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IMPLICATIONS OF POPULATION GROWTH IN AUSTRALIAN CITIES: CASE STUDY – GREEN SQUARE, NSW

2013

ABOUT THE AUTHORS

The Institute for Sustainable Futures (ISF) was established by the University of Technology, Sydney in 1996 to work with industry, government and the community to develop sustainable futures through research and consultancy. Our mission is to create change toward sustainable futures that protect and enhance the environment, human well-being and social equity. We seek to adopt an inter-disciplinary approach to our work and engage our partner organisations in a collaborative process that emphasises strategic decision-making.

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Case study summary

This case study is one of ten conducted for the project **The Economic, Social and Environmental Implications of Population Growth in Australian Cities**. Green Square was the only case study investigation of an inner city area. One purpose in including an inner city area amongst the case studies was to be able to identify the common issues in the impacts of population growth in all types of development, inner city urban area, outer suburban areas, and metropolitan areas with regional cities. The case study also, and perhaps more importantly, assesses if there are any significant differences when the growth is through redevelopment of an inner city area.

In assessing the differences in the challenges and benefits of population growth in inner city areas the Green Square case is only indicative, and this case should be approached with an understanding of the wider project documents including the Final Report and other case studies. In order to provide this point of comparison the approach for Green Square was modified in selected from the approach used in the other nine cases studies. Green Square is a suburb within a Local Government Area, rather than a LGA or number of LGAs. The population growth in Green square is in the future rather than the recent past, and redevelopment of Green Square involves dramatic land use changes but these changes are from industrial to residential not from rural to residential as in the other cases.

The Green Square case study therefore has a number of limitations in data collection and availability that were not present to the same extent in the other cases including:

- less data;
- less variety of stakeholders who were able to speak of the specific experience of Green Square;
- less stakeholders who were able to speak of the actual impacts of population growth rather than projected impacts; and,
- less variety of stakeholders due the nascent nature of many community groups and other organisations.

The researchers sought stakeholders' views on the same range of topics, but in addition they examined whether the dominant themes of the nine previous case studies were replicated in inner city population growth areas or whether they were distinctive to development in outer suburban areas.

Green Square is a large brownfields (industrial) regeneration site three kilometres south of the Sydney City CBD. The area has been identified for development in the late 1990s with master plans and planning instruments developed and approved in the mid 2000s. The area is only now beginning to significantly develop, and by 2020 will be home to nearly 40,000 people and 22,000 new jobs. With so much development still to come it is important to place the current characteristics of the area in the context of this rapid forthcoming development.

The social and economic characteristics of the Green Square case study are very different from those of the other cases. As the indicator section shows, Green Square has a younger, more affluent, more ethnically diverse and more highly educated population than Greater Sydney and New South Wales as a whole. The dominant household types are single people and couples with no children. The economic profile of the area is also very different due to its proximity to the Sydney central business district. The proportion of workers who journey to work on public transport or through active transport is much higher, and the proportion travelling to work by car is much lower than in the other cases.

From analysing the stakeholder responses at a meta level, it is evident that many of the themes emergent in the previous case studies are also present in the Green Square case study. The difference is in how these themes are conceived of by stakeholders and how the different social and economic characteristics (as shown in the indicators) transform the 'experience' of these themes. As an

illustration, in the other cases the provision of retail and other service organisations were in demand for the services that they provided but also the local employment they generated. In the Green Square case the primary concern was service delivery alone.

Transport and access to public transport were also raised as prominent issues by stakeholders, but in ways that were different to the ways in which they manifested in the other studies. In the outer metropolitan case studies the availability of public transport options, and the link between local employment and commuting (by private or public transport) was critical, whereas in the case of Green Square the critical element was the coordination of existing public transport assets with other modes of transport, particularly active transport (walking and cycling).

The need to build social cohesion in a new community was raised by stakeholders as a major challenge for the area, as was the need to ensure adequate spaces for social interaction and recreation. The impacts of high density living such as noise pollution and smell transfer came through much more clearly in this case study than in the previous ones. The sophistication of the public and private responses to these concerns in terms of urban design and the creation of amenity showed, in theory if not in practice, how these are much more top-line issues for Green Square than for the other sites.

The case study also shows that resource usage is not always more efficient in high-density areas. Evidence from background material, stakeholder interviews and the indicators showed that in some cases resource usage is higher in high-density situations than in lower density ones. The evidence presented by stakeholders and the background materials suggests that the character and quality of urban form are as critical to sustainability as the density of the form.

Glossary

ABS	Australian Bureau of Statistics
BOCSAR	NSW Bureau of Crime Statistics and Research
CBD	Central Business District
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
kg	kilogram
kL	kilolitre
km ²	square kilometre
IRSD	Index of Relative Socio-economic Disadvantage (a SEIFA index)
ISF	Institute for Sustainable Futures
LGA	Local government area
p.a.	per annum
ML	megalitre
NEPH	nephelometry
NIEIR	National Institute of Economic and Industry Research
NSW	New South Wales
PHIDU	Public Health Information Development Unit
SEIFA	Socio-Economic Indexes for Areas
SoE	State of the Environment report
SoR	State of the Regions
sqm	square metres
t	tonne
UTS	University of Technology, Sydney

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Background and context

Geography and features

The Green Square area is one of the largest urban renewal projects in Australia. The development of the 278 hectare site (3 km²) is being led by the City of Sydney. The site is to the south of Sydney city centre and will become a major centre for residential, commercial and cultural activities. The area was historically a light industrial area south of the city with a small amount of historical terraced housing from the late 1800s. The area has been set aside for residential redevelopment since the 1990s, and the then South Sydney Council completed a Master Plan process for the area in 1998. South Sydney Council was amalgamated into the City of Sydney in 2004 and adopted new planning controls for the Green Square Town Centre in 2006. These plans include high-density, multi-unit dwellings on the site built around a Town Square of public and commercial buildings.

The Green Square area now sits entirely within the boundaries of one LGA, City of Sydney, but includes a number of separate suburbs. It includes the suburbs of Beaconsfield and Zetland and parts of Rosebery, Alexandria and Waterloo, is located 3.5 kilometres from the Sydney Central Business District (CBD) and four kilometres from the airport.

The centre of the Green Square area is the junction of three major arterial roads, which lead to the City from the south: Bourke Street, Botany Road and O’Riordan Street. This will be the site of the proposed Green Square Town Centre. A train station on the Airport and East Hills Line already exists at this site. The Green Square train station is one of five privately owned stations on the otherwise State Government owned and operated Sydney rail network.



Figure 1: Geographical context map of Green Square

Since the post-war period the area has mainly contained light industrial businesses, with some older housing in the area, some of which dates back to the 1800s. In recent years there has been more residential growth from urban renewal. Approximately 5,700 new dwellings have been constructed in the area since 2000 (City of Sydney, 2012). Many original houses have also been renovated. By the time the urban renewal development is complete, the area will have 20,000 new homes, 22,000 new jobs and 40,000 new residents. The 20,000 new houses will account for a third of all of Sydney City’s new housing targets under the Sydney Metropolitan Strategy 2036 (NSW Government, 2012).

Major features of the area include the Royal South Sydney Health Complex, Crown Square Shopping Plaza, Alexandria Park, Waterloo Oval, Cleveland Street High School (now an intensive English school), Green Square Railway Station and Green Square School. The Victoria Branch of Shea’s Creek runs through the Green Square area.

Population summary

The current population of the area is 18,689 (2011 census) and this is expected to increase to more than 53,000 by 2030 (see Figure 2).

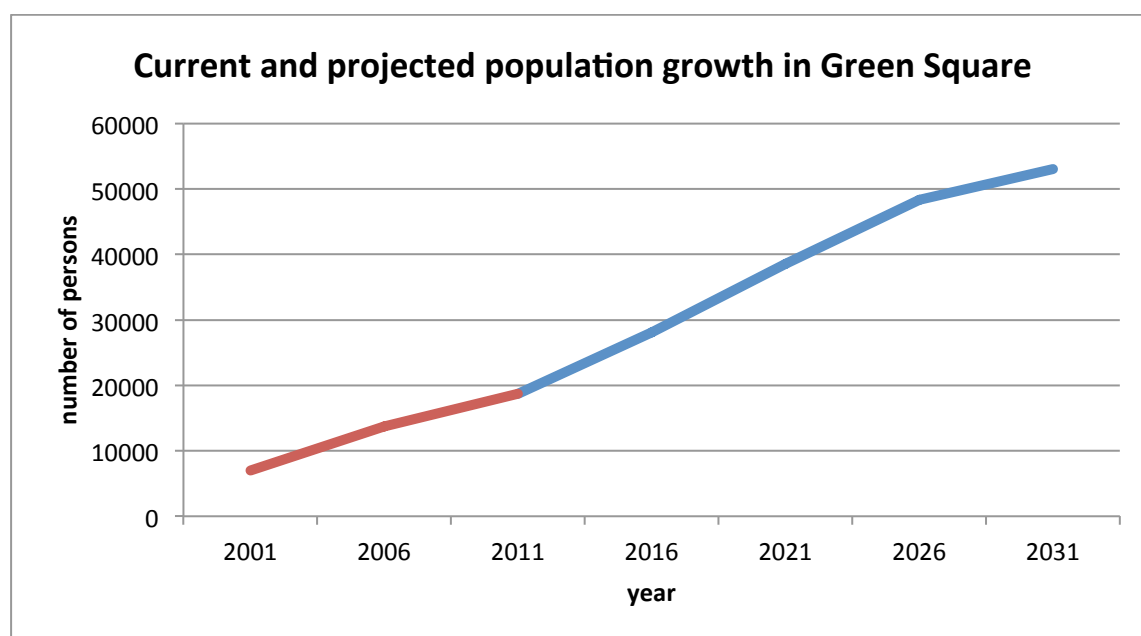


Figure 2: Current (blue) and projected (red) population growth in Green Square (Source: id.consulting, 2012; ABS, 2012a).

The rate of population increase between 2001 and 2006 was 269%, which then dropped to 46% between 2006 and 2011, however this growth rate will increase rapidly again in the next twenty years to be 3.23% per annum. The growth rate of the past decade is already ahead of the annual rate of growth since 2001 of both Greater Metropolitan Sydney (1.1%) and NSW as a whole (0.9%). The accelerated growth rate post-2012 will mean that Green Square will be one of the fastest growing areas in Australia.

The high density of population in Green Square is also shown in Table 1, with 4,431 people per square kilometre in 2011 compared with the average Sydney density of 372 and NSW with an average of nine people per square kilometre. The population density in Green Square will continue to increase over the next two decades.

Table 1: Context indicator – population (source: ABS, 2012b)

	Green Square 2001	Green Square 2011	Greater Sydney 2011	NSW 2011
Population (persons)	2,469	13,295	4,605,992	7,211,468
Population density (people/km ²)	823	4,431.7	372.4	9.0

Table 2: Context indicator – population (source: ABS, 2007)

	Green Square 2001	Green Square 2011	Greater Sydney 2011	NSW 2011
Population (persons)	2,469	13,295	4,378,456	6,896,724
Indigenous	2.3%	0.8%	1.3%	2.5%
Overseas born from predominantly English speaking countries	9.1%	12.2%	7.9%	7.1%
Overseas born from NES countries	27.1%	36.2%	26.3%	18.6%
Total overseas born	36.2%	48.4%	34.3%	25.7%

The area is also highly ethnically diverse with nearly half of the 2011 population born overseas, the majority (36.2% of the area's population) coming from non-English speaking countries. This compares with Greater Sydney where just over a third of the population was born overseas and 26.3% comes from non-English speaking countries. In NSW as a whole the figures are lower again – 25.7% and 18.6% respectively.

Table 3: Context indicator – culture and migration (source: ABS, 2007; ABS, 2012a)

	Green Square 2001	Green Square 2011	Greater Sydney 2011	NSW 2011
% Born overseas	32.24%	37.71%	34.3%	25.7%
% Do not speak English well	5.0%	5.0%	5.8%	3.9%
Indigenous	2.3%	0.8%	1.3%	2.5%

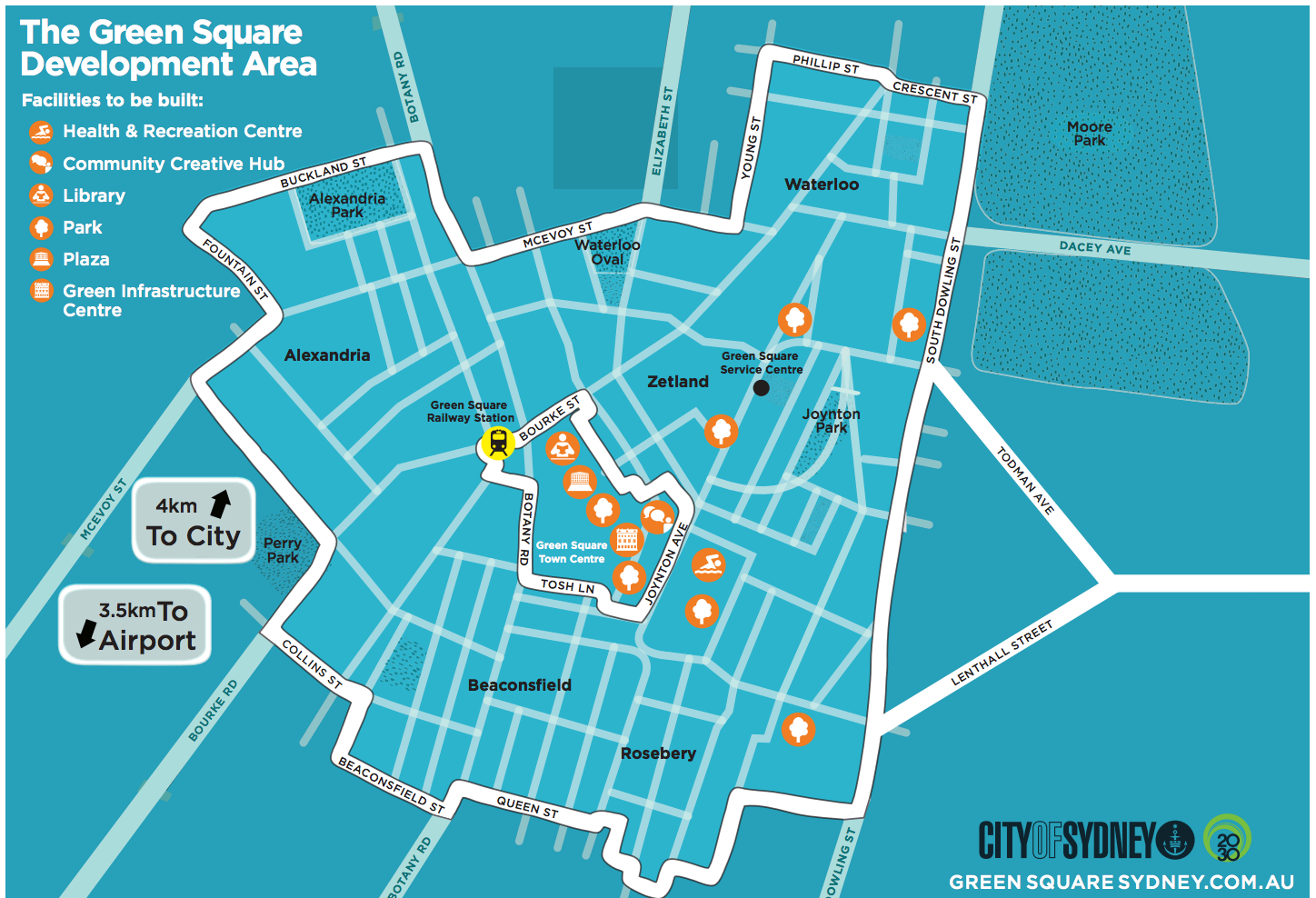


Figure 3: Plan of Green Square and key assets in the town centre (source: City of Sydney 2012)

Social characteristics

Green Square has a number of distinctive demographic characteristics which are related to its high population density and the predominance of apartment housing in the area.

Young population

The residents Green Square are young by comparisons with the NSW average. The average age for the City of Sydney area in which Green Square is located is 32 years, compared with 38 years for NSW as a whole. The largest age group in the area is the 25-34 cohort (the demographic group referred to by City of Sydney in its analysis of ABS data as young workers (id. consulting, 2012)) who make up 33.7% of the population and people aged 35-44 years (so-called parents and homebuilders) who make up 23.3% of the population. For NSW as a whole these cohorts account for 13.6% and 21% of the population respectively. Green Square has fewer young children aged 0-11 years; they make up 8.7% of the population, whereas for NSW as a whole, where they account for 15.4% of the population. Older people (60 years and above) account for only 7.9% of the population compared with 20.3% for NSW overall.

Dominated by couple and lone-person households and high-density living

The most common household in Green Square is couples without children (27.4% of households), followed by lone-person households (24.5%). For NSW (and the other outer metropolitan case studies) the dominant household structure is couples with children (31.2% of the population in NSW). In Green Square these households only make up 15.4% of the population. The trend towards couple and single-person households accelerated in the period between the 2006 and 2011 censuses, suggesting that couples and single people predominantly occupied the new dwellings added in this five-year period.

High and medium density dwellings dominate the dwelling structure profile of Green Square. Definitions of both these types are not fixed, but medium density dwellings commonly range from about 25 to 80 dwellings per hectare and consist of detached, semi-attached and multi-unit housing. High-density dwellings are considered those in excess of 80 dwelling per hectare and are multi-unit dwellings (apartments). Both these development types make up some 89% of dwellings in the area, compared with 31% in NSW as a whole. The increase in housing density accelerated over the inter-census period with the number of separate houses in the area declining from 14.2% of dwellings to 10.6%.

Housing cost and affordability

As with many inner city areas, housing costs are significantly higher than the NSW average. Mortgage repayments and rents are directly related to house prices. In Green Square 31.5% of households make mortgage payments of \$3,000 or more per month, compared with 20.7% in NSW as a whole. Almost half of Green Square households in rental accommodation pay \$550 or more in rent per week, compared with 11.2% for NSW.

Housing affordability is therefore an issue for the area. The City of Sydney has an Affordable Housing Scheme for Green Square, which aims to encourage a diverse mix of housing in terms of building style, tenure and social mix. The scheme is planning for 330 rental units for low-to-moderate income households by 2020, making up 2–3% of affordable housing stock in the development area (Gilmour, 2012).

The scheme works by making developers' contributions to affordable housing a condition of council granting development consent. Developers can choose to provide affordable housing on-site or pay the equivalent monetary contribution to allow housing units to be built elsewhere in Green Square (Gilmour, 2012). The City of Sydney has a broader goal of making 7.5% of all housing stock within the city social housing, and for a further 7.5% to be affordable rental housing by 2030 (City of Sydney, 2008)

Economic characteristics

Changing industrial profile

The industrial profile of the Green Square area has been dominated by firms defined as light industrial including manufacturing, wholesale and bulky goods retailing. As the area transforms into a mainly residential area the economic activity will be service and commercial oriented. Commercial and retail activities will be concentrated around Green Square's Town Centre, which exists along major arterial roads and transport links (bus, train and cycleways).

In terms of employment Green Square residents work predominantly in service sectors – including high skilled occupations in professional, scientific and technical services (13.3%), financial and insurance services (10.1%), but also lower skilled occupations such as retail trade (8.3%) and accommodation and food services.

Airport corridor is key for future economic activity

The adjacent Sydney airport precinct is also a major source of economic activity for the area. The airport generates an estimated \$8bn of economic activity each year, equivalent to 6% of NSW's gross state product (Sydney Airport Authority, 2008). In Sydney's metropolitan strategy the corridor between the city and the airport (including Green Square) is highlighted as a specialised centre. Employment in ancillary services to the airport will be a driver of employment in Green Square as it develops (Sydney Airport Authority, 2008).

Planning and governance

Influence of the NSW State Government

Green Square is located within the Sydney Metropolitan Area. The planning of Sydney is primarily the responsibility of the state government. This includes public transport, main roads, traffic control, and planning of major infrastructure projects. Planning powers mainly rest within the Department of Premier and Cabinet, and the Department of Planning and Infrastructure, and Transport, with the NSW Treasury having a role in funding.

Planning system in transition

The guiding document for the development Sydney at the strategic level is the *Metropolitan Plan for Sydney 2036*. This provides for new housing development to be concentrated in existing urban areas (with a 70–30 split between existing and new greenfields release areas) and for the concentration and coordination of new greenfields sites to be in two 'growth centres': one in the north-west and one in the south-west of Sydney. Within the *Metropolitan Plan*, Green Square is identified as a Planned Major Centre, and is considered an emerging location for shopping, jobs and services. The location of Green Square also places it in the Sydney Global Economic Corridor that extends north and south from the Sydney CBD. This is a substantial corridor, clustering jobs and economic activity in finance and business services, information-intensive industries, global and national transport, and multimedia.

The NSW Government is conducting a major review of the *Environmental Planning and Assessment Act 1979* (NSW), the primary planning instrument in the state. The recently released Green Paper (NSW DPI, 2012) discusses new planning legislation and proposes a new planning system for NSW based on four principles – community participation, strategic focus, streamlined approval and provision of infrastructure. It suggests that community participation at the strategic planning stage will establish strategic directions for character, density and amenity, meaning that the level of subsequent individual intervention in the development process can be minimised and approvals streamlined. The Green Paper also discusses how infrastructure planning and delivery would be linked to development activity and proposes a wider base for the collection of contributions to pay for new infrastructure than the existing contributions levied on new dwellings. The review is expected to be completed shortly, with the introduction of new planning legislation likely later in 2013.

Influence of local government

The Sydney Metropolitan Region is divided into 43 local government areas (LGAs). Local governments primarily have responsibility for development assessment and local strategic planning, except where proposals are deemed to be of 'state significance'.

Prior to amalgamation of South Sydney LGA and City of Sydney LGA, Green Square was subject to the planning controls contained in the *South Sydney Local Environmental Plan 1998 (South Sydney LEP 1998)*, including *Amendment No. 17 – Green Square Town Centre*, and the *South Sydney Development Control Plan 1997: Urban Design (South Sydney DCP 1997)*, including Part G: *Special Precinct No. 9 – Green Square*, and Part H: *Green Square Town Centre*. The area was also subject to the provisions of the *Green Square Affordable Housing Development Control Plan 2002*, which set out the requirements related to the provision of affordable housing, and the *City of Sydney Section 94 Development Contributions Plan 2006* also applied. This plan established a schedule of works and developer contributions for the provision of new roads, open spaces, public domain improvements, transport improvements and community facilities. These DCPs and policies have now been consolidated into the *Sydney Development Control Plan 2012* and the *Sydney Local Environmental Plan 2012*.

Other relevant institutions

Landcom, a NSW state-owned corporation, is the main developer for the Green Square Town Centre. Landcom acts as the development arm of the NSW Government. Landcom's role in urban development projects includes master planning, facilitating infrastructure provision that encourages private development and community development in NSW.

Landcom operates on both vacant and established land sites and caters for resident, commercial and industrial land uses. It is seen as one of the vehicles for state government involvement in place-making in growth areas (NSW Government 2011). In the 2012 NSW State Budget, Landcom and the Sydney Metropolitan Development Authority were merged into a new authority called UrbanGrowth NSW.

Landcom's role in Green Square is to coordinate and master-plan the delivery of development land to the private sector. This includes negotiating with multiple individual landowners and consolidating ownership, negotiating with relevant planning authorities (City of Sydney) and utilities (water and electricity) for the staged provision of infrastructure to the area. Due to the constraints of the site (industrial regeneration, flooding issues) it is unlikely that the site would have been developed in a planned way by private sector operators alone.

Environmental, social and economic indicators

The first component of the case study research involved investigating data relating to the themes and indicators presented in the indicator framework. Results across the three domains (environmental, social and economic) are discussed here, using the indicators as headings. The availability of data at the local level varies greatly across the indicators, and this report therefore draws on the most appropriate data that could be identified to characterise local activity. Where comparative data (for example at the Greater Sydney or NSW level) was available and meaningful, has been included.

The analysis presented shows that population growth is impacting on all three domains. In the environmental domain, City of Sydney Council data was used because data specific to Green Square was not available. However, while Sydney LGA data may not be a direct representation of environmental issues in Green Square, it is interesting as a representation of an inner city location. Important trends to note include electricity and water usage. Total household electricity usage decreased for Sydney LGA, as well as average water usage for both units and houses. The environmental data suggests there is a growing awareness among residents in the area of the need for resource efficiency.

The available social indicators show that Green Square is a relatively advantaged area. The proportion and rate of educational attainment are significantly higher than for Greater Sydney and NSW as a whole. However, beyond education, a lack of Green Square-specific data regarding health issues or Socio-Economic Indexes for Areas (SEIFA) scores, prevents a more detailed analysis of social disadvantage/advantage for the area. At the City of Sydney LGA level, indicators point to a more disadvantaged population when compared to the Greater Sydney area, with health indicators showing higher rates of individuals self-reporting fair to poor health, and higher proportions of smokers and overweight and psychologically distressed people. However, it should be noted that the aggregation of health data to the LGA level is probably not representative of residents within the Green Square area.

The economic indicators also are a mixture of data levels – Green Square-specific, Sydney LGA and NIEIR region. The Green Square-specific economic indicators, reveal an increasing trend towards public transport usage and subsequently a decrease in car usage. Regionally, NIEIR data suggests that overall household wealth and average dwelling prices have increased.

The specific indicators on productivity and household wealth were derived from the NIEIR *State of the Region report*, which presents data for Sydney Central Region, rather than for Green Square only. The Sydney Central Region comprises the Sydney CBD, North Sydney Botany, Top Ryde and Chatswood. For this reason, these figures should be treated with caution.

Environmental indicators

*Note: Environmental indicator data is limited or non-existent for the specific Green Square area. Therefore City of Sydney LGA-level data has been used where appropriate.

Climate and atmosphere

Air quality data for Green Square is limited, as the nearest air quality monitoring station is located in a different LGA (Randwick City). However, according City of Sydney Council (2013a), the two prime air pollution problems of in Sydney are photochemical smog and particle pollution. Table 4 summarises compliance with monitoring standards and goals for Ambient Air Quality at the nearest air monitoring station to Green Square.¹ Since 2006, there have been no occurrences of exceedence for nitrogen dioxide, ozone or sulphur dioxide. However, data indicates that several years had multiple exceedences for PM₁₀ and visibility².

Table 4: Natural capital - climate and atmosphere (Source: DEH, 2013)

	Randwick air monitoring station						
	2006	2007	2008	2009	2010	2011	2012
NO ₂	0	0	0	0	0	0	0
O ₃	0	0	0	0	0	0	0
SO ₂	0	0	0	0	0	0	0
PM ₁₀	1	1	0	9	0	0	0
NEPH	10	2	0	21	2	6	3

The City of Sydney State of the Environment Report (SoE) provides data on total electricity usage for the City of Sydney LGA, separated into households, small business and large business. While this may not be a direct representation of electricity usage in Green Square, it is interesting to note the trend of decreasing energy usage across all three categories for an inner city LGA. One contributing factor to this trend could be the City of Sydney's high profile campaign for energy efficiency and reduction in greenhouse gas emissions (City of Sydney, 2012). Specific to the area, Council plans to install a trigeneration power station in Green Square which will reduce total emissions due to the power station's use of natural gas to produce electricity, heating and cooling.

Table 5: Natural capital – climate and atmosphere (Source: City of Sydney, 2012)

	2007-08	2008-09	2009-10	2010-11	2011-12	% change 2007-12
Households (MWh) ³	432,294	440,233	433,363	431,756	408,965	-5.4%
Small business (MWh)	920,942	850,323	807,972	788,843	767,727	-16.6%
Large business (MWh)	2,877,974	2,857,349	2,852,247	2,809,656	2,717,516	-5.6%

¹ The data indicates the number of days of exceedence for the year, when the AAQ standard or goal for the pollutant was not met.

² Visibility is a measure which indicates the presence of fine particles in the air from sources such as motor vehicles, wood fires and industry. The measurement technique is called nephelometry (NEPH).

³ Data provided by Energy Australia for suburbs in and around the City of Sydney. Data is not confined to the LGA and may be based on accruals and estimates.

Ecosystems and biodiversity

The City of Sydney uses environmental indicators to monitor trends and the effectiveness of biodiversity management programs. The main biodiversity indicators for Sydney LGA are summarised in Table 6. According to the data, the total area of parks and open space stayed steady at 377 ha between 2004 and 2009. While the most current SoE does not report data for the area of park and open space for 2009/10 – 2011/2012, it can be assumed that there has been some increase, or soon will be an increase, due to the creation of open space in Green Square as part of the urban regeneration development.

Table 6: Natural capital – ecosystems and biodiversity (Source: City of Sydney, 2013b)

	2004/05	2005/06	2006/07	2007/08	2008/09
Area of park and open space (ha)	377				
Number of bird species	65–68				
Free native plants distributed by the City of Sydney	1,500	2,250	1,198	722	No data

Water

The City of Sydney SoE provides data on water supply and usage for the Sydney LGA. While this may not be a direct representation of water usage rates in Green Square, it is an indication of water trends in an inner city area, especially as units are the dominant residential type in Green Square. Average water usage for houses has been decreasing since 2003–04, with a percentage change between 2003 and 2012 of -29% (or an average annual percentage change of -3.9%). Average water usage for units also followed the same downward trend for 2003–04 to 2009–10, but there was a dramatic jump in water usage between 2009–10 and 2010–11 for units, followed by a drop in usage the following years. The average annual percentage change for unit water usage is -0.1% for the time period 2003–2012, however the dramatic increase in 2010–11 greatly affected the average.

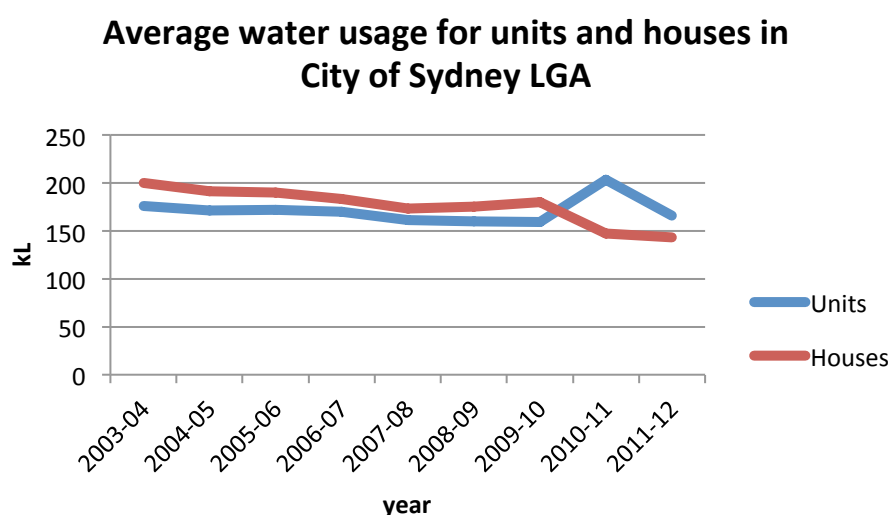


Figure 4: Average water usage in Sydney LGA (Source: City of Sydney, 2012)

The total volume of water used in the City of Sydney LGA fluctuated between 2003 and 2012, with a general downward trend between 2004 and 2009. However, there was a significant spike between 2009–10 and 2010–11, affecting the average annual percentage change of 0.4%. Interestingly, the

increase in total water usage for 2010–11 correlates with the increase in water storage levels for the same financial year. See Table 7 for further details for water supply and usage in Sydney LGA.

Table 7: Natural capital – water (Source: City of Sydney, 2012)

	'03-04	'04-05	'05-06	'06-07	'07-08	'08-07	'09-10	'10-11	'11-12	Avg annual % chng '03-12
Water storage level (%)	42.0%	38.3%	41.8%	50.5%	66.7%	61.4%	57.6%	76.4%	95.9%	
Total water usage (ML)	32,891	34,508	33,712	34,419	32,471	32,602	31,032	33,833	33,710	0.4%
Average water usage – units (kL)	176	171	172	170	161	160	159	203	166	-0.1%
Average water usage – houses (kL)	200	191	190	183	173	175	180	147	143	-3.9%

Land

Much of the development in the Green Square area since 2000 has focused on its eastern sectors where mixed uses planning zones occur, and has been primarily residential and mixed use in nature. Under the *South Sydney LEP 1998*, most of Green Square comprised Mixed Uses zones, with an area to the north-west of Green Square zoned Industrial. Since the time that the South Sydney City Council has been amalgamated into the City of Sydney, Council has produced the *Sydney Development Control Plan 2012* and the *Sydney Local Environmental Plan 2012* which consolidates past DCPs and policies relating to South Sydney Council.

Waste

The City of Sydney State of the Environment Report provides data on waste and recycling for the Sydney LGA. While this may not be a direct representation of waste and recycling rates in Green Square, it is an indication of waste trends in an inner city area. The volume of domestic waste produced per person in the Sydney LGA has declined from 230kg per person in 2003–04 to 112kg in 2011–12, a reduction of 51%. Interestingly, even with the increase in population for the LGA, the total volume of household waste produced has also decreased (though at a lower rate -20%). The volume of domestic recycling has increased dramatically since 2003, with a percentage change of 333% for the time period 2003–2012. This coincides with the positive trend in recycling per person, which had a percentage change of 155% for the same time period. See Table 8 for further details for waste and recycling in Sydney LGA.

Table 8: Natural capital – waste (Source: City of Sydney, 2012)

	'03-04	'04-05	'05-06	'06-07	'07-08	'08-07	'09-10	'10-11	'11-12	% chng '03-12
Total h'hold waste ⁴ (t)	26,020	36,553	39,999	38,752	40,230	41,890	37,180	30,358	20,759	-20%
H'hold waste per person (kg)	230	238	257	234	238	237	215	168	112	-51%
Total h'hold recyc (t)	9,169	12,186	13,227	16,122	16,654	19,556	21,031	29,231	39,664,	333%
H'hold recyc per person (kg)	84	79	85	97	99	110	116	161	214	155%
Landfill diver. (%)	26%	25%	25%	29%	29.3%	32%	36%	49%	66%	

⁴ Waste includes garbage sent to landfill as residual from waste processing and clean-up material disposed to landfill.

Social indicators

Skills and education

There are a number of ways to assess educational attainment in populations. Common measures are the proportion of the adult population that has a bachelor’s degree or higher, and the proportion that has a certificate or diploma qualification. On the former measure (adults with a bachelor’s degrees or higher) Green Square has a much higher level of educational attainment than either Greater Sydney or New South Wales as a whole. Interesting, the data shows that Green Square has a lower proportion of adults with certificate and diploma qualifications compared to the capital city and state average, and the figure has been decreasing since 2001. These results are shown in Figure 5 and Figure 6.

The proportion of adults with university qualifications in Green Square increased by 17% percentage points from 22.2% in 2001 to 39.2% in 2011. This compares to a much lower increase in the wider population, with attainment of university qualifications increasing across Greater Sydney by 7.8% from 16.4% in 2001 to 24.2% in 2011, and across NSW from 13.5% in 2001 to 19.9% in 2011. These figures show that increases in university-level attainment have been much faster in Green Square than in Greater Sydney or NSW as a whole.

In terms of certificate and diploma qualifications, attainment levels in Green Square decreased over the ten years between 2001 and 2011, from 20.2% of the adult population in 2001 to 18.5% in 2011, whereas, the proportions of people with these qualifications grew at the Greater Sydney and NSW levels. This suggests that people settling in the Green Square area have disproportionately high levels of university qualifications.

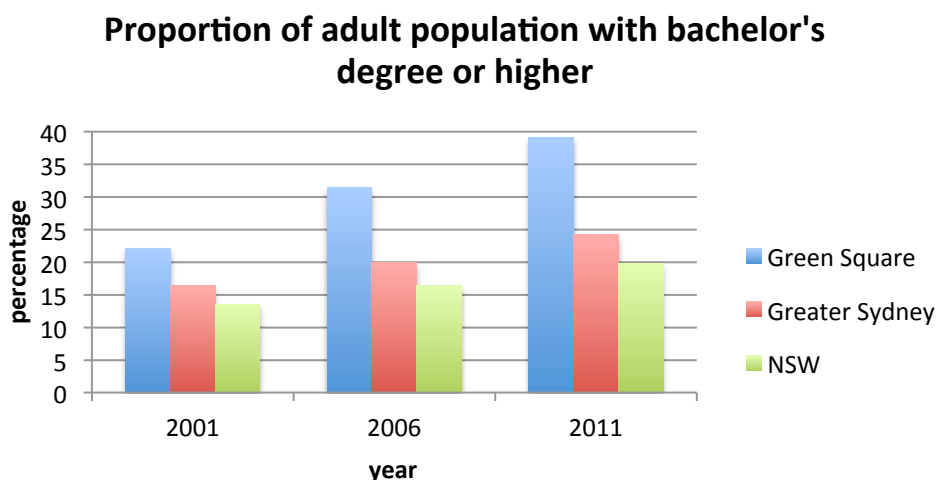


Figure 5: Comparison of adult population with bachelor’s degree or higher qualifications (Source: ABS, 2012b)

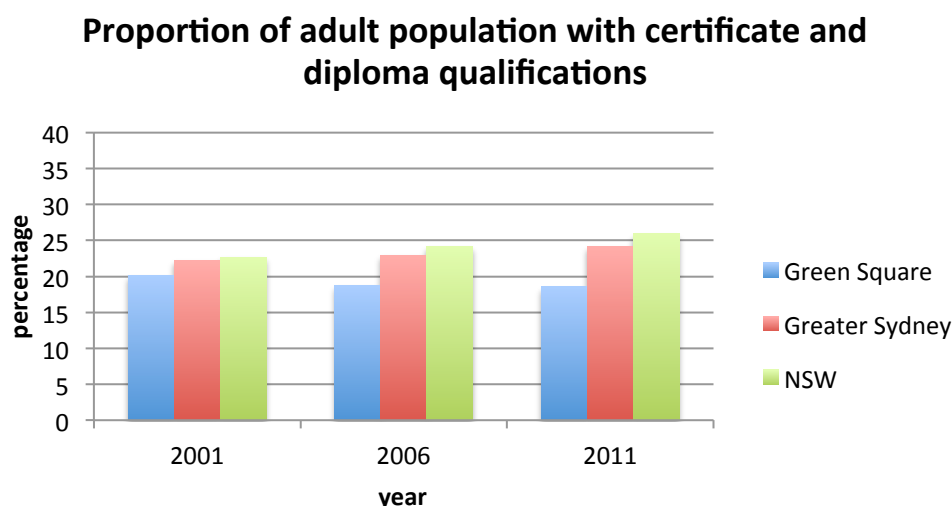


Figure 6: Comparison of adult population with certificate and diploma qualifications (Source: ABS, 2012b)

Health and socio-economic disadvantage

As research on the social determinants of health has shown, health outcomes are closely related to socio-economic status (World Health Organisation, 2012). Using the ABS Socio-economic Indexes for Areas (SEIFA), the 2006 Index of Relative Socio-economic Disadvantage (IRSD) score⁵ for Green Square shows that the area is relatively well advantaged in comparison to the City of Sydney LGA, Greater Sydney and NSW as a whole. Green Square scored 1074, while City of Sydney scored 1027, and to place this into perspective, the City of Sydney was ranked 122 of 157 LGAs in NSW in 2006, where 1 is the most disadvantaged LGA..

Table 9: Social and human capital – disadvantage (source: ABS, 2008)

	Green Square	City of Sydney	Greater Sydney	NSW
SEIFA Index (IRSD) score	1074	1027	1020	1000
Minimum IRSD score of CDs		480	460	460
Maximum IRSD score of CDs		1161	1191	1191
Rank in NSW		122 (of 157 LGAs)		
Rank in Australia		561 (of 667 LGAs)		

While available data sources report health information at the whole-of-LGA level only, and therefore not Green Square-specific, it is likely that the health status of the population of City of Sydney LGA contains levels of variability similar to those evidenced by the SEIFA scores shown in the above table. At the LGA level, City of Sydney has a comparatively high proportion of the population who are daily smokers (20.9% in City of Sydney compared to 14.4% in Greater Sydney), a higher-than-average percentage of the population rated as experiencing psychological distress⁶ and a higher-than-average percentage reporting that their health is only ‘fair’ or ‘poor’ (see Table 10). The incidence of obesity also

⁵ The average SEIFA 2006 IRSD score in Australia was set at 1,000. Scores under 1,000 indicate less advantage than the average.

⁶ Percentages are of people experiencing high or very high levels of psychological distress on the Kessler 10 scale.

appears to be slightly higher in City of Sydney than in Greater Sydney as a whole (see Figure 7). It should be noted that the aggregation of health data to the LGA level is not likely to realistically represent residents within the Green Square area.

Table 10: Social and human capital – health (source: PHIDU, 2010)

	City of Sydney 2007	Greater Sydney 2007	NSW 2007
Proportion reporting fair to poor health	12.1%	11.4%	12.7%
Proportion of adults that are daily smokers	20.9%	14.4%	15.3%
Proportion of adults that are overweight or obese	38.0%	35.7%	37.0%
Proportion of adults rated as psychologically distressed ⁷	12.7%	9.3%	9.3%

Estimated % overweight & obese 2007-2008

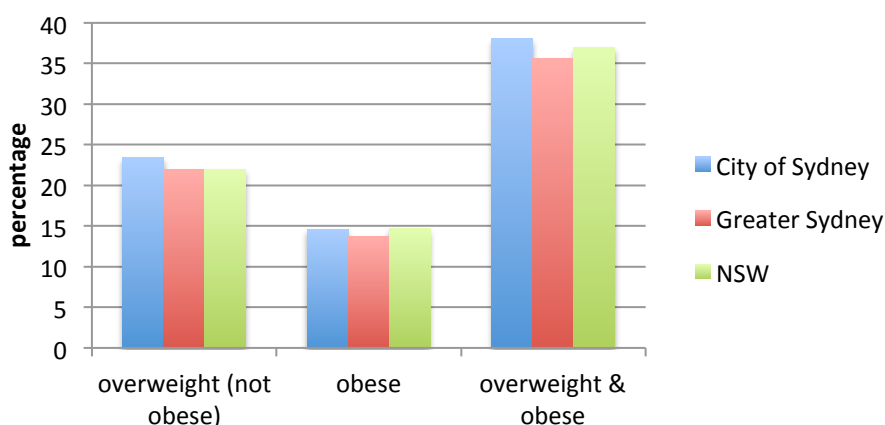


Figure 7: Comparison of estimated % overweight and obese (2007-08) (source: PHIDU, 2010; ABS, 2009)

Employment and unemployment

Unemployment in Green Square was consistently lower than in Greater Sydney or New South Wales as a whole during the 2001 and 2006 Censuses. However, in 2011, the unemployment rate in Green Square drastically increased and was higher than Greater Sydney and New South Wales. According to the 2011 Census (shown in Table 11 below) Green Square’s unemployment rate was 6.4%, compared to 5.7% for Greater Sydney and 5.9% for New South Wales as a whole.

Table 11: Social and human capital – employment (source: DEEWR 2012b) (note: *data items marked with an asterisk use National Institute of Economic and Industry Research (NIEIR) data for the Sydney Central Region, which comprises the Sydney CBD, North Sydney Botany, Top Ryde and Chatswood, and the Sydney Eastern Beaches Region for comparison, which comprises Bondi Junction and Randwick)

	Green Square 2011	Greater Sydney 2011	NSW 2011
Unemployment rate	6.4%	5.7%	5.9%
Participation rate	70.3%	61.7%	59.6%
	Sydney central region (2011)	Sydney eastern beaches region (2011)	
Hours worked per week*	25.7 hours	25.6 hours	
Social security take-up*	5.9%	5.4%	

Security and crime

It is difficult to obtain local level data on feelings of safety or security. Crime statistics provide some indication of the security or safety of an area, although it is well-documented that caution should be exercised when interpreting crime statistics, not least because they include only *reported* incidents.

The NSW Bureau of Crime Statistics (BOCSAR) reports quarterly on reported violent and property offences by LGA. Violent offences include: murder, assault – domestic violence-related, assault – non-domestic violence related, assault police, robbery without a weapon, robbery with a firearm, robbery with a weapon not a firearm, sexual assault and indecent assault / acts of indecency / other sexual offences. Property offences include: break and enter dwelling, break and enter non-dwelling, motor vehicle theft, steal from motor vehicle, steal from retail store, steal from dwelling, steal from person, stock theft, other theft and fraud (BOCSAR, 2012).

The incidence of both violent and property offences in City of Sydney over the last 60 months has exhibited no significant change.

Economic indicators

Wealth and housing affordability

Standard of living is usually measured by disposable household income, adjusted for household size and controlling for housing costs. In the period from 2001 to 2007 household disposable income across Australia grew on average by 3.1% a year. The growth rate accelerated to 6.5% per year during the global financial crisis (2008–2009) and in the years since has dropped back to 1.6% (NIEIR, 2012). In the Sydney Central region (which includes the Sydney CBD, North Sydney Botany, Top Ryde and Chatswood) disposable income grew by 13.5% in the period from 2007 to 2012, which equates to an annualised figure of 2.6% (NIEIR, 2012).

Household wealth can be calculated as the value of dwellings owned by residents, plus holdings in financial assets, less the stock of household liabilities (NIEIR 2012). As Table 12 shows, household wealth has increased over the last decade, with most of this increase attributable to increased property values. Household debt service ratios and the ratio of debt to income have also increased. The average dwelling price in Sydney Central in 2011 was \$757,000. However, median house and unit prices within the Sydney LGA vary greatly, with Sydney LGA averages of \$865,000 for houses and \$580,000 for units. In the areas near Green Square (Waterloo, Alexandria, Zetland), median prices range from \$708,000 to \$811,000 for houses and from \$485,000 to \$631,000 for units (Australian Property Monitors, 2013). Based on this data and the high demand for properties in Green Square, it can be assumed that the average unit price in Green Square is higher than in Sydney LGA as a whole.

Table 12: Economic capital – wealth and housing affordability (source: NIEIR, 2012) (Note: Sydney Central Region, which comprises the Sydney CBD, North Sydney Botany, Top Ryde and Chatswood; *represents growth in chain volume measures⁸ using ABS methodology)

	Sydney Central 2001	Sydney Central 2011
Wealth per household*	\$1,251,000	\$1,391,000
Household debt service ratio	9%	19%
Household debt to gross income ratio	0.71	1.51
Average dwelling price	\$581,900	\$757,000
Average dwelling price to household disposable income	5.2	5.4

Mortgage or rental stress is another useful measure of housing affordability. It measures the proportion of households in the bottom two percentiles of household income that spend 30% or more of their income on housing costs. While data is not specifically available for Green Square, in the City of Sydney, 4.6% of mortgaged owner-occupiers and 18.6% of private renters can be classified as being in mortgage or rental stress. These rates were below the Greater Sydney and NSW levels.



Figure 8: Comparison of low income of households in mortgage or rental stress (2006) (Source: PHIDU, 2010; ABS, 2007)

⁸ For further information, see: [http://www.abs.gov.au/ausstats/abs@.nsf/0/95ce2d6796bd15aeca256db800754639/\\$FILE/ATT4T7WF/Demystifying%20Chain%20Volume%20Measures_1.pdf](http://www.abs.gov.au/ausstats/abs@.nsf/0/95ce2d6796bd15aeca256db800754639/$FILE/ATT4T7WF/Demystifying%20Chain%20Volume%20Measures_1.pdf)

Transport and infrastructure

Analysis from the 2011 Census on journey to work patterns of Green Square residents and workers shows that there were 8,153 employed persons living in the area. The dominant mode of transport was private vehicle (car – as driver, car – as passenger, motorbike, or truck) with 41.3% of employed persons choosing this method, whereas 34.8% of employed persons in the area chose public transport (train, bus, tram or ferry) as their main method of transport. The largest nominal changes in the method of travel to work by residents in Green Square between 2006 and 2011 were bus (+779 persons), car – as driver (+772 persons), train (+576 persons) and walked only (+251 persons). The largest percentage change in the method of travel to work were public transport (+6.2 percentage points) and bicycle (+1.7 percentage points). This is an indication that new residents in the area see public transport and bicycling as viable modes of transport, especially with a major rail lines in the area and the City of Sydney of bicycle lanes easily accessible and providing direct routes to the city and suburbs along the way.

Table 13: Economic capital – transport (Source: id.consulting, 2012; ABS, 2012a)

	Green Square 2006	Green Square 2011	Green Square Change 2006 – 2011	Greater Sydney 2011	NSW 2011
Car as driver	40.6%	35.3%	-5.3%	53.8%	57.7%
Car as passenger	5.1%	3.8%	-1.3%	4.5%	5.0%
Public transport	28.6%	34.8%	6.2%	20.0%	13.8%
Walking	8.3%	8.3%	0%	4.1%	4.1%
Bicycle	1.9%	3.6%	1.7%	0.8%	0.7%
Worked at home	2.5%	2.5%	0%	4.0%	4.6%
Did not go to work	8.3%	6.7%	-1.6%	8.5%	9.5%
Other	1.2%	0.9%	-0.3%	1.0%	1.1%

Access to broadband Internet connections is a common measure of communications infrastructure. In Australia as a whole, the uptake of broadband services increased rapidly between the 2006 and 2011 census periods. In 2006, 55.8% of Green Square residents had access to a broadband Internet connection; this increased to 76.5% in 2011. While the proportion of Green Square residents with Internet has always been higher than Greater Sydney and NSW as a whole, the rate of uptake (+20.7%) was slower than the pattern for the rest of Greater Sydney (+26.1%) and NSW (+29.3%) between 2006 and 2011, as shown in Figure 9. This trend could be due to the already high rates of uptake in 2006.

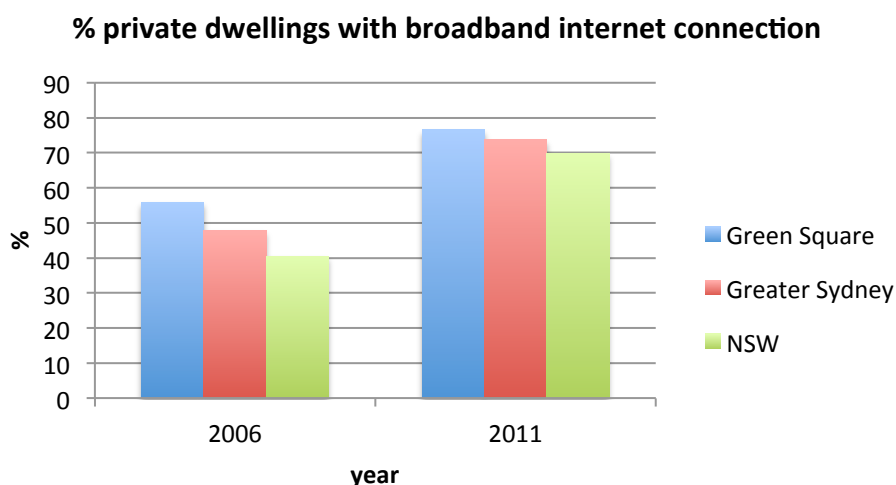


Figure 9: Comparison of broadband Internet connection (2006 & 2011) (source: ABS, 2007 & 2012a)

Productivity

The development of Green Square Town Centre will be a major stimulus for the NSW economy. It is expected to create 4,000 long-term jobs both during and after construction, and stimulate \$3.2 billion in economic activity (Landcom, 2012). The town centre comprises approximately 410,000 square metres of mixed-use floor space, and will accommodate some 7,000 workers and 5,500 residents.

Business innovation

Local level business innovation data is virtually non-existent, unless it is collected through small, locally based surveys. Patent counts per population are often used as proxies for innovation, but these are often unsuitable, as patents are only used in certain types of innovation (technology-based and radical innovative activity) and exclude other more common forms of innovative activity such as service or organisational innovation.

The NIEIR State of the Regions report does calculate patent applications per 100,000 population for the Sydney Central region. NIEIR calculates 106.89 patent applications per 100,000 (applications between 1994 and 2011). This compares with the Australian average of 21.01.

Stakeholders

Stakeholders were identified from a process of stakeholder mapping. Nineteen stakeholders were identified from this process. This list was refined and eight stakeholders were interviewed

The number of stakeholder interviews was less extensive than for other case studies conducted as part of this project and the comments from the interviews should thus be interpreted with this in mind. However, interviews were conducted with the major stakeholders in the development (including the developer Landcom who could also offer views on the differences between greenfield and infill developments) and by use of 'snowballing techniques' an independent university researcher was approached who was able to contribute important observations on social inclusion.

Stakeholder interviews were conducted from 3 to 10 December 2012. The list of stakeholders interviewed is shown below.

Table 14: List of stakeholders

Interviewee	Position and Organisation	Role of organisation	Category
Cara Levinson	Community Development Co-ordinator – Green Square, City of Sydney	Council	Social
Kemal Hughes	Senior Development Manager – Green Square, Landcom	Developer	All
Sarah Duignan	Development Manager – Green Square, Landcom	Developer	All
Dr Hazel Easthope	University of NSW	Researcher	Social
Daniel Cutler	NSW Department of Planning, Green Square	State Planning	Planning
Lila M Contziu	Manager Green Square and Major Development Projects, City of Sydney	Council	Planning
John Davies	Manager Planning, Green Square, City of Sydney	Council	Planning
Sarhn McArthur	Co-founder – Green Square Growers	Community Group	Social

Positive and negative views about population growth

The Green Square case study was administered using the same techniques as all the previous nine cases. However, the fundamental purpose of this case study was to act as a comparator of another form of population growth. Population growth across Australia is occurring in three areas: outer metropolitan areas or suburbs, regional cities and inner city metropolitan areas. The first and second of these areas are represented in the other cases. Green Square acts as an exceptional case for the inner city areas.

Stakeholders suggested that Green Square was an ideal site for population growth as the area is well connected to transport (buses and trains), has links to major arterial roads and is close to the Central Business District (CBD) and airport, and it has existing infrastructure (roads, sewer, water). As there is consensus over the suitability of Green Square for development, Green Square stakeholders did not have the same depth of issues as seen in the other cases, where development areas were more contested. This consensus, combined with the nature of land use changes in Green Square (industrial to residential) meant there was minimal conflict and feeling of loss around the changes. In the greenfields cases the large land use changes from agricultural/ rural uses to residential uses resulted in a feeling of loss for the current residents.

Stakeholders in Green Square all identified similar issues and from similar perspectives, for example service provision was a prominent issue. In other cases this issue would have been discussed from the perspective of service provision, service quality, public or private service providers and links to employment. In Green Square the issue was primarily about service availability.

This could be because of a number of factors. Firstly it could be partly explained by the relative concentration of socio-economic demographic within the area. Although the other cases had examples of particular household types concentrating in specific areas (for example couple households with children in new greenfield areas), in aggregate level across the case study there was a large degree of socio-economic mix within the area. There were many examples of pockets of high disadvantage areas in close proximity to other areas at the opposite end of the scale. Again, this could in part be explained by the smaller spatial boundary of Green Square; with the unit of analysis being a sub-set of a Local Government Area. If the boundary were extended to the City of Sydney Council boundary the socio-economic mix would broaden significantly.

The smaller spatial unit of analysis in Green Square, compared with the other cases, also impacts on the data collection available and the number and variety of stakeholders. Stakeholders that could speak from a perspective of experiencing population growth in Green Square were harder to identify than in other cases. Also because of the small number of existing residents prior to the development, there were not as many stakeholder comments that spoke from a before-and-after perspective. These elements limit the extent to which we can draw conclusions from this case.

The main negative issues with population growth that stakeholders discussed were public transport access and the coordination of public and active transport options (walking and cycling) were cited as major challenges, which the area needed to address in order to cater for future population growth.

As the area that is scheduled for development is former industrial land, stakeholders identified issues of land contamination (asbestos) and the need to augment existing infrastructure in order to cope with the land use change from industrial to residential and commercial. The work associated with this augmentation is at comparatively higher cost to developers and Council (i.e. social infrastructure like parks/libraries, etc.) because of the inner city location and high land values. These costs also flow through into the variety and price of the residential housing stock produced, and influence the demographics and other social characteristics of the area. There are both positive and negative consequences of these flow-on effects.

A major benefit of population growth that stakeholders spoke of was the opportunity to do something innovative and large scale. The City of Sydney has major plans in place for the area in terms of low emissions energy supply, water recycling and re-use, and waste collection. For many stakeholders these projects were exciting and made living and working in Green Square desirable. Stakeholders noted that many residents were ecologically conscious, and 'green' energy and other energy, water and waste efficiency activities were seen as positive from both a resource efficiency, cost and environmental perspectives.

These projects however, were not without their downsides. As with the introduction of any new technology or system there are learning costs and delays. The presence of the NSW Government-owned land development corporation Landcom was seen by many stakeholders as essential for enabling these new systems to be developed and implemented.

The development of Green Square has been in the planning stages for more than a decade, and the finalisation of all aspects of the area, including the Town Centre precinct, is still more than a decade away. This has created frustration and development 'fatigue' for some current residents of the area. Stakeholders noted that these people feel they are having to put up with the negative aspects of development such as congestion, lack of parking and so on, yet the benefits of higher densities such as more services and higher urban amenity, still seem to be far off.

Other positive benefits of population growth mentioned by stakeholders include the ability to re-define and update the use of heritage buildings. As noted, the Green Square area was previously an industrial site, but adjacent areas were once a racetrack and market gardens. The re-use of heritage buildings in a modern situation allows the area to retain some links to these previous uses, but also creates a more distinctive character for the new development areas.

These issues are discussed in further detail in their respective theme categories. Quotations from the interviews are used throughout the text to provide further illustration. Quotations are shown in *italics*.

Environmental issues

Resource efficiency of higher density living

Stakeholders noted that although there is a perception that apartment dwelling is less resource intensive in terms of energy and water use, the evidence showed that this was not always the case. One of the causes of the higher water and electricity use that stakeholders mentioned was that in many cases water, and in some circumstances electricity and gas, were not individually metered within apartments.

'There is a recent report by a government agency or Energy Australia that shows that apartments use more not less energy. In the case of water, apartments are not individually metered so the households have no incentive to use less.'

Green infrastructure

As noted above and in the earlier background section the City of Sydney has plans to implement new energy, water and waste systems into the Green Square area as a pilot project for these systems. The plans for Green Square are part of wider efforts to reduce the greenhouse gas emissions in the LGA by 70% of 2006 levels by 2030. Tri-generation energy systems will displace current electricity generation from coal power stations.

Generally stakeholders were positive about the implementation of these new systems and saw them as a good addition to the area. The 'green' infrastructure plans for the LGA were seen as a positive extra benefit, but stakeholders felt it was not a decisive factor in householders' decisions to move to the area.

'Sustainability of a development can be a selling point for residential not commercial, I think any market research would lend credence to that view but it is only one selling point and is probably ranked tenth on the list for buyers.'

Other stakeholders also highlighted the complexities involved in adopting new systems and new ways of doing things.

'The tri-generation systems bring a lot of complexity both from legal sense in that you have to change strata laws, and work out who owns what and who is responsible for what, but also from a practical perspective; generally developers' partners want to do business as usual, so they don't want to do new tri-gen stuff. There is also the sense of uncertainty, yes we know it has been done in Europe but no-one has any experience with it here.'

Noise pollution

A number of stakeholders also mentioned the impacts of noise pollution on the residential population, including external noise from road and air traffic, but also from other residents. Similar concerns were also raised about smell transmission (from cooking etc.) within apartments. There was a sense that higher-density living curtailed individuals' ability, not only to make noise, but also to find quietness. The need to provide spaces for both within these new high-density developments was emphasised by many stakeholders.

'In Green Square there are a number of major roads and the airplanes coming overhead to the airport nearby. Also the noise from other apartments – whether residents think they can make noise or not?'

Heritage items within the new development

The Green Square area has a number of heritage buildings, including buildings from the former South Sydney hospital site and the old Victoria Park race track. New development is providing an opportunity for these buildings to be integrated and have a new function. Stakeholders felt they provided some 'old' character among the new developments.

The recognition of these heritage and other environmental assets was not universal among stakeholders. The transition from industrial to residential land uses meant that a number of stakeholders held the view that there were minimal heritage and biodiversity assets in the area, especially when compared with greenfields development sites in outer metropolitan areas.

'This is an industrial regeneration site, so as far as I know there is not much environment to protect, and only a few heritage sites although there are more here than in inner city urban renewal sites. It is very different from an environmental point of view to other outer metropolitan greenfields.'

Social issues

Household mix dominated by single person and couple households

As Green Square is an inner city suburb and the housing stock is dominated by one- and two-bedroom apartments, stakeholders described the typical household as being a single person or couple household. These types of households are expected to continue to dominate as the area grows. Stakeholders stated that developers play a role in the creation of this concentration of characteristics by having a preference for developments that are one- and two-bedroom only.

'When developers are in charge they make decisions about the make-up of the development in the interest of profit – so there are lots of one- and two-bedroom apartment stock, but this has flow-on effects for the demographics of growth areas.'

Although the perception among stakeholders was that there were fewer households with children, some acknowledged that this was changing with more couples deciding to stay in the area when they have their first child, although when subsequent children came along households were more likely to leave. While there are a few three bedroom houses and apartments within Green Square, stakeholders noted that the cost of these dwellings was close to \$1million, and beyond the budgets of many households.

'In greenfield sites the only things built are four-bedroom homes, whereas in Green Square it is all one- and two-bedroom flats. So if you are a couple it's more attractive to move into the city but if you have one or two kids you have to move out. Housing diversity is definitely an issue.'

Stakeholders commented that so far, the Green Square developments had attracted a large number of owner-occupiers compared with other new development areas. However it is uncertain whether this will continue to be the case when the bulk of the new residential development for the area begins in the next few years. A number of stakeholders mentioned the extensive sale of apartments to overseas owners.

'Overseas buyers can buy up to 85% of stock because of federal government regulations and the local council has no ability to control that'

Generating social interaction within new developments

The importance of generating social interaction as a first step to instilling social cohesion was raised by multiple stakeholders – although there appeared to be different opinions about the role of social interaction in developing social, or community cohesion. All stakeholders were very aware of the need to create places that allow interaction between people, although stakeholders' views about what this meant in terms of the quality of the interactions and what the flow-on benefits for community cohesion might be were less evident.

'We need to look at incidental interactions, such as between people in lobbies, hallways and lifts, rather than just interactions with friends and family. We need to understand the types of interactions people have in these places and how people feel about that ... are they comfortable, threatened, annoyed?'

Stakeholders identified a number of factors that could possibly work against the creation of community and social cohesion within Green Square. One of these was a transient and temporary population. This is due to households renting for a year or so and then moving on to other areas, and also to household members staying within the area for only part of the year.

A number of stakeholders discussed the phenomenon of Chinese grandparents. They pointed out that many residents in the area are of Chinese background, and that when these households have children, grandparents visit from China for up to six months of the year to look after the grandchildren while the parents return to work. Anecdotal evidence of this phenomenon has been strong enough for the local council to implement some social and cultural programs (morning Tai Chi, and English Chinese classes) for these part-time residents and search for ways to document the phenomenon more fully.

'There is a degree of seasonality and transiency to the population, for example the Chinese grandparents come to look after the grandkids for a few months, then go away, then come back again next year.'

Health impacts of high-density living

The focus on the need to plan for social interaction and develop community cohesion was linked to some of the potentially negative health impacts of higher density living. Stakeholders spoke of the importance of green spaces, jogging tracks, dog exercise areas and quiet places for the residents in the area.

On the whole stakeholders thought that the planning for these areas was in place and there was not a high degree of concern that these recreational facilities would not be provided. There was acknowledgement that the City of Sydney Council was financially well resourced and had significant leverage with developers to ensure that high quality recreation infrastructure was in place for the community. Some stakeholders said this was very different to what happens in new development areas in outer metropolitan areas.

'In this case City of Sydney probably better equipped to deal with this than most other councils because of their size and resources – more like a government agency than local council – they have more strategic planners at City of Sydney than NSW Department of Planning has.'

Mixed response of existing community to new development

Stakeholders spoke of a mixed reception to the new development in the existing community. The Green Square site was formerly an industrial site, and many of the industrial sites have been empty for a number of years. The master plans for the Green Square site have also been in place for almost a decade so many residents who did not wish to remain in the area, post development, have sold up and moved elsewhere. Therefore, the mixed reaction is from residents that have been largely aware of the development and have in many cases been advantaged by rising property values in the area.

'There are no existing residents in town square centre boundary, so that is easier. But for the existing properties immediately adjacent, there were some complaints when plans initially put in two years ago, but since then nothings really noticeably happened, so no further complaints (people probably think it will never happen). However they should see an uplift in the value of their properties, and they get greater connectivity.'

'Because it is a former industrial site there wasn't much community resistance to higher density. However down towards Roseberry there was a little bit more opposition – partly because of congestion, but also because of the single, detached dwelling character of the area, and anything that threatens this character creates opposition.'

Among the residential population, stakeholders spoke of both a sense of excitement within the existing population about the new developments and the additional infrastructure (both public and private) and amenity that the new developments bring. Stakeholders also mentioned a sense of fatigue; the Green Square development has been in planning stages for over a decade now, and finalisation of development is still a further decade away. This is leading to a sense of fatigue and frustration with the pace of service delivery, particularly in residents that moved to the area because of the proposed development.

Stakeholders also commented on the disconnect that the slow and fragmented pace of development was having on the areas and on the ability to create a unified community. People in inner city areas value proximity to services and employment highly, and are willing to trade off cost (of housing) and dwelling size for this proximity. When these new development do not deliver the benefits of proximity to the level of new residents expectation, these new residents become frustrated and can disengage from the area.

'Residential growth to date has been happening in the Zetland and Victoria Park area, so these areas have been the focus of planning efforts in the area. These areas have the benefits of new shops, supermarkets etc. However, while the negative impacts such as traffic, congestion and lack of parking are being felt across the wider area including places Rosebery/Beaconsfield, these areas are not necessarily getting access to the benefits.'

Economic issues

Transport infrastructure

The provision and availability of public transport was a major issue for Green Square stakeholders. There were concerns that although the suburb was close to the city, and was defined as high density with high levels of public transport usage, residents were not accessing these public transport options due to a lack of service availability and the lack of coordination of public transport with other active modes of transports.

'Even though Green Square is close to the city, congestion on roads can mean it takes a long time to get anywhere, and the eastern part of Green Square is not that close to the train station, so those residents use buses, many buses by the time they get here in peak are full and will not stop.'

The availability of parking within new developments was also a significant issue for stakeholders, both as a point of contention between new and old residents, and in relation to the ability of the area to function effectively as a commercial district.

'Traffic congestion is one of the things people are really concerned with ... not so much in Green Square itself, but other developments, existing residents get upset because there isn't any parking provided so they think new people will take existing on-street parking.'

Access to services not employment the key issues

The proximity of Green Square to Sydney's central business district (CBD) labour market means that actual employment development within the Green Square area is less important with stakeholders than accessibility to the Sydney CBD. The lack of availability of local services such as retail and medical services was viewed as an issue by stakeholders, not because of the employment they would provide, but more because the services themselves are needed.

'They built residential stock but not retail or commercial, so there were no supermarkets, chemists etc. This should have been staged but no profit for the developers in doing it this way.'

'People don't have the proximity to services they thought they would have this close to the city.'

'I think population growth always seems to exceed facilities. It's been seven years – people have been crying out for somewhere to go shopping.'

Local entrepreneurship and support for home-based businesses

Employment and enterprise development activity is focusing on supporting home-based businesses and social enterprises.

'We are trying to allow spaces here for small enterprises so that residents can work from home and don't have to travel out ... also need spaces for social enterprises as there is not a good recognition of their needs elsewhere.'

Housing affordability

As with most inner city areas Green Square is a comparatively expensive place to live. Stakeholders noted that one of the consequences of the high housing prices was reduced socio-economic diversity.

'There could be displacement of less affluent people as land values go up, as it used to be quite a working class area. The affordable housing levy goes some way to addressing this.'

Stakeholders thought housing stress was particularly an issue for renters in the Green Square area.

'There would still be a fair amount of people under housing stress, particularly renters and there are a lot of renters in Green Square. This is a big difference between inner and outer metro areas – in the greenfield sites they are mainly owner occupiers.'

Challenges and issues of population growth in Green Square

Case limitations

Green Square is different to the other cases studied in this research. The reason for investigating Green Square was as an exemplar of population growth in an inner city area. The two primary sites of population growth in Australia are greenfield and infill sites. In a number of the case studies the area under investigation included both. For example this is the case in Blacktown. For most case studies investigated, however, development is occurring mainly in greenfield sites. In Green Square the development is occurring only on a brownfield (old industrial) infill site.

The Green Square case study was also different in terms of scale. In each of the previous case studies an LGA, or a group of LGAs was the unit of analysis. In the Green Square case study, the subject area is part of an LGA. Different stakeholders also define the boundaries of the area slightly differently and a distinction was often made between the Green Square Town Centre and the Green Square village.

The small geographical area also meant there was limited information available on the area that was not sourced from the LGA authority – the City of Sydney. In research practice this makes verification of data difficult. A smaller group of stakeholders was interviewed than in other case studies for this project and stakeholders interviewed who were external to council had close links to council programs and activities. These are qualifications to the conclusions, though the conclusions are sound based on the data and information available.

Similarities in meta themes

Despite the above features that were unique to the Green Square case, there were a number of meta themes that were also present in many of the other case studies.

Access to public transport was an issue with stakeholders. There are some public transport assets in Green Square, including a train station on the East Hills–Airport line and major bus routes through the area. So the issue was not so much the provision of transport infrastructure but more the co-ordination of transport, including pedestrian access to and from the train station, and the need for increased bus numbers during peak times. The integration of active transport options including walking and cycling also needed to be included into the planning for transportation.

The indicator data shows that public and active transport modes are already used at much higher rates than in the other cases, but transport still came through in the stakeholder interviews as a major concern. This demonstrates two things: firstly, it shows that stakeholders make no comparisons between the severity of the problems in their area and the severity of the same problems in other areas. Secondly, it shows the importance of creating baselines in the indicator data and deciding whether to compare from, baseline to current or across cases. Each way will tell a different story.

Service provision and staging

Related to the provision of public transport is also the concern at the pace, staging and delivery of a wider array of services to new areas including retail, health, medical and community services. In all of the case studies the rate at which these services were delivered seemed to lag significantly behind community expectations. In Green Square this was exacerbated by a sentiment with stakeholders that they have made significant financial trade-offs to live in the inner city because of the proximity to these services. Frustration was evident with stakeholder particularly around retail, with the availability of a supermarket and grocery store only just being recent additions to the area.

This frustration is not less than that experienced by stakeholders in the other cases, except perhaps in the expectation of how people access these services and the associated distance. There was widespread understanding that householder in outer metro and regional cities would most likely have to drive to reach these services, and they would be some distance from where the new developments are located. In Green Square there was the expectation that these services would be close by and reachable by walking. The fact that some stakeholders still felt they needed to have a car to access these services in Green Square is potentially more problematic in an area that is not designed for significant car use.

Social interaction in new communities

Another issue that came through strongly in the stakeholder interviews was the need for social interaction in new communities. The need came from the view that population growth was being accommodated through big new developments where everyone was new to the area. Stakeholders felt that if early efforts were not made for people to meet and interact then new households would retain their previous social networks. In turn, it was felt that if new residents did not interact that a community would not develop. Stakeholders across all the cases identified a sense of community, and community cohesion as important and that this sense of community had impacts on the vitality and dynamism of the area, pride in the place they lived. Other stakeholders also mentioned the importance of community cohesion for health and wellbeing and crime and feelings of safety.

Stakeholders discussed the importance of both incidental and planned social interactions. Stakeholders felt these interactions were important as a means to preventing isolation and building a sense of community, which in turn had flow-on benefits such as mental and physical wellbeing of residents and environmental impacts especially around a shared vision of sustainable resource use. For example a community acceptance to have less water intensive plants in open spaces or the install new energy and waste system. The environmental aspects were particularly evident in Green Square as the City of Sydney Council is implementing a new energy, water and waste system with a significantly reduced carbon emissions profile.

What was less clear from stakeholders was how these social interactions translated into a shared vision. The importance of community infrastructure – libraries, community centres and other recreation facilities were identified as critical in cementing community cohesion. The lagged provision of this infrastructure was also identified as preventing or slowing community development, but the how, why and when the lack of community infrastructure impacts of social cohesion requires further research to determine.

Areas of difference

The main differences between Green square and the other case studies stem from their differing demographic profiles. There is correlation here between the character of the built form and the demographic profile. Single person and couple households dominate the area, with percentages of young children (11 years and younger) and older people (60 years and over) lower than in NSW as a whole.

Housing costs, as with most inner city areas, are also significantly higher. The demographic profile means that there is less socio-economic diversity in the area. How this will impact on social cohesion now and into the future is unknown. Housing affordability was raised by a number of stakeholders as an issue but this was usually in the context of the provision of affordable housing in Green Square. The City of Sydney has a scheme in place that will ensure 2-3% of the total number of dwellings within Green Square are affordable.

Access to local employment was not raised as a major issue by stakeholders, and the higher participation rate as noted in the indicator section, together with the area's close proximity to the city, suggests that access to employment is not an issue. The background section shows the resident labour force is concentrated in service industries, from scientific, professional, financial and creative services through to retail and food service industries. Local economic development issues spoken of by stakeholders included the need for space for meetings and for networking activities for home-based businesses, and the need for incubators for new and social enterprises.

Capacity and resources of local council

All of the stakeholders made comments about the capacity and resources of the local council to deliver new services and infrastructure for the area. They noted that this was a completely different scenario to those faced by councils in greenfield areas. There was little concern among stakeholders that facilities and infrastructure would not be provided, however many stakeholders were frustrated about the length of time residents needed to wait before facilities became available. This suggests the sequencing of infrastructure and service provision is a concern for all areas of population growth, not just greenfield sites.

Information gaps and opportunities

Detailed analysis of data availability, gaps and possible alternative measures is provided below in Tables 15–18.

A summary of theme and indicator data is provided in Tables 19–22.

Green Square is an area that sits within the Sydney LGA and as such, accessing data for this smaller area was difficult due to a lack of data at this level. In most cases the data presented in the following tables is at the LGA level.

Table 15: Natural Capital - data availability, gaps and alternative measures

Natural Capital				
Theme	Indicator	Measure	Data availability at case study level	Alternative case study level measure (if applicable)
Climate and atmosphere	1. Air quality	Number of days in year that key pollutants exceed national air quality standards	Available	n/a
	2. GHG emissions	Net greenhouse gas emissions	Not available	No alternative measure available
		Greenhouse gas emissions per capita	Not available	No alternative measure available
	3. Energy usage	Residential and non-residential electricity use	Available	n/a
Ecosystems and biodiversity	4. Terrestrial ecosystems	Extent of native vegetation	Not available	No alternative measure available
		Extent and distribution of protected areas	Not available	No alternative measure available
	5. Vulnerable and endangered species	Number of endangered species, population and communities listed under the <i>EPBC Act</i>	Not available	No alternative measure available
	6. Reestablishment of local vegetation communities	No. hectares under restoration by council and volunteers	Available	n/a
Water	7. Water consumption and availability	Water consumption (per capita)	Not available	Average water usage – units and houses
		Water availability to meet demand	Not available	Water storage level (%)
Land	8. Ground cover	Ground cover	Not available	No alternative measure available
Waste	9. Waste disposed to landfill	Waste disposed to landfill	Not available	Household waste per person (kg)
	10. Recycling rates	Proportion of waste generated being recycled	Not available	Household recycling per person (kg)

Table 16: Social and Human Capital - data availability, gaps and alternative measures

Social and Human Capital				
Theme	Indicator	Measure	Data availability at case study level	Alternative case study level measure (if applicable)
Skills and education	11.Educational attainment and qualifications	Highest level of educational attainment	Available	n/a
	12.Education services	Ratio of childcare places to population of children aged 0–5 years resident in the LGA	Not available	No alternative measure available
		Ratio of primary school places to population of primary aged children resident in the LGA	Not available	No alternative measure available
Health	13.Self-reported health status	% reporting fair to poor health	Available	n/a
	14.Life expectancy	Life expectancy	Not available	No alternative measure available
	15.Persons who smoke daily	% of adults who are daily smokers	Available	n/a
	16.Obese persons	% of adults that are overweight or obese	Available	n/a
	17.Mental health	Proportions of adults rated as psychologically distressed	Available	n/a
	18.Access to open space	Open space per capita	Not available	Area of park and open space (Ha)
Institutions and governance	19.Fair and functioning institutions and governance	Levels of trust in key institutions	Not available	No alternative measure available
	20.Community engagement	Proportion of people who volunteer	Available	n/a
Employment	21.Under-employment	Underemployment rate	Not available	Hours worked per week
	22.Unemployment	Unemployment rate	Available	n/a
	23.Local employment	% people working and living in the same LGA	Not available	Participation rate
Security	24.Security	Feelings of safety	Not available	No alternative measure available
		Incidence of personal and household crime	Not available	No alternative measure available

Table 17: Economic Capital - data availability, gaps and alternative measures

Economic Capital				
Theme	Indicator	Measure	Data availability at case study level	Alternative case study level measure (if applicable)
Wealth	25. Household net wealth	Household net worth	Not available	Wealth per household
Housing	26. Housing supply gap	Net dwelling gap	Not available	Average dwelling price
	27. Housing affordability	Low income households in rental stress	Available	n/a
		Low income households in mortgage stress	Available	n/a
Transport and infrastructure	28. Mode of transport to work	Car as driver	Available	n/a
		Car as passenger	Available	n/a
		Public transport	Available	n/a
		Walking	Available	n/a
		Bicycle	Available	n/a
		Worked at home	Available	n/a
		Did not go to work	Available	n/a
		Other	Available	n/a
	29. Transport infrastructure	Kilometres of dedicated cycling paths	Available	n/a
	30. Access to broadband Internet	% households with broadband connection	Available	n/a

Income	31.Income disparity	Disparity in disposable household weekly income	Not available	Social security take-up; Household debt service ratio; Household debt to gross income ratio
Productivity and	32.Multifactor productivity	Multifactor productivity	Not available	No alternative measure available
	33.Innovation	Business with innovative activity	Not available	Patent counts per population
Socio-economic status	34.Relative socio-economic disadvantage	ABS Index of Relative Socioeconomic Disadvantage (IRSD) score	Available	n/a

Table 18: Contextual indicators - data availability, gaps and alternative measures

Contextual Indicators				
Theme	Indicator	Measure	Data availability at case study level	Alternative case study level measure (if applicable)
Population	35.Population size	Number of persons	Available	n/a
	36.Rate of growth	Annual rate of population growth	Not available	Average rate of change
	37.Population density	Number of persons per square kilometre	Available	n/a
	38.Gender and age profile	Gender and age profile	Not available	No alternative measure available
Land use	39.Land use change	Rates of greenfield development	Not available	No alternative measure available
Cultural diversity	40.Proficiency in spoken English	% who do not speak English well or not at all	Available	n/a
	41.Indigenous population	% Indigenous	Available	n/a
	42.Country of birth	Country of birth	Available	n/a
Regional migration	43.Net overseas migration	Net overseas migration	Not available	No alternative measure available
	44.Overseas born	% born overseas	Available	n/a

	45.Domestic or internal migration	Net number of regional internal migrants	Available	n/a
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Summary of theme and indicator data for Green Square

Table 19: Natural capital - data figures

Natural capital						
Theme	Indicator	Measure	Data	Frequency	Spatial resolution	Data source
Climate and atmosphere	1. Air quality	Number of days in year that key pollutants exceed national air quality standards	0 exceedences for NO ₂ , O ₃ , SO ₂ ; Exceedences for PM10 (2006; 2007; 2009) and NEPH (2006; 2007; 2009–2012)	Annual (2005-2010)	Randwick air quality monitoring station	NSW EPA
	2. GHG emissions	Net greenhouse gas emissions	Not available	n/a	n/a	n/a
		Greenhouse gas emissions per capita	Not available	n/a	n/a	n/a
	3. Energy usage	Residential and non-residential electricity use (MWh)	Households 408,965 (2012), 5.4% decrease from 2007 Small business 767,727 (2012), 16.6% decrease from 2007 Large business 2,717,516 (2012), 5.6% decrease from 2007	Annual (2006-2012)	LGA	Local SoE
Ecosystems and biodiversity	4. Terrestrial ecosystems	Extent of native vegetation	Not available	n/a	n/a	n/a
		Extent and distribution of protected areas	Not available	n/a	n/a	n/a

	5. Vulnerable and endangered species	Number of vulnerable and endangered species	Not available	n/a	n/a	n/a
	6. Reestablishment of local of vegetation communities	Number of hectares under restoration by Council and volunteers	Not available	n/a	n/a	n/a
Water	7. Water consumption	Average water usage	Units 166 (2011-12), 0.1% decrease from 2003 Houses 143 (2011-12), 3.9% decrease from 2003	Annual (2003-2012)	LGA	Local SoE
		Water storage level (%)	95.9% (2011-12)	Annual (2003-2010)	LGA	Local SoE
Land	8. Ground cover	Ground cover	Not available	n/a	n/a	n/a
Waste	9. Waste disposed to landfill	Household waste per person (kg)	112kg/person (2011-12), 51% decrease from 2003	Annual (2003-2012)	LGA	Local SoE
	10. Recycling rates	Household recycling per person (kg)	214kg (2010), 155% increase from 2003	Annual (2003-2012)	LGA	Local SoE

Table 20: Social and human capital - data figures

Social and human capital						
Theme	Indicator	Measure	Data	Frequency	Spatial resolution	Data source
Educational attainment	11. Educational attainment and qualification	% adults with tertiary qualifications	22.2% (2001), 39.2% (2011), Increase	5 years (Census)	Local	ABS
		% adults with certificate/ adv diploma	20.2% (2001), 18.5% (2011), Decrease	5 years (Census)	Local	ABS
	12. Education services	Ratio of childcare places to population of children aged 0–5 years resident in the LGA	Not available	n/a	n/a	n/a
		Ratio of primary school places to population of primary aged children resident in the LGA	Not available	n/a	n/a	n/a
Health	13. Self-reported health status	% reporting fair to poor health	12.1% (2007), NSW 12.7% (2007)	2004 & 2007	LGA	PHIDU, compiled from ABS & NHS data
	14. Life expectancy	Life expectancy	Not available	n/a	n/a	n/a
	15. Persons who smoke daily	% of adults who are daily smokers	20.9% (2007), NSW 15.3% (2007)	2004 & 2007	LGA	PHIDU, compiled from ABS & NHS data
	16. Obese persons	% of adults who are overweight or obese	38.0% (2007), NSW 37.0% (2007)	2004 & 2007	LGA	PHIDU, compiled from ABS & NHS data
	17. Mental health	% of adults rated as psychologically distressed	12.7% (2007), NSW 9.3% (2007)	2004 & 2007	LGA	PHIDU, compiled from ABS & NHS data

	18. Access to open space	Area of park and open space (Ha)	65-68 (2004-2009)	Annual (2004-209)	LGA	Local SoE
Institutions and governance engagement	19. Fair and functioning institutions and governance	Levels of trust in key institutions	Not available	n/a	n/a	n/a
	20. Community engagement	% of volunteering	12.4% (2006), 14.0% (2011), Increase	5 years (Census)	Local	ABS
Employment	21. Underemployment rate	Hours worked per week	25.7 hours (2011), 0.8% increase from 2007	Annual	NIEIR region	SoR
	22. Unemployment rate	Unemployment rate	6.4% (2011), NSW 5.9% (2011), Increase	5 years (Census)	Local	ABS
	23. Local employment	Participation rate	70.3% (2011), NSW 59.6% (2012)	5 years (Census)	Local	ABS
Security	24. Security	Feelings of safety	Not available	n/a	n/a	n/a
		Incidence of reported crime	Not available	n/a	n/a	n/a

Table 21: Economic capital - data figures

Economic capital						
Theme	Indicator	Measure	Data	Frequency	Spatial resolution	Data source
Wealth	25. Household net wealth	Wealth per household	\$1,251,000 (2001), \$1,391,000 (2012), Increase	Annual	NIEIR region	SoR
Housing	26. Housing supply gap	Average dwelling price	\$581,900 (2001), \$757,000 (2012), Increase	Annual	NIEIR region	SoR
	27. Housing affordability	% of low income households in rental stress	18.6% (2006), NSW 25.0% (2006)	5 years (Census)	LGA	PHIDU
		% of low income households in mortgage stress	4.6% (2006), NSW 9.35% (2006)	5 years (Census)	LGA	PHIDU
Transport and infrastructure	28. Mode of transport to work	Car as driver	40.6% (2006), 35.3% (2011), Decrease	5 years (Census)	Local	ABS
		Car as passenger	5.1% (2006), 3.8% (2011), Decrease	5 years (Census)	Local	ABS
		Public transport	28.6% (2006), 34.8% (2011), Increase	5 years (Census)	Local	ABS
		Walking	8.3% (2006), 8.3% (2011), No change	5 years (Census)	Local	ABS
		Bicycle	1.9% (2006), 3.6% (2011), Increase	5 years (Census)	Local	ABS
		Worked at home	2.5% (2006), 2.5% (2011), No change	5 years (Census)	Local	ABS
		Did not go to work	8.3% (2006), 6.7% (2011), Decrease	5 years (Census)	Local	ABS
		Other	1.2% (2006), 0.9% (2011), Decrease	5 years (Census)	Local	ABS
	29. Transport infrastructure	Kilometres of dedicated cycling	Not available	n/a	n/a	n/a

	30. Access to broadband Internet	% households with broadband	55.8% (2001), 76.5% (2006), Increase	5 years (Census)	LGA	ABS
Income	31. Income disparity	Social security take-up	5.9% (2011), 1.7% decrease from 2007	Annual	NIEIR region	SoR
		Household debt service ratio	9% (2001), 19% (2011), Increase	Annual	NIEIR region	SoR
		Average dwelling price to household disposable income	5.2 (2001), 5.4 (2011), Increase	Annual	NIEIR region	SoR
Productivity and innovation	32. Multifactor productivity	GRP per capita	Not available	n/a	n/a	n/a
	33. Innovation	Patent counts per population	106.89 per 100,000 (1994-2011), national average 21.01	Annual	NIEIR region	SoR
Socio-economic status	34. Relative socio-economic disadvantage	ABS IRSD score	Green Square 1074, City of Sydney 1027, Greater Sydney 1020, NSW 1000	5 years (Census)	LGA	ABS

Table 22: Contextual indicators - data figures

Contextual Indicators						
Theme	Indicator	Measure	Data	Frequency	Spatial resolution	Data source
Population	35. Population size	Number of persons	2,469 (2001), 13,295 (2011), Increase*	Annual	Local	ABS
	36. Rate of growth	Average rate of change	157% per annum 2001–2011	Annual	Local	ABS
	37. Population density	Number of persons per square kilometre	823 (2001), 4,431.7 (2011), Increase	Annual	Local	ABS
	38. Gender and age profile	Gender and age profile	Not available	n/a	n/a	n/a
Land use	39. Land use change	Rates of greenfield development	Not available	n/a	n/a	n/a
Cultural diversity	40. Proficiency in spoken English	% do not speak English well or not at all	5.0% (2001), 5.0% (2011), Increase	5 years	Local	ABS
	41. Indigenous population	% Indigenous	2.3% (2001), 0.8% (2011), Increase	5 years	Local	ABS
	42. Country of birth	Country of birth	See Table 23	5 years	LGA	ABS
Regional migration	43. Net overseas migration	Net overseas migration	Not available	n/a	n/a	n/a
	44. Overseas born	% born overseas	36.2% (2011), 48.4% (2011), Increase	5 years	Local	ABS
	45. Domestic or internal migration	Net number of regional internal migrants	Not available ⁹	Annual (2006-2010)	SLA	ABS

⁹ ABS (cat. no. 3412.0) Migration, Australia, 2010-11 experimental regional internal migration estimates. Data for Green Square unavailable.

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Appendix

Table 23: Contextual indicators - country of birth (Source: ABS 2012b)

*data unavailable for Green Square, and therefore data below relates to Sydney LGA.

Country of birth	2001	2011	Percentage point change 2001-2010
Australia	45.7%	44.3%	-1.4%
Bosnia and Herzegovina	0.1%	0.1%	0.0%
Cambodia	0.1%	0.1%	0.0%
Canada	0.3%	0.5%	0.2%
China (excl. SARs and Taiwan)	2.4%	5.1%	2.6%
Croatia	0.1%	0.1%	0.0%
Egypt	0.2%	0.1%	-0.1%
Fiji	0.2%	0.2%	0.0%
Former Yugoslav Republic of Macedonia	0.1%	0.1%	0.0%
Germany	0.6%	0.7%	0.1%
Greece	0.7%	0.5%	-0.3%
Hong Kong (SAR of China)	1.2%	1.1%	-0.1%
India	0.5%	1.1%	0.5%
Indonesia	2.1%	2.0%	0.0%
Iraq	0.0%	0.0%	0.0%
Ireland	0.8%	1.0%	0.2%
Italy	0.5%	0.5%	0.0%
Japan	0.7%	0.8%	0.1%
Korea, Republic of (South)	1.0%	1.6%	0.7%
Lebanon	0.4%	0.2%	-0.1%
Malaysia	1.0%	1.1%	0.2%
Malta	0.2%	0.1%	-0.1%
Netherlands	0.3%	0.3%	0.0%
New Zealand	3.9%	3.1%	-0.7%
Philippines	0.5%	0.8%	0.3%
Poland	0.3%	0.3%	0.0%
Singapore	0.6%	0.6%	0.0%
South Africa	0.5%	0.6%	0.1%
South Eastern Europe	0.3%	0.1%	-0.2%
Sri Lanka	0.1%	0.2%	0.0%
Thailand	0.8%	2.0%	1.2%
Turkey	0.2%	0.3%	0.0%
United Kingdom, Channel Islands and Isle of Man	5.6%	5.7%	0.1%
United States of America	0.8%	1.2%	0.4%
Vietnam	1.1%	1.0%	-0.1%
Born elsewhere	6.5%	7.6%	1.1%
Country of birth not stated	19.6%	15.0%	-4.7%