2002–03 remain largely dispersed. This is because of the large percentage of smaller scale developments. Developments remained more concentrated in Port Phillip, Stonnington and Yarra, increasing in Port Melbourne and South Melbourne, Beaconsfield Parade, Toorak–Kooyong and Fitzroy/Collingwood. Larger developments tended to be concentrated in the two municipalities closest to the CBD, Yarra and Port Phillip and those parts of Stonnington (ie. Prahran) nearest the CBD. Medium scale and large scale approvals tended to be concentrated around activity centres in all four municipalities.



Figure 18 Location of medium density approvals by scale, selected municipalities, 2002–03

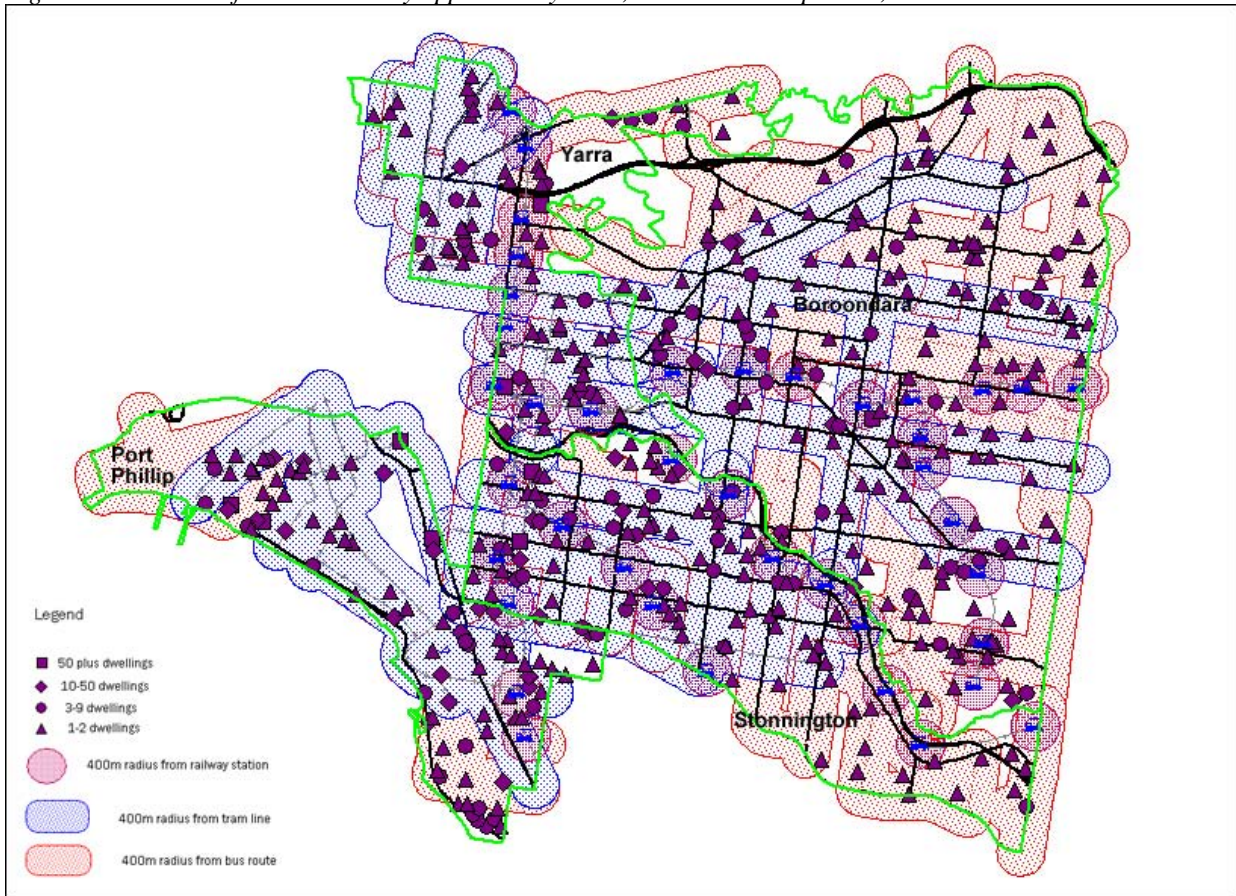


Table 17 Number of approvals by type, within 400 metres of public transport, 1997–98

	1–2 dwellings	3–9 dwellings	10–50 dwellings	51+ dwellings	Total
Boroondara	150	70	7	0	227
Port Phillip	66	56	12	7	141
Stonnington	60	49	9	2	120
Yarra	65	44	10	0	119
Total approvals within 400m	341	219	38	9	607
<b>Total approvals (all locations)</b>	<b>385</b>	<b>235</b>	<b>40</b>	<b>9</b>	<b>669</b>

Source: Buxton and Tieman (1999)

Table 18 Number of approvals by type, with 400 metres of public transport, 2002–03

	1–2 dwellings	3–9 dwellings	10–50 dwellings	51+ dwellings	Total
Boroondara	126	28	6	1	161
Port Phillip	50	19	18	4	91
Stonnington	67	20	10	2	99
Yarra	56	15	4	2	77
Total approvals within 400m	299	82	38	9	428
<b>Total (all locations)</b>	<b>309</b>	<b>82</b>	<b>46</b>	<b>9</b>	<b>446</b>



Tables 17, 18, 19 and 20 show the number of medium density development approvals within 400 metres of public transport. Melbourne's rail network is less extensive than that of the trams and buses. However, rail has a greater capacity to transport passengers and offers greater travel time savings than other modes of public transport. While the number of medium density developments within 400 m of public transport fell significantly in the four municipalities studied from 607 in 1997–8 to 428 in 2002–03 due to the fall in small scale dwellings (containing 3–9 dwellings), the proportion of all medium density developments within 400 metres of public transport increased from 85 to 95 per cent (Tables 19 and 20).

A low percentage of permit approvals for all categories of development were located within 400 metres of a rail station for all municipalities, though developments in Stonnington and Yarra had a much higher proximity to rail than Boroondara and Port Phillip: in 1997–98, the figures were 4 per cent for Boroondara, 21 per cent for Stonnington, 20 per cent for Yarra, and 9 per cent for Port Phillip for an average total of 11 per cent (Table 19). This increased to an average of 17 per cent in 2002–03 (Table 20), with increased proximity to rail across all sizes of developments. Whereas in 1997–98 only one of nine large scale developments (51+) was located within 400 metres of a train station, in 2002–03 four of nine such developments, or 44 per cent, were within 400 metres. These figures demonstrate that while medium density approvals in proximity to rail is the lowest of all modes of public transport, the shift is consistent with *Melbourne 2030* objectives.

Much higher percentages were located within 400 metres of a tram or bus routes in all municipalities. In 1997–98 the total percentage for trams was 62 per cent, and for buses 68 per cent, with 85 per cent within 400 metres of a rail station or tram or bus route. From 1997–98 to 2002–03 there was a marginal improvement in the percentage of dwelling approvals in proximity to trams, increasing from 59 per cent to 63 per cent. The increase in proximity to bus routes was more significant, an improvement of 7 percentage points, from 61 per cent in 1997–98 to 68 in 2002–03. This would have been higher except for a decrease in the percentage of medium scale developments (10–50 dwellings) in proximity to bus routes. In general, the larger the size of the development the greater the proportion of permit approvals in proximity to public transport. For example, 37 dual occupancy developments were approved for all municipalities within 400 metres of a rail station for 1997–98. This represents 10 per cent of all 1–2 unit developments approved. A total of 11 per cent of all developments (for all types) were approved within 400 metres of a rail station.

Also, there was a significant increase in the proportion of dual occupancy developments within 400 metres of public transport, but particularly train and bus, from 84 per cent in 1997–8 to 95 per cent in 2002–03. There were significant differences in proximity by development category to mode. In 1997–98, only 13.90 per cent of all total small scale approvals in Boroondara (1–2; 3–9 dwellings) and 18.84 per cent in Port Phillip were within 400m metres of a rail station compared to 39 per cent in Stonnington and 41.19 per cent in Yarra. For all modes, much higher percentages were located within 400

metres of tram or bus routes in the four municipalities, and a very high concentration of medium or large scale approvals within 400 metres of all modes, with almost identical figures in 1997–98 and 2002–03. This is a consequence of the extensive public transport system in Melbourne’s inner suburbs.

*Table 19 Number and % of permit approvals within 400m of a train station or tram or bus route by type of development for the four municipalities (1997–98)*

Type	1–2 dwelling	Type %	3–9 dwelling	Type %	10–50 dwelling	Type %	51+ dwelling	Type %	Total	%
Train	37	10	32	14	5	13	1	11	75	11
Tram	216	56	142	60	27	68	7	78	392	59
Bus	228	59	141	60	30	75	6	67	405	61
Train/ Tram	228	59	151	64	29	73	7	78	415	62
Train/ Bus	247	64	155	66	32	80	7	78	441	66
Tram/Bus	320	83	203	86	36	90	9	100	568	85
Train/Tram/ Bus	322	84	204	87	36	90	9	100	571	85
<b>Total approvals</b>	<b>385</b>	<b>100</b>	<b>235</b>	<b>100</b>	<b>40</b>	<b>100</b>	<b>9</b>	<b>100</b>	<b>669</b>	<b>100</b>

All percentages are rounded to the nearest per cent.

Source: Buxton and Tieman (1999)

*Table 20 Number and % of permit approvals within 400m of a train station or tram or bus route by type development for the four municipalities (2002–03)*

Type	1–2 dwelling	Type %	3–9 dwelling	Type %	10–50 dwelling	Type %	51+ dwelling	Type %	Total	%
Train	46	15	16	20	6	16	4	44	72	17
Tram	176	59	59	72	24	63	7	78	268	63
Bus	209	70	49	60	24	63	9	100	291	68
Train/ Tram	209	70	62	76	29	76	8	89	307	72
Train/ Bus	231	77	60	73	29	76	9	100	329	77
Tram/Bus	280	94	75	91	35	92	9	100	401	94
Train/Tram/ Bus	285	95	75	91	36	95	9	100	407	95
<b>Total approvals</b>	<b>299</b>	<b>100</b>	<b>82</b>	<b>100</b>	<b>38</b>	<b>100</b>	<b>9</b>	<b>100</b>	<b>428</b>	<b>100</b>

## 5.0 Discussion and Conclusions

### Trends in urban consolidation

The introduction of medium density residential codes in their various forms helped facilitate a boom in multi-unit housing in Melbourne from the mid 1990s. These codes have broadly failed as a tool to facilitate metropolitan wide urban consolidation. While consolidation has occurred, as measured by changes in the proportion of multi-unit housing, this has been mainly concentrated in Inner Melbourne (see Figure 3), where attached forms of housing represents nearly 40 per cent of total dwelling stock, well above the Metropolitan average of 24 percent (Figure 19). A trend to larger scale and higher rise forms of dwellings has also occurred. There has been barely any change in the proportion of attached forms of housing in Outer Melbourne during the same period. Multi-unit dwelling stock in Outer Melbourne increased from 10.1 percent in 1991 to 10.5 per cent in 2001.

Market forces have failed to deliver increased housing choice, diversity and affordability in most of Melbourne. This is evident from the general distribution of multi-unit development in Melbourne. Further detailed research on these issues would be worthwhile. The relative lack of multi-unit housing in Outer Melbourne, limits choice for those who, either willingly or through financial necessity, purchase land there for the construction of single detached dwellings. In the main, the housing and development industry has yet to fully absorb the message of the projected demographic changes outlined in *Melbourne 2030* that 90 per cent of new households between 2001 and 2030 will consist of one and two person households. To some extent that future has already arrived. For the period 1991–2001 the net dwelling stock in Outer Melbourne increased by 134,479 for an increase in population of 262,720, or an average dwelling occupancy rate of 1.95, well below the 2001 Melbourne Metropolitan average of 2.43 (calculated from ABS 2003b). This is not to suggest that single or two person households have uniform demands for housing (see Wulff 2001). However, it does suggest increased future demand for a greater diversity in housing choices than is currently being offered, that is ‘housing demand and preferences are shaped by the size and composition of households’ (Wulf 2001: 467).

The relatively small amount of attached or other forms of multi-unit housing in outer suburbs has also resulted in the very low housing densities there including in greenfield sites in the development corridors. The increase to 15 lots per hectare for the growth corridors suggested in *Melbourne 2030* would still be a comparatively low figure by international standards. For example, the UK Government is requiring densities of between 30–50 lots per hectare in new Greenfield sites in a move towards European averages, and is arguing that the current UK average of 25 lots per hectare is insufficient.

Identified infill sites both inside and outside activity centres can make a major contribution to the achievement of *Melbourne 2030* principles. The Department of Infrastructure publication *Consolidating our city: residential redevelopment in*

*Melbourne* (6<sup>th</sup> Issue March 2002) identified 1210 sites with a potential yield of 87,366 dwellings (57,801 in the inner ring of 15 municipalities). By definition, these are sites which each yield 10 or more dwellings. Neither the number of sites, nor potential dwelling yields are final. Rather they represent land identified to date for potential residential development that is in some stage of development (mooted, planning or building). Of those potential infill dwellings in Inner Melbourne, over 50,000 are identified as attached new dwellings, and only 7,763 dwellings are identified as “detached” dwellings. By contrast, of the nearly 30,000 ‘redevelopment’ dwellings identified in Outer Melbourne, 16,700 are identified as detached and 12,700 are identified as attached. Many other suitable sites are available.

The four municipalities in the study case in this report accounted for 306 sites with a potential yield of 14,390 dwellings (DOI 2002a). Most were still in the planning or building stage. Between 1995 and February 2001, 7587 dwellings were identified as having been completed. Boroondara had completed 1263 dwellings, with a remaining potential yield of 1705 dwellings; Port Phillip had 3785 dwellings completed and 7781 uncompleted; Stonnington 1286 completed and 1828 uncompleted; Yarra 1253 completed and 3076 uncompleted. For Yarra and Port Phillip almost all redevelopment sites in the pipeline were identified as “attached” dwellings.

The construction of medium and higher density residential developments on the Department of Infrastructure’s redevelopment sites register and other larger sites could be described as “planned” in the sense that the sites have been identified independent of the development industry for their strategic potential and thus targeted for higher density residential developments. Developments in residential areas away from activity centres on nominated sites, irrespective of their size can be described as “incremental” in the sense that they are entirely market driven, and routinely occur in an opportunistic manner. Both types of development are guided by the provisions of *Rescode* for buildings up to three storeys, which applies to all land in Residential 1 and Residential 2 Zones, Mixed Use Zones and Township Zones. Medium density development that is incremental is generally characterized by being small to medium in scale and dispersed across suburbs. Small-scale developments typically occur on existing residential land, and involve a dual occupancy, the demolition of an existing house and construction of dwellings, or the use of two or more blocks which are then subdivided. Larger developments can occur in just as incremental a manner, but are restricted by the availability of larger blocks of land.

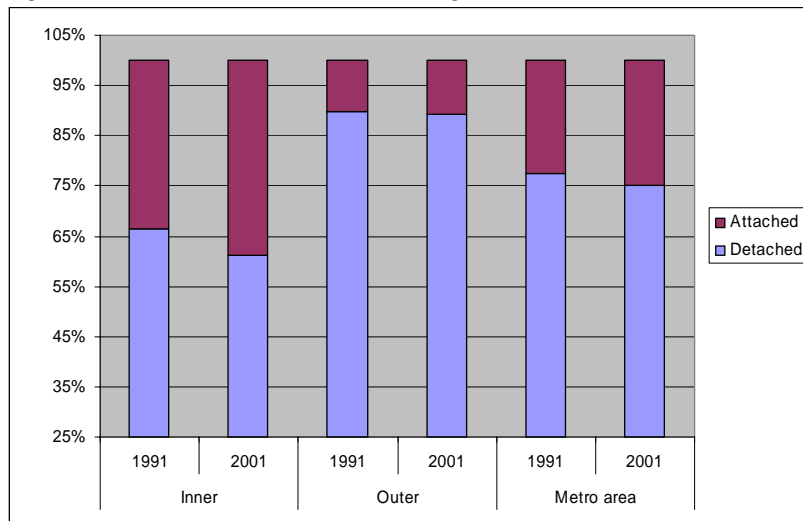
The declining proportion of small scale developments (3–9 dwellings) in total medium density approvals in the inner and middle ring suburbs in this study could reflect the impact of stronger standards in *ResCode* and changing market preferences. It may also reflect reduced availability of suitably sized blocks. However, the tendency since the mid-1990s towards more multi-storey and apartment styled buildings has meant that an increasing proportion of approvals fall outside the scope of medium density codes. The medium density code was introduced both to facilitate as well as control the type of housing developed. In 1995–96 the revised *Good Design Guide*, applied to just over 80 per cent of multi-unit development approvals in Melbourne. In 2001–02 *ResCode* applied

to 62 per cent and by 2002–03 to only 43 per cent of multi-unit development approvals. One factor contributing to this outcome has been the increasing dominance of multi-unit developments in the CBD, Southbank and Docklands and the surrounding suburbs. But the trend also reflects changing cost structures and industry avoidance of *ResCode* requirements which only apply to buildings up to three stories. While this trend may increase high rise development pressures in inner suburb areas such as Yarra, Stonnington and Port Phillip, the same market pressures may not apply in middle and outer areas.

The growth in multi-unit housing has been concentrated in areas like the Cities of Yarra and Port Phillip and Melbourne, areas with housing prices well above the metropolitan average. The increase in the number of these dwellings, therefore, has not contributed generally to an increase in the stock of affordable housing. Middle to upper income earners have generated the demand that has fuelled the current boom for new housing in Inner Melbourne, crowding out demand for low price accommodation, in the same areas, in both the rental and home ownership markets.

At the municipal level, the evidence points to a considerable local variation in patterns of medium density development, both in terms of the number of dwelling approvals and the type of dwellings approved, but also in terms of the impact of dwelling approvals on dwelling stock and populations. Medium density developments in the Cities of Boroondara, Port Phillip, Stonnington and Yarra differed from each other.

Figure 19 Detached and attached dwellings (%), Melbourne 1991 and 2001.



Source: DOI (1995); DSE (2003)

The inclusion of detached dwellings in the definition of medium density dwelling approvals is significant. ABS figures for medium density approvals exclude multi-detached dwellings on the same site. This study has found that 30 to 60 per cent of detached dwelling approvals in 2002–03 in each of the municipalities were medium

density dwellings in that they represented net new dwellings to existing lots. In the case of Stonnington and Boroondara, detached (dual occupancy) approvals accounted for 12 per cent and 19 per cent of total medium density dwelling approvals in 2002–03, respectively. Thus, trends and preferences toward medium density living are higher than indicated if relying on ABS attached dwelling ('other residential') figures. Dual occupancy and small-scale medium density housing is a dispersed model of urban consolidation that is favoured in those suburbs where detached dwelling stock is the norm.

The level of medium density dwelling approvals dropped significantly from 1997–98 to 2002–03. Nevertheless, the clear trend is towards an incremental increase in the urban density of these suburbs and a rise in the proportion of multi-unit developments in total dwelling approvals. New developments favour even higher density forms of housing. It is predictable, as land becomes scarcer that dwellings will be located closer together or take higher rise forms.

Dispersed and more strategic consolidation models are also evident in all four municipalities, though in different proportions. Boroondara, with its larger average block size and its significantly higher proportion of detached housing compared to the other three municipalities, provides greater scope for dispersed forms of consolidation through dual occupancy and small scale developments. These have in fact been the preferred form of development in Boroondara, both in 1997–98 and 2002–03, forming some 60 per cent of medium density approvals in 2002–03, down from 87 per cent in 1997–98.

In contrast, development in Port Phillip and Yarra, which both have traditional medium density attached dwelling stock, has favoured more concentrated forms of consolidation through medium and large scale medium density developments as well as dwellings over three storeys. Both municipalities have used heritage overlays to control development. However, Port Phillip appears to be taking a more proactive approach by facilitating higher density development in particular areas within the municipality, such as St Kilda Road and Queens Road, while Yarra is adopting a more restrictive approach.

### **Policy considerations for consolidating Melbourne**

The continuing rise in the proportion of multi-unit dwelling developments in total new dwelling approvals demonstrates the substantial nature of changes to dwelling preferences in Metropolitan Melbourne over the past fifteen years. Total dwelling approvals in Melbourne were significantly higher in 2002–03 than in 1988–89, even though fewer detached houses were constructed. The difference of some 9000 dwelling approvals was accounted for by the rapid increase in the number of multi-dwelling development approvals, an increase of four and one half times during this period.

Urban consolidation is occurring unevenly across Melbourne. Higher rise and larger developments have been concentrated in inner urban activity centres with little indication of industry interest in redevelopment of outer area activity centres. As has been

discussed by others (Burke and Hayward 2001) this is also having an impact on relative prices for those suburbs experiencing the boom in medium density living, reducing housing affordability for the majority and is pushing out lower income households, either rental or owner occupiers.

Relating the findings of this research to *Melbourne 2030*, it is important to consider some dimensions of the impact of this housing development shift. The findings of this research highlighted the factors which will make the population distribution envisaged in *Melbourne 2030* so difficult to achieve. Despite the growth in medium density housing and its concentration in inner Melbourne suburbs, more than eighty percent of Melbourne's growth in population is occurring in Outer Melbourne where 60 per cent of new housing is being approved. Demographic trends across Melbourne before 1991 showed a steady decline in the populations of middle and inner suburban areas. This trend has since reversed, particularly in inner suburbs, however the proportion of population growth contributed by Inner Melbourne is still decreasing overall. The growth in dwellings may not translate into population targets, particularly in middle and inner suburbs, because dwelling occupancy rates continue to fall and demolitions reduce the net increase in dwelling stock. Falling dwelling occupancy rates have implications for municipal housing stock, for example, the population of the City of Port Phillip in 1996 required an additional 3462 dwellings compared to what would have been required in 1991 to house the same population, and a further 3,009 to house the population of 2001. This suggests that the micro population targets set as part of *Melbourne 2030* may be difficult to achieve.

Regional Housing Working Groups in developing their targets must aim higher than the targets set in *Melbourne 2030*. Demolition of housing in the construction of one or more dwellings reduces the net addition to the dwelling stock arising from a given level of approvals. *Melbourne 2030* estimates that an additional 620,000 dwellings will be required to house an additional one million population. However the gross number of dwellings required is likely to be significantly higher, because 70 percent of the dwellings are proposed to be located within the existing urban area and will involve some demolition of existing stock. For example, an efficiency rate (that is, new dwellings minus demolitions of existing stock divided by total dwelling approvals) of 80 per cent will require an additional 531,000 medium density dwelling approvals instead of the 425,000 dwellings projected in existing suburban Melbourne by 2030. An efficiency rate of 60 percent, the level achieved in Boroondara, will require an additional 708,000 dwelling approvals. This needs to be seen in the context of an existing total dwelling stock for Melbourne (MSD) of 1,230,000 dwellings. Thus the lower the efficiency rate the greater the gross dwelling approval rate required, and the higher the target to accommodate the same required additional population.

The pattern of urban consolidation raises some concerns for the government's new metropolitan strategy, *Melbourne 2030*. These problems particularly relate to the concentration of multi-unit development in the inner areas of Melbourne, the shift towards larger and medium scale developments, and the trend to higher rise apartments and attached units in place of other types of multiple dwelling projects. The changes

proposed in *Melbourne 2030* may be insufficient to achieve the strategy's outcomes. This policy aims to direct 425,000 new dwellings, 70 per cent of total residential development, into the existing metropolitan area by 2030, including 255,000 dwellings into over 100 nominated activity centres. Most of these dwellings will be in medium density or high rise developments. However, the figure of 425,000 dwellings would be almost double the recent urban consolidation rate, taking the development of attached forms of housing as a measure of the consolidation rate. In the decade 1991–2001 80,888 medium and high rise dwellings were built (see Table 2). Maintaining this rate would yield only 242,664 dwellings over the 30 year period of the strategy, well below the proposed 425,000 dwellings. As previously discussed, while the ABS figures understate the true extent of medium density development it would not account for the discrepancy of 180,000 dwellings discussed here. The absorption capacity of the medium density dwellings is not a consideration as *Melbourne 2030* states that one and two person households will constitute some 90 per cent of the increase in households during the period.

The implementation of *Melbourne 2030* raises some other special concerns for population increases, particularly for the inner suburbs. Firstly, *Melbourne 2030* plans for the construction of 80,000 additional dwellings in the municipalities of Melbourne, Port Phillip, Yarra and Stonnington (part), an amount equal to the total medium and high density dwellings constructed in metropolitan Melbourne between 1991 and 2001. Large areas of Melbourne's inner suburbs could be redeveloped under this policy, yet these are already the most compact areas with the highest heritage value. For example, Smith Street in Yarra has been subject to a proposal for a large redevelopment. Further concentration in these areas, unless carefully located, is likely to place additional strains on their ability to absorb major population increases. A more targeted program of developing nominated infill sites may be required.

This will require stronger regulation from local government, with the ability to introduce local variations to ResCode, more effective heritage overlays and height controls. The Neighbourhood Character Overlay (NCO) is one such initiative allowing local variations within ResCode. However, after nearly three years since its introduction, no Melbourne Metropolitan municipality has an approved NCO in place, suggesting problems with the use of this planning tool. It may also require governments introducing some incentives for development in certain locations, with community support.

Secondly, population targets are unlikely to be achieved, within existing more compact inner city areas without an increase in higher rise construction particularly on nominated redevelopment sites. High rise development is being concentrated in a few inner Melbourne centres and if uncontrolled in activity centres is likely to clash with perceived heritage and/or amenity values. The issue of height is being considered as part of activity centre structure plans. Structure plans will need to take account of market reality that similar building costs for apartments in Ringwood and Southbank (Button and Millar 2003: 8) will inhibit urban consolidation in middle and outer area activity centres.



Thirdly, a further 170,000 dispersed multi-unit dwellings are planned in suburban streets outside activity centres as part of *Melbourne 2030*. Typically this form of development favours dual occupancy and small scale medium density developments. It achieves low efficiency rates because of relatively high levels of dwelling demolitions relative to new dwellings constructed. On the one hand these incremental developments have a greater potential impact on neighbourhood character, and thus to cause local conflicts evidenced in the experience in middle class suburbia in Melbourne in the late 1990s (Lewis 1999). On the other hand, dual occupancy subdivisions and small scale developments offer land owners the opportunity to utilise under used land, thus increasing the capital value of their property assets.

There are a number of reasons why population targets contained in *Melbourne 2030* may not be achievable. These factors require further consideration and research. They suggest the need for greater co-operation and consultation between the State Government, local government, the community and the development industry. Together there is increased chance of developing planning mechanisms and tools to facilitate the desired policy outcomes.

On the issue of transport utilisation policy, urban intensification may not lead to increased public transport use unless other factors, such as controls over car parking and urban design, operate (Frank and Pivo, 1994, Van and Senior, 2000, Hanson, 1982). The high percentage of total approvals within 400 metres of public transport suggests a high transit orientation to medium density developments. However, it is likely that locational decisions were affected more by factors such as proximity to cosmopolitan centres or the Bay than to public transport. Rail travel is the fastest mode of public transport travel but the lowest frequency of approvals occurs within 400 metres of train stations. Accessibility to bus routes raises the figures for proximity to public transport in all municipalities studied, but travel times for trams and buses are high compared to trains and few bus services operate in the evening or at weekends. A high proportion of medium density developments are gated and provide generous car parking spaces, a model of urban form, which promotes car use.

In conclusion, it is likely that continued reliance on relatively unregulated market provision of housing will lead to a model of urban consolidation consisting increasingly of higher rise large developments in inner suburbs. Planning controls and other land use directions will be needed to ensure location close to rail stations and along tram routes. Smaller scale dispersed development throughout the metropolitan area, will have limited impact, as the trend has been towards larger developments and higher rise buildings.

Thus, the status quo, of a largely market driven policy for urban development favours continuing incremental increases in urban consolidation. In the absence of government intervention and new planning tools, there are likely to be problems in achieving housing diversity and affordability. It may also be difficult to attract higher residential densities to activity centres outside the inner ring of suburbs, and market resistance to medium density developments in outer urban activity centres is likely to continue.

Dwelling densities will not increase significantly in the vast outer urban greenfield growth corridors without government regulation specifying minimum lot yields. Given that most of the outer areas currently contain less than five per cent multi-unit developments, the change in dwelling and population absorption would be substantial. These corridors continue to be dominated by detached housing at an average of 9.6 lots per hectare. In addition, options for future density increases there are limited because of the extensive use of single dwelling covenants. Melbourne has one of the largest and most valuable reserves of developable fringe land of any metropolis in the world today. To allow this urban fringe to continue to be developed at current densities would waste a valuable resource which provides Melbourne with an internationally competitive advantage in the provision of housing.

Urban consolidation policy will be undermined if policy confusion persists, where some signals seek urban consolidation while at the same time others seek urban dispersal through low outer urban greenfield densities. Without stronger government regulation and other forms of intervention, this confusion will create conditions where the model described by O'Connor and Stimson (1996), O'Connor (1998), and Brothie et. al. (1993, 1995) of a multi centred metropolis based around regionally self-contained suburban areas functionally connected by freeways through an ever widening commuter belt is more likely to be the future shape of Melbourne than the patterns outlined in *Melbourne 2030*.

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## APPENDICES

### Appendix A1 – Proportion of dwelling approvals within 400 metres of public transport, 2002–03

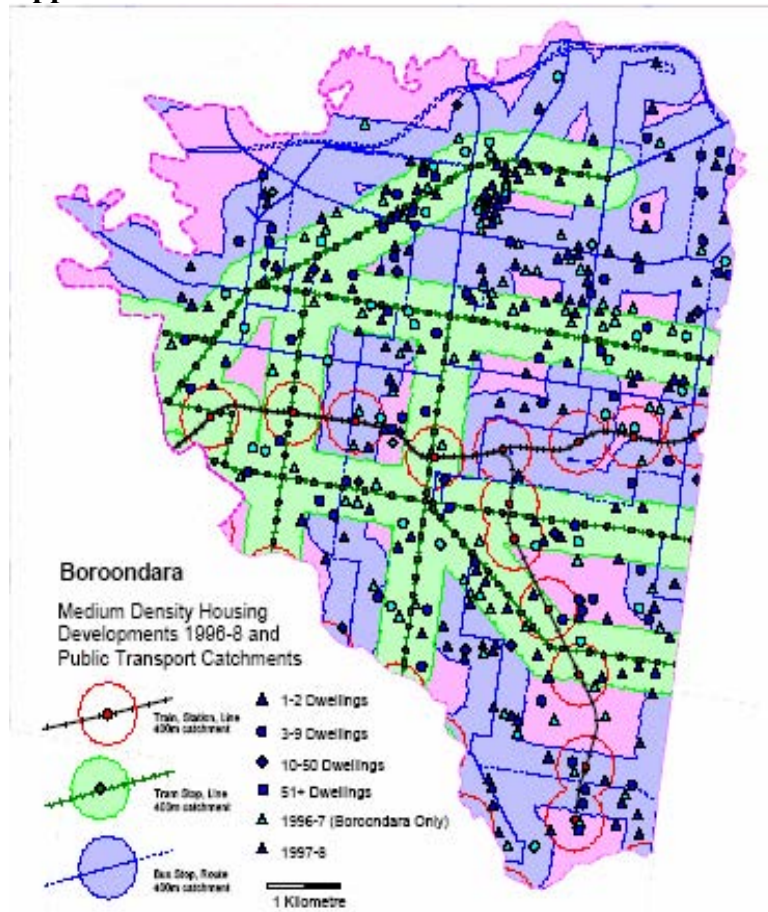
<b>Yarra</b>	1–2 Dwelling	%	3–9 Dwelling	%	10–50 Dwelling	%	51+ Dwelling	%	Total	%
Train	10	17.9	2	13.3	0	0.0	1	50.0	13	16.9
Trams	45	80.4	10	66.7	2	50.0	1	50.0	58	75.3
Bus	30	53.6	10	66.7	3	75.0	2	100	45	58.4
Train/Tram	49	87.5	10	66.7	2	50.0	2	100	63	81.8
Train/Bus	35	62.5	12	80.0	3	75.0	2	100	52	67.5
Train/Bus	55	98.2	14	93.3	4	100	2	100	75	97.4
Train/Tram/ Bus	55	98.2	14	93.3	4	100	2	100	75	97.4
<b>Stonnington</b>										
<b>Stonnington</b>	1–2 Dwelling	%	3–9 Dwelling	%	10–50 Dwelling	%	51+ Dwelling	%	Total	%
Train	14	20.9	5	25.0	3	30.0	2	100	24	24.2
Trams	43	64.2	19	95.0	7	70.0	2	100	71	71.7
Bus	42	62.7	11	55.0	6	60.0	2	100	61	61.6
Train/Tram	52	77.6	19	95.0	8	80.0	2	100	81	81.8
Train/Bus	50	74.6	14	70.0	8	80.0	2	100	74	74.7
Tram/Bus	61	91.0	20	100.	8	80.0	2	100	91	91.9
Train/Tram/ Bus	65	97.0	20	100.	9	90.0	2	100	96	97.0
<b>Port Phillip</b>										
<b>Port Phillip</b>	1–2 Dwelling	%	3–9 Dwelling	%	10–50 Dwelling	%	51+ Dwelling	%	Total	%
Train	4	4.3	1	26.3	2	27.8	0	0.0	7	7.7
Trams	36	39.6	11	57.9	14	66.7	3	75.0	64	70.3
Bus	35	70.0	9	47.4	12	66.7	4	100	60	65.9
Train/Tram	36	74.0	11	57.9	14	77.8	3	75.0	64	70.3
Train/Bus	36	78.0	10	52.6	14	77.8	4	100	64	70.3
Tram/Bus	45	94.0	13	68.4	18	100.	4	100	82	90.1
Train/Tram/ Bus	47	94.0	13	68.4	18	100.	4	100	82	90.1
<b>Boroondara</b>										
<b>Boroondara</b>	1–2 Dwelling	%	3–9 Dwelling	%	10–50 Dwelling	%	51+ Dwelling	%	Total	%
Train	18	14.3	8	28.6	1	16.7	1	100	28	17.4
Trams	52	41.3	19	67.9	5	83.3	1	100	77	47.8
Bus	102	81.0	19	67.9	3	50.0	1	100	125	77.6
Train/Tram	69	54.8	23	82.1	5	83.3	1	100	98	60.9
Train/Bus	107	84.9	24	85.7	4	66.7	1	100	136	84.5
Tram/Bus	119	94.4	28	100	5	83.3	1	100	153	95.0
Train/Tram/ Bus	120	95.2	28	100	5	83.3	1	100	154	95.7

**Appendix A2 – Proportion of dwelling approvals within 400 metres of public transport, 1997–98**

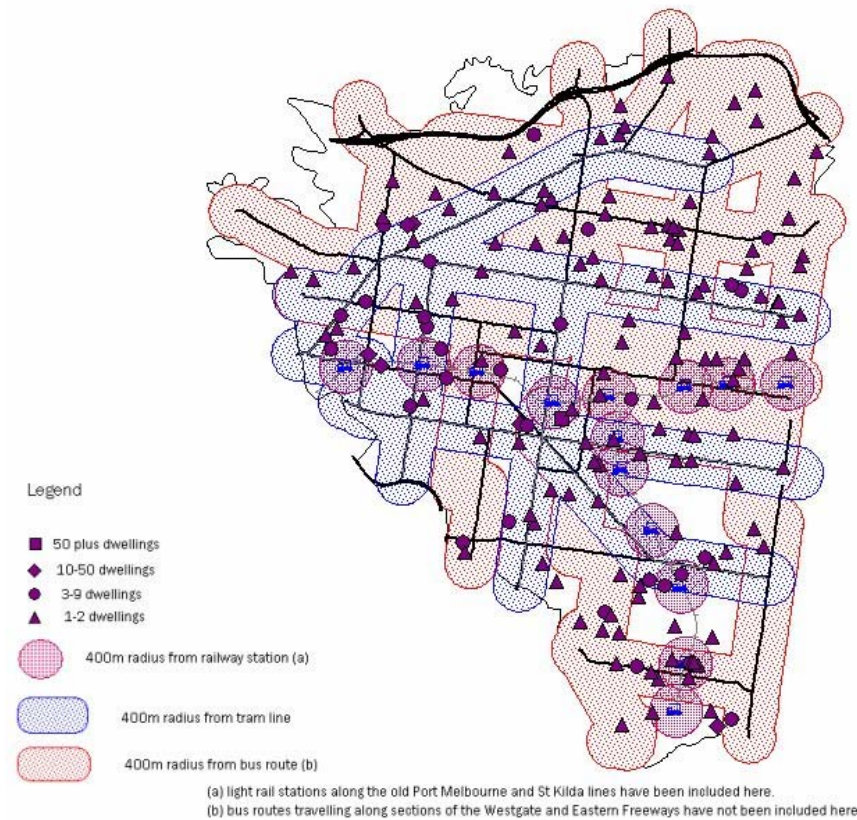
<b>Boroondara</b>	1–2 dwelling	% type	3–9 dwelling	% type	10–50 dwelling	% type	51+ dwelling	% type	Total	%
Train	8	5.3	6	8.6	0	0.0	0	0.0	14	4.1
Tram	63	42.0	31	44.3	2	28.6	0	0.0	96	28.2
Bus	114	76.0	47	67.1	6	85.7	0	0.0	167	49.0
Train/Tram	68	45.3	35	50.0	2	28.6	0	0.0	105	31.0
Train/Bus	117	78.0	49	70.0	6	85.7	0	0.0	172	50.4
Tram/Bus	136	90.7	59	84.3	6	85.7	0	0.0	201	58.9
Train/Tram/ Bus	136	90.7	60	85.7	6	85.7	0	0.0	202	59.2
<b>Stonnington</b>	1–2 dwelling	% type	3–9 dwelling	% type	10–50 dwelling	% type	51+ dwelling	% type	Total	%
Train	14	23.3	8	16.3	3	33.3	0	0.0	25	20.8
Tram	50	83.3	38	77.6	9	100.0	2	100.0	99	82.5
Bus	38	63.3	36	73.5	6	66.7	1	50.0	81	67.5
Train/Tram	52	86.7	39	79.6	9	100.0	2	100.0	102	85.0
Train/Bus	47	78.3	40	81.6	8	88.9	1	50.0	96	80.0
Tram/Bus	57	95.0	48	98.0	9	100.0	2	100.0	116	96.7
Train/Tram/ Bus	59	98.3	48	98.0	9	100.0	2	100.0	118	98.3
<b>Yarra</b>	1–2 dwelling	% type	3–9 dwelling	% type	10–50 dwelling	% type	51+ dwelling	% type	Total	%
Train	12	18.5	10	22.7	2	20.0	0	0.0	24	20.1
Tram	52	80.0	34	77.3	7	70.0	0	0.0	93	78.2
Bus	28	43.1	18	40.9	8	80.0	0	0.0	54	45.4
Train/Tram	57	87.7	37	84.1	9	90.0	0	0.0	103	86.5
Train/Bus	33	50.8	22	50.0	8	80.0	0	0.0	63	52.9
Tram/Bus	62	95.4	41	93.2	9	90.0	0	0.0	112	94.1
Train/Tram/ Bus	62	95.4	41	93.2	9	90.0	0	0.0	112	94.1
<b>Port Phillip</b>	1–2 dwelling	% type	3–9 dwelling	% type	10–50 dwelling	% type	51+ dwelling	% type	Total	%
Train	3	4.6	8	14.3	0	0.0	1	14.3	12	8.5
Tram	51	77.3	39	69.6	9	75.0	5	71.4	104	73.8
Bus	48	72.7	40	71.4	10	83.3	5	71.4	103	73.0
Train/Tram	51	77.3	40	71.4	9	75.0	5	71.4	105	74.5
Train/Bus	50	75.8	44	78.6	10	83.3	6	85.7	110	78.0
Tram/Bus	65	98.5	55	98.2	12	100.0	7	100.0	149	98.6
Train/Tram/ Bus	65	98.5	55	98.2	12	100.0	7	100.0	149	98.6



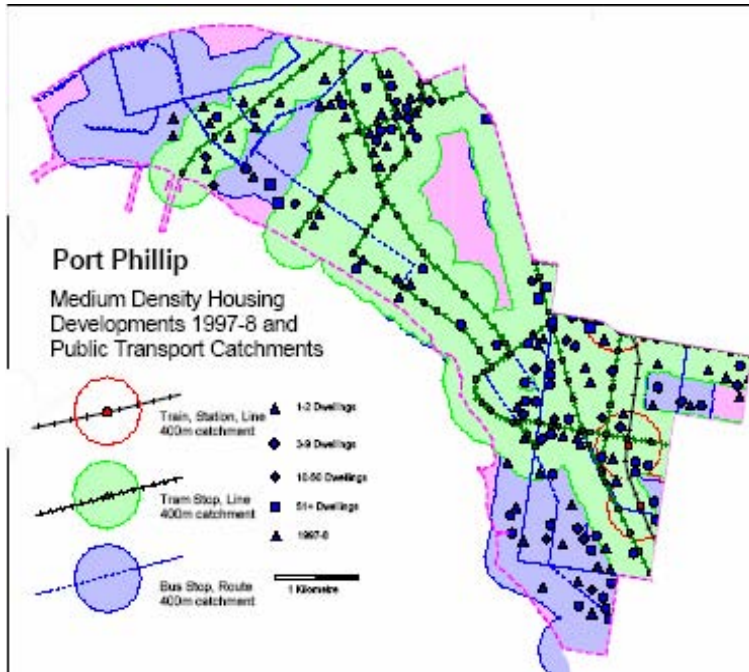
**Appendix B1 – Boroondara Medium Density Housing Approvals 1997–98**



**Boroondara Medium Density Housing Approvals 2002–03**



**Appendix B2 – Port Phillip Medium Density Housing approvals 1997–98**

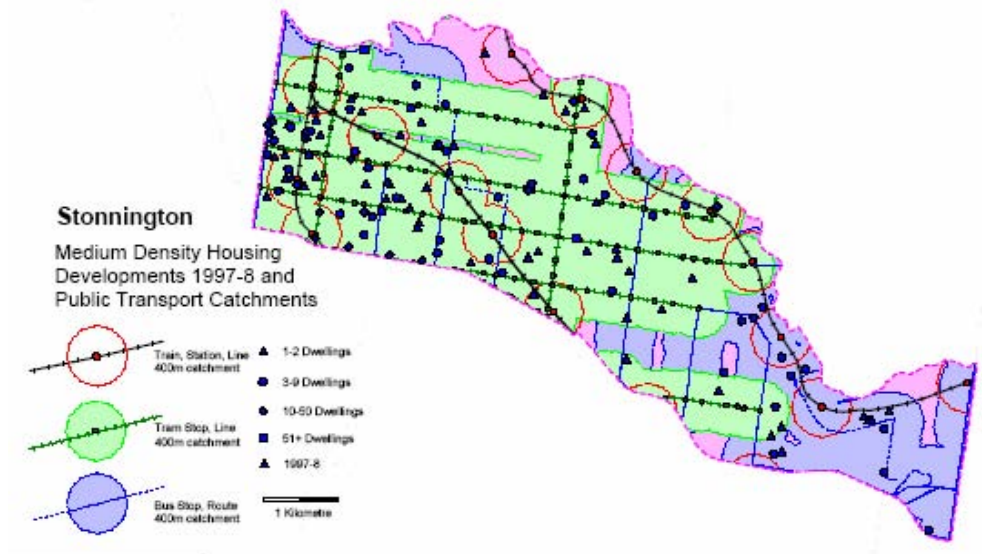


**Port Phillip Medium Density Housing approvals 2002–03**





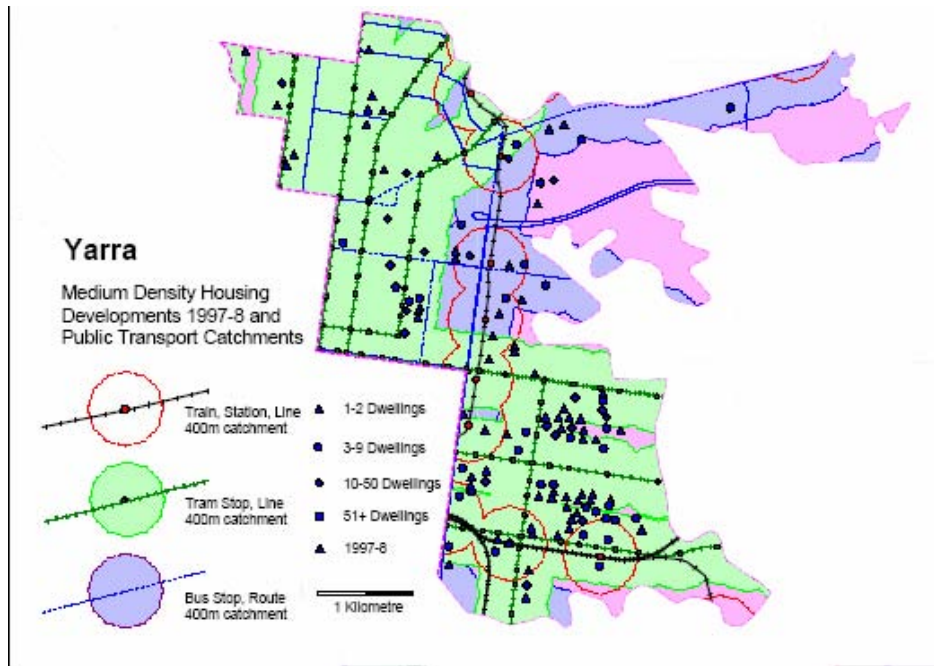
**Appendix B3 – Stonnington Medium Density Housing Approvals 1997–98**



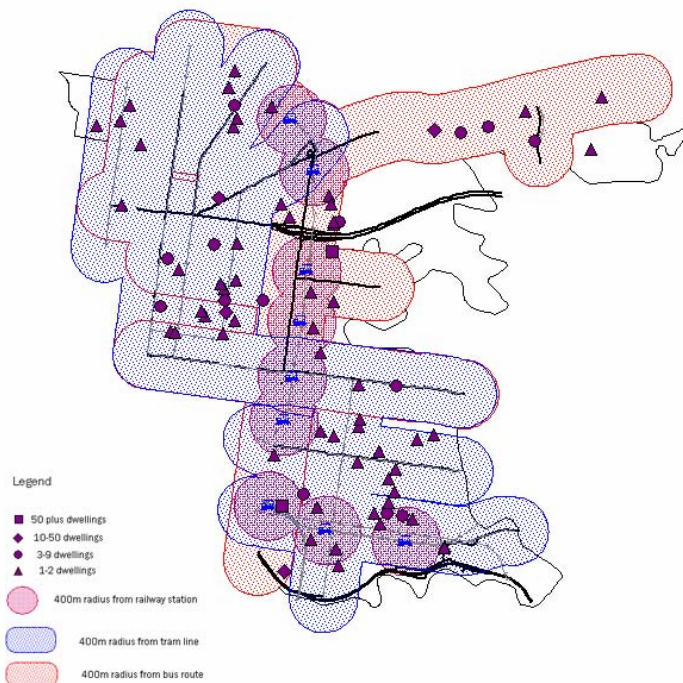
**City of Stonnington Medium Density Approvals 2002–03**



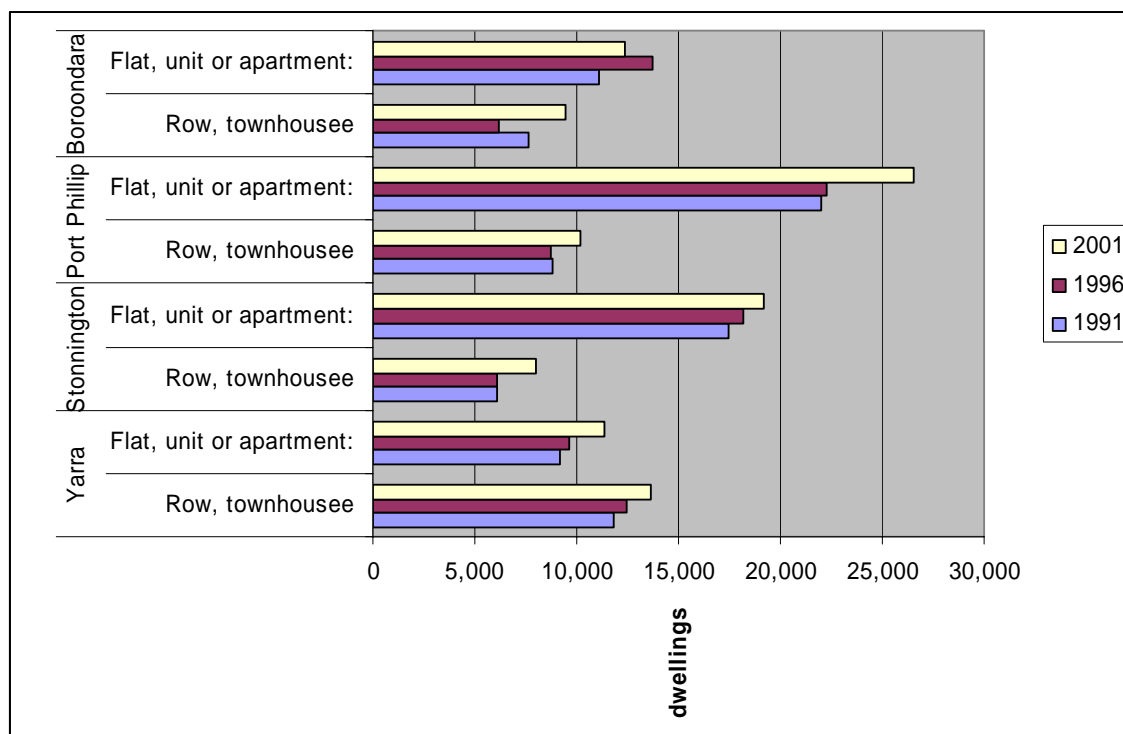
**Appendix B4 – City of Yarra Medium Density Housing Approvals 1997–98**



**City of Yarra Medium Density Housing Approvals 2002–03**



**Appendix C – Changes in dwelling stock – selected municipalities**



*Dwelling stock – selected municipalities*

		<b>1991</b>	<b>1996</b>	<b>2001</b>
Yarra	Row, townhouse	11,776	12,434	13,625
	Flat, unit or apartment:	9,178	9,679	11,353
Stonnington	Row, townhouse	6,119	6,073	7,977
	Flat, unit or apartment:	17,497	18,156	19,219
Port Phillip	Row, townhouse	8,785	8,748	10,191
	Flat, unit or apartment:	21,960	22,261	26,584
Boroondara	Row, townhouse	7,672	6,180	9,446
	Flat, unit or apartment:	11,117	13,766	12,346