



A UNIVERSITY FOR BLACKTOWN

GREATER SYDNEY TERTIARY STUDENTS AND STAFF

FINAL REPORT
JUNE 2017

Prepared for
Blacktown City Council

Independent
insight.



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EXECUTIVE SUMMARY

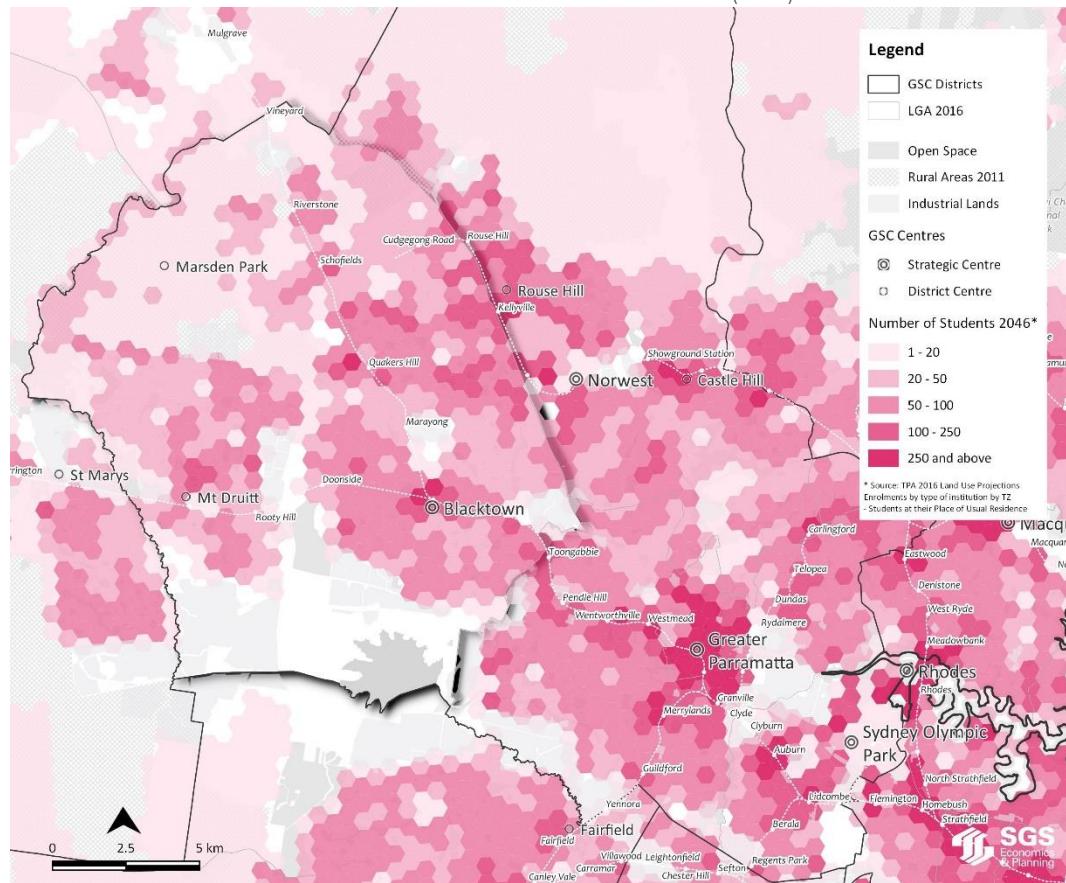
Blacktown City Council (BCC) is in the process of investigating the potential for a new university campus in Blacktown strategic centre. SGS Economics and Planning (SGS) was commissioned by BCC to prepare an evidence base to inform these investigations. This report provides an analysis of current and projected university students and staff in Blacktown, Western Sydney and Greater Sydney. The key findings of the report are summarised below. Further details on the data sources and limitations can be found throughout the report.

University students

Blacktown LGA has a significant number of university students, accounting for one in every 20 students across Greater Sydney. In the next 30 years, the number of tertiary students in Blacktown is projected to increase to 29,000.

Approximately 18,000 university students resided in the Blacktown LGA in 2016. This represents 15 percent of all students living in Western Sydney and 5 percent of all university students living in Greater Sydney. The student population of Blacktown is forecast to increase to 29,000 by 2046. This is larger than all current enrolments across Western Sydney University's six campuses. Growth in resident university students in Blacktown is forecast to increase on par with the growth rate for Western Sydney and exceed the rate of growth forecast for Greater Sydney to 2046.

FORECAST UNIVERSITY STUDENT RESIDENT LOCATION – BLACKTOWN LGA (2046)



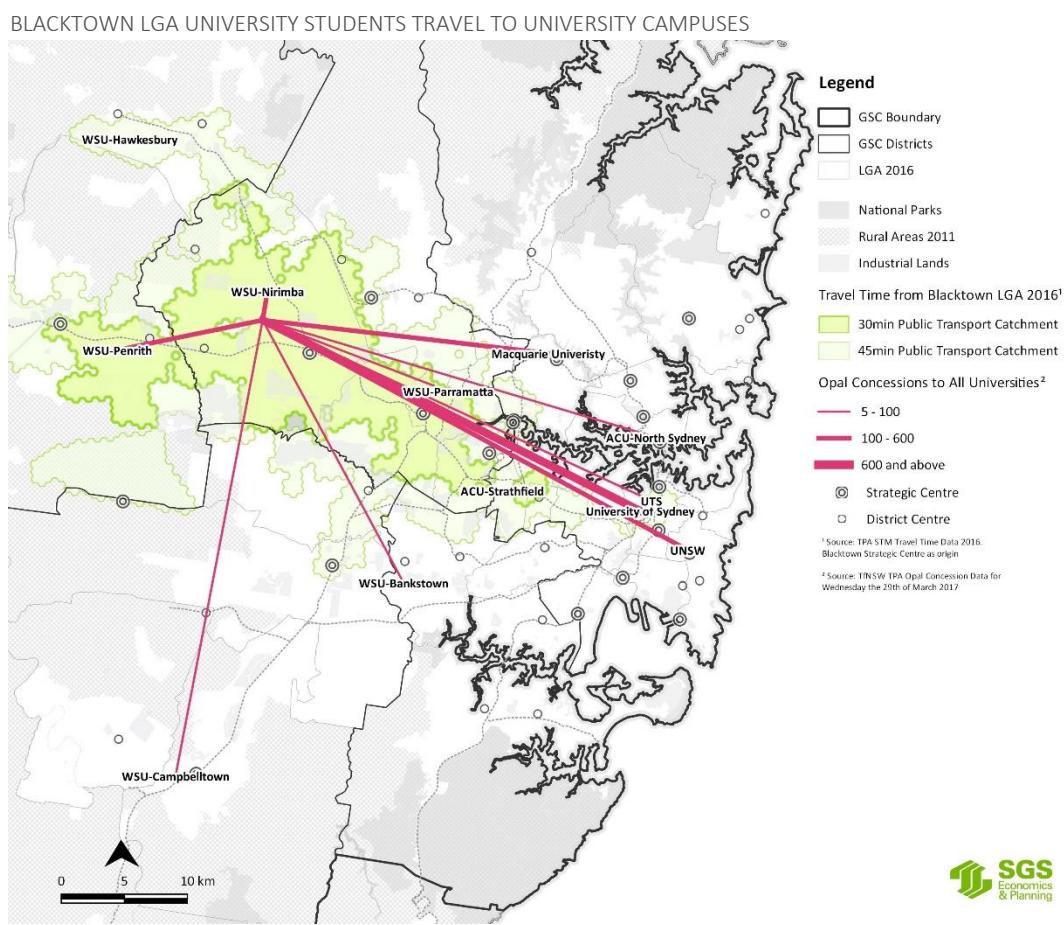
Source: SGS, 2017

Despite a considerable, growing number of university students in Blacktown and Western Sydney, the majority of university places remain clustered in and around the Sydney CBD.

Western Sydney contains 18 percent of student places in Greater Sydney despite containing 37 percent of all university students. Greater Sydney's three largest universities (the University of Sydney, the University of New South Wales and University of Technology Sydney) are clustered in and around the Sydney CBD. Macquarie University also has significant student enrolments clustered in Macquarie Park. This distribution of student places is forecast to continue over the next thirty years, with these four campuses attracting the majority of future student enrolments.

University students in Blacktown travel across the metropolitan area to access a tertiary education to meet their needs.

The average travel time for students travelling to university across Sydney is 51 minutes. The top three campuses by number of students travelling by public transport are the University of Sydney, University of New South Wales and Western Sydney University's Penrith campus. Blacktown LGA residents also represent significant proportion of students travelling to these campuses. This has occurred despite a commute to university longer than 45 minutes from most of the Blacktown LGA to the University of Sydney and University of New South Wales. This demonstrates a demand for the courses offered by these institutions. While Western Sydney Penrith campus is close to the Blacktown LGA, university students residing in the Blacktown LGA are willing to travel long distances to attend the university that meet their needs and desires for their education. This pattern is likely to continue into the future if student enrolments consolidate in the city's east.

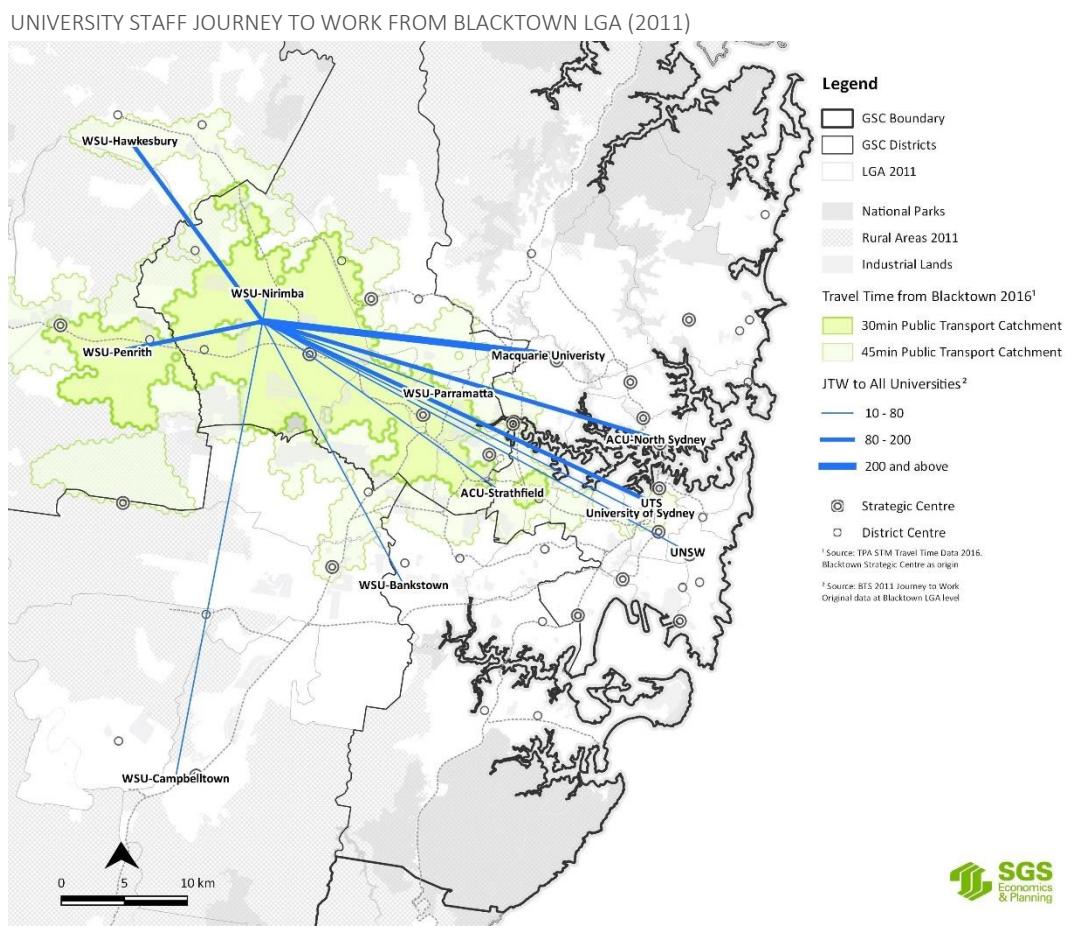


Source: SGS, 2017

University staff

Blacktown residents who work at universities also travel across the metropolitan area for work, however there is higher prevalence of 'local' commutes.

There are Blacktown LGA residents work at different university campuses across Greater Sydney. The top three university campuses as a place of employment for Blacktown residents are Macquarie University, Western Sydney University's Penrith campus and Western Sydney University's Hawkesbury campus. These campuses are relatively close to the Blacktown LGA compared to other university campuses.



Across Greater Sydney, university staff generally live close to where they work.

Across the university campuses reviewed, it is evident that university staff tend to live close to their place of work. This trend has been noted for campuses across Greater Sydney, where the LGA that contains the campus also contains the most number of university staff that work at that campus.

The Blacktown strategic centre is well connected to much of Greater Sydney by public transport, connecting the centre to a number of university campuses.

The Blacktown strategic centre is well connected to a significant proportion of Greater Sydney within a 30 minute commute by public transport, extending from Penrith to Lidcombe, Windsor to Guildford. This area incorporates the North West Priority Growth Area and much of the forecast growth in Sydney's population over the next 30 years. The University of Sydney and University of Technology Sydney are accessible within 45 minutes by public transport from the Blacktown strategic centre.

1. INTRODUCTION

1.1 Background Context

Blacktown City Council (BCC) is in the process of investigating the potential for a new university campus being located in Blacktown strategic centre.

It is well known that Sydney's tertiary education institutions are focussed in the east. While recent years seen increased investment in universities across Western Sydney (in Parramatta and Liverpool), there remains a disconnect between where population growth is directed, and historical development and consolidation of major universities. In 2011, there were 116,000 tertiary students living in Greater Western Sydney, an increase of 21,395 university students from 2006. This compares to just 44,000 tertiary education places in Western Sydney, or only 18 percent of total places across Greater Sydney. BCC is investigating opportunities to attract a tertiary education institution to locate and invest in Blacktown strategic centre.

A university campus in Blacktown would go a long way to service current and potential future students living in Blacktown, and the wider Western Sydney Region. In addition, a campus, along with students and employees could generate additional flow on benefits for the centre and surrounding areas.

1.2 Scope of Work

SGS Economics and Planning (SGS) was commissioned by BCC to prepare an evidence base to inform investigations for a future university campus in Blacktown. This report provides an analysis of current and projected tertiary students and university staff in Blacktown, Western Sydney and Greater Sydney.

The purpose of the project is to develop a clear evidence base identifying potential future university students in and around the Blacktown local government area, and potential location of future staff.

The research will be used to inform key stakeholders on the potential scope of the opportunity. The research looks at current day patterns, and takes a 30 year outlook, to 2046, based on the best available data sources.

The scope of work for this project is:

- identify current residential location of university students in Blacktown LGA, Western Sydney and Greater Sydney
- identify the current locations of existing major tertiary institutions in Greater Sydney
- explore the travel patterns of current university students from Blacktown LGA
- identify the potential increase in university students out to 2046 (30 year outlook), and
- explore number of current university employees in Greater Sydney, and their travel patterns.

1.3 Data Sources and Limitations

The following data sources were incorporated into this analysis:

- Census data (2011)
- Population forecasts from Transport Performance and Analytics (2016)
- Transport for NSW's Household Travel Survey (2015/16)
- Opal card data for concession card holders (2017)
- University annual reports (2015)

This data is the best available at the time of writing.

Data from the 2016 Census was not available at the time of writing. The 2016 Census data is scheduled for released in October 2017.

The Department of Education was contacted to obtain data on student home locations and other. Delays in receiving this data mean that it will be analysed and incorporated into a final report.

1.4 Report Structure

The remaining chapters of the report are as follows:

Chapter 2: Where students live	Analysis of current and future places of residence for university students in the Blacktown LGA and Greater Sydney
Chapter 3: Where students study	Analysis of current and future place of study for university students
Chapter 4: How students travel to university	Analysis of travel time, patterns and modes of transport of university students
Chapter 5: University staff	Analysis of where university staff live and work
Chapter 6: Summary of key findings	Synopsis the results and findings of Chapters 2 to 5.

2. WHERE STUDENTS LIVE

This chapter analyses the location of resident university students across the Blacktown LGA and Greater Sydney now and at 2046

2.1 Students in Blacktown

Students in Blacktown Today

In 2011, there were 11,033 university students in Blacktown (Census, 2011). They represent 15 percent of all university students in Western Sydney and five percent of students in Greater Sydney. Blacktown was Sydney's largest LGA at the time of the 2011 Census, with 315,000 residents in 2011.

Of these 11,000 students residing in Blacktown, 3,610 were studying part time, and the remainder were full time. The majority of students were aged between 15 and 24, accounting for 6,740 (62 percent) of university students residing in the Blacktown LGA.

Table 1 shows the mix of full time and part time students in the Blacktown LGA by age. Most full time university students were aged between 15 and 24 years old, representing 86 percent of full time students at 2011. Conversely, just under two thirds of part time students were aged 25 years and over.

TABLE 1: BLACKTOWN UNIVERSITY STUDENTS BY AGE AND STUDY STATUS

Student status	Full time	Part time	% full time	% part time	Total
Aged 15-24	5,820	920	86%	14%	6,740
Aged 25 and over	1,510	2,690	36%	64%	4,210
Total	7,330	3,610	67%	33%	10,950

Source: ABS, 2011 (note, figures rounded to nearest 10)

Note: 92 university students from the Blacktown local government area at the 2011 did not identify their full time/part time status

The participation rate of Blacktown LGA residents aged 15 years and over in university study is shown in Table 2. At 2011, 4.8 percent of all Blacktown LGA residents were engaged in university study.

TABLE 2: UNIVERSITY PARTICIPATION RATE OF BLACKTOWN RESIDENTS

Region	Participation rate
Blacktown	4.8%

Source: ABS, 2011

The participation rate of Blacktown residents is benchmarked against local government areas containing university campuses in Table 3. The participation rate of Blacktown residents in university study is comparable to local government areas in Western Sydney which contain a university campus. However, local government areas with one or more large university campuses, such as Ryde, Randwick and the City of Sydney, have a significantly higher proportion of their resident population engaged in university study.

Despite these lower participation rates, Blacktown local government has a higher number of resident university students than most local government areas with a university campus. Out of the local government areas with a university campus, only Randwick and the City of Sydney have a larger quantum of university students.

TABLE 3: UNIVERSITY PARTICIPATION RATE OF BLACKTOWN RESIDENTS AND SELECT LOCAL GOVERNMENT AREAS

Region	Number of resident university students	Participation rate
Blacktown	11,033	4.8%
Bankstown	7,429	5.2%
Campbelltown	4,862	4.3%
North Sydney	4,148	7.5%
Parramatta	9,405	7.0%
Penrith	5,433	3.9%
Randwick	14,119	12.9%
Ryde	9,330	10.9%
Strathfield	2,803	9.5%
City of Sydney	19,441	12.3%

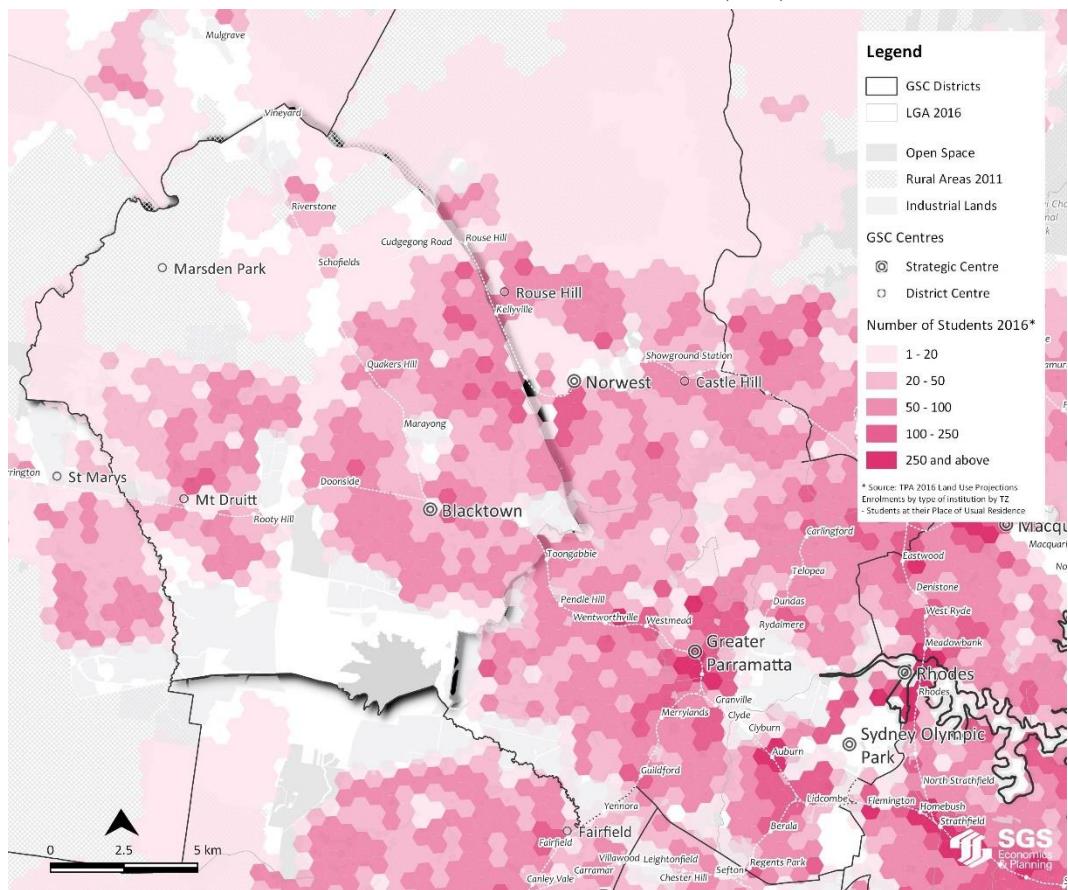
Source: ABS 2011

Data from TPA provides an estimate of student numbers for 2016, based on population growth and the location of students within Blacktown.

Figure 1 shows the resident location of students across the Blacktown LGA at 2016. The data estimates a total of 18,400 tertiary students in Blacktown in 2016. The greatest concentrations of university students residing in Blacktown are evident in the newer release suburbs of Stanhope Gardens and The Ponds and clustered around Blacktown strategic centre and Mount Druitt district centre. The lowest numbers of resident university students are evident in the north of the Blacktown LGA. These areas are currently sparsely populated and form part of the North West Priority Growth Area evident in the north west of the Blacktown LGA.

Significant clustering of university students in the West Central District is evident around Greater Parramatta, the densest residential area in the District, Auburn, and the Western Sydney University campus in Rydalmere.

FIGURE 1: UNIVERSITY STUDENT RESIDENT LOCATION – BLACKTOWN LGA (2016)



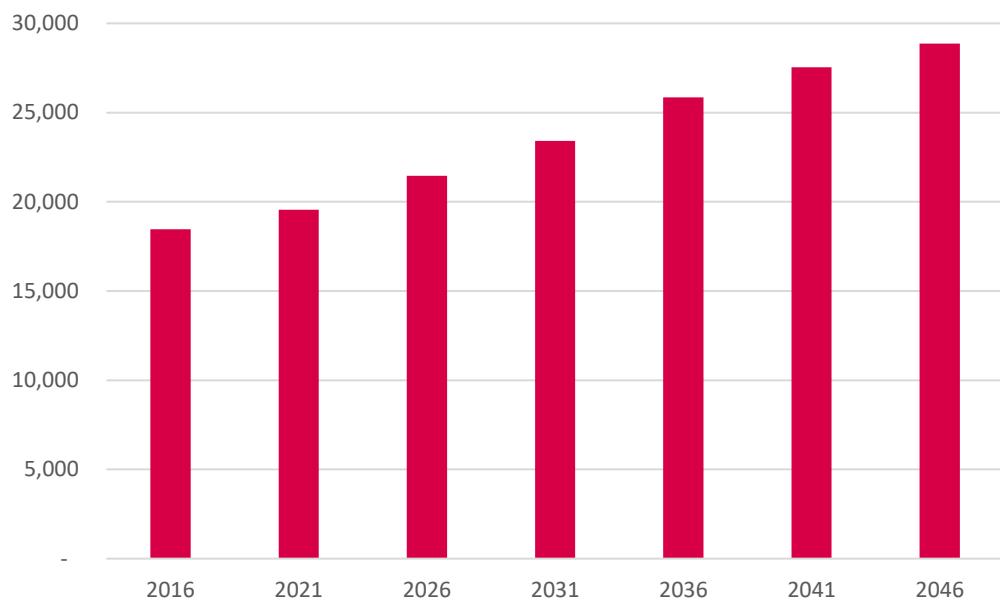
Source: SGS, 2017 using TPA, 2016

Students in Blacktown in 2046

The forecast resident location of university students in the Blacktown LGA at 2046 is shown in Figure 2. The number of university students is forecast to increase across the LGA by 10,400 students from 2016 numbers, resulting in approximately 29,000 resident university students. The greatest period of growth is forecast to occur between 2021 and 2036, with an additional 2,000 university residing in the Blacktown LGA every five years.

These forecasts assume that university campuses remain in their current location as at 2016 with no new additional campuses in Greater Sydney. The number of university students residing in Blacktown LGA over the next 30 years may change if a university campus locates in the LGA as the number and proportion of resident university students is generally higher in LGAs that contain a university (see section 2.1).

FIGURE 2: FORECAST STUDENT POPULATION GROWTH IN BLACKTOWN LGA (2016-2046)



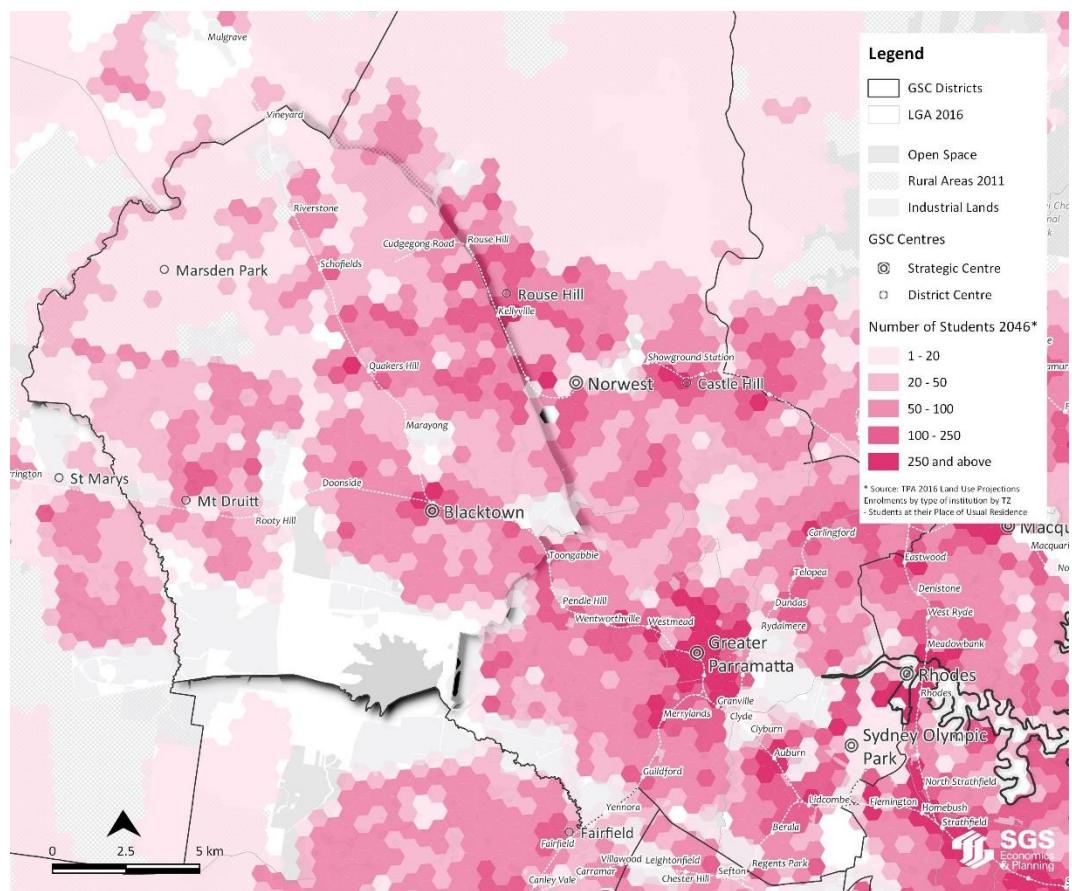
Source: TPA, 2016

This is consistent with the TPA population forecasts which suggest an additional 300,000 people in the Blacktown LGA by 2046. The growth in university students residing in Blacktown is forecast to grow at a slower rate than the overall population, growing by 56 percent from 2016 to 2046. The population of Blacktown LGA as a whole is forecast to grow by 74 percent over this period.

Blacktown's share of university students is forecast to increase. At 2046, Blacktown's share of Western Sydney's university students is forecast to increase to 16 percent. The forecast share of university students across Greater Sydney is forecast to increase to six percent.

Existing clusters around the Blacktown strategic centre and in north east of the LGA are forecast to remain and strengthen. Increases in resident students are forecast in the North West Priority Growth Area as land is developed for residential uses. There is a significant forecast increase of resident university students between Blacktown strategic centre and Greater Parramatta.

FIGURE 3: FORECAST UNIVERSITY STUDENT RESIDENT LOCATION – BLACKTOWN LGA (2046)



Source: SGS, 2017

2.2 Students across Greater Sydney

Students across Greater Sydney Today

The participation rate of residents aged 15 years and over across Blacktown LGA, Western Sydney and Greater Sydney at 2011 is shown in Table 4. The participation rate of Blacktown residents LGAs is lower than Western Sydney (5.4 percent) and Greater Sydney (6.7 percent).

TABLE 4: UNIVERSITY STUDY PARTICIPATION RATE

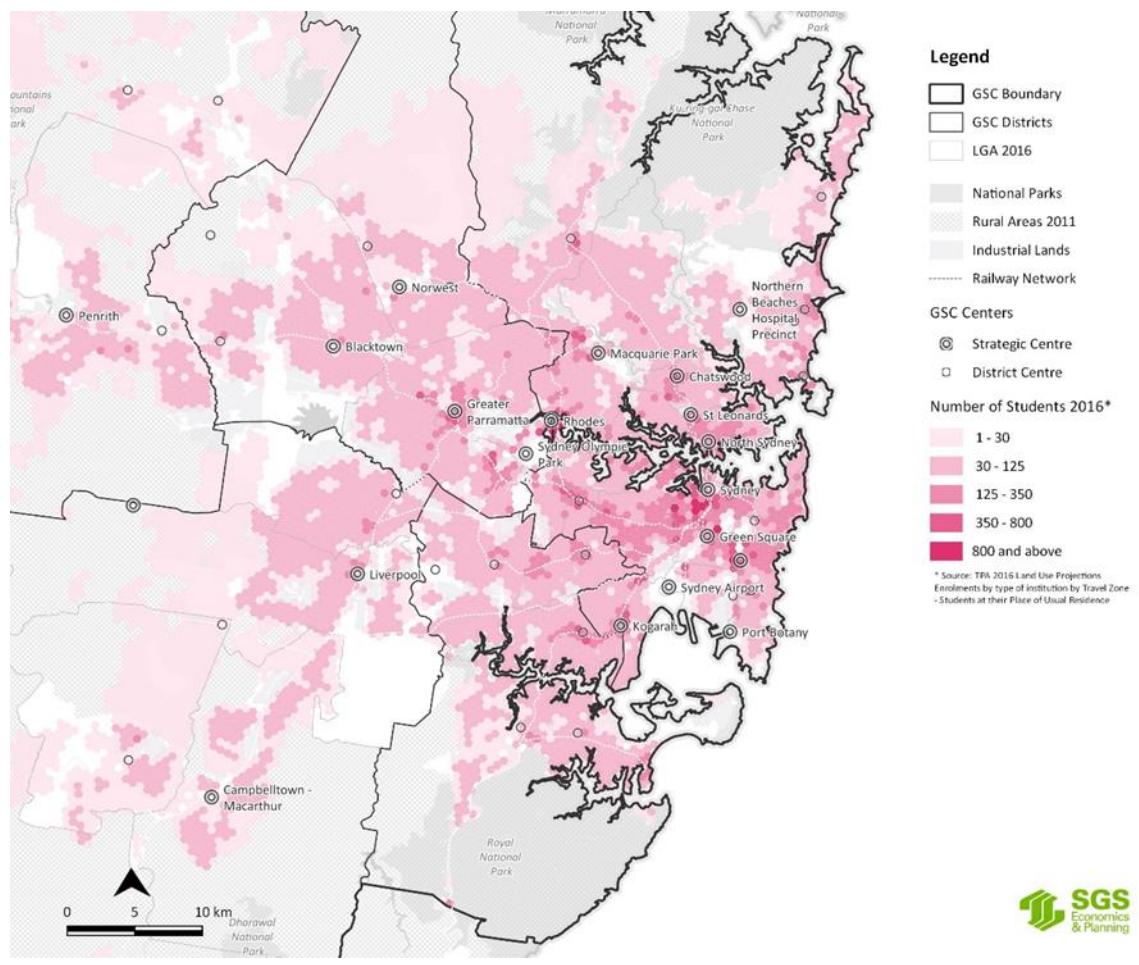
Region	Participation rate
Blacktown	4.8%
Western Sydney	5.4%
Greater Sydney	6.7%

Source: ABS, 2011

Figure 3 below shows the distribution of university students across Greater Sydney at 2016. It is evident that despite the majority of university campuses being located in and around the Sydney CBD, university students reside across the metropolitan area. The distribution of students in Blacktown and Western Sydney is similar to other areas in Sydney with similar built form and densities.

Where there are clusters of university students, they are located in highly accessible locations proximate to a university and/or train stations that are well connected to universities. The most significant clusters of university students are evident in Camperdown-Ultimo, Green Square, Kensington and Rhodes. Clustering around trains stations is more prominent along rail lines in Sydney's south and along the Northern line between Epping and Strathfield.

FIGURE 4: UNIVERSITY STUDENT RESIDENT LOCATION – GREATER SYDNEY (2016)



Source: SGS, 2017, based on TPA data

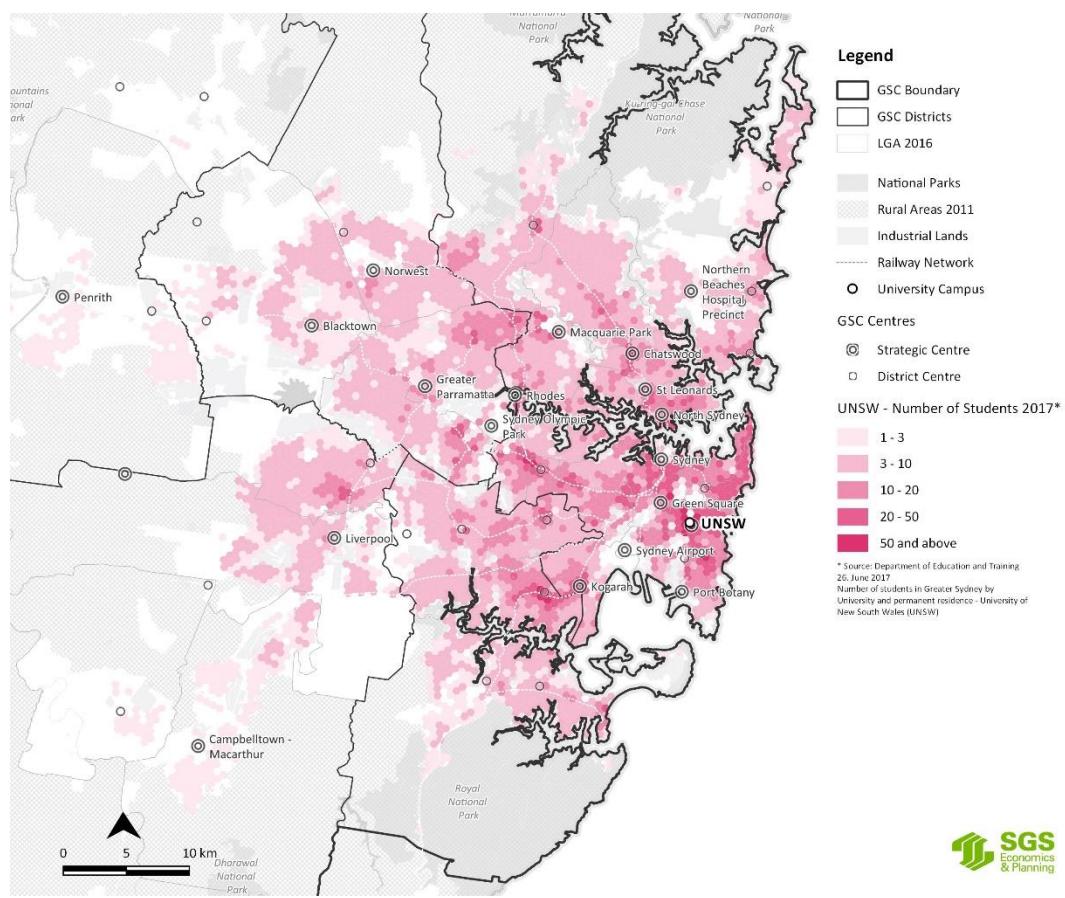
Analysis of the permanent and term residence of students in the Blacktown LGA has found very similar numbers of resident students in the Blacktown LGA (i.e. a difference of 5). This suggests few students moving out of the Blacktown LGA. However, it should be recognised that the Western Sydney University Nirimba campus contains student accommodation, which may mask students moving out of the Blacktown LGA to live close to university.

The following maps provide an overview of student resident location students attending Greater Sydney's two largest institutions – the University of Sydney and University of New South Wales – and Western Sydney University – the university that records the highest number of students from the Blacktown LGA (see Chapter 3 for further details).

University of New South Wales

Figure 5 shows the location of students who study at the University of New South Wales by their permanent address. The highest concentration of students is evident around the campus and Green Square, as well as Strathfield, Hurstville and Fairfield. High numbers of students attending the University of New South Wales are evident across the eastern suburbs, the inner west, Georges River LGA and in Epping and surrounds. Concentrations of University of New South Wales students in the Blacktown LGA are evident through Stanhope Gardens, The Ponds, Doonside, Kings Langley and the Blacktown Strategic Centre

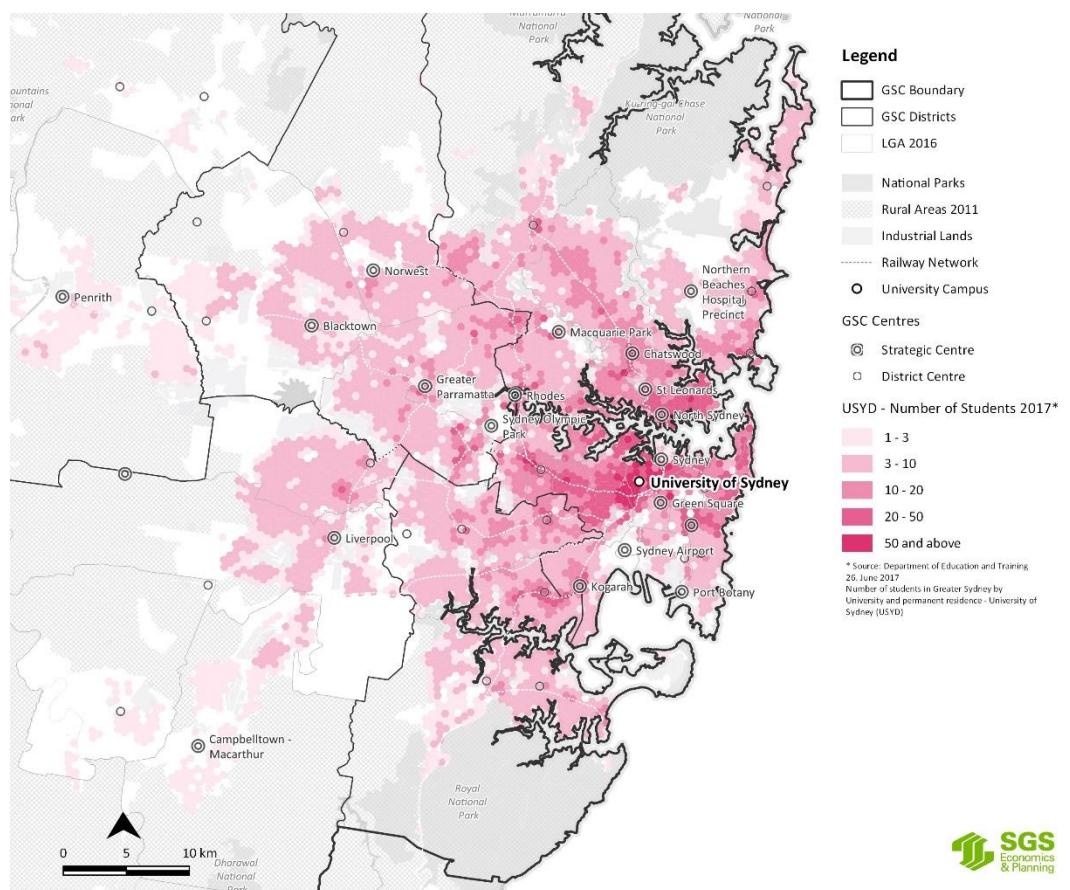
FIGURE 5: UNIVERSITY STUDENT RESIDENT LOCATION – UNIVERSITY OF NEW SOUTH WALES



University of Sydney

Figure 6 shows the location of students who study at the University of Sydney by their permanent address. The greatest number of students attending the University of Sydney have their permanent residential address in Sydney's inner west and the lower north shore. Concentrations of University of Sydney students are also evident in the eastern suburbs, northern suburbs and in Merrylands and Hurstville and their surrounds. Blacktown LGA residents attending the University of Sydney reside across the LGA.

FIGURE 6: UNIVERSITY STUDENT RESIDENT LOCATION – UNIVERSITY OF SYDNEY



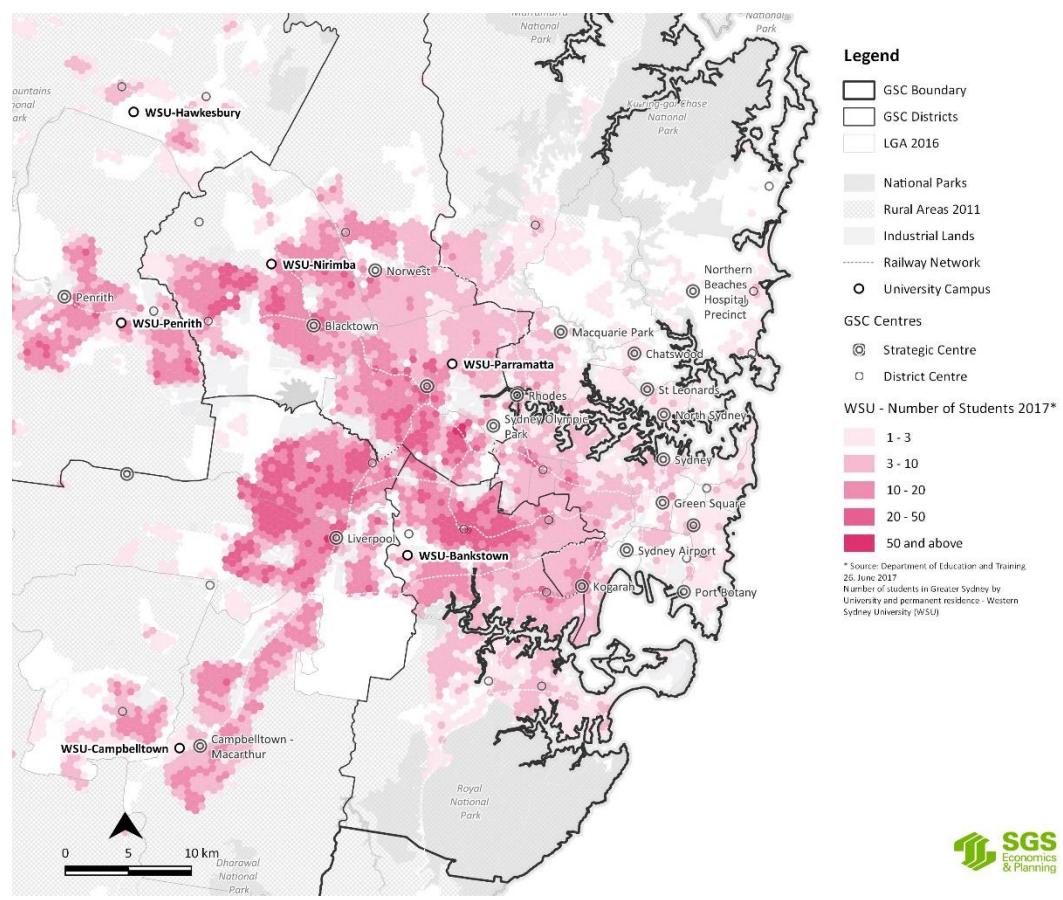
Source: SGS, 2017; based on DET data

Western Sydney University

Figure 7 shows the location of students who study at one or more of the Western Sydney University's six campuses by their permanent address. Data for Western Sydney University is not available by campus and is only available for the university as a whole.

The majority of students attending Western Sydney University reside in Western Sydney. The highest number of students have permanent residential address in Liverpool strategic centre, Bankstown district centre, Auburn, Fairfield LGA, Liverpool LGA and Canterbury LGA. High numbers of students have been recorded residing across the Blacktown LGA. The highest concentrations of resident students attending Western Sydney University are evident in Quakers Hill, Doonside, Dean Park, Hassall Grove and Minchinbury.

FIGURE 7: UNIVERSITY STUDENT RESIDENT LOCATION – WESTERN SYDNEY UNIVERSITY



Students in Greater Sydney in 2046

University students are forecast to increase across Greater Sydney in 2046. As evident in Figure 4, existing clusters along rail corridors and surrounding university campuses are forecast to grow. The cluster of resident university students in the Blacktown strategic centre is significant on a metropolitan scale and is similar to Kogarah, which is significantly closer to Greater Sydney's largest university campuses.

Table 5 outlines the forecast growth in student numbers to 2046 for the Blacktown LGA, Western Sydney and Greater Sydney. The number of students in the Blacktown LGA is forecast to increase by 56 percent from 2016 to 2046, increasing to approximately 29,000 university students in 2046. This is comparable to the forecast growth in university students across Western Sydney (58 percent) and is higher than the forecast growth for Greater Sydney (46 percent). The growth in resident university students in the Blacktown LGA has a compounded annual growth rate of 1.5 percent.

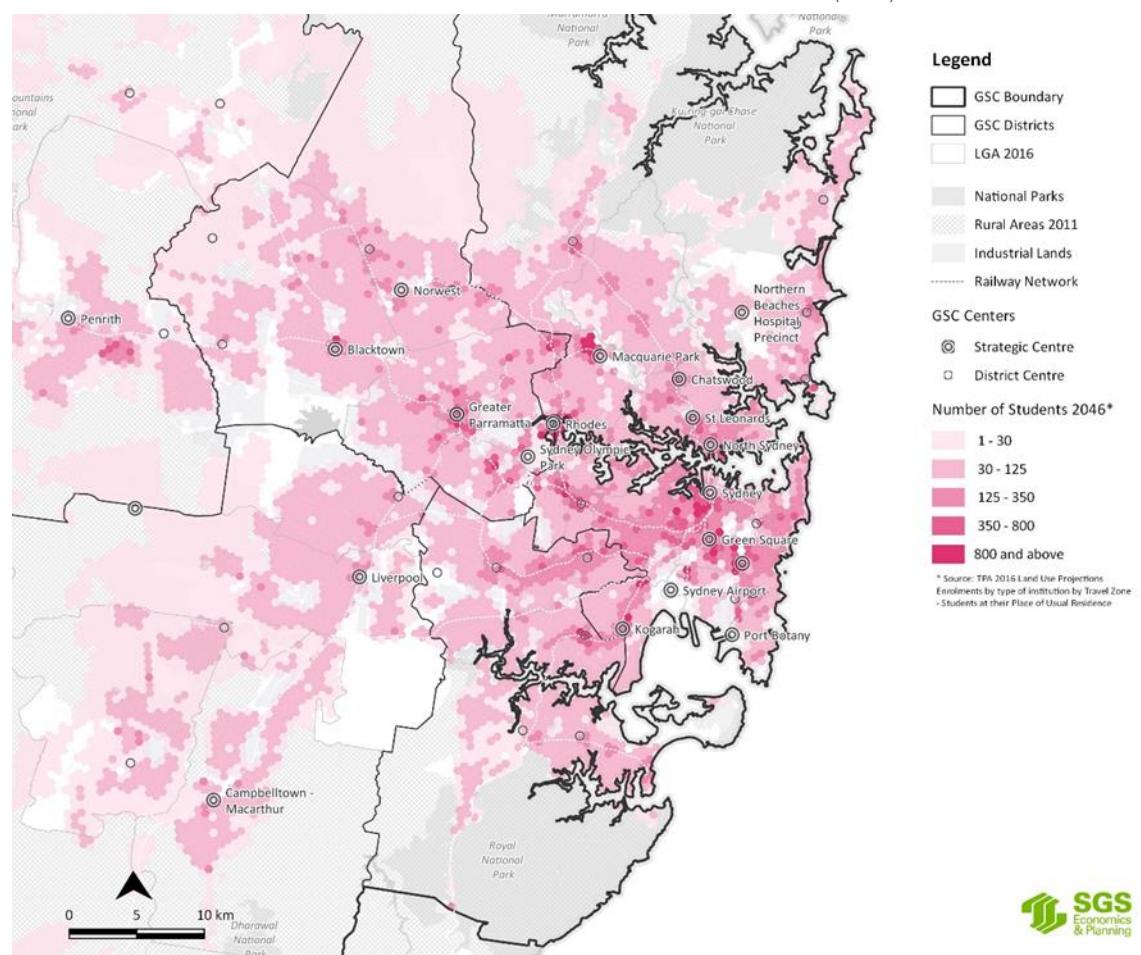
In all three regions reviewed, the growth in population exceeds the growth in the university student population.

TABLE 5: GROWTH IN RESIDENT STUDENTS AND THE GENERAL POPULATION

	Total students		Proportion of total residents		Increase in students 2016-2046	% increase in students 2016-2046	% increase in population 2016-2046
	2016	2046	2016	2046			
Blacktown	18,470	28,880	5.2%	4.8%	10,410	56%	71%
Western Sydney	116,850	184,540	5.7%	5.3%	67,690	58%	71%
Greater Sydney	316,520	462,610	6.8%	6.3%	146,100	46%	56%

Source: TPA, 2016; note figures rounded to nearest 10

FIGURE 8: FORECAST UNIVERSITY STUDENT RESIDENT LOCATION – GREATER SYDNEY (2046)



Source: SGS, 2017

Key messages

The Blacktown LGA currently has approximately 18,000 resident university students.

Approximately two thirds of students study full time and are aged 24 years and under.

The Blacktown LGA houses a significant number of Western Sydney University students

On current trends, resident university students in Blacktown are forecast to increase to approximately 29,000 in 2046; students residing in Western Sydney is forecast to increase to 184,540 at 2046.

Growth in resident university students in the Blacktown LGA is comparable to forecast growth for Western Sydney and is higher than forecast growth for Greater Sydney.

Blacktown LGA currently contains approximately five percent of all of Greater Sydney's university students. This is forecast to increase to 6.2 percent in 2046.

The concentration of university students around the Blacktown strategic centre is forecast to grow and become a significant cluster metropolitan scale by 2046.

3. WHERE STUDENTS STUDY

This chapter considers where university students study across Greater Sydney and forecast changes to student enrolments to 2046.

3.1 Location of Tertiary Institutions in Sydney

Tertiary Locations in Sydney Today

In 2015, there were 248,900 students enrolled at universities across Greater Sydney. Table 6 shows campuses in Greater Sydney by student enrolments in 2015.

The University of Sydney and University of New South Wales recorded the highest student numbers with over 50,000 students enrolled in 2015. The University of Technology Sydney and Macquarie University had approximately 40,000 students enrolled in 2015. The largest university campus by student enrolments in Western Sydney is Western Sydney University's Parramatta campus at Rydalmere, with approximately 15,000 students in 2015.

Western Sydney University's Nirimba campus is located in the Blacktown LGA at Quakers Hill. At 2015, the campus attracted 2,244 student enrolments. This campus acts as the primary teaching space for The College, an institute providing 'pathways' to university study through diploma and foundation courses.

TABLE 6: STUDENT ENROLMENTS BY UNIVERSITY CAMPUS (2015)

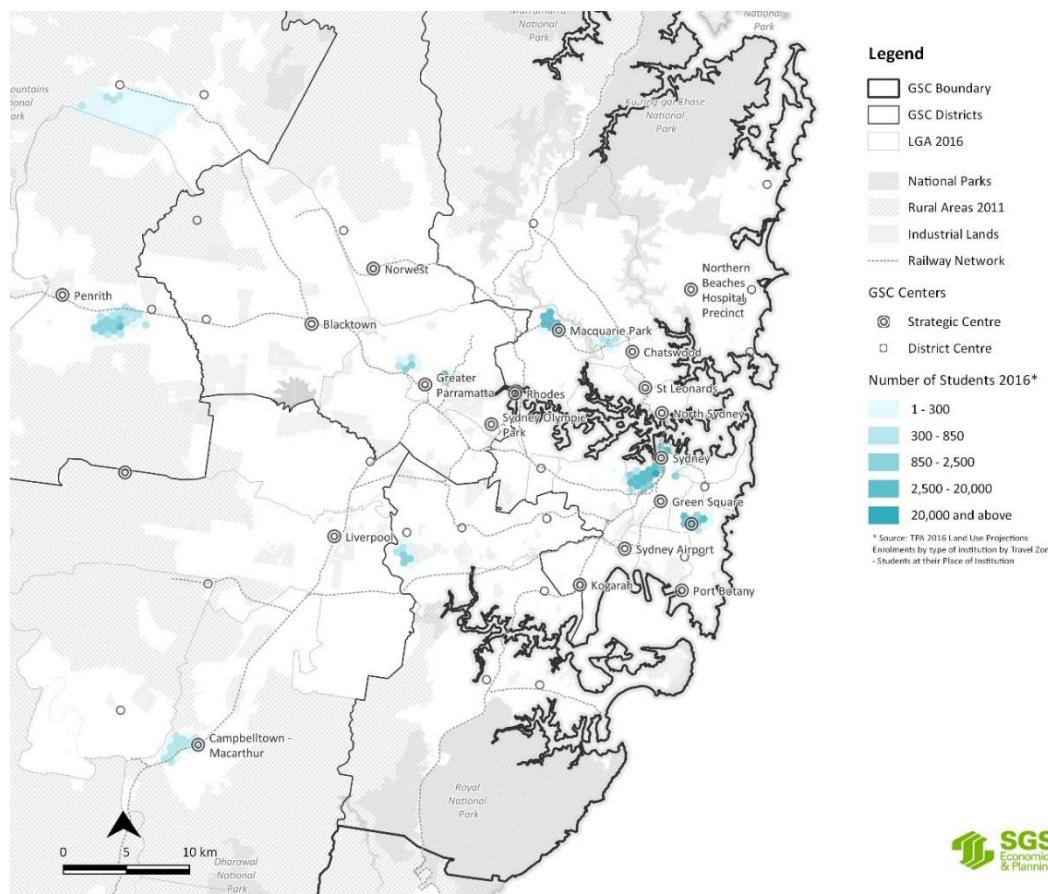
Campus	Student enrolments (2015)
University of Sydney	58,624
University of New South Wales	54,043
University of Technology Sydney	40,751
Macquarie University	40,209
Western Sydney University – Parramatta	14,981
Western Sydney University – Penrith	8,660
Western Sydney University – Bankstown	8,183
Western Sydney University - Campbelltown	7,210
Australian Catholic University - Strathfield	6,090
Australian Catholic University - North Sydney	5,177
Western Sydney University – Hawkesbury	2,729
Western Sydney University – Nirimba	2,244

Source: Annual reports of universities, 2015, Department of Education and Training, 2016

Student destinations in 2016 forecast by Transport Performance and Analytics are shown in Figure 5. The largest numbers of university students are at Sydney's largest university campuses – the University of Sydney, University of New South Wales, University of Technology Sydney, and Macquarie University.

The majority of remaining campuses in Greater Sydney less than 10,000 students. A cluster of students is also evident around the Westmead Hospital Precinct.

FIGURE 9: UNIVERSITY STUDENT STUDY LOCATION – GREATER SYDNEY (2016)



Source: SGS, 2017; based on TPA data

Note: This data set does not include students attending the Australian Catholic University



Table 7 outlines the number of students residing in Blacktown LGA who study at universities across Greater Sydney. The greatest number of students attend Western Sydney University, with 5,000 residents of the Blacktown LGA attending one or more of the six campuses in 2016. Macquarie University, University of Technology Sydney, University of New South Wales and University of Sydney each recorded over 1,000 students from the Blacktown LGA. This reflects the size and prestige of these institutions and demonstrates that students residing in the Blacktown LGA are currently travelling significant distances to access the University of Sydney and the University of New South Wales.

TABLE 7: UNIVERSITY OF ATTENDANCE OF BLACKTOWN LGA RESIDENTS

University	Blacktown LGA resident students
Australian Catholic University	670
Macquarie University	1,870
University of Sydney	1,030
University of New South Wales	1,190
University of Technology, Sydney	1,260
Western Sydney University	5,020

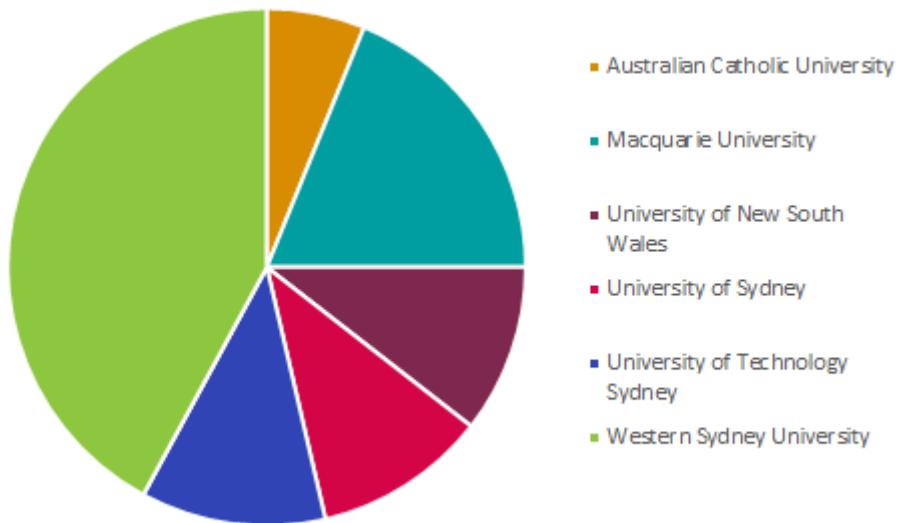
Source: DET, 2017

Note: Data is only available for universities as a whole and not for individual campuses.

The breakdown of university of study of Blacktown LGA residents is shown in Figure 10. Approximately 42% of university students residing in Blacktown attend Western Sydney

University. Approximately 17% of resident university students attend Macquarie University while the University of Technology Sydney, University of New South Wales and Sydney University each attract approximately 12% of Blacktown LGA's university students.

FIGURE 10: BREAKDOWN OF UNIVERSITY OF ATTENDANCE OF BLACKTOWN LGA RESIDENTS

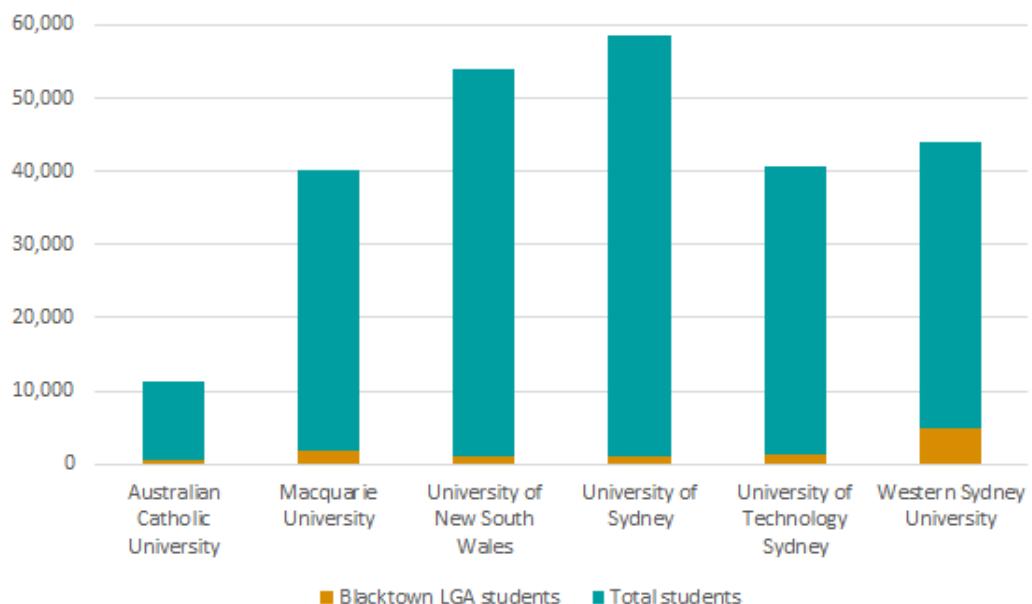


Source: DET, 2017

Note: Data is only available for universities as a whole and not for individual campuses.

The proportion of students residing in the Blacktown LGA of all students attending universities in Greater Sydney is shown in Figure 11. Blacktown LGA residents account for approximately 11% of all Western Sydney University students, approximately 6% of Australian Catholic University students and approximately 5% of Macquarie University students.

FIGURE 11: BLACKTOWN LGA RESIDENTS AS A PROPORTION OF ALL UNIVERSITIES



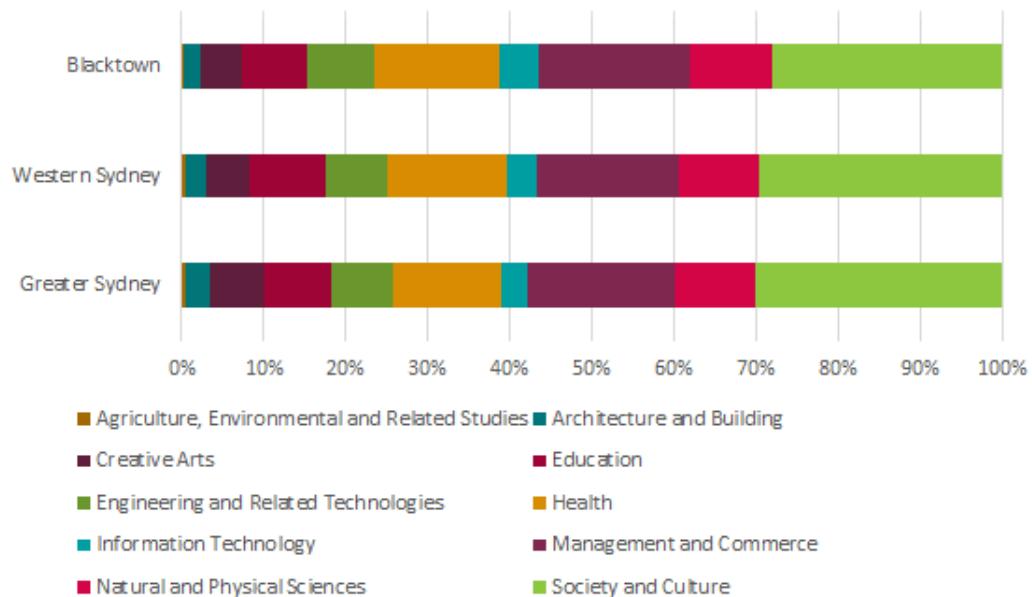
Source: DET, 2017

Figure 12 overleaf shows the subject of study of university students residing in the Blacktown LGA, Western Sydney and Greater Sydney. Blacktown LGA has a higher proportion of residents studying courses in the following fields compared to Western Sydney and Greater Sydney:

- Engineering and Related Technologies
- Health
- Information Technology
- Management and Commerce

Blacktown LGA residents study natural and Physical Sciences at the same rate as residents of Western Sydney and Greater Sydney.

FIGURE 12: SUBJECT OF STUDY OF UNIVERSITY STUDENTS



Source: DET, 2017

Tertiary Locations in Sydney in 2046

The most recent population forecasts available suggest that the current patterns of student destinations remain through to 2046. Table 8 shows forecast student enrolments by university campus in 2046. The greatest enrolments are forecast for UNSW at 2046, with approximately 88,000 students. The University of Sydney and Macquarie University are forecast to attract approximately 79,000 and 75,000 students respectively at 2046. The University of Technology Sydney is forecast to attract approximately 65,000 students at 2046.

Aside from greater numbers of students studying at Greater Sydney's largest institutions, increased student numbers are also forecast at Western Sydney University's Penrith, Campbelltown and Bankstown campuses. Western Sydney University's Penrith campus in particular is forecast to increase by 13,220 and grow by 153 percent by 2046.

TABLE 8: FORECAST STUDENT ENROLMENTS BY UNIVERSITY CAMPUS (2046)

Campus	Forecast student enrolments
University of New South Wales	88,313
University of Sydney	79,593
Macquarie University	76,298
University of Technology Sydney	65,684
Western Sydney University - Penrith	21,878
Western Sydney University - Parramatta	12,814
Western Sydney University - Campbelltown	11,384
Western Sydney University - Bankstown	9,819
Western Sydney University - Hawkesbury	8,390

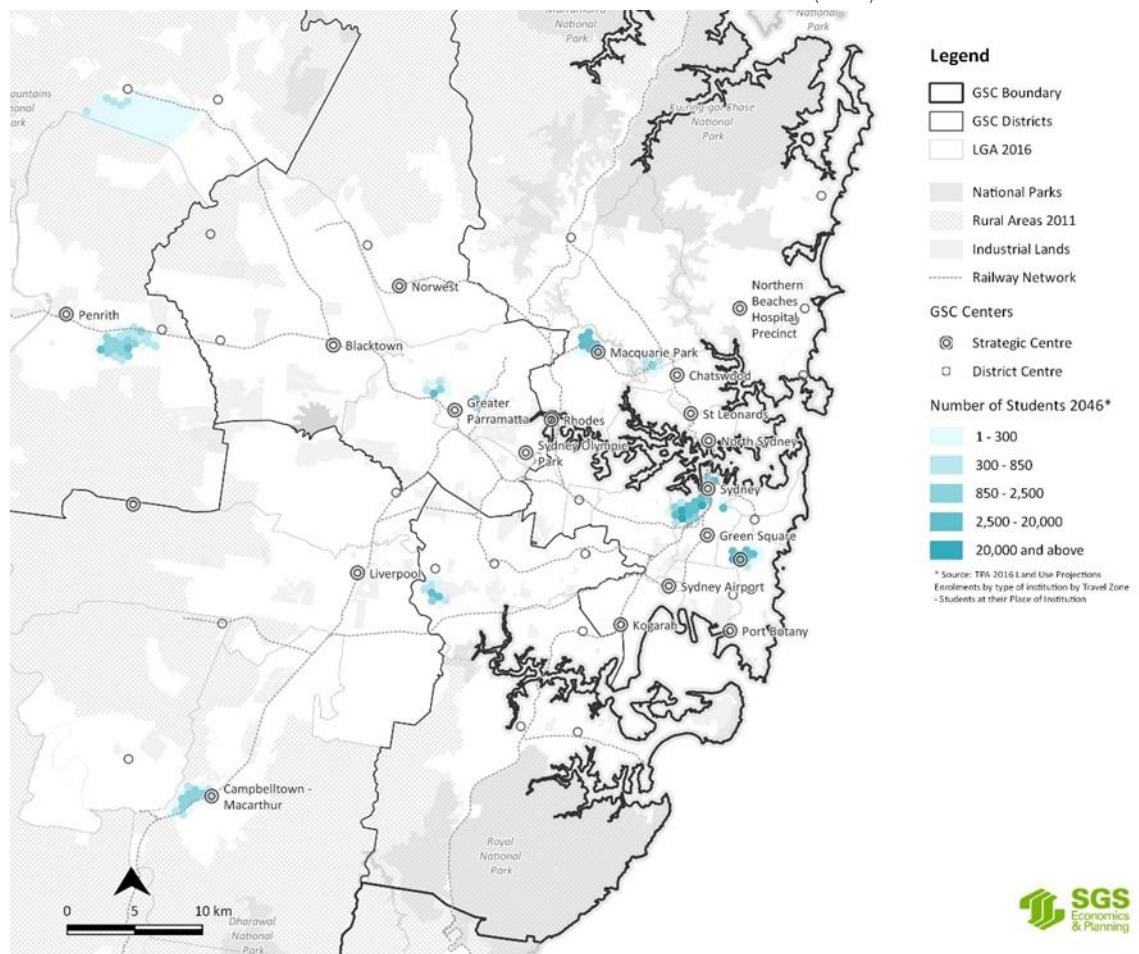
Source: TPA, 2016

Note: Forecast student enrolments are not available for Western Sydney University's Nirimba campus or the Australian Catholic University

Figure 6 overleaf illustrates the forecast student enrolments at 2046 by university campus.

These forecasts do not include the new Western Sydney University campus in the Parramatta City Centre or the announced University of Wollongong and Western Sydney University in the Liverpool strategic centre. These new urban campuses are planned for capacity of between 20,000; 7,000; and 150 students upon completion respectively. These new campuses will also influence student and staff location decisions across Sydney.

FIGURE 13: FORECAST UNIVERSITY STUDENT STUDY LOCATION – GREATER SYDNEY (2046)



Key messages

The Blacktown LGA contains a small Western Sydney University campus in Quakers Hill.

The majority of university places are clustered in and around the Sydney CBD.

The remaining campuses dispersed across Greater Sydney have enrolments of 15,000 students or less.

Western Sydney University attracts the highest number of university students residing in the Blacktown LGA.

Macquarie University, University of Technology Sydney, Sydney University and University of New South Wales also attract significant numbers of university students from the Blacktown LGA.

Blacktown LGA residents study engineering, health, IT and business at higher rates than students across Western Sydney and Greater Sydney.

The Eastern City is forecast to consolidate its stranglehold on university places, with the University of New South Wales, University of Sydney, Macquarie University and University of Technology Sydney all forecast to attract more than 65,000 students at 2046.

Western Sydney University's Penrith campus is forecast to experience the greatest growth rate, growing by 153 percent between 2015 and 2046 to accommodate approximately 21,000 students.

There have been recent and significant investments in tertiary education in Western Sydney - the recently developed Western Sydney University campus in Parramatta City Centre, along with the announced University of Wollongong and Western Sydney University in the Liverpool strategic centre.

4. HOW STUDENTS TRAVEL TO UNIVERSITY

This chapter investigates where Greater Sydney students travel from for university and the mode of transport they use.

4.1 Travel Times to Existing University Locations

The average travel time of students across Greater Sydney to attend university is 51 minutes¹. This is longer than the average commute to work across Greater Sydney (35 minutes²) and the metropolitan priority of a '30 minute city' presented in the Greater Sydney Commission's draft amendment to the metropolitan plan for Sydney, *Toward Greater Sydney 2056*.

Figure 14 below shows the areas of Sydney that are within a 30 minute and 45 minute travel time of the Blacktown strategic centre.

The Blacktown strategic centre has a significant 30 minute public transport catchment, extending from Penrith to Lidcombe and Strathfield station. The 30 minute public transport catchment of Blacktown strategic centre covers the majority of the Blacktown LGA, Rouse Hill district centre and Greater Parramatta.

When a 45 minute public transport catchment is considered, Blacktown is accessible to most of the north west of Sydney, extending from Richmond to Penrith, Liverpool, West Pennant Hills and Ashfield. The entire North West Priority Growth Area falls within this public transport catchment.

The following university campuses are within a 45 minute public transport commute of the Blacktown Strategic Centre:

- Western Sydney University Nirimba campus
- Western Sydney University Parramatta campus
- Western Sydney University Penrith campus
- Australian Catholic University Strathfield campus
- Western Sydney University Hawkesbury campus
- University of Sydney
- University of Technology Sydney

Currently, 54% of student places in Greater Sydney are accessible within a 45 minute public transport commute of the Blacktown strategic centre. In the case of the University of Sydney and University of Technology Sydney, a 45 minute commute is currently only available on express train services directly from Blacktown train station. The rest of the LGA is not accessible within 45 minutes by public transport.

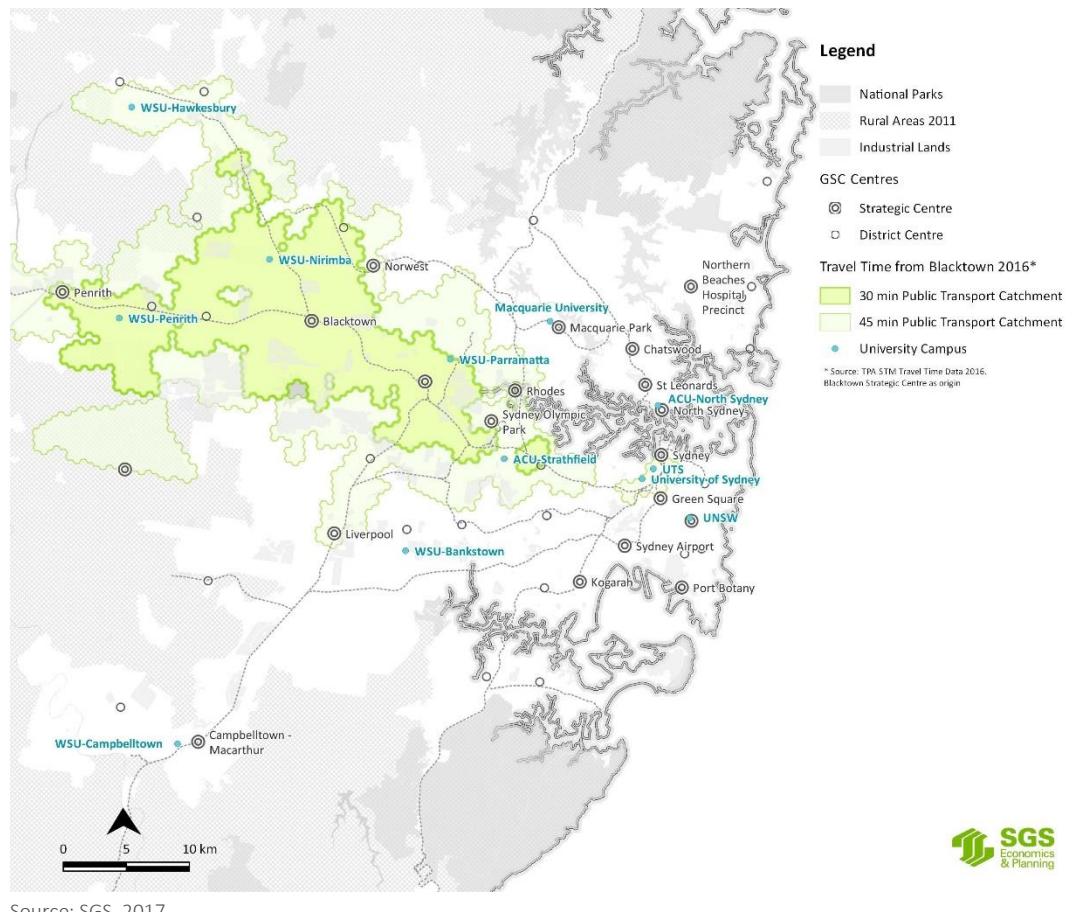
Residents of the Blacktown Strategic Centre, arguably the most accessible location in the Blacktown LGA, attending the University of New South Wales, Macquarie University, the Australian Catholic University's North Sydney campus and Western Sydney's University's Campbelltown and Bankstown campuses are currently required to travel for more than 45 minutes by public transport to attend these universities.

Travel times by public transport to and from the Blacktown LGA may change with the introduction of the Sydney Metro Northwest in 2019.

¹ TPA (2016) *Household Travel Survey 2016/17*

² *Ibid.*

FIGURE 14: PUBLIC TRANSPORT CATCHMENTS OF BLACKTOWN STRATEGIC CENTRE

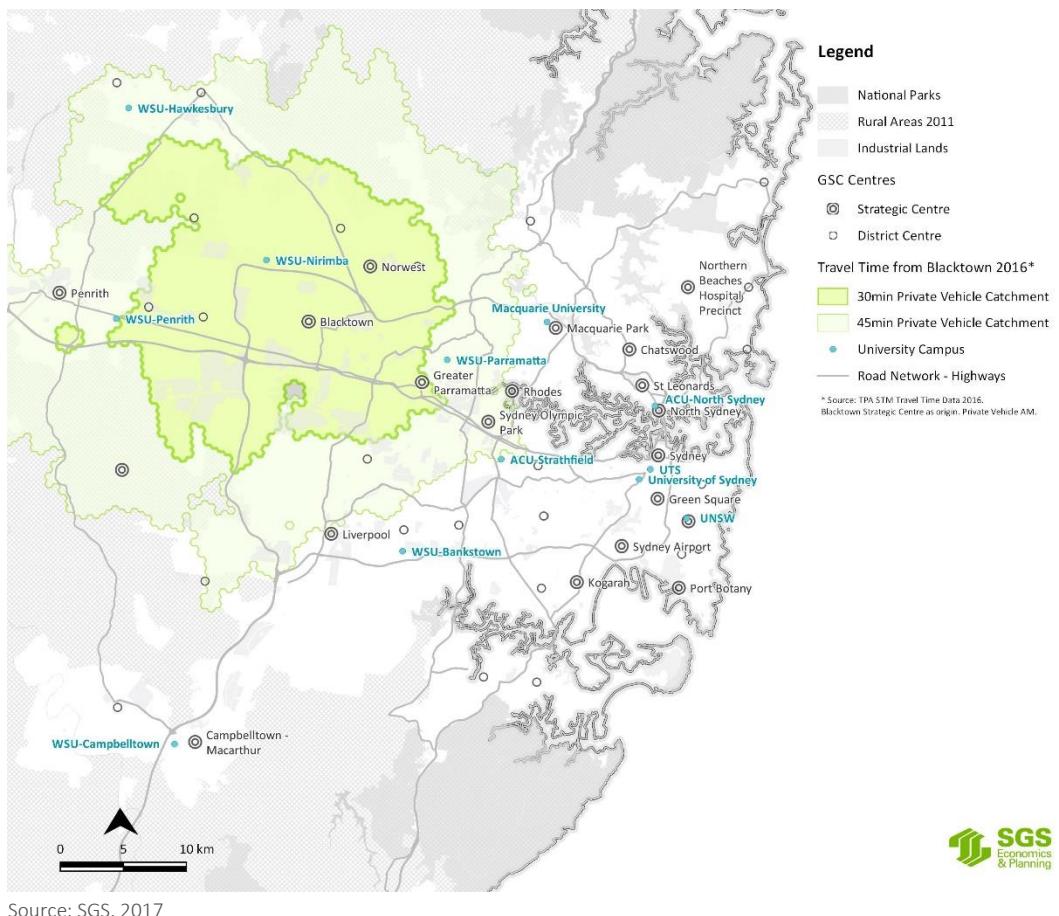


Source: SGS, 2017

Figure 15 overleaf shows the 30 minute and 45 minute private transport catchment of the Blacktown strategic centre at the AM peak. The 30 minute catchment covers much of Sydney's north west, extending from Greater Parramatta and Castle Hill to Marsden Park, South Penrith and Horsley Park. Only Western Sydney University's Nirimba campus is within a 30 minute drive of the Blacktown strategic centre at the AM peak.

The 45 minute catchment of the Blacktown strategic centre includes Western Sydney University's Hawkesbury, Penrith and Parramatta campuses. The Blacktown strategic centre's 45 minute drive catchment extends across The Hills, Fairfield, Penrith, Parramatta and Cumberland LGAs, and includes part of the Liverpool and Hawkesbury LGAs.

FIGURE 15: PRIVATE TRANSPORT CATCHMENTS OF BLACKTOWN STRATEGIC CENTRE



4.2 Travel patterns of students from Blacktown

It is recognised that a number of students use other modes of transport to attend university, including private car. Public transport represents approximately half of all trips to university (see section 4.3 below for further information). In the absence of comprehensive data detailing student trips to university by private transport, public transport data collected from Opal card travel has been analysed to better understand student travel patterns.

Figure 16 below shows where university students residing in the Blacktown LGA travel to university by public transport. The most popular destination for concession Opal card holders³ from Blacktown LGA is Central station, with 2,900 trips recorded. These trips are not shown on the map in Figure 16 for a number of reasons:

- While Central station is proximate to the University of Technology Sydney, it is also proximate to the University of Notre Dame (a private university not considered in this analysis) and the University of Sydney. These trips therefore cannot be attributed to one university.
- Sydney TAFE is adjacent to the University of Technology Sydney, and TAFE students also qualify for concession Opal cards.

³ Note Opal concession cards include university students as well as TAFE students, students attending private colleges, apprentices, and approved Centrelink customers. Opal trips by university students only could not be determined for this analysis.

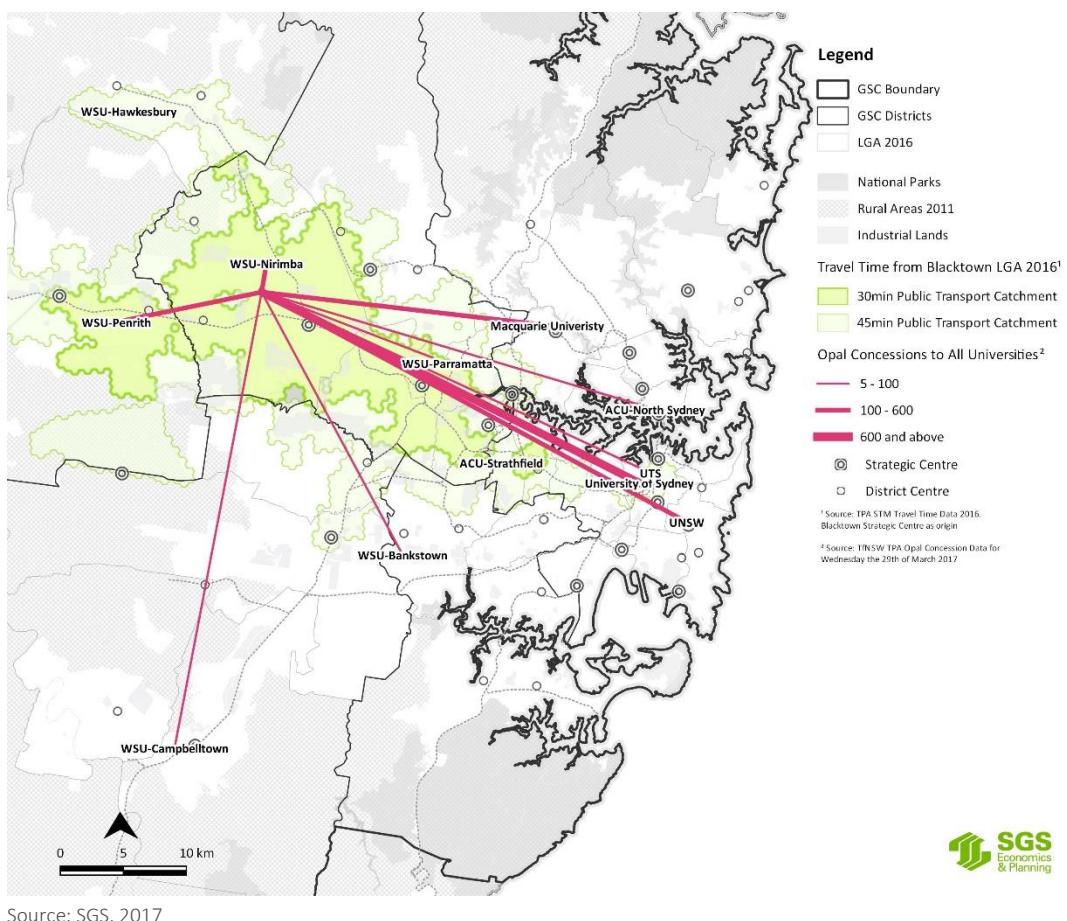
Journeys to public transport stops around university campuses have been analysed for this report. Opal data for a 'typical weekday' when all universities are in session (i.e. 29 March 2017) as defined by Transport Performance and Analytics has been utilised for this report. This analysis collated journeys which involve a single trip (e.g. single train trip from Blacktown to Central) and journey which involve transfers between different public transport modes (e.g. train from Blacktown to Central, then a bus to UNSW) to identify the origin and final destination of the trip

- The area around Central station has a number of nearby activity attractors in the Sydney CBD, including employment, recreation and cultural activities.

The greatest number of recorded trips to university campuses from the Blacktown LGA are to the University of Sydney and University of New South Wales. This reflects the size and prestige of these institutions and demonstrates that students residing in the Blacktown LGA are currently travelling significant distances to access the University of Sydney and the University of New South Wales.

Significant numbers of students travelling from the Blacktown LGA have also been recorded travelling to Macquarie University, and Western Sydney University's Penrith and Nirimba campus. Few public transport trips have been recorded to other university campuses in Greater Sydney, and no public transport trips have been recorded to the Western Sydney University's Hawkesbury campus.

FIGURE 16: BLACKTOWN LGA UNIVERSITY STUDENTS TRAVEL TO UNIVERSITY CAMPUSES



4.3 Travel patterns of students to Universities

Mode of transport across Sydney

The mode of transport used by university students across Greater Sydney for education and all other purposes is shown in Table 9 below. The most common mode of transport for university students travelling for education purposes is public transport, accounting for 44 percent of all trips. Almost one third of all trips by university students for education purposes are taken by train (31 percent).

However, the proportion of education trips taken by private car are comparable to public transport trips, accounting for 42 percent of all trips.

This pattern differs significantly from all other trips undertaken by university students, including for work, shopping and recreation. Over two thirds (70 percent) of trips are taken by

car, followed by walking, which accounts for 18 percent of trips. This shows that there is a significant shift in travel behaviour for university students when they travel to university and the importance of public transport connections to support student travel across Greater Sydney.

TABLE 9: UNIVERSITY STUDENT MODE OF TRANSPORT GREATER SYDNEY (2015/16)

Mode of transport	Education	All other purposes
Car	41.5%	69.7%
Public transport	43.8%	10.8%
<i>Train</i>	31.2%	7.2%
<i>Bus</i>	12.7%	3.6%
Walk	12.1%	17.8%
Other	2.5%	1.7%

Source: TPA, 2016

Note: Due to the small sample size of this data set, specific data for the Blacktown LGA cannot be provided by Transport Performance and Analytics.

The following sections provide a summary of travel to individual university campus' using Opal concession card data for:

- University of New South Wales
- University of Sydney
- Western Sydney University campuses
 - Bankstown
 - Campbelltown
 - Hawkesbury
 - Nirimba
 - Parramatta
 - Penrith

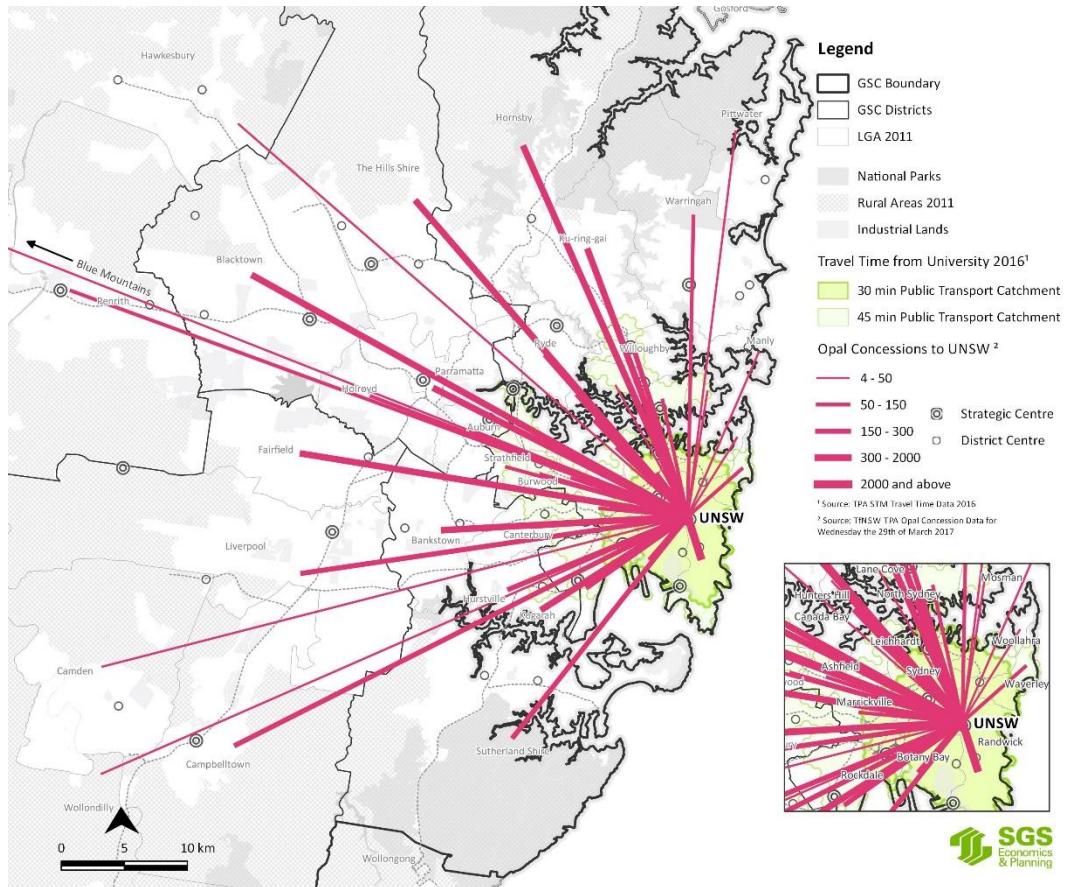
Origin of students

University of New South Wales

Student trips to the University of New South Wales by public transport are shown in Figure 17, overlaid with the 30 and 45 minute travel time catchment from the campus. It is evident that students travel from across to attend the University of New South Wales, with significant numbers of students travelling over 45 minutes by public transport to reach the campus.

The Blacktown LGA records the fifth highest number of student trips to the University of New South Wales campus, after the City of Sydney, Randwick, Hornsby and Fairfield LGAs. This has occurred despite a commute to university longer than 45 minutes and demonstrates demand for the courses offered by the University of New South Wales by Blacktown LGA residents.

FIGURE 17: STUDENT TRAVEL TO THE UNIVERSITY OF NEW SOUTH WALES

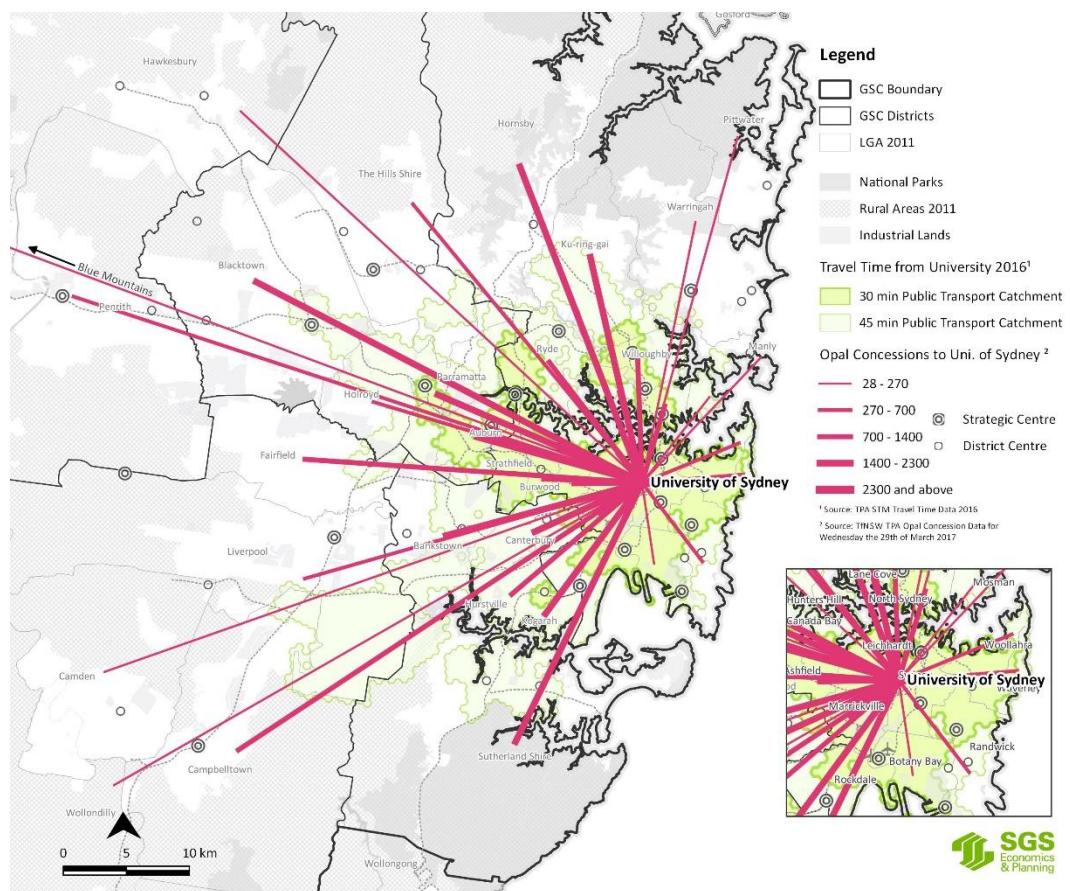


University of Sydney

The travel patterns of University of Sydney students by public transport is shown in Figure 18, overlaid with the 30 and 45 minute travel time catchment from the campus. As with the University of New South Wales, the University of Sydney draws students from across Greater Sydney.

Blacktown LGA is the seventh highest LGA of origin for student public transport trips to the University of Sydney. The greatest number of public transport trips to the campus originate from the City of Sydney LGA, which is the LGA that contains the university campus, a reflection of students relocating to live near or near to the campus. High numbers of public transport trips originate in surrounding LGAs (such as the former Marrickville and Leichhardt LGAs) and LGAs with frequent rail connections to the Sydney CBD and Redfern station (such as Ku-ring-gai, Hornsby and Parramatta).

FIGURE 18: STUDENT TRAVEL TO THE UNIVERSITY OF SYDNEY



Source: Various SGS, 2017

Western Sydney University

Student travel to each of the six Western Sydney University campuses in Greater Sydney by public transport is shown below. The summary of findings across the six campuses is as follows:

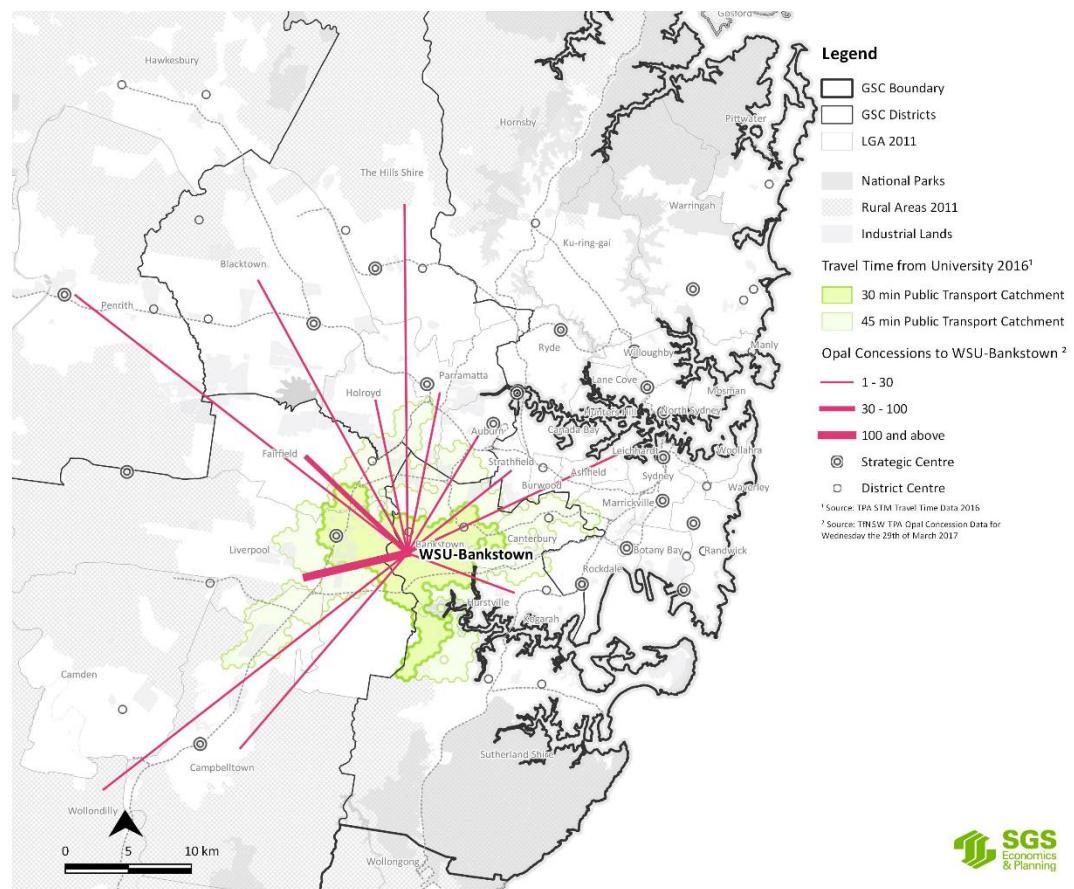
- The majority of students travelling to these campuses are local, residing in LGAs surrounding the university campus
- The larger Western Sydney University campuses attract students from across Greater Sydney
- For some campuses, a lack of significant public transport infrastructure adjacent to the campus sees few trips by public transport
- The presence of a TAFE nearby can confound the results and should be noted when interpreting these findings
- Blacktown LGA is a significant point of origin for the Nirimba and Penrith campuses. However, both campuses are co-located with a TAFE, which may be attracting some of the students observed in the available data.

Bankstown campus

It is recognised that trips by public transport may only represent a small proportion of trips to this campus, which is located away from significant public transport infrastructure.

The majority of students travelling to the Bankstown campus by public transport are from Western Sydney. Blacktown LGA is the fifth highest number origin of students travelling to the Bankstown campus by public transport. The top three LGAs are located in the South West District (i.e. Liverpool, Fairfield and Campbelltown LGAs). Parramatta LGA is the fourth highest origin of students to the campus travelling by public transport.

FIGURE 19: STUDENT TRAVEL TO WESTERN SYDNEY UNIVERSITY BANKSTOWN CAMPUS

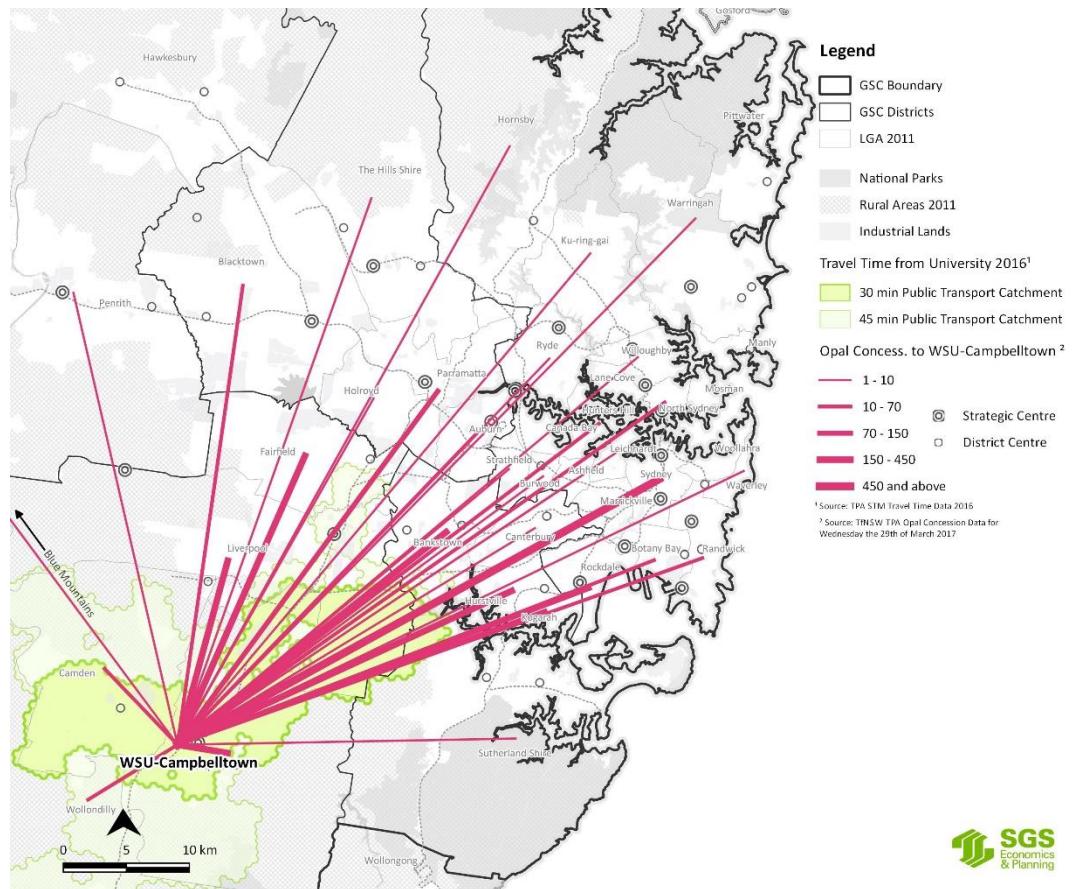


Campbelltown campus

Student travel by public transport to the Campbelltown campus is shown in Figure 20. This campus is adjacent to a train station and has recorded a relatively high number of public transport trips to the campus. A considerable number of trips have been recorded from the City of Sydney (an LGA with a high number and quality of public transport connections) and from across the southern half of Sydney. After the City of Sydney, the remaining top 5 LGAs of origin are Campbelltown, Fairfield, the former Bankstown and Liverpool LGAs.

The Blacktown LGA is the eleventh largest origin for students attending the Campbelltown campus and does not incorporate a significant number of trips.

FIGURE 20: STUDENT TRAVEL TO WESTERN SYDNEY UNIVERSITY CAMPBELLTOWN CAMPUS



Hawkesbury campus

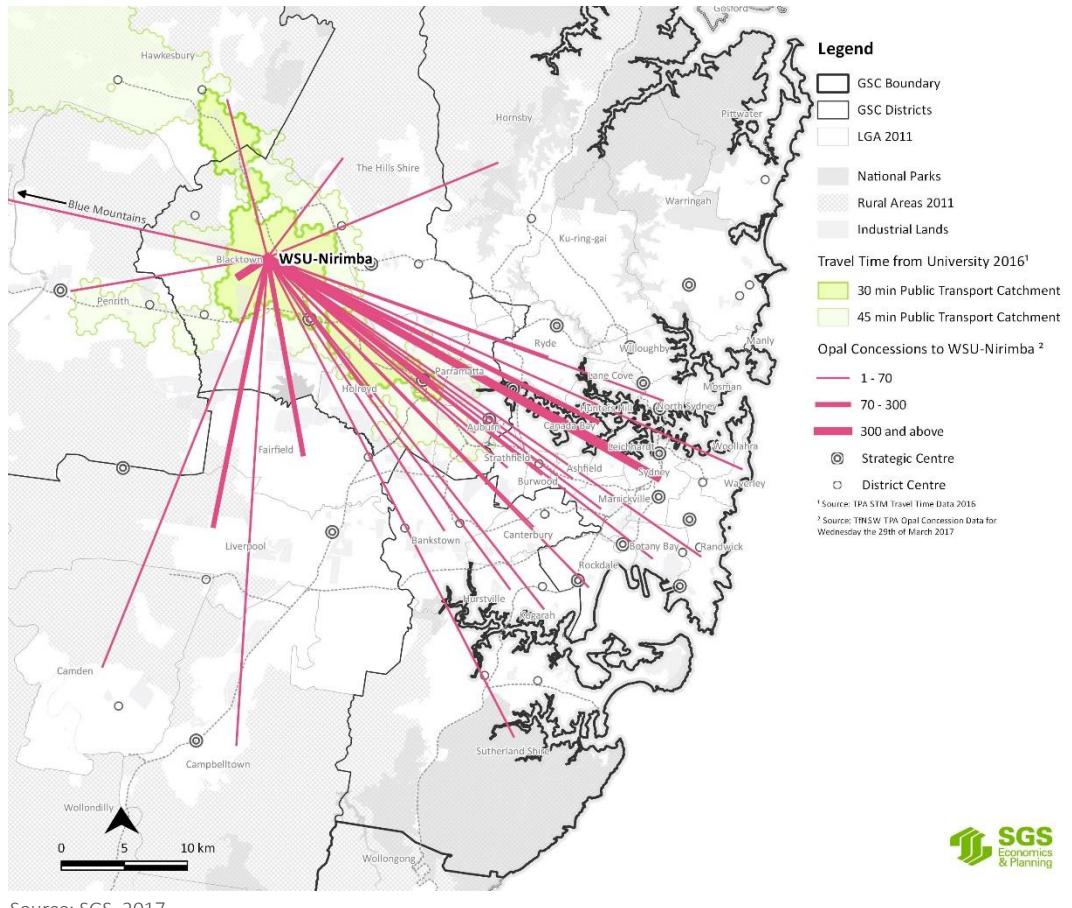
No public transport trips were recorded to the Western Sydney Hawkesbury campus. Trips have been recorded to Richmond and East Richmond station, however the distance from these stations on foot (35 minutes) and the presence of a TAFE in Richmond are confounding variables that cannot be controlled in this analysis.

Nirimba campus

Figure 21 shows public transport trips recorded to the Nirimba campus. Trips have been recorded to Quakers Hill station (which is within walking distance of the campus) and in recognition that there is a TAFE campus on site with the university.

Blacktown LGA is the second most common origin for students travelling to the Nirimba campus by public transport after the City of Sydney. High number of trips have also been recorded from Parramatta, Fairfield and Liverpool local government areas.

FIGURE 21: STUDENT TRAVEL TO WESTERN SYDNEY UNIVERSITY NIRIMBA CAMPUS



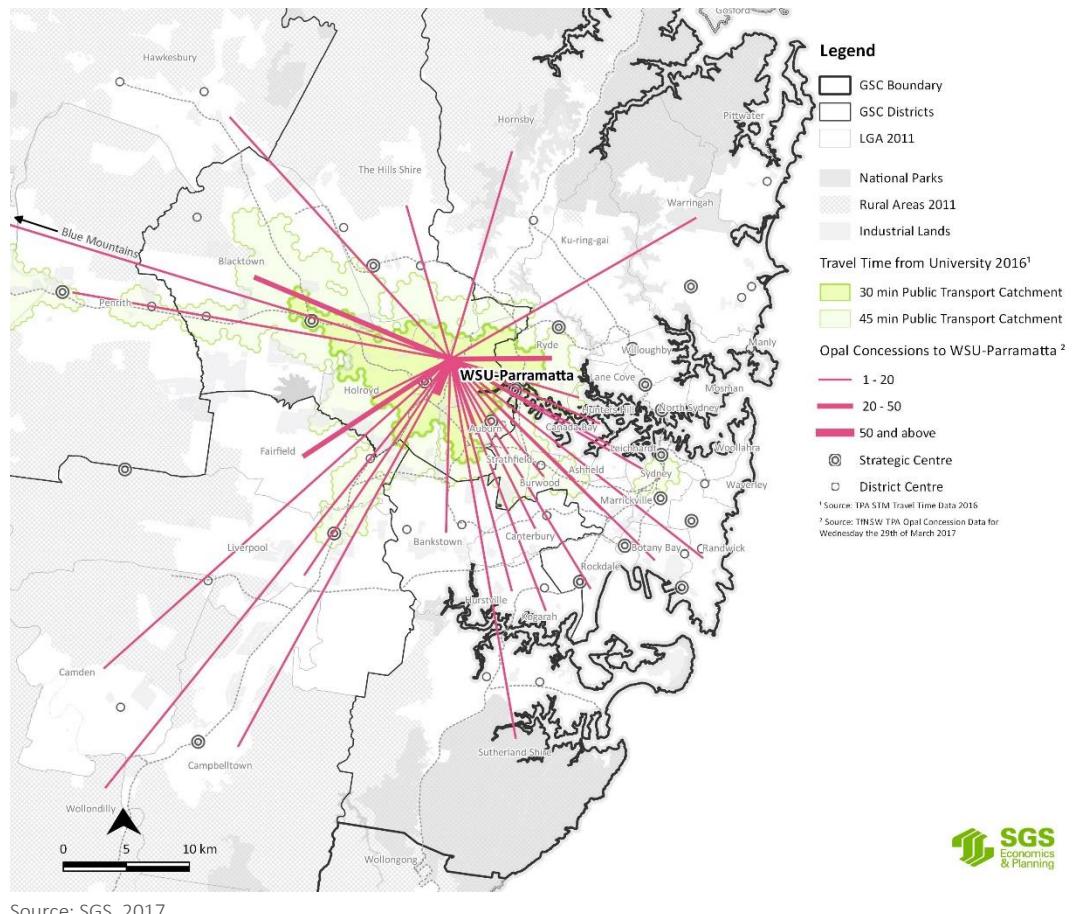
Parramatta campus

Public transport trips by university students to Western Sydney University's Parramatta campus are shown in Figure 22. Few trips have been recorded by public transport to this campus, which can be attributed to a number of factors:

- The campus is located along the T6 Carlingford Line, which has infrequent train services and requires a change of trains at Clyde station, extending travel times.
- Aside from the rail line, the campus is connected by bus routes along Victoria Road.
- Western Sydney University operates a shuttle bus from Parramatta station. The number of other uses that can attract concession Opal card holders from Blacktown, such as employment, higher order retail, a TAFE, and entertainment uses, has seen Parramatta train station excluded from this analysis.

The majority of students recorded travelling by public transport to the Parramatta campus are from the former Parramatta LGA. Blacktown LGA is the third highest point of origin for students travelling by public transport to this campus, which may reflect demand for the courses available at this campus and the proximity of the campus to the Blacktown LGA.

FIGURE 22: STUDENT TRAVEL TO WESTERN SYDNEY UNIVERSITY PARRAMATTA CAMPUS

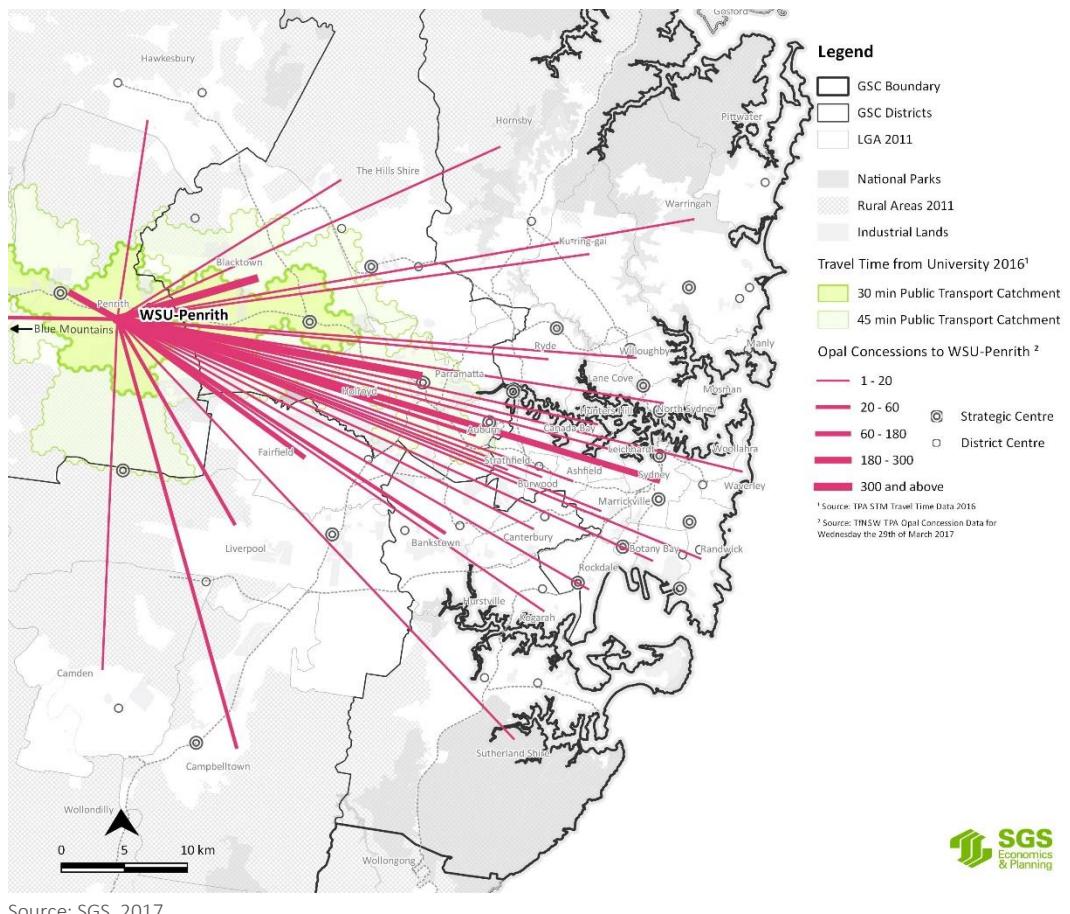


Penrith campus

Figure 23 overleaf shows the public transport trips by concession card holders to Western Sydney University's Penrith campus. This campus extends across two properties and is proximate to a TAFE campus, which also attracts concession card holders.

The Western Sydney University Penrith campus attracts students from across Greater Sydney, with the most significant number of trips originating from Western Sydney LGAs. Blacktown LGA is the most popular LGA of origin for concession card holders travelling to the Penrith campus and adjacent TAFE. This suggests there is significant demand from the Blacktown LGA for courses on offer at the university and/or TAFE campus and may also reflect the proximity of the campus to the Blacktown LGA.

FIGURE 23: STUDENT TRAVEL TO WESTERN SYDNEY UNIVERSITY PENRITH CAMPUS



Key messages

The average travel time for students to get to university across Greater Sydney is 51 minutes. This is longer than average commute time in Greater Sydney and is well in excess of the vision for a '30 minute city' in current metropolitan strategic planning.

The majority of university places in Greater Sydney are accessible to residents of the Blacktown strategic centre within 45 minutes on public transport.

However, the Blacktown strategic centre is the most accessible precinct of the LGA, with a public transport catchment extending across most of Western Sydney.

This means that university students residing in Blacktown are travelling more than 45 minutes to get to their place of study.

Blacktown LGA residents study across Greater Sydney's universities, including those campuses beyond a 45 minute commute on public transport.

Significant numbers of students travel from the Blacktown LGA to Greater Sydney's biggest universities, University of Sydney and University of New South Wales, despite the distance from home. The Blacktown LGA is the seventh and fifth most common origin of students at these institutions respectively.

Blacktown LGA residents also make up high proportions of students attending Western Sydney University campuses near the LGA, suggesting there is demand to attend university close to home.

5. UNIVERSITY STAFF

This chapter analyses available data on university staff, detailing where university staff work and how they travel to work

5.1 Blacktown residents working in tertiary institutions

In 2011, there were approximately 1,159 residents of Blacktown that worked at university campuses, as reported in the Census.

Table 10 and Figure 24 below shows the location of work for Blacktown LGA residents employed at university campuses across Greater Sydney and their surrounds. Travel Zones as defined by Transport Performance and Analytics have been used to define university campuses as a place of employment. These are the smallest geographies available and provide the best estimate for university staff employment linked to place of residence. It is recognised that in the case of some university campuses, the Travel Zone extends beyond the university campus. These universities are:

- Macquarie University (in the case of Macquarie University, a number of businesses have established on the campus site)
- University of Technology of Sydney
- Australian Catholic University – North Sydney
- Western Sydney University – Bankstown campus
- Western Sydney University – Hawkesbury campus
- Western Sydney University – Nirimba campus
- Western Sydney University – Penrith campus

These campuses and surrounds have the highest recorded employment of the university campuses in Greater Sydney. Table 10 below shows employment by university campus - as defined by Travel Zone - at 2011. Macquarie University records the highest number of workers from Blacktown, with over 350 people. Modest workers have been recorded for universities that fill the Travel Zone defined by Transport Performance and Analytics, namely University of Sydney, University of New South Wales, and Western Sydney University's Parramatta and Campbelltown campuses.

TABLE 10: ESTIMATED UNIVERSITY STAFF BY CAMPUS AND MODE OF TRANSPORT TO WORK (2011)

Campus	Private transport	Public transport	Other mode	Total
University of New South Wales	31	34	3	68
University of Sydney	27	38	6	71
University of Technology Sydney*	13	89	20	122
Macquarie University*	214	93	45	352
Western Sydney University - Campbelltown	7	3	0	10
Australian Catholic University – North Sydney*	35	111	12	158
Australian Catholic University - Strathfield	11	6	3	20
Western Sydney University – Parramatta	28	6	7	41
Western Sydney University – Penrith*	157	13	21	191
Western Sydney University – Hawkesbury*	60	12	9	81
Western Sydney University – Bankstown*	13	0	3	16
Western Sydney University – Nirimba*	21	0	8	29

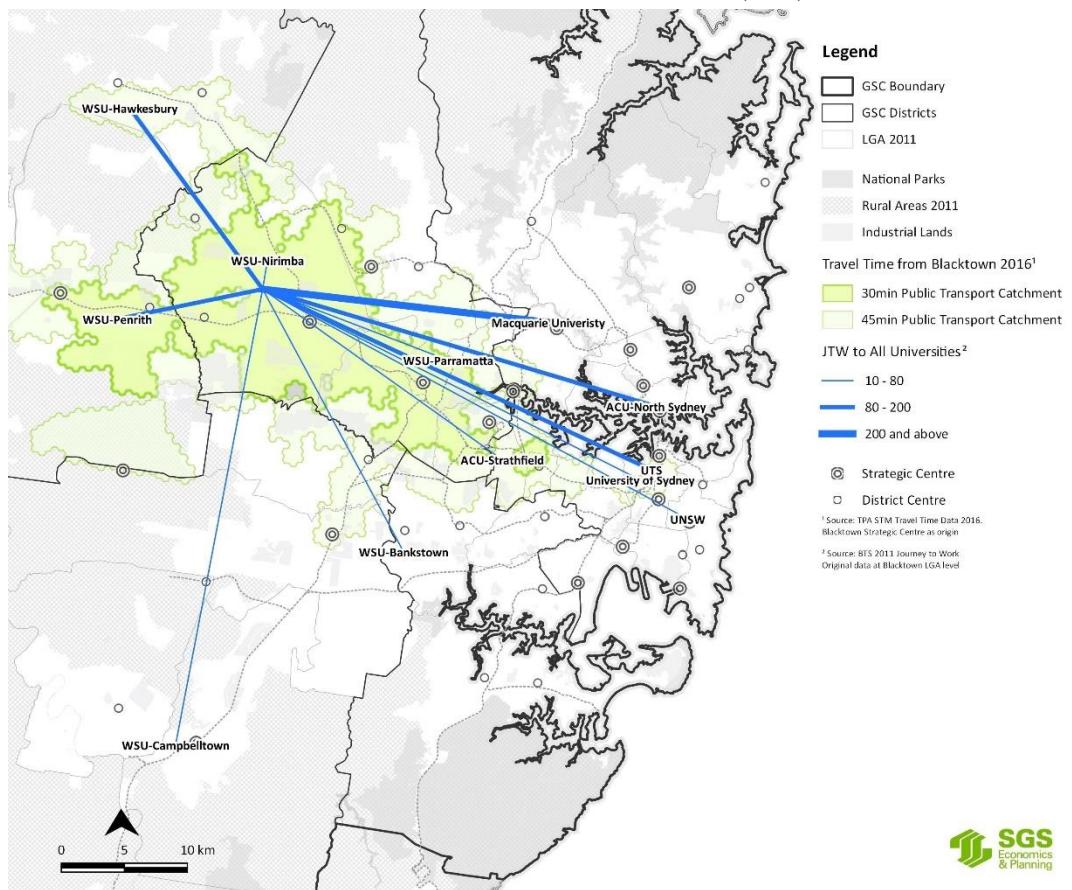
Source: ABS, 2011

Note: Campuses marked with * have other employment uses within the Travel Zone which may skew university staff numbers

Table 10 and Figure 24 also shows the transport mode split of trips to work by Blacktown LGA residents. For the majority of university campuses in the Greater Sydney, over half of trips for work occur in private vehicles. The greatest proportion of private vehicles of total work trips is to the Western Sydney Penrith campus. This despite the proximity of this campus to the Blacktown LGA but reflects the distance of the campus from the Werrington train station.

The exceptions to this trend are trips to campuses surrounding the Sydney CBD. Trips to University of Technology Sydney, Australian Catholic University North Sydney campus, University of New South Wales and the University of Sydney; at least half of trips for work are by public transport. Trips to University of Technology Sydney for work have the highest proportion trips by public transport, with 72 percent of trips by bus, train or other public transport. These mode share patterns reflect Sydney's radial public transport network which makes trips towards to the Sydney CBD easier and faster by public transport than to other non-CBD locations.

FIGURE 24: UNIVERSITY STAFF JOURNEY TO WORK FROM BLACKTOWN LGA (2011)



Source: SGS, 2017



5.2 Where university staff live across Greater Sydney

In 2011, there were 22,425 employees of universities in Greater Sydney. Table 11 below lists the number of employees by university campus at 2011.

As with university enrolments, the majority of employment at universities is concentrated around the Sydney CBD at the University of New South Wales, the University of Sydney and University of Technology Sydney. Macquarie University also has significant employment at the university campus, with 2,711 jobs at the university and a further 4,040 jobs at businesses located on the campus.

In total, only 2,854 university jobs were available in Western Sydney in 2011. This represents only 13 percent of all jobs at universities across Greater Sydney

TABLE 11: ESTIMATED STAFF BY UNIVERSITY CAMPUS (2011)

University	Number of employees (2011)
University of New South Wales	6,821
University of Sydney	6,411
University of Technology Sydney	2,987
Macquarie University	2,711
Western Sydney University - Campbelltown	881
Australian Catholic University	641
Western Sydney University – Parramatta	608
Western Sydney University - Penrith	542
Western Sydney University - Hawkesbury	394
Western Sydney University - Bankstown	348
Western Sydney University – Nirimba	87

Source: ABS, 2011, University annual reports, 2011

Note: Australian Catholic University does not report staff numbers by campus.

University of New South Wales

While staff travel from across Greater Sydney, the majority of University of New South Wales staff travel from the eastern and southern suburbs of Sydney. Less than 70 staff trips were recorded from the Blacktown LGA at the 2011 Census. However, there were significant trip numbers recorded from former The Hills and former Parramatta LGAs.

The top 10 origins of workers by LGA is shown in Table 12. As Journey to Work data is from the 2011 census, LGAs are shown as they were at 2011.

The Randwick local government area has the highest number of residents employed at the University of New South Wales. The Randwick LGA contains the University of New South Wales campus and it is expected that employees choose to locate close to their place of work. The remaining top 10 local government areas are located in Sydney's east and south, with the exception of Ku-ring-gai LGA.

Table 12 includes the mode share of University of New South Wales from these top 10 local government areas. The highest mode share of work trips from Randwick LGA is by 'other' modes. In the case of Randwick, this is likely to primarily consist of walking and cycling trips given the proximity of workers to the University of New South Wales campus.

For the remaining top 10 LGAs, the most dominant mode of transport is private vehicle, either as a driver or a passenger. The proportion of trips by private vehicle is highest for relatively close LGAs which have limited direct public transport connections and potentially shorter trips by car, such as Rockdale and Botany Bay LGAs. LGAs that are further away from the University of New South Wales with heavy rail connections, such as Sutherland and Ku-ring-

gai, have a relatively lower proportion of work trips by car. However, private vehicles still account for over half of all work trips.

TABLE 12: TOP 10 ORIGINS OF EMPLOYEES AT THE UNIVERSITY OF NEW SOUTH WALES AND MODE OF TRANSPORT

Local government area	Number of staff	Proportion of total staff	Proportion of trips by private vehicle	Proportion of trips by public transport	Proportion of trips by all other modes
Randwick	1,841	27%	31%	15%	54%
Sydney	567	8%	41%	36%	23%
Marrickville*	301	4%	56%	29%	15%
Waverley	229	3%	52%	25%	24%
Botany Bay*	217	3%	66%	20%	14%
Sutherland Shire	196	3%	58%	28%	14%
Rockdale*	192	3%	77%	17%	6%
Canterbury*	146	2%	56%	31%	13%
Ku-ring-gai	138	2%	51%	22%	27%
Leichhardt*	136	2%	58%	33%	9%

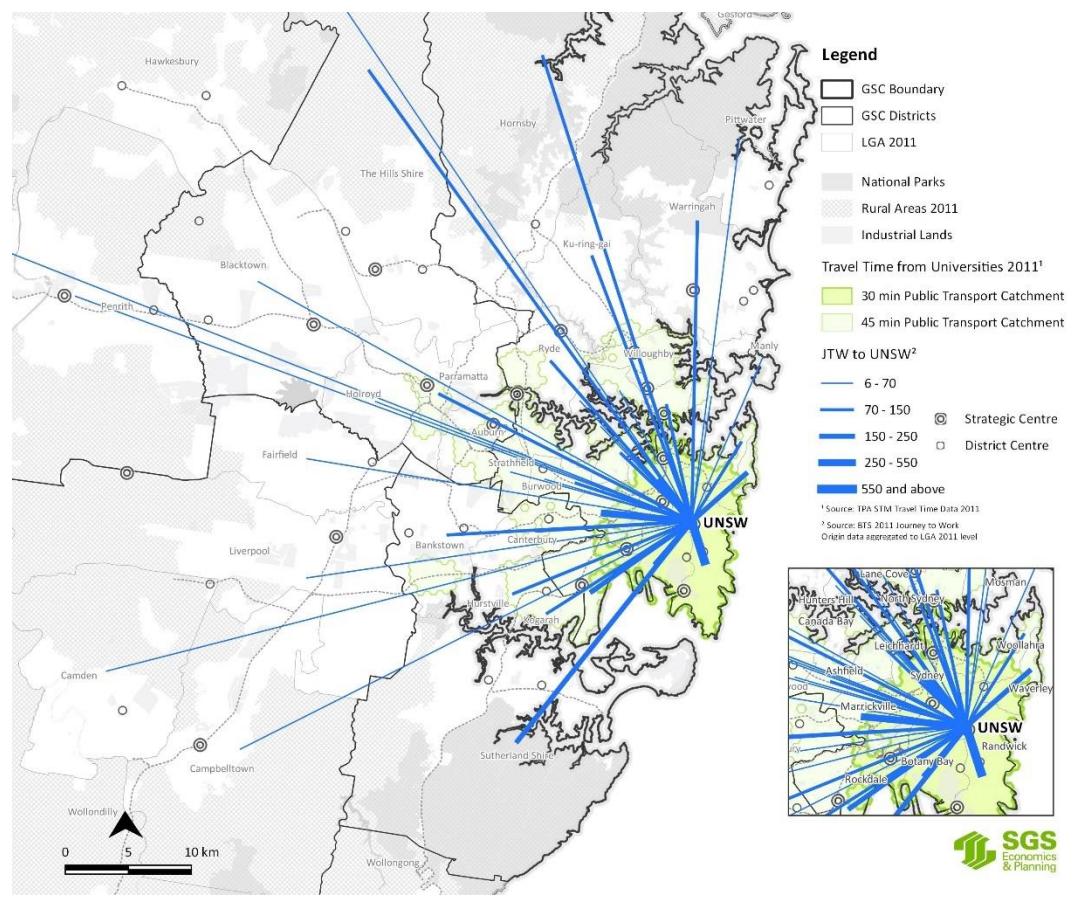
Source: ABS, 2011

Note: This data is from the 2011 Census. Local government areas boundaries are as they were in 2011. Local government areas that have changed since 2011 have been marked with an asterisk (*).

Figure 25 overleaf shows the origin of University of New South Wales staff against the 30 minute and 45 minute public transport catchment of the campus.

It is evident that the majority of Greater Sydney is not located within a 45 minute public transport commute of the University of New South Wales. The majority of the top 10 local government areas are within the 45 minute public transport commute. The top five LGAs (i.e. Randwick, Sydney, former Marrickville, Waverley and former Botany Bay LGAs) have significant proportions of their LGA within a 30 minute public transport commute of the University of New South Wales. This reinforces the notion that university staff where possible will locate close to their place of work, reducing their commute time and enhancing their quality of life.

FIGURE 25: UNIVERSITY OF NEW SOUTH WALES STAFF PLACE OF ORIGIN AND PUBLIC TRANSPORT COMMUTES IN SYDNEY



Source: SGS, 2017 using ABS 2011 and Transport for NSW 2016

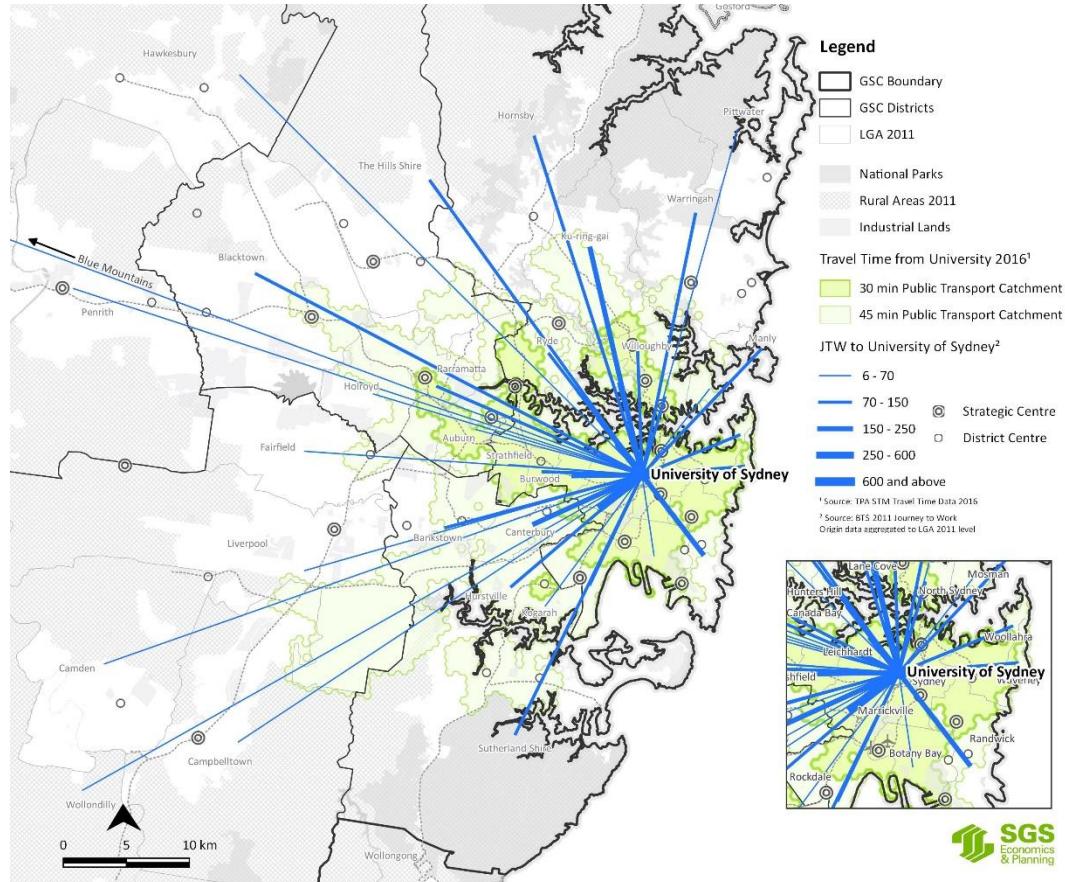
University of Sydney

The origin of University of Sydney staff by LGA is shown in Figure 26. The public transport catchment of the University of Sydney for a 30 minute and a 45 minute commute is also shown.

Staff working at the University of Sydney travel from across Greater Sydney. High numbers of University of Sydney staff travel from the City of Sydney and the inner west of Sydney. Significant clusters of staff are also evident in Sydney's east and the north. At the 2011 Census, 71 residents of Blacktown worked at the University of Sydney.

The 30 minute public transport catchment of the University Sydney extends across the central District of Greater Sydney, as well as the lower north shore to Chatswood and out to Eastwood, Rockdale, and Parramatta. The Blacktown strategic centre is within a 45 minute public transport commute of the University of Sydney, as is the majority of the South District.

FIGURE 26: UNIVERSITY OF SYDNEY STAFF PLACE OF ORIGIN AND PUBLIC TRANSPORT COMMUTES IN SYDNEY



Source: Source: SGS, 2017 using ABS 2011 and Transport for NSW 2016

The top 10 LGAs of origin of University of Sydney workers and mode share is shown in Table 13 overleaf. The City of Sydney contains the greatest number of workers at the University of Sydney, with over 1,000 workers. This represents approximately one in every staff members of the University of Sydney. The majority of trips are by 'other' modes of transport. Over half of all trips (55%) by University of staff are on foot.

The remaining 10 top LGAs exhibit a mix of modes of transport for university staff. Local government areas with frequent rail services to central and Redfern tend to have a higher mode share of public transport. This is the case for trips originating in Hornsby, Ku-ring-gai and Ryde. However, local government areas to the west of the university campus tend to have a higher proportion of trips made by private car (for instance, trips from the former Canterbury, former Ashfield and Canada Bay LGAs).

A detailed breakdown of mode share by LGA of origin of workers is shown in Appendix B.

TABLE 13: TOP 10 ORIGINS OF EMPLOYEES AT THE UNIVERSITY OF SYDNEY AND MODE OF TRANSPORT

Local government area	Number of employees	Proportion of all employees	Proportion of trips by private vehicle	Proportion of trips by public transport	Proportion of trips by all other modes
Sydney	1,094	17%	15%	14%	71%
Marrickville*	651	10%	26%	33%	41%
Leichhardt*	318	5%	30%	37%	33%
Canterbury*	222	3%	56%	31%	13%
Randwick	204	3%	48%	37%	15%
Ashfield*	198	3%	41%	34%	25%
Canada Bay	182	3%	49%	38%	13%
Ku-ring-gai	160	2%	29%	57%	13%
Hornsby*	149	2%	28%	58%	15%
Ryde*	145	2%	39%	55%	6%

Source: ABS, 2011

Note: This data is from the 2011 Census. Local government areas boundaries are as they were in 2011. Local government areas that have changed since 2011 have been marked with an asterisk (*).

Western Sydney University

The following section discusses the location of staff and mode of travel for each Western Sydney University campus.

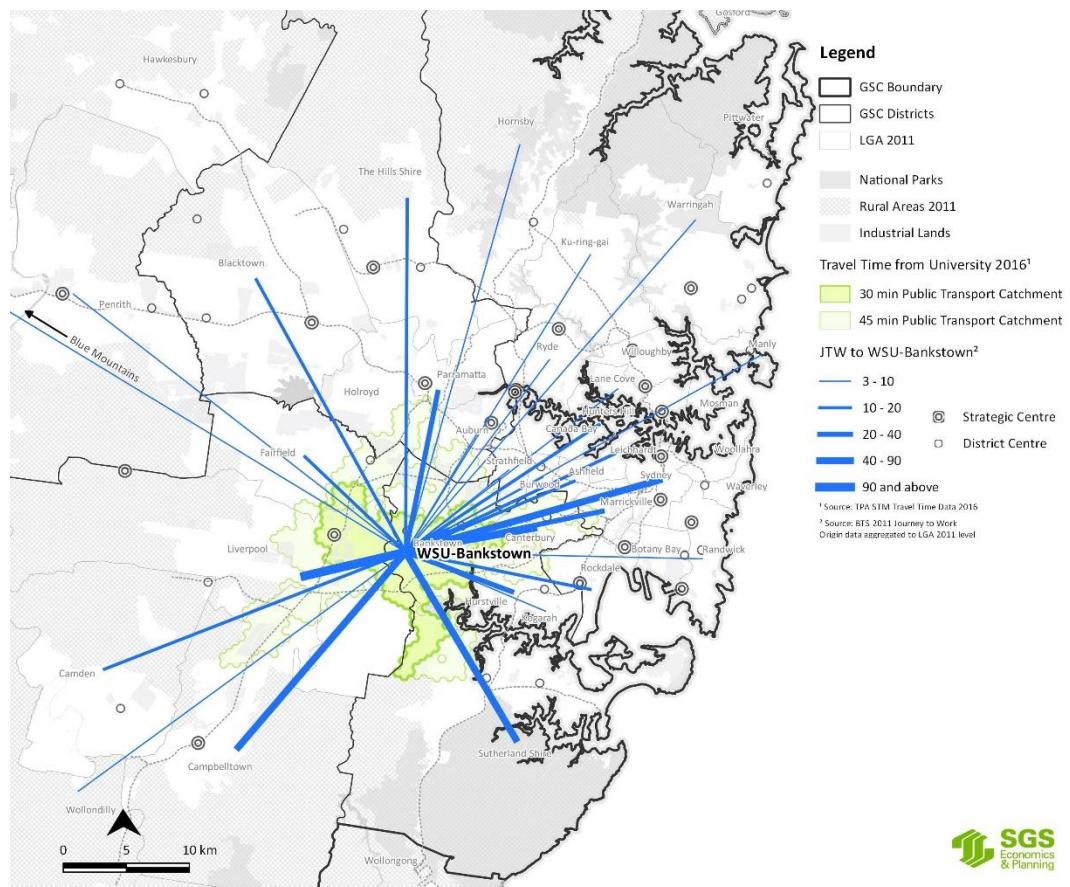
Bankstown campus

The Travel Zone encompassing Western Sydney University Bankstown campus contains other land uses that may attract workers. Therefore, all of the workers shown below may not be located at the university campus.

Figure 27 shows the origin of workers at the Western Sydney University's Bankstown campus. The majority of workers at the Bankstown campus come from Sydney's south and inner west. These locations are relatively close to the Bankstown campus. Very few workers come from Sydney's north.

The Bankstown campus has a limited catchment within 30 minutes by public transport, extending from Liverpool to Lakemba, Bankstown to Menai. The 45 minute public transport extends along the Cumberland, Airport and Bankstown lines, however remains limited compared to other campuses reviewed in this work. This reflects the location of the campus away from heavy rail.

FIGURE 27: WESTERN SYDNEY UNIVERSITY BANKSTOWN CAMPUS STAFF PLACE OF ORIGIN AND PUBLIC TRANSPORT CATCHMENT



Source: SGS, 2017 using ABS 2011 and Transport for NSW 2016



Table 14 below shows the top 10 LGAs of origin for workers in and around the Western Sydney University campus. The LGA with the highest number of workers is the Bankstown LGA, which contains the campus. Approximately one in four workers in and around the university campus reside in the Bankstown LGA.

For all of the top 10 LGAs of origin, 50% or more of trips to the campus are by private vehicle. This reflects the campus' location away from significant public transport, including rail infrastructure. The proportion of trips by private vehicle is highest for LGAs without direct

transport connections to the nearest train station (i.e. Revesby station) such as Canterbury, Campbelltown, and Sutherland. Public transport trips are highest Hurstville and Sydney LGAs - which are LGAs with significant public transport nodes.

TABLE 14: TOP 10 ORIGINS OF EMPLOYEES AT THE WESTERN SYDNEY UNIVERSITY BANKSTOWN CAMPUS AND MODE OF TRANSPORT

Local government area	Number of employees*	Proportion of all employees*	Proportion of trips by private vehicle	Proportion of trips by public transport	Proportion of trips by all other modes
Bankstown**	219	27%	73%	4%	23%
Liverpool	93	12%	77%	12%	11%
Sutherland	58	7%	81%	9%	10%
Campbelltown	55	7%	89%	5%	5%
Sydney	53	7%	64%	17%	19%
Marrickville**	36	5%	50%	8%	42%
Canterbury**	29	4%	90%	0%	10%
Parramatta**	26	3%	65%	0%	35%
Hurstville**	26	3%	69%	19%	12%
Fairfield	19	2%	63%	16%	21%

Source: ABS, 2011

*This Travel Zone contain other employment land uses apart from this university campus. The number of workers is therefore higher than employees at the university campus. The proportion is taken from all employment in the Travel Zone.

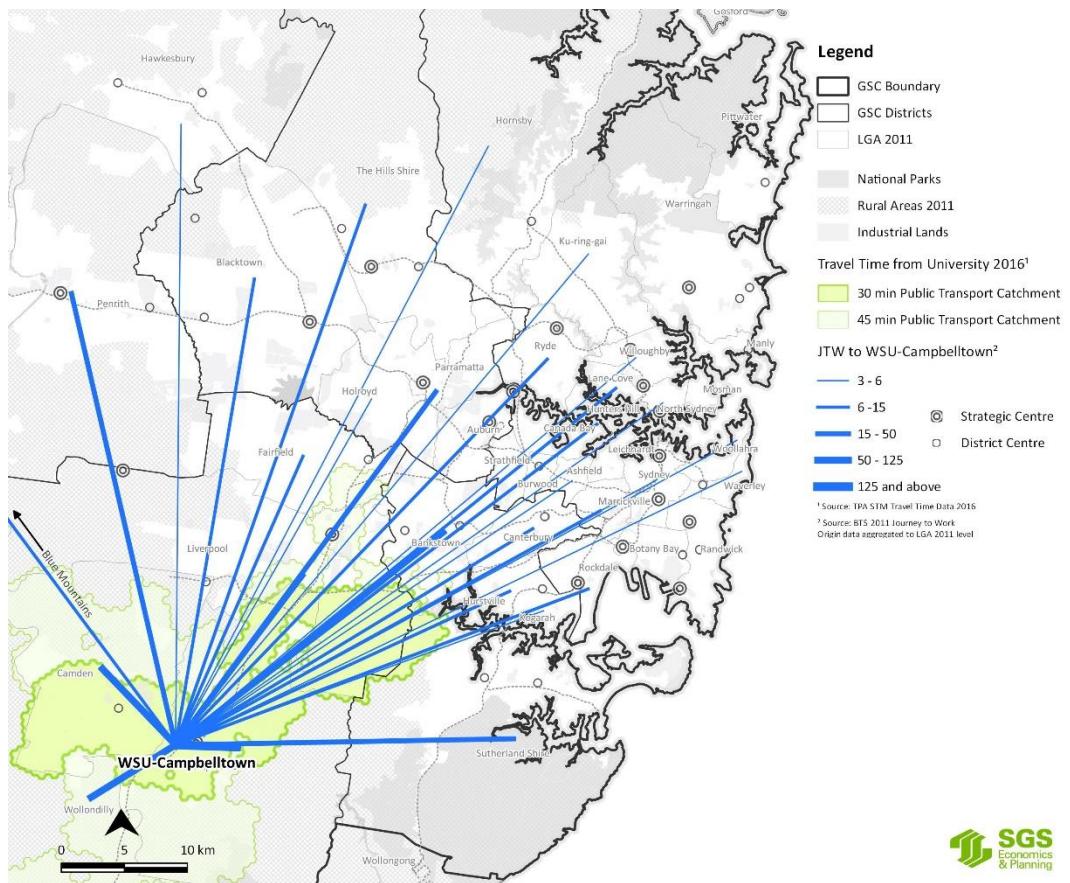
Note: This data is from the 2011 Census. Local government areas boundaries are as they were in 2011. Local government areas that have changed since 2011 have been marked with an asterisk (*).

A detailed breakdown of mode share by LGA of origin of workers is shown in Appendix B.

Campbelltown campus

Figure 28 overleaf shows the majority of workers at the Western Sydney University's Campbelltown campus reside in the south west of Sydney. The majority of employees reside in Campbelltown and surrounding LGAs, including Camden, Wollondilly and Liverpool. A significant proportion of workers also reside in Parramatta, Penrith and Sutherland LGAs. Employees are drawn from across Greater Sydney, with the exception of the Northern Beaches.

FIGURE 28: WESTERN SYDNEY UNIVERSITY CAMPBELLTOWN CAMPUS STAFF PLACE OF ORIGIN AND PUBLIC TRANSPORT CATCHMENT



Source: SGS, 2017 using ABS 2011 and Transport for NSW 2016

The public transport catchment of the Campbelltown campus is limited and is largely confined to the South West District of Sydney. This is reflected in the mode share of journey to work by employees as shown in Table 15. The majority of trips to the Campbelltown campus for work are by private vehicle. This is especially true for workers residing in the Campbelltown LGA, with 90% of trips to the campus by car. The only LGA with the majority of trips by workers on public transport is the former Bankstown LGA.

A detailed breakdown of mode share by LGA of origin of workers is shown in Appendix B.

TABLE 15: TOP 10 ORIGINS OF EMPLOYEES AT THE WESTERN SYDNEY UNIVERSITY CAMPBELLTOWN CAMPUS AND MODE OF TRANSPORT

Local government area	Number of employees	Proportion of all employees	Proportion of trips by private vehicle	Proportion of trips by public transport	Proportion of trips by all other modes
Campbelltown	195	22%	90%	0%	10%
Camden	123	14%	85%	0%	15%
Wollondilly	75	9%	81%	0%	19%
Liverpool	49	6%	82%	12%	6%
Sutherland	28	3%	78%	11%	11%
Parramatta*	24	3%	62%	13%	25%
Penrith	22	2%	86%	0%	14%
Bankstown*	21	2%	29%	43%	29%
Canterbury*	15	2%	59%	21%	20%
Marrickville*	15	2%	100%	0%	0%

Source: ABS, 2011

Note: This data is from the 2011 Census. Local government areas boundaries are as they were in 2011. Local government areas that have changed since 2011 have been marked with an asterisk (*).

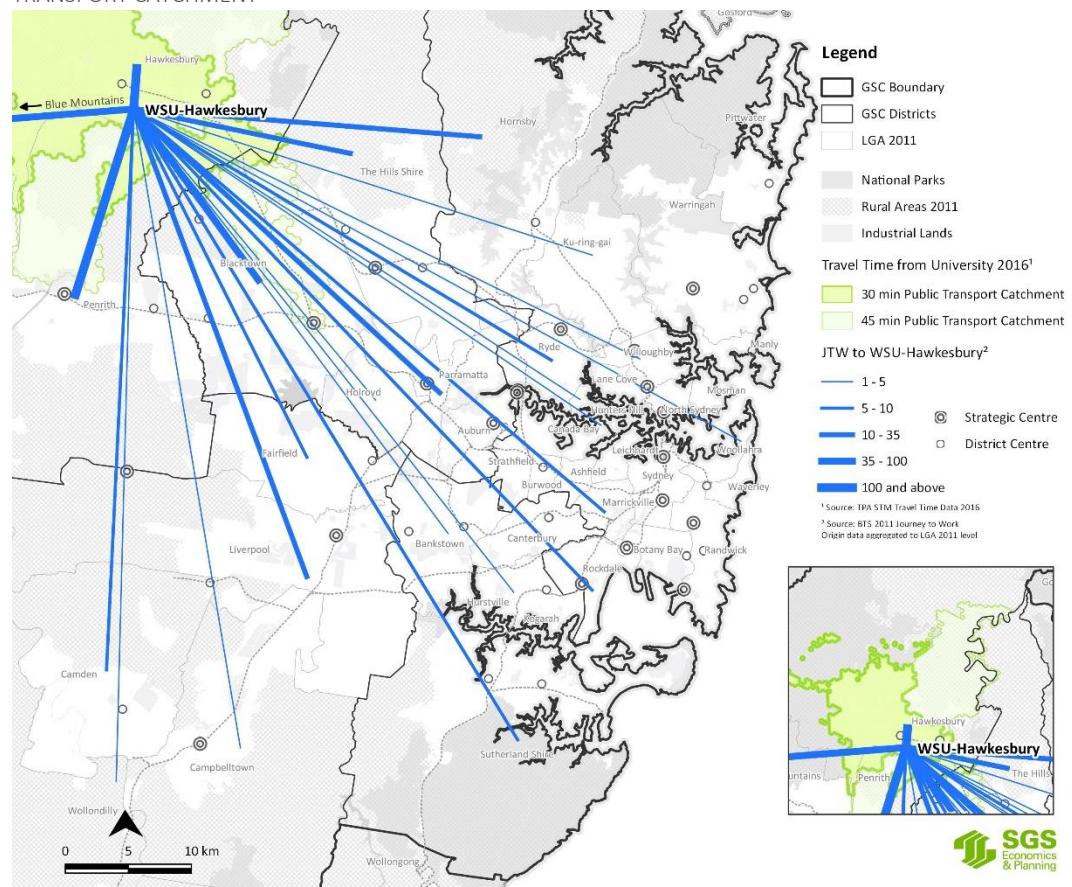
Hawkesbury campus

The Travel Zone encompassing Western Sydney University Hawkesbury campus contains other land uses that may attract workers. Therefore, all the workers shown below may not be located at the university campus.

Workers at the Western Sydney University's Hawkesbury campus largely reside in the north west of Sydney. The majority of workers reside in the Hawkesbury LGA and surrounding LGAs, including Blue Mountains, Blacktown, Penrith and The Hills. Very few workers travel from Sydney's east.

The public transport catchment of the Hawkesbury campus is limited to within the Hawkesbury LGA and the north of the Penrith LGA. The 45 minute public catchment extends into the Blacktown LGA down the rail line to the Blacktown strategic centre.

FIGURE 29: WESTERN SYDNEY UNIVERSITY HAWKESBURY CAMPUS STAFF PLACE OF ORIGIN AND PUBLIC TRANSPORT CATCHMENT



Source: SGS, 2017 using ABS 2011 and Transport for NSW 2016

The top 10 LGA origin of workers at the Hawkesbury campus are shown below in Table 16. The majority of trips are taken by private car, reflecting the distance of the campus from heavy rail connections and limited public network through the region. The Blacktown LGA has the highest number of workers in and around the Hawkesbury campus who travel to work by public transport.

A detailed breakdown of mode share by LGA of origin of workers is shown in Appendix B.

TABLE 16: TOP 10 ORIGINS OF EMPLOYEES AT THE WESTERN SYDNEY UNIVERSITY HAWKESBURY CAMPUS AND MODE OF TRANSPORT

Local government area	Number of employees*	Proportion of all employees*	Proportion of trips by private vehicle	Proportion of trips by public transport	Proportion of trips by all other modes
Hawkesbury	303	41%	72%	2%	26%
Penrith	108	15%	92%	0%	8%
Blue Mountains	99	14%	90%	0%	10%
Blacktown	81	11%	74%	15%	11%
The Hills Shire**	35	5%	83%	0%	17%
Liverpool	15	2%	100%	0%	0%
Parramatta**	12	2%	75%	0%	25%
Hornsby**	12	2	50%	0%	50%
Rockdale**	9	1%	100%	0%	0%
Fairfield	9	1%	69%	0%	31%

Source: ABS, 2011

*This Travel Zone contain other employment land uses apart from this university campus. The number of workers is therefore higher than employees at the university campus. The proportion is taken from all employment in the Travel Zone.
Note: This data is from the 2011 Census. Local government areas boundaries are as they were in 2011. Local government areas that have changed since 2011 have been marked with an asterisk (*).

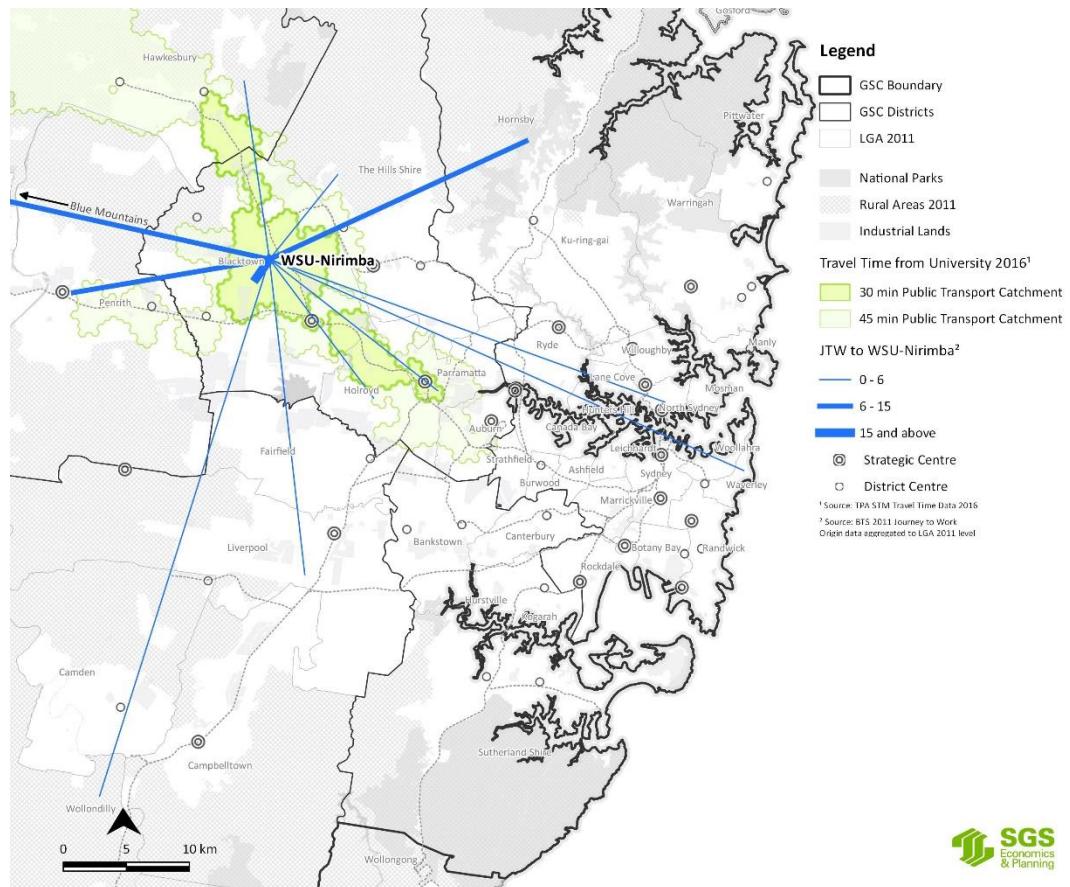
Nirimba campus

The Travel Zone encompassing Western Sydney University Nirimba campus contains other land uses that may attract workers. Therefore, all the workers shown below may not be located at the university campus.

Figure 30 shows the origin of workers in and around the Nirimba campus. The majority of workers at the campus largely reside in four LGAs; Blacktown, Penrith, Hornsby and the Blue Mountains. The remaining LGAs of origin have less than 6 workers employed at or near the Nirimba campus.

The 30 minute public transport catchment from the Nirimba campus extends along the T1 Western Line between Windsor and Parramatta. The majority of the residential areas of the Blacktown LGA area is within 45 minutes of the Nirimba campus by public transport.

FIGURE 30: WESTERN SYDNEY UNIVERSITY NIRIMBA CAMPUS STAFF PLACE OF ORIGIN AND PUBLIC TRANSPORT CATCHMENT



Source: SGS, 2017 using ABS 2011 and Transport for NSW 2016

Despite this public transport catchment across the Blacktown LGA, no trips by workers in and around the Nirimba campus were by public transport. In the case of all but 3 of the top 10 LGAs of origin for Nirimba campus workers, 100 per cent of trips were by car.

A detailed breakdown of mode share by LGA of origin of workers is shown in Appendix B.

TABLE 17: TOP 10 ORIGINS OF EMPLOYEES AT THE WESTERN SYDNEY UNIVERSITY NIRIMBA CAMPUS AND MODE OF TRANSPORT

Local government area	Number of employees*	Proportion of all employees*	Proportion of trips by private vehicle	Proportion of trips by public transport	Proportion of trips by all other modes
Blacktown	29	31%	72%	0%	28%
Penrith	14	15%	100%	0%	0%
Blue Mountains	12	13%	75%	0%	25%
Hornsby**	9	10%	100%	0%	0%
Parramatta**	6	6%	100%	0%	0%
The Hills Shire**	6	6%	100%	0%	0%
Holroyd**	4	4%	0%	0%	100%
Hawkesbury	4	4%	100%	0%	0%
North Sydney	3	3%	100%	0%	0%
Waverley	3	3%	100%	0%	0%

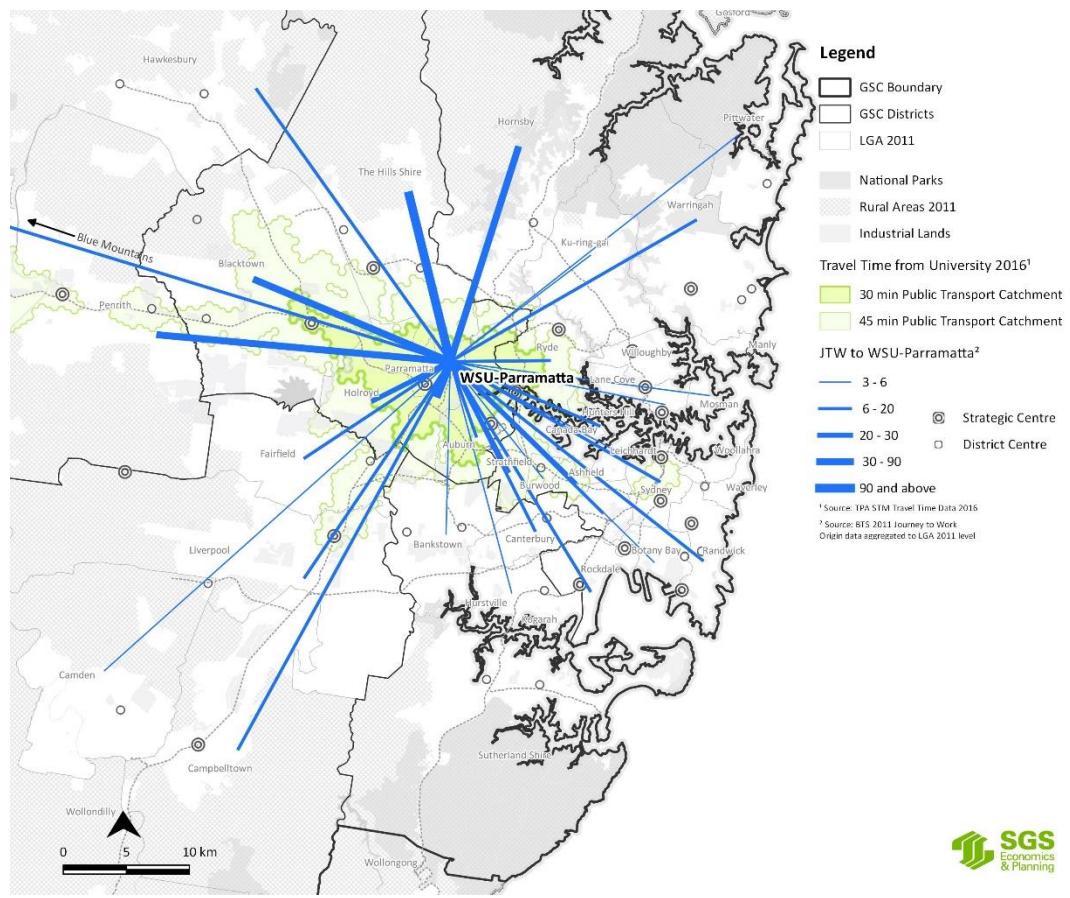
Source: ABS, 2011

*This Travel Zone contain other employment land uses apart from this university campus. The number of workers is therefore higher than employees at the university campus. The proportion is taken from all employment in the Travel Zone.
Note: This data is from the 2011 Census. Local government areas boundaries are as they were in 2011. Local government areas that have changed since 2011 have been marked with an asterisk (**).

Parramatta campus

Employees at the Western Sydney University Parramatta campus reside across Sydney, as shown in Figure 31. Workers reside in almost all of the LGAs as they defined in 2011. The LGAs with the greatest number of workers at the Parramatta campus are located in Sydney west and north west; namely Parramatta, The Hills, Blacktown, Hornsby and Penrith LGAs. A significant cluster of employees from the inner west of Sydney is also evident.

FIGURE 31: WESTERN SYDNEY UNIVERSITY PARRAMATTA CAMPUS STAFF PLACE OF ORIGIN AND PUBLIC TRANSPORT CATCHMENT



Source: SGS, 2017 using ABS 2011 and Transport for NSW 2016



The 30 minute public transport catchment of the Parramatta campus is largely contained within the West Central District of Greater Sydney. Parts of Ryde LGA are also located with 3-30 minutes of the campus by public transport. The majority of the Blacktown LGA is within 45 minutes of the campus by public transport.

Table 18 shows the top 10 origins of workers by LGA and mode of transport. Parramatta LGA, which contains the campus, has the highest number of workers and the third highest proportion of trips to the campus by public transport. The Hills Shire Council also has a significant number of residents working at the Parramatta campus, however the vast majority (83 percent) of these workers drive to work. Of the Blacktown LGA residents that work at the Western Sydney University campus, 65 percent travel by car. The highest proportion of trips by public transport is from the Penrith LGA (42 percent), however this is still lower than the number of trips by private vehicle (48 percent).

A detailed breakdown of mode share by LGA of origin of workers is shown in Appendix B.

TABLE 18: TOP 10 ORIGINS OF EMPLOYEES AT THE WESTERN SYDNEY UNIVERSITY PARRAMATTA CAMPUS AND MODE OF TRANSPORT

Local government area	Number of employees	Proportion of all employees	Proportion of trips by private vehicle	Proportion of trips by public transport	Proportion of trips by all other modes
Parramatta*	133	22%	51%	31%	19%
The Hills Shire*	92	15%	83%	5%	12%
Hornsby*	42	7%	83%	0%	17%
Blacktown	37	6%	65%	16%	19%
Penrith	31	5%	48%	42%	10%
Holroyd*	28	5%	89%	11%	0%
Ashfield*	28	5%	43%	39%	18%
Canada Bay	18	3%	83%	0%	17%
Hawkesbury	18	3%	83%	0%	17%
Marrickville*	15	2%	80%	0%	20%

Source: ABS, 2011

Note: This data is from the 2011 Census. Local government areas boundaries are as they were in 2011. Local government areas that have changed since 2011 have been marked with an asterisk (*).

Penrith campus

The Travel Zone encompassing Western Sydney University Penrith campus contains other land uses that may attract workers. Therefore, all the workers shown below may not be located at the university campus.

Figure 32 shows the origin of workers in and around the Western Sydney University Penrith campus. The highest number of employees travel from proximate LGAs, including Penrith (where the campus is located), the Blue Mountains, Blacktown, Parramatta and the former Holroyd LGAs.

While the majority of workers come from the West and West Central District of Greater Sydney, it is evident that the campus draws workers from across the metropolitan area. Outside of the West and West Central Districts, significant numbers of workers travel from Ryde, Sydney, Liverpool and Campbelltown LGAs.

FIGURE 32: WESTERN SYDNEY UNIVERSITY PENRITH CAMPUS STAFF PLACE OF ORIGIN AND PUBLIC TRANSPORT CATCHMENT

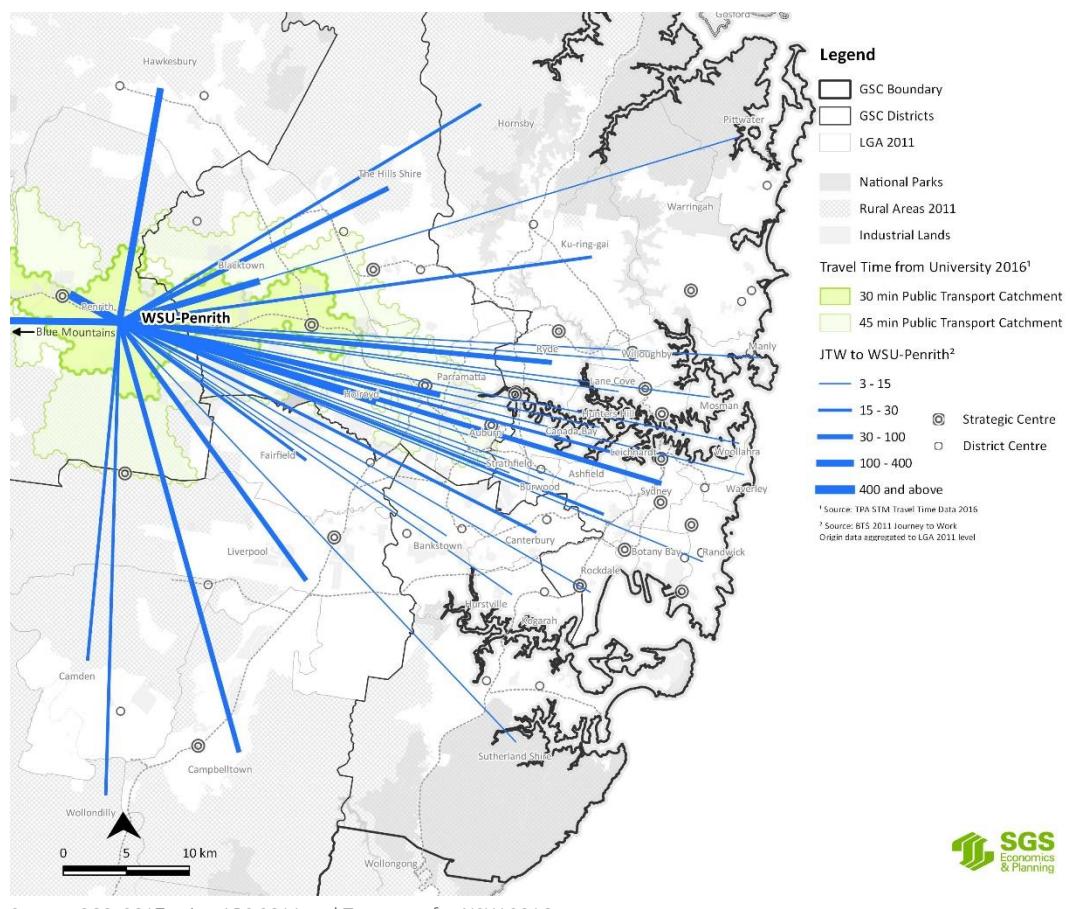


Figure 32 overleaf shows the top 10 origins of workers by LGA and mode of transport. Of the top 10 LGAs of origin, only the City of Sydney has fewer than 50 percent of trips by workers by car. For the remaining top 10 LGAs, over three quarters of work trips to the Penrith campus are by car.

A detailed breakdown of mode share by LGA of origin of workers is shown in Appendix B.

TABLE 19: TOP 10 ORIGINS OF EMPLOYEES AT THE WESTERN SYDNEY UNIVERSITY PENRITH CAMPUS AND MODE OF TRANSPORT

Local government area	Number of employees*	Proportion of all employees*	Proportion of trips by private vehicle	Proportion of trips by public transport	Proportion of trips by all other modes
Penrith	695	36%	84%	3%	14%
Blue Mountains	388	20%	79%	5%	16%
Blacktown	191	10%	82%	7%	11%
Hawkesbury	109	6%	86%	0%	14%
The Hills Shire**	68	3%	91%	0%	9%
Campbelltown	45	2%	76%	7%	18%
Parramatta**	44	2%	93%	7%	0%
Holroyd**	40	2%	78%	10%	13%
Liverpool	37	2%	89%	0%	11%
Sydney	33	2%	42%	36%	21%

Source: ABS, 2011

*This Travel Zone contain other employment land uses apart from this university campus. The number of workers is therefore higher than employees at the university campus. The proportion is taken from all employment in the Travel Zone.
Note: This data is from the 2011 Census. Local government areas boundaries are as they were in 2011. Local government areas that have changed since 2011 have been marked with an asterisk (*).

Summary

For the six Western Sydney University campuses, the following university staff travel trends are evident:

- University staff generally reside near the campus where they work.
- The LGA with the highest number of employees is the LGA that contains the university campus, followed by the surrounding local government areas.
- The majority of trips by university staff are by private vehicle. This is regardless of the campus' proximity to public transport.

These findings reinforce the notion that university staff, where possible, choose to locate near their place of work.

Key messages

Western Sydney contains 13 percent of all jobs at university campuses in Greater Sydney.

The majority of jobs at university campuses are clustered around the Sydney CBD.

University staff tend to locate near their place of work, regardless of where the campus is in Greater Sydney.

Blacktown residents who are employed at university campuses in Greater Sydney are largely concentrated at local campuses at Richmond and Werrington as well as Macquarie Park.

The majority of works trips by Blacktown residents employed at university campuses are taken by car.

6. SUMMARY OF KEY FINDINGS

The student population of Blacktown is significant on a metropolitan scale. One in every twenty university students residing in Greater Sydney live in the Blacktown LGA. Blacktown LGA's current student population represent 15 percent of all university students living in Western Sydney.

The student population of the Blacktown LGA is forecast to grow over the next 30 years to approximately 29,000 students. New university students residing in Blacktown are forecast to live across the LGA, including in new urban areas in the LGAs' north as well as clustering the Blacktown Strategic Centre. Growth in university students in the Blacktown LGA is forecast to be on par with growth forecast for Western Sydney and exceed the rate of growth forecast for Greater Sydney.

Despite this considerable growth, the majority of university places across Greater Sydney are concentrated in and around the Sydney CBD. Only 18 per cent of all university places are located in Western Sydney, and less than one percent are located in the Blacktown LGA. Current university student forecast indicate that this pattern is forecast to continue over the next 30 years, with universities in Sydney's east accommodating the majority of student enrolment growth.

University students residing in Blacktown have demonstrated a desire to attend universities across Greater Sydney which meet their educational needs. While high numbers of students have been recorded travelling to 'local' university campuses, such as Western Sydney University's Penrith and Nirimba campuses, the highest number of students are travelling to the University of Sydney and the University of new South Wales. This is despite the distance to these campuses and a travel time over 45 minutes by public transport from much of the Blacktown LGA.

Blacktown LGA residents employed at university campuses work across Greater Sydney. Conversely to students, however, there is a greater prevalence of Blacktown LGA residents working at 'local' universities closer to home compared to other universities, including Western Sydney University's Penrith and Hawkesbury campuses and Macquarie University. This is consistent with the pattern observed across Greater Sydney, where university staff generally locate close to their place of work.

ATTACHMENT A – DATA SOURCES

This attachment provides an overview of the approach of this project. This Chapter identifies the data sources, method and assumptions applied to this analysis.

DATA SOURCES

Census data – Australian Bureau of Statistics

Census data has been applied in this analysis to determine the likely number of university students across Blacktown LGA, Western Sydney and Greater Sydney. Census data has also been analysed to understand the following:

- Study status of students (i.e. full time/part time)
- Participation rate in university student (i.e. the proportion of residents in a region studying at university)
- Age of students
- Journey to work of university staff, including:
 - Place of origin
 - Place of work
 - Mode of transport

Census data is from 2011. This is the most recent data available. The complete dataset from the 2016 Census is scheduled for release in October 2017.

Population forecasts – Transport Performance and Analytics

Transport Performance and Analytics prepare land use forecasts for Greater Sydney to 2046 as a key input to the strategic transport model. The forecasts used in this report were prepared in 2016. This report includes:

- Population forecasts by place of residence (2016 and 2046)
- University student forecasts by place of residence (2016 and 2046)
- University student forecasts by place of study (2016 and 2046)

Household Travel Survey – Transport Performance and Analytics

The Household Travel Survey is prepared and collated by NSW Transport Performance and Analytics to identify travel patterns across Greater for different purposes and by different modes. Data from the 2015/16 Household Travel Survey was applied to understand the mode of transport university students use to travel for education purposes and to benchmark this against travel for all other purposes.

The Household Travel Survey receives a total of 3,000 responses from across Greater Sydney. Transport Performance and Analytics provided SGS with data for university students, which represent 10 percent of all responses (i.e. approximately 300 responses). Data for smaller geographies could not be provided for this analysis to ensure a statistically valid sample size and to protect the privacy of survey respondents.

University Annual Reports

The annual reports of universities across Greater Sydney were reviewed to understand:

- Current student enrolments by campus
- Current staff numbers by campus

The 2015 annual report (i.e. the report on the calendar year 2015) was reviewed to understand current student enrolments. The 2011 annual report has been reviewed staff

numbers in order to compare this data set directly with journey to work data collected in the 2011 Census.

Opal card data – Transport Performance and Analytics

SGS requested Opal card data from Transport Performance and Analytics to understand student travel patterns across Greater Sydney.

SGS received data for trips taken on concession cards from across Greater Sydney to bus and train stations located at/nearby university campuses. Data was received for 29 March 2017, a Wednesday during semester when all universities reviewed in this analysis were in session.

It is noted that concession cards are made available to groups other than university students, including apprentices and eligible Centrelink customers. TPA was not able to provide the data excluding these other card holders.

Department of Education and Training

SGS requested student enrolment data from the federal Department of Education and Training. This data request aims to obtain information on the following:

- Current student enrolments by university in Greater Sydney by:
 - Term address of students attending these universities
 - Permanent address of students attending these universities.

This data provides an indication of total enrolments and subject of study from the Blacktown LGA and university campuses located across Greater Sydney. This data also provides an indication of where students live during the university term and their permanent address, providing an indication of the quantum of students moving to relocate closer to their university.

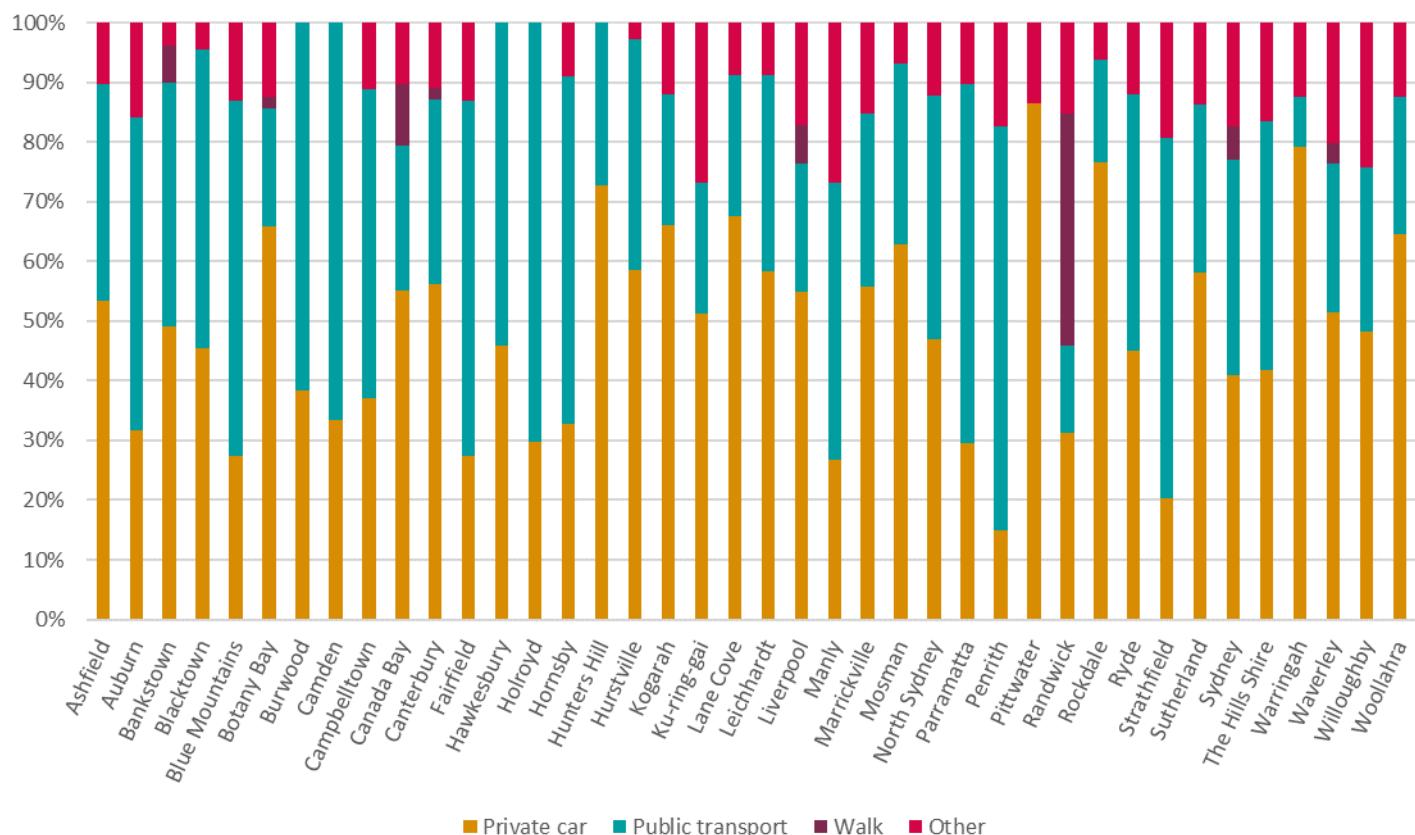
ATTACHMENT B – MODE SHARE OF JOURNEY TO WORK

University of New South Wales

Figure 33 below shows the mode share of university staff journey to work to the University of New South Wales by local government area. Local government areas are shown as they were in 2011.

Significant proportions of university staff travel by public transport to get to work from the majority of local government areas in Greater Sydney. Rates of public transport commutes are highest for local government areas with heavy rail connections to the Sydney CBD. Private car usage is also significant across these local government areas and is highest for local government areas without heavy rail connections (e.g. the former Botany Bay, Canada Bay, former Warringah and former Pittwater LGAs). Walking is a significant mode of transport for university staff residing in the Randwick LGA, which also contains the University of New South Wales.

FIGURE 33: MODE SHARE OF UNIVERSITY STAFF TO THE UNIVERSITY OF NEW SOUTH WALES



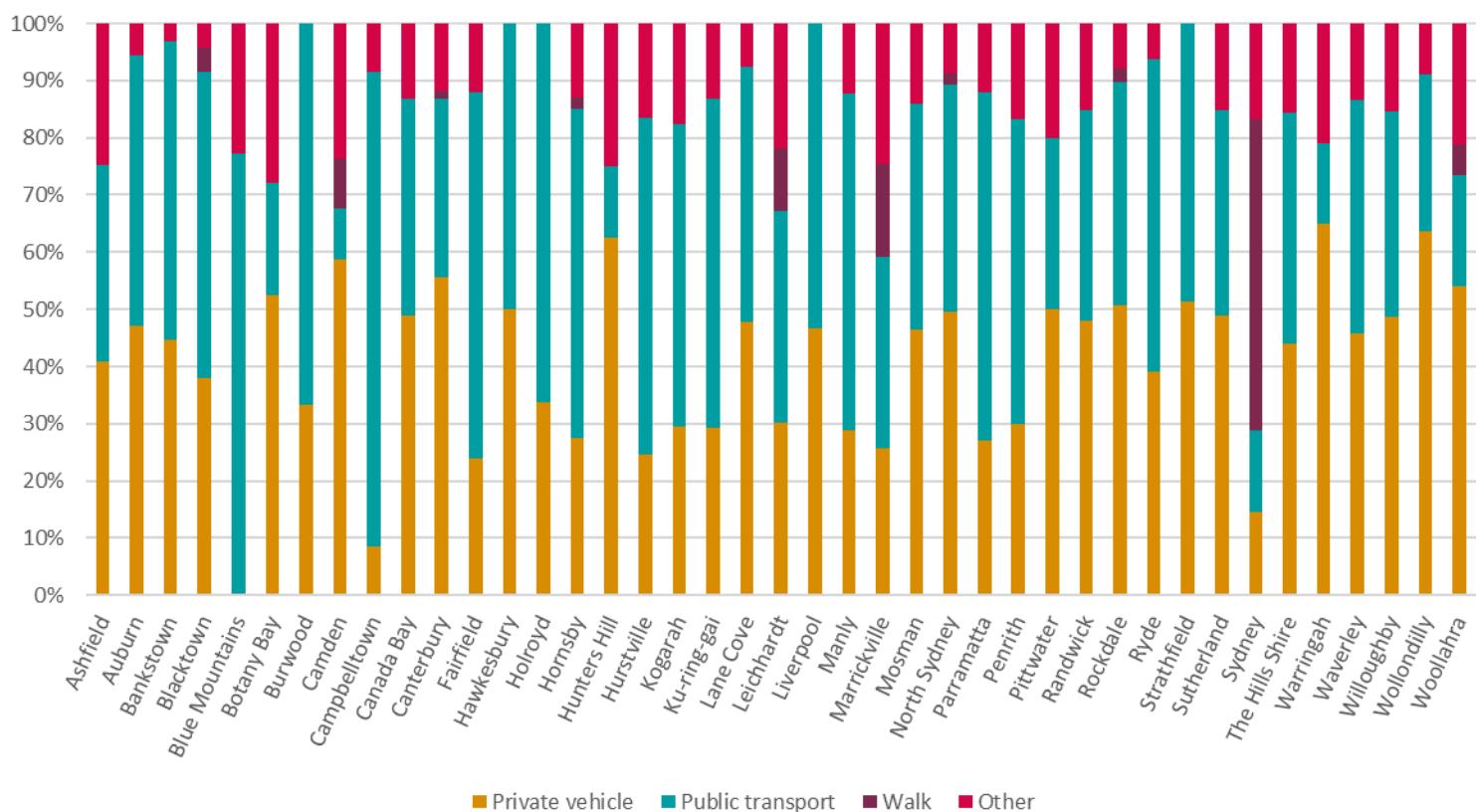
Source: ABS, 2011

University of Sydney

Figure 34 below shows the mode share of university staff journey to work to the University of Sydney by local government area. Local government areas are shown as they were in 2011.

Public transport trips account for a significant proportion of commutes from across Greater Sydney and is the highest for all university campuses reviewed. The proportion of commutes by public transport is highest in LGAs with rail connections to the Sydney CBD (e.g. Blue Mountains, Campbelltown, Fairfield and former Hurstville LGAs). Trips by private car are highest in LGAs without rail connections to the Sydney CBD, such as the former Warringah, Wollondilly and Hunters Hill LGA. Walking commutes to the campus are significant from the City of Sydney LGA (which contains the campus), accounting for approximately half of all trips originating in the LGA.

FIGURE 34: MODE SHARE OF UNIVERSITY STAFF TO THE UNIVERSITY OF SYDNEY



Source: ABS, 2011

Western Sydney University

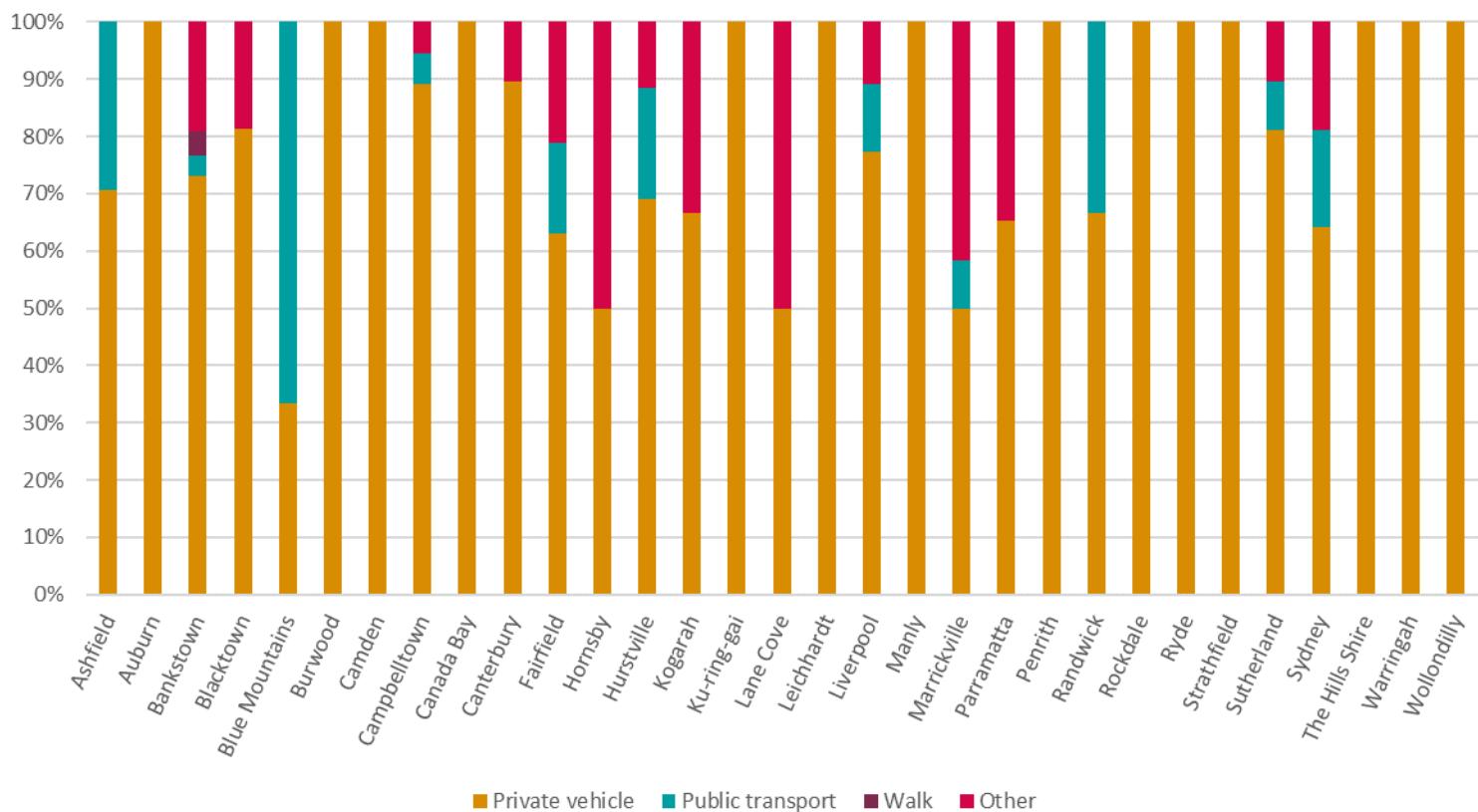
The mode share of university staff journey to work is shown for each of Western Sydney University's campuses.

Bankstown campus

Figure 35 below shows the mode share of university staff journey to work to the Bankstown campus by local government area. Local government areas are shown as they were in 2011.

Private transport is the dominant mode transport to the Bankstown campus by university staff. Few trips are taken by public transport or walking.

FIGURE 35: MODE SHARE OF UNIVERSITY STAFF TO THE WESTERN SYDNEY UNIVERSITY BANKSTOWN CAMPUS



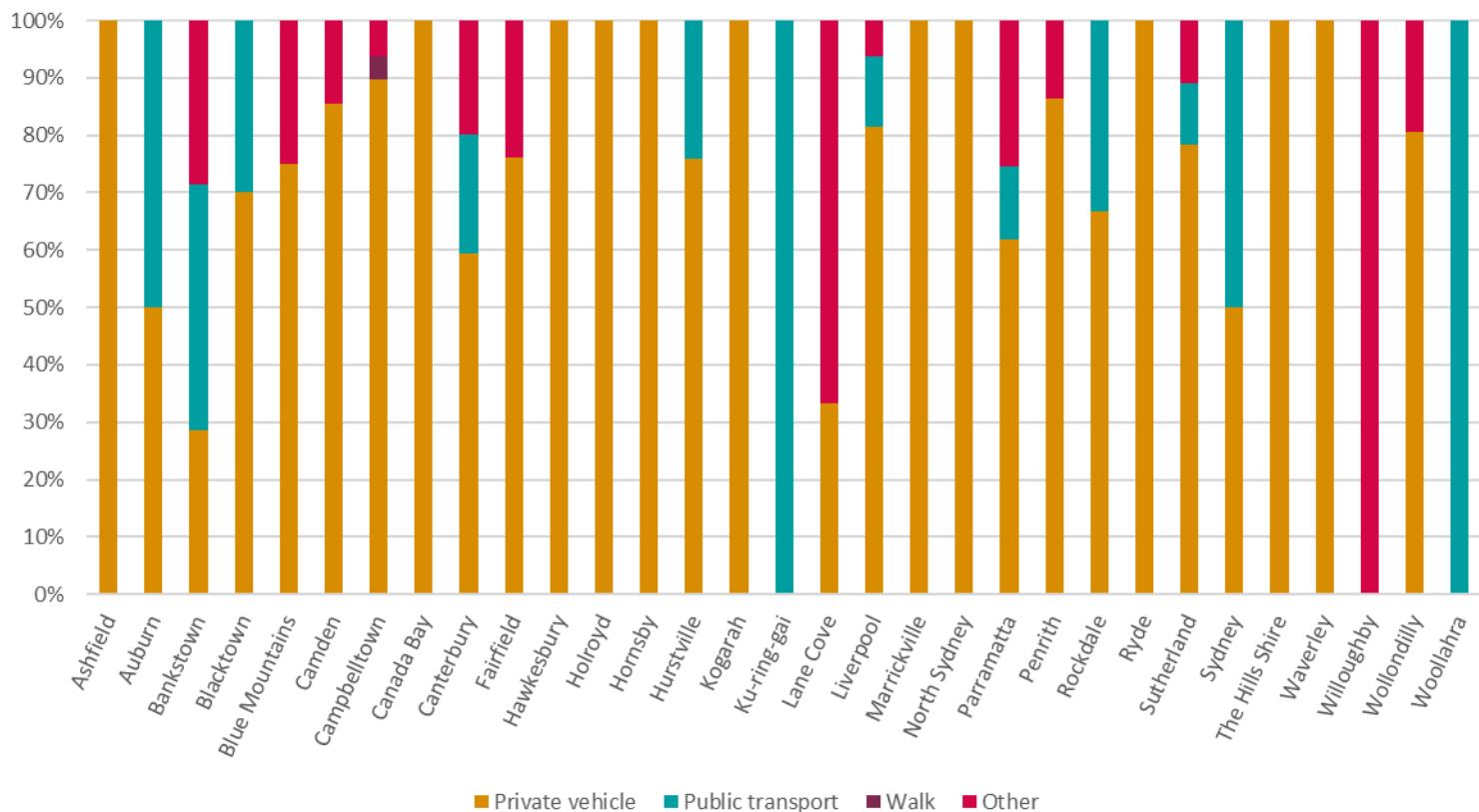
Source: ABS, 2011

Campbelltown campus

Figure 36 below shows the mode share of university staff journey to work to the Campbelltown campus by local government area. Local government areas are shown as they were in 2011.

Private transport is the dominant mode of transport for university staff from the majority of LGAs where staff reside. The exceptions are Ku-ring-gai and Woollahra LGAs, which have all recorded trips by university staff occurring by public transport (note: low number of staff reside in these LGAs).

FIGURE 36: MODE SHARE OF UNIVERSITY STAFF TO THE WESTERN SYDNEY UNIVERSITY CAMPBELLTOWN CAMPUS



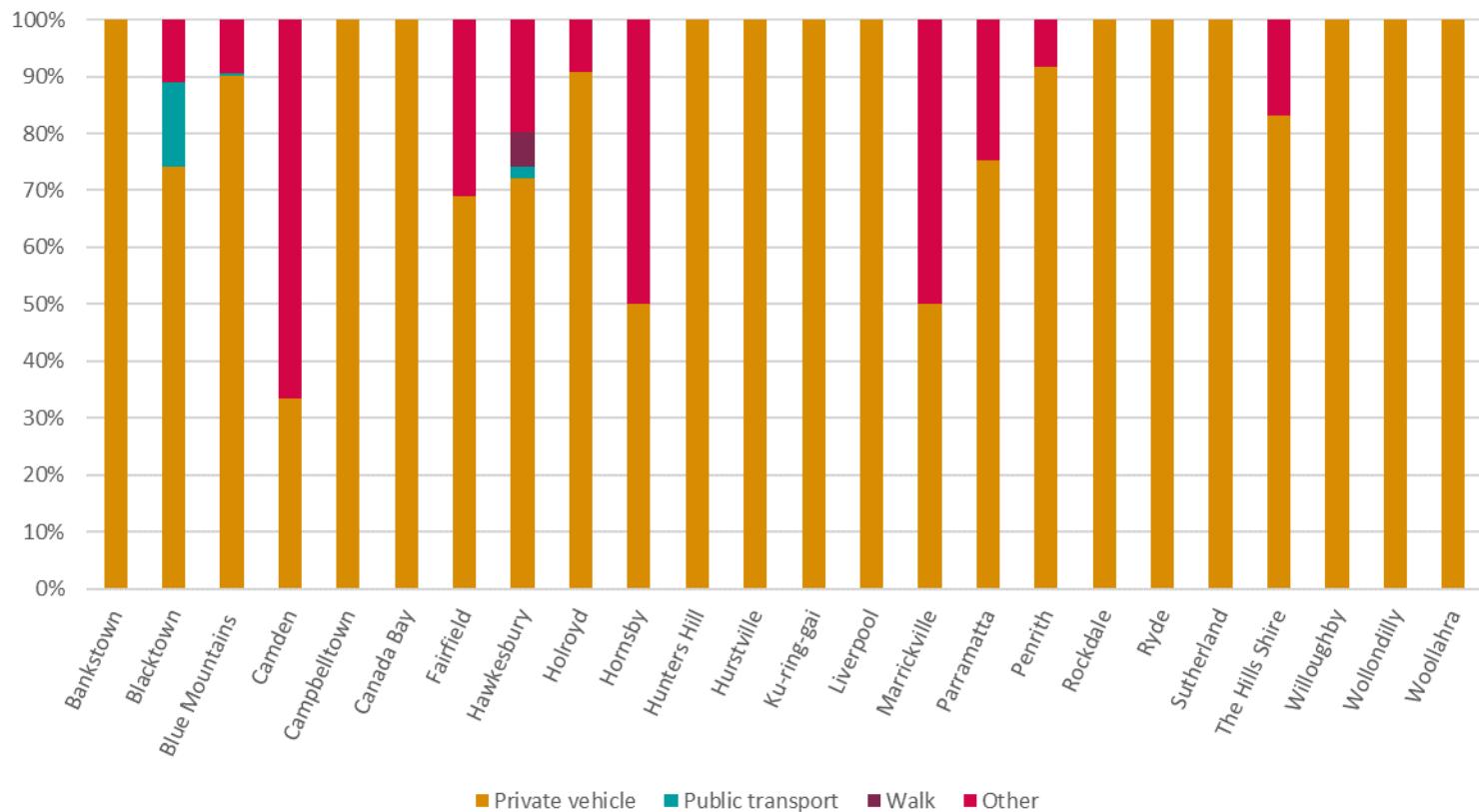
Source: ABS, 2011

Hawkesbury campus

Figure 37 below shows the mode share of university staff journey to work to the Hawkesbury campus by local government area. Local government areas are shown as they were in 2011.

Private vehicles are the most common mode of transport for university staff across Greater Sydney. Few trips are taken by public transport. Public transport trips are only recorded from the Hawkesbury LGA (which contains the campus) and the Blacktown LGA.

FIGURE 37: MODE SHARE OF UNIVERSITY STAFF TO THE WESTERN SYDNEY UNIVERSITY HAWKESBURY CAMPUS



Source: ABS, 2011

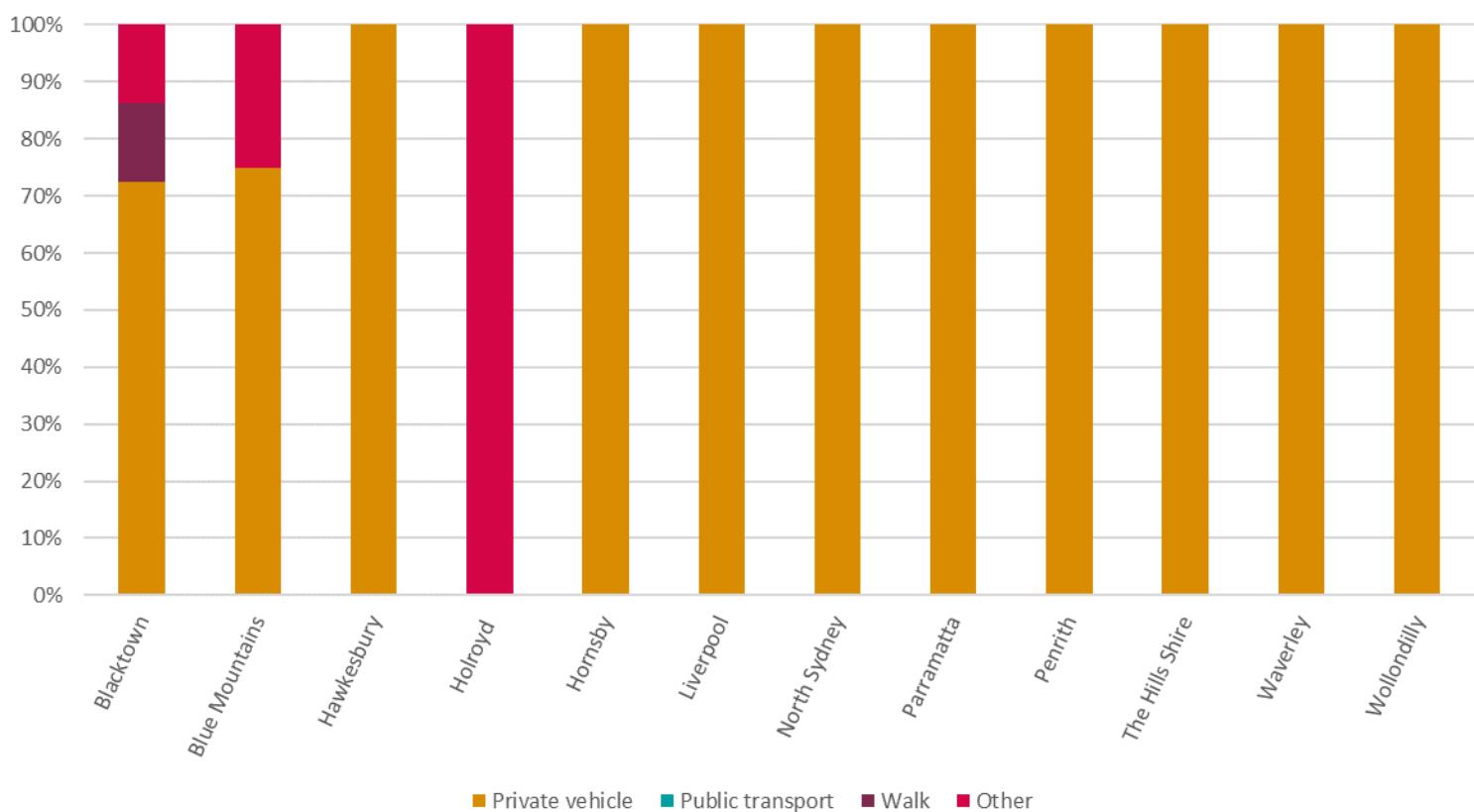
Nirimba campus

Private vehicles are the most common mode of transport for university staff across Greater Sydney. No public transport trips have been recorded. A small proportion of trips on foot have been recorded from the Blacktown LGA (the LGA that contains the campus).

Figure 38 below shows the mode share of university staff journey to work to the Nirimba campus by local government area. Local government areas are shown as they were in 2011.

Private vehicles are the most common mode of transport for university staff across Greater Sydney. No public transport trips have been recorded. A small proportion of trips on foot have been recorded from the Blacktown LGA (the LGA that contains the campus).

FIGURE 38: MODE SHARE OF UNIVERSITY STAFF TO THE WESTERN SYDNEY UNIVERSITY NIRIMBA CAMPUS



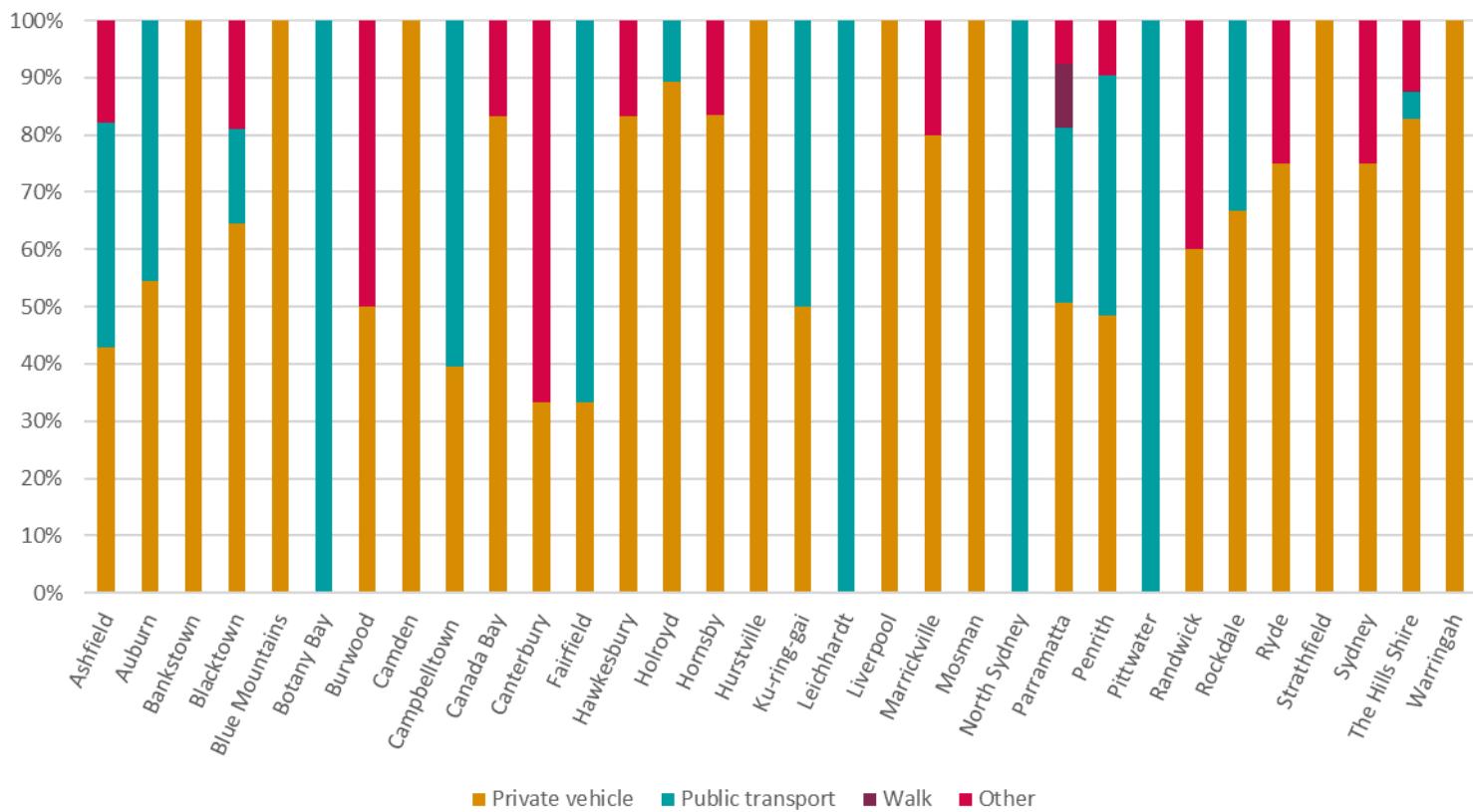
Source: ABS, 2011

Parramatta campus

Figure 39 below shows the mode share of university staff journey to work to the Parramatta campus by local government area. Local government areas are shown as they were in 2011.

Private transport is the dominant mode of transport for university staff from across Greater Sydney. Some LGAs of origin only record public transport trips, however these LGAs record low number of staff at the Parramatta campus. Walking trips are only recorded from the former Paramatta LGA, which is the LGA containing the campus.

FIGURE 39: MODE SHARE OF UNIVERSITY STAFF TO THE WESTERN SYDNEY UNIVERSITY PARRAMATTA CAMPUS



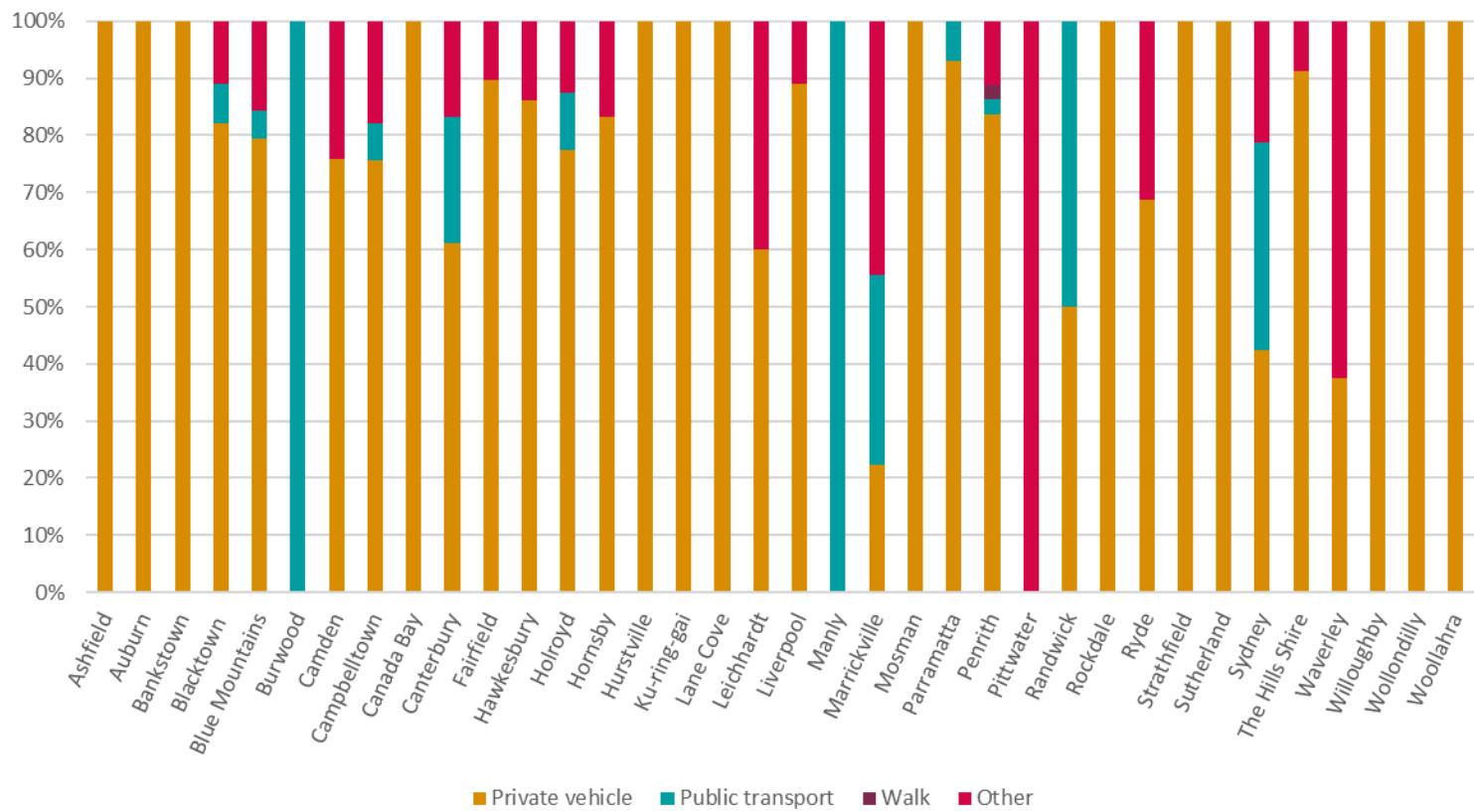
Source: ABS, 2011

Penrith campus

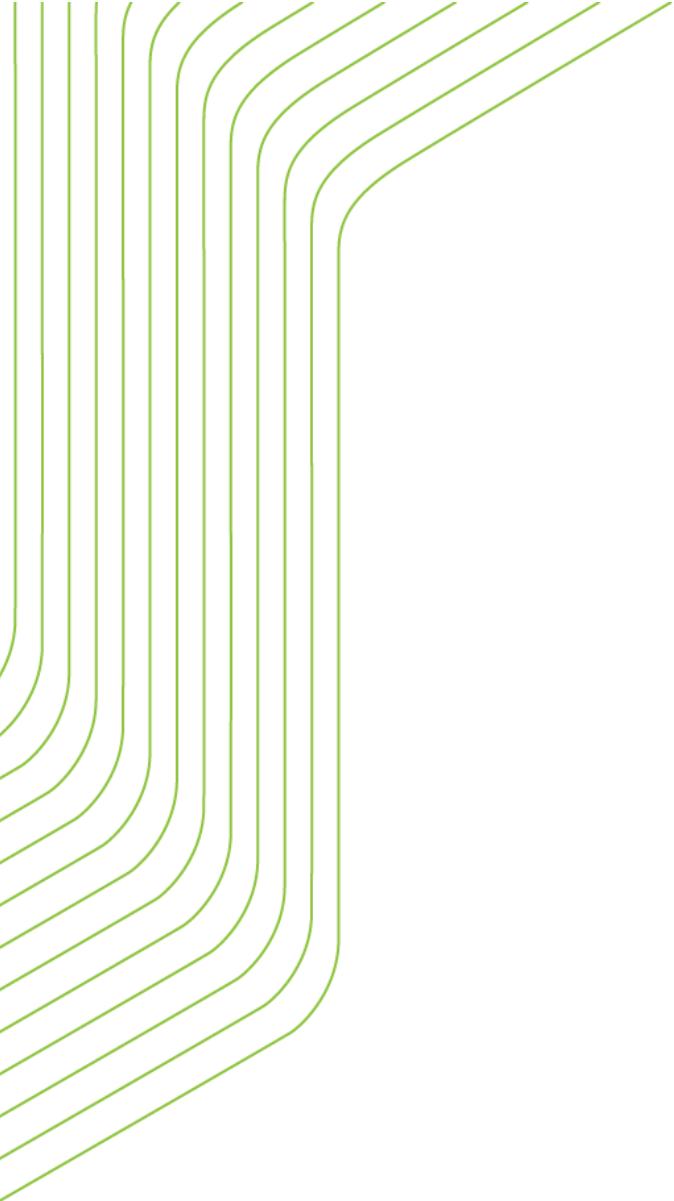
Figure 40 below shows the mode share of university staff journey to work to the Penrith campus by local government area. Local government areas are shown as they were in 2011.

Private vehicles are the most common mode of transport for university staff across Greater Sydney. Public transport trips have been recorded from LGAs containing heavy rail infrastructure and the former Manly LGA. Walking trips are only recorded from the Penrith LGA, which is the LGA that contains the campus.

FIGURE 40: MODE SHARE OF UNIVERSITY STAFF TO THE WESTERN SYDNEY UNIVERSITY PENRITH CAMPUS



Source: ABS, 2011



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