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Institute for Sustainable Futures

IMPLICATIONS OF POPULATION GROWTH IN AUSTRALIAN CITIES: CASE STUDY - BLACKTOWN, NSW

2012

ABOUT THE AUTHORS

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Case study summary

Blacktown is the largest local government area (LGA) in terms of population in the Sydney Metropolitan area. Over the past decade Blacktown's population has increased by 17.8%, from 258,330 in 2001 to 313,330 in 2011. This represents an annual growth rate of 1.69%, compared with the growth rate of the Sydney Metropolitan area (1.10% per annum) and the state of NSW (0.93% per annum).

Blacktown is part of the 'North West Growth Centre', one of two areas in Sydney identified by the NSW Government to accommodate a significant proportion of Sydney's growth over the next 25 to 30 years. The North West Growth Centre as a whole will see approximately 70,000 new dwellings for 200,00 people built on land to be released over this period.[1] As part of this Growth Centre, Blacktown's rapid population growth is projected to continue, with its population forecast to exceed 366,000 people by 2021 and 480,000 by 2036. This growth will largely be achieved through new greenfields development in the North West of the LGA, and new housing estates such as Alex Road, Riverstone and Schofields will be major contributors to Sydney's new dwelling count over the coming decade. Blacktown is also the site of the largest industrial land rezoning that will occur in Sydney over the coming decade. The new industrial zone of Marsden Park is adjacent to the M7 motorway and is an area already targeted by major transport, logistics and warehousing companies because of its transport links. The NSW Government under its Precinct Acceleration Protocol has rezoned the 551-hectare site to enable its rapid development.[2]

The data analysis conducted here suggests a number of implications of population growth in Blacktown. Environmental quality (in terms of air and water pollution, resource use and risks to vulnerable and endangered species) appears to be declining, both as a result of the increased pressures associated with population growth, but also because of land use change, increasing use of motor vehicles and increased industrial activity. While a growing awareness of the importance of resource efficiency has recently slowed per capita resource use, population growth has meant that total use continues to grow. Furthermore, greenhouse gas emissions per capita have increased over the past decade, suggesting that efficiency behaviours are not practised as consistently as they might be. Blacktown also has one of Sydney's highest emissions profiles due to the presence of significant manufacturing and transport and logistics industries.

The ABS Index of Relative Socio-economic Disadvantage (IRSD) scores for Blacktown show that the area is more disadvantaged than either the NSW or the national average, and contains some areas of significant socio-economic disadvantage. Blacktown was ranked as the tenth-most disadvantaged LGA in Greater Sydney in 2006, and educational attainment and employment rates are significantly lower than those for Greater Sydney and NSW. However, despite the generally disadvantaged nature of the area, Socio-Economic Indexes for Areas (SEIFA) scores show that there is variability within the LGA, with some more advantaged areas.

The economic indicators also show this variability, with overall household wealth increasing, but average dwelling prices reflect the wide spread of household income and wealth within the LGA.

Stakeholders interviewed here suggested that the development of Blacktown and resulting population growth have come at the cost of the rural lifestyle of some of the outer suburbs, where agriculture and market gardens have given way to new housing developments. Anecdotal evidence from stakeholder interviews suggests that the development of Blacktown over the past fifty years has also led to the existence of three distinct areas in Blacktown. First, there is an 'old Blacktown' around the town centre that has a high proportion of rental housing and an increasing amount of high density infill

[1] Sydney's Growth Centres, NSW Government Planning and Infrastructure. Viewed 6 September 2012. <http://www.gcc.nsw.gov.au>

[2] Ibid.

development. 'This old Blacktown' is where many new migrants tend to settle. The second area is made up of the public housing estates of Mt Druitt that are characterised by high proportions of people who are reliant on government income support, and a large concentration of health and community services. The third area comprises the new housing estates including master planned developments such as Ropes Crossing, which tend to be more advantaged areas characterised by low density housing and high levels of car dependency.

The stakeholder interviews also highlighted a number of issues associated with rapid population growth that were not reflected in the initial indicator framework, most notably the inadequacy of transport provision (particularly the availability of public transport), the ongoing need to address the availability and variety of local employment, and a lack of long-term and integrated planning for the wide range of services that become necessary as a result of population growth (including schools, social support services, community facilities and recreation activities).

Glossary

ABS	Australian Bureau of Statistics
ALGA	Australian Local Government Association
BOSCAR	NSW Bureau of Crime Statistics and Research
BREED	Blacktown Regional Economic and Employment Development
CBD	Central Business District
DEET	Federal Department of Employment, Education and Training
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
EP&A Act	*Environmental Planning and Assessment Act* (NSW)
EPBC Act	*Environmental Protection and Biodiversity Conservation Act* (Cth)
GDP	Gross Domestic Product
GRP	Gross Regional Product
IRSD	Index of Relative Socio-economic Disadvantage (a SEIFA index)
ISF	Institute for Sustainable Futures
LGA	Local government area
p.a.	per annum
MDP	Metropolitan Development Program
NIEIR	National Institute of Economic and Industry Research
NSW	New South Wales
PHIDU	Public Health Information Development Unit
RDA	Regional Development Australia
SALMS	Small area labour markets survey
SEIFA	Socio-Economic Indexes for Areas
SEPP	State Environmental Planning Policy
SMDA	Sydney Metropolitan Development Authority
SoE	State of the Environment report
SoR	State of the Regions
TAFE NSW	New South Wales Technical and Further Education Commission
UTS	University of Technology, Sydney
WSROC	Western Sydney Regional Organisation of Councils

Contents

Background and context

Geography and features

The City of Blacktown is located approximately 35 kilometres from the Sydney Central Business District (CBD) in the heart of Western Sydney and occupies an area of 246.9 square kilometres. Blacktown City is bounded by Hawkesbury City in the north, the Hills Shire in the north-east, Parramatta City in the east, Holroyd and Fairfield Cities in the south and Penrith City in the west.

Blacktown City includes the suburbs and localities of Acacia Gardens, Arndell Park, Bidwill, Blackett, Blacktown, Colebee, Dean Park, Dharruk, Doonside, Eastern Creek, Emerton, Glendenning, Glenwood, Hassall Grove, Hebersham, Huntingwood, Kellyville Ridge, Kings Langley, Kings Park, Lalor Park, Lethbridge Park, Marayong, Marsden Park, Minchinbury, Mount Druitt, Oakhurst, Parklea, Plumpton, Prospect (part), Quakers Hill, Riverstone, Ropes Crossing, Rooty Hill, Rouse Hill (part), Schofields, Seven Hills, Shalvey, Shanes Park, Stanhope Gardens, Toongabbie (part), Tregear, Vineyard (part), Whalan, Willmot and Woodcroft.

Figure 1: Geographical context map of Blacktown

Major features of the city include Westpoint Blacktown Shopping Centre, Westfield Mount Druitt Shopping Centre, TAFE NSW Western Sydney Institute (Blacktown, Mount Druitt and Nirimba Colleges), University of Western Sydney (Blacktown Campus), Prospect Reservoir, Blacktown Olympic Centre, Eastern Creek Raceway, Eastern Creek International Karting Raceway, Western Sydney International Dragway, Valentine Park (Football NSW State Headquarters), Blacktown Arts Centre, Featherdale Wildlife Park, Parklea Markets, Blacktown District Hospital, Mount Druitt Hospital and Parklea Maximum Security Prison.

In the Blacktown Local Government Area (LGA) there are 17 major creek lines located in two major catchments, those of the Hawkesbury-Nepean and the Upper Parramatta River. There are 230 kilometres of defined drainage lines, including 153 kilometres of natural creeks.

Population summary

By size of population Blacktown is the largest LGA in NSW. In the 2011 census Blacktown had a population of just over 300,000 people. This represents a population growth of 48,000 people since the 2001 census, and an annual growth rate of 1.69% over the past decade. This is higher than the annual rate of growth since 2001 in both Greater Metropolitan Sydney (1.10%) and NSW as a whole (0.93%) (see Table 1).

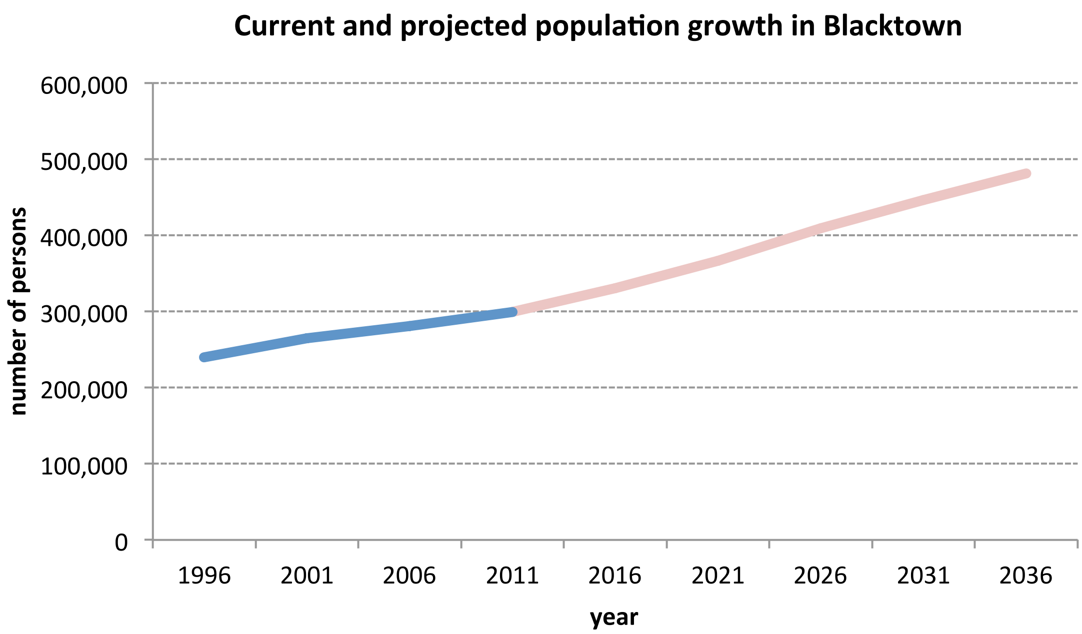

Figure 2: Current (blue) and projected (red) population growth in Blacktown (Source: NSW DPI, 2007; ABS, 2012a).

Population growth a longstanding feature in Blacktown

The release of greenfields housing development sites in the post-World War II period was the initial driver for population growth in Blacktown. In the past twenty years, further land releases have driven significant and rapid development in suburbs such Glenwood, Oakhurst, Plumpton, Glendenning and Stanhope Gardens. Some of these sites were previously agricultural and rural areas.

The Blacktown area has long been a source of affordable housing and has therefore attracted families, prospective families and new migrants as residents.[3] The successive waves of development have led to three distinct areas in Blacktown (see Figure 3); an eastern sub-region including Blacktown CBD and surrounding suburbs; a western sub-region including the suburbs of Mt Druitt, Plumpton and Willmot, which has a large concentration of public housing and parts of recently developed suburbs such as Ropes Crossing; and a northern sub-region, which includes the majority of the recently developed and forthcoming new greenfields development sites.

[3] Blacktown City Council, http://www.blacktown.nsw.gov.au/ accessed 3 July 2012.

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

	Blacktown 2001	Blacktown 2011	Sydney 2011	NSW 2011
Population (persons)	264,799	313, 057	4,605,992	7,211,468
Rate of growth 2011-2001 pa		1.69%	1.10%	0.93%
Population density (people/km^2)	1093.75	1293.08	372.42	9.01

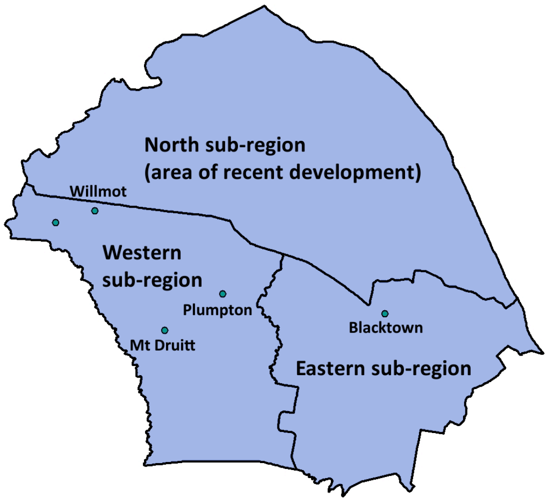

Figure 3: Three areas of Blacktown

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

	North 2006	East 2006	West 2006	Sydney 2006	NSW 2006
Population (persons)	87,426	90,622	93,663	4,282,061	6,816,067
Indigenous	1.5%	2.1%	4.8%	1.1%	2.1%
Overseas born from predominantly English speaking countries	7.1%	5.6%	6.2%	5.5%	3.7%
Overseas born from NES countries	24.5%	31.3%	28.0%	23.9%	16.8%
Total overseas born	32.0%	36.9%	34.2%	31.8%	23.8%

The growth of Blacktown is projected to continue, with additional areas of the city being identified by the state government for future urban development over the next twenty years (NSW DPI, 2011b). This growth is currently focused in the greenfields areas of Kellyville Ridge, The Ponds, Colebee and Ropes Crossing. In the longer term, it is likely that growth will also occur in Marsden Park and Shanes Park, in conjunction with new development areas in the neighbouring Hills Shire. Figure 4 shows the areas of Blacktown that will be subject to further development.

While the majority of recent and current development in the area is greenfields development, over the past decade the proportion of development classified as in-fill development has increased (see context indicator – land use below). There are significant future in-fill development opportunities in Blacktown and Mount Druitt and as a result these areas are expected to contribute large numbers of new dwellings to the area in coming years. By contrast, the established suburbs north of Mount Druitt are expected to provide relatively low numbers of new dwellings over the forecast period.

Table 3: Context indicator - land use (source: Blacktown City Council, 2010b)

	Blacktown 2001	Blacktown 2009
% Infill development	31%	42%
% Greenfield development	69%	58%
% Rural zone development	NA	0%

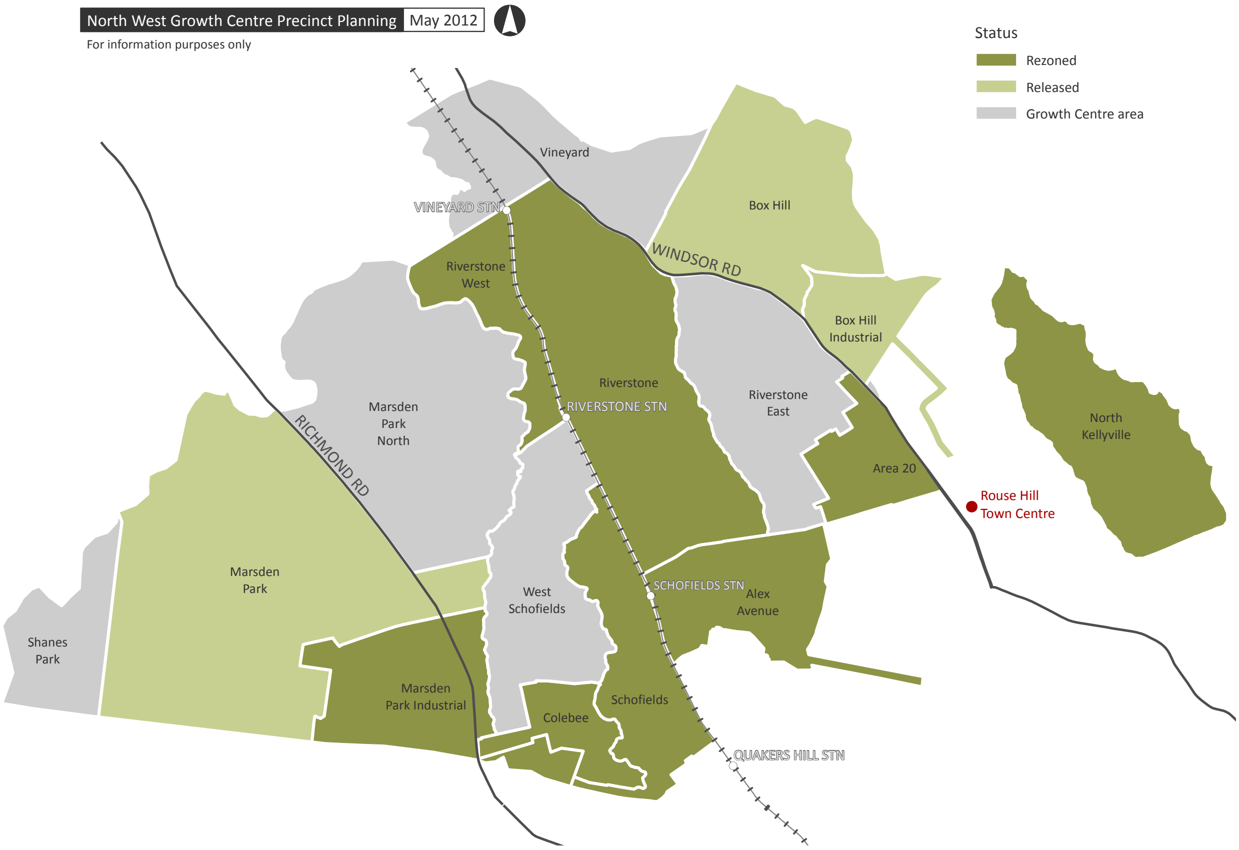

Figure 4: Structure Plan of North West Growth Centre (source: NSW DPI, 2012) (Note: All release areas to the left of Windsor Road are in the Blacktown LGA).

Social characteristics

Young population

Blacktown has a young population by comparison with the rest of Sydney and NSW, with a quarter of residents aged 14 years and under. This age structure is a reflection of the dominant household type in Blacktown (families with dependent children – which make up 47% of households) and new migrant and refugee residents who have a younger age profile.

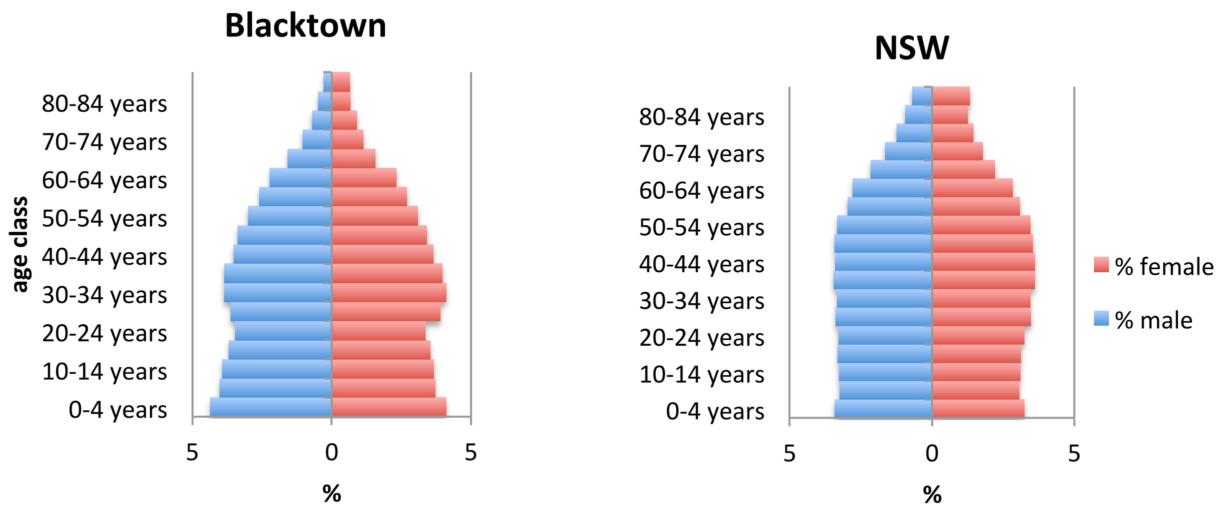

Figure 5: Age profile of Blacktown and NSW (2011) (source: ABS, 2012a)

Large concentration of public housing

Blacktown has the largest concentration of both public housing and residents living in public housing in NSW. Australian Bureau of Statistics (ABS) figures show that at 30 June 2009, Blacktown had 9,600 public rental properties (7.95% of the NSW total) and 23,400 residents living in public housing (10.2% of the NSW total) (ABS, 2011). This housing profile is the result of policy decisions in the 1960s and 1970s to concentrate public housing in large estate developments, such as the Mt Druitt estate, established in 1966 (Morgan, 2006).

Future growth in the provision of public housing in Blacktown appears unlikely because recent NSW Government policy has been to move away from both large concentrations of public housing in geographically confined spaces (Gilmore, 2012) and public delivery of social housing. Current policy favours public-private housing development models with a mix of social and other residential tenure (Morgan, 2006).

In line with this policy position, contemporary regeneration developments of large public housing sites in Sydney aim to deliver both higher housing densities and more mixed housing tenure types within the same communities. For example the *Newleaf* site at Bonnyrigg in an adjacent local government area in South West Sydney, saw the redevelopment of 833 low density public housing sites into 2332 homes, of which 70 per cent will be privately owned and 30 per cent will be social housing (NSW DFCS, 2012).

Table 4: Context indicator - culture and migration (source: ABS, 2007; ABS, 2012a)

	Blacktown 2001	Blacktown 2011	Sydney 2011	NSW 2011
% Born overseas	32.24%	37.71%	34.25%	25.73%
% Do not speak English well	4.11%	4.74%	5.76%	3.93%
Indigenous	0.98%	2.70%	1.26%	2.49%

Diverse population

Over a third of Blacktown's population (37.7%) (2011) was born overseas, with the majority of these (83%) born in non-English speaking countries. Of the overseas born population 12% could also be described as new migrants, having been in Australia for less than five years. The proportion of the population born overseas is higher than in Greater Sydney (where 34.3% are born overseas) and significantly higher than in NSW as a whole (25.7%).

Increasing cultural diversity has been a defining social characteristic of Blacktown for the past decade with the proportion of residents born overseas rising from 32.2% in 2001 to 37.7% in 2011, and a similar trend in the percentage born in non-English speaking countries. Furthermore, the proportion of the Blacktown population that is Indigenous has more than doubled during this period, and at 2.7% in 2011 is higher than the NSW average, and more than twice the Sydney average. Despite the large population of people from non-English speaking countries, the proportion of people who do not speak English well, or at all, is just 4.7% (up slightly from 4.1% in 2001). This proportion is lower than the Sydney metropolitan figure (5.8% in 2011) and suggests that the challenge of acquiring English language skills, that are important for the integration of new residents, may not be quite so significant in Blacktown as in other areas of Sydney.

Economic characteristics

The dominant industries in Blacktown are manufacturing, wholesale and retailing and transport and logistics. There is also significant employment in health, community and education services in the public sector. Blacktown City Council estimates the area's Gross Regional Product (GRP) at $10.8 billion in 2010/11, which represented a real annual increase of 0.4%. Blacktown City contributed 3.9% to the gross regional product of the Sydney Region ($275.7 billion) and 2.5% to the gross state product of New South Wales ($438.5 billion) in 2010/11 (Blacktown City Council, 2012).

Blacktown has the largest quantity of zoned and serviced industrial and commercial land in NSW and the city has established itself in recent decades as a major employment hub in Western Sydney, capitalising on transport infrastructure such as the Western Motorway (M4), Westlink (M7) and the Hills Motorway (M2). Industrial activity is likely to increase as Blacktown will be the site of the majority of new industrial land development in Sydney over the next five years. The corridors around the M7 and M4 interchanges and on the old Australia's Wonderland site have been identified as new industrial land in the NSW Government's *Metropolitan Plan*, as part of the strategy for reaching the Plan's target of increasing Blacktown's employment capacity to 16,000 by 2036 (up from 11,000 in 2006). These sites are favoured by transport and logistics industries because of their good transport links.

Planning and governance

Influence of the NSW State Government

Blacktown 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, the Department of Planning and Infrastructure, and Transport for NSW, 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. As Blacktown is a major existing centre located in what is known as the ‘North West Growth Centre’, the effect of the *Metropolitan Plan* has been to accelerate residential development, and hence population growth in Blacktown.

The State Environmental Planning Policy (SEPP) (Sydney Region Growth Centres, 2006) is the environmental planning instrument which sets planning controls for new greenfields sites. Approximately a quarter (26%) of the Blacktown LGA is zoned under the State Environmental Planning Policy (SEPP), meaning that the state government exercises considerable influence over planning in this area.

The *Metropolitan Plan* also includes a number of sub-regional plans for the various regions of Sydney (Blacktown is within the North West region) as well as Sydney-wide Industrial Land, Employment and Retail Strategy and Infrastructure Plans. The new state government is currently reviewing the *Metropolitan Plan* and the associated sub-regional plans, and a revised plan is expected in late 2012.

The NSW Government is also conducting a major review of the *Environmental Planning and Assessment Act* (NSW) the primary planning instrument in NSW. 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 in 2012, with the introduction of new planning legislation likely in 2013.

Metropolitan Development Program

A further NSW State Government planning and development instrument that impacts on population growth is the Metropolitan Development Program (MDP). The MDP provides an indicative ten-year forecast of housing site availability in NSW. This is then used for forward planning by government agencies responsible for infrastructure provision. Proposed land releases must typically be included in the MDP before they can proceed to formal rezoning.

Over the past five years (2005/06-2009/10) the MDP has recorded 6,771 new dwellings in Blacktown, with 4,502 of these located in new release areas (WSROC, 2012). The MDP short-term forecasts for Blacktown (2010/11-2014/15) include development of a further 10,509 dwellings, 8,070 of which will be in new release areas (NSW DPI, 2011a).

Historically the state government has played a further role in new housing development through the state-owned development corporations, Landcom and the Sydney Metropolitan Development Authority (SMDA). In the 2012/13 state budget the NSW Government announced the creation of Urbangrowth NSW, a new authority that will integrate Landcom and SMDA. Urbangrowth NSW will have new compulsory land acquisition powers, infrastructure coordination responsibilities and the ability to facilitate partnerships between the private sector and government agencies for project delivery. While it is not yet clear what the impact of these changes will be on Blacktown, the government claims Urbangrowth will help accelerate the supply of new dwellings onto the market and reduce pressure on prices, and therefore improve affordability. If this is the case then this could contribute to an acceleration of population growth in Blacktown.

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’. Blacktown City Council therefore has planning control over the majority of the local government area.

Under NSW local government legislation Blacktown City Council is required to produce a long-term community-based strategic plan, setting out its overall long-term approach to civic leadership, its social, economic, and environmental objectives and how it will measure progress towards meeting them. Blacktown’s current strategic plan is *Blacktown City 2025* (Blacktown City Council, 2008). Council is also required to report annually and for the term of each elected council (four years) on how well it is meeting its objectives.

Responding to the rapid growth of the area is a key focus of *Blacktown City 2025*, which includes a strategy for ‘urban living and infrastructure’ that seeks to provide ‘housing that meets the diverse needs of our community in liveable neighbourhoods and is supported by infrastructure that serves the current and future demands of the community in a balanced manner’ (Blacktown City Council, 2008: 49).

The need for local and state governments to work together more effectively in planning for the future growth of the area, particularly in relation to infrastructure provision, is suggested by two of the actions Council intends to take in relation to ‘urban living and infrastructure’, namely:

- ‘Lobby the State Government to recognise the need for new infrastructure and for improvement to existing infrastructure to accompany increasing demands in housing, population and employment growth targets set by the State Government’.
- ‘Build a strong partnership with the State Government to ensure new infrastructure is provided in a timely manner’ (Blacktown City Council, 2008: 50).

Other relevant institutions

Blacktown City Council is one of ten members of the Western Sydney Regional Organisation of Councils (WSROC). WSROC acts as an advocate on sustainable development in Western Sydney including community and economic development, transport and environmental issues (WSROC, 2012). WSROC contributed to the Prime Minister's 2011 Population Summit held in Western Sydney.

Blacktown City Council is also a member of the National Growth Areas Alliance, which represents 25 of Australia's fastest growing municipalities.

Federal government regional planning initiative

Under the federal government's Regional Development Australia (RDA) initiative, described as a partnership between the three tiers of government, 55 RDA committees across the country have prepared regional plans. Blacktown is one of fourteen councils in the Western Sydney Region of the Sydney Region.

The *Regional Plan for Sydney* identifies significant governance challenges for the development of the Sydney Region, including the 'lack of a bipartisan 40-year vision', the proliferation of different plans and strategies and their lack of integration, and the 'lack of one overarching authority for the social, economic and environmental planning of Sydney' (RDA, 2011: 68). The *Plan* notes that while Blacktown is one of Sydney's fastest growing areas it is, like much of Western Sydney, 'not well resourced in terms of public transport and employment, infrastructure or planning' (RDA, 2011: 16) and is characterised by 'heavy car reliance due to lack of connectivity' (RDA, 2011: 69).

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 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, air and water pollution and protection of vulnerable and endangered species are being impacted by changes in land use, increasing motor vehicle use and increasing industrial activity. The environmental data suggests there is a growing awareness of resource efficiency among residents in the area, with both water use and domestic waste production per capita declining over the past five years. However, population growth means that the *total* growth in water use and waste production has continued. Furthermore, greenhouse gas emissions per capita have increased over the past decade, suggesting that efficiency behaviours are not practised as consistently as they might be. Blacktown also has one of Sydney's highest emissions profiles due to the presence of significant manufacturing, transport and logistics industries within the LGA.

The social indicators show that Blacktown is a relatively disadvantaged area, with some areas of significant socio-economic disadvantage. Educational attainment and employment rates are significantly lower than those for Greater Sydney and NSW. However, despite the generally disadvantaged nature of the area, analysis of Socio-Economic Indexes for Areas (SEIFA) scores and a more detailed consideration of unemployment at the sub-regional level reveals a degree of variability within the LGA, with pockets of high disadvantage and high unemployment, and other areas that are relatively advantaged and experience much lower levels of unemployment.

The economic indicators also show this variability within the area, with overall household wealth increasing, but average dwelling prices in different areas showing that there is a range of household income and wealth levels within the LGA.[4]

[4] It should be noted that specific indicators on productivity and household wealth were derived from the NIEIR *State of the Region report*, which presents data for Sydney Outer West region, rather than for Blacktown only. The Sydney Outer West region includes Blacktown, Richmond and Katoomba. For this reason, these figures should be treated with caution.

Environmental indicators

Climate and atmosphere

Air quality in Blacktown has declined in recent years with the average annual Regional Air Quality Index (RAQI) value for the North West Sydney Region increasing from 53 in 2005 to 73 in 2009.[5] In Blacktown the main sources of air pollution are motor transport, backyard burning, bushfires, smoke from wood heaters and emissions from industry (Blacktown City Council, 2010b).

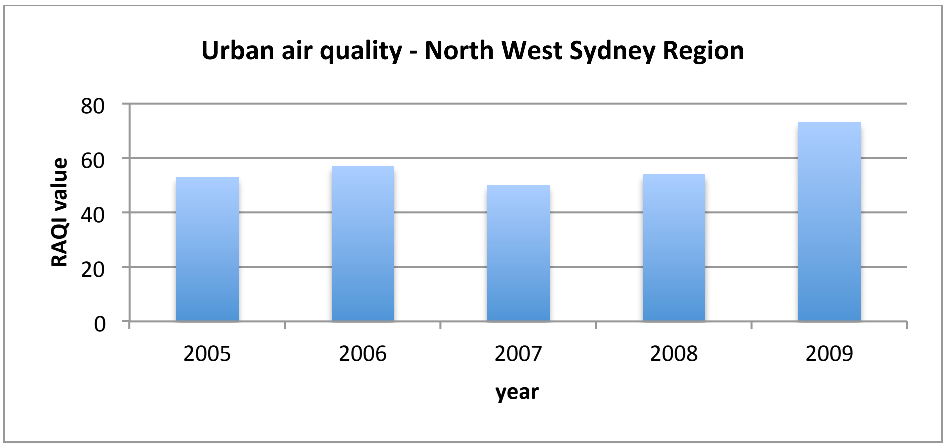

Figure 6: Natural capital - climate and atmosphere (source: Blacktown City Council, 2010b)

The increase in air pollution is also mirrored in the increase in greenhouse gas (GHG) emissions, which were 15.9 tonnes per annum per person in 2006, up from 14 tonnes per person in 1998 (a 13.6% change from 1998 to 2006) (Blacktown City Council, 2010b).

Blacktown's energy consumption is estimated to be 28PJ, or 7.6% of consumption in the Sydney metropolitan area. This equates to 3.9MTCO2-e of emissions (Arup, 2010). Blacktown has one of Sydney's highest emissions profiles due to the presence of significant manufacturing, transport and logistics industries within the LGA. Arup (2010) apportioned energy consumption and emissions across Sydney by manufacturing employment and found that Blacktown accounts for almost 10% of emissions in the Sydney metropolitan area. Fine-grained emissions analysis is relatively new at the local government level, and no historical sources could be identified that would enable trend analysis at the local level over a longer time (apart from the air quality data presented above).

Table 5: Natural capital - climate and atmosphere (source: Blacktown City Council, 2010b; Arup 2010)

	Blacktown	As proportion of Greater Sydney
Average annual RAQI value	73 days in 2009, 53 days in 2005 (Increase of 37%)	
Energy consumption	28PJ (2008)	7.6%
CO2-e emissions population basis	3.9Mtco2-e	3.9%
Energy consumption industrial basis	11.3PJ	9.4%

[5] RAQI values are categorised as very good, good, fair, poor, very poor or hazardous. Very good has a value of 0-33; good has a value of 34-66; fair has a value of 67-99; poor has a value of 100-149; very poor has a value of 150-199 and hazardous has a value greater than 200.

Ecosystems and biodiversity

The number of vulnerable and endangered species identified in Blacktown under the *Environmental Protection and Biodiversity Conservation Act* (Cth) (the EPBC Act) has remained constant since 2005 – however two species have been recently re-classified from endangered to critically endangered. The latest available data (2009) shows 16 vulnerable species, 17 endangered species, and two critically endangered species. In 2009 the Cumberland Plain Woodland and Shale-Gravel Transition Forest were both re-classified as critically endangered (Blacktown City Council, 2009).

Negative impacts on biodiversity can be attributed to degradation and loss of terrestrial ecosystems, loss of species diversity and native vegetation clearing. In turn, these issues may be attributed to several factors including land clearing for urban development and infrastructure, degradation of habitat through fragmentation, pollution and introduced species (Blacktown City Council, 2010b).

Blacktown City Council has a Regeneration and Revegetation Strategy, which is targeting a number of areas for biodiversity conservation. Council has planted over 215,000 trees in the LGA since 2006, and the number of hectares of bushland restored under the Bushcare volunteer program and Council's strategy has increased by 126% from 117 hectares in 2007 to 265 hectares in 2010.[6] The number of Bushcare volunteers has also increased by 139% from 84 to 201 (Blacktown City Council, 2010b).

Water

The Blacktown LGA is part of the catchment for the three major water bodies in the Sydney basin – Sydney Harbour, the Georges River and the Hawkesbury-Nepean River. There are 22 water quality-monitoring stations in the Blacktown LGA. These sites were installed just prior to the latest State of the Environment (SoE) report, and therefore only one year of data is available. Findings of the first year of assessment include:

- all sites were within guideline values of pH
- temperature varied across the sites but was generally within acceptable limits
- guideline levels of turbidity were exceeded at six of the 22 sites
- the majority of sites meet guidelines for salinity
- all sites were oxygen depleted, only one site was just within guideline levels
- all sites exceeded guideline levels for phosphates and nitrates (Blacktown City Council, 2010b).

Water consumption per capita declined from 93.1kL per person in 2005 to 86.6kL per person in 2010, a reduction of almost 7%. Total water consumption in the LGA increased in this five-year period however, from 369ML in 2005 to 471ML in 2010. This may partly be as a result of population growth (which saw a 3% increase in the number of properties to which water is supplied), but may also be caused by a growth in industrial water use. This period also coincides with an overall reduction in water consumption across the Sydney basin in response to a severe drought and associated public awareness and education campaigns about the need for water efficiency.

Table 6: Natural capital – water (source: Blacktown City Council, 2011b)

	Blacktown
Water consumption per capita	86.6kL/person (2010) 6.9% decrease from 2005
Total LGA water consumption	471ML (2010) 27.6% increase from 2005

[6] This is a cumulative total of bushland restored rather than yearly bushland restoration.

Land

Almost three-quarters (74%) of the land within the Blacktown LGA falls under local planning laws. Housing development has been the main driver of land use change in Blacktown over the last decade, and most of this development has been on greenfield rather than infill sites. This development has typically occurred on what was previously rural land (Blacktown City Council, 2011b).

Over 4,490 hectares of land have been set aside for open space in Blacktown (18.55% of the LGA area), which includes land for parks, reserves, recreational facilities and other green spaces (Blacktown City Council, 2011b). However as a result of population growth, the amount of open space per capita has declined from 157 square metres in 2006 to 150 square metres in 2010.

Table 7: Natural capital – land (source: Blacktown City Council, 2011b)

	Blacktown
Open space per capita (m^2)	$150m^2$ person (2010) 4.5% decrease from 2005

Waste

The volume of domestic waste produced per capita has declined from 312kg per resident in 2006 to 300kg in 2010, a reduction of 3.8%. However the volume of material recycled per capita by domestic residents has decreased slightly from 88kg/person in 2006 to 86kg/ person in 2010, and the percentage amount of waste diverted from landfill also declined by 7.5% over this period.

Table 8: Natural capital – waste (source: Blacktown City Council, 2011b; NSW DECCW, 2010b)

	Blacktown	Greater Sydney comparison
Domestic garbage per capita (kg)	300kg/ person (2010) 3.8% decrease from 2006	1200kg/ person (2009)[7] 0% change from 2005 - fairly constant since 2000
Domestic recycling per capita (kg)	86kg (2010) 2.2% decrease from 2006	110kg[8] (2009) 10% increase from 2005
Percentage waste diverted from landfill	49% (2010) 7.5% decrease from 2006	54% (2006)

[7] This includes all waste streams, and is therefore not a reliable comparison.
[8] Includes dry recyclables only

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 both of these measures Blacktown has a lower level of educational attainment than Greater Sydney or NSW. These results are shown in Figure 7 and Figure 8.

The proportion of adults with university qualifications in Blacktown increased by 1.6% from 4.3% in 2001 to 5.9% in 2006.[9] However this compares to a much higher increase in the wider population, with attainment of university qualifications increasing across Greater Sydney by 3.5% from 16.4% in 2001 to 19.9% in 2006, and across NSW from 13.5% in 2001 to 16.4% in 2006. These figures show that increases in university level attainment have been much slower in Blacktown than in Sydney or NSW.

In terms of certificate and diploma qualifications, attainment levels in Blacktown changed minimally over the five years between 2002 and 2006, from 13.4% of the adult population in 2002 to 13.6% in 2006. Levels of attainment for these qualifications also grew minimally at the Greater Sydney and NSW level, but in both cases the proportion of the population holding these qualifications is almost 10 percentage points higher than in Blacktown.

Low levels of educational attainment have prevailed in Blacktown for several decades, as evidenced by the establishment in 1992 of the Blacktown Regional Economic and Employment Development (BREED) Taskforce,[10] which continues today, with the aim of stimulating local economic and employment growth, and helping young people gain the education and skills that will enable them to obtain training and employment.

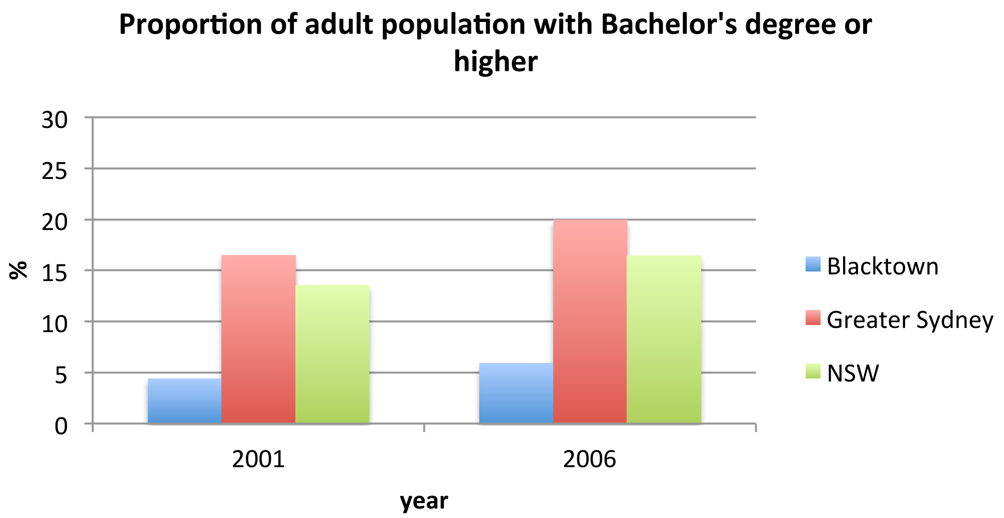

Figure 7: Comparison of adult population with bachelor's degree or higher qualifications (source: ABS, 2012b)

[9] 2011 census figures will show if this is a continuing trend.
[10] For more information see: http://www.breedcp.com.au/

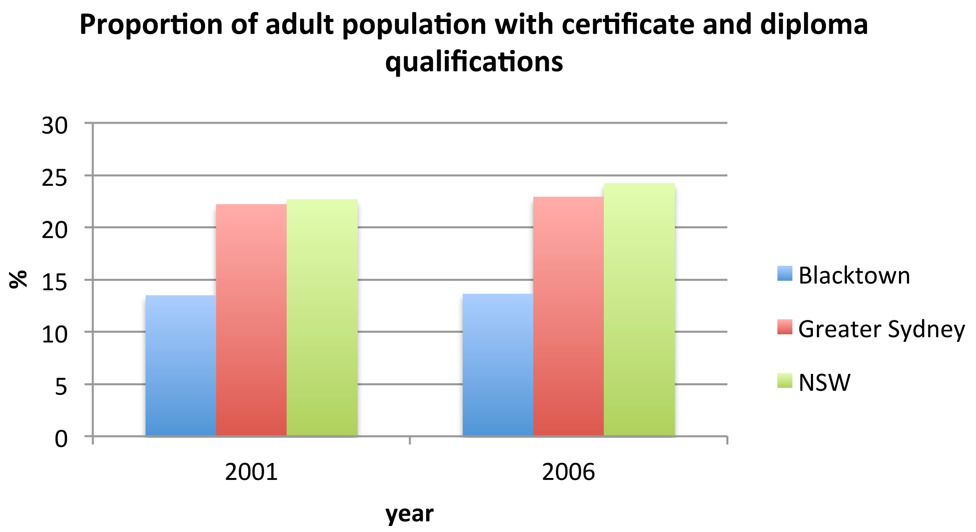

Figure 8: Comparison of adult population with certificate and diploma qualifications (source: ABS, 2012b. Includes Certificate I-IV, Diploma and Advanced Diploma)

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 Index of Relative Socio-economic Disadvantage (IRSD) scores for Blacktown show that the area is more disadvantaged than both the NSW and the national average, and contains some areas of extreme socio-economic disadvantage. Blacktown was ranked as the tenth-most disadvantaged LGA in Greater Sydney in 2006, and the Blacktown-South West Statistical Local Area (SLA) was ranked as the second-most disadvantaged SLA in Sydney. However, despite the generally disadvantaged nature of the area, SEIFA scores do show that there is variability within the LGA, with a minimum census collection district (CD) score of 596 and a maximum of 1166.

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

	Blacktown	Greater Sydney	NSW
SEIFA Index (IRSD) score	973	1020	1000
Minimum IRSD score of CDs	596	460	460
Maximum IRSD score of CDs	1166	1191	1191
Rank in NSW	74 (of 157 LGAs)		
Rank in Australia	324 (of 667 LGAs)		

While available data sources report health information at the whole-of-LGA level only, it is likely that the health status of the population in Blacktown also contains levels of variability similar to those evidenced by the SEIFA scores discussed above. At the LGA level, Blacktown has a comparatively high proportion of the population who are daily smokers (16.1% in Blacktown compared to 14.4% in Greater Sydney), and a slightly higher-than-average percentage of the population rated as experiencing psychological distress[11] and reporting that their health is only 'fair' or 'poor' (see Table 10). Incidence of obesity also appears to be slightly higher in Blacktown than in Sydney as a whole (see Figure 9). Again, it should be noted that the aggregation of health data to the LGA level is likely to conceal higher concentrations of poor health

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

status in specific areas of Blacktown.

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

	Blacktown 2007	Greater Sydney 2007	NSW 2007
Proportion reporting fair to poor health	11.8%	11.4%	12.7%
Proportion of adults that are daily smokers	16.1%	14.4%	15.3%
Proportion of adults that are overweight or obese	34.3%	35.7%	37.0%
Proportion of adults rated as psychologically distressed[12]	9.6%	9.3%	9.3%

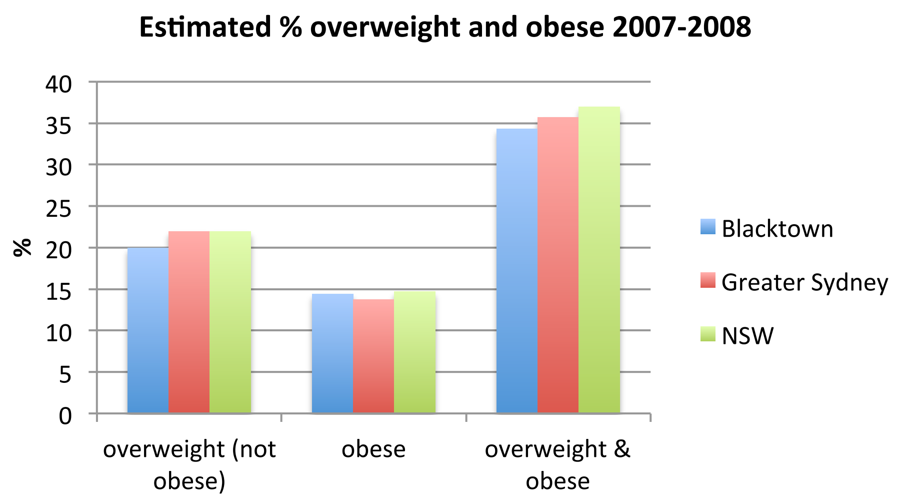

Figure 9: Comparison of estimated % overweight and obese (2007-08) (source: PHIDU, 2010; ABS, 2009)

Employment and unemployment

According to the Small Area Labour Markets Survey, Blacktown's unemployment rate in March 2012 was 6.8% with a participation rate of 63.8%. As shown in the table below, unemployment in Blacktown is consistently higher than in Sydney or NSW.

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 Outer West region, which comprises Blacktown, Richmond and Katoomba, and the Sydney Central Region for comparison, which comprises the Sydney CBD, North Sydney Botany, Top Ryde and Chatswood).

	Blacktown	**Sydney July 2012**	**NSW July 2012**
Unemployment rate	6.8% (July 2012)	4.8%	5.2%
Participation rate	63.8% (July 2012)	65.5%	63.4%
	Sydney outer west Region (2011)	**Sydney central region (2011)**	
Hours worked per week*	24.7 hours (2011)	25.7 hours	
Social security take-up*	12.0% (2011)	5.9%	

While unemployment in Blacktown is comparatively high, there is significant variability in the unemployment rate across the area, as shown in the table below. The area of Blacktown North, where much of the new greenfield residential sites are located, has only around one-third of the unemployment experienced in the Blacktown South-west region (which includes areas such as Mt Druitt) and around half that of the central areas of Blacktown.

Table 12: Social and human capital - employment details (source: DEEWR 2012a, 2012b) (note: * denotes Feb quarter).

	Unemployment rate March 2011	**Unemployment rate March 2012**
Blacktown North	4.0%	3.4%
Blacktown South-east	7.0%	5.9%
Blacktown South-west	12.8%	10.7%
Greater Sydney*	4.8%	5.6%
NSW	5.0%	5.0%

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 Blacktown over the last 60 months has exhibited no significant change. When compared to the incidence of crime per 100,000 people across NSW, Blacktown has a ratio to NSW rate[13] of 1.3 for violent offences and 1.2 for property offences, suggesting these crimes are slightly higher in Blacktown than they are in NSW as a whole.

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 Outer West region (which includes Blacktown, Richmond and Katoomba) disposable income grew by 32% in the period from 2001 to 2012, which equates to an annualised figure of 2.9% (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 13 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 Blacktown in 2011 was $399,000, although there is variability between suburbs with averages of $540,000 in some new greenfields suburbs (Glenwood and Stanhope Gardens) and $330,000-$350,000 in older suburbs (St Marys and Rooty Hill) (Blacktown City Council, 2012).

Table 13: Economic capital – wealth and housing affordability (source: NIEIR, 2012) (Note: Sydney Outer West Region; *represents growth in chain volume measures using ABS methodology)

	Blacktown 2001	**Blacktown 2011**
Wealth per household*	$400,000	$431,000
Household debt service ratio	17%	20%
Household debt to gross income ratio	1.34	1.56
Average dwelling price	$278,000	$360,000
Average dwelling price to household disposable income	3.2	3.4

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. In Blacktown, 10% of mortgaged owner-occupiers and 25% of private renters can be classified as being in mortgage or rental stress. These rates were above the Greater Sydney and NSW levels, although only slightly.

[13]The ratio to NSW rate is a comparison of crime rates per 100,000 people. A ratio of 1.0 indicates parity with the NSW rate, a ratio higher than 1.0 indicates a higher rate than that for NSW, and a ratio lower than 1.0 indicates a lower rate than that for NSW.

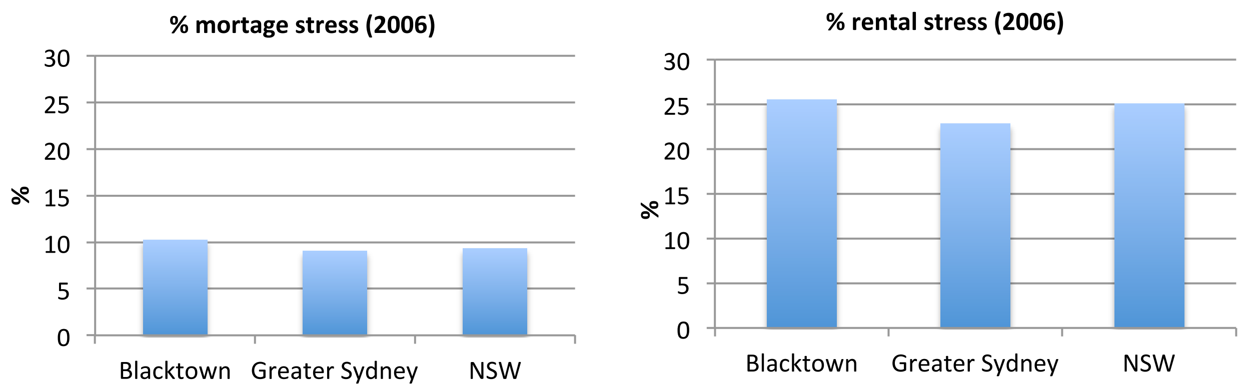

Figure 10: Comparison of % of households in mortgage or rental stress (Source: ISF calculation using ABS Census data)

Transport and infrastructure

Analysis from the 2006 census on journey to work patterns of Blacktown residents and workers shows that there were 77,967 people working in the Blacktown LGA. Just under half (44.9% or 34,994 people) of these workers also lived in Blacktown and 90% resided somewhere in Western Sydney (including Blacktown). The majority of journeys to work were made by car as the driver (69.6%), with only 3.5% of people travelling to work in Blacktown by train (WESTIR, 2007). Further analysis of residents' places of employment indicates that half of Blacktown's workforce works outside the Blacktown area, as shown in Figure 11.

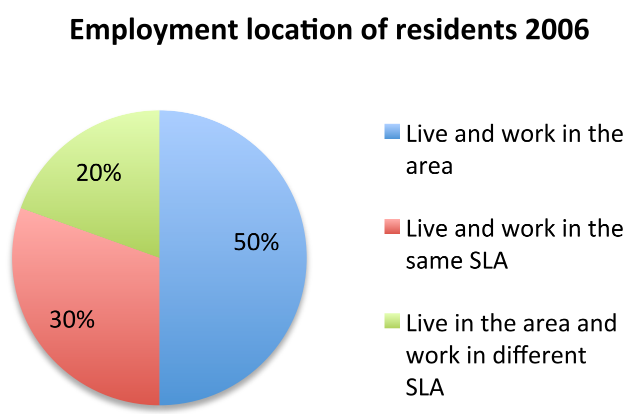

Figure 11: Employment location of residents (source: ABS, 2007)

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 2001, 43% of Blacktown residents had access to a broadband Internet connection; this increased to 72% in 2011. This rate of uptake is similar to the pattern for the rest of Greater Sydney (73% in 2011) and slightly ahead of NSW (70% in 2011) as shown in Figure 12.

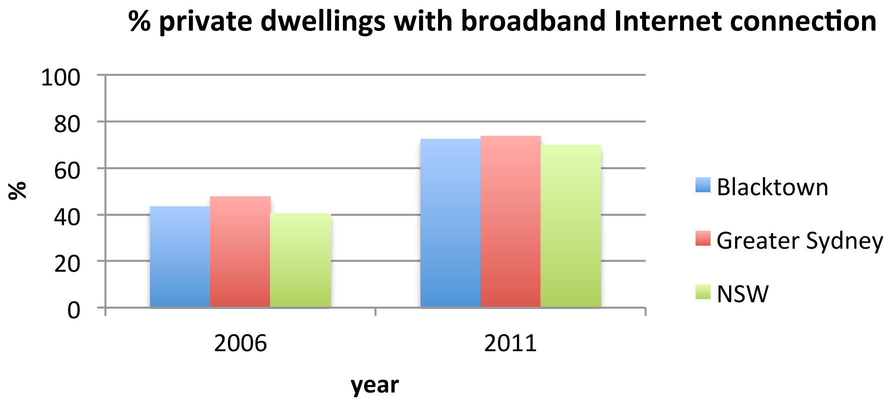

Figure 12: Comparison of broadband Internet connection (2006 & 2011) (source: ABS, 2007 & 2012a)

Productivity

According to the Blacktown Business Activity Statement (Blacktown City Council, 2012) the estimated gross regional product (GRP) of Blacktown was $10.8b in 2010/11, which was a real annual increase of 0.4% on the 2009/10 figure. Blacktown contributed 3.9% to the GRP of Greater Sydney and 2.5% to the GRP of NSW. The largest contribution was made by the manufacturing sector (approximately $2.0b or 18% of the total) followed by wholesale trade (9.3%), and transport, postal and warehousing (7.8%).

GRP per capita in Blacktown in 2011 was $35,230, up from $34,871 in 2010 (Blacktown City Council, 2012). This compares to a GDP per capita for Australia of $40,234 (2011$).

Business innovation

Local level business innovation data is virtually non-existent, unless it is collected through small, locally based surveys. Patent counts per capita 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), meaning this measure excludes 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 people for the Sydney Outer West region. NIEIR calculates 12.47 patent applications per 100,000 people (applications between 1994-2011). The Australian average is 21.01.

Stakeholders

Stakeholders were identified from a process of stakeholder mapping. Nineteen stakeholders were identified from this process. This list was refined and twelve stakeholders were invited to participate in interviews.

Stakeholder interviews were conducted from 10 to 20 July 2012. The list of stakeholders interviewed is shown below.

Table 14: List of stakeholders

Interviewee	Position and Organisation	Role of organisation	Category
Warren Gardiner	Senior Policy Officer, NSW Council of Social Services	Peak NGO body in NSW	Social
Stephen Gardiner	Senior Planner, Sydney West, NSW Department of Planning and Infrastructure	NSW Planning Department	Planning
Glenys Gaddie	Deputy Manager, Women & Girls Health Centre	Local health service	Social
Bob Germaine	CEO, Sydney Regional Development Australia,	Local RDA	Economic
Karen Bishop	Deputy CEO, Western Sydney Regional Organisation of Councils	Local ROC	All
Kerry Bartlett	CEO, Western Sydney Regional Organisation of Councils	Local ROC	All
Carol Ashworth	Social Planner, Blacktown City Council	Council	Social
Chris Shannon	Manager, Strategic Planning, Blacktown City Council	Council	Planning
Vanessa Parkes	Manager, Environment & Sustainability Blacktown City Council	Council	Environmental
Dennis Bagnall	Manager, s94 Contributions, Blacktown City Council	Council	All
Nathan Burbridge	Economic Development Strategist, Blacktown City Council	Council	Economic
Susan Heyne	Manager, Blacktown Community Transport	Community Transport organisation	Social
Hugh Worrall	Policy Officer, Western Sydney Community Forum	Peak Community group for Western Sydney	Social

Positive and negative views about population growth

There were commonly held views among stakeholders on both the positive and negative implications of rapid population growth in Blacktown.

The population growth that Blacktown is experiencing is very diverse. This diversity is evident in cultural, social and economic terms. New residents to Blacktown include large numbers of migrants settled under Australia's refugee and humanitarian program, as well as people moving from elsewhere in Sydney to purchase homes in new release residential areas. The stakeholder interviews suggested this diversity was viewed positively by many within the community, because it created a more vibrant community with a sense of aspiration, and because it created a sense of pride in Blacktown as a place where an increasing number of people are choosing to live. However stakeholders also suggested that for many longer-term residents the rate and pace of population growth and change in Blacktown had been challenging and for some was even perceived as threatening to their established 'way of life'.

The existing documents that were analysed, and the comments various stakeholders made, suggest that rapid population growth in the area has resulted in a number of deficits. These include:

- infrastructure deficits – particularly transport and health and community services, but also recreation options and availability of open space
- employment deficits – the lack of locally available employment and the lack of diversity of employment.

Stakeholders commented that combined with rapid and ongoing population growth, these deficits led to dislocations within Blacktown, and between Blacktown and other areas of Sydney. Many stakeholders in Blacktown, including the Council, referred to three distinct areas within Blacktown:

- an older area surrounding the centre of Blacktown that is now seeing increased high density dwelling construction, but that lacks other facilities and features that are needed to build a strong commercial centre with office and business services employment
- the public housing estates in and around Mt Druitt and the associated concentration of health and government service providers
- the new release areas dominated by new low-density housing developments.

Population growth has also led to land-use conflicts between rural/ agricultural land uses and urban residential land uses, as well as conflicts between development and environmental land uses (water ways, riparian zones, open space).

There was also a general sense that the current institutional structures and settings did not have the capacity to address future population growth in a sustainable way. Problems included the underfinancing of local government, a perceived lack of integration between the levels of government in relation to service delivery, and legacy issues associated with previous major decisions (such as the concentration of public housing estates, and the poor layout of the CBD). There was concern among stakeholders that this lack of integrated planning would leave Blacktown less able to cope with the impacts, not only of future population growth, but also of demographic changes (ageing population), environmental changes (loss of biodiversity) and climate change impacts (heat waves, heat island effects).

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

Health and usability of waterways

The health and usability of the waterways in the area emerged as a prominent issue with a number of stakeholders, although not as prominently as in the literature. The area's waterways were viewed as a major environmental asset as well as a source of past 'free' recreation. Stakeholders noted a marked decline in the health and amenity of the region's waterways, evidenced in the following observation:

> *"In the space of a generation we have gone from residents happily swimming in rivers to not going anywhere near the river."*

Changes in the local waterways have included declining and diminishing riparian zones, clearing of vegetation, and increased use of concrete in stormwater drainage systems. One stakeholder noted the impacts of these changes in reducing the cooling influence of waterways in times of high temperatures.

The waterways in Blacktown also supply Richmond (an adjacent LGA) with drinking water. In times of low environmental flows, 70% of the water is treated effluent. Low environmental flows also impact on the fish and other aquatic life in the rivers.

Protection of the Cumberland Plain

The Blacktown LGA contains a number of bushland reserves, many of which contain endangered ecological communities and regionally significant plant species. There are four major vegetation communities in the Blacktown LGA: the Grey Box Woodland of the Cumberland Plain, the Grey Box–Ironbark Woodland of the Cumberland Plain; the Shale/Gravel Transition Forest and the Sydney Coastal River Flat Forest.

The development of Blacktown in line with the plans for the North West Growth Centre will see areas of the Cumberland Plain reduced. The NSW Government has introduced a series of biodiversity offsets that allow segments of the Cumberland Plain to be traded against high quality, or more connected sites in other locations. This has created concerns within the local community that sites that were previously protected will now be available for development. For example:

> *"There is great controversy around the Southern Creek protection area … these areas have been historically quarantined but they are now looking at being developed."*

Even though the offsets policy means that Cumberland Plain will be protected in other areas across Western Sydney, there is the sense that '*Blacktown loses for the sake of gains elsewhere*'.

Rapid land use changes

A change in the use of land from agricultural and rural to residential use has created a number of conflicts. Many longer-term residents are sad to see the loss of the rural aspects of the local area. In some cases, different land users come into direct conflict. For example the noise and smell associated with agricultural industries such as chicken and vegetable farming is seen as unacceptable to new residents in nearby housing developments.

> *"Previously, there was a balance between industry and residential, but now residential is taking priority over the other land uses."*

Dealing with potential climate change impacts

The expected impacts in Sydney of increasing climate change include higher frequencies of temperatures above 30 degrees, increased frequency of flooding behaviour (Blacktown is within the Hawkesbury river floodplain) and more storms (NSW DECCW, 2010a). One stakeholder noted that the State Emergency Service (SES) in Blacktown is already at the limit of its capacity, so further population growth combined with the impacts of climate events such as flooding and storms will require more resources to manage.

Access to open space

The City of Blacktown includes more than 800 parks and reserves. This amounts to a total of 4,491.21 hectares and equates to 150 square metres of open space per capita (Blacktown City Council, 2010b). A number of stakeholders highlighted that one of the trade-offs for accommodating so much population growth in Blacktown has been diminishing access to open space. For a number of stakeholders this also linked to an overall decline in access to rivers and waterways in the area, and for others it was linked to the limited funding local councils provide for infrastructure in new development areas. Others pointed to the increasing competition for the use of sporting ovals and similar open space recreational facilities.

> *"There used to be areas that people could go and be in nature, but with population growth there just isn't that option so much anymore."*

Social issues

Community cohesion versus dislocation

Population growth, by definition, brings large numbers of people to a new area. In Blacktown a particular characteristic of population growth is that many of these new residents come from non-English speaking backgrounds, adding to a population that already exhibits higher than average levels of cultural and linguistic diversity.

These new arrivals typically need to get accustomed to the area and its characteristics, and to develop ways of interacting with its existing residents, institutions, structures and practices. This integration process takes time and resources, and requires sufficient and appropriate social infrastructure – that is, the various public and private facilities, buildings and open spaces, support services, programs and activities that facilitate community development (SGS Economics & Planning, 2007). The responsibility for funding this social infrastructure rests with all levels of government, although some stakeholders felt there was often an unrealistic perception that local government should provide these facilities.

With significant cultural, linguistic and socio-economic differences between new and existing residents, tensions can also arise. These occur not just between existing residents and those arriving from overseas, but on many other levels. For example, Blacktown has a large community of NSW Housing tenants and residents who are dependent on income support (Blacktown City Council, 2007). In contrast, new residents moving into the new housing developments tend to have higher incomes and are more likely to be purchasing their own homes (Blacktown City Council, 2007). Blacktown also has one of the largest concentrations of Indigenous people in the Sydney metropolitan area (Blacktown City Council, 2007). The existence of these many diverse population groups within the area increases the need for appropriate social infrastructure. Some stakeholders also suggested this local diversity increased the need to develop a stronger sense of integration and regional identity.

> *"The scale of population growth creates fragmentation within the community and it is difficult to move the community as a whole together. Some parts have greater capacity to move, but others don't."*

From an infrastructure planning and service delivery perspective, authorities find it difficult to balance the needs of these diverse communities. One example provided was that in the new greenfields estates developers are responsible for the initial development of common areas including tree planting, footpaths, parks and general amenity. Developers design and construct these features to a high level and they are part of the reason that new residents find these places attractive to live. However in the longer term as Council assumes responsibility for the maintenance of these aspects of the development, issues of equity can arise as it becomes difficult to both fulfil new residents' expectations and balance expenditure on these activities across the entire local government area. As one Council officer put it:

> *"The developer might install fantastic, state of the art facilities in their new housing development – like large amazing playgrounds, or community centres with all kinds of equipment and features, but in the long run it's Council that has the responsibility for their upkeep. The problem is that we can't afford to maintain them at that standard. We'd love to, but we can't justify spending large amounts of money on the upkeep of facilities like that in those new housing areas, when there are other areas of the LGA that don't have anything like those kinds of facilities. We have to think of the area as a whole, and it's an equity issue – if we put more of our funding there then it's just not fair on those existing areas that are currently very poorly served with facilities and infrastructure."*

Building community infrastructure

A number of stakeholders raised the issue of responsibility for funding community infrastructure, broadly defined to mean community facilities (libraries, neighbourhood and community centres) and community services (child care, schools, aged and youth services, health services).

There was a widespread view that funding for this kind of infrastructure was not keeping pace with population growth. Stakeholders were clear in commenting that it was not necessary for these facilities to be provided *ahead* of new residents arriving, but they had to keep *pace* with new residents.

> *"There is a need to link land use planning and forward planning for human services so that they match."*

> *"Often the services that a growing community is obviously going to need really lag behind the pace of housing development."*

Long-term planning, so all residents can know what facilities will be provided and when, and so they have a chance to participate in shaping what these facilities would look like, was also seen as important. In an attempt to address this issue, Blacktown City Council has been trialling what they referred to as a 'human consortium model' for the decision-making associated with developer-provided infrastructure.

> *"Blacktown has developed a Human Consortium Model – when we are getting closer to the trigger for the developer to start planning for community facilities we invite public, private and non-profit sectors to workshops to start discussing what is needed, who is going to live here, and what those people will want and need."*

The state government-imposed cap on the Section 94 contributions that developers make to councils (at $20,000 per dwelling) was highlighted as a significant and ongoing barrier to the provision of appropriate levels of community services and infrastructure. Various stakeholders, including non-Council stakeholders, described this issue as a major funding crisis.

> *"This is the biggest funding crisis that local councils in growth areas have to face, and it is a consequence of the government trying to meet housing targets without having consideration for what else is needed in a community."*

Young population

Areas with rapidly growing populations usually also have a dominant household type, namely families with dependent children, and Blacktown fits this demographic profile. This creates pressures in the area in terms of provision of child care, access to educational institutions (both schools and tertiary training facilities) and entertainment and amenity.

Access to child care, playgroups and pre-schools and other parental support was listed as an issue within Council's 2007 Social Plan. For young people (aged 12–24) the limited availability of work experience, traineeships and apprenticeships with local businesses is further compounded by limited public transport access.

> *"There is nothing for teenagers in the area, and youth agencies are not meeting the needs of migrants … they need more than a bowling alley and an ice cream shop!"*

Access issues

The existence of such different socio-economic population groups within Blacktown creates inequitable levels of access to various goods and services. Three examples mentioned by stakeholders were broadband Internet, fresh food and electricity.

The 'digital divide' has been highlighted as an issue of social equality for a number of years now; this is set to continue until the introduction of fast Internet and wireless infrastructure. A number of stakeholders commented that now the National Broadband Network (NBN) is planned, residents would not see any further improvements in Internet connectivity until NBN was installed. The 2007 Blacktown Social Plan highlighted access to fresh food as an emerging issue, and stakeholders noted that this remains a challenge for people who do not have ready access to transport. However, it was also noted that the issue is not only access but also the price of fresh food compared to other less healthy options:

> *"There are so many fast food chains in the area and the cost of fast food is so much cheaper. A burger, chips and drink at KFC is $3. Fresh food is available but it is more costly."*

The rapid increase in electricity prices, (an increase of over 70% in the past four years) has also created a divide between those who can and those who cannot afford the price increase, with stakeholders noting that some people have the financial capacity to access more energy-efficient housing and appliances while others have far less capacity to reduce their energy consumption.

Economic issues

Employment deficits

The ratio of employment growth to population growth has been a major issue in Western Sydney for more than a decade. WSROC calculates that Western Sydney currently has an employment deficit of 182,000 and using current population and employment projections, this is expected to climb to 290,000 by 2036 (WSROC, 2012).

Although Blacktown is the site for much of the industrial land development in Western Sydney particularly in the short term,[14] the kinds of jobs available in the area do not always match the skills and qualifications of local residents. This kind of employment deficit means many residents are forced to travel long distances to work outside Blacktown. Insufficient public transport infrastructure – at least in some parts of the local area – means many of these workers commute by private vehicle.

In turn, this high level of dependence on private vehicles causes a range of other problems in the local area, such as congestion, noise and emissions. Stakeholders suggested these problems are likely to worsen if increased population growth in the area is not matched by an increase in local employment opportunities.

> *"Blacktown has grown, it's now very diverse, which is a positive, but it has not grown in a balanced way – there are no jobs, no open space, no sense of community."*

> *"Because we have tended to think of jobs last, we then have problems with getting industry out here, so then you need to put in highways. So we do that, instead of thinking about creating opportunities for industries that you want at the beginning and thinking about the transport needed for those industries."*

> *"Unless we are serious about jobs close to home, we may as well throw out the book on sustainability. More jobs closer to home, then you can start thinking about more people riding bikes, more buses, and then people don't need two cars."*

Skill levels and variety of employment

In addition to the lack of employment within a reasonable distance to where people live, several stakeholders also discussed the type and quality of employment that needs to be generated. The industrial profile of working Blacktown residents is currently concentrated in the retail trade, wholesale trade, manufacturing and health and community services industries. The significance of health and community services is largely a result of the large presence of state and federal government workers around the Mt Druitt area.

Stakeholders commented that retail and manufacturing industries largely contained lower-skilled occupations, and were vulnerable to casualisation and economic events (such as the current economic downturn and the high Australian dollar). The consensus among stakeholders was that if Blacktown was to achieve balanced growth, the area needed not only increased employment but also an increase in the variety of employment, including highly skilled occupations and business services industries.

> *"We have a growing wave of aspirational, highly qualified people living in Western Sydney. If the local employment structure stays the same then we are just going to have longer and longer commutes."*

> *"What are the employment expectations and how are people linked to opportunities? Is people's future only in warehouse and retail opportunities, or will there be more of a range of better jobs here? It's unclear what the future of employment is in Blacktown."*

[14] Sydney's Growth Centres, NSW Government Planning and Infrastructure. Viewed 6 September 2012. <http://www.gcc.nsw.gov.au>

Blacktown has one of the lowest levels of educational attainment within the Sydney metropolitan area. As a result employment for residents is focused in unskilled and semi-skilled occupations. However Blacktown will be the site of the largest releases of industrial zoned land over the coming decade, which will create additional employment opportunities in the area. What remains to be seen is whether there will be a good match between these opportunities and the skills of potential employees from the local area.

> *"We are very good at working on the supply side on industry, setting lands aside, creating a vision about what they might look like. But there is no consideration of the context in which land use change happens – whether it is happening in a meaningful way, what skill needs might arise and how we will address them."*

> *"There is lots of talk about decentralisation but how does that actually happen? Decentralisation usually refers to transferring employment, but what about creating employment for people in the local area, and increasing their skills so they can take up those job opportunities?"*

Housing affordability

Housing affordability is seen as a complex issue. Stakeholders pointed out that Blacktown is one of the more affordable areas of Sydney, and that many people, particularly lower income households, are relocating to the area for this reason. However, Blacktown has a very diverse population in socio-economic terms and includes pockets of new, relatively expensive housing, located adjacent to older and poorly maintained public housing estates.

Stakeholders also commented that the variety, density and location of the available housing were all linked to affordability. For example, a new house in the suburbs might be affordable to buy, but if the occupants need two cars to commute long distances daily to work, this impacted significantly on disposable income.

Challenges and issues of population growth in Blacktown

The indicator framework analysis shows that population growth is having environmental, social and economic impacts on the local area. Both the environmental indicators and the stakeholder interviews highlight the declining quality of the natural environment in Blacktown. Air pollution has increased markedly and stakeholders pointed to the increased dependence on cars and the expansion of industrial areas in Blacktown as two of the reasons for this increase.

The data suggests there is a growing awareness of resource efficiency, with both water use and domestic waste production per capita declining over the past five years. However, population growth means that the *total* growth in resource use has continued. Furthermore, Blacktown continues to record one of Sydney's highest levels of emissions.

The declining amount of native vegetation and the increasing rate of greenfields development were also represented in the stakeholder interviews as decreasing the availability of, and access to, nature, including bushland (particularly Cumberland Plain), waterways and the loss of the rural aspect of many of the outlying suburbs that are the sites for current and future development.

ABS Socio-economic Indexes for Areas (SEIFA) IRSD data shows that Blacktown is more disadvantaged than either the NSW or national average, and contains some areas of extreme socio-economic disadvantage. Blacktown was ranked as the tenth-most disadvantaged LGA in Greater Sydney in 2006, and the Blacktown-South West Statistical Local Area (SLA) was ranked as the second-most disadvantaged SLA in Sydney. However, despite the generally disadvantaged nature of the area, SEIFA scores do show that there is variability within the LGA. This diverse socio-economic structure was commented on by a number of stakeholders, who pointed to a complex economic geography with suburbs with high rates of disadvantage, unemployment, health and social issues next door to suburbs whose residents are relatively advantaged. The economic indicators also show this variability, with overall household wealth increasing, but average dwelling prices showing the wide spread of household income and wealth across the Blacktown area.

Three issues or challenges that emerged strongly in this case study from the stakeholder interviews and the analysis of documents were:

- lack of public transport options and transport connectivity, leading to high car dependence
- lack of local employment and lack of variety in local employment
- lack of long-term planning and lack of an integrated approach to planning and service delivery between the different levels of government (and between departments).

Lack of public transport infrastructure where it is needed, and at a frequency that could reduce car dependence, was seen as a symptom of infrastructure planning and development failing to keep pace with land releases and housing development. A number of stakeholders spoke of the false economy of providing affordable housing in the suburbs if households need to commute to work by vehicle (often multiple vehicles) and consequently have very high petrol bills. Some also pointed out that long commuting times also have social costs, as people spend many hours a week in a vehicle which is detrimental to their health, and makes achieving a healthy work-life balance very difficult.

Another suggested symptom of the lack of integration between levels of government was the provision of bus services in the area. Bus infrastructure, as defined by the state government, only includes the buses. Additional requirements such as bus stops, bus shelters, route maps and times, and adequate guttering to allow elderly and disabled passengers to access the buses are deemed necessary under federal accessibility legislation, yet they are not considered part of the state government bus infrastructure. It is therefore left to councils to cover the costs for provision of these facilities. The financial pressures on councils for infrastructure provision are significant, and are compounded by the fact that councils' ability to raise revenue is constrained by caps on both rates and developer contributions. This means that these additional aspects of bus infrastructure are often not provided, which results in a cycle of declining patronage and services.

This lack of coordination is also evident in the planning and development of employment lands and the creation of local employment and the variety (in occupations and industry) of this employment. Blacktown is dominated by retail, manufacturing, wholesale and logistics industries, as well as health and community services. Semi-skilled and unskilled professions dominate the occupational profile of Blacktown. Industries such as manufacturing and retail are vulnerable to national and international economic conditions (such as a high Australian dollar and low consumer sentiment), which, when combined with the lower skill levels of occupations, means lower employment security.

Many stakeholders highlighted that the nexus between local employment conditions (including variety) and public and active transport options is at the very heart of the sustainability (or unsustainability) of suburban population growth. Each of the major challenges discussed here (lack of public transport options, employment development and long-term infrastructure planning) also has implications for the ability of a community to *adapt* to rapid population growth, to integrate both new and old residents into the local community, and to create a shared sense of belonging. Public authorities and all levels of government have an important, although not always acknowledged, role to play in meeting this challenge.

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.

Spatial analysis of data using GIS could provide a further dimension to visualise the data picture emerging from these areas. This could be easily accomplished in some measurement variables with the release of the ABS census-mapping tool – and could provide the sub-LGA analysis that is essential to investigating the variance in socio-economic demographics in small areas within Blacktown.

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	Not available	Average annual RAQI value
	2. GHG emissions	Net greenhouse gas emissions	Available	n/a
		Greenhouse gas emissions per capita	Available	CO_2-e emissions population basis
	3. Energy usage	Residential and non-residential electricity use	Not available	Energy consumption
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 *EPBC Act*	Available	n/a
	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)	Available	n/a
		Water availability to meet demand	Not available	Percentage dam storage levels
Land	8. Ground cover	Ground cover	Not available	No alternative measure available
Waste	9. Waste disposed to landfill	Waste disposed to landfill	Not available	Domestic garbage per capita; % waste diverted from landfill
	10. Recycling rates	Proportion of waste generated being recycled	Not available	Domestic recycling per capita

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	Available	n/a
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	Available	Participation rate
Security	24. Security	Feelings of safety	Not available	No alternative measure available
		Incidence of personal and household crime	Available	n/a

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
		Other	Available	Worked at home/did not go to work
	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
Productivity and	32.Multifactor productivity	Multifactor productivity	Not available	Gross regional product (GRP) per capita
	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	Available	n/a
	37. Population density	Number of persons per square kilometre	Available	n/a
	38. Gender and age profile	Gender and age profile	Available	n/a
Land use	39. Land use change	Rates of greenfield development	Not available	% infill development; % greenfield development
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

Summary of theme and indicator data for Blacktown

Table 19: Natural capital - data figures

Natural capital						
Theme	**Indicator**	**Measure**	**Data**	**Frequency**	**Spatial resolution**	**Data source**
Climate and atmosphere	1. Air quality	Average annual RAQI value	73 days in 2009, 53 days in 2005, Increase of 37%	Annual (2005-2010)	North West Sydney Region	Local SoE
	2. GHG emissions	Net greenhouse gas emissions	4,551,629 tonnes CO_2 (2006)	Infrequent	LGA	Local SoE (calculated by ISF using population figures and per capita GHG emissions)
		Greenhouse gas emissions per capita	14.0 tonnes CO_2 (1998), 15.9 tonnes CO_2 (2006), Increase*	Infrequent	LGA	Local SoE
		CO_2-e emissions population basis	3.9Mt CO_2-e (2008), 3.9% of Sydney metro	One off (2008)	LGA	Arup
	3. Energy usage	Energy consumption	28PJ (2008), 7.6% of Sydney metro	One off (2008)	LGA	Arup
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	16 vulnerable, 17 endangered, 2 critically endangered species	Annual (2005-2010)	LGA	Local SoE

	6. Reestablishment of local of vegetation communities	Number of hectares under restoration by Council and volunteers	117h (2007), 265h (2010), Increase*	Annual (2006-2010)	LGA	Local SoE
Water	7. Water consumption	Water consumption (per capita)	86.6kL/person (2010), 6.9% decrease from 2005	Annual (2005-2010)	LGA	Local SoE
		Total LGA water consumption	471ML (2010), 27.6% increase from 2005	Annual (2005-2010)	LGA	Local SoE
		Dam storage levels	Fluctuation between 51.5% and 65.2%	Monthly (2009-2010)	Sydney Catchment	Local SoE
Land	8. Ground cover	Ground cover	Not available	n/a	n/a	n/a
Waste	9. Waste disposed to landfill	Domestic garbage per capita (kg)	300kg/person (2010), 3.8% decrease from 2006	Annual (2006-2010)	LGA	Local SoE
		% waste diverted from landfill	49% (2010), 7.5% decrease from 2006	Annual (2006-2010)	LGA	Local SoE
	10. Recycling rates	Domestic recycling per capita (kg)	86kg (2010), 2.2% decrease from 2006	Annual (2006-2010)	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	4.3% (2001), 5.9% (2006), Increase*	5 years (Census)	LGA	ABS
		% adults with certificate/ adv diploma	13.4% (2001), 13.6% (2006), Increase*	5 years (Census)	LGA	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	11.8% (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	16.1% (2007), NSW 15.3% (2007)	2004 & 2007	LGA	PHIDU, compiled from ABS & NHS data
	16. Obese persons	% of adults who are overweight or obese	34.3% (2007), NSW 37.0% (2007)	2004 & 2007	LGA	PHIDU, compiled from ABS & NHS data
	17. Mental health	% of adults rated as psychologically distressed	9.6% (2007), NSW 9.3% (2007)	2004 & 2007	LGA	PHIDU, compiled from ABS & NHS data

	18. Access to open space	Open space per capita	154 m^2 (2005), 150 m^2 (2010), Decrease*	Annual (2005-2010)	LGA	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	11.1% (2006), 11.6% (2011), Increase*	5 years (Census)	LGA	ABS
Employment	21. Underemployment rate	Hours worked per week	24.7 hours (2011), 0% change from 2007	Annual	NIEIR region	SoR
	22. Unemployment rate	Unemployment rate	6.8% (2012), NSW 4.9% (2012), Decrease*	Monthly	DEEWR labour force region	DEEWR, Labour Force Region
	23. Local employment	% people working and living in the	29.7% (2006)	5 years (Census)	LGA	ABS
		Participation rate	63.8% (2012), NSW 63.3% (2012)	Monthly	DEEWR labour force region	DEEWR, Labour Force Region
Security	24. Security	Feelings of safety	Not available	n/a	n/a	n/a
		Incidence of reported crime	NSW ratio 1.3 violent offences, 1.2 for property offences	Annual	LGA	BOCSAR

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	$400,000 (2001), $431,000 (2012), Increase*	Annual	NIEIR region	SoR
Housing	26. Housing supply gap	Average dwelling price	$278,000 (2001), $360,000 (2012), Increase*	Annual	NIEIR region	SoR
	27. Housing affordability	% of low income households in rental stress	25.4% (2006), NSW 25.0% (2006)	5 years (Census)	LGA	PHIDU
		% of low income households in mortgage stress	10.24% (2006), NSW 9.35% (2006)	5 years (Census)	LGA	PHIDU
Transport and infrastructure	28. Mode of transport to work	Car as driver	57% (2001), 60% (2006), Increase*	5 years (Census)	LGA	ABS
		Car as passenger	7% (2001), 7% (2006), Increase*	5 years (Census)	LGA	ABS
		Public transport	16% (2001), 15% (2006), Decrease*	5 years (Census)	LGA	ABS
		Walking	2% (2001), 2% (2006), Increase*	5 years (Census)	LGA	ABS
		Worked at home/did not go to work	12% (2001), 11% (2006), Decrease*	5 years (Census)	LGA	ABS
		Other	6% (2001), 6% (2006), Decrease*	5 years (Census)	LGA	ABS
	29. Transport infrastructure	Kilometres of dedicated cycling	45.8 km (2005)	One-off	LGA	Local Council (calculated by ISF)
	30. Access to broadband Internet	% households with broadband	43% (2001), 73% (2006), Increase*	5 years (Census)	LGA	ABS
Income	31. Income disparity	Social security take-up	12.0% (2011), 0.2% decrease from 2007	Annual	NIEIR region	SoR

		Household debt service ratio	17% (2001), 20% (2011), Increase*	Annual	NIEIR region	SoR
		Average dwelling price to household disposable income	3.2 (2001), 3.4 (2011), Increase*	Annual	NIEIR region	SoR
Productivity and innovation	32. Multifactor productivity	GRP per capita	$34,871 (2010), national $40,234 (2011$)	Annual	NIEIR region	SoR
	33. Innovation	Patent counts per population	12.47 per 100,000 (1994-2011), national average 21.01	Annual	NIEIR region	SoR
Socio-economic status	34. Relative socio-economic disadvantage	ABS IRSD score	Blacktown 973, 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	264,799 (2001), 313,057 (2011), Increase*	Annual	LGA	ABS
	36. Rate of growth	Annual rate of population growth	Average 1.69% per annum 2001–2011	Annual	LGA	ABS
	37. Population density	Number of persons per square kilometre	1093.8 (2001), 1293.1 (2011), Increase*	Annual	LGA	ABS
	38. Gender and age profile	Gender and age profile	See Figure 5	5 years	LGA	ABS
Land use	39. Land use change	% infill development	31% in (2001), 42% (2009), Increase*	Annual (2005-2009)	LGA	Local SoE
		% greenfield development	69% (2001), 58% (2009), Decrease*	Annual (2005-2009)	LGA	Local SoE
Cultural diversity	40. Proficiency in spoken English	% do not speak English well or not at all	4.11% (2001), 4.74% (2011), Increase*	5 years	LGA	ABS
	41. Indigenous population	% Indigenous	0.98% (2001), 2.70% (2011), Increase*	5 years	LGA	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	37.7% in 2011, 32.2% in 2001	5 years	LGA	ABS
	45. Domestic or internal migration	Net number of regional internal migrants	Data inconclusive[15]	Annual (2006-2010)	SLA	ABS

[15] ABS (cat. no. 3412.0) Migration, Australia, 2010-11 experimental regional internal migration estimates. Data for Blacktown inconclusive.

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APPENDIX A

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

Country of birth	2001	2011	Percentage point change 2001-2010
Australia	61.4%	57.7%	-3.7%
Bosnia and Herzegovina	0.3%	0.2%	0.0%
Cambodia	0.0%	0.0%	0.0%
Canada	0.1%	0.1%	0.0%
China (excl. SARs and Taiwan)	0.9%	1.0%	0.2%
Croatia	0.5%	0.4%	-0.2%
Egypt	0.6%	0.6%	0.0%
Fiji	1.7%	2.2%	0.5%
Former Yugoslav Republic of Macedonia	0.1%	0.1%	0.0%
Germany	0.5%	0.4%	-0.1%
Greece	0.4%	0.3%	-0.1%
Hong Kong (SAR of China)	0.3%	0.3%	0.0%
India	1.7%	5.1%	3.4%
Indonesia	0.3%	0.4%	0.2%
Iraq	0.3%	0.4%	0.2%
Ireland	0.2%	0.2%	0.0%
Italy	0.7%	0.5%	-0.2%
Japan	0.0%	0.0%	0.0%
Korea, Republic of (South)	0.4%	0.4%	0.0%
Lebanon	0.6%	0.6%	0.0%
Malaysia	0.4%	0.4%	0.0%
Malta	1.3%	0.9%	-0.4%
Netherlands	0.3%	0.2%	-0.1%
New Zealand	2.2%	2.5%	0.2%
Philippines	5.3%	6.4%	1.1%
Poland	0.5%	0.4%	-0.2%
Singapore	0.1%	0.1%	0.0%
South Africa	0.5%	0.6%	0.1%
South Eastern Europe	0.5%	0.2%	-0.3%
Sri Lanka	0.8%	1.2%	0.4%
Thailand	0.1%	0.2%	0.1%
Turkey	0.5%	0.4%	0.0%
United Kingdom, Channel Islands and Isle of Man	3.6%	2.5%	-1.1%
United States of America	0.2%	0.2%	0.1%
Vietnam	0.3%	0.3%	0.0%
Born elsewhere	6.1%	8.1%	2.1%
Country of birth not stated	6.3%	4.6%	-1.7%