

# **Cycling to work in Sydney: analysis of journey-to-work Census data from 2001 and 2006**

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## Executive summary

Regular cycling has many personal health benefits. In addition, cycling for transport has many environmental and social benefits, including decreased air and noise pollution and less traffic congestion.

The present analyses were conducted to examine whether there have been changes in levels of cycling in Sydney between the 2001 and 2006 Census, extending an earlier analysis of data from the 1996 and 2001 Census. Data on the journey to work from both Censuses were purchased from the Australian Bureau of Statistics. Use of a bicycle on any part of the journey to work was coded as 'bicycle used'. Statistical Local Areas (SLAs) in the Sydney area were coded as Inner Sydney if they were within 10 kilometres of Central Station in Sydney, Outer Sydney for the remaining Sydney SLAs and the rest as the Greater Metropolitan Region including the SLAs in Newcastle and Wollongong.

The number of inner Sydney residents cycling on their journey to work increased from 5313 in 2001 to 6211 in 2006, an increase of 17 per cent. This represents a continued increase (93%) from the 1996 Census when 3205 people cycled to work from inner Sydney. The proportion of people cycling to work from inner Sydney has increased from 0.79 per cent in 1996, to 1.22 per cent in 2001 and to 1.36 per cent in 2006. This represents an increase of 12 per cent between 2001 and 2006, and a 72 per cent increase since 1996.

The number of journeys by residents in outer Sydney decreased slightly from 5456 in 2001 to 5377 in 2006, and there was a decrease in the proportion of people cycling to work from 0.56 to 0.53 per cent (a 6 per cent decrease). There has been a continued decline of the proportion cycling to work in outer Sydney from 0.58 per cent in 1996.

The number of journeys to work by residents in the Greater Metropolitan Region decreased from 4447 in 2001 to 4110 in 2006 (an 8 per cent decrease) and there was a decrease in the proportion of people cycling to work from 1.12 to 0.95 per cent (a 16 per cent decrease).

The actual proportion of people cycling to work at the 2006 Census was greater for the SLA/LGAs of inner Sydney (1.36%) compared with those of outer Sydney (0.53%) and the Greater Metropolitan Region (0.95%). This was a continuation of the trend between the 1996 and the 2001 Census where the proportion of people cycling on the journey to work was greatest for the SLA/LGAs of inner Sydney (1.22%) compared with those of outer Sydney (0.55%) and the Greater Metropolitan Region (1.12%). While the number and proportion of people from inner Sydney cycling on their journey to work increased between 2001 and 2006, a reverse trend was noted in outer Sydney and Greater Metropolitan Region SLAs.

The number of people cycling on their journey to work in the combined Sydney and Greater Metropolitan Region increased from 15,216 on the day of the 2001 Census to 15,698 on the day of the 2006 Census, an overall increase of 3 per cent. There had been an 18 per cent increase in the number of people cycling to work between 1996 and 2001. Between 2001 and 2006 there was a slight decrease in the proportion of people cycling on the journey to work in the combined Sydney and Greater Metropolitan Region from 0.84 per cent to 0.82 per cent of people travelling to work.

It appears that the rate of increase in Sydney in inner Sydney has slowed from the increases in the late 1990s, and has continued to decrease in the outer Sydney areas as a proportion of travel mode. Increasing suburbanisation in the outer Sydney areas with increased distances to places of work, increased traffic and poor cycling infrastructure in these areas may have contributed to the current figures. Expenditure on cycling infrastructure by the NSW Government's Roads and Traffic Authority has declined since the 2001 Census, which may also have contributed to falling levels of cycling.

## Introduction

Riding a bicycle is an effective, accessible and enjoyable form of physical activity, and, when used as transport, can lead to reduced vehicle kilometres travelled.<sup>1-3</sup> Cycling improves cardiovascular fitness, uses all the major muscle groups, strengthens bones and helps prevent osteoporosis, improves circulation, relieves the effects of rheumatoid arthritis and, like all physical activity, helps people cope better with stress.<sup>4</sup> In addition to the health enhancing and protective effects of cycling, people riding a bicycle are exposed to 2-3 times less air pollution (volatile organic compounds) compared with people driving cars on the same road.<sup>5,6</sup>

Driving to work in NSW has been shown to be associated with higher levels of overweight and obesity, after taking into account leisure time physical activity and other possible confounders.<sup>7</sup> Consistent with this finding, there is a specific association between riding to work and lower levels of overweight and obesity in men.<sup>8</sup>

Regular cycling can lead to a significant reduction in overall mortality and diabetes. In a large cohort study involving 30,000 people in Denmark followed over 14 years, cycling to work decreased the risk of mortality by 40 per cent after taking into account leisure time physical activity.<sup>9</sup> In another study in Finland with 21,000 people followed over 12 years, people who spent more than 30 minutes a day cycling to and from work had close to a 40 percent lower risk of developing diabetes.<sup>10</sup>

The British Medical Association has concluded that after weighing up the benefits of physical activity from cycling and the risk of injury, the benefits outweigh the risks.<sup>11</sup> That is, the risks to human health associated with physical inactivity are greater than the risks of participation in physical activity such as riding a bicycle.

Reports indicate that building cycling into daily life, for example, by cycling to work or other destinations, is more likely to be sustainable in the long term than gym-based exercise prescription schemes.<sup>12,13</sup> Cycling is the fourth most popular form of recreational activity in Australia.<sup>14</sup> Promoting bicycle riding as a mode of transport is an effective way to increase participation in physical activity, improve and protect physical and mental health, reduce air and traffic pollution, and contribute to community development.<sup>15,16</sup>

Between 1991 and 2001, the total number of bicycles owned by Sydney (NSW, Australia) residents increased by 40% from around 800,000 to 1.2 million.<sup>17</sup> Almost half the households in NSW are reported to have at least one bicycle<sup>18</sup> and new bicycles have outsold new cars each year in Australia for the last eight years.<sup>19</sup> In 2003, an analysis of the 1996 and 2001 Census data indicated that there was an overall increase of 18 per cent for the number of people cycling to work in the Greater Metropolitan Region.<sup>19</sup> For people living in inner Sydney (within 10kms of Sydney Central Station) there has been a 61 per cent increase in the number of people cycling on their

journey to work *to a destination* in inner Sydney, and a 53 per cent increase in the number of people cycling to work *from* inner Sydney.<sup>19</sup>

Data from RTA bike counters on major cycling routes in Sydney indicate that there have been general increases in weekday commuter bicycle use on these routes since 2001 (see Table 1). Further, anecdotal reports from Bicycle User Groups (BUGs) have suggested that more people are cycling in inner Sydney in recent years. We conducted a descriptive study to determine whether cycling to work had changed in Sydney from 2001 to 2006, an extension of a similar comparison done by Telfer and Rissel in 2003<sup>19</sup> with 1996 and 2001 Census data.

**Table 1. RTA NSW bicycle counts 2002-2006**

<b>Mon 12/3/2007</b>	<b>Average weekday daily count</b>					<b>Average weekend daily count</b>					<b>Average daily count</b>				
<b>Cycleway</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Iron Cove Bridge cycleway		263	284	309	298		241	311	276	335		257	292	299	309
Anzac Bridge cycleway	549	377	569	744	842	292	201	251	300	388	477	318	485	622	708
Sydney Harbour Bridge cycleway	769	798	855	935	1080	521	443	472	500	579	696	707	740	804	930
Anzac Parade cycleway	234	518	446	572	700	145	290	254	300	370	210	451	390	493	603
John Whitton Bridge cycleway, Meadowbank	146	122	139	157	160	287	232	228	283	303	185	153	164	194	202
Cooks River cycleway, Marrickville South 90909	223	112	135	98	50 *	476	194	187	169	76 *	295	136	149	119	58 *
Captain Cook Bridge cycleway 90913	122	115	110	123	130	157	142	116	151	169	132	123	115	131	142
Como Bridge cycleway	240	268	193	153	200	414	405	320	257	321	288	306	231	184	235
Browns Waterhole cycleway, M2 tunnel	80	68	82	92	95	122	96	97	112	114	92	76	86	98	101
Crestwood Reserve cycleway, Baulkham Hills	78	50	64	33	31	126	76	86	48	47	90	57	70	37	36
<b>TOTALS</b>	<b>2441</b>	<b>2691</b>	<b>2877</b>	<b>3216</b>	<b>3536</b>	<b>2540</b>	<b>2320</b>	<b>2322</b>	<b>2396</b>	<b>2626</b>	<b>2465</b>	<b>2584</b>	<b>2722</b>	<b>2981</b>	<b>3266</b>

Note: The above figures show total of both direction and are dependent on the number of days when the bicycle counters are operational.

\*Counter currently being investigated as it appears to be undercounting.

## Method

We analysed journey to work (JTW) data from the 2001 and 2006 *Australian Census of Health and Housing*. These data were purchased from the Australian Bureau of Statistics. The Census data comprised journey to work data from 2001 and 2006 for respondents whose journey to work origin was a Local Government Area (LGA) and destination was a Statistical Local Area (SLA) in Sydney or the Greater Metropolitan Region, and who answered the questions “*How did the person get to work on the [the day of the Census?]*” (JTW origin data) and “*For the main job held last week, what was the person’s workplace address?*” (JTW destination data). Responders to the Census were able to tick more than one mode of travel to work, so that a journey to work using bicycle may or may not have also involved another mode of travel, such as train or ferry.

The original report in 2003 had arranged SLA into three groups; an inner SLA was an SLA that was mostly within a 10km radius of Sydney Central Station; an outer SLA was defined as a Sydney metropolitan SLA that is more than 10km from the Sydney Central Station; and an outer Sydney SLA was defined as a Sydney metropolitan SLA more than 10km from Sydney Central Station. Therefore, the third SLA grouping comprised of all the other SLAs in the Greater Metropolitan Region (GMR) (see Table 2).

The intention of this analysis was to compare the 2006 Census data with the 2001 Census data that was originally purchased for the 2003 report. In analysing both sets of data, several complications were identified which necessitated a further purchase of the 2001 origin journey to work by bicycle data:

- i. Local government boundaries changed between 2001 and 2006. The impacts on the inner SLA were the removal of the South Sydney SLA and the readjustment of boundaries between Sydney and Leichhardt and between Waverley and Woollahra. For detailed analysis it was therefore necessary to purchase the 2001 census data, based on 2006 boundaries. This was only possible for ‘origin’ data.
- ii. To maximise the accuracy of the data by reducing the impact of rounding on low value cell data, the 2001 origin data was requested by local government area (LGA) totals rather than statistical local area (SLA) totals. Previous analyses had examined the SLAs of Drummoyne and Concord separately, but under this new analysis, this data was amalgamated into the one LGA, Canada Bay. In the previous analysis done in 2003, Drummoyne had been located in the inner areas and Concord in the outer areas. A review was done of the area according to the original methodology (10 kilometres from Sydney Central Station) that established that Canada Bay should be included with the inner area LGA. This has an impact on the total geographical area covered by the inner area.
- iii. When responding to requests for data from the 2006 census, the Australian Bureau of Statistics now provides ‘origin of journey’ data by ‘usual location’. 2006 origin data was therefore supplied by ‘usual location’ data. Previously the ABS had provided origin data using

'location of enumeration'. This was the basis for the 2001 data used in the 2003 report. For compatibility the new 2001 data extracted was requested based on 'usual location'.

This same grouping of data by inner Sydney, outer Sydney and Greater Metropolitan Region was performed for the 2006 data, except that the revised 2001 origin data was provided in Local Government Area (an amalgamation of SLA). The only grouping impacted was the LGA of Canada Bay, which consists of the SLAs of Drummoyne and Concord.

The GMR grouping was no longer a statistical area analysed at the 2006 census. At the 2006 Census, this had been replaced by the Sydney region that compromised the inner and outer SLAs. Data was purchased for the Sydney region plus those LGA or SLA that had been in the GLR region to enable continued comparison for those areas.

**Table 2. Local Government Areas (LGAs) of inner Sydney, outer Sydney and the Greater Metropolitan Region**

<b>Inner Sydney LGAs*</b>	<b>Outer Sydney LGAs**</b>	<b>Greater Metropolitan Region LGAs</b>
Ashfield	Auburn	Blue Mountains
Botany Bay	Bankstown	Cessnock
Burwood	Baulkham Hills	Gosford
Canada Bay	Blacktown	Hawkesbury
Canterbury	Camden	Kiama
Hunters Hill	Campbelltown	Lake Macquarie
Lane Cove	Fairfield	Maitland
Leichhardt	Holroyd	Newcastle
Marrickville	Hornsby	Port Stephens
Mosman	Hurstville	Shellharbour
North Sydney	Kogarah	Shoalhaven
Randwick	Ku-ring-gai	Wollongong
Rockdale	Liverpool	Wyong
Sydney	Manly	
Waverley	Parramatta	
Willoughby	Penrith	
Woollahra	Pittwater	
	Ryde	
	Strathfield	
	Sutherland	
	Warringah	
	Wingecarribee	
	Wollondilly	

\* Inner Sydney LGA defined as a LGA that is mostly within a 10km radius of Sydney Central Station.

\*\* Outer Sydney LGA defined as LGA for Sydney metropolitan area that is more than 10km from Sydney Central Station.

Microsoft Excel software was used for the analysis. The data was sorted by the SLA groupings previously described. The proportion of people cycling on the journey to work in each SLA/LGA was calculated by dividing the number of journeys to work involving a bicycle by the total number of journeys to work, for 2001 and 2006 JTW origin and destination data. For the SLA groups of inner Sydney, outer Sydney and the Greater Metropolitan Region, the average proportion of people cycling on the journey to work was also calculated. Results for 2001 and 2006 and for the three regional

groups were compared. The number of people cycling on the journey to work to each SLA/LGA was compared for 2001 and 2006.

## **Results**

The number of inner Sydney residents cycling on their journey to work increased from 5313 in 2001 to 6211 in 2006, an increase of 17 per cent. This represents a continued increase (93%) from the 1996 Census when 3205 people cycled to work from inner Sydney. The proportion of people cycling to work from inner Sydney has increased from 0.79 per cent in 1996, to 1.22 per cent in 2001 and to 1.36 per cent in 2006; an increase of 12 per cent between 2001 and 2006, and a 72 per cent increase since 1996.

The number of journeys by residents in outer Sydney decreased from 5456 in 2001 to 5377 in 2006, and there was a decrease in the proportion of people cycling to work from 0.56 to 0.53 per cent (a 6 per cent decrease). There has been a continued decline of the proportion cycling to work from 0.58 per cent in 1996.

The number of journeys to work by residents in the Greater Metropolitan Region (GMR) decreased from 4447 in 2001 to 4110 in 2006 (an 8 per cent decrease) and there was a decrease in the proportion of people cycling to work from 1.12 to 0.95 per cent (a 16 per cent decrease).

The actual proportion of people cycling to work at the 2006 Census was greater for the LGAs of inner Sydney (1.36%) compared with those of outer Sydney (0.53%) and the GMR (0.95%). This was a continuation of the trend between the 1996 and 2001 Censuses where the proportion of people cycling on the journey to work was greatest for the LGAs of inner Sydney (1.22%) compared with those of outer Sydney (0.55%) and the GMR (1.12%). While the number and proportion of people from inner Sydney cycling on their journey to work increased between 2001 and 2006, a reverse trend was noted in outer Sydney and Greater Metropolitan Region LGAs.

The number of people cycling on their journey to work in the combined Sydney and Greater Metropolitan Region increased from 15,216 on the day of the 2001 Census to 15,698 on the day of the 2006 Census, an overall increase of 3 per cent. There had been an 18 per cent increase in the number of people cycling to work between 1996 and 2001. However, although the number of people cycling on their journey to work has increased by 3 per cent, this actually represents a decrease in the proportion of people cycling on the journey to work in the combined Sydney and Greater Metropolitan Region from 0.84 per cent to 0.82 per cent of people travelling to work.

### *Origin of cycling trips*

For people from inner Sydney, the proportion cycling on their journey to work increased by 12 per cent, from 1.21 per cent to 1.36 per cent, between the 2001 and 2006 Censuses (Table 3). The largest increases were in the inner Sydney LGAs of Burwood (42%), Waverley (87%), Lane Cove

(23%), Marrickville (23%), Rockdale (23%), and Willoughby (23%). A slight decrease was observed for Rockdale LGA. In 2001, the proportion of people from inner Sydney cycling on their journey to work was greatest for people from the LGAs of South Sydney (2.49%), Marrickville (2.18%), Leichhardt (1.99%) and Waverley (1.63%). On the day of the 2006 Census (Tuesday, 7 August), 6211 people from inner Sydney reported cycling on their journey to work.

**Table 3: Journey to work by bicycle by residents of inner Sydney LGAs in 2001 and 2006**

	Bicycle used on journey to work 2001	All trips 2001	Bicycle mode share (%) 2001	Bicycle used on journey to work 2006	All trips 2006	Bicycle mode share (%) 2006	% Change of number of bicycles	Relative change in bicycle mode share, 2001 and 2006 (%)
<b>Ashfield</b>	159	15844	1.00	189	16483	1.15	19%	14%
<b>Botany Bay</b>	186	13845	1.34	214	14462	1.48	15%	10%
<b>Burwood</b>	53	10789	0.49	82	11730	0.70	55%	42%
<b>Canterbury</b>	176	43178	0.41	193	43931	0.44	10%	8%
<b>Canada Bay</b>	216	26236	0.82	280	29041	0.96	30%	17%
<b>Hunters Hill</b>	28	4524	0.62	23	4611	0.50	-18%	-19%
<b>Lane Cove</b>	109	13498	0.81	132	13248	1.00	21%	23%
<b>Leichhardt</b>	443	24530	1.81	475	24031	1.98	7%	9%
<b>Marrickville</b>	720	32112	2.24	893	32330	2.76	24%	23%
<b>Mosman</b>	85	11241	0.76	95	10790	0.88	12%	16%
<b>North Sydney</b>	264	29570	0.89	293	30278	0.97	11%	8%
<b>Randwick</b>	694	49724	1.40	811	50336	1.61	17%	15%
<b>Rockdale</b>	143	33034	0.43	191	35902	0.53	34%	23%
<b>Sydney</b>	1225	55456	2.21	1460	66660	2.19	19%	-1%
<b>Waverley</b>	429	26909	1.59	462	25524	1.81	8%	14%
<b>Willoughby</b>	172	24772	0.69	227	26714	0.85	32%	22%
<b>Woollahra</b>	211	21494	0.98	191	20720	0.92	-9%	-6%
<b>TOTAL</b>	<b>5313</b>	<b>436756</b>	<b>1.22%</b>	<b>6211</b>	<b>456791</b>	<b>1.36%</b>	<b>17%</b>	<b>12%</b>

The proportion of people from outer Sydney cycling on their journey to work continued to decrease slightly from 0.58 per cent in 1996 to 0.55 per cent in 2001, to 0.53 per cent at the 2006 Census. However, in a few outer Sydney LGAs there was an increase (Table 4). For instance, the proportion of people cycling on their journey to work increased in the LGAs of Holroyd (16%), Manly (14%) Fairfield (11%) and Auburn (10%), but decreased notably in the LGAs of Wollondilly (-50%), Hurstville (-24%), Campbelltown (-19%), Camden (-15%), and Liverpool (-14%). Of the outer Sydney LGAs, Manly had the highest proportion of people cycling on their journey to work (1.58%), while Wollondilly (0.16%) and Baulkham Hills (0.25%) had the lowest. On the day of the 2006 Census, 5,377 people from outer Sydney reported that they cycled on their journey to work.

**Table 4: Journey to work by bicycle by residents of outer Sydney LGAs in 2001 and 2006**

	Bicycle used on journey to work 2001	All trips 2001	Bicycle mode share (%) 2001	Bicycle used on journey to work 2006	All trips 2006	Bicycle mode share (%) 2006	% Change of number of bicycles	Relative change in bicycle mode share, 2001 and 2006 (%)
<b>Auburn</b>	92	16672	0.55	124	20483	0.61	35%	10%
<b>Bankstown</b>	294	55967	0.53	256	56677	0.45	-13%	-14%
<b>Baulkham Hills</b>	178	61737	0.29	176	69775	0.25	-1%	-13%
<b>Blacktown</b>	439	94186	0.47	480	102531	0.47	9%	0%
<b>Camden</b>	71	17995	0.39	69	20656	0.33	-3%	-15%
<b>Campbelltown</b>	268	52903	0.51	224	54405	0.41	-16%	-19%
<b>Fairfield</b>	226	56701	0.40	256	57663	0.44	13%	11%
<b>Holroyd</b>	145	32178	0.45	174	33417	0.52	20%	16%
<b>Hornsby</b>	293	59860	0.49	297	62585	0.47	1%	-3%
<b>Hurstville</b>	138	27315	0.51	111	28786	0.39	-20%	-24%
<b>Kogarah</b>	70	19829	0.35	64	21288	0.30	-9%	-15%
<b>Ku-ring-gai</b>	179	36996	0.48	162	37288	0.43	-9%	-10%
<b>Liverpool</b>	356	55512	0.64	329	58899	0.56	-8%	-13%
<b>Manly</b>	215	15501	1.39	242	15281	1.58	13%	14%
<b>Parramatta</b>	295	52297	0.56	311	55658	0.56	5%	-1%
<b>Penrith</b>	465	68436	0.68	415	70632	0.59	-11%	-14%
<b>Pittwater</b>	194	22070	0.88	168	21495	0.78	-13%	-11%
<b>Ryde</b>	257	39585	0.65	246	39831	0.62	-4%	-5%
<b>Strathfield</b>	39	10156	0.38	51	12056	0.42	31%	10%
<b>Sutherland</b>	571	88726	0.64	522	89072	0.59	-9%	-9%
<b>Warringah</b>	520	56132	0.93	568	57733	0.98	9%	6%
<b>Wingecarribee</b>	105	12982	0.81	106	14109	0.75	1%	-7%
<b>Wollondilly</b>	46	13953	0.33	26	15866	0.16	-43%	-50%
<b>TOTAL</b>	<b>5456</b>	<b>967689</b>	<b>0.56</b>	<b>5377</b>	<b>1016186</b>	<b>0.53</b>	<b>-1.45%</b>	<b>-6.15%</b>

Between 2001 and 2006, the proportion of people in the Greater Metropolitan Region (including the Blue Mountains) cycling on their journey to work continued to decrease, with a 16 per cent decrease from 1.12 per cent to 0.95 per cent (Table 5). In 1996 the proportion of people cycling in the GMR was 1.28 per cent. The proportion of people cycling on their journey to work increased from 1996 to 2001 in only one area - the Hawkesbury (5%). In 2006, Newcastle had the largest proportion of people cycling on the journey to work (2.11%) followed by Wollongong (1.17%), Shoalhaven (1.11%), and Hawkesbury (1.10%). On the day of the 2001 Census 4110 people from the Greater Metropolitan Area reported that they cycled on their journey to work.

**Table 5: Journey to work by bicycle by residents of Greater Metropolitan Region LGAs in 2001 and 2006**

	Bicycle used on journey to work 2001	All trips 2001	Bicycle mode share (%) 2001	Bicycle used on journey to work 2006	All trips 2006	Bicycle mode share (%) 2006	% Change of number of bicycles	Relative change in bicycle mode share, 2001 and 2006 (%)
<b>Blue Mountains</b>	235	27261	0.86	198	27774	0.71	-16%	-17%
<b>Cessnock</b>	81	12559	0.64	63	14224	0.44	-22%	-31%
<b>Gosford</b>	374	50933	0.73	340	53687	0.63	-9%	-14%
<b>Hawkesbury</b>	250	23912	1.05	270	24509	1.10	8%	5%
<b>Kiama</b>	41	6223	0.66	35	6660	0.53	-15%	-20%
<b>Lake Macquarie</b>	405	57532	0.70	395	62635	0.63	-2%	-10%
<b>Maitland</b>	125	17969	0.70	147	22122	0.66	18%	-4%
<b>Newcastle</b>	1170	44894	2.61	1116	51050	2.19	-5%	-16%
<b>Port Stephens</b>	229	16626	1.38	154	19040	0.81	-33%	-41%
<b>Shellharbour</b>	138	18960	0.73	127	20864	0.61	-8%	-16%
<b>Shoalhaven</b>	311	21509	1.45	274	24665	1.11	-12%	-23%
<b>Wollongong</b>	835	60596	1.38	744	63643	1.17	-11%	-15%
<b>Wyong</b>	253	38269	0.66	247	43839	0.56	-2%	-15%
<b>TOTAL</b>	<b>4447</b>	<b>397243</b>	<b>1.12</b>	<b>4110</b>	<b>434712</b>	<b>0.95</b>	<b>-8%</b>	<b>-16%</b>

*Destination of trips*

The number of people cycling to a work destination in inner Sydney increased from 5463 in 2001 to 6398 in 2006 (an 18 per cent increase), up 89 per cent from 3394 in 1996. The largest increases were observed in Burwood (67%), Rockdale (38%) and Leichhardt and Sydney (32%) (Table 6). Of inner Sydney SLAs, the most common destination for people cycling to work was Leichhardt and Sydney, with 3993 people riding to this SLA.

**Table 6: Inner Sydney destinations of people cycling to work in 2001 and 2006**

	<b>Bicycle used on journey to work 2001</b>	<b>All trips 2001</b>	<b>Bicycle mode share (%) 2001</b>	<b>Bicycle used on journey to work 2006</b>	<b>All trips 2006</b>	<b>Bicycle mode share (%) 2006</b>	<b>% Change of number of bicycles</b>	<b>Relative change in bicycle mode share, 2001 and 2006 (%)</b>
<b>Ashfield</b>	66	7973	0.83	64	7983	0.80	-3%	-3%
<b>Botany Bay</b>	273	35941	0.76	306	33507	0.91	12%	20%
<b>Burwood</b>	42	11707	0.36	70	12171	0.58	67%	60%
<b>Canterbury</b>	105	22371	0.47	98	20582	0.48	-7%	1%
<b>Drummoyne</b>	43	6026	0.71	24	5464	0.44	-44%	-38%
<b>Hunters Hill</b>	26	2599	1.00	15	2842	0.53	-42%	-47%
<b>Lane Cove</b>	104	15784	0.66	57	12673	0.45	-45%	-32%
<b>Leichhardt and Sydney</b>	3027	330664	0.92	3993	335715	1.19	32%	30%
<b>Marrickville</b>	221	20700	1.07	246	19775	1.24	11%	17%
<b>Mosman</b>	66	6293	1.05	43	5663	0.76	-35%	-28%
<b>North Sydney</b>	397	55543	0.71	406	52989	0.77	2%	7%
<b>Randwick</b>	394	28485	1.38	403	29496	1.37	2%	-1%
<b>Rockdale</b>	104	17026	0.61	143	20112	0.71	38%	16%
<b>Waverley and Woollahra</b>	301	27374	1.10	258	27370	0.94	-14%	-14%
<b>Willoughby</b>	294	45304	0.65	272	44029	0.62	-7%	-5%
<b>TOTAL</b>	<b>5463</b>	<b>633790</b>	<b>0.86</b>	<b>6398</b>	<b>630371</b>	<b>1.01</b>	<b>17%</b>	<b>18%</b>

On the day of the 2001 and 2006 Census, the number of people cycling to a work destination in outer Sydney decreased marginally from 4794 to 4607 (-3.9%) (Table 7). The largest increases in the number of people cycling to a work destination in outer Sydney were observed for the SLAs of Strathfield (37%) and Auburn (32%), while the largest decreases were observed for workers journeying to Wollondilly (-29%), Hurstville (-29%) and Bankstown (-23%). Of the outer Sydney SLAs, the most common destinations for people cycling to work were Blacktown (397) and Parramatta (397).

**Table 7: Outer Sydney destinations of people cycling to work in 2001 and 2006**

	Bicycle used on journey to work 2001	All trips 2001	Bicycle mode share (%) 2001	Bicycle used on journey to work 2006	All trips 2006	Bicycle mode share (%) 2006	% Change of number of bicycles	Relative change in bicycle mode share, 2001 and 2006 (%)
<b>Auburn</b>	171	33534	0.51	226	37230	0.61	32%	19%
<b>Bankstown</b>	331	54429	0.61	255	51715	0.49	-23%	-19%
<b>Baulkham Hills</b>	124	35343	0.35	130	41648	0.31	5%	-11%
<b>Blacktown</b>	382	61673	0.62	397	67554	0.59	4%	-5%
<b>Camden</b>	56	8930	0.63	61	11444	0.53	9%	-15%
<b>Campbelltown</b>	203	30102	0.67	180	32122	0.56	-11%	-17%
<b>Concord</b>	60	10056	0.60	72	13452	0.54	20%	-10%
<b>Fairfield</b>	192	42693	0.45	198	40836	0.48	3%	8%
<b>Holroyd</b>	162	26612	0.61	143	28056	0.51	-12%	-16%
<b>Hornsby</b>	146	31612	0.46	153	32057	0.48	5%	3%
<b>Hurstville</b>	121	17056	0.71	86	16444	0.52	-29%	-26%
<b>Kogarah</b>	71	12783	0.56	67	12968	0.52	-6%	-7%
<b>Kuringgai</b>	96	20104	0.48	75	20316	0.37	-22%	-23%
<b>Liverpool</b>	332	40245	0.82	286	42148	0.68	-14%	-18%
<b>Manly</b>	132	8498	1.55	138	8102	1.70	5%	10%
<b>Parramatta</b>	365	76369	0.48	397	77548	0.51	9%	7%
<b>Penrith</b>	380	40640	0.94	346	43078	0.80	-9%	-14%
<b>Pittwater</b>	157	11486	1.37	160	12394	1.29	2%	-6%
<b>Ryde</b>	300	45310	0.66	290	50834	0.57	-3%	-14%
<b>Strathfield</b>	54	14629	0.37	74	15479	0.48	37%	30%
<b>Sutherland</b>	434	42313	1.03	378	42968	0.88	-13%	-14%
<b>Warringah</b>	400	36174	1.11	376	37175	1.01	-6%	-9%
<b>Wingecarribee</b>	90	10276	0.88	94	11314	0.83	4%	-5%
<b>Wollondilly</b>	35	5796	0.60	25	6878	0.36	-29%	-40%
<b>TOTAL</b>	<b>4794</b>	<b>716663</b>	<b>0.67</b>	<b>4607</b>	<b>753760</b>	<b>0.61</b>	<b>-3.90%</b>	<b>-8.63%</b>

On the day of the 2001 and 2006 Census, the number of people cycling to a work destination in the Greater Metropolitan Region decreased from 3939 to 3602 (9% decrease), continuing the decrease since 1996 (4270). The largest decrease was observed among people cycling to work to the SLAs of the Blue Mountains (-33%), Cessnock (-32%) and Port Stephens (-32%) (Table 8). Increases were observed in some SLAs, such as Maitland (14%) and Shellharbour (12%). Of the Greater Metropolitan Region SLAs, the most common destinations for people cycling to work were Newcastle (1150), Wollongong (708), Lake Macquarie (249), and Hawksbury (247).

**Table 8: Greater Metropolitan Region destinations of people cycling to work in 2001 and 2006**

	Bicycle used on journey to work 2001	All trips 2001	Bicycle mode share (%) 2001	Bicycle used on journey to work 2006	All trips 2006	Bicycle mode share (%) 2006	% Change of number of bicycles	Relative change in bicycle mode share, 2001 and 2006 (%)
<b>Blue Mountains</b>	137	11809	1.16	92	11716	0.79	-33%	-32%
<b>Cessnock</b>	82	9389	0.87	56	10051	0.56	-32%	-36%
<b>Gosford</b>	278	36226	0.77	233	39182	0.59	-16%	-23%
<b>Hawkesbury</b>	230	16147	1.42	247	16901	1.46	7%	3%
<b>Kiama</b>	23	2944	0.78	25	3141	0.80	9%	2%
<b>Lake Macquarie</b>	310	36032	0.86	249	37797	0.66	-20%	-23%
<b>Maitland</b>	96	12329	0.78	109	16044	0.68	14%	-13%
<b>Newcastle</b>	1155	61670	1.87	1150	67789	1.70	0%	-9%
<b>Port Stephens</b>	239	14251	1.68	167	16713	1.00	-30%	-40%
<b>Shellharbour</b>	92	8487	1.08	103	9876	1.04	12%	-4%
<b>Shoalhaven</b>	304	19495	1.56	243	21170	1.15	-20%	-26%
<b>Wollongong</b>	774	55924	1.38	708	58247	1.22	-9%	-12%
<b>Wyong</b>	219	24656	0.89	220	29025	0.76	0%	-15%
<b>TOTAL</b>	<b>3939</b>	<b>309359</b>	<b>1.27</b>	<b>3602</b>	<b>337652</b>	<b>1.07</b>	<b>-9%</b>	<b>-16%</b>

## Discussion

The data indicate that between the 2001 and 2006 Census, in the Sydney and Greater Metropolitan Region SLAs combined, there was a small (3%) overall increase in the *number of people* cycling to work, compared to the 18% increase reported between 1996 and 2001. Between 2001 and 2006 there was a slight decrease (2.3%) in the overall *proportion of people* cycling on the journey to work in the combined Sydney and Greater Metropolitan Region from 0.84 per cent to 0.82 per cent of people traveling to work. However, there were distinct regional differences, with the proportion of people from inner Sydney increasing their cycling on their journey to work by 12 per cent, from 1.21 per cent to 1.36 per cent, between the 2001 and 2006 Censuses.

While the overall increase in the number of people cycling in Sydney and the Greater Metropolitan Region from 2001 to 2006 has been low relative to that between 1996 and 2001, there have been consistent increases in cycling to work across most SLA/LGAs in the inner Sydney areas. A number of LGAs now have quite substantial proportions of people cycling to work. Of particular note is the 23 per cent increase in Marrickville where the increase was from 2.24 per cent to 2.76 per cent, and the 9 per cent increase in Leichhardt from 1.81 per cent to 1.98 per cent. High increases between 2001 and 2006 were also noted for Burwood (42%), Lane Cove (23%), Willoughby (22%), Rockdale (23%) and Canada Bay (17%).

Some LGAs in inner Sydney showed a decrease in the proportion of people cycling to work, such as Hunters Hill (19 per cent decrease), Sydney (1 per cent decrease) and Woollahra (6 per cent decrease). However, the decrease in Hunters Hill cannot be considered significant as the number of people cycling to work from that area is very low (28 in 2001 and 23 in 2006) and this could simply be the outcome of a couple of families leaving the area or changing circumstances. In the Sydney LGA, while there has been a decrease in the proportion of people cycling to work, it is still quite high (2.19% in 2006) and the number of people cycling to work between 2001 and 2006 increased by 19%. The decrease in cycling rate for Sydney over this period would have been affected by the recent big increase in all journeys to work in this area (55,456 to 66,660).

In the outer Sydney areas, while most exhibited a decrease in cycling to work, several areas did show an increase. For example, there were increases in the number of people cycling in Manly (14%), Holroyd (16%), Fairfield (11%), Strathfield (10%), Auburn (10%), and Warringah (6%). Between the 2001 and 2006 census years a number of networked and continuous bike paths have been built from Olympic Park (in Auburn LGA) to Holroyd and through the Fairfield area. Strathfield is also located adjacent to these paths and a bike route from Strathfield to the City has been signposted. This may have had some impact on increasing the number of people cycling to work in these areas. The Peninsular areas of Manly and Warringah have historically been more popular for cycling to work. This may be due to the geographical constraints in access to these areas, which could mean that a much higher proportion of the population works locally.

In the Greater Metropolitan Region, all areas except Hawkesbury with an increase of 5 per cent, showed decreases in cycling to work - Port Stephens (-41%), Cessnock (-31%), Kiama (-20%) and Shoalhaven (-23%). Most areas also had a decrease in the actual number of people cycling to work with the exceptions being Maitland (an 18 per cent increase) and Hawkesbury (an 8 per cent increase). These decreases could be the result of rural environments becoming more suburban, with heavier traffic and no bicycle infrastructure to make cycling a more viable option.

That a lesser proportion of trips to work are by bicycle in outer Sydney and the Greater Metropolitan Region may be due to increases in average distances travelled to work by residents of these regions, or perhaps a perception of a hostile road environment. In addition, there may be relatively less end-of-cycle-trip facilities available for people commuting to work in outer Sydney and the Greater Metropolitan Region, compared to what is available to inner Sydney workers. The extent to which there is good cycling infrastructure is likely to influence the level of cycling. Expenditure on cycling infrastructure by the NSW Government's Roads and Traffic Authority has declined since the 2001 Census, which may also have contributed to falling levels of cycling.

It should be noted that the monitoring of cycling by analysing Census data is subject to enormous variability. Assessing the cycling mode share on one winter's day every five years can never be a complete picture of cycling levels. It is well known that cycling levels are higher in the warmer

months, and directly affected by rain and other weather variables. Future analyses of cycling mode share should examine the relationship between the Census journey to work figures and other measures of cycling (such as bicycle counters), taking into account seasonal variability, and quantify the extent that the Census underestimates summer cycling.

That the Census is conducted on a Tuesday is a strength, as most people will be working on a Tuesday, unlike on Mondays and Fridays when there is known variability.

There are a number of limitations to this study. The 2001 and 2006 data are simply descriptive statistics derived from the Census and have not been adjusted for the effects of potential confounders such as distance traveled to work (the average length of journey to work for residents of inner Sydney is likely to be shorter than that of residents of outer Sydney and the Greater Metropolitan Region and therefore more conducive to cycling to work), socio-economic status of the residents of the LGAs and peoples' ability to purchase bicycles, workplaces with end-of-trip facilities, and shifts in places of employment.

Nonetheless, Census data are generally regarded as high quality data, and there is no doubt that there is a differential in the cycling environment in inner Sydney compared to the rest of the Greater Metropolitan area. As 'peak oil' approaches and petrol prices rise,<sup>20</sup> these outer suburbs are likely to experience considerable transport hardship if they are dependent on private motor vehicle travel. High quality cycling infrastructure and incentives to use it are urgently needed to give residents in these areas more transport options.

## References

1. Mason C. Transport and health: en route to a healthier Australia. *Medical Journal of Australia* 2000; 172: 230-2.
2. World Health Organization. *Charter on transport, environment and health*. Copenhagen. Available at: [http://www.euro.who.int/aboutwho/policy/20020221\\_1](http://www.euro.who.int/aboutwho/policy/20020221_1). WHO Regional Office for Europe, 1999.
3. Getting Australia Active. *Towards better practice for the promotion of physical activity*. National Public Health Partnership 2002.
4. Roberts I, Owen H, Lumb P, MacDougall C. *Pedalling Health – Health Benefits of a modal transport shift*. 1996.
5. Taylor D, Fergusson M. The comparative pollution exposure of road users – a summary. *World Transport Policy and Practice* 1998; 4(2): 22-26.
6. Chertok M, Voukelatos A, Sheppard V, Rissel C. Comparison of air pollution exposure for five commuting modes in Sydney – car, train, bus, bicycle and walking. *Health Promotion Journal of Australia* 2004; 15(1): 63-67.
7. Wen LM, Orr N, Millett C, Rissel C. Driving to work is associated with overweight and obesity: Findings from the 2003 New South Wales Health Survey. *International Journal of Obesity* online publication 10 January 2006; doi: 10.1038/sj.ijo.0803199.
8. Wen LM, Rissel C. Inverse associations between cycling to work, public transport, and overweight and obesity: findings from a population based study in Australia. *Preventive Medicine* 2008; 46: 29-32.
9. Anderson LB, Schnohr P, Schroll M, Hein HO. All-cause mortality associated with physical activity during leisure time, work, sports and cycling to work. *Archives of Internal Medicine* 2000; 160: 1621-1628.
10. Hu G, Qiao Q, Silventoinen K, Eriksson JG, Jousilahti P, Lindström J, Valle TT, Nissinen A, Toumilehto J. Occupational commuting and leisure-time physical activity in relation to risk for Type 2 diabetes in middle-aged Finnish men and women. *Diabetologia* 2003; 46(3): 322-329.
11. British Medical Association. *Cycling towards health and safety*. Oxford: Oxford University Press, 1994.
12. Hillsdon M, Thorogood M, Anstiss T, Morris J. RCTs of physical activity promotion in free living populations: a review. *Journal of Epidemiology and Community Health* 1995; 49: 448-453.
13. Sevick MA, Dunn AL, Morrow MS, Marcus BH, Chen GJ, Blair SN. Cost-effectiveness of lifestyle and structured exercise interventions in sedentary adults – results of project ACTIVE. *American Journal of Preventive Medicine* 2000; 19(1): 1-8.
14. Australian Sports Commission. *Exercise Recreation and Sport Survey (ERASS) 2006 [Online]* <http://www.ausport.gov.au/scorsresearch/erass2006.asp> [Accessed 18 March 2008]
15. McCarthy M. Transport and Health. In: *Social Determinants of Health*; pages 132-154. Edited by Marmot M and Wilkinson R.G. Oxford University Press. New York. 1999.
16. Bellew B, Dobinson K, Frith J, Henderson M, McKerral J, Mason C, Napier I, Rissel C (alphabetical). *Healthy Transport, Healthy People*. Sustainable Transport in Sustainable Cities, Warren Centre, Sydney University, June 2002.
17. Transport Data Centre. *Cycling in Sydney- Bicycle ownership and use*. Transport Data Centre, RTA, 2003.

18. Cycling Promotion Fund. (2008) *Bicycles outsell cars in Australia - sales top 1.4 million in 2007* <http://www.cyclingpromotion.com.au/content/view/298> [Accessed 18 March 2008]
19. Telfer B, Rissel C. *Cycling to work in Sydney: analysis of journey-to-work Census data from 1996 and 2001*. Camperdown: Central Sydney Area Health Service, Health Promotion Unit, September 2003.
20. Rissel C. What price petrol? *Health Promotion Journal of Australia* 2006; 17(1): 3-4.

**Appendix 1. Employed persons by selected methods of travel to work for Local Government Area and selected Statistical Local Areas on 2006 Usual Residence Boundaries in Sydney, Newcastle and Illawarra Statistical Division  
Australian Bureau of Statistics, 2001 Census of Population and Housing**

<b>Local Government Area</b>	<b>Bicycle</b>	<b>Bicycle and other methods</b>	<b>Other methods</b>	<b>Total stated methods</b>	<b>Worked at home</b>	<b>Did not go to work</b>	<b>Not stated</b>	<b>Total</b>
Ashfield (A)	123	36	15685	15844	597	1681	344	18466
Auburn (A)	68	24	16580	16672	429	1386	574	19061
Bankstown (C)	229	65	55673	55967	1583	5609	1416	64575
Baulkham Hills (A)	131	47	61559	61737	4406	7734	1012	74889
Blacktown (C)	316	123	93747	94186	2553	10336	2172	109247
Blue Mountains (C)	137	98	27026	27261	1899	4941	472	34573
Botany Bay (C)	169	17	13659	13845	285	1316	312	15758
Burwood (A)	44	9	10736	10789	459	1119	249	12616
Camden (A)	57	14	17924	17995	1007	2434	325	21761
Campbelltown (C)	173	95	52635	52903	1415	6689	1168	62175
Canada Bay (A)	168	48	26020	26236	1092	2866	438	30632
Canterbury (C)	124	52	43002	43178	1220	3879	1279	49556
Cessnock (C)	73	8	12478	12559	762	2310	321	15952
Fairfield (C)	184	42	56475	56701	1704	4544	1934	64883
Gosford (C)	251	123	50559	50933	3339	8651	1047	63970
Hawkesbury (C)	208	42	23662	23912	1892	3079	444	29327
Holroyd (C)	116	29	32033	32178	781	3420	663	37042
Hornsby (A)	187	106	59567	59860	3941	8339	1020	73160
Hunters Hill (A)	20	8	4496	4524	386	590	89	5589
Hurstville (C)	99	39	27177	27315	872	2975	536	31698
Kiama (A)	29	12	6182	6223	460	1154	136	7973
Kogarah (A)	47	23	19759	19829	778	2277	421	23305
Ku-ring-gai (A)	123	56	36817	36996	3988	5689	694	47367
Lake Macquarie (C)	342	63	57127	57532	2614	9818	1277	71241
Lane Cove (A)	88	21	13389	13498	925	1576	209	16208
Leichhardt (A)	370	73	24087	24530	1542	2520	326	28918
Liverpool (C)	289	67	55156	55512	1941	5521	1427	64401
Maitland (C)	96	29	17844	17969	833	3056	396	22254

Local Government Area	Bicycle	Bicycle and other methods	Other methods	Total stated methods	Worked at home	Did not go to work	Not stated	Total
Manly (A)	159	56	15286	15501	1095	1984	256	18836
Marrickville (A)	590	130	31392	32112	1305	3475	586	37478
Mosman (A)	66	19	11156	11241	1070	1290	181	13782
Newcastle (C)	1007	163	43724	44894	1699	7796	855	55244
North Sydney (A)	214	50	29306	29570	1790	2796	331	34487
Parramatta (C)	233	62	52002	52297	1657	5795	1093	60842
Penrith (C)	353	112	67971	68436	2597	8896	1395	81324
Pittwater (A)	150	44	21876	22070	2248	3114	396	27828
Port Stephens (A)	200	29	16397	16626	1187	2966	355	21134
Randwick (C)	597	97	49030	49724	2009	6033	841	58607
Rockdale (C)	121	22	32891	33034	984	3336	767	38121
Ryde (C)	187	70	39328	39585	1698	4751	649	46683
Shellharbour (C)	117	21	18822	18960	589	3051	378	22978
Shoalhaven (C)	265	46	21198	21509	1886	3586	611	27592
Strathfield (A)	25	14	10117	10156	536	1018	242	11952
Sutherland Shire (A)	419	152	88155	88726	3982	12940	1523	107171
Sydney (C) - Inner	29	0	4423	4452	282	445	70	5249
Sydney (C) - East	335	57	20125	20517	1193	1963	213	23886
Sydney (C) - South	452	90	16802	17344	687	1880	279	20190
Sydney (C) - West	233	29	12881	13143	698	1757	214	15812
Sydney (C) - Total	1049	176	54231	55456	2860	6045	776	65137
Warringah (A)	438	82	55612	56132	3326	7262	983	67703
Waverley (A)	340	89	26480	26909	1658	2798	449	31814
Willoughby (C)	138	34	24600	24772	1706	2718	397	29593
Wingecarribee (A)	87	18	12877	12982	1490	2043	349	16864
Wollondilly (A)	31	15	13907	13953	1036	1913	277	17179
Wollongong (C)	673	162	59761	60596	2063	9488	1365	73512
Woollahra (A)	171	40	21283	21494	2062	2166	400	26122
Wyong (A)	203	50	38016	38269	2061	6287	854	47471
<b>Total</b>	<b>12094</b>	<b>3122</b>	<b>1786472</b>	<b>1801688</b>	<b>88297</b>	<b>229056</b>	<b>37010</b>	<b>2156051</b>

Cells in this table have been randomly adjusted to avoid the release of confidential data. © Commonwealth of Australia 2007

**Appendix 2. Employed persons by selected method of travel to place of work in Statistical Local Areas in Sydney, Newcastle and Wollongong Statistical Division**  
**Australian Bureau of Statistics, 2001 Census of Population and Housing**

<b>Statistical Local Area</b>	<b>Bicycle</b>	<b>Bicycle not used</b>	<b>Total trips</b>	<b>No trip</b>	<b>Total employment</b>	<b>Bike share</b>
Ashfield	148	15,923	16,071	2,156	18,227	0.92
Auburn	87	17,087	17,174	1,737	18,911	0.51
Bankstown	301	56,900	57,201	6,901	64,102	0.53
Baulkham Hills	178	61,807	61,985	11,583	73,568	0.29
Blacktown North	151	31,682	31,833	4,566	36,399	0.47
Blacktown South-East	178	34,126	34,304	4,256	38,560	0.52
Blacktown South-West	124	29,464	29,588	3,537	33,125	0.42
Blue Mountains	250	26,700	26,950	6,553	33,503	0.93
Botany Bay	182	13,864	14,046	1,542	15,588	1.30
Burwood	56	10,945	11,001	1,541	12,542	0.51
Camden	71	18,006	18,077	3,286	21,363	0.39
Campbelltown	288	53,277	53,565	7,800	61,365	0.54
Canterbury	174	43,976	44,150	4,914	49,064	0.39
Cessnock	82	11,408	11,490	2,862	14,352	0.71
Concord	91	11,365	11,456	1,705	13,161	0.79
Drummoyne	99	14,847	14,946	2,062	17,008	0.66
Fairfield	221	58,033	58,254	6,103	64,357	0.38
Gosford	387	50,837	51,224	11,419	62,643	0.76
Hawkesbury	231	23,849	24,080	4,806	28,886	0.96
Holroyd	142	32,539	32,681	4,016	36,697	0.43
Hornsby	282	59,913	60,195	11,665	71,860	0.47
Hunters Hill	23	4,495	4,518	915	5,433	0.51
Hurstville	144	27,508	27,652	3,697	31,349	0.52
Kiama	42	6,178	6,220	1,542	7,762	0.68
Kogarah	64	19,901	19,965	2,979	22,944	0.32
Ku-ring-gai	176	36,847	37,023	9,201	46,224	0.48
Lake Macquarie	392	56,863	57,255	11,787	69,042	0.68
Lane Cove	117	13,529	13,646	2,378	16,024	0.86
Leichhardt	605	29,760	30,365	4,749	35,114	1.99
Liverpool	354	56,093	56,447	7,226	63,673	0.63

Statistical Local Area	Bicycle	Bicycle not used	Total trips	No trip	Total employment	Bike share
Maitland	126	16,847	16,973	3,607	20,580	0.74
Manly	205	15,294	15,499	2,822	18,321	1.32
Marrickville	704	31,629	32,333	4,506	36,839	2.18
Mosman	85	11,186	11,271	2,191	13,462	0.75
Newcastle - Inner	61	1,644	1,705	344	2,049	3.58
Newcastle - Remainder	1102	42,164	43,266	8,687	51,953	2.55
North Sydney	275	29,603	29,878	4,211	34,089	0.92
Parramatta	291	52,986	53,277	7,184	60,461	0.55
Penrith	465	68,870	69,335	11,133	80,468	0.67
Pittwater	173	21,853	22,026	4,949	26,975	0.79
Port Stephens	232	16,296	16,528	4,036	20,564	1.40
Randwick	690	49,250	49,940	7,591	57,531	1.38
Rockdale	134	33,405	33,539	4,130	37,669	0.40
Ryde	239	39,769	40,008	6,142	46,150	0.60
Shellharbour	140	18,906	19,046	3,500	22,546	0.74
Shoalhaven Pt A	173	8,635	8,808	1,810	10,618	1.96
Shoalhaven Pt B	134	12,593	12,727	3,513	16,240	1.05
South Sydney	977	38,320	39,297	6,043	45,340	2.49
Strathfield	32	10,264	10,296	1,489	11,785	0.31
Sutherland Shire East	344	40,241	40,585	7,289	47,874	0.85
Sutherland Shire West	221	48,315	48,536	8,669	57,205	0.46
Sydney Inner	29	2,861	2,890	369	3,259	1.00
Sydney Remainder	101	8,829	8,930	1,221	10,151	1.13
Warringah	505	55,805	56,310	9,926	66,236	0.90
Waverley	435	26,284	26,719	4,067	30,786	1.63
Willoughby	171	24,843	25,014	4,229	29,243	0.68
Wingecarribee	99	12,746	12,845	3,345	16,190	0.77
Wollondilly	35	13,787	13,822	2,780	16,602	0.25
Wollongong	823	60,514	61,337	11,080	72,417	1.34
Woollahra	211	21,562	21,773	3,953	25,726	0.97
Wyong	257	38,327	38,584	8,063	46,647	0.67
Other	417	58,989	59,406	23,260	82,666	0.70
<b>Total</b>	<b>15,526</b>	<b>1,860,339</b>	<b>1,875,865</b>	<b>325,623</b>	<b>2,201,488</b>	<b>0.83</b>

Cells in this table have been randomly adjusted to avoid the release of confidential data.

**Appendix 3. Employed persons by selected methods of travel to work for selected Statistical Local Areas on 2006 usual residence boundaries in Sydney, Hunter and Illawarra Statistical Division  
Australian Bureau of Statistics, 2006 Census of Population and Housing**

<b>Statistical Local Area</b>	<b>Bicycle</b>	<b>Bicycle and other</b>	<b>Other methods</b>	<b>Total who stated method of travel</b>	<b>Worked at home</b>	<b>Did not go to work</b>	<b>Not stated</b>	<b>Total employed</b>
Ashfield (A)	160	29	16294	16483	594	1734	316	19127
Auburn (A)	105	19	20359	20483	449	1590	601	23123
Bankstown (C) - North-East	38	5	16383	16426	336	1299	701	18762
Bankstown (C) - North-West	78	11	19723	19812	468	1864	650	22794
Bankstown (C) - South	101	23	20315	20439	595	2417	412	23863
Baulkham Hills (A) - Central	80	4	30952	31036	1718	3669	578	37001
Baulkham Hills (A) - North	28	6	21477	21511	1840	2624	462	26437
Baulkham Hills (A) - South	50	8	17170	17228	1045	2061	325	20659
Blacktown (C) - North	122	26	37306	37454	1276	4042	757	43529
Blacktown (C) - South-East	161	42	34469	34672	715	3431	884	39702
Blacktown (C) - South-West	104	25	30276	30405	456	3001	955	34817
Blue Mountains (C)	136	62	27576	27774	2016	4841	541	35172
Botany Bay (C)	204	10	14248	14462	334	1276	368	16440
Burwood (A)	66	16	11648	11730	445	1250	303	13728
Camden (A)	65	4	20587	20656	1071	2624	403	24754
Campbelltown (C) - North	76	35	27837	27948	628	3173	656	32405
Campbelltown (C) - South	76	37	26344	26457	620	3150	616	30843
Canada Bay (A) - Concord	109	13	13406	13528	528	1466	257	15779
Canada Bay (A) - Drummoyne	141	17	15355	15513	711	1587	243	18054
Canterbury (C)	171	22	43738	43931	1096	4080	1434	50541
Cessnock (C)	56	7	14161	14224	740	2588	422	17974
Fairfield (C) - East	169	29	31579	31777	668	2264	1243	35952
Fairfield (C) - West	51	7	25828	25886	730	2097	878	29591
Gosford (C) - East	59	12	22451	22522	1588	3728	504	28342
Gosford (C) - West	190	79	30896	31165	1713	4995	643	38516
Hawkesbury (C)	240	30	24239	24509	1639	3055	565	29768

<b>Statistical Local Area</b>	<b>Bicycle</b>	<b>Bicycle and other</b>	<b>Other methods</b>	<b>Total who stated method of travel</b>	<b>Worked at home</b>	<b>Did not go to work</b>	<b>Not stated</b>	<b>Total employed</b>
Holroyd (C)	152	22	33243	33417	763	3223	819	38222
Hornsby (A) - North	73	35	27139	27247	1999	3738	490	33474
Hornsby (A) - South	162	27	35149	35338	1968	4657	610	42573
Hunters Hill (A)	18	5	4588	4611	426	595	86	5718
Hurstville (C)	104	7	28675	28786	903	3102	667	33458
Kiama (A)	27	8	6625	6660	518	1167	147	8492
Kogarah (A)	56	8	21224	21288	799	2329	490	24906
Ku-ring-gai (A)	138	24	37126	37288	3919	5151	713	47071
Lake Macquarie (C) - East	94	11	19448	19553	812	3240	477	24082
Lake Macquarie (C) - North	209	6	27147	27362	876	4303	551	33092
Lake Macquarie (C) - West	66	9	15645	15720	865	2605	370	19560
Lane Cove (A)	125	7	13116	13248	922	1523	208	15901
Leichhardt (A)	435	40	23556	24031	1562	2466	351	28410
Liverpool (C) - East	249	41	32834	33124	714	3108	882	37828
Liverpool (C) - West	32	7	25736	25775	1093	2276	744	29888
Maitland (C)	120	27	21975	22122	966	3734	443	27265
Manly (A)	198	44	15039	15281	1238	1988	268	18775
Marrickville (A)	802	91	31437	32330	1309	3548	603	37790
Mosman (A)	83	12	10695	10790	991	1194	193	13168
Newcastle (C) - Inner City	485	47	17588	18120	714	2928	338	22100
Newcastle (C) - Outer West	125	6	14307	14438	436	2526	328	17728
Newcastle (C) - Throsby	437	16	18039	18492	696	3069	346	22603
North Sydney (A)	271	22	29985	30278	1870	2783	331	35262
Parramatta (C) - Inner	106	17	16666	16789	299	1529	334	18951
Parramatta (C) - North-East	72	11	15954	16037	678	1804	348	18867
Parramatta (C) - North-West	60	9	13737	13806	465	1601	267	16139
Parramatta (C) - South	29	7	8990	9026	197	830	356	10409
Penrith (C) - East	156	52	37228	37436	1190	4461	929	44016
Penrith (C) - West	155	52	32989	33196	1143	4431	678	39448
Pittwater (A)	145	23	21327	21495	2287	3033	463	27278

Statistical Local Area	Bicycle	Bicycle and other	Other methods	Total who stated method of travel	Worked at home	Did not go to work	Not stated	Total employed
Port Stephens (A)	146	8	18886	19040	1140	3289	416	23885
Randwick (C)	752	59	49525	50336	2086	5908	904	59234
Rockdale (C)	165	26	35711	35902	950	3501	938	41291
Ryde (C)	215	31	39585	39831	1706	4548	768	46853
Shellharbour (C)	109	18	20737	20864	623	3087	515	25089
Shoalhaven (C) - Pt A	148	9	9589	9746	466	1543	180	11935
Shoalhaven (C) - Pt B	111	6	14802	14919	1502	2571	365	19357
Strathfield (A)	44	7	12005	12056	507	1171	319	14053
Sutherland Shire (A) - East	264	31	40440	40735	1971	5673	796	49175
Sutherland Shire (A) - West	183	44	48110	48337	1996	7120	912	58365
Sydney (C) - Inner	26	0	6604	6630	341	643	136	7750
Sydney (C) - East	330	31	20873	21234	1170	1975	269	24648
Sydney (C) - South	666	51	22001	22718	837	2364	297	26216
Sydney (C) - West	327	29	15722	16078	724	1779	262	18843
Warringah (A)	497	71	57165	57733	3441	7053	1083	69310
Waverley (A)	405	57	25062	25524	1621	2521	513	30179
Willoughby (C)	207	20	26487	26714	1763	2984	434	31895
Wingecarribee (A)	95	11	14003	14109	1535	2247	292	18183
Wollondilly (A)	18	8	15840	15866	1101	2123	327	19417
Wollongong (C) - Inner	448	53	32329	32830	1260	5338	712	40140
Wollongong (C)	216	27	30570	30813	907	4687	739	37146
Woollahra (A)	172	19	20529	20720	2028	2035	413	25196
Wyong (A) - North-East	82	13	21505	21600	947	3353	546	26446
Wyong (A) - South and West	137	15	22087	22239	1167	3481	523	27410
<b>Total</b>	<b>13783</b>	<b>1915</b>	<b>1891991</b>	<b>1907689</b>	<b>88426</b>	<b>233842</b>	<b>42206</b>	<b>2272163</b>

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**Appendix 4. Employed persons by selected method of travel to place of work in Statistical Local Areas in Sydney, Hunter and Illawarra Statistical Division**  
**Australian Bureau of Statistics, 2006 Census of Population and Housing**

<b>Statistical Local Area</b>	<b>Bicycle</b>	<b>Bicycle and other</b>	<b>All other methods</b>	<b>Total who stated method of travel</b>	<b>Worked at home</b>	<b>Did not go to work</b>	<b>Not stated</b>	<b>Total employed</b>
Sydney Undefined	29	10	5388	5427	70	478	120	6095
Ashfield (A)	56	8	7919	7983	529	1020	120	9652
Auburn (A)	185	41	37004	37230	508	2853	439	41030
Bankstown (C) - North-East	46	7	18881	18934	341	2086	353	21714
Bankstown (C) - North-West	77	13	15833	15923	454	1268	224	17869
Bankstown (C) - South	94	18	16746	16858	565	1387	225	19035
Baulkham Hills (A) - Central	65	11	27626	27702	1612	3532	347	33193
Baulkham Hills (A) - North	16	0	6876	6892	1681	1079	152	9804
Baulkham Hills (A) - South	34	4	7016	7054	1048	921	94	9117
Blacktown (C) - North	68	11	12035	12114	1181	1399	206	14900
Blacktown (C) - South-East	169	42	38354	38565	715	3634	521	43435
Blacktown (C) - South-West	91	16	16768	16875	407	2066	278	19626
Blue Mountains (C)	80	12	11624	11716	1804	2532	198	16250
Botany Bay (C)	286	20	33201	33507	402	5449	439	39797
Burwood (A)	56	14	12101	12171	496	1555	171	14393
Camden (A)	58	3	11383	11444	968	1672	203	14287
Campbelltown (C) - North	78	27	16279	16384	569	1540	216	18709
Campbelltown (C) - South	71	4	15663	15738	596	2783	247	19364
Canada Bay (A) - Concord	61	11	13380	13452	547	1508	165	15672
Canada Bay (A) - Drummoyne	24	0	5440	5464	634	807	79	6984
Canterbury (C)	86	12	20484	20582	1001	2160	396	24139
Cessnock (C)	53	3	9995	10051	766	1899	199	12915
Fairfield (C) - East	95	13	17644	17752	603	1547	296	20198
Fairfield (C) - West	83	7	22994	23084	706	1784	373	25947
Gosford (C) - East	30	3	11425	11458	1395	2469	195	15517
Gosford (C) - West	186	14	27524	27724	1578	4493	377	34172
Hawkesbury (C)	238	9	16654	16901	1550	2277	267	20995

<b>Statistical Local Area</b>	<b>Bicycle</b>	<b>Bicycle and other</b>	<b>All other methods</b>	<b>Total who stated method of travel</b>	<b>Worked at home</b>	<b>Did not go to work</b>	<b>Not stated</b>	<b>Total employed</b>
Holroyd (C)	121	22	27913	28056	738	2390	400	31584
Hornsby (A) - North	39	14	10028	10081	1759	1610	154	13604
Hornsby (A) - South	84	16	21876	21976	1751	3732	330	27789
Hunter's Hill (A)	11	4	2827	2842	371	460	54	3727
Hurstville (C)	76	10	16358	16444	843	2072	303	19662
Kiama (A)	25	0	3116	3141	467	660	53	4321
Kogarah (A)	55	12	12901	12968	705	1965	164	15802
Ku-ring-gai (A)	60	15	20241	20316	3485	3333	285	27419
Lake Macquarie (C) - East	62	6	9221	9289	744	1660	162	11855
Lake Macquarie (C) - North	116	7	19262	19385	830	3299	266	23780
Lake Macquarie (C) - West	54	4	9065	9123	803	1644	165	11735
Lane Cove (A)	53	4	12616	12673	885	1167	137	14862
Leichhardt (A)	150	20	14337	14507	1431	1695	183	17816
Liverpool (C) - East	223	35	33445	33703	711	3527	490	38431
Liverpool (C) - West	25	3	8417	8445	1003	881	151	10480
Maitland (C)	81	28	15935	16044	914	2723	209	19890
Manly (A)	127	11	7964	8102	1106	1337	101	10646
Marrickville (A)	221	25	19529	19775	1167	1853	266	23061
Mosman (A)	38	5	5620	5663	872	840	97	7472
Newcastle (C) - Inner City	555	36	31382	31973	732	4686	356	37747
Newcastle (C) - Outer West	164	19	13159	13342	461	1913	191	15907
Newcastle (C) - Throsby	357	19	22098	22474	661	4074	270	27479
North Sydney (A)	330	76	52583	52989	2290	4308	465	60052
Parramatta (C) - Inner	241	53	57872	58166	499	6531	706	65902
Parramatta (C) - North-East	28	4	8292	8324	604	894	107	9929
Parramatta (C) - North-West	26	3	4631	4660	420	564	60	5704
Parramatta (C) - South	37	5	6356	6398	181	658	77	7314
Penrith (C) - East	140	22	18885	19047	1140	2445	283	22915
Penrith (C) - West	159	25	23847	24031	1062	3940	378	29411
Pittwater (A)	139	21	12234	12394	2071	1927	221	16613
Port Stephens (A)	161	6	16546	16713	1052	2676	216	20657

Statistical Local Area	Bicycle	Bicycle and other	All other methods	Total who stated method of travel	Worked at home	Did not go to work	Not stated	Total employed
Randwick (C)	366	37	29093	29496	1928	3838	379	35641
Rockdale (C)	129	14	19969	20112	869	2521	331	23833
Ryde (C)	258	32	50544	50834	1917	5031	532	58314
Shellharbour (C)	90	13	9773	9876	577	1801	181	12435
Shoalhaven (C) - Pt A	142	3	12855	13000	450	1980	163	15593
Shoalhaven (C) - Pt B	98	0	8072	8170	1389	1595	138	11292
Strathfield (A)	60	14	15405	15479	476	1350	246	17551
Sutherland Shire (A) - East	213	23	25638	25874	1778	4624	409	32685
Sutherland Shire (A) - West	119	23	16952	17094	1753	2788	273	21908
Sydney (C) - Inner	1630	372	208098	210100	1829	17925	1708	231562
Sydney (C) - East	604	69	36697	37370	1232	4083	414	43099
Sydney (C) - South	461	44	36986	37491	865	2761	379	41496
Sydney (C) - West	563	80	35604	36247	919	4106	340	41612
Warringah (A)	357	19	36799	37175	3133	4726	511	45545
Waverley (A)	127	18	14733	14878	1459	2087	263	18687
Willoughby (C)	230	42	43757	44029	1865	5054	477	51425
Wingecarribee (A)	85	9	11220	11314	1437	1828	143	14722
Wollondilly (A)	22	3	6853	6878	1017	967	99	8961
Wollongong (C) - Inner	435	42	32522	32999	1203	5323	454	39979
Wollongong (C)	209	22	25017	25248	839	3503	391	29981
Woolahra (A)	101	12	12379	12492	1867	1521	188	16068
Wyong (A) - North-East	68	6	9945	10019	843	1845	176	12883
Wyong (A) - South and West	132	14	18860	19006	1075	3073	313	23467
<b>Total</b>	<b>12872</b>	<b>1774</b>	<b>1712564</b>	<b>1727210</b>	<b>85204</b>	<b>211992</b>	<b>22708</b>	<b>2047114</b>

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