Earthsharing Australia

Speculative Vacancies in Melbourne:

2012 Report

Philip Soos

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About

Earthsharing Australia

Earthsharing Australia is an organization based in Melbourne that seeks to advance economic efficiency and social justice through tax reform and education. Along with its partner organizations Prosper Australia and the Land Values Research Group (LVRG), it is at the forefront of advocating ideas and policies based upon the work of the U.S. classical liberal economist Henry George (1839-1897), who believed poverty and social disorder stems from the misuse of the third factor of production, land. By advocating the capture of the economic rents of natural resources, Earthsharing Australia promotes the elimination of behaviour-distorting taxes on capital and labour.

The Author

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Executive Summary

It is generally accepted that a crisis is occurring in rental property markets of most metropolitan areas in Australia, including Melbourne. Since 2006, rental prices have increased significantly above the rate of inflation, causing many tenants to experience financial stress. Accordingly, the lack of affordable and available rental properties is an ongoing concern. This report fills a void in property analysis by estimating the number of long-term vacant properties that could potentially be placed on the rental market to increase supply. These properties are not reflected in reported vacancy rates.

Water consumption data supplied by two of Melbourne's retailers, City West Water and Yarra Valley Water, is used as a proxy to determine vacancies. A conservative cut-off point of 50 litres per day (L/d) per property, averaged over a six month period from July to December 2011, was chosen. Evidence indicates that per capita consumption averaged 140L/d in 2010/11, with average household consumption estimated at approximately 350L/d.

Analysis of 1,015,599 residential properties shows that 60,103 properties (5.9%) were potentially vacant over the study period, having consumed less than 50L/d. This figure rises to 90,730 when extrapolated across the entire residential property market. A large number of commercial properties (24.2%) were also potentially vacant in the suburbs where data are provided.

One hypothesis to account for why these properties remain vacant is the escalation in capital appreciation of property values (specifically land values) as housing prices in Melbourne have risen by 180%, adjusted for inflation and quality, between 1996 and 2010. Landlords have an incentive to withhold properties from the rental market as they profit substantially from realizing capital gains upon sale rather than from long-term rental income.

It is argued that a substantial land value tax would serve as a withholding cost and helps to blunt capital appreciation, ensuring landlords cover costs through rental income, not capital gain. Policymakers could benefit by examining the reasons as to why many residential properties are kept off the market, especially during a period of prolonged rental price increases and financial stress.

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Chapter 1: Introduction

Australia is in the midst of a housing and rental affordability crisis, with mortgage and rental costs dramatically increasing over the last decade.[1] The cost of housing is a burden acutely felt across Australia, especially within the capital cities. Individuals and families live under a continually increasing financial strain to pay for the cost of housing, with home and rent prices seemingly rising with no end in sight.

Accordingly, stakeholders have recognized the problems that Australians face within the housing market. Governments, industry, academia, activist organizations, tenant groups, and concerned citizens have acted in their own ways to help resolve this ongoing crisis. One such group is Earthsharing Australia, a Melbourne-based organization dedicated to fighting for economic efficiency and social justice. The goal of Earthsharing Australia is to advocate the equitable and efficient sharing of natural resources, primarily land, through wide-scale tax reform. Rental property - a significant component of the real estate market - is an important element given the effect current market conditions have upon tenants and the wider public. To this end, Earthsharing Australia has released an annual report since 2008 known as the 'Speculative Vacancies' report.

The 2012 Speculative Vacancies report provides insight into the state of Melbourne's residential property market. The public has had to rely upon information provided by organizations which are far from neutral when it comes to providing the public with an impartial depiction of conditions in the property market, namely real estate organizations and governments.

There have been a variety of explanations bandied about to explain why home and rental prices have continued to rise. Population growth, immigration, housing shortages, demographic changes, onerous government regulations, mounting construction costs, rising incomes, a strong economy and preferential tax benefits are some of the reasons put forward to explain the run-up in home and rent prices, with most commentators using these to justify current market conditions. The thinking goes

[1] AAH (2011a; 2011b).

that if current prices reflect intrinsic value, there is little to be done improving the current state of affairs.

The idea that the housing market could be manipulated by vested interests is often dismissed within the mainstream. It is arguable the $4 trillion dollar land-owning class is the most powerful lobby in the country, ensuring that the government attends particularly to its wishes, first and foremost. For these reasons, politicians and government bureaucrats have been falling over each other to subsidize and protect land owners, despite the very real economic costs and social problems their behaviour generates.

The major concern is that properties, both residential and commercial/industrial, are kept off the rental market because owners profit, not from long-term rental income, but from realizing substantial capital gains as land prices have escalated dramatically in recent times. Over the last decade and a half, the capital appreciation of property has been a prominent feature of the real estate market, especially within the capital cities. Properties purposely kept vacant for this reason are termed 'speculative vacancies,' hence the title of this report.

The primary focus is to provide an estimate of the rate and number of potentially long-term vacant properties, including commercial/industrial where possible, that could feasibly be placed on the market for rent. This is not to be confused with the rental vacancy rate that measures the percentage of currently available properties for rent as a proportion of total rental properties, supplied by the Real Estate Institution of Victoria (REIV) and real estate research firms. The estimated number and rate of vacant properties this report attempts to determine would be in addition to the rental vacancy rate, not a substitute.

Chapter 2: Methodology

In order to arrive at a realistic measure of the number of potentially long-term vacant properties, this report uses water consumption figures as a proxy. Simply put, water usage can be used to determine whether a property is currently occupied or not. To this end, water consumption data has been provided by Melbourne's water retailers, allowing for a breakdown suburb by suburb, across the metropolitan areas.[2] Data from water retailers are more reliable due to their monopoly status as households cannot change water retailer (within the metropolitan area, households are confined to City West Water, Yarra Valley Water and South East Water). On the other hand, households can switch between electricity and gas retailers during the study period, resulting in duplicate and fragmented records unsuitable for analysis.

It should be noted, however, that it is not simply a matter of defining a property with limited to no water usage as vacant; there exist several factors that play an important role in this study that must be considered. The measure chosen to define a property as vacant is conservative in order to err on the side of caution.

The cut-off point chosen is 50 litres per day (L/d) and under, averaged over a period of six months from July to December 2011. Measuring daily water consumption is not possible as meter readings are made once every quarter. According to Melbourne Water, a statutory authority owned by the Victorian government that manages the water and sewerage systems in the city and outlying areas, per capita residential water consumption was 140L/d during 2010/11, down slightly from 148L/d in 2009/10. In fact, during one week in April 2011, consumption reached record-low levels at 120L/d per capita.[3]

From these figures, average household consumption can be estimated. The occupancy rate, also known as the average number of people per household, is approximately 2.5. Using the average per

[2] The privacy of homeowners is not an issue in using the data obtained; individual properties are not identified as data was aggregated at the suburb level.

[3] Melbourne Water (2011: 6-7).

capita figure of 140L/d, an estimate of household water consumption equates to 350L/d. This is seven times our deemed cut-off point of 50L/d for a property. It is possible for water leaks on a property to 'consume' a level of water daily above this cut-off point. Although there is no conventionally agreed-upon figure, estimates range between 20 and 300L/d for a leaking tap or toilet. A 1mm hole in a pipe can result in leakage of approximately 3,000L/d.[4]

A downward bias may be present in the data if blocks of apartments and units are serviced by a single water meter. For instance, if, in a block of ten apartments, two have been vacant for any time over the duration of the study period in question, these apartments will not show up in the data as the other properties will collectively use more than the cut-off point.

On the other hand, there are factors that could upwardly bias findings. Put another way, there may exist properties that consume less than the cut-off point of 50L/d but still be occupied. Properties that are on the market for sale may not be occupied, especially if the home is an investment property rather than owner-occupied. Further, even if the property is eventually sold, the new occupants may consume water conservatively during the remaining part of the period under study, resulting in an average usage of less than 50L/d. If a property investor has difficulty in finding new tenants, this may result in the same outcome. Another group that may belong in this category is serviced apartments. Tenants rent for weeks or months at a time, with long periods of vacancy between outgoing and incoming tenants.

A property that is currently undergoing construction or major renovations, with the owners yet to move in or expecting future tenants to rent, may result in the water consumption falling below the cut-off point. Builders and tradespersons, however, will use water for the duration of the work on the property. Therefore, it is difficult to discern whether such a property can be defined as owner-occupied, genuinely vacant in the expectation that a landlord will rent to tenants or a speculative vacancy. Vacant blocks that are connected to water mains will likely register no consumption,

[4] Though it does not impact upon the study, a significant amount of water is lost in transit from bulk storage to consumers. In well-managed systems, the loss amounts to 10%, increasing to a hefty 40% in systems that are poorly-managed. In Melbourne, the amount of water lost is at the lower end at 10% (De Silva et al. 2011: 1).

whether or not the owner intends to build. Owners who want to build and/or renovate may have to wait for more than six months for such activity to be approved by their local council, again resulting in little to no water consumption over the study period.

Holidays homes are used only infrequently, typically on the weekends and during holiday periods, so this may account for low water consumption. It is implausible, however, that more than a small number of properties used for this reason would be located in urban or city areas. Holiday homes are mostly located in outlying and regional areas.

Sole person households whose occupants are more often than not away from home for work reasons may consume a level of water lower than the cut-off point.[5] Fly in, fly out (FIFO) workers are one example. Melbourne has a projected 378,118 sole person households in 2011, or 24.6% of all households, though it is implausible that more than a small fraction are constantly out of the property.[6] Evidence suggests that one and two occupant households consume an average of 231 and 382L/d, respectively.[7]

Although it may seem logical that households with water tanks consume less water than those without, evidence indicates that water mains usage remains similar between both. Households that purchase a water tank do so in order to maintain levels of consumption previous to restrictions implemented by state governments, rather than out of desire to reduce consumption or to care for the environment. It was found that water tanks have the potential to significantly reduce

[5] Housing underutilization may be another factor. For instance, a property may have only a sole occupant or couple living in it, though multiple spare bedrooms lie unused that could be made available for other occupants who need shelter. The 2006 ABS Census reported that 36% of homes in Melbourne have one spare bedroom, and an additional 34% have two or more spare bedrooms. Only 3% of households stated the need for one more bedroom. As of 2006, a minimum of 1.34 million spare bedrooms existed (ABS 2009). Clearly, there is no evidence to indicate overcrowding in households, though some instances may exist. While many spare bedrooms exist, the potential utilization of them should not be seen as a practical solution to the problem of surging rental prices on the basis of the personal preferences of owner-occupiers and tenants.

[6] ABS (2010a).

[7] YVW (2007: 11).

consumption but unless the tank is plumbed into the house and water usage behaviour is altered, little will change in terms of overall consumption from the water mains.[8] As of 2009, 78% of households did not have a water tank installed on the property. Of the 22% with a water tank, 7% had the tank plumbed into the dwelling and the remaining 15% were not connected.[9] Rain water is often contaminated, so occupants in properties fitted with a water tank have to consume water from the mains for drinking and food preparation.[10] Overall, water tank usage is likely to have a minimal effect upon the results.

Overall, the consumption data provided by water retailers provides a blunt measure of determining potential vacancies. The factors mentioned can bias data, providing an estimate that may deviate considerably from actual long-term vacancies. Due to the lack of data pertaining to these factors, it is impossible to control for their impact. Nevertheless, there exist no reliable alternative methods, outside of the government conducting an annual survey of all households to gather accurate data.[11]

Though not directly relevant to this report, an important aspect of methodology is the way in which the REIV and real estate research firms calculate the vacancy rates for the rental market. This rate measures the number of properties currently available for rent as a proportion of the total rental stock, and is typically provided at the city and suburb level.

The REIV calculates the rental vacancy rate by using data obtained from member real estate agencies. Approximately 70% of all agencies in Melbourne are affiliated with the REIV, and is assumed to cover a similar proportion of rental properties. The sample size used to derive the vacancy rate tends to be around 15-20% of total rental stock on agency rental rolls. Once every month, agencies will provide the REIV with rental data via an online survey. This comprises the number of rentals currently

[8] Moy (2011).

[9] ABS (2010b).

[10] DHS (2007).

[11] It should be noted that ABS Census data is not useful to determine the number of property vacancies, as they are declared vacant on the grounds that the owner-occupiers and/or tenants are not at home on the night of the Census.

available and the total number of rental properties, which is then used to calculate the vacancy rate. This survey is not compulsory; rather it relies upon agents voluntarily submitting data. If there is not enough data pertaining to a geographical area, it is excluded from reporting. When the current vacancy rate for an area differs substantially from last month's rate, it is excluded on the basis of inconsistency. Duplicate data are avoided as only one agency manages a rental property at a time.[12]

This methodology generates several issues. 30% of all agencies are not REIV members, and thus will not provide rental statistics, leading to an incomplete analysis of the rental market. The same holds for the voluntary nature of reporting; even under the generous assumption that a majority of, but not all, agents provide data, the inaccuracy is further exacerbated. It is not clear what the REIV constitutes as a minimum or adequate level of data in order to calculate vacancy rates; it is likely determined by the quantitative statistical methods employed.

The REIV does not attempt to record the number of private sector landlords who do not use an agency as an intermediary and are therefore not listed on a rental roll. A decrease in rental vacancy rates can be attributed to landlords who may see little value in agency services, taking their property off official listings (if it was listed) and dealing directly with the market.[13] Further, in a period of falling housing prices, investors may hold out little hope for further capital gains, selling their properties.

If the above holds true, the REIV uses a fragmentary rental dataset to calculate vacancy rates. The downward biases and incompleteness likely result in, at best, inaccurate findings, and, at worst, severely low vacancy rates. This is based upon the assumption that data are not adversely manipulated, as this would serve to further distort vacancy rates. The data and methodology are not audited by an independent third party to verify quality outcomes, and performing the analysis in-house leads to a conflict of interest, as the REIV ultimately represents real estate agents, not vendors

[12] REIV (2012, personal communication).

[13] Agent management fees are usually equivalent to one month's rent up front plus an ongoing 5% of the total gross rental income.

or the public.[14] This potential bias is amplified as the REIV is funded through member fees. The datasets and methodology used to compile vacancy rates are not openly available, making it difficult for the public to evaluate accuracy.

These issues suggest that a significant downward bias is present when official rental vacancy rates are provided. Reporting artificially-lowered vacancy rates may have the effect of landlords increasing rents, promoting greater levels of investment into the property market, and submissive local and state governments seeking to alleviate supposed rental shortages by adopting policies agreeable to the real estate industry.

SQM Research, a real estate research firm, calculates vacancy rates using online listings for rental properties that have been advertised for three months and compares them to the total number of established rental properties by area, which are extrapolated from the ABS 2006 Census. Although there are issues with online listings, SQM Research attempts to control for bias. While it appears that their methodology is better than that of the REIV, SQM Research does not attempt to estimate the number of landlords dealing directly with the market and/or unlisted, unrented vacant properties.

Another important statistic is the vacancy rate itself in relation to rental prices. It is often stated that a 3% or greater vacancy rate is a rental market in balance, on the basis that there is enough supply relative to demand to prevent upward pressure on rental prices. According to modelling performed by SQM Research, a 3% rate is considered to indicate equilibrium in the market, as prices tend to track the rate of inflation.[15] In markets with severely low vacancy rates, it can be expected that real rental prices will rise significantly and vice versa with high vacancy rates.

[14] Creagh (2008). Similar concerns have been noted regarding clearance rates (Vedelago 2012a). Unfortunately, the ABS, as a potentially independent body, uses data sourced from the Real Estate Institute of Australia (REIA). The Victorian Department of Human Services (DHS) likewise sources their data from the REIV.

[15] SQM Research (2012, personal communication).

Chapter 3: Findings

The data used in this report was obtained from two out of three of Melbourne's water retailers, City West Water (CWW) and Yarra Valley Water (YVW) but not from South East Water (SEW). It has been aggregated at the suburb level rather than individual properties due to concerns over householders' right to privacy. A substantial sample of 1,015,599 properties covering 288 suburbs was provided, equating to an estimated 66.2% of total residential properties in Melbourne as of 2011.[16] A sample of this size is considered to be non-trivial and may increase accuracy compared to that of a smaller size. The sample data is located in the appendices.

As previous Speculative Vacancy reports have indicated, data shows there are many residential and commercial properties in Melbourne that have consumed little to no water during the six month study period.[17] Of the total number of residential properties, 60,103 (5.9%) consumed less than the cut-off point of 50L/d. 26,186 were located in the region serviced by CWW, comprising 7.2% of 361,410 properties. 33,917 out of 654,189 properties (5.2%) were in YVW's area. If the results of the sample are extrapolated across the entire residential property market in Melbourne, an astronomical 90,730 properties were potentially vacant.[18]

Table 3.1 shows the top twenty suburbs by potential vacancy rate, excluding those with less than 1,000 properties to eliminate statistical anomalies.[19] 19 of the 20 suburbs were in the area managed by CWW, suggesting that residents prefer the eastern rather than western suburbs. Essendon North ranked at the top, with 212 out of 1,449 properties (14.6%). Surprisingly, many of these suburbs are in inner and mid-rim locations, while some are out on the fringes. Given the desirability of close proximity to the city, inner suburbs would be expected to have the least potential vacancies.

[16] ABS (2010a).

[17] Curtis (2008; 2010) and Sadauskas (2009).

[18] ABS (2010a).

[19] For instance, Ravenhall registered two properties using less than 50L/d out of a total of four properties, yielding a 50% rate.

Table 3.1: Top 20 suburbs by vacancy rate (<50L/d) with more than 1,000 residential properties

Suburb	Total	0L/day	Ratio	<30L/d	Ratio	<50L/d	Ratio
Essendon North	1,449	99	6.8%	121	8.4%	212	14.6%
Docklands	1,951	125	6.4%	199	10.2%	275	14.1%
Williams Landing	1,476	102	6.9%	147	10.0%	200	13.6%
Truganina	3,634	201	5.5%	352	9.7%	468	12.9%
Niddrie	2,484	183	7.4%	243	9.8%	289	11.6%
Footscray	7,351	452	6.1%	666	9.1%	842	11.5%
Albion	2,003	112	5.6%	166	8.3%	206	10.3%
Maidstone	3,438	187	5.4%	289	8.4%	353	10.3%
Altona	5,327	353	6.6%	457	8.6%	545	10.2%
Airport West	3,552	240	6.8%	300	8.4%	359	10.1%
Tullamarine	1,875	115	6.1%	159	8.5%	186	9.9%
North Melbourne	5,574	248	4.4%	379	6.8%	529	9.5%
Ardeer	1,395	72	5.2%	105	7.5%	132	9.5%
Clayton	1,634	N/A	N/A	N/A	N/A	154	9.4%
Sunshine	4,671	255	5.5%	359	7.7%	436	9.3%
West Footscray	5,391	281	5.2%	390	7.2%	501	9.3%
Essendon	9,263	602	6.5%	759	8.2%	860	9.3%
Point Cook	14,166	593	4.2%	1,020	7.2%	1,295	9.1%
Spotswood	1,120	55	4.9%	83	7.4%	101	9.0%
Newport	5,782	312	5.4%	415	7.2%	521	9.0%

Due to the data provided by the water retailers, the number of properties recording zero consumption could not be provided for the entire sample. Fortunately, CWW did supply this data for the suburbs it manages, indicating that 14,252 properties (3.9%) consumed no water at all.

Only CWW provided data on commercial properties, indicating that potential vacancy rates are far higher than for residential property. Caroline Springs tops the list at a staggering 64.4%, with 55.5% of commercial properties registering no water consumption at all. As before, some of the suburbs are

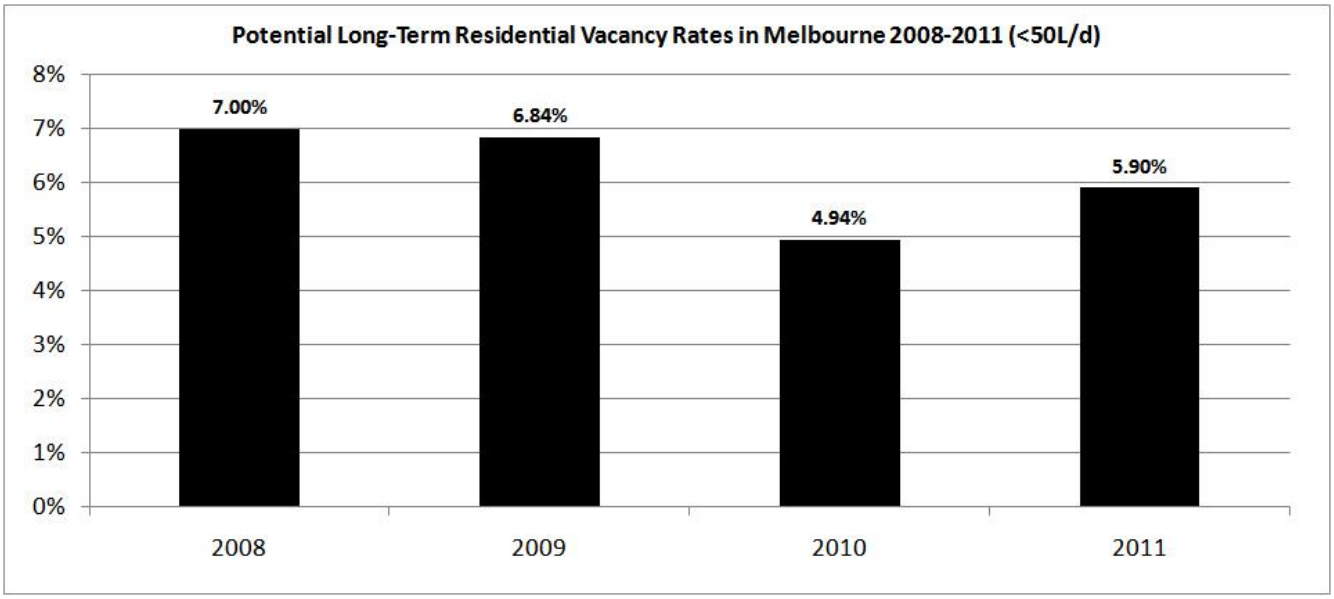
located in inner areas. These potential vacancy rates suggest a considerable underutilization of business-related property, analogous to the unemployment rate for labour.

Table 3.2: Top 10 suburbs by vacancy rate (<50L/d) with more than 100 commercial properties

Suburb	Total	0L/day	Ratio	<30L/d	Ratio	<50L/d	Ratio
Caroline Springs	281	156	55.5%	175	62.3%	181	64.4%
Essendon North	255	29	11.4%	98	38.4%	112	43.9%
Docklands	215	64	29.8%	86	40.0%	89	41.4%
Point Cook	186	47	25.3%	59	31.7%	69	37.1%
Hoppers Crossing	1080	191	17.7%	301	27.9%	398	36.9%
Williamstown North	210	31	14.8%	60	28.6%	76	36.2%
Maribyrnong	200	50	25.0%	58	29.0%	68	34.0%
Sydenham	123	31	25.2%	38	30.9%	41	33.3%
Flemington	391	87	22.3%	109	27.9%	128	32.7%
Clifton Hill	325	68	20.9%	90	27.7%	99	30.5%

The vacancy rates for residential property are 5.9%, a slight increase from 2010, though still below that recorded for 2008 and 2009. These rates are from previous Speculative Vacancy reports.

Figure 3.1: Potential Vacancy Rates in Melbourne



Chapter 4: Analysis

Why so many residential properties were apparently unoccupied during the study period comes down to understanding economic incentives that property investors face. Although housing is often seen as a human right and a home, this has not prevented it from becoming a focal point of investment and profiteering. In a capitalist economy, investors seek to maximize their profits, and the real estate market is no different. Traditionally, investors make a profit by purchasing a property and renting it to tenants. Over the long term, the rental income covers property costs incurred, including debt repayments, until investors own the property outright.

On the other hand, an investor may choose to forgo rental income over the long-term if a property continually appreciates in value outside of any improvements made (as capital gains comprise the other source of profit). It is possible that the annual increase in the capital value of the land component of property outweighs the net rental income. An astute investor could conclude it is profitable to purchase a property exclusively for the accruing capital gains to be later realized through sale. Investors are faced with a wide array of costs associated with maintaining tenants in rental properties to the point that increases in the capital value of property has become the primary source of profit.

These costs include, but are not limited to: advertising for tenants, body corporate fees and charges, borrowing expenses, cleaning, council rates, deductions for decline in value, gardening/lawn mowing, insurance, interest on loan(s), land tax, legal expenses, pest control, property agent fees/commission, repairs and maintenance, capital works deductions, stationery, telephone and postage, travel expenses, water charges and sundry rental expenses.[20] Problematic tenants combined with a very tenant-friendly Residential Tenancies Act (1997), administered and enforced by the Victorian Civil and Administrative Tribunal (VCAT), may add additional non-monetary costs in terms of time, effort, stress and frustration. The problems that tenants may cause, however, is likely overstated as evidence indicates that the primarily problem faced by property managers of private rentals today is not rent

[20] ATO (2011a: 22).

arrears but ensuring that landlords undertake maintenance and repairs. Since the advent of rental databases, agents have found it easier to filter out candidates with a troublesome history. The issue of rent arrears has almost disappeared relative to the period before databases became common.[21]

Given the costs associated with rental property, profit-maximizing investors may decide to forgo the rental income by keeping properties vacant, thereby saving on some of the costs, when the capital value of the property is increasing at a multiple of net rent. As Tohm Curtis, author of previous Speculative Vacancy reports, noted:

> Specifically, a significant portion of Australian consumers believe that a house whether useful or not will increase in price and that this increase in price equates to an increase in wealth. So powerful is this belief that many Australian consumers have bought property at prices that have appreciated faster than wages and rents. This expectation creates a mentality where an owner occupier can be happy to sacrifice increasing proportions of their income to paying off debt when the same need for accommodation could be rented at a much lower amount. This mentality can be tolerated only in the belief that the sacrifice will result in a future profit, a simple matter of selling the house at the right time. If it is considered rational to buy a house for much more than one can rent one, then the rationale can be extended to owning a house that doesn't accommodate anybody.[22]

This decision is made easier if interest-only loans are used to finance the purchase of investment properties, as investors only repay interest, not the principal. This results in lower monthly repayments as opposed to a standard mortgage where both principal and interest repayments are required. It is ominous that these types of mortgages are used at all, as investors are reliant upon capital growth rather than long-term rental income to pay down the cost of debt.[23]

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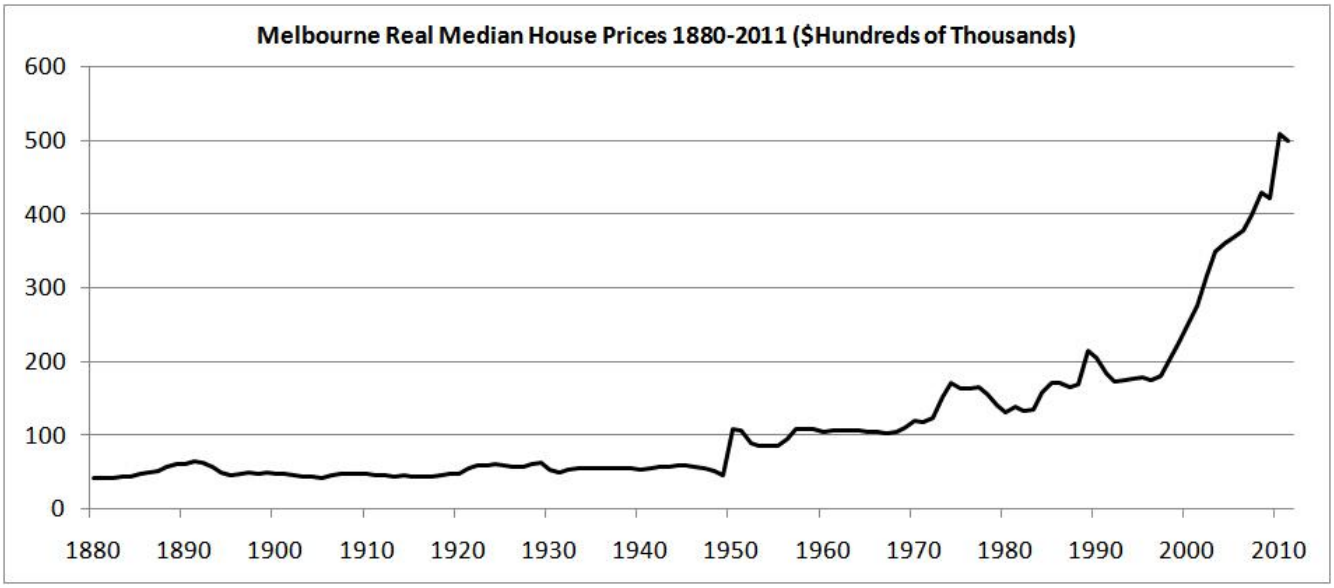
[21] Seelig (2003).

[22] Curtis (2008: 11).

[23] In early 2008, 21% of loans had no deposit requirement at all. 69% of current loan offerings have a loan-to-value (LVR) ratio of 95% and above. Three of the four major banks now offer 95% (RateCity 2012).

Since 1996, Australia has experienced yet another boom in housing prices (specifically land prices), fuelled by the loose lending standards of financial institutions and generous tax subsidies for property.[24] These two factors have ensured that property speculation is an immensely profitable activity, becoming a national pastime for Australians. Melbourne has become a focal point of frenzied debt-financed speculation, resulting in the greatest escalation of housing prices in its history.

Figure 4.1: Melbourne Real Median House Prices (1880-2011)[25]



From 1996 to the apparent peak in 2010, housing prices increased by an astronomical 180% before falling slightly in 2011.[26] Median property prices have jumped from $175,000 in 1996 to $500,000 in 2011, at an average rate of $22,000 per year; the compound annual growth rate over this period is 7.25% in real terms. Melbourne's property market, however, is not homogenous. Some local markets have appreciated faster than others, especially the wealthy inner suburbs. It is not unusual for properties located in these areas to grow $50,000 - $100,000 in annual value over the last decade,

[24] Keen (2010).

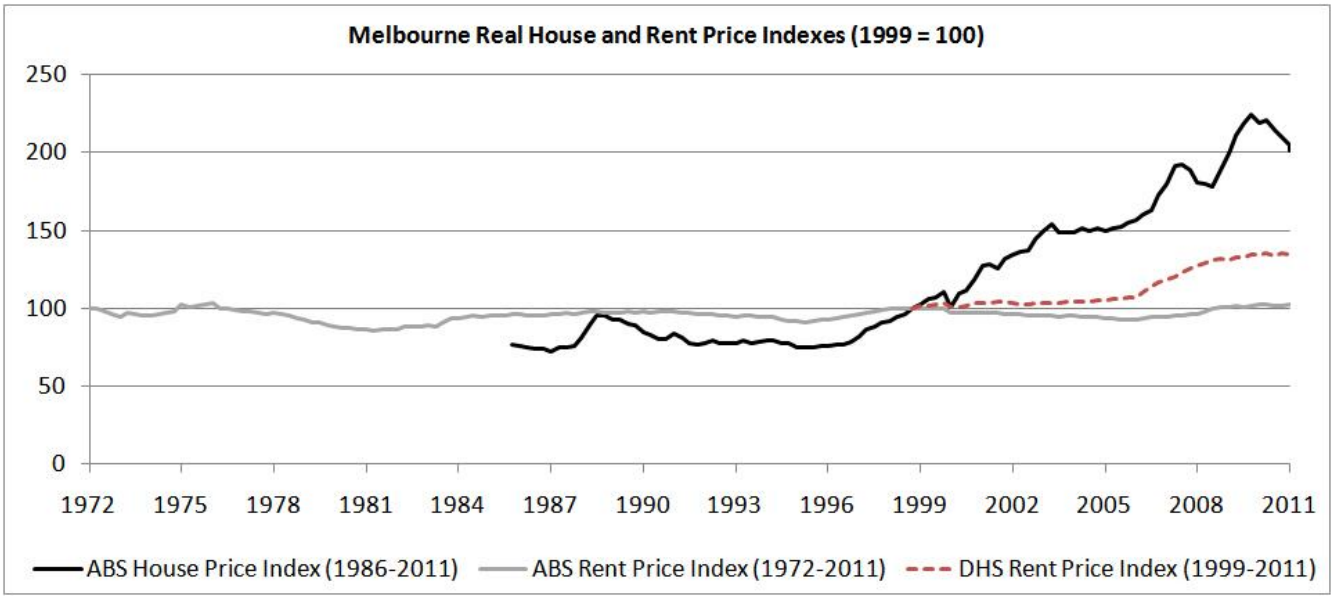
[25] Stapledon (2007: 64-65, Table 2.5, Column 2) for 1880-2006, 2007-2011 are the author's calculations. Prices are of single, detached houses. A more accurate constant quality index is available, though the long-term trend in median prices may provide better context to the reader. Prices are deflated using the national accounts consumption deflator.

[26] Real housing prices for 1996-2010: 196% (ABS), 190% (Stapledon), 180% (Stapledon, constant quality).

yielding enormous returns for investors. This is unsurprising, as expensive locations are the most desirable, and will thus appreciate at a faster rate than other areas.

Figure 4.2 shows the disparity between the trends in Melbourne's housing and rental prices. While housing prices have increased astronomically, rents did not begin to rise above the rate of inflation until 2006. The increase in rents was likely caused by higher than average population growth from 2006 onwards, resulting in a heightened surge in demand for rental properties relative to supply.

Figure 4.2: Melbourne Real House and Rent Price Indexes (1999=100)[27]



[27] Prices are deflated using the ABS Melbourne consumer price index. The house price index is sourced from ABS (2012a), and is compiled using the stratification approach. This methodology, however, is not as accurate as the hedonic or repeat sales approaches, and only adjusts for compositional effects, not quality changes. The stated reason for why stratification is used as opposed to other approaches is lack of a comprehensive national dataset. The ABS rent price index is found within the CPI dataset (ABS 2012b: Table 11). It is likewise compiled using stratification, and depending on the sample data, is partially adjusted for quality changes where possible. The DHS provides another stratified rent price index developed using the prices of bonds lodged with the Residential Tenancies Bond Authority (RTBA) from 1999 onwards (DHA 2012a; 2012b). These bonds are reflective of one month's worth of rent, lodged in the relevant quarter. All new RTBA bonds are used (thus not based upon a sample), leading to a more accurate and timely assessment of rental property prices than the ABS rent index. The DHS index covers three areas: metropolitan, regional, and state. In this case, the metropolitan rent index is used.

The rapid run-up in housing prices has provided a lucrative torrent of windfall gains via capital appreciation for investors while rents have not kept pace.[28] Faced with this set of circumstances, investors may conclude that renting properties make for dubious investments when factoring in the wide array of costs associated, including time and effort.[29]

It may be the case that escalating housing prices reduce the incentive for landlords to compete on the basis of offering quality housing. In a property market where prices reflect intrinsic value and landlords pay down the cost of debt via long-term rental income, they must compete for higher rents (and profits) based upon housing quality. If investors are purchasing property for the expected capital appreciation rather than long-term rental income, the incentive to pay for property improvements is diminished, perhaps removed altogether. This would confirm the findings of research mentioned above regarding the issues property managers have ensuring landlords carry out maintenance and repairs in a timely manner.

Investors are not homogenous in decision-making and geography; they are bifurcated into two distinct groups: local and foreign. Local investors comprise the Australian cohort that has purchased property with the expectation of realizing substantial profits through future capital gains. The most affluent are the so-called land barons. Their immense wealth stems from large real estate portfolios,

[28] It is important to realize that reporting of housing and rental price movements, especially in the mass media, are not accurate because inflation is not taken into account. In the case of reporting the latest monthly or quarterly price movements, inflation data for the same time period will not likely be released in a timely manner, so commentary will proceed without factoring in the effects of inflation. This does not mean, however, that only nominal rather than real prices should be reported in the long run. An annual rise of 4%, for instance, is not a substantial increase if the rate of inflation is running at 3%. Further, recent data from months past will usually be revised, so this also needs to be made clear. The public should be made aware of these two factors in property market reporting (the same goes for rental yields as well).

[29] This outcome has been observed in Western Australia, with research firm BIS Shrapnel noting that tens of thousands of properties are vacant, as "many owners were living overseas or sitting on the property while they waited for prices to rise" (Trenwith 2012), while many people are currently living in caravan parks and tents, unable to find appropriate housing (Mullany et al. 2012).

whether residential, commercial and/or rural. According to data from the Household, Income and Labour Dynamics in Australia (HILDA) Survey, the inequality in real estate ownership is staggering. In 2002, the top 20% (quintile) of Australian households by wealth owned 57% of all net property, with the top 5% owning 24%.[30] The latest ABS report on the distribution of wealth and income for 2009-10 shows that the top 20% of households by net worth owns 59% of property by net value, a slight increase from 2002.[31] The baronial cohort in this group are wealthy enough to keep their investment properties vacant as escalating property values result in capital gains outweighing net rental income by a considerable multiple.

As markets in Europe and the US have been pummelled by financial crises and Australia's economy appearing strong by comparison, foreign investors may see the real estate market as attractive, especially given the rapid run-up in property values. Foreign investors likely heed the comforting statements by mainstream commentators who claim housing prices are based upon underlying fundamentals (intrinsic value). Unfortunately, it is difficult to assess the impact of foreign investors in determining their role in withholding potential rental properties off the market.

The Foreign Investment Review Board (FIRB), a government agency tasked with tracking foreign investment in Australia, has refused to release information pertaining to the residential real estate market. It has declined to release documents that would shed light on this matter even under the Freedom of Information Act. This stance appears to be political in nature, as discouraging disclosure of relevant details limits the backlash over the perception foreigners are purchasing a great deal of property, causing prices to rise and reducing the options of Australian citizens (though the majority who own property would benefit).[32]

[30] The top 5% (as no smaller percentiles are provided) own 24% of net property, superannuation (24%), equity investments (43%), net business assets (70%), bank accounts (27%), vehicles (16%), other assets (cash investments, trust funds, life insurance and collectables) (47%), credit card debt (5%), and other debt (13%), for a total household net worth of 31% (Headey et al. 2005: 165).

[31] ABS (2011: 36).

[32] Dobbin (2009) and Vedelago (2011; 2012b).

The FIRB has become more transparent, however, with its latest annual report. In 2010-11, 9,771 out of 10,219 (96%) of all approved applications were for the real estate sector, though it accounts for only $41.51 billion out of $176.67 billion (23%) of total investment value. The overwhelming majority of applications were for the residential sector rather than commercial sector, at 9,556 and 215, respectively. Within the residential sector, 3,885 (41%) applications were for existing properties and the rest for purposes of property development.[33]

Interestingly, Victoria fielded the most real estate applications, at 4,398 (45%), with New South Wales coming in at a distant second with 2,598 (27%). Given Victoria's 2.2 million dwellings, with an estimated 45,000 new dwellings constructed last year, the number of applications amounts to slightly less than 10% of all new dwellings. Clearly, the vast majority of ownership within the real estate sector is domestic. The top country by investment in this sector is the UK at $4.6 billion, followed by China at $4.1 billion, and the US in third place with $3.4 billion. China headed the pack with the largest number of applications, at 5,033 (47%) of the total.[34]

Chinese investors perceive Australia's property market as a store of wealth, especially considering the relative stability of the government and economy.[35] The steadily growing Chinese economy has produced 454,000 millionaires as of 2010, outnumbering Australia's 193,000.[36] As noted, this has resulted in concerns about foreigners 'interfering' in the health of the property market. The evidence, however, shows that foreign investment in real estate is relatively small. Apprehension of Chinese influence is unwarranted, as the US and UK are collectively responsible for double the amount of Chinese investment.

[33] FIRB (2012).

[34] FIRB (2012).

[35] Nicholls (2012).

[36] Capgemini and Merrill Lynch (2011).

Chapter 5: Recommendations

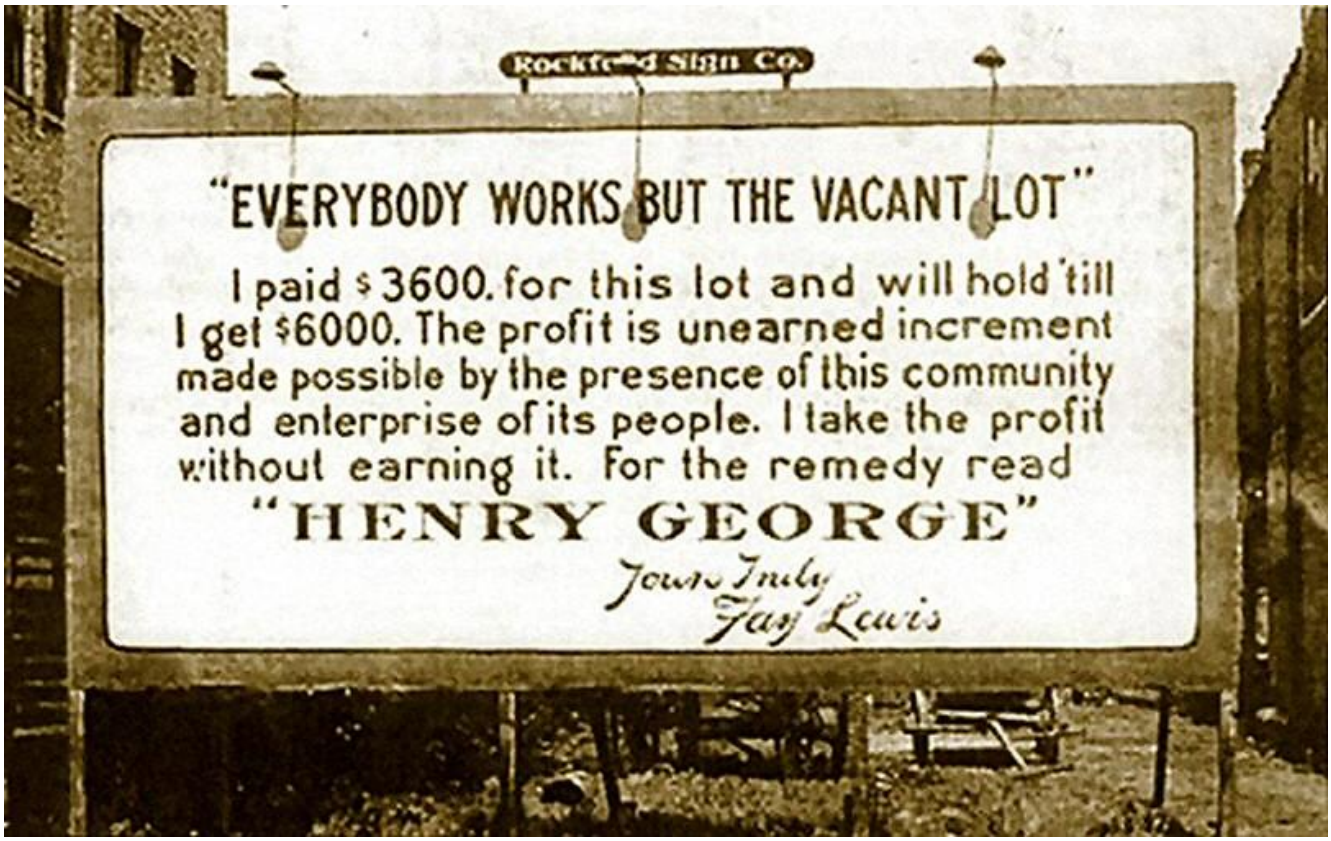
Following on from the findings and analysis, three broad recommendations have been made.

Recommendation 1: Data gathering. Governments should carry out extensive and compulsory annual surveys of property owners of both residential (owner-occupied and investment) and commercial/industrial real estate in order to gain insight into the reasons for long-term vacancy. This is an important step to take, given the lack of data on this issue (it has been noted that ABS Census data does not provide a reliable analysis of residential vacancies). Current policy is formulated to address the rental crisis through a patchwork of measures, without policymakers seeking to investigate why a sizeable percentage of the existing residential housing stock remains vacant. Addressing this concern may prove to be an essential avenue into fixing the current rental crisis.

Recommendation 2: Review the tax policies concerning property. The most important policy that government could implement to deal with long-term vacant properties (regardless of the reason for vacancy) is to provide a substantial disincentive to withhold properties from the rental market. An obvious choice is increasing the land value tax due to its two-fold effect upon the property market. The first is that it impacts directly upon land values by lowering them, as it cannot be passed onto tenants. This is important because lowering land values stunts the amount of unearned capital gains that can be realized from speculation. The second is that it acts as a holding cost, requiring a rental income to cover it. In effect, landlords will have to keep property available on the rental market as few can deal with lower land values and capital gains, on top of a holding cost.

Recommendation 3: Ensure that all property data are made publicly available. The property market is the largest tangible market in Australia, with almost everyone playing a part in it. Accordingly, it is critical that comprehensive data is made available in a timely manner to the public, given the importance of peoples' decisions regarding housing. Another reason for this policy is to allow the public to verify the accuracy of data and methodology, rather than letting vested interest groups provide potentially incorrect information. The ABS is well-situated as the obvious choice given its current role in gathering and disseminating data.

Chapter 6: Conclusion



There are a substantial number of both residential and commercial properties lying potentially vacant for the duration of the study period. A stark difference exists between the number of properties that are officially available to rent, reflected in the rental vacancy rate, compared to the number of potentially long-term vacant properties that could be placed onto the rental market. Despite the arguments made by government and industry, there is not a shortage of properties that can be used for rental purposes.

It would be a mistake, however, to assume that these properties are all being kept off the rental market solely due to speculative choices made by investors. As noted in the methodology, other reasons exist for keeping a property vacant. Despite the factors that may bias the results, the chosen cut-off consumption point of less than 50L/d is inherently conservative given that per capita and sole household consumption is a multiple above this rate.

Housing policy has been implemented in such a way that the most efficient use of properties is not met, with the findings providing some evidence that many properties could be put to better use. This is an important point to note given the record levels of financial stress experienced by tenants as rental prices continue to increase.

Of interest is the rate of vacant commercial/industrial properties, recording far higher rates than the residential market. This indicates a severe underutilization of business-related property, or, in other words, a high unemployment rate for land use. As high labour unemployment generates economic and social inefficiencies, the same holds true with the third factor of production, land.

Government has an important role in assessing the state of the residential property market, which, in turn, may lead to policies to help relieve the problems caused by the rental crisis. Until the government conducts an investigation into the causes of long-term vacancies, the benefits of having vacant property used for rental will go unmet, with tenants losing out.

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Appendices

The water consumption data used in this report was kindly provided by City West Water and Yarra Valley Water.

Appendix A: Residential Properties (City West Water)

Suburb	Total	0L/day	Ratio	<30L/d	Ratio	<50L/d	Ratio
Abbotsford	2,623	120	4.6%	168	6.4%	201	7.7%
Aberfeldie	1,535	75	4.9%	105	6.8%	121	7.9%
Airport West	3,552	240	6.8%	300	8.4%	359	10.1%
Albanvale	1,867	22	1.2%	36	1.9%	55	2.9%
Albion	2,003	112	5.6%	166	8.3%	206	10.3%
Altona	5,327	353	6.6%	457	8.6%	545	10.2%
Altona Meadows	7,845	325	4.1%	412	5.3%	484	6.2%
Altona North	4,902	200	4.1%	279	5.7%	348	7.1%
Ardeer	1,395	72	5.2%	105	7.5%	132	9.5%
Ascot Vale	6,266	318	5.1%	421	6.7%	522	8.3%
Avondale Heights	4,691	178	3.8%	239	5.1%	300	6.4%
Braybrook	3,405	176	5.2%	235	6.9%	282	8.3%
Brooklyn	879	65	7.4%	104	11.8%	127	14.4%
Burnley	1,697	33	1.9%	49	2.9%	70	4.1%
Burnside	3,012	28	0.9%	47	1.6%	58	1.9%
Burnside Heights	323	4	1.2%	5	1.5%	7	2.2%
Cairnlea	2,551	46	1.8%	61	2.4%	73	2.9%
Carlton	5,687	165	2.9%	291	5.1%	483	8.5%
Carlton North	3,468	113	3.3%	164	4.7%	223	6.4%
Carlton South	1,544	61	4.0%	92	6.0%	129	8.4%
Caroline Springs	7,923	210	2.7%	324	4.1%	437	5.5%

Clifton Hill	3,951	142	3.6%	195	4.9%	249	6.3%
Collingwood	3,293	124	3.8%	189	5.7%	288	8.7%
Cremorne	749	25	3.3%	41	5.5%	53	7.1%
Deer Park	7,114	267	3.8%	369	5.2%	452	6.4%
Delahey	2,893	65	2.2%	85	2.9%	107	3.7%
Derrimut	2,204	55	2.5%	89	4.0%	127	5.8%
Docklands	1,951	125	6.4%	199	10.2%	275	14.1%
East Melbourne	3,269	114	3.5%	169	5.2%	231	7.1%
Essendon	9,263	602	6.5%	759	8.2%	860	9.3%
Essendon North	1,449	99	6.8%	121	8.4%	212	14.6%
Essendon West	579	34	5.9%	45	7.8%	54	9.3%
Fitzroy	4,234	189	4.5%	262	6.2%	331	7.8%
Fitzroy North	5,030	155	3.1%	229	4.6%	313	6.2%
Flemington	3,547	163	4.6%	224	6.3%	279	7.9%
Footscray	7,351	452	6.1%	666	9.1%	842	11.5%
Hillside	5,513	123	2.2%	168	3.0%	204	3.7%
Hoppers Crossing	14,586	370	2.5%	518	3.6%	636	4.4%
Kealba	1,236	32	2.6%	52	4.2%	65	5.3%
Keilor	2,389	44	1.8%	69	2.9%	90	3.8%
Keilor Downs	3,725	68	1.8%	100	2.7%	129	3.5%
Keilor East	5,583	185	3.3%	269	4.8%	330	5.9%
Keilor Lodge	583	4	0.7%	10	1.7%	13	2.2%
Keilor Park	1,102	25	2.3%	37	3.4%	49	4.4%
Kensington	4,374	137	3.1%	195	4.5%	257	5.9%
Kings Park	2,991	49	1.6%	79	2.6%	97	3.2%
Kingsville	1,867	89	4.8%	127	6.8%	164	8.8%
Laverton	2,422	120	5.0%	173	7.1%	207	8.5%
Little River	242	17	7.0%	22	9.1%	27	11.2%
Maidstone	3,438	187	5.4%	289	8.4%	353	10.3%
Maribyrnong	4,650	175	3.8%	253	5.4%	310	6.7%

Melbourne	12,410	340	2.7%	647	5.2%	963	7.8%
Moonee Ponds	6,333	269	4.2%	351	5.5%	440	6.9%
Newport	5,782	312	5.4%	415	7.2%	521	9.0%
Niddrie	2,484	183	7.4%	243	9.8%	289	11.6%
North Melbourne	5,574	248	4.4%	379	6.8%	529	9.5%
Parkville	1,986	79	4.0%	113	5.7%	148	7.5%
Point Cook	14,166	593	4.2%	1,020	7.2%	1,295	9.1%
Princes Hill	767	24	3.1%	34	4.4%	46	6.0%
Raaf Point Cook	55	49	89.1%	51	92.7%	51	92.7%
Ravenhall	4	1	25.0%	2	50.0%	2	50.0%
Richmond	12,610	493	3.9%	694	5.5%	893	7.1%
Seabrook	1,812	31	1.7%	47	2.6%	63	3.5%
Seaholme	816	37	4.5%	48	5.9%	58	7.1%
Seddon	2,218	89	4.0%	131	5.9%	168	7.6%
South Kingsville	961	78	8.1%	94	9.8%	106	11.0%
Spotswood	1,120	55	4.9%	83	7.4%	101	9.0%
St. Albans	14,588	728	5.0%	1,006	6.9%	1,213	8.3%
Strathmore	3,183	141	4.4%	186	5.8%	226	7.1%
Strathmore Heights	386	13	3.4%	15	3.9%	20	5.2%
Sunshine	4,671	255	5.5%	359	7.7%	436	9.3%
Sunshine North	3,897	116	3.0%	190	4.9%	242	6.2%
Sunshine West	6,255	156	2.5%	267	4.3%	350	5.6%
Sydenham	4,125	148	3.6%	206	5.0%	244	5.9%
Tarneit	9,084	341	3.8%	526	5.8%	665	7.3%
Taylors Hill	3,749	76	2.0%	106	2.8%	133	3.5%
Taylors Lakes	5,332	51	1.0%	84	1.6%	109	2.0%
Tottenham	13	1	7.7%	1	7.7%	2	15.4%
Travancore	934	28	3.0%	38	4.1%	59	6.3%
Truganina	3,634	201	5.5%	352	9.7%	468	12.9%
Tullamarine	1,875	115	6.1%	159	8.5%	186	9.9%

Werribee	16,464	614	3.7%	823	5.0%	1,006	6.1%
Werribee South	328	11	3.4%	19	5.8%	23	7.0%
West Footscray	5,391	281	5.2%	390	7.2%	501	9.3%
West Melbourne	1,938	88	4.5%	127	6.6%	157	8.1%
Western Gardens	46	3	6.5%	3	6.5%	3	6.5%
Williams Landing	1,476	102	6.9%	147	10.0%	200	13.6%
Williamstown	6,192	238	3.8%	338	5.5%	443	7.2%
Williamstown North	559	23	4.1%	35	6.3%	42	7.5%
Wyndham Vale	7,457	256	3.4%	434	5.8%	575	7.7%
Yarraville	6,662	233	3.5%	336	5.0%	444	6.7%
Total	**361,410**	**14,252**	**3.9%**	**20,562**	**5.7%**	**26,186**	**7.2%**

Appendix B: Residential Properties (Yarra Valley Water)

Suburb	Total	<50L/day	Ratio
Alphington	2,041	123	6.0%
Armadale	2,031	91	4.5%
Arthurs Creek	50	7	14.0%
Ashburton	3,026	172	5.7%
Ashwood	2,530	136	5.4%
Attwood	1,020	35	3.4%
Avonsleigh	281	8	2.8%
Badger Creek	596	32	5.4%
Balwyn	5,797	409	7.1%
Balwyn North	7,901	434	5.5%
Bayswater	56	12	21.4%
Bayswater North	3,590	156	4.3%
Bellfield	712	29	4.1%
Beveridge	163	40	24.5%
Blackburn	5,635	360	6.4%
Blackburn North	2,852	124	4.3%
Blackburn South	4,023	178	4.4%
Box Hill	4,880	413	8.5%
Box Hill North	4,964	328	6.6%
Box Hill South	3,214	164	5.1%
Briar Hill	1,367	70	5.1%
Broadmeadows	4,126	239	5.8%
Brunswick	10,567	616	5.8%
Brunswick East	4,474	261	5.8%
Brunswick West	7,021	446	6.4%
Bulleen	4,509	229	5.1%
Bundoora	9,662	331	3.4%

Burwood	5,760	393	6.8%
Burwood East	3,923	116	3.0%
Camberwell	8,680	420	4.8%
Campbellfield	1,827	120	6.6%
Canterbury	3,183	145	4.6%
Chadstone	3,555	263	7.4%
Chirnside Park	3,475	113	3.3%
Chum Creek	288	16	5.6%
Clayton	1,634	154	9.4%
Clematis	139	7	5.0%
Coburg	11,000	572	5.2%
Coburg North	2,895	203	7.0%
Cockatoo	1,436	77	5.4%
Coldstream	665	22	3.3%
Coolaroo	1,128	52	4.6%
Cottles Bridge	8	2	25.0%
Craigieburn	12,043	576	4.8%
Croydon	11,376	692	6.1%
Croydon Hills	1,689	18	1.1%
Croydon North	2,845	99	3.5%
Croydon South	1,767	52	2.9%
Dallas	2,140	87	4.1%
Deepdene	845	25	3.0%
Diamond Creek	3,978	140	3.5%
Dixons Creek	5	0	0.0%
Don Valley	150	10	6.7%
Doncaster	8,459	492	5.8%
Doncaster East	10,852	506	4.7%
Donvale	4,657	173	3.7%
Doreen	5,043	344	6.8%

Eaglemont	1,562	75	4.8%
East Warburton	365	60	16.4%
Eden Park	1	1	100.0%
Eltham	6,926	273	3.9%
Eltham North	2,281	43	1.9%
Emerald	2,026	106	5.2%
Epping	9,862	540	5.5%
Fairfield	2,914	188	6.5%
Fawkner	4,999	257	5.1%
Ferny Creek	565	37	6.5%
Fitzroy North	391	14	3.6%
Forest Hill	4,275	202	4.7%
Gembrook	493	29	5.9%
Gladstone Park	3,254	102	3.1%
Glen Iris	10,581	572	5.4%
Glen Waverley	15,626	706	4.5%
Glenroy	8,702	667	7.7%
Gowanbrae	880	27	3.1%
Greensborough	8,376	394	4.7%
Greenvale	3,730	84	2.3%
Gruyere	44	4	9.1%
Hadfield	2,439	118	4.8%
Hawthorn	10,690	744	7.0%
Hawthorn East	6,117	369	6.0%
Healesville	2,983	232	7.8%
Heathcote Junction	1	0	0.0%
Heathmont	3,736	168	4.5%
Heidelberg	2,785	172	6.2%
Heidelberg Heights	3,062	234	7.6%
Heidelberg West	2,337	151	6.5%

Hoddles Creek	1	0	0.0%
Hurstbridge	1,202	41	3.4%
Ivanhoe	5,187	317	6.1%
Ivanhoe East	1,473	59	4.0%
Jacana	810	41	5.1%
Kalkallo	1	0	0.0%
Kallista	509	40	7.9%
Kalorama	352	27	7.7%
Kangaroo Ground	157	15	9.6%
Kew	10,380	579	5.6%
Kew East	2,781	169	6.1%
Kilsyth	4,430	243	5.5%
Kilsyth South	962	27	2.8%
Kingsbury	1,403	71	5.1%
Kooyong	360	11	3.1%
Lalor	7,747	362	4.7%
Launching Place	748	25	3.3%
Lilydale	6,310	340	5.4%
Lower Plenty	1,607	79	4.9%
Macclesfield	85	11	12.9%
Macleod	4,003	215	5.4%
Malvern	4,225	214	5.1%
Malvern East	8,745	476	5.4%
McMahons Creek	30	8	26.7%
Meadow Heights	4,603	126	2.7%
Menzies Creek	318	20	6.3%
Mernda	3,359	253	7.5%
Mickleham	181	9	5.0%
Mill Park	10,564	331	3.1%
Millgrove	750	56	7.5%

Mitcham	6,847	415	6.1%
Monbulk	1,107	50	4.5%
Mont Albert	2,167	108	5.0%
Mont Albert North	2,229	141	6.3%
Montmorency	3,890	217	5.6%
Montrose	2,293	72	3.1%
Mooroolbark	7,816	288	3.7%
Mount Dandenong	514	28	5.4%
Mount Evelyn	3,331	137	4.1%
Mount Waverley	13,615	769	5.6%
Mulgrave	6,900	265	3.8%
Northcote	10,143	522	5.1%
Notting Hill	1,006	73	7.3%
Nunawading	4,860	239	4.9%
Nutfield	31	1	3.2%
Oak Park	2,539	150	5.9%
Oakleigh	359	26	7.2%
Oakleigh East	2,137	129	6.0%
Olinda	585	46	7.9%
Panton Hill	265	19	7.2%
Park Orchards	1,219	33	2.7%
Pascoe Vale	7,078	501	7.1%
Pascoe Vale South	3,906	181	4.6%
Plenty	652	32	4.9%
Preston	13,461	789	5.9%
Reefton	5	1	20.0%
Research	810	25	3.1%
Reservoir	21,487	1366	6.4%
Ringwood	7,890	448	5.7%
Ringwood East	4,600	315	6.8%

Ringwood North	3,493	101	2.9%
Rosanna	3,591	217	6.0%
Roxburgh Park	5,550	100	1.8%
Sassafras	376	24	6.4%
Selby	22	0	0.0%
Seville	743	30	4.0%
Seville East	271	8	3.0%
Sherbrooke	94	6	6.4%
Silvan	223	17	7.6%
Somerton	22	11	50.0%
South Morang	7,529	300	4.0%
St Helena	870	22	2.5%
Surrey Hills	5,653	315	5.6%
Templestowe	6,178	249	4.0%
Templestowe Lower	5,343	229	4.3%
The Patch	316	14	4.4%
Thomastown	7,847	349	4.4%
Thornbury	8,630	508	5.9%
Toorak	1,191	47	3.9%
Tremont	27	1	3.7%
Tullamarine	1,388	72	5.2%
Upwey	35	0	0.0%
Vermont	4,140	198	4.8%
Vermont South	4,192	99	2.4%
Viewbank	2,670	83	3.1%
Wallan	3,172	185	5.8%
Wandin	42	2	4.8%
Wandin North	922	45	4.9%
Warburton	993	131	13.2%
Warrandyte	1,901	67	3.5%

Warrandyte North	979	35	3.6%
Warrandyte South	180	5	2.8%
Warranwood	1,536	33	2.1%
Watsonia	2,271	110	4.8%
Watsonia North	1,424	35	2.5%
Wattle Glen	576	16	2.8%
Wesburn	341	25	7.3%
Westmeadows	2,270	92	4.1%
Wheelers Hill	7,224	186	2.6%
Whittlesea	1,722	101	5.9%
Wollert	597	101	16.9%
Wonga Park	1,203	38	3.2%
Woori Yallock	1,082	53	4.9%
Yallambie	1,349	44	3.3%
Yan Yean	72	7	9.7%
Yarra Glen	922	61	6.6%
Yarra Junction	921	70	7.6%
Yarrambat	464	21	4.5%
Yellingbo	51	2	3.9%
Yering	20	0	0.0%
Total	**654,189**	**33,917**	**5.2%**

Appendix C: Commercial/Industrial Properties (City West Water)

Suburb	Total	0L/d	Ratio	<30L/d	Ratio	<50L/d	Ratio
Abbotsford	652	51	7.8%	92	14.1%	128	19.6%
Aberfeldie	71	8	11.3%	11	15.5%	12	16.9%
Airport West	433	49	11.3%	82	18.9%	108	24.9%
Albanvale	5	1	20.0%	1	20.0%	1	20.0%
Albion	59	13	22.0%	17	28.8%	20	33.9%
Altona	462	66	14.3%	87	18.8%	99	21.4%
Altona Meadows	88	41	46.6%	43	48.9%	44	50.0%
Altona North	512	68	13.3%	84	16.4%	107	20.9%
Ardeer	87	11	12.6%	13	14.9%	17	19.5%
Ascot Vale	395	56	14.2%	87	22.0%	118	29.9%
Avondale Heights	104	13	12.5%	20	19.2%	24	23.1%
Braybrook	358	46	12.8%	77	21.5%	99	27.7%
Brooklyn	247	24	9.7%	53	21.5%	66	26.7%
Burnley	66	5	7.6%	13	19.7%	15	22.7%
Burnside	94	23	24.5%	29	30.9%	31	33.0%
Cairnlea	28	13	46.4%	13	46.4%	14	50.0%
Carlton	762	50	6.6%	74	9.7%	101	13.3%
Carlton North	337	67	19.9%	80	23.7%	87	25.8%
Carlton South	329	68	20.7%	91	27.7%	94	28.6%
Caroline Springs	281	156	55.5%	175	62.3%	181	64.4%
Clifton Hill	325	68	20.9%	90	27.7%	99	30.5%
Collingwood	1298	135	10.4%	267	20.6%	317	24.4%
Cremorne	303	16	5.3%	38	12.5%	60	19.8%
Deer Park	278	35	12.6%	59	21.2%	69	24.8%
Delahey	36	8	22.2%	8	22.2%	9	25.0%
Derrimut	414	64	15.5%	87	21.0%	111	26.8%
Docklands	215	64	29.8%	86	40.0%	89	41.4%

East Melbourne	450	50	11.1%	57	12.7%	63	14.0%
Essendon	647	92	14.2%	143	22.1%	186	28.7%
Essendon North	255	29	11.4%	98	38.4%	112	43.9%
Fitzroy	1205	120	10.0%	205	17.0%	249	20.7%
Fitzroy North	363	42	11.6%	57	15.7%	69	19.0%
Flemington	391	87	22.3%	109	27.9%	128	32.7%
Footscray	1421	199	14.0%	271	19.1%	340	23.9%
Hillside	66	25	37.9%	32	48.5%	39	59.1%
Hoppers Crossing	1080	191	17.7%	301	27.9%	398	36.9%
Kealba	50	4	8.0%	6	12.0%	6	12.0%
Keilor	164	24	14.6%	25	15.2%	28	17.1%
Keilor Downs	40	5	12.5%	5	12.5%	5	12.5%
Keilor East	538	71	13.2%	114	21.2%	160	29.7%
Keilor Park	170	18	10.6%	30	17.6%	47	27.6%
Kensington	279	33	11.8%	51	18.3%	65	23.3%
Kings Park	23	1	4.3%	1	4.3%	3	13.0%
Kingsville	68	4	5.9%	16	23.5%	20	29.4%
Laverton	258	43	16.7%	54	20.9%	62	24.0%
Laverton North	865	116	13.4%	179	20.7%	243	28.1%
Little River	37	5	13.5%	10	27.0%	11	29.7%
Maidstone	157	22	14.0%	32	20.4%	42	26.8%
Maribyrnong	200	50	25.0%	58	29.0%	68	34.0%
Melbourne	5090	435	8.5%	606	11.9%	693	13.6%
Moonee Ponds	713	91	12.8%	139	19.5%	196	27.5%
Newport	287	49	17.1%	63	22.0%	76	26.5%
Niddrie	341	55	16.1%	71	20.8%	87	25.5%
North Melbourne	1067	198	18.6%	248	23.2%	293	27.5%
Parkville	189	37	19.6%	41	21.7%	44	23.3%
Plumpton	7	0	0.0%	0	0.0%	0	0.0%
Point Cook	186	47	25.3%	59	31.7%	69	37.1%

Princes Hill	16	1	6.3%	2	12.5%	2	12.5%
Ravenhall	144	24	16.7%	30	20.8%	38	26.4%
Richmond	2393	224	9.4%	406	17.0%	551	23.0%
Seabrook	12	1	8.3%	1	8.3%	1	8.3%
Seaholme	11	1	9.1%	1	9.1%	1	9.1%
Seddon	127	11	8.7%	17	13.4%	22	17.3%
South Kingsville	31	6	19.4%	9	29.0%	11	35.5%
Spotswood	89	12	13.5%	18	20.2%	23	25.8%
St. Albans	566	63	11.1%	85	15.0%	113	20.0%
Strathmore	104	12	11.5%	22	21.2%	30	28.8%
Sunshine	1452	215	14.8%	326	22.5%	426	29.3%
Sunshine North	364	33	9.1%	63	17.3%	84	23.1%
Sunshine West	293	31	10.6%	47	16.0%	64	21.8%
Sydenham	123	31	25.2%	38	30.9%	41	33.3%
Tarneit	72	29	40.3%	34	47.2%	34	47.2%
Taylors Hill	61	26	42.6%	29	47.5%	30	49.2%
Taylors Lakes	81	12	14.8%	12	14.8%	15	18.5%
Tottenham	182	21	11.5%	26	14.3%	34	18.7%
Travancore	60	8	13.3%	9	15.0%	11	18.3%
Truganina	123	16	13.0%	17	13.8%	18	14.6%
Tullamarine	1219	186	15.3%	281	23.1%	359	29.5%
Werribee	1151	178	15.5%	266	23.1%	313	27.2%
Werribee South	316	14	4.4%	19	6.0%	23	7.3%
West Footscray	406	57	14.0%	84	20.7%	101	24.9%
West Melbourne	572	88	15.4%	115	20.1%	128	22.4%
Western Gardens	6	2	33.3%	3	50.0%	3	50.0%
Williams Landing	9	2	22.2%	2	22.2%	3	33.3%
Williamstown	766	107	14.0%	171	22.3%	211	27.5%
Williamstown North	210	31	14.8%	60	28.6%	76	36.2%
Wyndham Vale	64	16	25.0%	23	35.9%	27	42.2%

Yarraville	536	55	10.3%	84	15.7%	103	19.2%
Totals	**36,405**	**4,875**	**13.4%**	**7,158**	**19.7%**	**8,818**	**24.2%**