Population and residential density in Canberra

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ACT Government
Environment and Sustainable Development

Contents

Introduction

Housing density and employment location are levers in the Canberra Spatial Plan to address the social, economic and environmental challenges facing the future development of Canberra. This paper discusses different ways of defining and determining density in Australia in the Canberra context.

City planning challenges include adapting to climate change; protecting biodiversity; ensuring the disadvantaged can enjoy the opportunities and amenity provided by the city; the coming of peak oil; the need to replace and upgrade physical and social infrastructure in established areas while providing infrastructure in developing areas; and the ageing of the population.

It is the conventional wisdom in Australian state planning strategies that increasing residential density will contribute to the development of a more sustainable city. Higher density increases the viability of public transport, maximises the capacity of established infrastructure, reduces the amount of land required for population growth and widens housing choice for a changing population. Because it increases support for local shops and facilities it encourages higher levels of walking and cycling, with consequential health and environmental benefits.

The discussion of density issues is sometimes confused by a lack of clarity around the definition of 'density'. This paper documents alternative density measures – gross population density, net residential population density, gross dwelling density, net dwelling density and site density – in Canberra's districts and suburbs. It looks at trends in the city's population density between 2001 and 2010 and discusses how cities define low, medium and high density differently.

Gross population density – Australian Bureau of Statistics (ABS) density estimates

The ABS's Regional Population Growth, Australia (cat 3218.0) is a useful source of information of gross population density by statistical districts (SD) and statistical local areas (suburbs). The data enables ready comparisons of population density between locations.

However, care has to be exercised when using the data as density estimates are affected by the definition of the geographic area being analysed. For example, some areas may include non-urban land such as a nature parks, river corridors or industrial estates, thus lowering density.

For example, as shown in Table 1, ABS data shows the density of Canberra is higher than Sydney, Brisbane, Perth, Hobart and Darwin.

Figure 1 and Table 2 show how gross population density estimates are affected by the definition of the geographic area. In Sydney, the population density per km² varies from 4,641 persons in inner Sydney to 71 persons in outer western Sydney (defined as the Blue Mountains, Hawkesbury and Penrith), which includes large areas of parks.

Table 1: Capital city gross population density 2009

City	Population	Area km²	Persons/km²	Persons ha
Sydney	4,575,532	12138.0	377.0	3.8
Melbourne	4,077,036	7693.0	530.0	5.3
Brisbane	2,043,185	5964.0	342.6	3.4
Adelaide	1,203,186	1826.7	658.7	6.6
Perth	1,696,065	5386.2	314.9	3.1
Greater Hobart	214,705	1357.6	158.2	1.6
Darwin	127,532	3122.6	40.8	0.4
Canberra	358,222	807.6	443.6	4.4

Source: ABS Regional Population Growth, Australia, Cat 3218.0

Figure 1: 2010 Residential density in Sydney

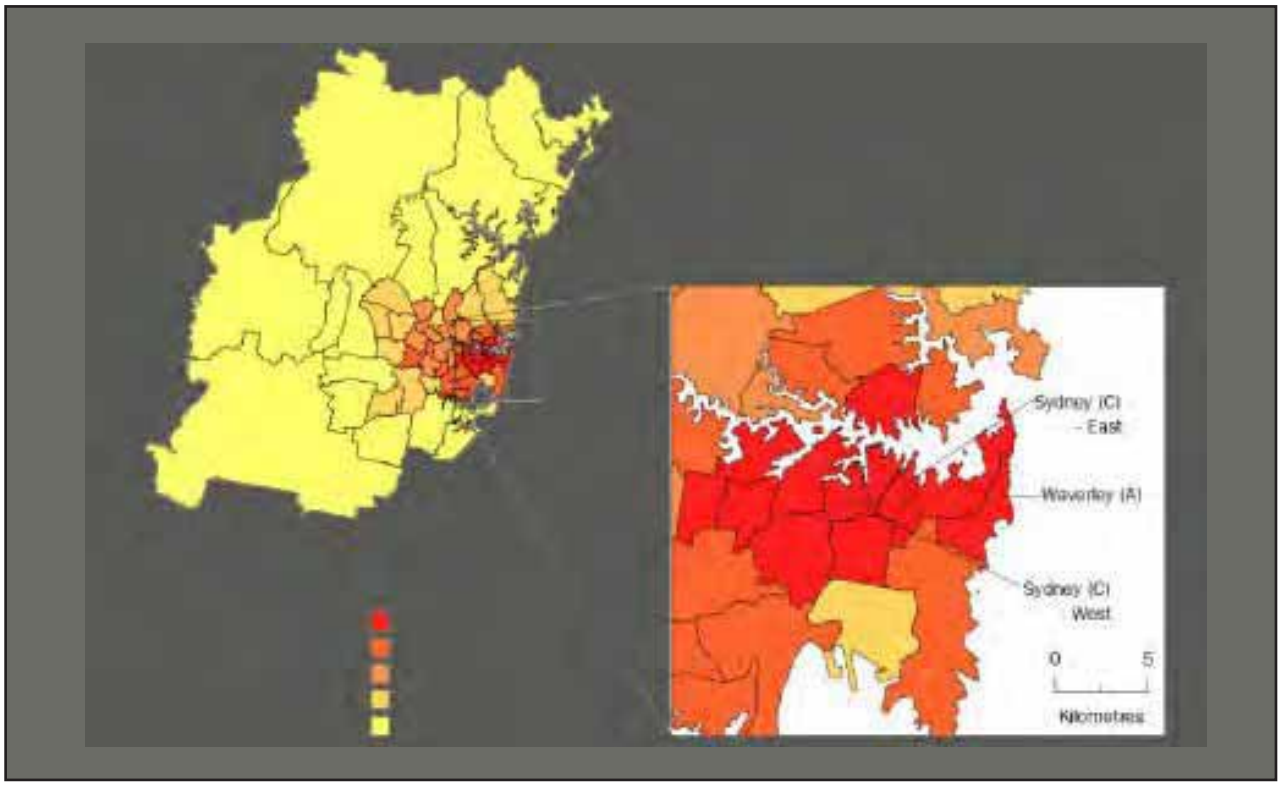


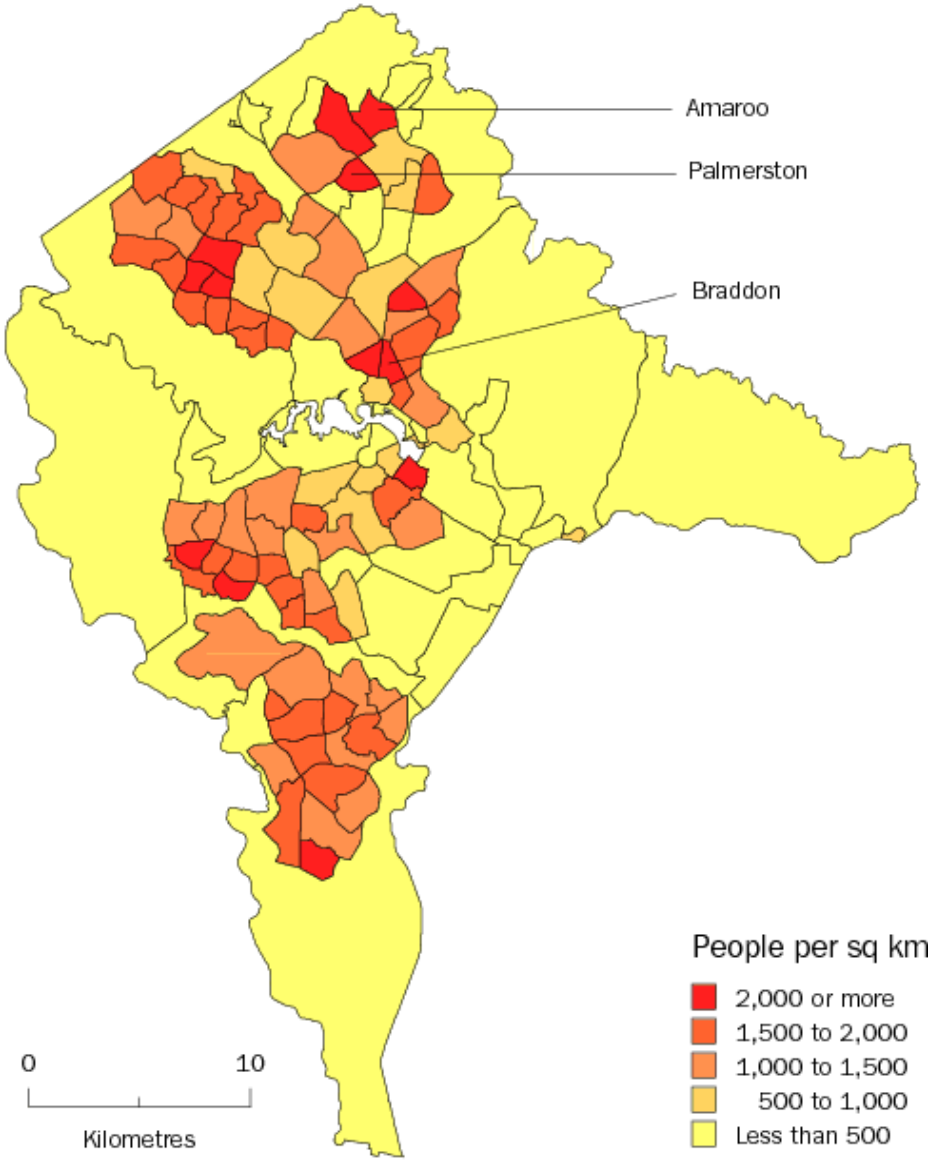
Table 2: Sydney gross population density 2010

Location	Population	Area km²	Persons/km²	Persons per ha
Inner Sydney	357,500	75.5	4735.1	47.4
Eastern Suburbs	258,541	57.9	4465.3	44.7
St George-Sutherland	464,022	400.2	1159.5	11.6
Canterbury-Bankstown	334,482	110.4	3029.7	30.3
Fairfield-Liverpool	382,048	407.1	938.5	9.4
Outer South Western Sydney	254,081	3070.2	82.8	0.8
Inner Western Sydney	192,236	49.2	3907.2	39.1
Central Western Sydney	353,118	134.1	2633.2	26.3
Western Sydney	328,194	4612.4	71.2	0.7
Blacktown	307,816	240.2	1281.5	12.8
Lower Northern Sydney	318,250	98.3	3237.5	32.4
Central Northern Sydney	457,892	948.3	482.9	4.8
Northern Beaches	247,637	254.1	974.6	9.7
Central Coast	319,715	1680.4	190.3	1.9

Source: ABS Regional Population Growth, Australia, cat 3218.0

In Canberra, the gross density estimate (see Table 3 and Figure 2) is similarly affected by the definition of the geographic area. The population density of Canberra at 2009 was 435.7 persons per km². Of the Canberra districts, Woden was most dense with 1181 persons per km², and Weston Creek-Stromlo the least dense with 223 persons per km². The North Canberra density of 227 persons per km² was the second lowest.

Figure 2: Canberra gross population density by suburb 2010



Attachment 1 indicates the population density by statistical local area (suburb) in Canberra and provides a map of the ABS ACT statistical subdivisions.

Table 3: Gross population density by district 2010

District	Population	Area km²	Persons/km²	Persons/ha
North Canberra	47,955	206.5	232.2	2.3
South Canberra	26,116	87.4	298.8	3.0
Belconnen	93,565	130.6	716.4	7.2
Woden	34,124	28.6	1193.1	11.9
Weston Creek	23,747	104.3	227.7	2.3
Tuggeranong	89,207	159.7	558.6	5.6
Gungahlin	43,508	90.6	480.2	4.8
Total Canberra	358,222	807.6	443.6	4.4

Source: ABS, Regional Population Growth, Australia, cat 3218.0

However, the ABS statistical district definitions include substantial areas of non urban land. Table 4 adjusts the gross population estimates by excluding areas of non-urban land to produce revised gross population estimates. 'Statistical balance' is the area that is not residential, typically broadacre, hills, ridges and buffers.

Table 4: Adjusted gross population estimates by district 2010

District	Population	Suburb Area ha	Density ha
Nth Canberra (1)	47,783	4270	11.2
Sth Canberra (2)	25,496	4930	5.2
Belconnen (3)	93,523	6670	14.0
Woden	34,124	2860	11.9
Weston Ck (4)	23,561	1590	14.8
Tuggeranong (5)	89,142	6390	14.0
Gungahlin (6)	42,240	3030	13.9
Total Canberra	355,869	29,740	12.0

1. Excludes Kowen, Majura,
2. Excludes Jerrabomberra, Pialligo, Symonston
3. Excludes statistical balance
4. Excludes Stromlo, statistical balance
5. Excludes statistical balance
6. Includes Amaroo, Gungahlin, Harrison, Franklin, Ngunnawal, Nicholls, Palmerston and Mitchell

The revised figure indicates a gross population density in Canberra of 12.0 persons a hectare, varying from 5.2 persons per hectare in South Canberra to 14.8ha in Weston Creek. The relatively low population density in South Canberra is primarily a product of the inclusion of Fyshwick and Hume industrial areas. If these areas were excluded, South Canberra gross population density would be 8.3 persons per hectare.

Alternative density estimate: net residential population density per hectare

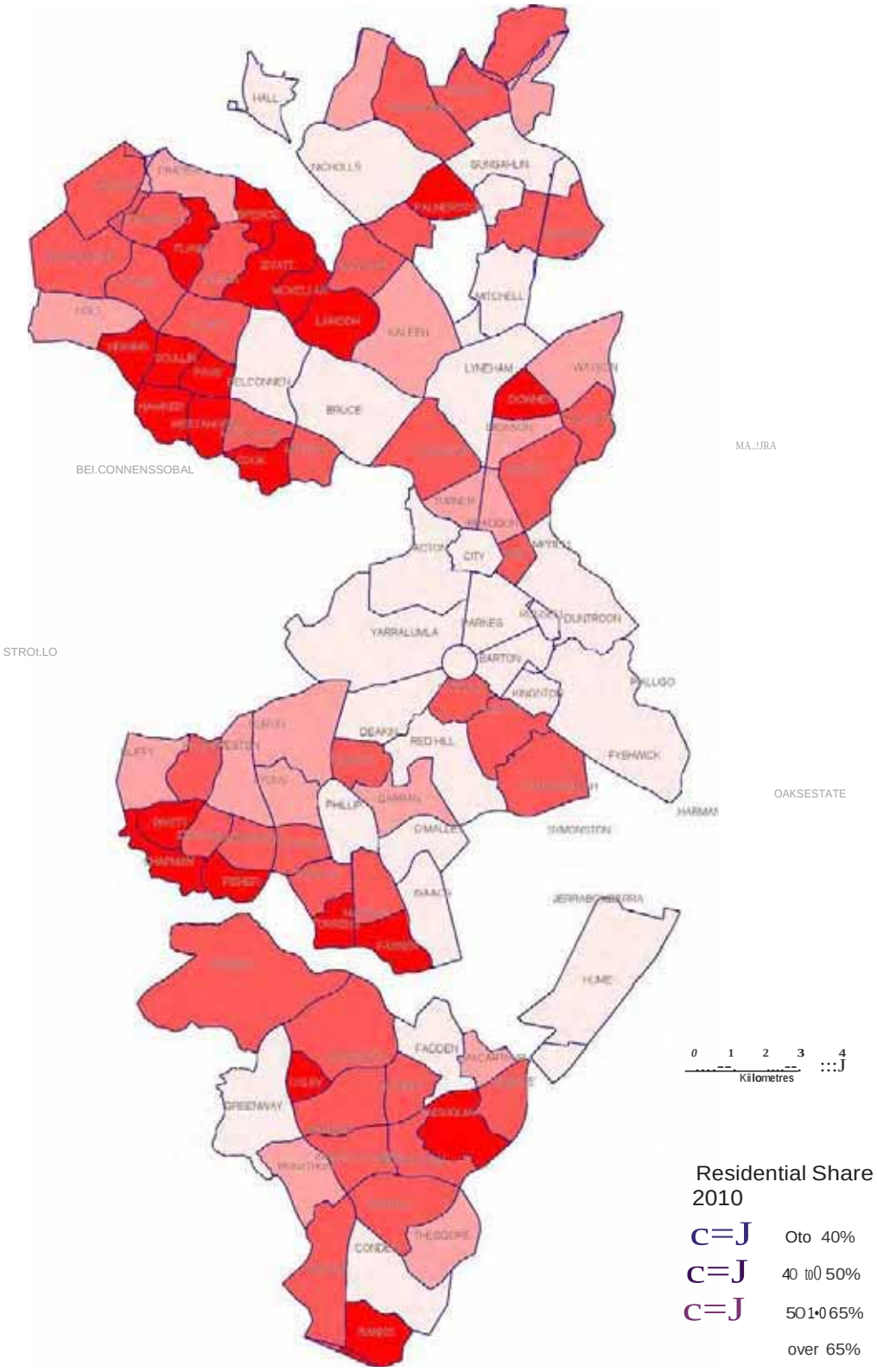
The above population density estimates include the area of all land uses (schools, shops, offices, open space, industrial, residential etc) in a district/ suburb. While some suburbs have schools, major shops, offices, hospitals, playing fields etc, others do not. In North Canberra for example, suburbs such as City, Dickson, Acton and Lyneham have comparatively low population densities as a result of higher proportions of non-residential land. This point is illustrated in figures 3 and 4, which compare land uses in Dickson and Palmerston. Under the ABS population density estimates Palmerston has a density of 3,129 persons per km², one of the highest in Canberra, whereas Dickson has 1,368 persons per km². Looking at the distribution of land uses in these suburbs indicates a substantial difference in the land zoned residential – 42 per cent in Dickson compared to 76 per cent in Palmerston.

Figure 5 indicates the proportion of residential land by suburb and Attachment 2 indicates the land use distribution by suburb.

Figure 3: Palmerston land use distribution

Figure 4: Dickson land use distribution

Figure 5: Proportion of residential land by suburb



As the population of a suburb is primarily found in residential zones and, to a lesser extent, in commercial zones, another measure of density is residential population density, calculated by dividing the population of a suburb by its residential area (including internal roads) as defined in the Territory Plan.

Table 5 indicates the net residential population density by district in 2010. The table excludes suburbs where there was little or no population in 2010. It indicates 46 per cent of land in Canberra was used for residential uses varying from 29 per cent in North Canberra to 50 per cent in Tuggeranong.

Table 5: Net residential population density by district 2010

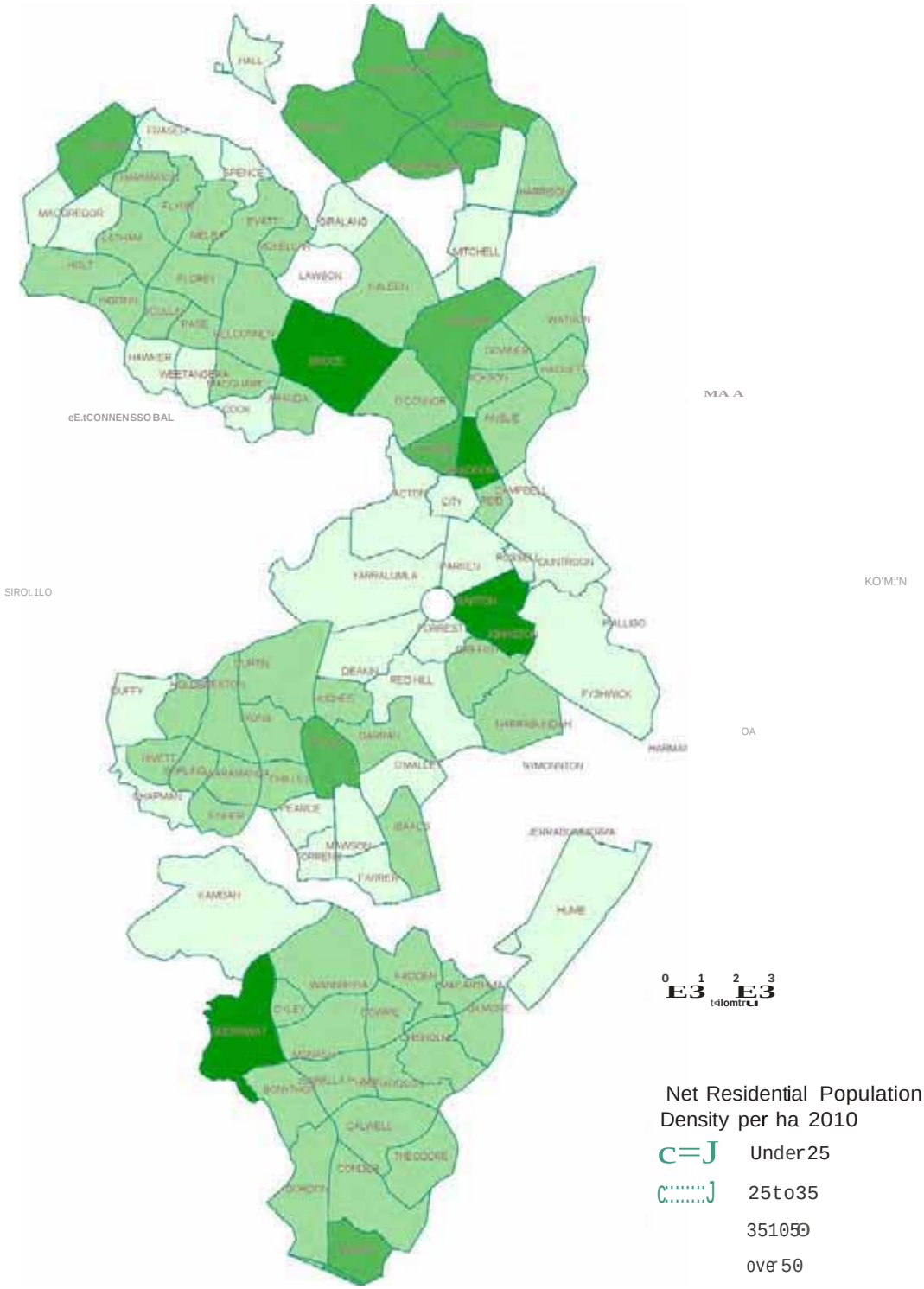
District	Pop 2010	Total area	Residential area/ha	Residential share %	Persons/ha
North Canberra	47,783	4270	1324.1	31.0	36.1
South Canberra	25,496	4930	995.4	20.2	25.6
Belconnen	93,523	6670	3288.6	49.3	28.4
Woden	34,124	2860	1348.2	47.1	25.3
Weston Creek	23,561	1590	910.3	57.3	25.9
Tuggeranong	89,142	6390	3169.7	49.6	28.1
Gungahlin	42,240	3030	1139.8	37.6	37.1
Total Canberra	355,869	29,740	12,176.1	40.9	29.2

* Excludes Kowen and Majura in North Canberra; Pialligo, Jerrabomberra and Symonston in South Canberra; Belconnen statistical balance; Stromlo and statistical balance in Weston Creek; statistical balance in Tuggeranong and suburbs in Gungahlin which were less than 30% settled (Casey, Crace, Bonner, Forde).

The low proportion of residential land in north and south Canberra reflects the high proportion, 44%, of designated land in these areas. Designated areas are the responsibility of the Federal Government, through the National Capital Authority, as they are intrinsic to the capital; they include the central national area, Lake Burley Griffin, the parliamentary zone, diplomatic estates, inner hills, main avenues and approach routes.

The net residential population density in Canberra was 29.2 persons per ha varying from 37.1 persons per ha in Gungahlin to 25.3 persons ha in Woden. Figure 6 and Attachment 3 indicate the residential population density by suburb.

Figure 6: Net residential population density by suburb 2010



The relatively high residential population densities at the town centres, Bruce, Kingston and suburbs along Northbourne Avenue reflects the development of residential dwellings on commercial land. Similarly, Acton, Duntroon and City had no land with residential zones but had populations of 1,949, 1,963 and 1,244 respectively in 2010. Small populations were also found in non residential areas of Harman, Fyshwick, Hume and Mitchell.

Alternative density estimate: residential dwelling density

Residential population density estimates are affected by demographic change. Historically, new areas in Canberra have been settled by young adults starting their families. The population increases for 20 to 25 years until the children of the initial settlers begin to leave home, resulting in population decline and a high proportion of 'empty nest' households. Gradually the initial settler dwellings become available to new households, who generally are younger and have fewer children than the households they are replacing. These general trends are evident in all Canberra's towns.

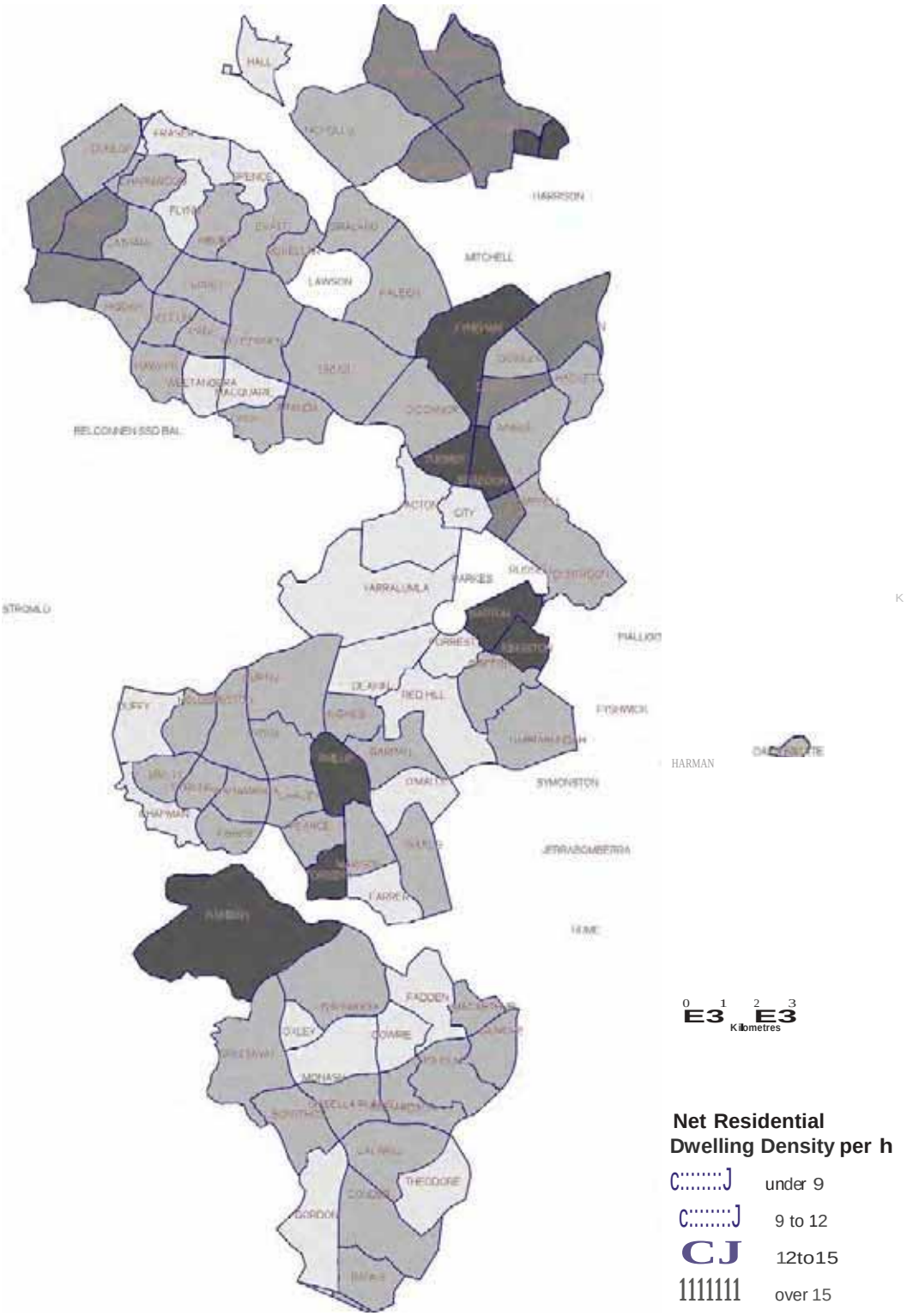
To adjust for such demographic influences, an alternative density measure is residential dwelling density. This is calculated by dividing the number of dwellings in a location by either the total (gross) area or residential (net) area of the location. Figure 7 and Attachment 4 show the gross dwelling density in Canberra at 2006 was 4.7 dwellings per ha, varying from 5.6 dwellings per ha in Weston Creek to 3.6 dwellings per ha in South Canberra. The net (residential land only) density was 10.4 dwellings per ha varying from 13.1 dwellings ha in North Canberra to 9.7 dwellings ha in Tuggeranong. Table 6 indicates the gross and net residential dwelling densities by suburb. Data from the 2011 Census will allow updating of the table to reflect recent trends.

Table 6: Residential dwelling density by district 2006

District	Dwellings	Area ha (1)	Gross dw/ha	Residential area ha	Net dw/ha
North Canberra	17,373	4220	4.1	1324	13.1
South Canberra	10,662	2960	3.6	995	10.7
Belconnen	32,259	6189	5.2	3289	9.8
Woden	14,384	2870	5.0	1348	10.7
Weston Creek	8949	1590	5.6	910	9.8
Tuggeranong	30,796	6360	4.8	3170	9.7
Gungahlin	11,351	2270	5.0	867	13.0
Total Canberra	125,774	26689	4.7	12063	10.4

Source: ABS 2006 Census and ACTPLA data
(1) Estimates of area differ from population density tables as they also exclude: Russell in North Canberra; Hume, Fyshwick and Parkes in South Canberra; Harrison, Franklin and Mitchell in Gungahlin in addition to non urban areas previously excluded, Majura, Kowen, Stromlo, Symonston and non urban parts of Tuggeranong, Weston Creek and Belconnen. There are also small differences in some suburbs as a result of the use of ACTPLA data for the estimate of suburb area. Gungahlin data excludes Forde as settlement had not commenced in 2006; Belconnen data excludes West Macgregor as it had not started settlement in 2006 and Lawson.

Figure 7: Net Residential dwelling density by suburb 2006"'



• (1) Estimates of area differ from population density tables as they also exclude Russell in North Canberra: Hume, Fyshwick and Parkes in South Canberra: and Mitchell in Gungahlin in addition to non urban areas previously excluded, Majura, Kowen, Stromlo, Symonston and non urban parts of Tuggeranong and Belconnen. There are also small differences in some suburbs as a result of the use of ACTPLA data for the estimate of suburb area. Gungalhlin data excludes Forde as settlement had not commenced in 2006 and Harrison as only a small share of its area had been settled in 2006. Belconnen data excludes West Macgregor as it had not commenced settlement in 2006 and Lawson.

Comparison of density measures by suburb

Table 7 indicates the alternative measures of density by district and suburb. It highlights the wide variations in suburb or district density depending on the measure used and consequently the need to define the density measure being used whenever density figures are used.

The population density measure (calculated by dividing the population of a suburb by its total area) and the gross residential dwelling density (calculated by dividing the number of dwellings in a suburb by its total area) have the advantage of being readily available. However, the measures can be misleading as they include all land uses and, as a result, fail to consider the unequal distribution of land uses such as open space, schools and shops.

When planning new areas, estimating population and dwelling yields ,residential population density and net residential dwelling density could be preferable as they take into account the land use distribution; that is, the land actually available for housing.

When applied to existing districts, these alternative measures indicate North Canberra and Gungahlin have the highest residential population and net residential dwelling densities (calculated by dividing the population by the residential zoned area). This reflects the recent increases in population brought about by redevelopment in North Canberra and the smaller block sizes in Gungahlin. Care has to be exercised in using residential population density and net residential dwelling density as these measures include the population in developments in commercial zones. This is an issue in a few suburbs – town centres, Bruce, Kingston, Turner and Braddon.

The alternative measures produce widely different density estimates. For example, the Belconnen Town Centre has a low gross population density (as defined by the ABS) of nine persons per ha, a net residential population density of 79 persons per ha, a gross residential dwelling density (calculated by dividing the number of dwellings by the total area of the statistical local area) of 3.4 dwellings a hectare and a net residential density of 33.7dwellings per ha.

Table 7: Comparison of alternative density measures

Suburb	2010 gross population (persons /ha)	2010 net residential population (persons/ha)	2006 gross residential (dwellings/ha)	2006 net residential (dwellings/ha)
Aranda	16.3	25.5	5.8	9.2
Belconnen T C	8.6	86.3	3.4	33.7
Bruce	7.8	56.0	1.5	11.1
Charnwood	17.5	30.3	6.4	11.4
Cook	19.2	24.5	8.2	10.6
Dunlop	19.8	35.7	5.7	10.3
Evatt	18.0	26.9	6.4	9.7
Florey	20.0	32.1	6.6	10.8
Flynn	18.0	25.8	6.0	8.6
Fraser	9.2	21.3	3.0	6.9
Giralang	13.7	24.5	5.2	9.1
Hawker	15.7	24.0	6.2	9.3
Higgins	19.3	25.1	7.1	9.4
Holt	15.6	32.6	6.3	13.1
Kaleen	12.8	26.4	4.5	9.3
Latham	14.2	26.6	5.1	9.4

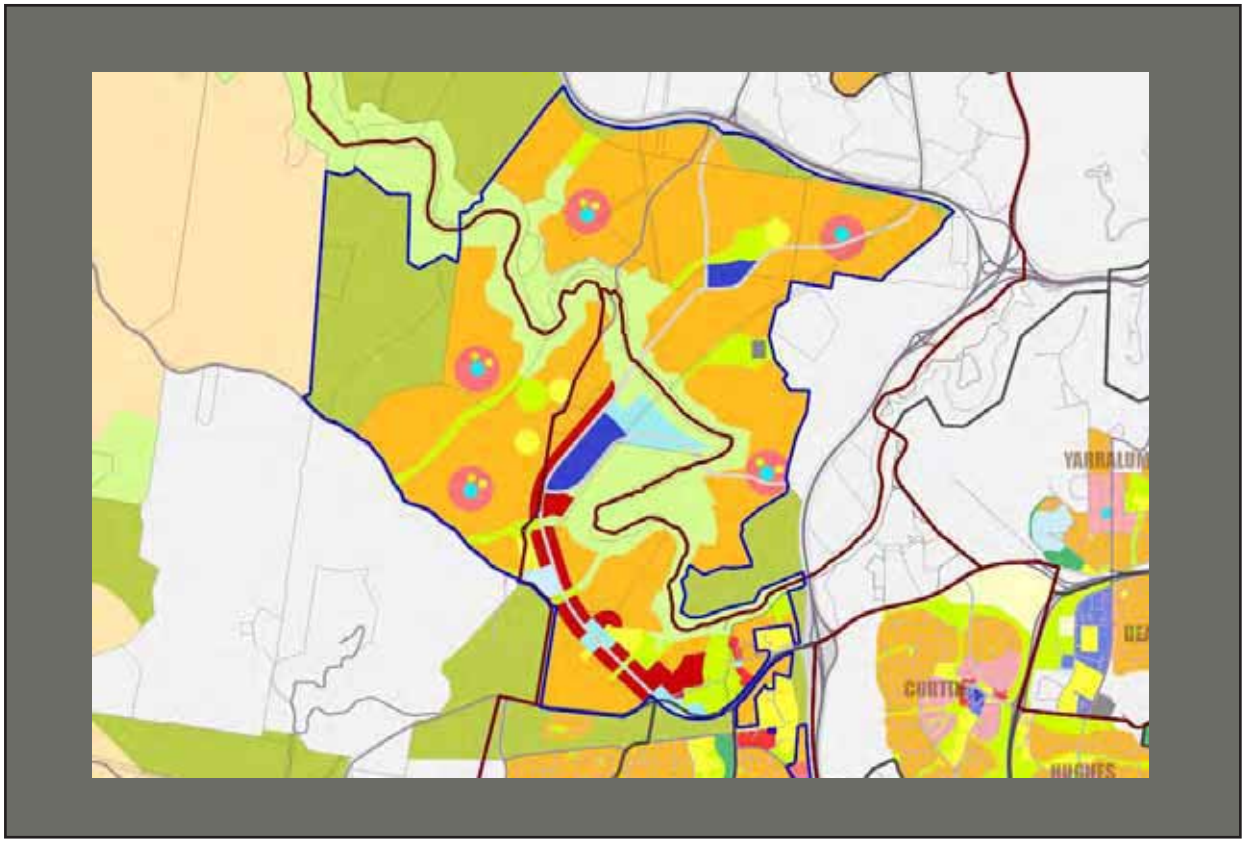
Suburb	2010 gross population (persons /ha)	2010 net residential population (persons/ha)	2006 gross residential (dwellings/ha)	2006 net residential (dwellings/ha)
McKellar	6.7	30.1	4.9	12.4
Macgregor	10.9	20.5	5.8	4.3
Macquarie	15.6	27.2	6.6	9.4
Melba	15.3	26.9	5.4	9.5
Page	21.9	28.0	8.8	11.1
Scullin	20.7	27.7	8.5	11.1
Spence	18.3	25.0	6.3	8.5
Weetangera	17.0	21.2	5.9	7.5
Belconnen av.	14.0	28.4	5.2	9.8
Amaroo	26.8	48.6	7.0	12.7
Franklin	7.5	15.4		
Gungahlin	10.0	47.9	2.7	15.9
Hall	2.1	14.4	0.6	4.1
Mitchell	0.0	N/A		N/A
Ngunnawal	24.1	40.0	8.3	13.6
Nicholls	11.7	38.4	3.4	11.3
Palmerston	31.8	41.7	11.0	14.1
Gungahlin av.	15.6	37.1	5.0	13.0
Acton	2.1	N/A	0.0	N/A
Ainslie	15.2	25.1	5.8	9.4
Braddon	29.2	66.9	12.2	28.0
Campbell	10.8	24.6	2.4	9.7
City	8.9	N/A	2.5	N/A
Dickson	14.4	33.7	5.4	12.8
Downer	22.4	27.9	8.9	10.9
Hackett	16.0	26.8	6.6	10.8
Lyneham	9.0	41.7	3.5	16.1
O'Connor	13.6	27.0	5.1	10.2
Reid	18.2	28.8	8.6	13.3
Turner	23.1	49.5	10.9	22.9
Watson	13.2	34.7	5.3	13.9
Nth Canberra av.	11.5	36.1	4.1	13.1
Barton	8.5	66.6	2.2	28.6
Deakin	8.0	22.3	3.1	8.7
Forrest	9.6	17.9	3.1	5.9
Griffith	15.6	27.0	6.5	11.3
Kingston	20.8	73.5	11.6	38.1
Narrabundah	14.4	25.8	5.9	10.3
Oaks Estate	5.9	17.0	4.2	11.6
Red Hill	7.0	19.4	2.4	6.7
Yarralumla	4.1	20.2	1.4	8.5
Sth Canberra av.	9.2	25.6	3.6	10.7
Banks	23.4	35.8	7.8	10.7

Suburb	2010 gross population (persons /ha)	2010 net residential population (persons/ha)	2006 gross residential (dwellings/ha)	2006 net residential (dwellings/ha)
Bonython	13.0	31.8	4.3	10.5
Calwell	15.4	28.9	5.2	11.7
Chisholm	17.4	25.7	5.9	10.5
Conder	12.1	31.4	3.6	9.9
Fadden	10.3	26.2	3.5	8.7
Gilmore	14.5	27.3	4.6	9.4
Gordon	17.8	32.7	6.4	8.8
Gowrie	16.7	26.8	5.8	8.5
Greenway	2.6	52.6	1.1	11.6
Isabella Plains	17.3	31.2	6.1	9.2
Kambah	14.0	24.6	5.1	21.6
Macarthur	11.9	27.9	3.8	11.0
Monash	16.4	28.8	5.8	9.0
Oxley	17.4	25.3	5.7	8.9
Richardson	14.6	27.0	5.2	10.2
Theodore	13.0	27.6	4.4	8.4
Wanniassa	15.0	25.4	5.4	9.4
Tuggeranong av.	14.0	28.1	4.8	9.3
Chapman	15.3	21.0	4.9	6.9
Duffy	11.6	24.9	4.2	9.0
Fisher	20.5	26.5	7.8	10.1
Holder	14.7	26.1	5.9	10.5
Rivett	20.2	26.0	7.9	10.1
Stirling	16.2	28.5	6.0	10.4
Waramanga	15.7	27.9	6.4	11.3
Weston	11.0	28.3	4.3	11.3
Weston Ck av.	14.8	25.9	5.6	9.8
Chifley	15.7	26.5	6.3	10.7
Curtin	11.2	26.4	4.3	10.1
Farrer	17.1	24.6	6.0	8.8
Garran	12.4	27.5	4.7	10.4
Hughes	16.9	26.8	6.6	10.5
Isaacs	8.2	25.5	3.0	9.3
Lyons	12.1	27.3	5.1	11.7
Mawson	14.7	24.4	6.0	10.0
O'Malley	3.6	10.7	0.9	2.6
Pearce	15.5	23.7	6.3	9.6
Phillip	8.1	46.2	4.5	25.8
Torrens	17.8	22.9	13.7	17.6
Woden Valley av.	11.9	25.3	5.0	10.7

* Estimates exclude Russell, Duntroon, Majura and Kowen in North Canberra; Hume, Fyshwick, Pialligo, Jerrabomberra and Symonston and Parkes in South Canberra; Mitchell, Forde, Casey, Bonner, Crace and statistical balance in Gungahlin; Stromlo and statistical balance in Weston Ck-Stromlo; non urban parts (statistical balance) of Tuggeranong and Belconnen and Lawson in Belconnen.

Density in Molonglo

Figure 8: Molonglo land use



Alternative density estimate: site density

Site density refers to the number of dwellings developed/proposed for an individual parcel of land: if a land parcel is one hectare and 20 dwellings are proposed, the site density is 20 dwellings a hectare. The average single residential block size in Tuggeranong and Belconnen in 2007 was approximately 800m^2 which translates to a site density of about 12.5 dwellings a hectare. In 2007 the average single dwelling block size in Gungahlin was 550m^2 representing an average site density of about 18 dwellings a hectare. The average site density for single blocks was 11.8 dwellings/ha in Weston Creek and about 11 dwellings/ha in Woden and central Canberra.

An analysis of the residential zones RZ 3 and RZ 4 along Northbourne Avenue found that the sites in the RZ4 area had been redeveloped at a site density of 99 dwellings a ha while sites redeveloped in the RZ 3 areas had been developed at a site density of 62 dwellings a hectare.

The site densities of multi-unit sites vary substantially, as indicated in Table 9. Sites with high densities include Metropolitan in City (494 dwellings a hectare), James Court in Braddon (472 dwellings a hectare), Forum in City (315 dwellings a hectare), Haig Tower in Turner (346 dwellings a hectare). Sky Plaza at Woden has a site density of 208 dwellings a hectare.

Table 8: Site densities for selected multi-unit site

Site	Section	Block	Dwellings	Site Area ha	Site Density ha	Description
City	6	2	342	0.692	494	Metropolitan
City	10	4	117	0.3716	315	Forum
City	8	8	131	0.7981	164	Capital Tower
City	65	25	188	1.042	180	Glebe Park Apartments
Braddon	19	15	197	0.4172	472	James Court
Braddon	22	26	74	0.5922	125	Dowling Apartments
Braddon	22	25	58	0.418	139	Victoria Terrace
Braddon	22	24	85	0.627	136	Braddon gardens
Braddon	52	1	451	2.5631	176	Currong/Allawah
Turner	57	1	146	2.3372	62	Northbourne Flats
Turner	58	4	92	0.703	131	Space 1
Turner	44	11	6	0.0905	66	Noveau
Turner	44	12	6	0.0905	66	Noveau
Turner	44	10	10	0.0998	100	Mondrian
Turner	43	1	48	0.1389	346	Haig Tower
Turner	58	6	40	0.6787	59	Northgate gardens
Turner	58	9	124	0.5415	229	Monarch
Lyneham	51	8	55	2.0502	27	Lyneham/Owen Flats
Dickson	34	3	77	0.6168	125	Coventry
Belconnen	44	10	143	0.7654	187	
Belconnen	55	39	72	0.6773	106	Miramar
Belconnen	55	40	60	0.5996	100	Miramar
Belconnen	149	27	80	0.8104	99	
Belconnen	86	19	64	0.3667	175	

Site	Section	Block	Dwellings	Site Area ha	Site Density ha	Description
Bruce	32	15	54	2.7427	20	Liberty
Holt	51	60	123	1.0196	121	Parkview
Kingston	26	47	27	0.5058	53	Kingston Tower
Kingston	19	45	8	0.195	41	Kennedy
Kingston	25	11	16	0.3901	41	Park Terrace
Kingston	47	7	173	1.1961	145	Veridian
Barton	6	22	282	3.6665	77	
Phillip	18	12	167	0.8023	208	Sky Plaza
Phillip	165	2	18	0.2685	67	York Apartments
Phillip	1	16	240	3.5	69	Central Park
Greenway	67	12	36	0.3988	90	
Greenway	68	11	44	0.5829	75	
Bonython	68	8	11	0.5848	19	Park Ridge

Gross population density trends in Canberra 2001 to 2010

The population density of most Canberra districts increased between 2001 and 2010 with the overall population density increasing from 12.9 to 13.5 persons per ha. Table10 indicates the trends by district and Figure 7 and Attachment 5 the trends by suburb.

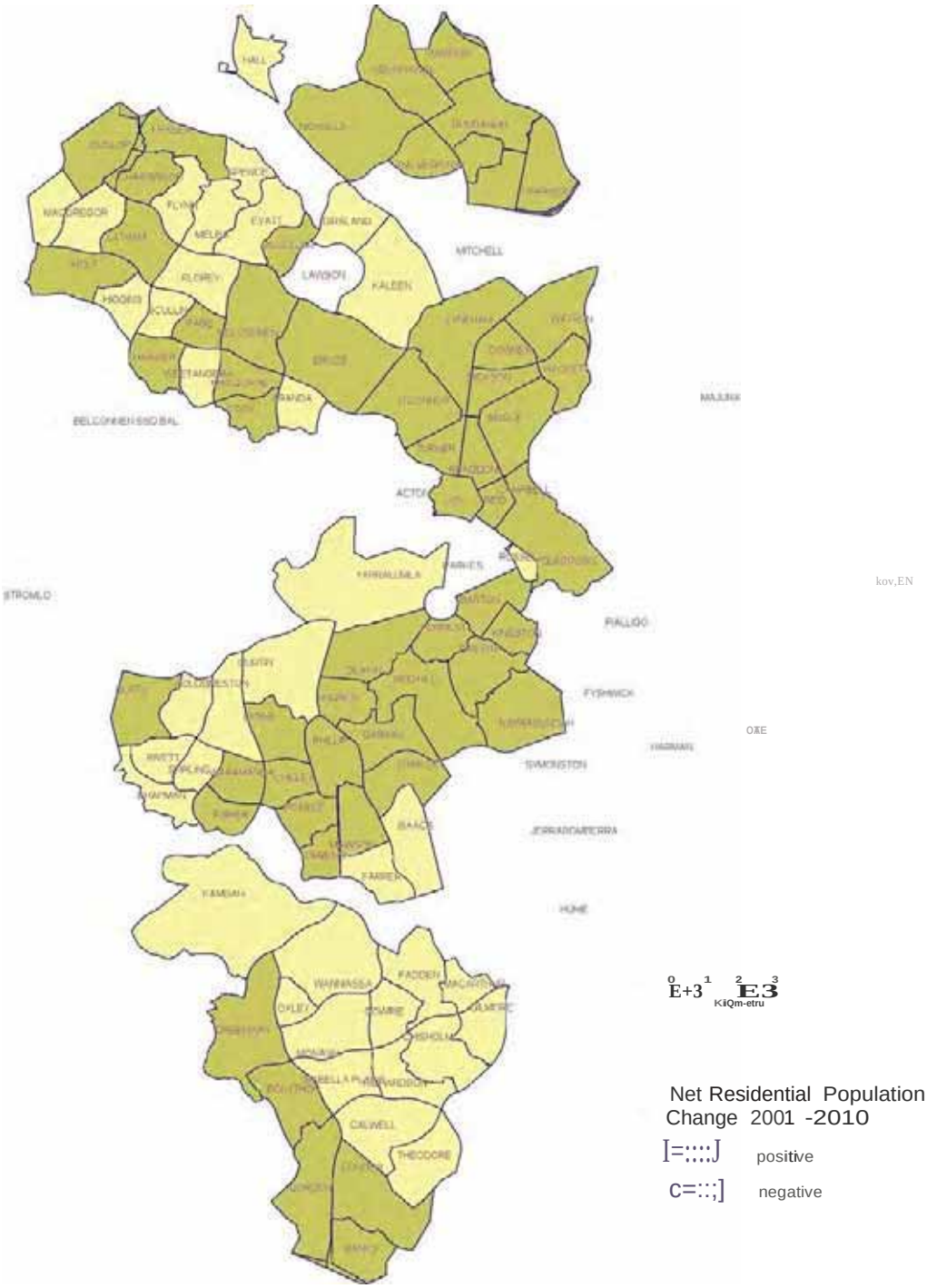
Table 9: Gross population density 2001 and 2010 by district*

District	2001	2010
North Canberra	11.7	14.4
South Canberra	8.2	9.2
Belconnen	13.8	14.7
Woden	11.3	11.9
Weston Ck	14.8	14.8
Tuggeranong	14.3	14.0
Gungahlin	14.6	15.6
Canberra average	12.9	13.5

*Estimates exclude: Acton, Russell, Duntroon, Majura and Kowen in North Canberra; Hume, Fyshwick, Pialligo, Harman, Jerrabomberra ,Symonston and Parkes in South Canberra; Mitchell, Forde, Casey, Bonner, Crace and statistical balance in Gungahlin; Stromlo and statistical balance in Weston Ck-Stromlo; non urban parts (statistical balance) of Tuggeranong and Belconnen; Lawson in Belconnen and in 2001 the areas and small populations in Franklin, Harrison and Gungahlin suburb.

In North Canberra the population density increased in all suburbs, with the most marked increases in Braddon and Turner being a product of the increased population generated through redevelopment. The apparently high relative population density in Downer (22.9 persons a hectare) reflects the relatively high residential share of land in the suburb, while the low population density in Lyneham reflects the comparatively low residential land share.

Figure 9:Change in gross population density 2001 and 2010



• Estimates exclude: Acton, Russell, Duntroon, Majura and Kowen in North Canberra; Hume, Fyshwick, Pialligo, Harman, Jerrabomberra ,Symonston and Parkes in South Canberra; Mitchell, Forde, Casey, Bonner, Crace and statistical balance in Gungahlin; Stromlo and statistical balance in Weston Ck-Stromlo; non urban parts (statistical balance) of Tuggeranong and Belconnen.

Population densities in South Canberra increased in all suburbs except Oaks Estate, where population density fell. The comparatively low density of many South Canberra suburbs reflects the high share of non residential land in these suburbs.

The increase in average density in Belconnen reflects the increase in population in Bruce, the Belconnen Town Centre and Dunlop. Falls in density in a large number of suburbs reflects the ageing of the population, including factors such as young adults leaving home to form new households. Similarly, density trends in Woden, Weston Creek and Tuggeranong reflect the ageing of the population with some regeneration occurring in suburbs such as Chifley, Mawson, Pearce, Torrens and Fisher. Increases in the southern Tuggeranong suburbs of Conder, Gordon and Banks indicate family formation in younger households while increases in Bonython, Garran and Phillip reflect the increase in housing opportunities available through development of vacant residential land, infill and redevelopment. The 'decline' in density in Gungahlin reflects the inclusion of the total land areas for suburbs that have recently commenced settlement. The average density in the completed suburbs – Amaroo, Ngunnawal, Palmerston and Nicholls – increased between 2001 and 2009.

Low, medium and high density

The terms low, medium and high density are often used to describe housing developments but there is no nationally accepted standard as to what constitutes 'low', 'medium' and 'high' density. What is considered high density varies between cities and within cities; for example, a ten story building in Sydney Central Business District would not be considered high density in Sydney, but would be considered high density in Canberra.

Griffiths (2009) notes the definition of high density housing in the Sydney Metropolitan planning strategy is 'over 60 dwellings per hectare and generally five stories or more, for example apartment buildings; medium density housing is generally between 25 and 60 dwellings per hectare and not usually more than 3 or 4 storeys high, for example apartments and terrace housing'. In the Queensland South East Queensland Regional Plan, density targets are specified as follows: activity centres – 40-120 dwellings per hectare net or greater; suburban and neighbourhood locations – 30- 80 dwellings a hectare net or greater; and priority transport corridors – 40 dwellings hectare net or greater.

The 30 Year Plan for Greater Adelaide provides three categories of net residential site density to be used in planning policy to guide individual developments. Low density is defined as less than 35 dwelling units per hectare; medium density as 35-70 dwelling units per hectare; and high density more than 70 dwelling units per hectare. Net density is defined as the number of dwellings per hectare on land devoted solely to residential development; it includes private driveways and private open space, but does not include public roads and areas of public open space. The plan also separately defines building height: low rise is one to three storeys, medium rise is four to ten storeys and high rise is ten or more storeys.

NSW and Victoria target a residential density of 15 dwellings a hectare in developing areas (Department of Infrastructure, 2002). The target is generally defined in terms of 'net developable area', which includes the area of internal and public roads, but excludes flood prone land, environmental heritage land, education facilities, emergency services facilities, public utilities, public transport corridors, public depots, public stations and associated parking facilities, and land identified as public open space (NSW Government, 2010). As such it is similar to the net residential dwelling density defined above.

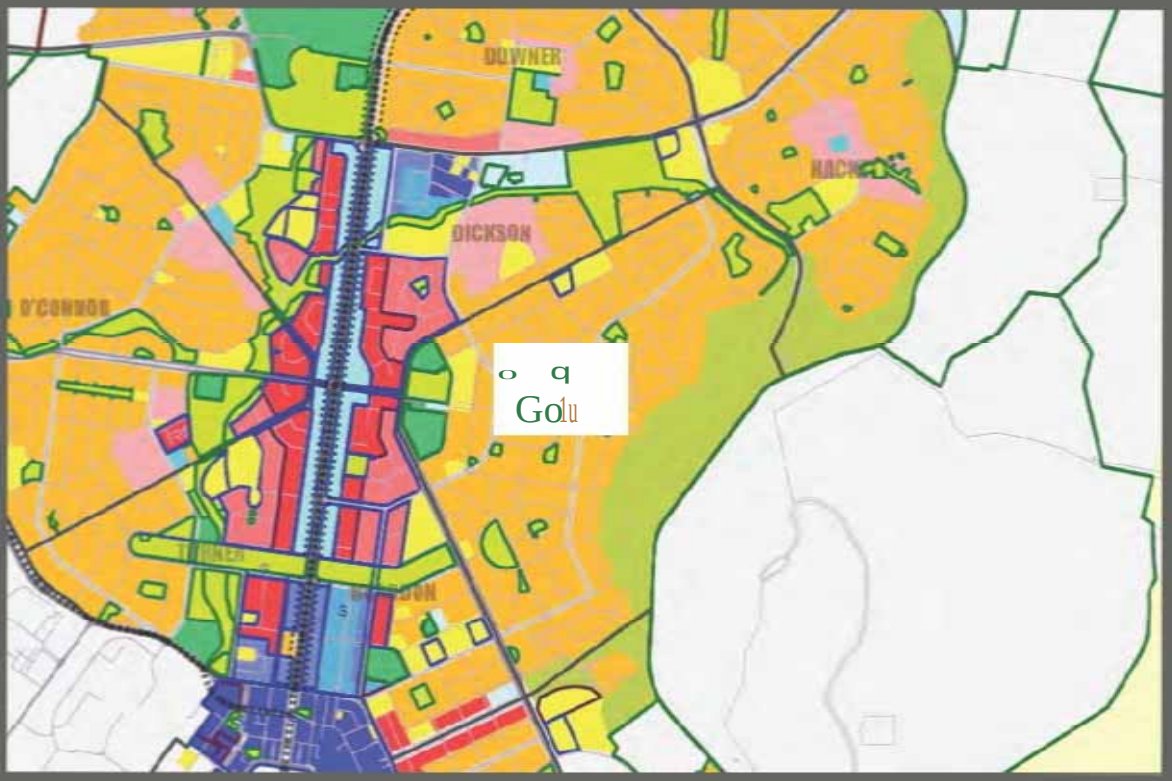
High density does not necessarily mean high rise as density targets are achievable through a variety of housing forms. Griffiths (2009) cites a study in London that showed how the same density of development on the same size block could be delivered in various ways from three storey perimeter building development to four 32 storey towers to one 127 storey tower.

The ABS defines housing as: houses, semi detached, row or terrace house (one storey, two or more stories); flats, units and apartments (in a one or two storey block, three storey block and in a four or more storey block). While this definition is useful for general comparisons, it does not provide a measure of dwelling density.

Newman and Kenworthy argue that to reduce car dependence a threshold 'genuine' urban density of 35 persons per ha is required. Genuine urban density includes all land uses – residential, commercial, industrial, open space etc. While it is valid to include such uses, there are difficulties in the application of such a general rule.

For example, within the defined boundaries of suburbs there can be extensive areas of open space that are irrelevant to the consideration of the viability of a transport network as illustrated by the area of opens space (hills, ridges and buffers) in east Ainslie and Hackett which are included in the suburb area (shown in green in Figure 8). While more careful boundary definition is possible at an individual city level, there are difficulties in making consistent comparisons between cities.

Figure 10: Ainslie and Hackett land use



Concluding comments

The forgoing analysis highlights the difficulty in making consistent and meaningful comparisons of density within and between cities.

It highlights how different density measures can give wide variations in suburb or district density. There is therefore a need to define the density measure being used whenever density figures are used.

When planning new areas, it could be preferable to estimate population and dwelling yields using residential population density and net residential dwelling density as these take into account the land that is actually available for housing.

Without clarity in the definition of density, the contribution increased residential and population density is making – and can make – to the development of a more sustainable city will be uncertain.

While the introduction of additional housing opportunities in existing areas is responding to demands for housing located near employment and other opportunities, it is perceived by some residents as reducing the amenity of their suburb through increased levels of traffic, noise, overlooking and on street parking. Such housing needs to be well designed to increase its acceptability to the existing community and located so as to improve the functioning of the public transport system, support local shops and services and to the cost effective utilisation and provision of social and physical infrastructure.

What is becoming clear is that the development of a more compact city requires the integration of land use and transport strategies based on the development of strong centres served by a frequent and convenient public transport system and supported by travel demand management strategies, to reduce car use. It requires working with the increased demands for centrally located housing and the population's lifestyle choices. These lifestyle choices shape daily activity patterns and are influenced by household characteristics including income, size, structure, tenure and age and the households' attitudes and behaviour in regard to energy use.

The preferences of businesses and households are shaped by regulations/price signals that currently do not always reflect the externalities associated with their consumption decisions including those associated with location, energy and water use. Increased energy prices in the future could change the current preferences, leading to an increase in demand for well located higher 'density' dwellings.

Bibliography

Australian Bureau of Statistics *Various Censuses*

Australian Bureau of Statistics (2010) *Regional Population Growth* Catalogue 3218.0

Government of South Australia (2006) Understanding Residential Densities: A Pictorial Handbook of Adelaide Examples November

Griffiths, D (2009) *Density targets: measuring everything except that which makes life worthwhile?* International Cities Town centres and & Communities Society Deakin University Campus 27-30 October 2009

NSW Government, (2010) *Western Sydney Growth Centres Special Contribution Area: Practice Note, November 2010.*

Attachment 1: Population density by SLA (suburb) 2010*

		Pop 2010	Area km2	Persons/km2	Persons/ha
North Canberra					
	Acton	2001	9.4	212.9	2.1
	Ainslie	5390	3.5	1522.2	15.2
	Braddon	4091	1.4	2924.1	29.2
	Campbell	3416	3.2	1081.3	10.8
	City	1293	1.5	885.3	8.9
	Dickson	2278	1.6	1443.7	14.4
	Downer	3657	1.6	2238.1	22.4
	Duntroon	1949	2.4	807.0	8.1
	Hackett	3112	1.9	1596.1	16.0
	Kowen	48	77.0	0.6	0.0
	Lyneham	4940	5.5	901.8	9.0
	Majura	124	86.8	1.4	0.0
	O'Connor	5581	4.1	1355.2	13.6
	Reid	1681	0.9	1817.6	18.2
	Russell	0	0.5	0.0	0.0
	Turner	3543	1.5	2311.2	23.1
	Watson	4851	3.7	1320.4	13.2
	Total North Canberra	47955	206.5	232.2	2.3
Belconnen					
	Aranda	2544	1.6	1627.3	16.3
	Belconnen Town Centre	3821	4.4	863.4	8.6
	Belconnen - SSD Bal	42	63.9	0.7	0.0
	Bruce	5148	6.6	779.0	7.8
	Charnwood	3253	1.9	1752.6	17.5
	Cook	3035	1.6	1916.9	19.2
	Dunlop	7083	3.6	1981.9	19.8
	Evatt	5500	3.1	1797.1	18.0
	Florey	5524	2.8	2004.8	20.0
	Flynn	3763	2.1	1795.6	18.0
	Fraser	2274	2.5	918.8	9.2
	Giralang	3356	2.4	1374.7	13.7
	Hawker	3056	1.9	1572.2	15.7
	Higgins	3225	1.7	1926.3	19.3
	Holt	5152	3.3	1563.3	15.6
	Kaleen	7729	6.0	1282.3	12.8
	Latham	3890	2.7	1424.2	14.2
	McKellar	2998	4.5	666.5	6.7
	Macgregor	4667	4.3	1091.6	10.9
	Macquarie	2653	1.7	1560.0	15.6
	Melba	3524	2.3	1527.3	15.3
	Page	2898	1.3	2191.1	21.9
	Scullin	2954	1.4	2071.3	20.7
	Spence	2782	1.5	1827.4	18.3
	Weetangera	2694	1.6	1701.3	17.0
	Total Belconnen	93565	130.6	716.4	7.2

		Pop 2010	Area km2	Persons/km2	Persons/ha
Woden Valley					
	Chifley	2501	1.6	1574.1	15.7
	Curtin	5397	4.8	1122.6	11.2
	Farrer	3530	2.1	1706.3	17.1
	Garran	3330	2.7	1235.0	12.4
	Hughes	3020	1.8	1687.6	16.9
	Isaacs	2538	3.1	821.9	8.2
	Lyons	2726	2.3	1205.2	12.1
	Mawson	3104	2.1	1469.1	14.7
	O'Malley	942	2.6	361.4	3.6
	Pearce	2646	1.7	1553.4	15.5
	Phillip	2075	2.6	805.9	8.1
	Torrens	2315	1.3	1779.3	17.8
	Total Woden Valley	34124	28.6	1193.2	11.9
Weston Creek-Stromlo					
	Chapman	2847	1.9	1534.0	15.3
	Duffy	3254	2.8	1164.6	11.6
	Fisher	3240	1.6	2047.4	20.5
	Holder	2781	1.9	1470.5	14.7
	Rivett	3248	1.6	2017.0	20.2
	Stirling	2147	1.3	1623.3	16.2
	Stromlo	165	80.4	2.1	0.0
	Waramanga	2687	1.7	1571.5	15.7
	Weston	3357	3.1	1099.3	11.0
	Weston Creek-Stromlo - SSD Bal	21	8.0	2.6	0.0
	Total Weston Creek-Stromlo	23747	104.3	227.8	2.3
Tuggeranong					
	Banks	5274	2.3	2340.6	23.4
	Bonython	3778	2.9	1300.9	13.0
	Calwell	5999	3.9	1541.2	15.4
	Chisholm	5408	3.1	1742.0	17.4
	Conder	5456	4.5	1206.1	12.1
	Fadden	3205	3.1	1031.8	10.3
	Gilmore	2961	2.0	1447.7	14.5
	Gordon	7888	4.4	1776.0	17.8
	Gowrie	3226	1.9	1670.1	16.7
	Greenway	1359	5.3	256.0	2.6
	Isabella Plains	4310	2.5	1727.5	17.3
	Kambah	15841	11.3	1397.5	14.0
	Macarthur	1548	1.3	1189.6	11.9
	Monash	5580	3.4	1635.5	16.4
	Oxley	1886	1.1	1736.0	17.4
	Richardson	3260	2.2	1457.3	14.6
	Theodore	4072	3.1	1298.9	13.0
	Tuggeranong - SSD Bal	65	95.8	0.7	0.0

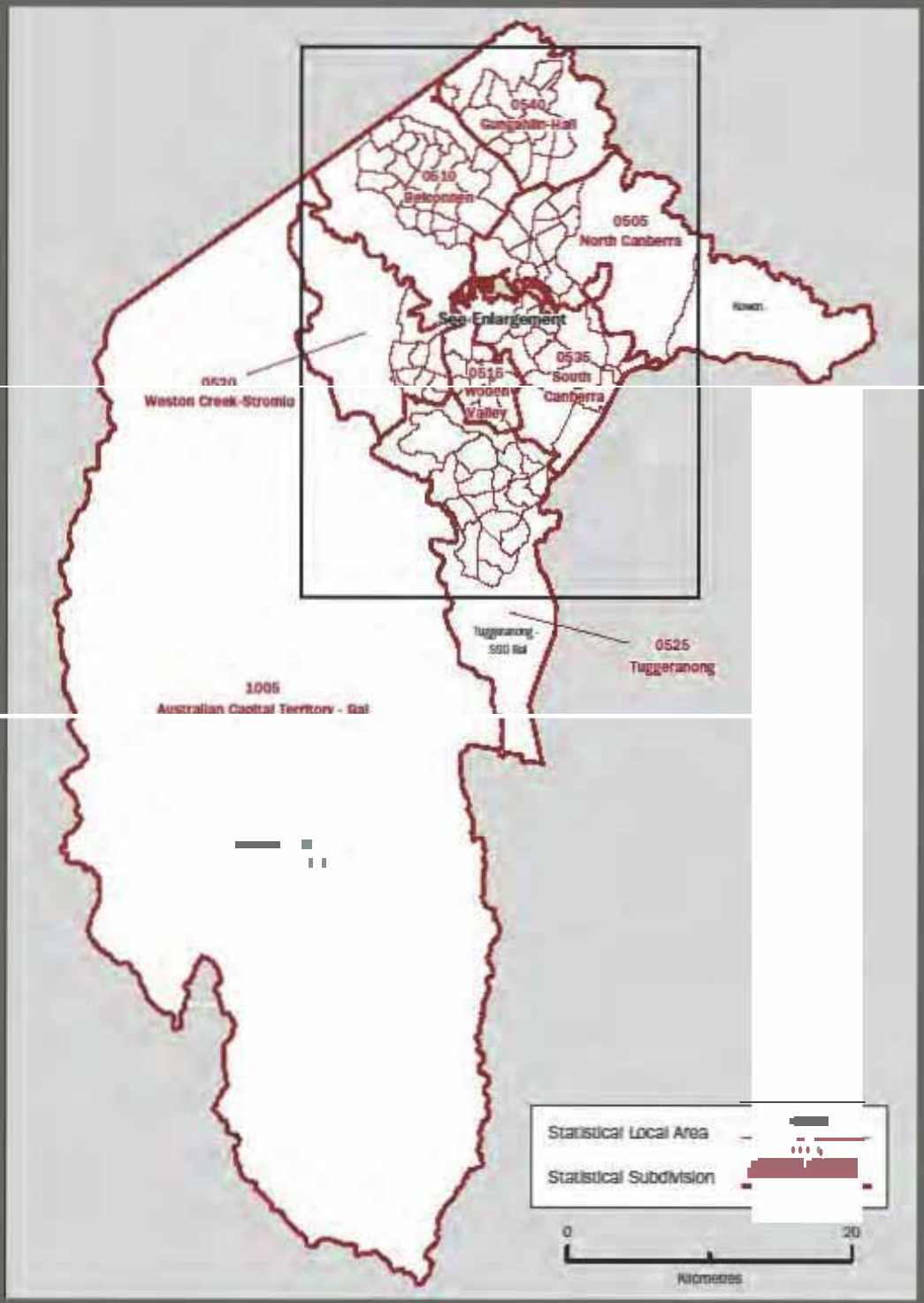
		Pop 2010	Area km2	Persons/km2	Persons/ha
	Wanniassa	8091	5.4	1499.2	15.0
	Total Tuggeranong	89207	159.7	558.7	5.6
South Canberra					
	Barton	1170	1.4	851.0	8.5
	Deakin	2856	3.6	799.7	8.0
	Forrest	1523	1.6	957.7	9.6
	Fyshwick	61	9.8	6.3	0.1
	Griffith	4309	2.8	1563.5	15.6
	Harman	140	1.0	135.6	1.4
	Hume	4	8.6	0.5	0.0
	Jerrabomberra	13	19.8	0.7	0.0
	Kingston	2905	1.4	2076.5	20.8
	Narrabundah	5909	4.1	1444.5	14.4
	Oaks Estate	247	0.4	591.6	5.9
	Parkes	6	2.7	2.2	0.0
	Pialligo	123	8.5	14.6	0.1
	Red Hill	3391	4.8	699.4	7.0
	Symonston	517	9.8	52.7	0.5
	Yarralumla	2942	7.2	408.1	4.1
	Total South Canberra	26116	87.4	298.7	3.0
Gungahlin-Hall					
	Amaroo	6940	2.6	2681.2	26.8
	Bonner	221	2.8	80.1	0.8
	Casey	171	2.6	65.2	0.7
	Crace	40	1.7	24.1	0.2
	Forde	815	1.9	423.4	4.2
	Franklin	1729	2.3	752.8	7.5
	Gungahlin	4563	4.6	999.8	10.0
	Gungahlin-Hall - SSD Bal	21	51.2	0.4	0.0
	Hall	384	1.8	213.3	2.1
	Harrison	4579	3.0	1546.3	15.5
	Mitchell	5	3.4	1.5	0.0
	Ngunnawal	10026	4.2	2410.4	24.1
	Nicholls	7813	6.7	1165.8	11.7
	Palmerston	6201	1.9	3183.2	31.8
	Total Gungahlin-Hall	43508	90.5	480.5	4.8
Total Canberra		358222	807.6	443.6	4.4

Source: ABS (Regional Population Growth, Australia, cat 3218.0)

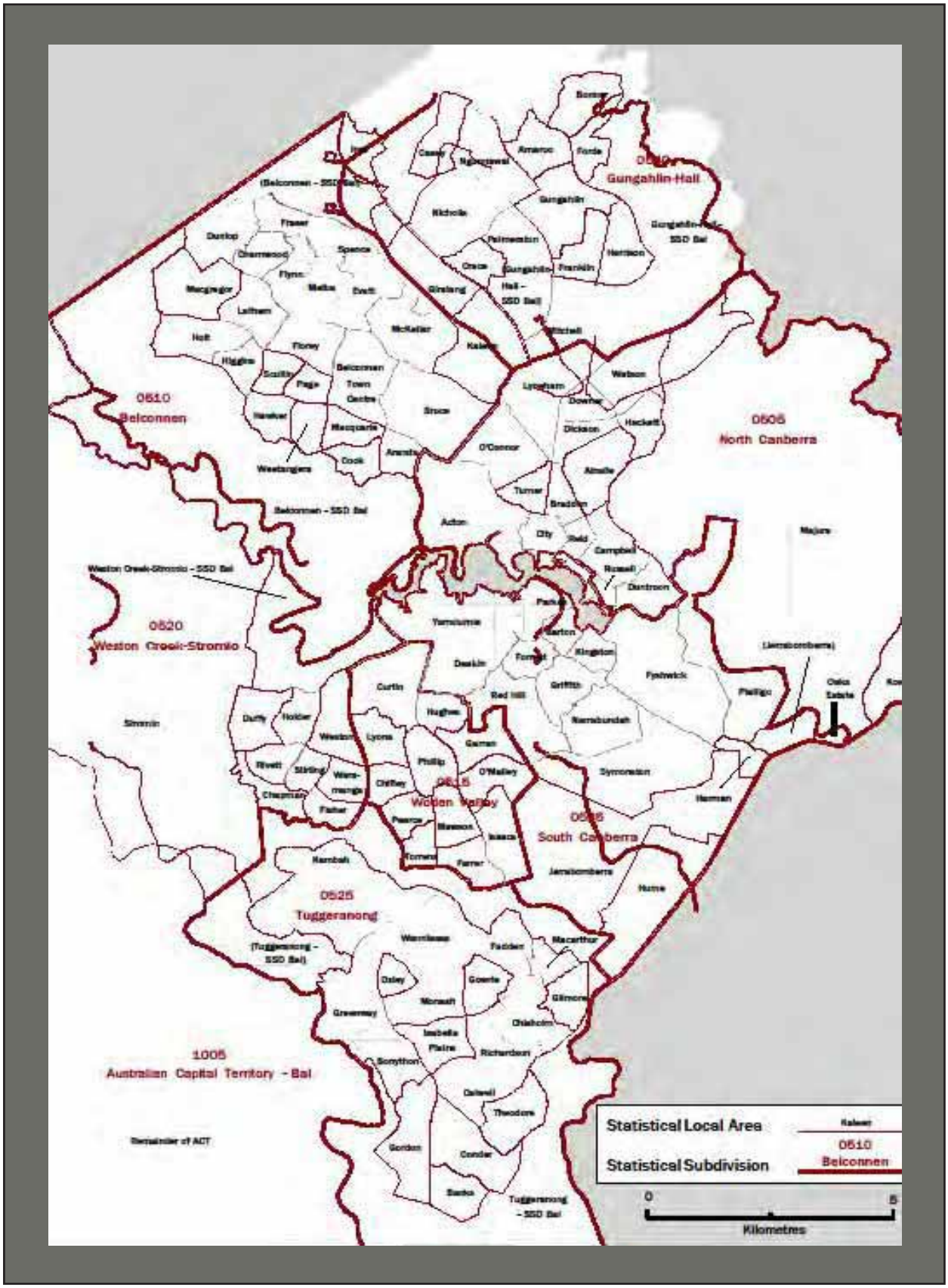
*There are differences between ACTPLA and ABS definitions of suburb area. The major differences are:

- Campbell - ACTPLA definition (553ha) includes Duntroon as part of Campbell
- Acton - ACTPLA area (512ha) excludes area to the west that include National Botanic Gardens, Black Mountain Tower
- City - ACTPLA area (141ha) includes land (about 9ha) that ABS includes in Acton
- McKellar – ABS definition includes Lawson, which ACTPLA has as a separate area (306ha)
- Yarralumla – ACTPLA definition (881ha) includes some of the area of Lake Burley Griffin
- Parkes - ACTPLA definition excludes Capital Hill (69ha)
- Barton - ACTPLA definition (213ha) includes some of the area of Lake Burley Griffin

Australian Capital Territory, Statistical Subdivisions and Statistical Local Areas



Canberra Statistical Divisions



Attachment 2: Land use policy areas 2008 (%)

Division	RZ1	RZ2-RZ6	Total Res	Commercial	Industry	Transport & services	Comm'ty facilities	Broadacre	Urban open space	Restricted access rec.	Rural, hills, bushland, river corridor	Desig-nated	Total
Acton	0.0	0.0	0.0	0.1	0.0	2.1	0.0	0.0	0.0	0.0	0.0	97.8	100
Ainslie	61.1	0.0	61.1	0.4	0.0	6.6	2.9	0.0	5.3	2.3	21.4	0.0	100
Barton	7.3	1.0	8.2	2.5	0.0	0.5	3.3	0.0	5.0	0.2	0.0	80.2	100
Braddon	17.1	24.0	41.1	20.1	0.0	11.2	11.6	0.0	7.9	2.9	0.0	5.2	100
Campbell	23.0	2.1	25.1	0.2	0.0	1.6	3.7	0.0	4.7	0.0	3.9	60.9	100
Capital Hill	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100
City	0.0	0.0	0.0	39.8	0.0	8.6	2.5	0.0	3.7	0.0	0.0	45.5	100
Deakin	31.8	4.0	35.8	9.5	0.0	6.5	8.6	1.1	8.9	0.4	0.0	29.3	100
Dickson	14.5	27.4	41.9	20.9	0.0	9.6	9.8	0.0	15.1	0.0	0.0	2.6	100
Downer	71.1	8.8	79.8	0.6	0.0	6.9	2.6	0.0	6.7	0.0	0.0	3.5	100
Forrest	44.4	9.6	54.0	4.4	0.0	2.7	3.0	0.0	0.3	2.3	0.0	33.4	100
Fyshwick	0.0	0.0	0.0	0.1	36.3	6.6	0.0	1.7	1.7	0.0	28.3	25.2	100
Griffith	49.7	8.8	58.4	7.4	1.3	6.7	7.3	0.0	11.4	2.7	0.0	4.7	100
Hackett	51.8	8.3	60.1	0.5	0.0	5.8	3.0	0.0	4.4	0.0	26.2	0.0	100
Kingston	13.1	15.0	28.1	33.4	0.0	16.7	3.9	0.0	7.4	0.0	0.0	10.5	100
Lyneham	16.0	5.8	21.8	2.8	0.0	4.6	4.0	24.5	8.9	13.3	9.6	10.3	100
Narrabundah	50.7	5.2	55.9	2.4	0.0	9.0	3.6	1.6	11.8	12.4	0.0	3.3	100
O'connor	42.2	8.0	50.2	2.2	0.0	11.3	2.4	0.0	6.3	0.5	4.9	22.3	100
Parkes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100
Red Hill (Part)	41.6	5.7	47.3	0.2	0.0	5.9	7.7	0.0	2.5	0.0	0.9	35.5	100
Reid	51.3	9.3	60.6	0.0	0.0	5.5	0.7	0.0	8.1	0.0	0.0	25.1	100
Russell	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100
Turner	26.7	20.2	47.0	10.6	0.0	10.0	7.0	0.0	18.1	3.9	0.0	3.4	100
Watson (Part)	41.2	4.3	45.5	24.3	0.0	6.0	5.6	0.0	16.5	0.0	0.0	2.1	100
Yarralumla	13.9	2.7	16.5	1.9	0.0	0.9	0.7	0.0	1.8	1.1	0.0	77.0	100
Non-Urban	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	98.9	100
Total Canberra Central	21.7	4.3	26.0	4.3	4.0	4.9	2.9	1.8	5.0	1.9	5.6	43.7	100

Division	RZ1	RZ2-RZ6	Total Res	Commercial	Industry	Transport & services	Comm'ty facilities	Broadacre	Urban open space	Restricted access rec.	Rural, hills, bushland, river corridor	Desig-nated	Total
Aranda	54.1	8.1	62.2	0.2	0.0	15.1	4.7	0.0	13.5	0.0	4.1	0.2	100
Belconnen	0.0	10.1	10.1	24.5	0.0	14.9	4.0	0.0	46.6	0.0	0.0	0.0	100
Bruce	3.4	10.5	13.9	6.3	0.0	9.7	40.7	0.0	4.6	0.0	11.9	13.0	100
Charnwood	42.5	15.4	57.9	5.9	0.0	6.6	4.3	0.0	25.3	0.0	0.0	0.0	100
Cook	57.8	20.8	78.6	0.8	0.0	7.7	2.8	0.0	10.1	0.0	0.0	0.0	100
Dunlop	55.3	0.0	55.3	0.4	0.0	5.5	0.0	0.0	13.6	0.0	25.3	0.0	100
Evatt	56.8	10.4	67.3	0.4	0.0	7.1	3.9	0.0	21.3	0.0	0.0	0.0	100
Florey	53.9	8.4	62.3	0.6	0.0	13.6	5.9	0.0	17.6	0.0	0.0	0.0	100
Flynn	58.3	12.9	71.3	0.0	0.0	8.7	2.1	0.0	17.9	0.0	0.0	0.0	100
Fraser	36.9	6.2	43.1	0.8	0.0	1.2	1.1	0.0	25.4	0.0	28.4	0.0	100
Giralang	53.3	2.7	56.0	0.5	0.0	5.8	1.5	0.0	18.5	0.0	14.4	3.3	100
Hall (Part)	0.0	0.0	0.0	0.0	0.0	5.1	0.0	0.0	10.7	0.0	70.8	13.4	100
Hawker	57.4	8.1	65.5	2.7	0.0	7.4	10.8	0.0	11.6	2.1	0.0	0.0	100
Higgins	73.1	3.1	76.2	1.2	0.0	11.0	3.0	0.0	8.6	0.0	0.0	0.0	100
Holt	33.3	14.5	47.8	4.8	0.0	7.9	5.1	0.0	8.9	25.4	0.0	0.0	100
Kaleen	37.7	11.2	48.9	1.0	0.0	7.5	4.1	0.0	13.4	1.0	15.8	8.3	100
Latham	41.4	10.6	52.1	0.3	0.0	12.5	1.3	0.0	33.9	0.0	0.0	0.0	100
Lawson	73.2	0.0	73.2	0.0	0.0	6.8	0.0	0.0	19.9	0.0	0.0	0.0	100
Macgregor	47.0	6.4	53.4	0.2	0.0	6.9	1.0	3.0	29.4	0.0	6.1	0.0	100
Macquarie	27.2	29.3	56.5	6.6	0.0	15.6	7.9	0.0	10.0	3.3	0.0	0.0	100
Mckellar	60.3	10.4	70.8	1.9	0.0	10.2	0.1	0.0	13.7	3.3	0.0	0.0	100
Melba	51.2	6.6	57.8	0.3	0.0	10.3	8.2	0.0	23.4	0.0	0.0	0.0	100
Page	25.0	52.9	77.9	0.6	0.0	10.8	2.9	0.0	7.7	0.0	0.0	0.0	100
Scullin	61.6	12.8	74.5	1.1	0.0	12.7	4.7	0.0	7.1	0.0	0.0	0.0	100
Spence	64.7	8.6	73.3	0.6	0.0	10.8	2.3	0.0	10.7	0.0	2.3	0.0	100
Weetangera	51.6	28.0	79.6	0.6	0.0	10.8	2.4	0.0	6.6	0.0	0.0	0.0	100
Non-Urban	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.6	0.0	0.0	77.5	21.7	100
Total Belconnen	21.5	5.5	27.0	1.7	0.0	4.8	3.6	0.4	9.2	0.8	40.9	11.7	100

Division	RZ1	RZ2-RZ6	Total Res	Commercial	Industry	Transport & services	Comm'ty facilities	Broadacre	Urban open space	Restricted access rec.	Rural, hills, bushland, river corridor	Desig-nated	Total
Banks	65.4	0.0	65.4	0.2	0.0	5.2	0.0	0.0	14.5	0.0	14.7	0.0	100
Bonython	32.5	8.4	40.9	0.2	0.0	7.1	1.7	0.0	13.9	0.0	36.1	0.0	100
Calwell	47.9	5.5	53.5	1.5	0.0	13.8	5.7	0.0	13.5	0.0	12.2	0.0	100
Chisholm	59.8	7.8	67.6	2.0	0.0	6.9	6.0	0.0	14.4	0.1	0.9	2.0	100
Conder	34.2	4.4	38.6	1.5	0.0	4.1	4.3	0.0	7.6	0.0	43.9	0.0	100
Fadden	33.5	5.8	39.3	0.2	0.0	7.1	1.2	0.0	20.5	0.5	3.6	27.8	100
Gilmore	40.1	11.5	51.6	11.1	0.0	7.5	1.5	0.0	4.8	0.0	19.8	3.7	100
Gordon	50.3	3.6	53.9	0.2	0.0	10.3	3.5	0.0	18.6	0.0	13.4	0.0	100
Gowrie	56.6	5.7	62.3	0.2	0.0	12.9	4.9	0.0	19.5	0.0	0.0	0.0	100
Greenway	0.0	4.8	4.8	25.5	0.0	8.7	0.5	0.0	25.4	0.6	34.4	0.0	100
Hume (Part)	0.0	0.0	0.0	0.0	91.5	3.8	0.0	0.0	1.8	0.0	0.0	2.9	100
Isabella Plains	45.3	10.1	55.4	0.3	0.0	16.2	8.6	0.0	19.5	0.0	0.0	0.0	100
Kambah	49.2	7.8	57.0	1.4	0.0	12.6	3.1	0.0	13.0	8.4	4.5	0.0	100
Macarthur	43.6	0.0	43.6	0.0	0.0	10.7	0.4	3.5	4.7	0.0	5.3	31.7	100
Monash	45.9	10.8	56.7	0.1	0.0	15.9	7.4	0.0	19.9	0.0	0.0	0.0	100
Oxley	68.5	0.0	68.5	0.0	0.0	13.6	0.2	0.0	17.7	0.0	0.0	0.0	100
Richardson	50.2	3.6	53.8	0.3	0.0	10.9	15.6	0.0	17.6	0.0	0.0	1.9	100
Theodore	38.8	8.3	47.1	0.1	0.0	4.3	1.1	0.0	6.4	0.0	38.0	3.1	100
Wanniassa	48.8	9.9	58.7	2.5	0.0	15.9	7.6	0.0	13.7	1.0	0.6	0.0	100
Non-Urban	0.0	0.0	0.0	0.2	0.2	0.4	0.0	1.5	0.0	0.0	86.8	10.9	100
Total Tuggeranong	17.2	2.6	19.8	1.4	0.6	4.5	1.6	0.9	6.0	0.7	56.9	7.5	100
Amaroo	55.1	0.0	55.1	1.8	0.0	9.9	4.5	0.0	28.7	0.0	0.0	0.0	100
Bonner	53.1	6.4	59.5	0.4	0.0	10.4	1.2	0.0	18.3	0.0	10.2	0.0	100
Casey	40.3	5.8	46.1	6.3	0.0	11.0	0.0	0.0	16.0	0.0	20.6	0.0	100
Crace	57.9	0.5	58.4	0.1	0.0	8.9	0.3	0.0	13.3	0.0	15.7	3.2	100
Forde	32.3	16.4	48.7	0.6	0.0	9.3	2.4	0.0	38.7	0.0	0.3	0.0	100
Franklin	0.0	55.0	55.0	4.0	0.0	5.3	4.0	0.0	21.6	0.0	10.1	0.0	100
Gungahlin	1.7	19.2	20.9	18.1	0.0	12.3	3.7	0.0	12.2	0.8	32.0	0.0	100
Hall (Part)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100
Harrison	13.1	40.8	53.9	3.5	0.0	10.7	4.7	0.0	13.6	0.0	13.6	0.0	100
Jacka	38.0	7.3	45.3	1.3	0.0	6.9	1.5	0.0	30.1	0.0	14.8	0.0	100
Kenny	42.3	2.0	44.3	1.9	2.5	7.5	0.7	20.9	5.9	0.0	14.3	2.0	100

Division	RZ1	RZ2-RZ6	Total Res	Commercial	Industry	Transport & services	Comm'ty facilities	Broadacre	Urban open space	Restricted access rec.	Rural, hills, bushland, river corridor	Desig-nated	Total
Kinlyside	100.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
Mitchell	0.0	0.0	0.0	0.1	38.1	10.0	0.0	16.2	1.8	0.0	33.3	0.5	100
Moncrieff	52.3	9.7	62.1	3.9	0.0	10.9	2.4	0.0	20.7	0.0	0.0	0.0	100
Ngunnawal	60.9	0.0	60.9	0.4	0.0	13.7	3.8	0.0	10.4	10.9	0.0	0.0	100
Nicholls	30.5	0.0	30.5	3.5	0.0	9.6	4.3	0.0	11.7	17.9	22.0	0.5	100
Non-Urban	0.0	0.0	0.0	0.0	0.0	1.2	0.0	4.3	0.6	0.0	87.1	6.8	100
Palmerston	76.4	0.0	76.4	0.5	0.0	14.6	1.5	0.0	7.0	0.0	0.0	0.0	100
Taylor	67.7	5.6	73.3	1.0	0.0	5.1	3.6	0.0	15.3	0.0	1.7	0.0	100
Throsby	66.8	7.8	74.6	0.2	0.0	8.5	3.3	0.0	13.4	0.0	0.0	0.0	100
Total Gungahlin	26.6	5.5	32.0	2.0	1.6	6.4	1.6	3.5	9.3	1.9	38.9	2.7	100
Chifley	32.7	25.8	58.5	0.3	0.0	12.7	2.7	0.0	9.6	0.0	0.1	16.1	100
Curtin	32.4	9.6	42.0	0.9	0.0	10.1	2.6	9.1	13.3	0.0	0.0	21.9	100
Farrer	60.7	9.1	69.8	0.4	0.0	6.9	4.9	0.0	9.4	0.0	1.9	6.8	100
Garran	33.3	10.8	44.1	0.5	0.0	8.0	12.2	0.0	9.3	0.1	0.3	25.5	100
Hughes	51.1	11.1	62.2	0.5	0.0	7.2	6.4	0.0	21.8	0.0	0.0	2.0	100
Isaacs	27.7	4.6	32.3	0.2	0.0	5.1	0.6	0.0	7.2	0.0	0.6	54.0	100
Lyons	24.3	19.7	44.0	0.3	0.0	11.4	1.9	0.0	8.7	0.0	0.8	32.9	100
Mawson	32.8	28.5	61.3	4.4	0.0	9.3	3.2	0.0	21.8	0.0	0.0	0.0	100
O'malley	34.2	0.0	34.2	0.0	0.0	8.5	0.1	0.0	10.0	0.0	25.7	21.4	100
Pearce	51.1	13.1	64.1	0.4	0.0	9.6	15.5	0.0	8.3	0.0	2.1	0.0	100
Phillip	1.6	16.0	17.6	38.1	0.0	16.3	5.3	0.0	18.6	4.1	0.0	0.0	100
Red Hill (Part)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	73.0	0.0	27.0	100
Torrens	67.5	8.7	76.2	0.7	0.0	13.3	3.3	0.0	6.2	0.4	0.0	0.0	100
Non-Urban	0.0	0.0	0.0	0.0	0.0	10.2	0.0	0.0	0.0	0.0	0.0	89.8	100
Total Woden	32.7	11.5	44.2	3.8	0.0	9.3	4.3	1.4	11.4	3.2	2.6	19.8	100
Chapman	66.3	6.7	73.0	0.4	0.0	6.1	3.9	0.0	6.2	0.0	2.2	8.2	100
Duffy	39.2	7.8	46.9	0.2	0.0	9.0	1.4	0.0	4.6	0.0	22.6	15.2	100
Fisher	59.1	19.5	78.6	1.0	0.0	10.7	0.1	0.0	9.5	0.0	0.0	0.0	100
Holder	40.0	15.7	55.7	0.2	0.0	10.4	8.9	0.0	8.5	3.9	12.4	0.0	100
Rivett	69.4	8.0	77.4	0.5	0.0	10.8	3.2	0.0	8.1	0.0	0.0	0.0	100
Stirling	50.0	6.5	56.5	2.6	0.0	10.6	6.4	0.0	20.9	3.1	0.0	0.0	100
Waramanga	48.4	7.6	56.0	0.6	0.0	17.3	9.5	0.0	13.6	0.0	3.1	0.0	100
Weston	37.0	3.6	40.6	3.8	0.0	17.0	3.3	24.2	10.0	0.0	1.1	0.0	100
Non-Urban	0.0	0.0	0.0	0.0	0.0	2.2	0.0	5.4	0.0	0.0	74.1	18.4	100
Total Weston Ck	32.5	5.9	38.3	0.8	0.0	8.5	2.9	4.8	6.3	0.5	29.3	8.6	100

Attachment 3: Net residential population density by suburb 2010*

Suburb	Population	Residential area ha	Residential density persons/ha
Aranda	2,544	99.9	25.5
Belconnen Town Centre	3821	44.3	86.3
Bruce	5148	91.9	56.0
Charnwood	3253	107.5	30.3
Cook	3035	123.9	24.5
Dunlop	7083	198.6	35.7
Evatt	5500	204.1	26.9
Florey	5524	171.9	32.1
Flynn	3763	145.7	25.8
Fraser	2274	106.6	21.3
Giralang	3356	136.8	24.5
Hawker	3056	127.4	24.0
Higgins	3225	128.3	25.1
Holt	5152	158.2	32.6
Kaleen	7729	292.9	26.4
Latham	3890	146.0	26.6
McKellar	2998	99.5	30.1
Macgregor	4667	228.2	20.5
Macquarie	2653	97.5	27.2
Melba	3524	131.2	26.9
Page	2898	103.4	28.0
Scullin	2954	106.5	27.7
Spence	2782	111.5	25.0
Weetangera	2694	126.8	21.2
BELCONNEN	93,523	3,288.6	28.4
Amaroo	6940	142.7	48.6
Franklin	1729	112.6	15.4
Gungahlin (Suburb)	4563	95.2	47.9
Hall	384	26.6	14.4
Harrison	4579	159.8	28.7
Mitchell	5	0	N/A
Ngunnawal	10,026	250.8	40.0
Nicholls	7,813	203.4	38.4
Palmerston	6,201	148.6	41.7
GUNGAHLIN / HALL	42,240	1,139.8	37.1

Suburb	Population	Residential area ha	Residential density persons/ha
Acton	2001	0.0	N/A
Ainslie	5390	214.4	25.1
Braddon	4091	61.1	66.9
Campbell	3416	138.9	24.6
City	1293	0.0	N/A
Dickson	2278	67.6	33.7
Downer	3657	131.3	27.9
Duntroon	1949	0.0	N/A
Hackett	3112	116.2	26.8
Lyneham	4940	118.3	41.7
O'Connor	5581	206.6	27.0
Reid	1681	58.4	28.8
Russell	0	0.0	N/A
Turner	3543	71.6	49.5
Watson	4851	139.8	34.7
NORTH CANBERRA	47,783	1,324.1	36.1
Barton	1170	17.6	66.6
Deakin	2856	128.3	22.3
Forrest	1523	85.0	17.9
Fyshwick	61	0.0	N/A
Griffith	4342	161.1	27.0
Harman	140	0.0	N/A
Hume	4	0.0	N/A
Kingston	2905	39.5	73.5
Narrabundah	5909	228.8	25.8
Oaks Estate	247	14.5	17.0
Parkes	6	0.0	N/A
Red Hill	3391	174.8	19.4
Yarralumla	2942	145.9	20.2
SOUTH CANBERRA	25,496	995.4	25.6

Suburb	Population	Residential area ha	Residential density persons/ha
Banks	5274	147.5	35.8
Bonython	3778	118.8	31.8
Calwell	5999	207.3	28.9
Chisholm	5408	210.7	25.7
Conder	5456	173.9	31.4
Fadden	3205	122.5	26.2
Gilmore	2961	108.6	27.3
Gordon	7888	240.9	32.7
Gowrie	3226	120.5	26.8
Greenway	1359	25.8	52.6
Isabella Plains	4310	138.3	31.2
Kambah	15841	644.1	24.6
Macarthur	1548	55.4	27.9
Monash	5580	193.5	28.8
Oxley	1886	74.6	25.3
Richardson	3260	120.8	27.0
Theodore	4072	147.8	27.6
Wanniassa	8091	318.7	25.4
TUGGERANONG	89,142	3,170	28.1
Chapman	2847	135.4	21.0
Duffy	3254	130.9	24.9
Fisher	3240	122.5	26.5
Holder	2781	106.5	26.1
Rivett	3248	124.9	26.0
Stirling	2147	75.3	28.5
Waramanga	2687	96.2	27.9
Weston	3357	118.7	28.3
WESTON CREEK	23,561	910.3	25.9
Chifley	2501	94.4	26.5
Curtin	5397	204.8	26.4
Farrer	3530	143.2	24.6
Garran	3330	121.1	27.5
Hughes	3020	112.6	26.8
Isaacs	2538	99.6	25.5
Lyons	2726	99.9	27.3
Mawson	3104	127.0	24.4
O'Malley	942	87.8	10.7
Pearce	2646	111.6	23.7
Phillip	2075	45.0	46.2
Torrens	2315	101.3	22.9
WODEN VALLEY	34,124	1,348.2	25.3

Sources: ABS (Regional Population Growth, Australia, cat 3218.0) and ACTPLA data

* Excludes Kowen and Majura in North Canberra; Pialligo, Jerrabomberra and Symonston in South Canberra; Belconnen Statistical Balance; Stromlo and Statistical Balance in Weston Creek; Statistical Balance in Tuggeranong and suburbs in Gungahlin which were less than 30% settled (Casey, Crace, Bonner, Forde).

Attachment 4: Residential dwelling density by suburb 2006*

Suburb	Gross Area Suburb (ha)	Res Use (ha)	Dwellings	Gross Res (Dw Ha)	Net Res (Dw ha)
Aranda	160	100	920	5.8	9.2
Belconnen T C	439	44	1,494	3.4	33.7
Bruce	660	92	1,018	1.5	11.1
Charnwood	190	108	1,222	6.4	11.4
Cook	160	124	1,313	8.2	10.6
Dunlop	360	199	2,036	5.7	10.3
Evatt	310	204	1,985	6.4	9.7
Florey	280	172	1,859	6.6	10.8
Flynn	210	146	1,253	6.0	8.6
Fraser	250	107	740	3.0	6.9
Giralang	240	137	1,251	5.2	9.1
Hawker	190	127	1,181	6.2	9.3
Higgins	170	128	1,211	7.1	9.4
Holt	330	158	2,076	6.3	13.1
Kaleen	600	293	2,711	4.5	9.3
Latham	270	146	1,378	5.1	9.4
Macgregor	250	100	1,231	4.9	12.4
Macquarie	170	228	985	5.8	4.3
McKellar	140	98	921	6.6	9.4
Melba	230	131	1,244	5.4	9.5
Page	130	103	1,144	8.8	11.1
Scullin	140	107	1,186	8.5	11.1
Spence	150	112	949	6.3	8.5
Weetangera	160	127	951	5.9	7.5
BELCONNEN	6,189	3,289	32,259	5.2	9.8
Amaroo	260	143	1,811	7.0	12.7
Gungahlin (Suburb)	560	95	1,515	2.7	15.9
Hall	180	27	109	0.6	4.1
Ngunnawal	410	251	3,408	8.3	13.6
Nicholls	670	203	2,299	3.4	11.3
Palmerston	190	149	2,094	11.0	14.1
GUNGAHLIN / HALL	2,270	867	11,248	5.0	13.0
Acton	940	0	7	0.0	N/A
Ainslie	350	214	2,014	5.8	9.4
Braddon	140	61	1,714	12.2	28.0
Campbell	560	139	1,340	2.4	9.7
City	150	0	381	2.5	N/A
Dickson	160	68	865	5.4	12.8
Downer	160	131	1,429	8.9	10.9
Hackett	190	116	1,258	6.6	10.8

Suburb	Gross Area Suburb (ha)	Res Use (ha)	Dwellings	Gross Res (Dw Ha)	Net Res (Dw ha)
Lyneham	550	118	1,907	3.5	16.1
O'Connor	410	207	2,101	5.1	10.2
Reid	90	58	777	8.6	13.3
Russell	50	0	0		
Turner	150	72	1,636	10.9	22.9
Watson	370	140	1,944	5.3	13.9
NORTH CANBERRA	4,270	1,324	17,373	4.1	13.1
Barton	230	18	503	2.2	28.6
Deakin	360	128	1,119	3.1	8.7
Forrest	160	85	503	3.1	5.9
Griffith	280	161	1,825	6.5	11.3
Kingston	130	40	1,504	11.6	38.1
Narrabundah	400	229	2,362	5.9	10.3
Oaks Estate	40	15	168	4.2	11.6
Red Hill	480	175	1,169	2.4	6.7
Yarralumla	880	146	1,235	1.4	8.5
SOUTH CANBERRA	2,960	995	10,662	3.6	10.7
Banks	220	147	1,722	7.8	10.7
Bonython	290	119	1,244	4.3	10.5
Calwell	390	207	2,042	5.2	11.7
Chisholm	310	211	1,836	5.9	10.5
Conder	450	174	1,632	3.6	9.9
Fadden	310	122	1,080	3.5	8.7
Gilmore	200	109	928	4.6	9.4
Gordon	440	241	2,795	6.4	8.8
Gowrie	190	121	1,108	5.8	8.5
Greenway	530	26	559	1.1	11.6
Isabella Plains	250	138	1,527	6.1	9.2
Kambah	1,130	644	5,792	5.1	21.6
Macarthur	130	55	495	3.8	11.0
Monash	340	193	1,978	5.8	9.0
Oxley	110	75	626	5.7	8.9
Richardson	220	121	1,136	5.2	10.2
Theodore	310	148	1,372	4.4	8.4
Wanniassa	540	319	2,924	5.4	9.4
TUGGERANONG	6,360	3,170	30,796	4.8	9.3

Suburb	Gross Area Suburb (ha)	Res Use (ha)	Dwellings	Gross Res (Dw Ha)	Net Res (Dw ha)
Chapman	190	135	938	4.9	6.9
Duffy	280	131	1,183	4.2	9.0
Fisher	160	122	1,243	7.8	10.1
Holder	190	106	1,113	5.9	10.5
Rivett	160	125	1,260	7.9	10.1
Stirling	130	75	785	6.0	10.4
Waramanga	170	96	1,086	6.4	11.3
Weston	310	119	1,341	4.3	11.3
WESTON CREEK	1,590	910	8,949	5.6	9.8
Chifley	160	94	1,011	6.3	10.7
Curtin	480	205	2,078	4.3	10.1
Farrer	210	143	1,261	6.0	8.8
Garran	270	121	1,257	4.7	10.4
Hughes	180	113	1,185	6.6	10.5
Isaacs	310	100	923	3.0	9.3
Lyons	230	100	1,168	5.1	11.7
Mawson	210	127	1,266	6.0	10.0
O'Malley	260	88	227	0.9	2.6
Pearce	170	112	1,069	6.3	9.6
Phillip	260	45	1,159	4.5	25.8
Torrens	130	101	1,780	13.7	17.6
WODEN VALLEY	2,870	1,348	14,384	5.0	10.7

* (1) Estimates of area differ from population density tables as they also exclude Russell in North Canberra; Hume, Fyshwick and Parkes in South Canberra; Harrison, Franklin and Mitchell in Gungahlin in addition to non urban areas previously excluded, Majura, Kowen, Stromlo, Jerrabomberrs, Pialligo, Symonston and non urban parts of Tuggeranong, Weston Creek and Belconnen. There are also small differences in some suburbs as a result of the use of ACTPLA data for the estimate of suburb area. Gungahlin data excludes Forde as settlement had not commenced in 2006; Belconnen data excludes West Macgregor as it had not commenced settlement in 2006 and Lawson.

Attachment 5: Gross population density by suburb 2001 and 2010

Location	2001 population	Area ha	2001 Persons / ha	2010 population	Area ha	2010 persons / ha
North Canberra						
Ainslie	4705	350	13.4	5390	350	15.4
Braddon	2841	140	20.3	4091	140	29.2
Campbell	3262	310	10.5	3416	310	11.0
City	484	150	3.2	1293	150	8.6
Dickson	1828	160	11.4	2278	160	14.2
Downer	3405	160	21.3	3657	160	22.9
Hackett	2922	190	15.4	3112	190	16.4
Lyneham	4187	550	7.6	4940	550	9.0
O'Connor	4719	410	11.5	5581	410	13.6
Reid	1574	90	17.5	1681	90	18.7
Turner	1850	150	12.3	3543	150	23.6
Watson	3787	370	10.2	4551	370	12.3
Total Nth Canberra	35564	3030	11.7	43533	3030	14.4
Belconnen						
Aranda	2547	160	15.9	2544	160	15.9
Belconnen T C	2847	440	6.5	3821	440	8.7
Bruce	2817	660	4.3	5148	660	7.8
Charnwood	3156	190	16.6	3253	190	17.1
Cook	2955	160	18.5	3035	160	19.0
Dunlop	2715	360	7.5	7083	360	19.7
Evatt	6073	310	19.6	5500	310	17.7
Florey	5514	280	19.7	5524	280	19.7
Flynn	3795	210	18.1	3783	210	18.0
Fraser	2207	250	8.8	2274	250	9.1
Giralang	3723	240	15.5	3356	240	14.0
Hawker	2966	190	15.6	3056	190	16.1
Higgins	3249	170	19.1	3225	170	19.0
Holt	4921	330	14.9	5152	330	15.6
Kaleen	8250	600	13.8	7729	600	12.9
Latham	3852	270	14.3	3890	270	14.4
McKellar	2818	140	20.1	2998	140	21.4
Macgregor	3814	250	15.3	4667	430	10.9
Macquarie	2402	170	14.1	2653	170	15.6
Melba	3596	230	15.6	3524	230	15.3
Page	2825	130	21.7	2898	130	22.3
Scullin	3015	140	21.5	2954	140	21.1
Spence	2793	150	18.6	2782	150	18.5
Weetangera	2735	160	17.1	2694	160	16.8
Total Belconnen	85585	6190	13.8	93543	6370	14.7

Location	2001 population	Area ha	2001 Persons / ha	2010 population	Area ha	2010 persons / ha
Woden Valley						
Chifley	2329	160	14.6	2501	160	15.6
Curtin	5423	480	11.3	5397	480	11.2
Farrer	3587	210	17.1	3530	210	16.8
Garran	2775	270	10.3	3330	270	12.3
Hughes	2982	180	16.6	3020	180	16.8
Isaacs	2623	310	8.5	2538	310	8.2
Lyons	2505	230	10.9	2726	230	11.9
Mawson	2937	210	14.0	3104	210	14.8
O'Malley	922	260	3.5	942	260	3.6
Pearce	2464	170	14.5	2646	170	15.6
Phillip	1699	260	6.5	2075	260	8.0
Torrens	2248	130	17.3	2315	130	17.8
Total Woden Valley	32494	2870	11.3	34124	2870	11.9
Weston Creek						
Chapman	2913	190	15.3	2847	190	15.0
Duffy	3217	280	11.5	3254	280	11.6
Fisher	3082	160	19.3	3240	160	20.3
Holder	2810	190	14.8	2781	190	14.6
Rivett	3349	160	20.9	3248	160	20.3
Stirling	2148	130	16.5	2147	130	16.5
Waramanga	2662	170	15.7	2687	170	15.8
Weston	3381	310	10.9	3357	310	10.8
Total Weston Ck	23562	1590	14.8	23561	1590	14.8
Tuggeranong						
Banks	3768	220	17.1	5274	220	24.0
Bonython	3588	290	12.4	3778	290	13.0
Calwell	6324	390	16.2	5999	390	15.4
Chisholm	5913	310	19.1	5408	310	17.4
Conder	4561	450	10.1	5456	450	12.1
Fadden	3555	310	11.5	3205	310	10.3
Gilmore	3120	200	15.6	2961	200	14.8
Gordon	7751	440	17.6	7888	440	17.9
Gowrie	3476	190	18.3	3226	190	17.0
Greenway	969	530	1.8	1359	530	2.6
Isabella Plains	4558	250	18.2	4310	250	17.2
Kambah	17052	1130	15.1	15841	1130	14.0
Macarthur	1643	130	12.6	1548	130	11.9
Monash	6070	340	17.9	5580	340	16.4
Oxley	1885	110	17.1	1886	110	17.1
Richardson	3518	220	16.0	3260	220	14.8
Theodore	4349	310	14.0	4072	310	13.1
Wanniassa	8712	540	16.1	8091	540	15.0
Total Tuggeranong	90812	6360	14.3	89142	6360	14.0

Location	2001 population	Area ha	2001 Persons / ha	2010 population	Area ha	2010 persons / ha
South Canberra						
Barton	493	140	3.5	1170	140	8.4
Deakin	2663	360	7.4	2856	360	7.9
Forrest	1200	160	7.5	1523	160	9.5
Griffith	3923	280	14.0	4309	280	15.4
Kingston	1932	140	13.8	2905	140	20.8
Narrabundah	5659	410	13.8	5909	410	14.4
Oaks Estate	309	40	7.7	247	40	6.2
Red Hill	3239	480	6.7	3391	480	7.1
Yarralumla	3017	720	4.2	2942	720	4.1
Total Sth Canberra	22435	2730	8.2	25252	2730	9.2
Gungahlin-Hall						
Amaroo	3338	230	14.5	6940	260	26.7
Franklin	0	0	0	1729	230	7.5
Gungahlin	0	0	0	4563	460	9.9
Hall	388	180	2.2	384	180	2.1
Harrison	0	0	0	4579	300	15.3
Ngunnawal	8784	420	20.9	10026	420	23.9
Nicholls	5971	650	9.2	7813	670	11.7
Palmerston	5867	190	30.9	6201	190	32.6
Total Gungahlin-Hall	24348	1670	14.6	42235	2710	15.6
Total Canberra	318,939	24,750	12.9	351,390	25,970	13.5

* Estimates exclude Acton, Russell, Duntroon, Majura and Kowen in North Canberra; Hume, Fyshwick, Pialligo, Harman, Jerrabomberra ,Symonston and Parkes in South Canberra; Mitchell, Forde, Casey, Bonner, Crace and statistical balance in Gungahlin; Stromlo and statistical balance in Weston Ck-Stromlo; non urban parts (statistical balance) of Tuggeranong and Belconnen; Lawson in Belconnen and in 2001 the areas and small populations in Franklin, Harrison, Gungahlin suburbs.