

DEVELOPING A PENRITH VALLEY ECONOMIC CORRIDOR **REPORT**

**PREPARED FOR THE PENRITH BUSINESS ALLIANCE
BY THE URBAN RESEARCH CENTRE,
UNIVERSITY OF WESTERN SYDNEY, 2011.**

© 2011 Urban Research Centre, University of Western Sydney

ISBN 978-0-9808241-3-1

Authors:

Professor Phillip O'Neill

Mr Borce Dimeski

with the assistance of Dr Alexandra Wong.

ACKNOWLEDGEMENTS

The Urban Research Centre would like to acknowledge and thank Bijai Kumar and Ben Artup from the Penrith Business Alliance for their expert advice and generous assistance.

Abbreviations

ABS	Australian Bureau of Statistics
ANZSIC	Australian and New Zealand Standard Industrial Classification
CBD	Central Business District
IT	Information Technology
LGA	Local Government Area
UCLA	University of California, Los Angeles
URC	Urban Research Centre
UWS	University of Western Sydney

CONTENTS

1. Introduction	6
2. Western Sydney in the context of Sydney's economic geography	7
3. Sydney's global arc and the power of spatial metaphors	8
4. The City of Cities metaphor	10
5. A review of the idea of a spatialised economy	11
Box 1 - Central Place Theory	11
Box 2 - Land or Bid Rent Theory	12
Box 3 - Industrial Agglomerations	13
Box 4 - Industrial Clusters	14
6. Extending the theory	15
7. How a spatial economic corridor can build economic success	16
8. Ingredients for an economic corridor	18
9. Penrith within the Sydney basin	20
10. Labour market implications	23
11. Spatial business patterns in the Penrith district	25
12. The general locational pattern of Penrith businesses	26
13. The construction industry in the Penrith LGA	28
14. Manufacturing industry in the Penrith LGA	29
15. The wholesale industry in the Penrith LGA	30
16. Transport, postal and warehousing businesses in the Penrith LGA	31
17. The health and social assistance business sector in the Penrith LGA	33
18. Establishing the spatial dimension of the Penrith Valley Economic Corridor	36
19. References	39

List of Figures

Figure 1: Sydney's Global Economic Corridor	8
Figure 2: Representations of Sectoral Specialisations in the Sydney Economy	9
Figure 3: The Spatial Metaphor of Sydney as a City of Cities	10
Figure 4: The Traunstein District: A Typical German Urban Hierarchy	11
Figure 5: A Bid Rent Curve	12
Figure 6: The industrial Agglomeration at Port Kembla, NSW	13
Figure 7: An Industrial Cluster in Emilia-Romagna, Italy	14
Figure 8: Penrith's relative location	21
Figure 9: The Penrith District	22
Figure 10: Businesses in the Penrith District	27
Figure 11: The Construction Industry in the Penrith LGA	28
Figure 12: The Manufacturing Industry in the Penrith LGA	29
Figure 13: The Wholesale Industry in the Penrith LGA	30
Figure 14: Transport, Postal and Warehousing Businesses in the Penrith LGA	31
Figure 15: Penrith's Industrial Hub: The Combined Wholesaling, Manufacturing and Transportation industries	32
Figure 16: The Health and Social Assistance Business Sector in the Penrith LGA	34
Figure 17: An Abstract Representation of the Concentration of Health Businesses in the Penrith LGA	35
Figure 18: The Basic Dimensions of a Penrith Valley Economic Corridor	37
Figure 19: A Locational Dimensions of a Penrith Valley Economic Corridor	38

List of Tables

Table 1: Metro strategy sub-regional employment targets	6
---	---

This report responds to a request from the Penrith Business Alliance (PBA) for guidance on the development of a Penrith Valley Economic Corridor. The report addresses three objectives:

1. To identify in general the characteristics of a successful economic development corridor in a regional city.
2. To devise arguments for the development of a Penrith Valley Economic Corridor.
3. To develop the broad spatial dimensions of a Penrith Valley Economic Corridor.

We see the promotion and development of a Penrith Valley Economic Corridor to be an important initiative for jobs growth

and income generation. As argued in detail in the Urban Research Centre's Western Sydney Employment Study (Urban Research Centre 2009), significant interventions are needed in the Western Sydney region in order to meet the NSW government's targets for the region as outlined in the NSW government's Metropolitan Strategy (NSW Government 2005).

Table 1 summarises the Metropolitan Strategy's employment targets for Sydney's planning sub-regions.

The table reveals that 53.5% of Sydney's entire growth target by 2031 is to be met by employment growth in Western Sydney. Moreover, 24.76% of the metropolitan area's 2031 growth target is assigned to the North West planning sub-region, which includes the Penrith district.

Table 1 - Metro strategy sub-regional employment targets

Subregion	Employment growth 2004-2031	% of total Sydney growth
Sydney City	58,245	14.60
East	17,635	4.42
South	21,060	5.28
Inner West	9,910	2.48
Inner North	54,372	13.63
North	8,047	2.02
North East	16,263	4.08
West Central	34,950	8.76
North West	98,764	24.76
South West	79,719	19.98
Total	398,965	100.00

Source: Metropolitan Strategy (NSW Government 2005)

It should be emphasised that Western Sydney's sub-regions possess considerable assets for pursuit of ongoing jobs and income growth. These assets include the following:

- Western Sydney has a population exceeding 2 million, making it one of Australia's largest urbanised regions.
- The Western Sydney region is at the core of the rapidly growing Sydney metropolitan region, in the centre of Australia's prosperous eastern seaboard urban growth corridor.
- Western Sydney's strategic location provides it with access to the advantages which flow from belonging to a global city-region with strong links to east Asian and Asia-Pacific global cities and thereby to significant trade opportunities and to international flows of information, ideas, people, finance and cultural activity.
- The Western Sydney region hosts Australia's largest and most competitive manufacturing sector.
- In contrast to many advanced regional economies around the globe, the Western Sydney workforce is characterised by rising numbers of young workers. A growing proportion of these workers hold tertiary education qualifications.
- The region is the nation's primary destination for its international migration stream. Increasingly this stream comprises skilled workers with tertiary education qualifications.
- Western Sydney's major centres, including the City of Penrith, have natural monopoly roles in the provision of goods and services to their already significantly large, and still growing, urban hinterlands. Ongoing population growth is a key driver of economic activity and employment in the diverse sectors hosted by Sydney's regional cities centres and their adjoining employment lands. These growth sectors include health and community services, retailing, transport and distribution, education, finance, property and business services, and construction.

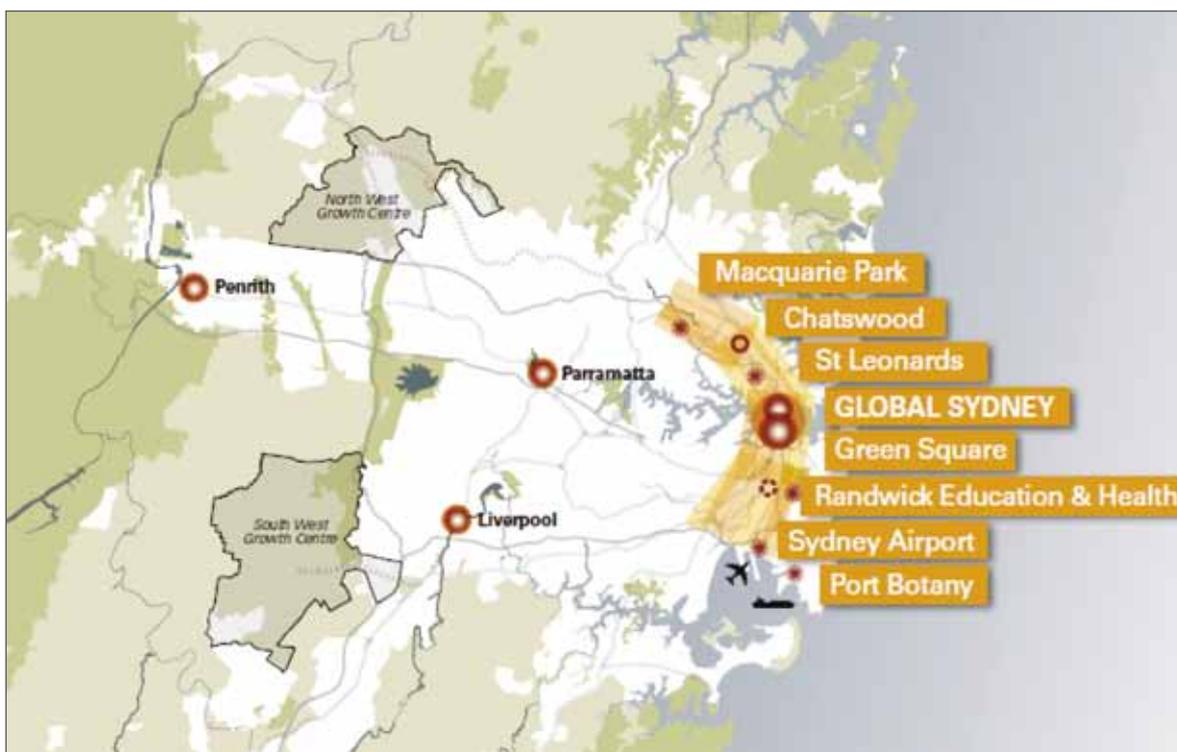
All this said, it cannot be over-emphasised that the way the Sydney economy is composed geographically has a major bearing on the economic health and directions of its sub-regions. In other words, in the absence of successful spatialised intervention and promotion strategies, employment and income growth across the Western Sydney sub-regions and major centres will remain sub-optimal. Unemployment rates will continue at above national levels, labour force participation rates will be lower than metropolitan averages, and out-commuting rates for Western Sydney's sub-regions will remain unacceptably high.

The general goals for the economy of Western Sydney are clear. As well as operating as strong local economies serving their growing sub-regional populations, Western Sydney's sub-regions need to be integrated more strongly into Sydney's global city region economy. As well as the ongoing nurturing of the region's traditional manufacturing base, there needs to be a diversification of economic activity involving the growth of sectors that build concentrations of career-based, high skill, high value added employment. Such diversification and integration requires that deliberate spatial strategies be developed, committed to, and implemented enthusiastically and determinedly over time.

Unfortunately, such understandings about the parallel processes of diversification, integration and spatial concentration are not yet common within Sydney's planning and development agencies and authorities. For example, while the Metropolitan Strategy recognises Western Sydney as a crucial site for Sydney's residential expansion, the region struggles to secure the attentions of planners in matters economic. The inner parts of the Sydney metropolis are seen consistently as the drivers of Sydney's global city-region economy. Sydney's key global economic spaces are seen as comprising the Sydney CBD, with its new extension, Barangaroo, and localities along Sydney's so-called 'global economic corridor', also known as the 'global arc' (Figure 1). The global economic corridor is identified in the Metropolitan Strategy as extending from Macquarie Park in the inner north-west, through North Sydney and the Sydney CBD, to Botany Bay with its container port, international airport and distribution precincts.

The global economic corridor has become entrenched as an important feature of Sydney's contemporary urban structure. The corridor, sometimes called the 'arc', is seen to be a continuous space of high value adding economic activity involving major transport and communications infrastructure, high concentrations of knowledge-intensive financial

Figure 1 - Sydney's Global Economic Corridor



Source: Metropolitan Strategy (NSW Government 2005)

and business services jobs, and clusters of the regional headquarters of global firms. The corridor is also seen to pass through concentrations of high-status, high-income residential areas, the suppliers of quality labour; and through areas supporting the so-called creative and cultural industry sectors.

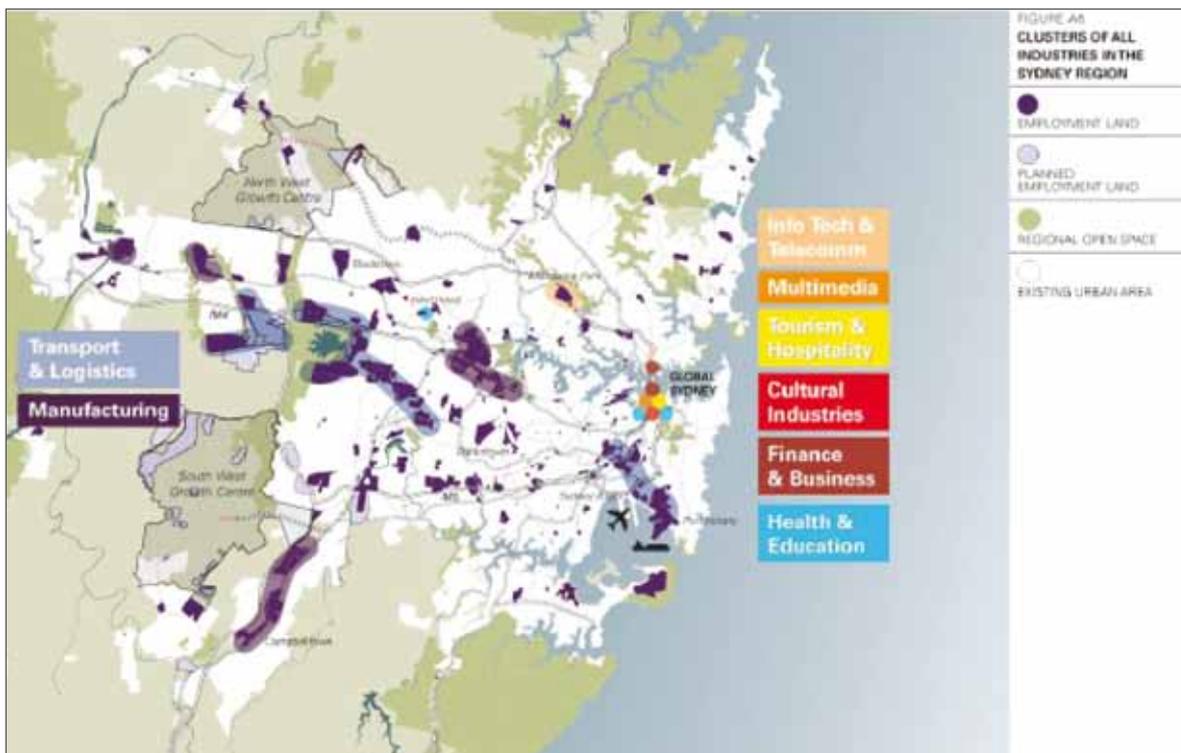
As argued in the Urban Research Centre's Western Sydney Employment Strategies study (2009), the focus on inner Sydney and the global economic corridor as the generators of Sydney's economic competitiveness has produced a mindset which overlooks the importance of Western Sydney's economic activities to the daily workings of the Sydney basin economy; and, worse, such a focus fosters a belief that the economic, social and cultural contributions of Sydney's outer suburban areas are marginal to the global Sydney success story, or absent from it.

Our argument here is that it is important to recognise the powerful role that spatial representations play in steering the actions of governments and agencies in building a city's urban form and function, and a city's economic composition and performance. A simple example of the power of an enduring spatial metaphor is the Sydney orbital road system. The idea of an orbital road system was conceived as early as 1944 and then formalised as a state government policy in the 1962 County of Cumberland planning scheme. Its completion by 2007 with the opening of the M7 motorway and then the Lane Cove Tunnel represented the culmination of a long series of political, institutional, real estate and property development decisions and actions. The crucial point to understand is that these decisions pursued a common direction because they were steered and cajoled by a single enduring spatial concept: the idea of a Sydney orbital roads system.

It is clear that Sydney needs a number of enduring spatial concepts or metaphors to drive jobs and income growth, diversification and integration across the metropolitan area, not just in the city's inner regions or along the global economic corridor precincts. Obviously it is common sense to continue to nurture economic investments along the global economic corridor, and support them with quality infrastructure and support services. But there should also be strong development ideas for other sub-regions. Places outside the global economic corridor should not be relegated to supporting or supplementary roles, nor should it be assumed that their economic pathways should be tied to particular sectors, especially to manufacturing, transport and logistics (as is shown for Sydney in Figure 2). Such economic lock-in has seen Sydney's non-core regions – that is, those in Western Sydney – become reliant on flow-on or trickle-down effects from the income and employment generating successes of a prosperous globally-engaged Sydney located somewhere else. The recent attention to expanding office space for the redevelopment of the Barangaroo precinct is one illustration of the power of the global economic corridor metaphor in driving, in this case, government planning approvals and spending commitments to infrastructure support.

To summarise, then, the absence of enduring spatial metaphors for Western Sydney's sub-regions, and an uncontested dominance of the global economic corridor in government thinking about Sydney as a whole, relegate Western Sydney and its parts to shadow and dependent status, with an over-reliance on the manufacturing, transport and distribution sectors, and the growing likelihood that Western Sydney's new suburbs will function increasingly as labour market dormitories for workers resigned to long daily journeys to jobs located elsewhere.

Figure 2 - Representations of Sectoral Specialisations in the Sydney Economy



Source: Metropolitan Strategy (NSW Government 2005)

Fortunately, there is a strong spatial metaphor in the Metropolitan Strategy capable of being mobilised in favour of integrated, diversified growth for Western Sydney and its sub-regions. This is the representation of Sydney as a 'city of cities'. Importantly, 'City of Cities' is the headline title of the Metropolitan Strategy. A city of cities view of Sydney sets up an aspiration for a set of independently viable and thriving regional cities and major centres performing distinctive and complementary roles in the Sydney basin economy (Figure 3). This aspiration deserves enthusiastic support. A city of cities view of Sydney, supported by concerted government strategies for its enactment, gives prominence to the central role of urban structure in driving successful, desirable economic composition. Choosing a city of cities pathway involves a deliberate integration of globalising economic sectors into western Sydney, and the encouragement of high value-added, diversified sub-regional economies.

The Metropolitan Strategy needs further development to meet the challenge of economic development and jobs growth for Western Sydney. Spatial planning and infrastructure development need to advance the City of Cities concept. In addition, though, the Metropolitan Strategy needs to incorporate spatial strategies that build the sub-regional economies that support Sydney's regional cities. The Penrith Valley Economic Corridor has the potential to be such a key strategy.

Figure 3 - The Spatial Metaphor of Sydney as a City of Cities



Source: Metropolitan Strategy (NSW Government 2005)

Large towns and cities create two major advantages for the conduct of economic activity that non-metropolitan areas don't have. One is that larger towns and cities provide access to concentrations of labour. The other is that they provide access to concentrations of consumers. Over time, large towns and cities evolve in ways that maximise the value of their concentrations of labour and consumers. One way lies in connecting the city – both internally and externally – through effective Infrastructure provision and operation. Another way lies in building urban structure. Urban structure refers to where

land uses are located, and how they relate to each other. Of course, the development of good infrastructure and sound urban structure proceed hand in hand.

There is a significant body of theoretical literature which tracks and explains how strong urban economies develop. Boxes 1, 2, 3 and 4 provide a summary of four accounts of the urban economy from different theoretical perspectives. Each account yields insights into how a successful Penrith Valley Economic Corridor might be promulgated.

Box 1 - Central Place Theory

Figure 4 - The Traunstein District: A Typical German Urban Hierarchy



Source: (Network Line International 2010)

Districts like Traunstein, in Bavaria, were the basis for classic accounts of urban development. These theories, labelled 'central place theory' and developed by scholars such as Walter Christaller and August Lösch, portrayed towns and cities in a hierarchy of inter-dependent relationships (see Harvey 1969). At the top of a regional hierarchy are large, higher-order centres which offer the most expensive goods and the highest value-adding services. At the bottom of the hierarchy are the smallest centres which concentrate on the provision of convenience goods and common, low-value added services.

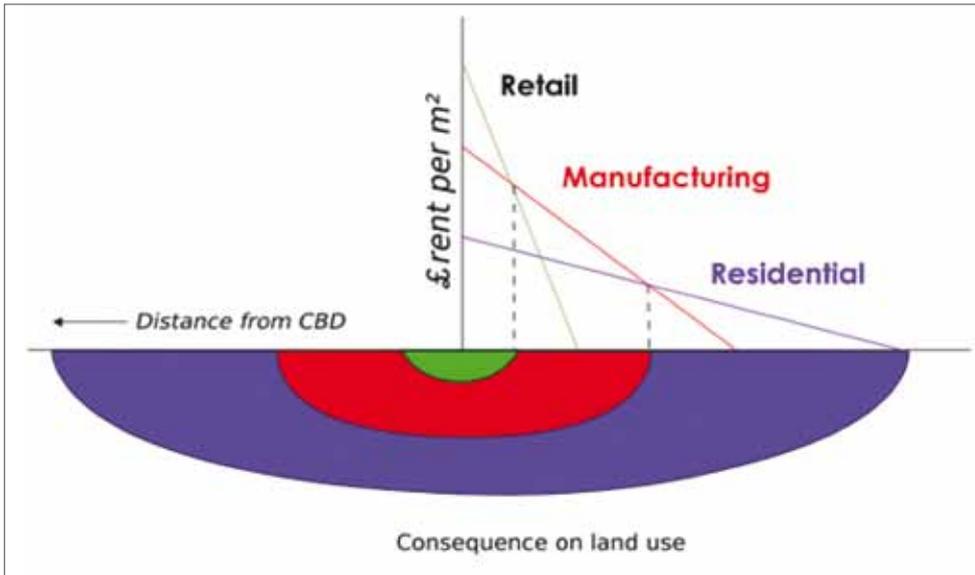
The distribution of production activities across an urban hierarchy is seen to follow a similar pattern to the retailing distribution. Larger enterprises tend to locate in the largest centres so as to have secure access to skilled labour, capital funding, quality managers and supportive business services. On the other hand, low order centres are more likely to support smaller enterprises, often owner-operated, servicing localised markets.

There are lessons for a Penrith Valley Economic Corridor arising from an understanding of central place theory.

1. A regional centre has a natural tendency to be a monopoly supplier of higher-order goods and services. Penrith must maintain this position at the western edge of the Sydney basin economy.
2. A regional centre builds strength from its networked relationships with surrounding centres. Penrith needs to continuously build these networked relationships.
3. The value of the consumption base of a regional centre correlates strongly with the employment conditions and prospects of the regional centre's pool of labour. Quality labour is crucial to the development of a Penrith Valley Economic Corridor.

Box 2 - Land or Bid Rent Theory

Figure 5 - A Bid Rent Curve



Source: (Wikipedia 2010)

'Land rent theory', sometimes called 'bid rent theory', was developed by scholars such as Walter Alonso to explain why the most accessible land in urban centres was the most sought after, and why such land continued to attract new investments despite it being a city's most expensive (see Harvey 1969).

Using bid rent curves (Figure 5), land rent theory shows that there are revenue advantages for firms occupying central locations in a city. Retailers, for example, are typically able to outbid manufacturers for key urban sites because retailers are capable of generating considerably higher returns per square metre than their industrial counterparts. So long as revenues justify these higher rents, then retailing investments will thrive. Moreover, the success of these retailers becomes a magnet for additional customers, producing a virtuous growth cycle.

Likewise, the most intensive, high revenue earning manufacturers will bid successfully for the best located

manufacturing land, just as the highest residential prices will be found on the best located residential land. Of course, this pattern reproduces itself and deepens the urban concentrations in each sector only so long as each sector is successful.

The lessons for a Penrith Valley Economic Corridor are these:

1. The pull power of a regional centre and its employment lands depends crucially on the quality of firms that concentrate within them. Land on its own has little value.
2. Quality retailing, industrial and residential activities are mutually reinforcing. They build strong pools of labour and consumers. They also add value to land assets and pre-existing investments.
3. The development of cheap, low density industrial lands will not of themselves generate a strong, focussed regional centre.

Box 3 - Industrial Agglomerations

Figure 6 - The industrial Agglomeration at Port Kembla, NSW



Source: (Robertson 2009)

Industrial agglomerations were identified in the post-war period as the spatial engine rooms of twentieth century industrial capitalism (see Hudson 2005). Stand out examples of industrial agglomerations were found in the Great Lakes, New Jersey and California regions of the United States, the Ruhr in Germany, the West Midlands and the North East of England, and in Yokohama and Kobe-Osaka in Japan. More modest examples, though nonetheless important and nationally successful, were the lower Hunter and northern Illawarra steel regions in NSW.

Typically, large scale industrial agglomerations took advantage of the availability of cheap local energy sources – invariably sourced from local coal or petroleum resources – to drive the material transformations of industrial materials like iron and steel, aluminium, textiles, petro-chemicals and plastics. Such heavy industrial processing then generated mass production assembly lines especially for motor vehicles and other transport equipment, fabricated metal products, clothing and footwear products, and a range of chemical-based household goods such as cleaning and paint products.

The advantages of agglomerations of large-scale industrial producers were enduring. These advantages flowed from the generation of economies of scale, external economies, and ready access to large-scale infrastructure.

Economies of scale are the cost advantages associated with large scale production, as the average cost of production falls with increasing output. These falling costs usually derive from more efficient use of capital investment and from falling average labour costs and rising productivity due to specialisation and improved divisions of labour.

External economies are the benefits which accrue to a producer as a result of the actions of parties external to a firm.

In an industrial agglomeration external economies come chiefly from having local access to upstream suppliers and convenient relationships with downstream buyers. External economies also come from direct observation of proximate businesses and the ready take-up of efficient and innovative industrial processes.

The benefits of ready access to large scale infrastructure are also significant in industrial agglomerations. Especially important here is the supply of quality, efficient transportation systems enabling the movement of heavy materials as well as the transportation of finished products to appropriate markets, including ports and airports for exporting.

While industrial agglomerations have undergone significant restructuring and, in some cases, significant downsizing over the last three or four decades, there are lessons for a Penrith Valley Economic Corridor from an understanding of their operation:

1. While internal size often yields economies of scale, lower costs can also come from external relationships with locally associated buyers and sellers, from shared knowledges and cooperative management and marketing practices, and from having access to quality regional infrastructure.
2. The success of production concentrations is enhanced by efficient, appropriate transport and communications systems. These work most effectively when they,
 - a. Help create efficient supply chains
 - b. Make journeys to work easier
 - c. Enhance the internal movement of people, goods and information within an industrial precinct
 - d. Link producers to their markets.

Box 4 - Industrial Clusters

Figure 7 - An Industrial Cluster in Emilia-Romagna, Italy



Source: (Invest in Emilia-Romagna 2009)

Industrial clusters were initially identified as a distinct form of spatial economy by Harvard economist Michael Porter (1998). Porter saw a cluster as a geographic concentration of interconnected companies, specialised suppliers, firms in related industries, and associated institutions (like universities, standards agencies and trade associations). Such a concentration brought together firms in related fields – though not necessarily within the same sector – in relationships that were both competitive and cooperative.

Standout examples of industrial clusters in the literature are the IT concentrations in Silicon Valley in northern California, and along Route 128 near Boston; design industry clusters in northern and central Italy; film industry concentrations in Los Angeles, USA, and Mumbai, India (Bollywood); the aerospace industry in Seattle (USA); and the high-performance motor industry in the Thames Valley (UK).

Keys to the success of an industrial cluster are,

- Enhanced information flows between related and supporting firms

- Heightened marketing awareness of firms such that cooperative opportunities are identified and exploited
- Positive responsiveness to peer pressure to drive innovative production processes and products
- Highly competitive local supply conditions – quality labour, excellent services firms, access to specialist financial products, and so on – to reinforce ongoing productivity and competitiveness.

There are important lessons from industrial cluster theory for the operation of a Penrith Valley Economic Corridor:

1. A successful concentration of firms must be driven by like-minded concerns for competitiveness and innovation.
2. Firms in a cluster must seek out mutually-supporting relationships with suppliers, competitors and buyers.
3. Factor conditions – labour, finance, energy, and so on – must be based on best practice, with a similar interest among managers in promoting ongoing innovation and competitiveness.

In the contemporary real world, the economic organisation of towns and cities is more complex than the neat order depicted in urban theory. Because of their fractured histories, the structure of towns and cities is rarely predictable. So too, we rarely find pure examples of certain types of spatial economies. As economies evolve, they take on characteristics from many economic periods. Not surprisingly, in a successful spatial economy we usually find elements of higher-order central places, astute land rent behaviours, lingering industrial agglomeration behaviours and a variety of evidence for industrial clustering.

Another concern with the literature is that it generally underplays the major role played by governments in engineering urban structures and networks, including a city's spatial economies. The nature and provision of infrastructure, for instance, have profound impacts on urban structure and sub-regional economies. So too do the nature and intensity of broadband communications access, the quality of education and training services, intersections with international and internal migration flows, the operation and affordability of housing markets and so on; all of which rely heavily on governments for their provision and operation.

Theories of the urban economy have also tended to underplay the importance of connections between enterprises and of the importance of cross-city and inter-urban networks. Recent studies point to the need to encourage the development of both of long-distance networks and linkages. Successful urban economies build openness and connectedness as well as local strengths. All of these characteristics have spatial dimensions; and policy, planning and management implications.

The next section, then, attempts to glean the best insights from industrial location theory and from international case studies and observations to identify the ways a Penrith Valley Economic Corridor could enhance the area's economic competitiveness and success.

The successful operation of a spatial economic corridor is necessarily a composite process. Here are twelve important observations about the characteristics of a successful spatial economic corridor.

1. A corridor, being a business agglomeration, provides easy access to valuable information for its members. Some of this information is specialist, relating, for example, to a production process or a design trend. It could also be place-based information whereby businesses learn about local regulatory processes, labour market conditions and consumer market trends. Sometimes these information exchanges take place formally, such as through business associations or training events; and sometimes they take place informally such as through chance discussions, the movement of staff between firms and by direct observations.
2. The presence of this 'atmosphere' of information, as it was famously called by British economist Alfred Marshall in the late nineteenth century, comes at low or nil cost. Access to information which enhances competition becomes a critical production consideration in an era when few production environments are detached from the presence of global competition. UCLA urban planner Michael Storper (1997) coined the phrase 'untraded interdependencies' to describe the benefits that come freely when enterprises attach themselves to successful concentrations or clusters of local enterprises.
3. Within a successful corridor, successful neighbouring enterprises become readily available as benchmarks. Even where adjoining enterprises operate in different economic sectors, they provide readily observable best practices in generic areas such as human resources management, accounting and IT systems, and marketing. Studies also show that when enterprises group together as spatial concentrations they are more likely to generate innovative products, production processes and marketing techniques.
4. The presence of successful enterprises in close proximity generates longer term operating perspectives among local managers. Studies show that such longer-term perspectives encourage managers to resist 'hyperbolic' discounting. In business theory, hyperbolic discounting is the tendency for managers to opt for guaranteed but smaller dividends or rewards in the present and thereby forgo opportunities for larger gains in the future. Being able to observe the ways that other firms reap the rewards of innovation and investment when long term perspectives are taken encourages similar practices in otherwise conservative or inward looking enterprises.
5. An economic corridor increases the presence of support firms in a locality. Typically, these include firms that are engaged in transport and logistics, financial services, information and telecommunications technologies, labour hire, office supplies and so on. These extended concentrations of firms provide even the smallest of firms with opportunities to access the benefits of operating within a spatial agglomeration. In addition, these extended concentrations provide access to the information flows that are embedded within the corridor: information about supply chains, market access, sources of finance, developments in information technology and so on.
6. Importantly, a critical mass of local producers in an economic corridor can build internationally competitive advantages that would otherwise be beyond the reach of an individual enterprise. Hence, what might otherwise be an import-competing firm, one that jealously guards a local market, can emerge as a successful exporter.
7. The labour market advantages of local agglomerations in an economic corridor are very important. A successful agglomeration tends to attract a long term stable labour pool, where skills development is normal and, thereby, becomes institutionalised; and where recruitment becomes a local exercise freed from the need to search other regions for suitable talent.
8. Even though business agglomerations experience raised levels of competition between firms for local labour, the movement of workers between enterprises becomes extremely beneficial in the transfer of knowledge and skills as well as in building strategic knowledge of external markets.
9. The persistence of a critical mass of successful enterprises in an economic corridor encourages the development of supportive institutions including employer associations, research and innovation centres, and labour training colleges and services.
10. Agglomerations of successful enterprises in a corridor are more likely to be given positive considerations by governments at all levels. These include a more efficient regulatory environment as well as the provision of higher quality infrastructure and government services.

11. A successful corridor generates and nurtures a positive business and people climate. The presence of successful firms, each with a desire for innovation and improvement, ensures the presence of a business culture that promotes success, and values both the people who contribute to that success and the environment in which they work. The interests of the firm and its workers thus coincide.
12. A successful economic corridor experiences high rates of new enterprise formation. Key here is the access to well-serviced land, a supportive business climate, quality labour, and a locational reputation that helps with effective capital raising and efficient regulatory approvals.

Drawing on the above discussion, we can identify ten key ingredients for the propagation of a Penrith Valley Economic Corridor.

1. *A strategic location within a growth economy.* The Penrith Valley Economic Corridor will support the growth and development of one of Sydney's key regional cities. The corridor can develop as a prime business location within the major growth region of Western Sydney, as well as a key site within the global city region of Greater Sydney.
2. *Pre-existing business locations occupied by successful firms.* As is shown below, the Penrith Valley Economic Corridor commences from a base of pre-existing businesses. These businesses operate in diverse economic sectors though with particular specialisations and concentrations.
3. *A supply of quality, skilled, labour.* There is an existing quality labour pool within Penrith's existing businesses. There is also a reserve of quality labour that commutes daily from the region to employment in more distant localities. Together with future member of the labour force who will move to the Penrith district in coming decades, these commuters provide a ready supply of trained, experienced workers able to meet future labour demands.
4. *Infrastructure that binds the corridor internally and links it externally.* This core ingredient for a successful Penrith Valley Economic Corridor is still in its formative stages. The area has highly significant infrastructure items which link it to the Sydney wider region and internationally. These include components of the orbital motorway system and the major east-west rail corridor. These items need to be reinforced by stronger arterial and local transport systems, for the carriage of both passenger and freight; by high speed information telecommunications systems; and by the development of smart networks for the distribution of energy and water resources.
5. *Competitive place-based assets.* A Penrith Valley Economic Corridor needs to have access to place-based advantages not able to be secured elsewhere. Some of these assets, such as a supportive business climate, are generated within the corridor. Others are external to the corridor but become strongly integrated with it through time. The higher education sector in Penrith, centred on the University of Western Sydney and TAFE, is one such asset. Other place-based assets with high potential to add value to firms located within a Penrith Valley Economic Corridor include: the availability of suitable employment lands; and the availability of local affordable housing including in the executive housing category. Other place-based assets are discussed in section 9 below.
6. *Local and external customer bases to ensure robust supply chains.* Penrith and Sydney's north west planning sub-region have a pre-existing critical mass of householders and businesses that populate a number of successful processing and supply chains involving both the production of goods and services for local consumption and for shipping to other regions and overseas. Building these durable supply chain relationships will be an important part of building a successful Penrith Valley Economic Corridor.
7. *Business support for the corridor.* The advantages of a Penrith Valley Economic Corridor will, over time, become self evident. In its formative years, however, the corridor requires enthusiastic support from its local business community. This support is best mobilised through its pre-existing business associations, trade groups, professional associations and the like. Importantly, the Penrith Valley Economic Corridor should not compete with other spatial strategies within the local business community. Commitment to the development of the corridor needs to be universal and generous.
8. *Government support for the corridor.* Likewise governments need to commit to the corridor in a join-up, integrated way. The success of the Parramatta justice precinct and the Sydney Olympic Park precinct shows that government, when it acts cooperatively and cleverly, is capable of astonishing success. Securing genuine commitment, and getting government departments and agencies to act in concert to ensure its success, could well be the most important catalyst to generating a success Penrith Valley Economic Corridor.
9. *Strong links between the corridor and the Penrith regional city, and its civic and cultural life.* A Penrith Valley Economic Corridor has the potential to be an important driver of quality civic life in the Penrith area for many decades into the future. High quality business concentrations are associated with quality sustainable lifestyles in the most desirable regions of the world. In its early years, both 'the city' and 'the corridor' should ensure positive and supportive relations with each other. Each should be conscious of building the reputation of the Penrith area through mutual cooperation and positive activities.

10. *A spatial metaphor to drive the corridor forward.* Finally, the Penrith Valley Economic Corridor should be developed as a powerful spatial metaphor. This metaphor should have a clear basis in fact, a compelling motivation to act, be an enticing guide to the future. Clever, innovative promotional materials and campaigns are needed to drive the metaphor.

Some of these ingredients are already present. Others need establishing or growing.

We now turn our discussion to the current make-up of the Penrith economic community and how it might evolve into a successful Penrith Valley Economic Corridor.

In geography, the concept of 'relative location' acknowledges that the attributes of place depend on how that place is situated in relation to other geographical places and circumstances. Penrith's relative location, then, is the product of a number of significant features (see Figure 8 and Figure 9).

- Its central position in the Nepean valley at the base of the Blue Mountains.
- Its location at the western end of Sydney's east-west transport and population axis.
- Its gateway location for passage between Sydney and western NSW.

These features generate a number of significant locational advantages for Penrith.

1. Historically, Penrith is the regional service centre for the Nepean river valley.
2. The area continues to be a significant agricultural district.
3. Penrith is the regional city at the western end of Sydney's east-west metropolitan axis.
4. Penrith is the high order commercial centre for Sydney's outer west and north west sub-regions.
5. Penrith plays a significant role as a high order commercial centre for western NSW.
6. The district is one of Sydney's most significant new residential frontiers.
7. Penrith and its environs host a significant number of sporting and recreational assets.
8. Penrith is Sydney's major gateway to the world-heritage listed Blue Mountains National Park.
9. A number of major industrial zones are located in the area.
10. A number of business and transport and logistics parks are developing in the area, some of which are closely linked to the M7 motorway.
11. Penrith is a growing locational centre for higher order educational and health services.

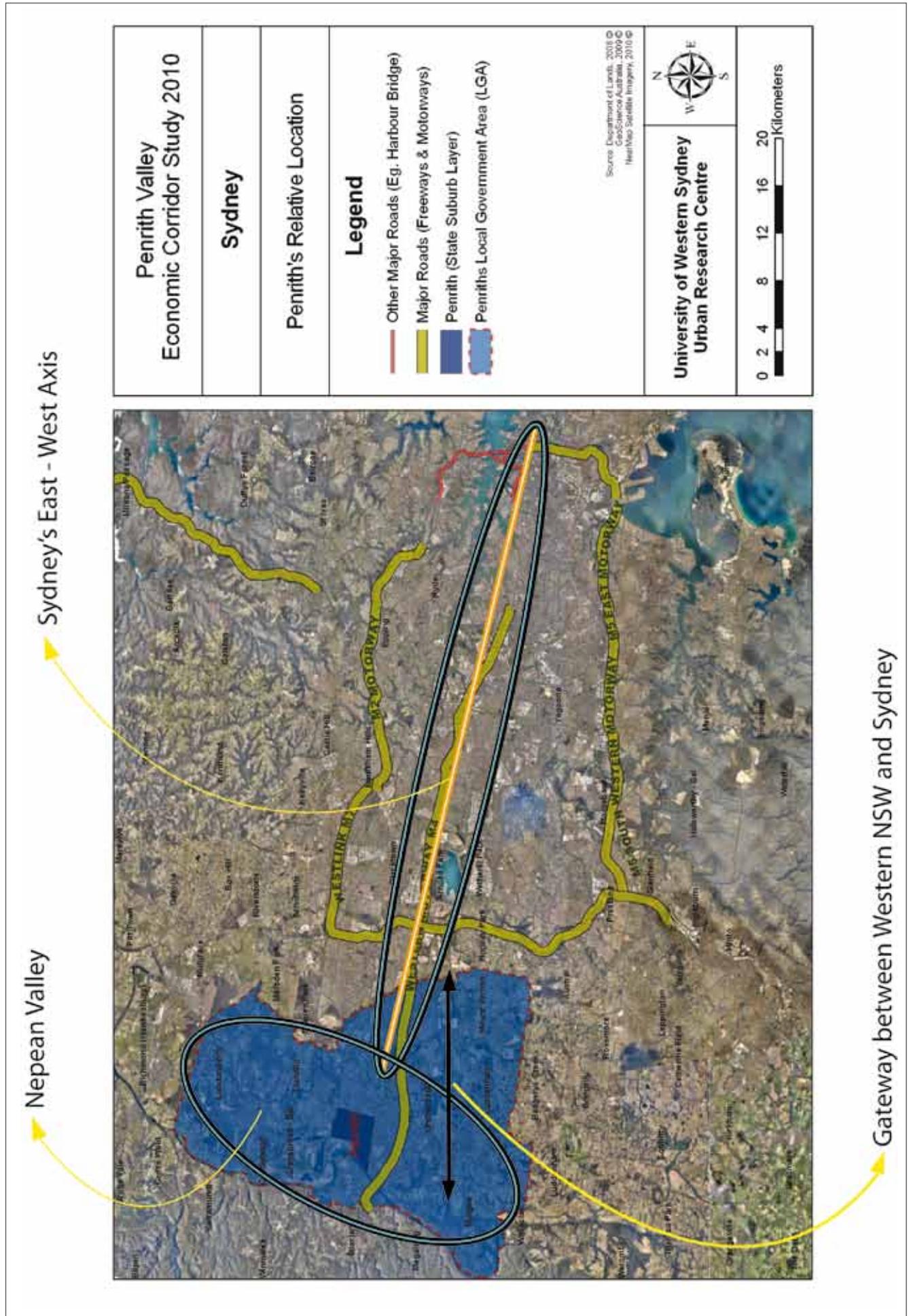


Figure 8 - Penrith's relative location

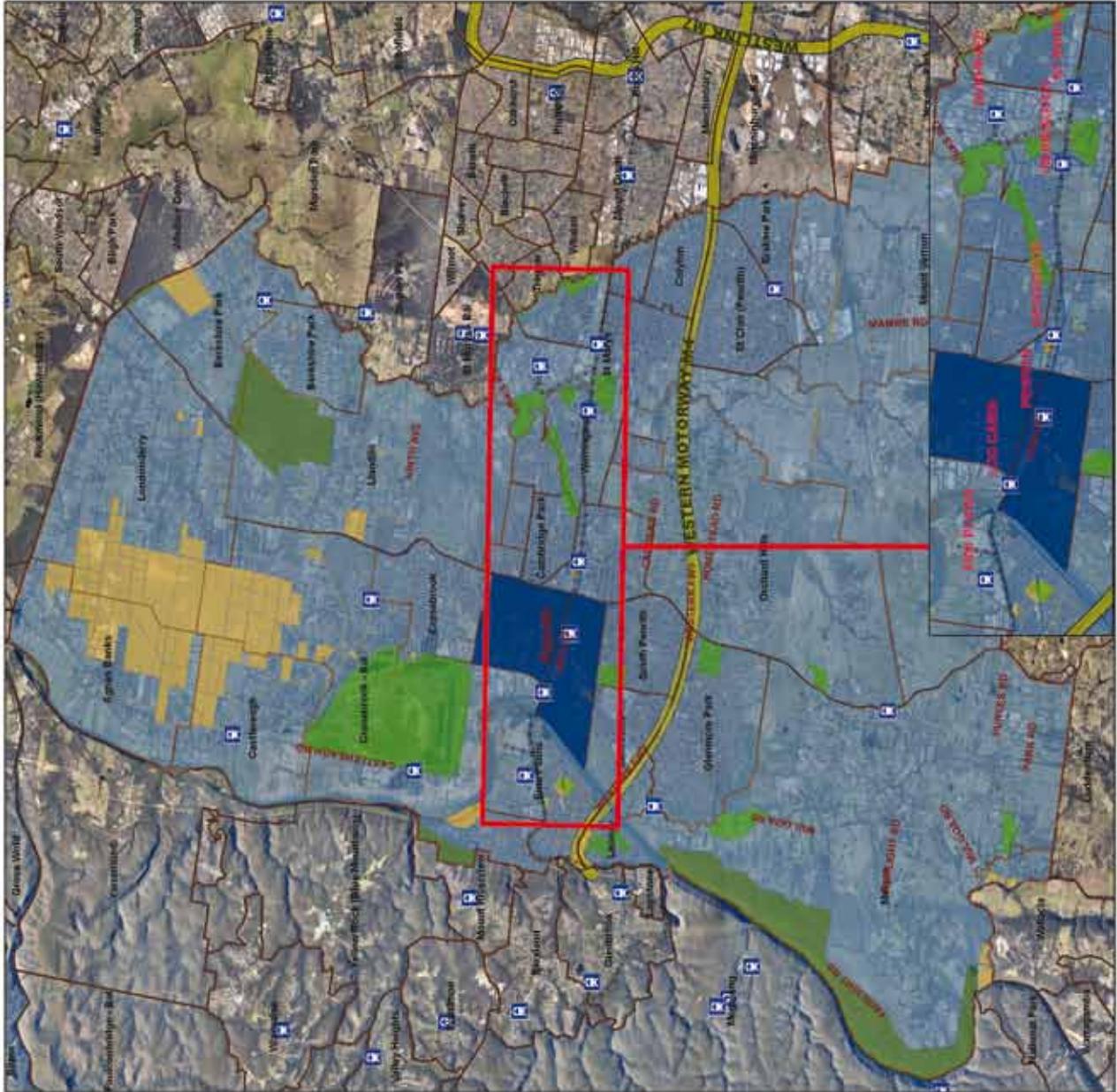
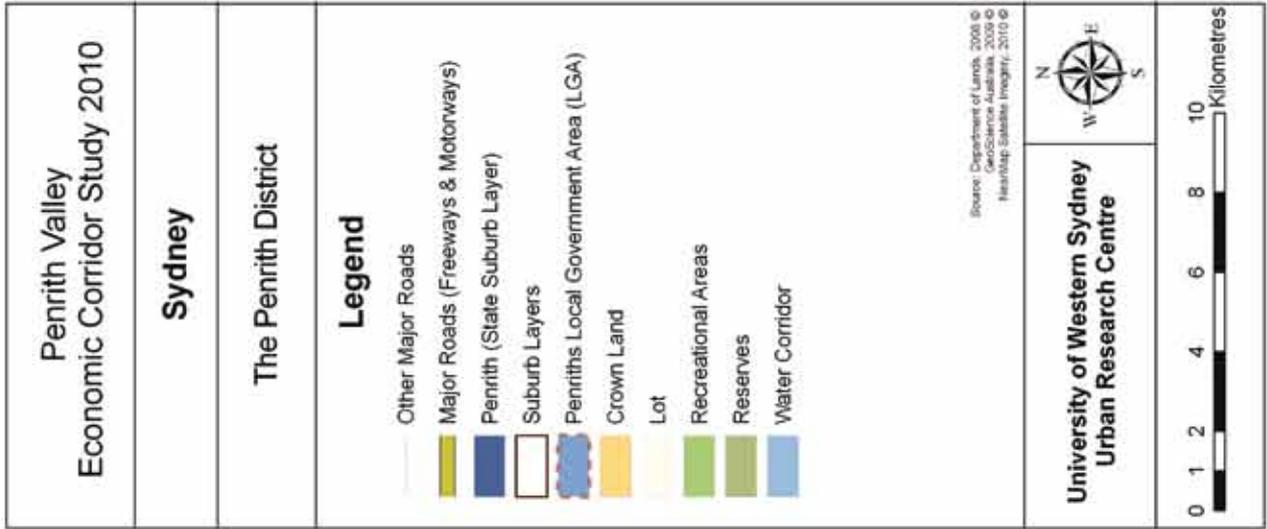


Figure 9 - The Penrith District

The Urban Research Centre has previously undertaken research into labour market change in Western Sydney (see Urban Research Centre 2009, North-West and West-Central Employment Strategies), with specific analysis of each of the region's local government areas. At the 2006 census Penrith showed diversification in the composition of its resident labour force with a close match between the composition of local employment demand (i.e. jobs on offer) and the local labour supply (or household worker characteristics). The following sectors illustrate this match up.

- In manufacturing industry, at the 2006 census, the Penrith LGA was home to 10,956 workers which represented a marginal decline since 1996 of 1.9%. The manufacturing sector was larger than the average concentration of manufacturing workers in Sydney as a whole with a location quotient for the LGA of 1.35 (i.e. the resident manufacturing workers as a proportion of all workers in the LGA was higher than this ratio for Sydney as a whole by 35%)
- A similar high concentration of workers was found for the construction industry. Here Penrith was home to 7781 workers, a rise of 29.4% since 1996. Like manufacturing, the Penrith LGA had a higher than average concentration of workers in this sector with a location quotient of 1.3.
- Retailing was also found to be a sector with an above average concentration of local workers. At the 2006 census Penrith had 10,148 retail workers, a growth of 25.1% since 1996 with a location quotient of 1.16.
- Penrith's other significant over concentration of workers was in the transport, postal and warehousing sector. Penrith housed 5928 workers in this sector in 2006, a rise of 32.6% over 1996 with a location quotient of 1.32.
- The accommodation and food services sector grew by 11.7% between 1996 and 2006 to reach 4597 workers, yet has location quotient below the Sydney average at 0.91.
- The administration and support services labour force grew by 26.4% between 1996 and 2006 to reach 2372 workers, but with a location quotient of only 0.84.
- The professional, scientific and technical services sector grew in this period by 10.6% workers to reach 3452, but with a location quotient of only 0.47.
- The public administration and safety sector grew by 22.3% to reach 5825 workers, with a healthy location quotient of 1.26 (reflecting Penrith's important regional governance and administration role)
- The education and training workforce grew by 25.9% to reach 5083 workers, but with a location quotient of only 0.85.
- The health care and social assistance workforce grew to 7411, a rise of 33.4%, but still this sector recorded a location quotient of only 0.90.

It should be emphasised that there have been significant changes in the nature of work in all of these sectors since 1996. Certainly, some have been down-skilling and casualisation trends, especially in parts of the retail sector. But there have also been upskilling trends across each of these so-called traditional blue collar and basic service sectors coinciding with rising competitiveness and technical change.

Outside of these large and important sectors, labour market analysis shows there are significant opportunities for the expansion of enterprises in non-traditional sectors in the Penrith LGA. Here the Urban Research Centre's analysis shows the following major growth trends.

So all these sectors, seen as non-traditional perhaps for an outer metropolitan LGA in Sydney, grew significantly in terms of local labour supply over the last decade or more. The only sector that might be anomalous here is the finance and insurance sector which recorded 3733 local workers in 2006, a fall of 3.4% between 1996 and 2006, with a location quotient of only 0.70. Perhaps this underperformance (compared to the growth sectors identified above) can be explained by bank branch rationalisations over the last decade coupled with a drift eastwards of better paid workers from this sector.

A simple conclusion can be made: Penrith seems to have consolidated its local labour force supply and demand conditions; apart from finance and insurance, is growing in the sectors where it has traditionally been under-represented; but there is still potential for further growth in these sectors if they are to more closely resemble average concentrations for the Sydney metropolitan region as a whole.

The important understanding here is that these numbers refer to workers who live in Penrith, knit to actual jobs located in Penrith (which are analysed elsewhere). In this sense they tell us about demand and potential demand for work in the area assuming that if labour conditions are comparable,

then a worker will choose the job located closer to his or her place of residence. It is reasonable to conclude, then, that the substantial labour force growth underway in each of the accommodation and food services, administration (public and private) services, professional, scientific and technical services, education services and health services sectors presents a major opportunity for enterprise development in the Penrith area.

Labour supply is one of the key location factors for a new enterprise investment. Decade-long growth across most of the higher-value added services sectors shows the housing advantages available in the Penrith area are producing a more diversified and a thicker labour market. Certainly, the below average location quotients in these sectors show that they remain undersupplied compared to elsewhere. The important feature though, is that of ongoing and apparently resilient growth.

The analysis which follows shows spatial business patterns for the Penrith district. The analysis is based on systematic data collection, processing and representation within the Urban Research Centre's Spatial Indicators Laboratory. The primary data source is the Penrith Business Alliance's business data base. This is supplemented by business data from the Sensis business data base. Our report refers to the combined data set as the "study data base". A strength of the data base is that it contains precise business addresses and further details enabling business categorisations. A major weakness of the data set, though, is that it does not contain any indication of business size. While this deficiency is addressed by other evidence throughout the report, it is a matter requiring further, separate study.

Key to the analysis herein is the geo-coding of business addresses according to industry categories. These categories are based on ABS ANZSIC industry codes (ABS 2006). The aim of the analysis is to ascertain the nature and extent of business concentrations in the Penrith District. A number of revealing patterns and trends has been uncovered. Together they provide encouraging evidence of spatial economic clustering in the Penrith district, as noted above, an important pre-condition for the establishment of a Penrith Valley Economic Corridor.

THE GENERAL LOCATIONAL PATTERN OF PENRITH BUSINESSES

Figure 10 shows the locations of all businesses listed in the study data base that are located within the Penrith Local Government Area (LGA). Figure 10 reveals high locational densities for the LGA's businesses across key geographic zones. The following patterns are observable:

1. The largest density of businesses is within the Penrith CBD.
2. As is shown above, the healthcare and social assistance industries dominate business concentrations within the CBD.
3. The education and training industry dominates the Jamisontown area.
4. St Mary's is dominated by the manufacturing industry.
5. Emu Plains has a very even mix across all industries although its general business density is lower when compared to other areas within the Penrith LGA.

The following sections provide commentary on specific industry sectors in the Penrith LGA arising from more detailed analysis of the study data base.

Figure 10 - Businesses in the Penrith District

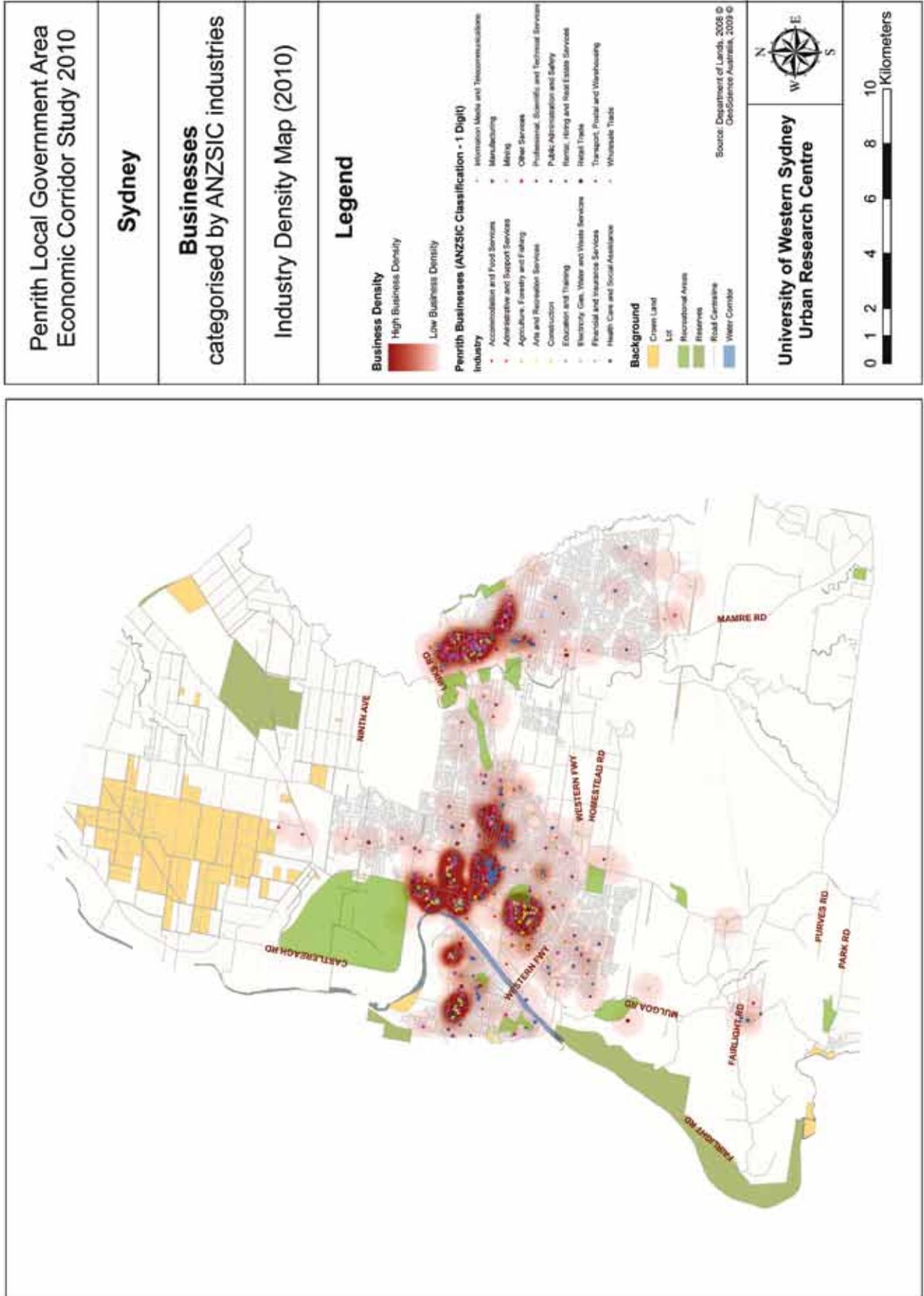


Figure 11 shows analysis of densities across the Penrith LGA for the construction industry. The analysis is based on three 2-digit ANZSIC codings.

- Building construction
- Construction services
- Heavy and civil engineering construction

The following locational patterns are revealed by the analysis:

1. There is a fairly even spread of construction industries across all four major Penrith suburbs (Emu Plains, Jamisontown, Penrith and St Marys).
2. The 2-digit 'building construction' category dominates the concentration in each suburb.
3. Jamisontown and Penrith each has a large number of construction firms located within a very close proximity to each other.
4. In contrast, construction firms located in Emu Plains and St Marys exhibit a more scattered locational pattern.
5. It seems, then, that construction industry firms are not located near major retail centres, but rather tend to be concentrated in industrial areas.

Figure 11 - The Construction Industry in the Penrith LGA

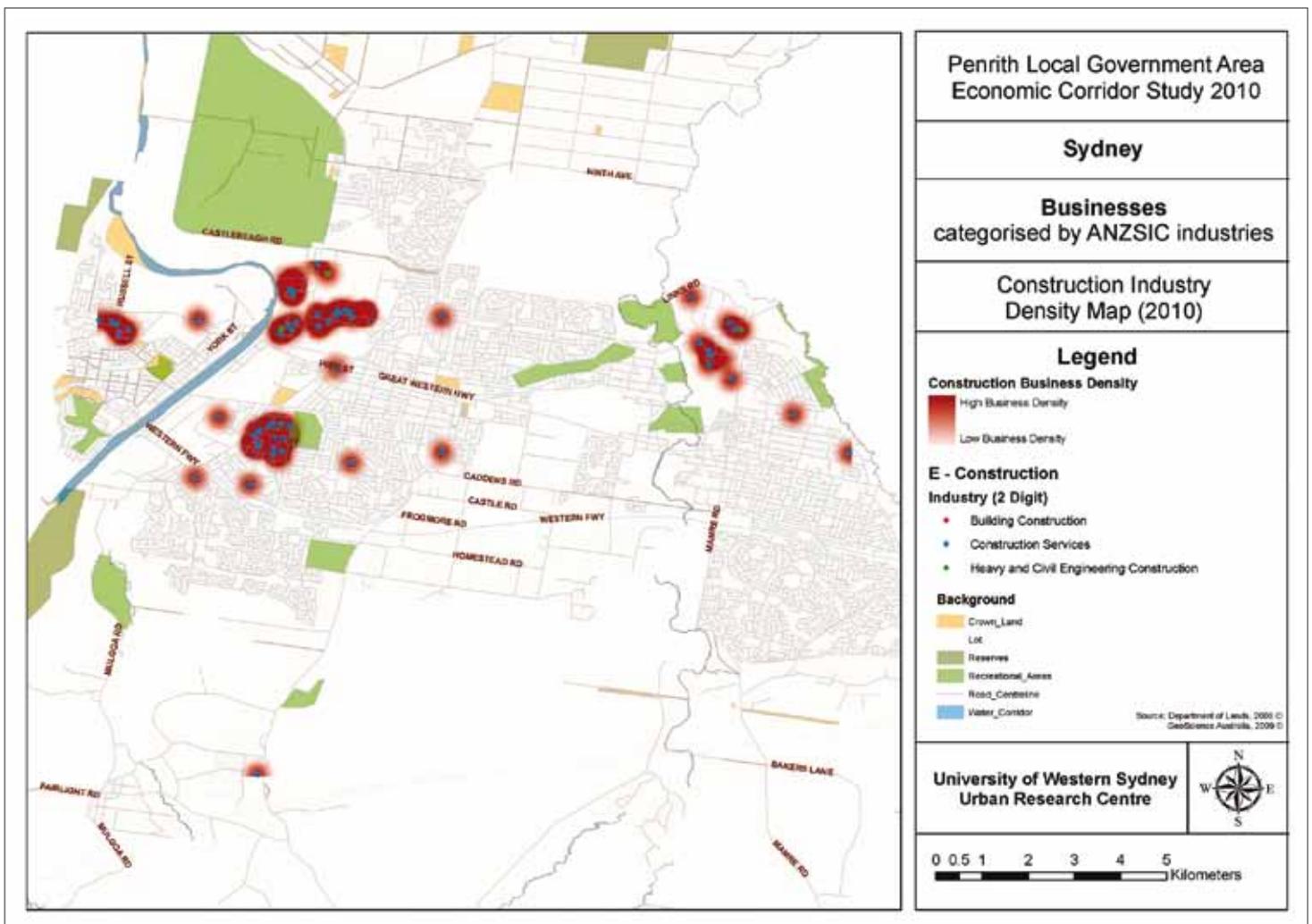


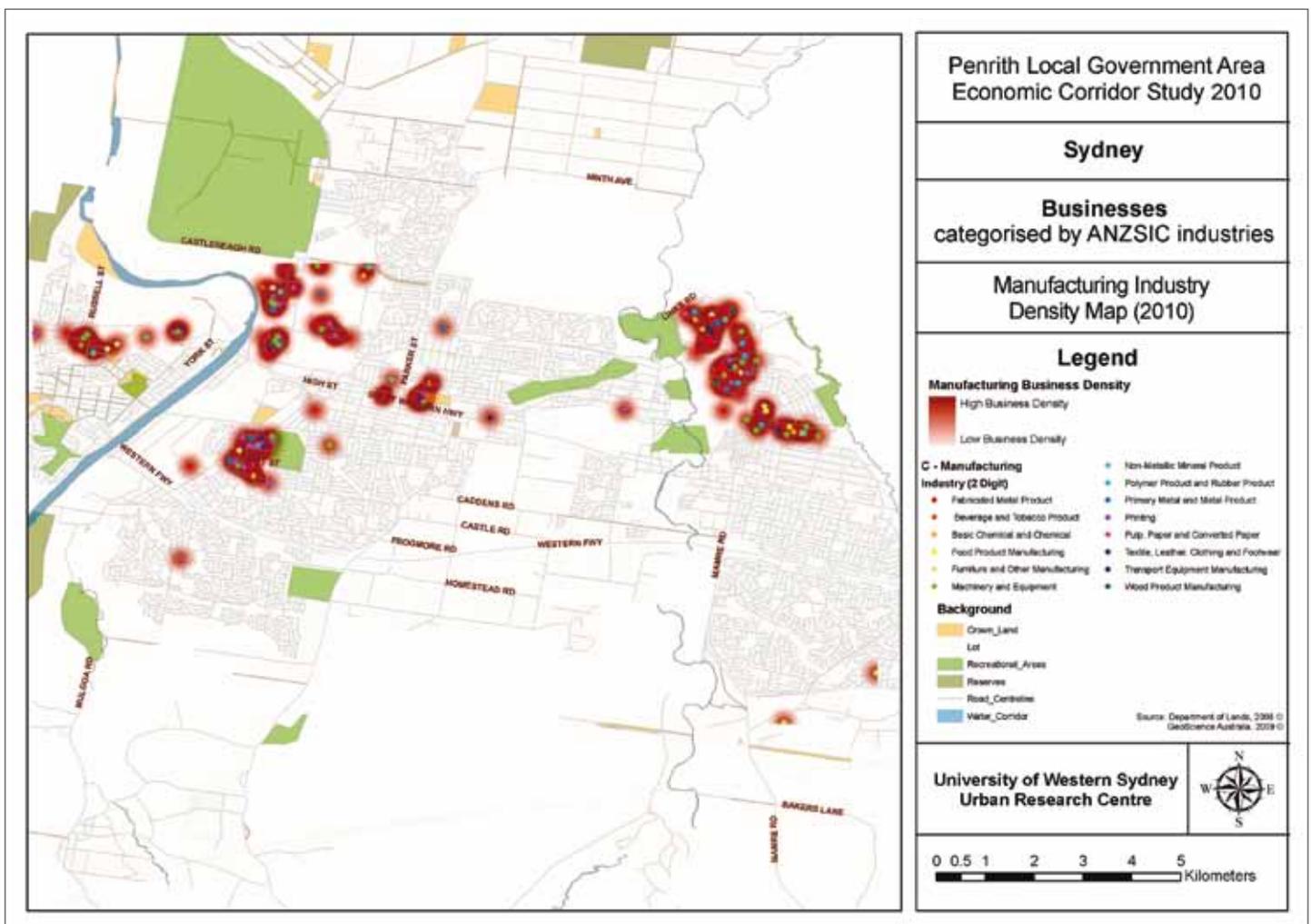
Figure 12 shows the locational densities for Penrith LGA firms operating in manufacturing industry sectors. Manufacturing industry comprises the following 2-digit ANZSIC codes:

- Fabricated metal product
- Beverage and tobacco product
- Basic chemical and chemical
- Food product manufacturing
- Furniture and other manufacturing
- Machinery and equipment
- Non-metallic mineral product
- Polymer product and rubber product
- Printing
- Pulp, paper and converted paper
- Textile, leather, clothing and footwear
- Transport equipment manufacturing
- Wood product manufacturing.

Analysis of the locations of firms in the manufacturing industry sub-sectors reveals the following patterns and trends:

1. Like in the construction industry, firms in manufacturing industry tend to be located in separate, defined industrial areas.
2. The St Marys area contains the highest density concentrations for manufacturing firms in the Penrith LGA. Almost half of all firms from the sector are located in St Marys.
3. Like in St Marys, manufacturing firms located in and around Jamisontown show high levels of concentration.
4. Together the St Marys and Jamisontown concentrations form a significant manufacturing hub, although there is significant internal variation across the 2-digit manufacturing codes.
5. Manufacturing firms located in the Penrith CBD and in Emu Plains are more dispersed. This is probably because of these firms' smaller size or specific location requirements and histories.

Figure 12 - The Manufacturing Industry in the Penrith LGA



The analysis in Figure 13 examines the locational densities of firms in Penrith's wholesale industry. The wholesale industry sector is broken down into the following 2-digit ANZSIC codes:

- Basic material wholesaling
- Grocery, liquor and tobacco product wholesaling
- Machinery and equipment wholesaling
- Motor vehicle and motor vehicle parts wholesaling
- Other goods wholesaling.

The following location patterns and trends are observable for the wholesale sector:

1. The sector's overall locational pattern closely replicates the pattern found for Penrith's manufacturing industry.
2. As with the manufacturing sector, the St Marys area shows high concentrations of wholesaling firms.
3. Similarly, the Jamisontown area has high location densities for the sector.
4. Together, St Marys and Jamisontown dominate the wholesaling industry sector.
5. When correlated with the pattern revealed for manufacturing industry, the St Marys-Jamistown district represents a substantial industrial concentration at the eastern side of the Penrith LGA.
6. Firms in the wholesaling sector located within the Penrith CBD and the Emu Plains area seem to show less locational concentration, with a number of widely dispersed patterns observable.

Figure 13 - The Wholesale Industry in the Penrith LGA

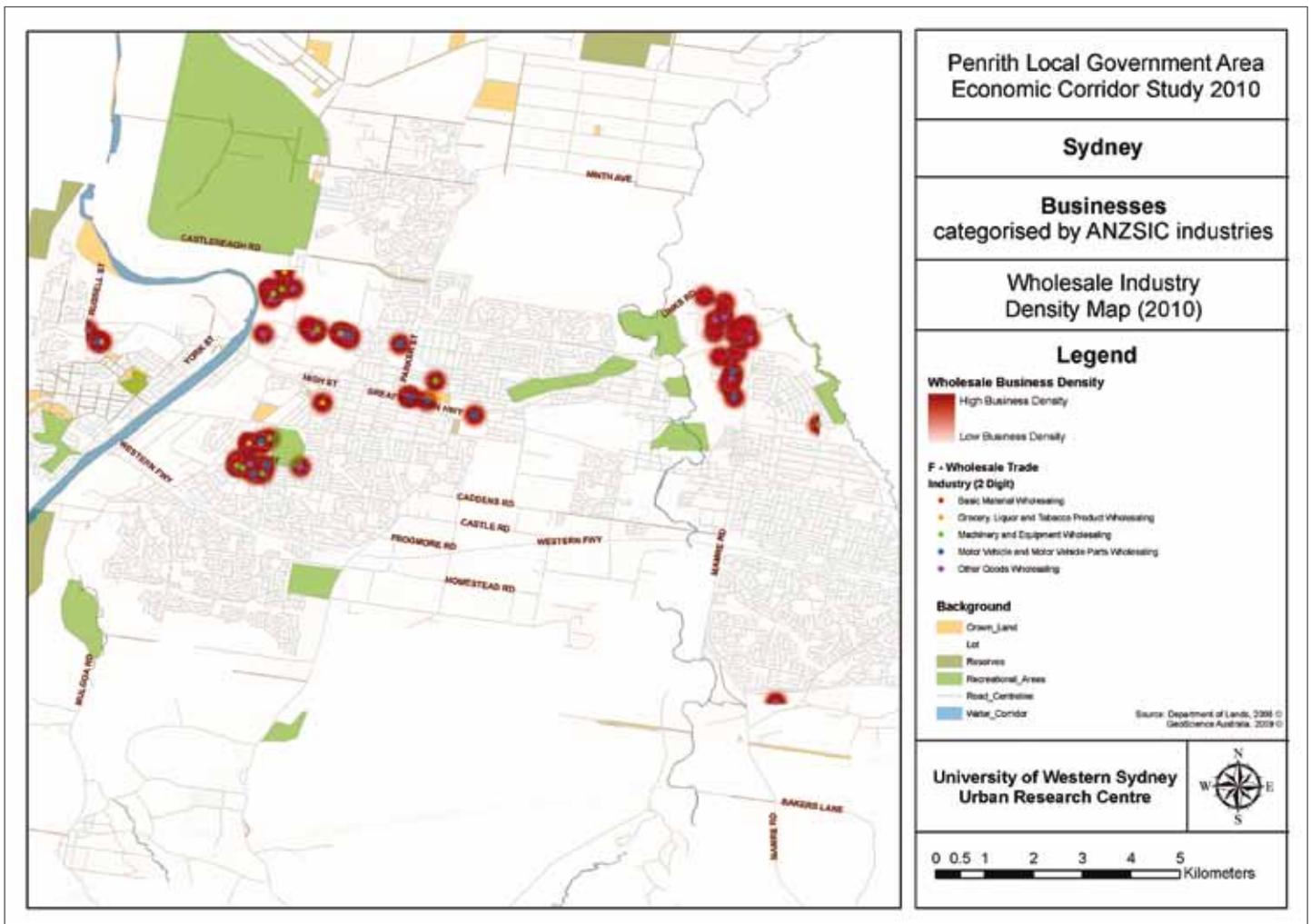


Figure 14 shows analysis of the locational densities for Penrith's transport, postal and warehousing industry. The transport, postal and warehousing sector comprises the following 2-digit ANZSIC codes:

- Road transport
- Other transport
- Transport support services
- Warehousing and storage services.

The following location patterns and trends are revealed by the analysis:

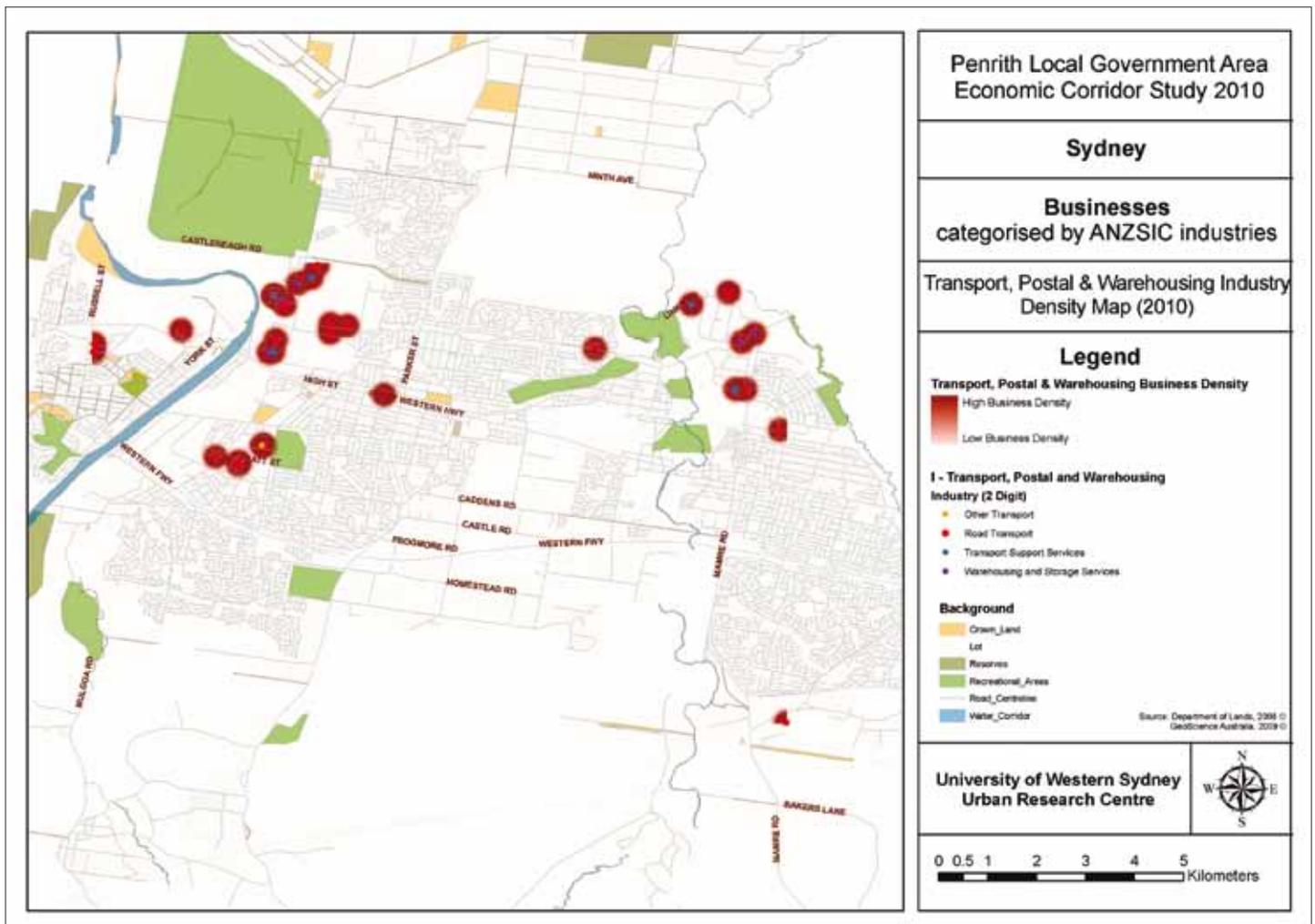
1. Not surprisingly, locational patterns and densities for the transport, postal and warehousing industries correlate closely with locational patterns for manufacturing and wholesaling industries.

2. Once again we can observe dominant concentrations of firms in the St Marys, Jamisontown and Penrith industrial areas.

3. There is close locational correspondence between the manufacturing, wholesale and transportation industries within the Penrith LGA, characterised by both industry depth and complexity, illustrating the operation of a major industrial hub at this end of the LGA.

Figure 15 shows the location pattern of all firms in the wholesaling, manufacturing and transportation industries. The figure shows clearly the major industrial hub that is referred to above.

Figure 14 - Transport, Postal and Warehousing Businesses in the Penrith LGA



The analysis of the study data base reveals significant pre-existing locational densities for Penrith's health care and social assistance business sector.

Because of its complexity, we have broken the health care and social assistance sector into 4-digit ANZSIC codes. These are shown in the legend attached to Figure 16. An abstract representation of this concentration is provided in Figure 17. The analysis reveals the following simple yet very significant pattern:

1. General practice medicine dominates the health and social assistance sector in the Penrith region.
2. The health care and social assistance business sector is densely concentrated in and around the Penrith CBD.
3. There appears to be significant potential for the further development of this concentration of health and social assistance businesses. We are aware that this issue is the topic of a separate study commissioned by the Penrith Business Alliance and so restrict our comments to those herein.

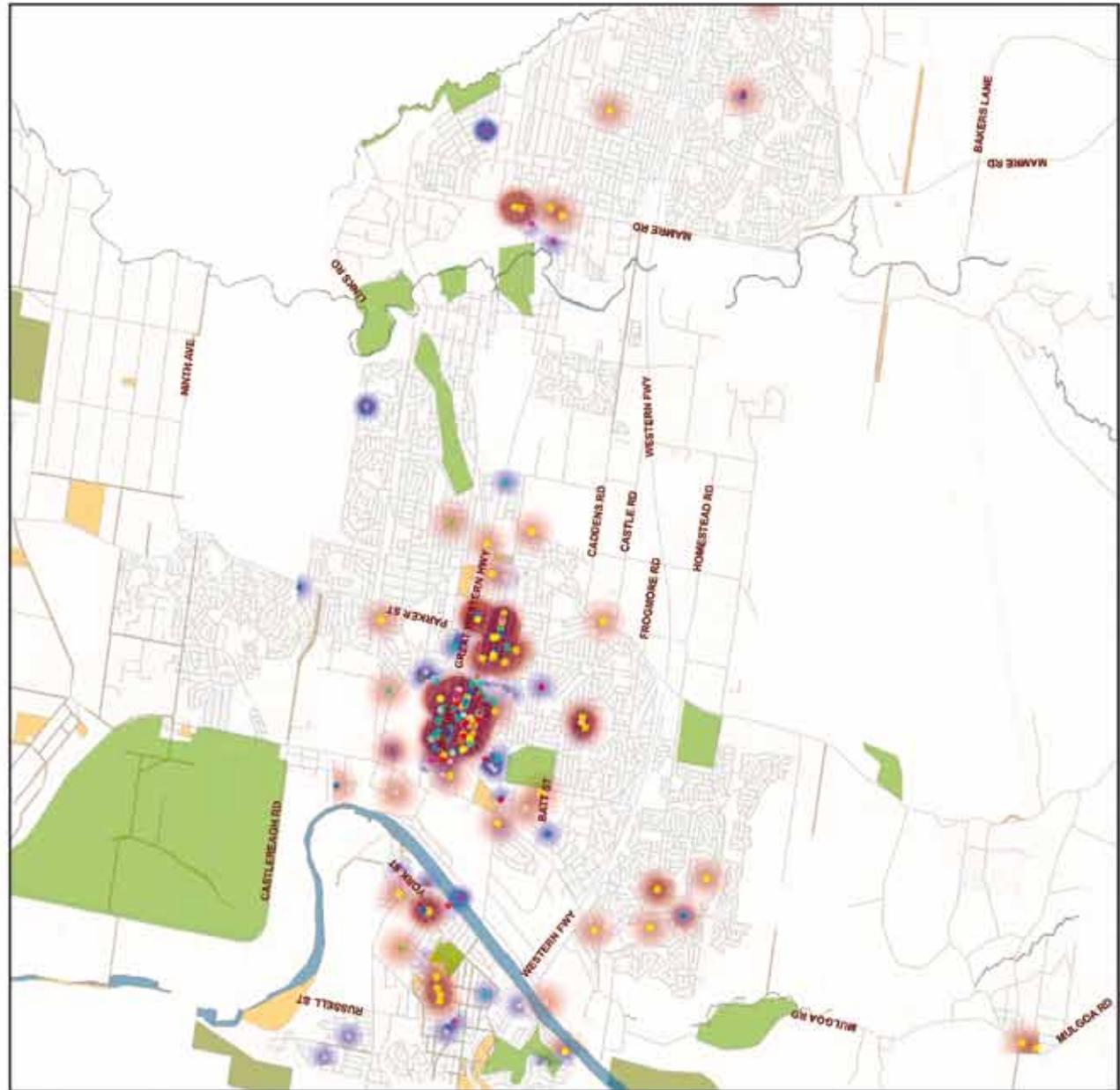
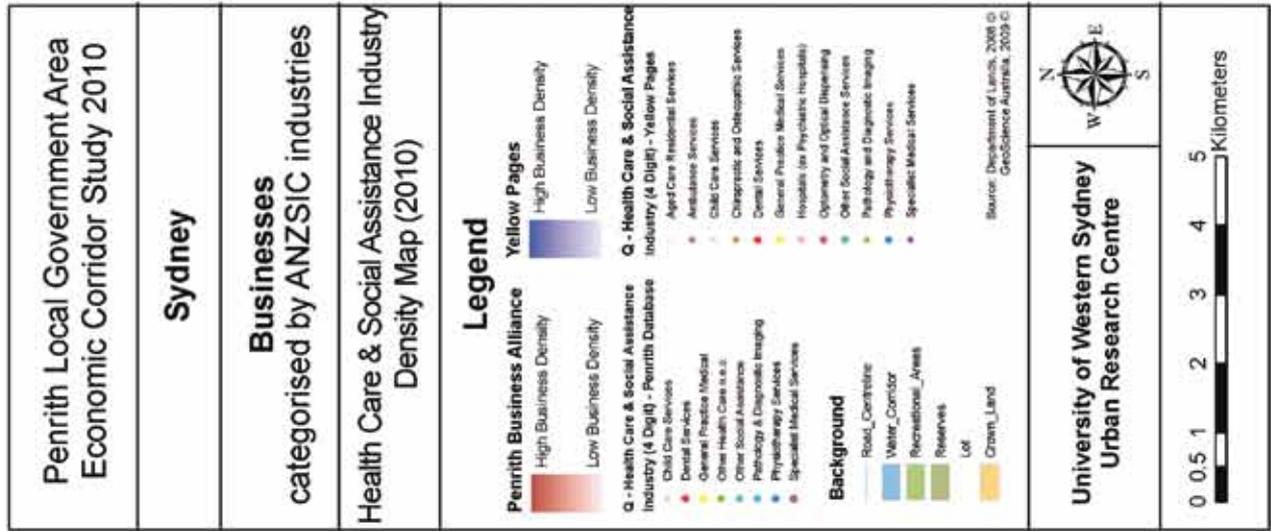


Figure 16 - The Health and Social Assistance Business Sector in the Penrith LGA

Figure 17 - An Abstract Representation of the Concentration of Health Businesses in the Penrith LGA

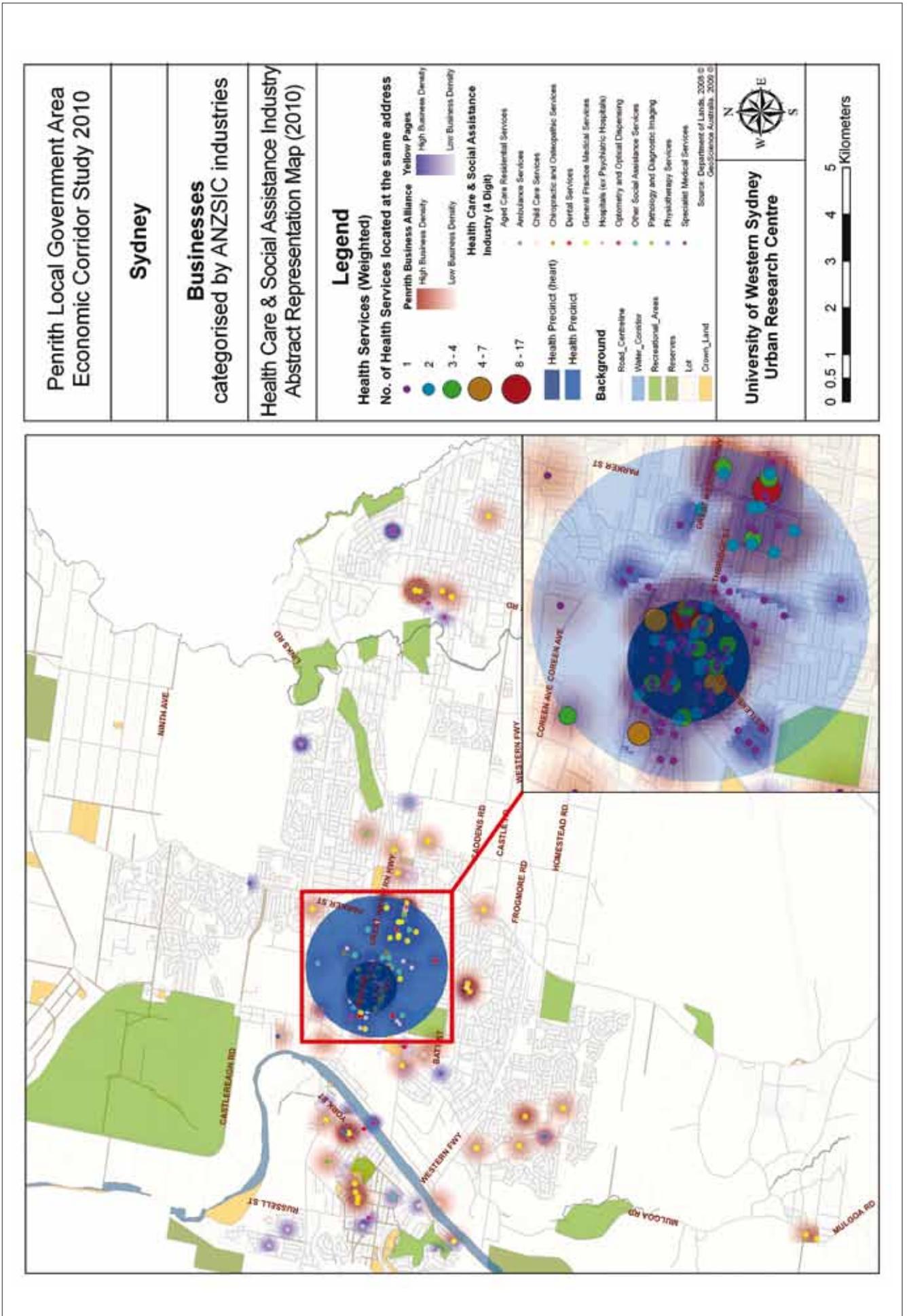


Figure 18 shows the summary location pattern for businesses in the Penrith area, while Figure 19 suggests the broad spatial dimensions of a Penrith Valley Economic Corridor. Clearly, the precise dimensions and makeup of the corridor are the matter for ongoing study. What the specifics of the corridor are will necessarily evolve through time. Hence Figures 18 and 19 should be used as a general, first step in an ongoing developmental process.

What is better emphasised in this conclusion section is the idea of locational space that we are talking about. As discussed earlier in the report, a successful economic corridor is more than an industrial or a business park. An economic corridor is a set on internal business and community relations that do the following:

- maximise benefits to participating firms
- intensify internal economic linkages
- embed firms in their local economic region
- build a critical economic mass to ensure state-of-the-art local facilities and infrastructure
- build a critical economic mass to ensure state-of-the-art infrastructure that connects the precinct to the wider world, both through the flows of supplies and outputs, and through the flows of money, information and ideas.
- ensure a sustainable, prosperous regional society and environment.

In this way, a Penrith Valley Economic Corridor is never a single economic space. Sure, there will be business and industrial spaces within the corridor that house concentrations of economic activity and give the corridor its core identity.

But the Penrith Valley Economic Corridor should also have presence in other spaces: within the walls and minds of government, of business groups, of financiers, of developers, of civic society and of the community. In this way, the precise dimensions of the corridor are always expanding and embraced by its supporters, beneficiaries and all the people, firms and institutions it does business with.

<p>Penrith Local Government Area Economic Corridor Study 2010</p>
<p>Sydney</p>
<p>Businesses categorised by ANZSIC industries</p>
<p>Industry Density Map (2010)</p>
<p>Legend</p>
<p>Business Density</p> <ul style="list-style-type: none"> Health Care & Social Assistance Transport, Postal & Warehousing Trade Manufacturing Construction
<p>Background</p> <ul style="list-style-type: none"> Road_Corridor Water_Corridor Recreational_Areas Reserves Lot Crown_Land
<p>Source: Department of Lands, 2008 & GeoScience Australia, 2008 ©</p>
<p>University of Western Sydney Urban Research Centre</p>



Figure 18 - The Basic Dimensions of a Penrith Valley Economic Corridor

<p>Penrith Local Government Area Economic Corridor Study 2010</p>
<p>Sydney</p>
<p>Businesses categorised by ANZSIC industries</p>
<p>Penrith Valley Economic Corridor (2010)</p>
<p>Legend</p> <p>Economic Corridor</p> <ul style="list-style-type: none"> — Penrith Valley Economic Corridor (PVEC) ▭ Locational Dimensions of a PVEC <p>Business Density</p> <ul style="list-style-type: none"> Wholesale Transport, Postal & Warehousing Manufacturing Health Care & Social Assistance Construction <p>Background</p> <ul style="list-style-type: none"> Road_Centreline Water_Corridor Recreational_Areas Reserves Lot Crust_Land <p><small>Source: Department of Lands, 2008 © Geoscience Australia, 2009 ©</small></p>
<p>University of Western Sydney Urban Research Centre</p>
<p>0 0.5 1 2 3 4 5 Kilometers</p>

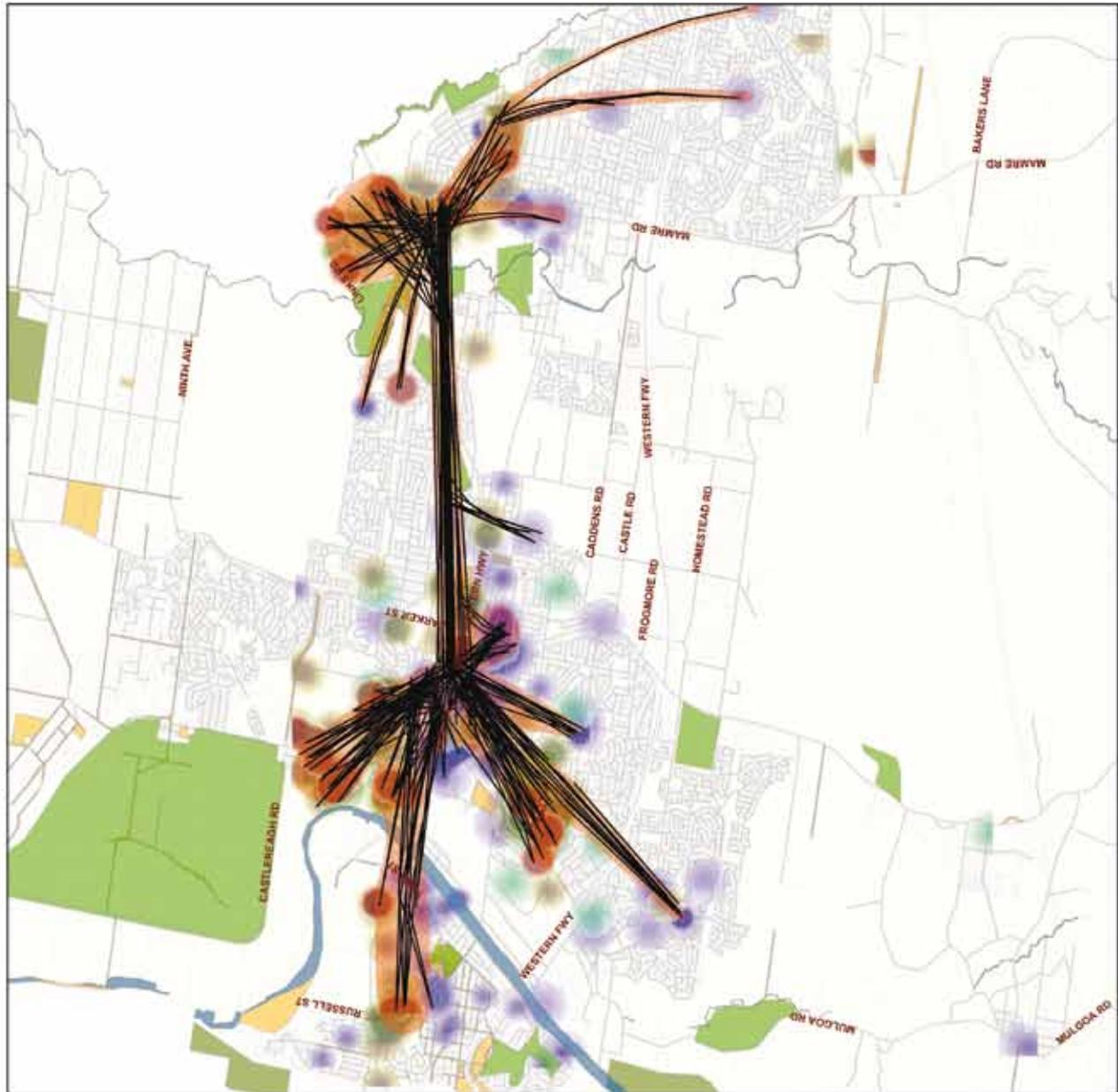


Figure 19 - A Locational Dimensions of a Penrith Valley Economic Corridor

1. Australian Bureau of Statistics, 2006, Australian and New Zealand Standard Industrial Classification, Revision 1.0,s ABS: Canberra.
2. Harvey, D., 1969, *Explanation in Geography*, Arnold: London.
3. Hudson, R., 2005, *Economic Geographies*, Sage: London.
4. Invest in Emilia-Romagna, 2009, image of Emilia-Romagna, retrieved on 26 October, 2010 from {<http://www.investinemiliaromagna.it>}
5. Network Line International, 2010, image of Traunstein District, retrieved on 9 November 2010 from {<http://networklineinternational.com/wp-content/uploads/2008/12/sunlight-ooooaoo.jpg>}
6. NSW Government, 2005, *City of Cities: A Plan for Sydney's Future*, Sydney.
7. Porter, M. E., 1998, Clusters and the new economics of competitiveness, *Harvard Business Review*, Dec., 77-90
8. Robertson, K., 2009, image of Port Kembla, NSW, *Illawarra Mercury*, retrieved on 9 November 2010 from {<http://www.illawarramercury.com.au/multimedia/images/full/434259.jpg>}
9. Storper, M., 1997, *The Regional World*, Guildford: New York.
10. Urban Research Centre, 2009, *North-West and West-Central Sydney Employment Strategies*, University of Western Sydney, Parramatta.
11. Wikipedia, 2010, image of Bid rent theory, retrieved on 9 November, 2010 from {http://en.wikipedia.org/wiki/File:Bid_rent1.svg}