

**The development of knowledge nodes and health hubs
as key structuring elements of the sustainable city region**

Corresponding author and presenter:

Dr Daniel O'Hare
Associate Professor of Urban Planning
Mirvac School of Sustainable Development
Bond University
Gold Coast Q 4229
dohare@bond.edu.au
Ph 07 5595 2221

The development of knowledge nodes and health hubs as key structuring elements of the sustainable city region

Abstract

Universities and hospitals are recognised as key infrastructure in the social and economic life of the city. These facilities can make a major contribution to urban sustainability by virtue of their locations, their interrelationships, and their coordination with transport infrastructure investments. The strategic placement and development of universities, hospitals and associated facilities can focus urban development in a way that mitigates climate change pressures and underpins the social and economic sustainability of the developing city region.

This paper reviews several case studies in the development of knowledge nodes and health hubs in the emerging city region of South East Queensland (SEQ). The case studies include recognised knowledge nodes and health hubs (including the Smart City Strategy for Brisbane; Kelvin Grove Urban Village; Griffith University and Gold Coast Hospital; Sippy Downs – Kawana), as well as several unrecognised nodes and corridors that could be capitalised upon to strengthen the sustainability of SEQ. The case studies reveal a shift from highway based concepts of urban structure to one in which the development of active transport is seen as essential to the flourishing of creative communities. The paper concludes that a broader and more strategic approach to knowledge nodes and health hubs could underpin the sustainability of SEQ and other up and coming city regions.

Introduction

With more than half the world's population now living in urban areas, there is increasing recognition that future planetary sustainability and climate change resilience will be affected by how we choose to structure our cities and their regions. The city region has been recognised as the dominant form of world urban growth since around the turn of the 21st century (Simmonds and Hack 2000). Not surprisingly, a global study for the World Commission on 21st Century Urbanization argues that cities and urban regions are a key focus in national and global efforts toward sustainability:

The aim of urban [sustainability] policy is to produce cities which are economically prosperous, culturally vibrant, socially equitable, clean, green and safe, and in which all citizens are able to live happy and productive lives.

(Hall and Pfeiffer 2000:38)

This paper explores how the creation of knowledge nodes and health hubs can contribute to the development of a city region that will be less carbon intensive through generating well connected centres of social and economic activity, integrated with housing for knowledge and health workers. These new forms of development will enable more effective active transport (walking, cycling and public transport) and thereby enable a reduction in car dependence over time.

This paper is based on case study research methods combining literature review, documentary research and analytic field observations in South East Queensland.

Global city villages and the creative class

The change to an Information City economy (Newman, no date, p2) is accelerating the obsolescence of land use zoning, due to the blurring of exclusive categories such as home/work, city/suburb and full-time/part-time employment. These new conditions raise the need for “the development of urban centres for the face-to-face, creative development of knowledge-based services” (Newman, nd, p4).

This “village-isation” of cities means that urban extensions are no longer envisioned as merely dormitory suburbs of exclusively residential development for a specific demographic group.

Transit oriented development (TOD), with its mixed use, housing diversity and walkable streets, is regarded as desirable by the “creative class” who are the key knowledge economy workers. The “global city villages” Newman (nd) advocates would be based around the urban design qualities and urban infrastructure associated with the Global City, including:

- information/knowledge economy employment nodes;
- mixed use centres;
- high quality public places enabling civil society and economic networks to operate;
- high quality, high frequency public transport;
- higher density residential development around the centre; and
- a range of housing affordability levels (Newman, nd).

Montgomery (2007) notes that “place matters”: the successful establishment and nurturing of “creative quarters” and knowledge precincts is closely related to urban design qualities such as those outlined by Newman. Knowledge nodes and health hubs benefit from urban design qualities that facilitate face to face contact – such as walkable streets, high quality public places and desirable public transport. Other important meeting places that support knowledge nodes include cafes, bars and clubs, where people can network face to face on neutral territory.

Affordability is important to the prosperity of knowledge nodes and health hubs. These precincts require large numbers of key workers – eg nurses, research assistants, administrative staff - many of whom (like students) have lower incomes and need affordable housing. Affordable business and networking places are just as important as affordable housing. Inner city areas and port areas often have an abundance of obsolete industrial buildings and warehouses whose flexible spaces and cheap rents have contributed to the development of creative precincts, such as in South Brisbane, Newcastle (NSW), the Geelong waterfront and Perth’s Northbridge. Searle (2010) notes that these affordable business premises that have nurtured the creative economy are under threat in older inner city areas in South Brisbane and further afield in Vancouver. Meanwhile, in greenfield knowledge nodes and health hubs, it is a major challenge to replicate the benefits of a variety of buildings of different ages, types and rent levels that start-up firms can afford.

The role of universities and hospitals in the local and regional economy

A study of the USA’s 331 metropolitan regions (Florida et al 2006:2) posits that universities play a critical role in the economic health and social wellbeing of cities through generating “the ‘3T’s’ of economic development: Technology, Talent and Tolerance”. Universities generate technological innovation, often in conjunction with nearby start-up and established firms. Universities attract talent to the area, not only the university staff, students and researchers, but also because the university’s resources are a magnet influencing the location nearby of creative entrepreneurs and firms. Florida and colleagues (2006) argue that the tolerant social climate of universities also supports experimentation and innovation in the wider community. While it is arguable that hospitals also contribute to the values of “trust, talent and tolerance”, this is not acknowledged by Florida’s team.

The other major element highlighted in Florida’s long term research on the creative class is the importance of urban quality to the maximisation of the benefits of the creative economy (eg see Florida 2005). It is not enough to just attract the ‘ingredients’ of the creative city; it is essential to have a place making strategy that attracts the creative class to a particular place.

Establishing a network of knowledge nodes and health hubs

Transit oriented development (TOD) creates compact, mixed-use communities centred around transit stations. TOD, by design and density, encourages residents, workers, and shoppers to drive less, and walk and use public transport more often (Bernick and Cervero 1997). Calthorpe and Fulton (2001) advocate structuring a city region around a regional urban network of TODs interconnected by effective and viable rapid transit (Calthorpe and Fulton 2001). Newman and Kenworthy's (1999) more sophisticated multi-dimensional depiction of a regional urban network of TODs places "knowledge nodes" and "health hubs" (OUM 2005b) at multiple highly accessible points in the city region.

The wave of 'post-Sandstone' universities in the outer suburbs of Australia's cities in the 1970s were developed with the same expectations as the suburban regions in which they sat; students and staff were expected to drive private cars to the campus unless they had no alternative to often inefficient public transport options. Several of Australia's postwar universities are now developing plans to correct their isolation by forging better connections with adjacent suburbs and centres. This new trend of reconnecting the campus and the city is now evident at Macquarie University, Monash and others. Some new university campuses display encouraging signs that a campus can add to the life of the city, and the city can add to the vitality and viability of the university – as in the parallel development of Mawson Lakes and a University of South Australia suburban campus.

In SEQ, early efforts to establish a positive relationship between universities and urban centres can be traced back to the birth of Bond University and Robina in the 1980s (Orr 1991). Around 1990, student Planning and Landscape Architecture projects at QUT spurred a joint decision by QUT and Brisbane City Council to remove a boundary fence between the campus and the City Botanic Gardens. Realisation of the mutual benefits of an active relationship between the city and the campus led to QUT later playing a lead role in the establishment of Kelvin Grove Urban Village (KGUV) adjacent to its Kelvin Grove campus. Similarly, against strong opposition led by Brisbane's *Courier Mail* newspaper, QUT was a prominent advocate for the enormously successful Goodwill pedestrian and cycle Bridge which opened in 2000.

Since the 1990s, leading developers of master planned communities in SEQ have been keen to attract a university to their campus. A significant early example was the simultaneous development of the University of the Sunshine Coast and the adjacent Sippy Downs. Springfield Lakes, south-west of Brisbane, is well known for incorporating a university campus in its town centre. Other new campuses, such as Logan City's new Hospital and Griffith University Logan campus, have not been as actively related to adjacent suburban or regional centres. For the less centrally located universities, particularly those established in bushy suburban settings in the 1970s, such as Griffith University's Nathan campus, an urban design orientation was a foreign concept. Walkable connections to adjacent thriving business centres and dense residential areas were not on the agendas of most Vice-Chancellors until the turn of the 21st century.

While there is now wide acceptance of the benefits of co-locating and integrating the urban design of town centres and new university campuses, there has been far too little effort to do the same with the location of new hospitals. Major hospitals attract thousands of staff, patients, visitors and carers daily. To separate hospitals from our town centres is to reduce the liveliness and quality of life available to both town and (hospital) gown. If hospitals are physically separated from their communities, opportunities are lost for obtaining maximum economic value from major public and private investments in urban infrastructure and development. When the transport dimension is considered, the unnecessary creation of additional travel, fuel use and pollution threatens to make more difficult the urgent task of moving towards a more sustainable urban form that will be resilient in the face of climate change.

South East Queensland Regional Plan (SEQRP)

A SEQ regional planning context for the establishment of a network of knowledge nodes and health hubs was introduced with the first *SEQRP*, introduced in 2005 (Queensland Government 2005b). This new planning instrument built on the Queensland Government's *Smart State Strategy* (Queensland Government 2005a), which promoted "the use of knowledge, creativity and innovation to drive economic growth and increase prosperity for a better quality of life" (Queensland Government 2005b:87). *SEQRP 2005-2026* aimed to "support existing and emerging clusters of science, innovation, and research and development" (p86). The Plan designated 14 "knowledge hubs", mostly based on established and new university campuses. Health and medical related research is a major element of several of these "knowledge hubs", but the plan under emphasised the economic role of hospitals and the importance of their proximity to town centres.

The "Desired Regional Outcomes" (DROs) of the 2005 Regional Plan are place based, "support[ing] a compact, well-serviced and efficient urban form" that responds to and enhances the natural and cultural distinctiveness of the region (Queensland Government 2005b:1). Its "knowledge hubs" and "health hubs" are intended to be integrated within "a compact and sustainable urban pattern of well-planned communities, supported by a network of accessible and convenient centres close to residential areas, employment locations and transport" (DRO8, p60). Centres are intended to manifest TOD principles, by being developed as "mixed-use residential and employment areas designed to maximise the efficient use of land through high levels of access to public transport" (p75). TOD nodes are to be walkable and cycle-friendly. A clear argument for TOD is advanced: "Integrating land use and transport reduces the need to travel; creates shorter journeys; provides safer and easier access to jobs, schools and services..." (p75).

The updated Regional Plan, *SEQRP 2009-2031*, continues the support for knowledge nodes and health hubs through planning for "existing and emerging clusters of science and technology, and health, education and training" and setting out two policies and two programs for their implementation (Queensland Government 2009:115). Policy 9.2.1 is to "secure locations with significant investment in science and technology, and health, education and training infrastructure, and allow for future expansion of these activities together with complementary businesses and services" (ibid.). The Plan's two programs for innovation and technology directly respond to the ideas discussed earlier in this paper:

Create attractive business environments for each cluster that support creativity, innovation, research and development, and are attractive to new business founders and to employees with creative, business, research, technical, technology and trade skills.

Facilitate the provision of infrastructure support (including advanced telecommunications and high-frequency public transport services) to underpin the international competitiveness of the new economy.

(Programs 9.2.3 and 9.2.4, *SEQRP 2009-2031*, p115)

SEQRP 2009-2031 gives little or no attention to the need for affordable housing for knowledge and health workers to be available within walking or cycling distance of the main facilities.

The 2009 Regional Plan expands on the 14 "knowledge hubs" of the 2005 Plan, by renaming them and increasing their numbers to 23 broad "employment opportunity areas", within which are designated 21 "science and technology opportunity areas" and 28 "health education and training opportunity areas" (Queensland Government 2009:P114). The strengthening of this aspect of the regional plan confirms that innovation, creativity and research are essential to the competitiveness and productivity of the State and region – as set forward in *Toward Q2* (Queensland Government 2008), the successor to the earlier *Smart State* strategy. In contrast to the earlier regional plan, *SEQ 2009-2031* puts greater emphasis on health hubs, and health and health research facilities are central or

significant elements of 11 of the 23 employment opportunity areas (Queensland Government 2009:114).

Achieving synergies and maximising return on investment in knowledge, health and transport infrastructure and services

Reconstructing the city centre as the hub of a Smart City Region

The Queensland Government's (2007:i) *Smart Cities* strategy "presents a vision of Brisbane as a centrepiece of the Smart State". It coordinates over 20 separate urban renewal areas with four university campuses, three major hospitals, several newly developing research institutes, two new 'urban villages', the State's major cultural facilities, and major active transport infrastructure (rail and bus stations, new pedestrian bridges and a bus-bike-pedestrian bridge). The *Smart City* document reconceptualises this collection of key urban facilities into Brisbane's "knowledge corridor" linking four potentially "integrated super precincts":

- Woolloongabba super precinct, including the PA Hospital, Boggo Road Urban Village knowledge precinct, major government land holdings, and existing and new public transport links to the region's major university campuses;
- Valley-Bowen Hills-Newstead super precinct, including Royal Brisbane Hospital, major brownfields redevelopment sites owned by government and the private sector, and Fortitude Valley with its mixed use and range of business premises and housing types;
- South Brisbane super precinct, including South Bank Parklands, TAFE, the Queensland Cultural Centre, a Griffith University campus, a major urban renewal area, the diverse community of West End, and active transport links to QUT and the city centre;
- City West super precinct, including QUT's Kelvin Grove, the Kelvin Grove Urban Village knowledge precinct developed jointly by QUT and the government, Roma Street Parklands, and high-tech commercial development.

(Queensland Government 2007:29).

Oddly, the Mater Hospital and new Children's Hospital are immediately adjacent to but not mentioned in either the Woolloongabba or South Brisbane "super precinct", but their development as a major health hub is critical to the success of the various knowledge nodes. This health hub is recognised, however, in the overall knowledge corridor.

The strategy document argues that a Smart city centre would have a set of "sustainability qualities" (Queensland Government 2007:25). These qualities are almost identical with accepted urban design qualities of good urban places as established by the Urban Design Alliance Queensland (UDAL/Q 2004) and others (eg GCCC 2009). This indicates recognition that a well thought out approach to urban design can support a city's efforts to develop effective knowledge nodes and health hubs in association with new public transport infrastructure.

Preliminary analysis of selected case study knowledge nodes and health hubs in SEQ

A selection of cases from SEQ demonstrates that achievement of synergy between knowledge nodes, health hubs and the urban fabric requires an active urban design approach to integration, not just adjacency of developments. The case study methodology combines literature review and documentary research, together with some analytic field observations in relation to the urban design qualities noted in the literature as essential to the development of vibrant knowledge nodes and health hubs. As this is preliminary research, cross-case breadth has been prioritised over within-case depth, in order to gain insights from 'snapshots' across a range of types and scales of knowledge nodes and health hubs within SEQ. The case studies are in various stages of conception and early development, and detailed data are elusive in some cases - for example "affordable housing" is frequently mentioned without details of intended sale prices, rental levels or numbers of units. Such data

shortcomings do not detract from this paper's focus on the spatial relationships between the components of knowledge nodes and health hubs. The relative locations and spatial relationships of the case studies are mapped diagrammatically in Figure 1.

Synergy through adjacency and integrated urban design: promising beginnings

Kelvin Grove Urban Village (KGUV)

KGUV is emerging as a demonstration of successful synergy rather than passive adjacency. This integrated 16 hectare knowledge node and health research hub was developed from 2000 on as a joint venture between QUT and the Queensland Government. According to the Queensland government (no date), \$1 billion has been committed to the site to date in the delivery of infrastructure, commercial, educational and recreational facilities. KGUV incorporates university research and teaching facilities, commercial premises for start-up creative industries and research firms, a walkable village centre, high density housing including affordable housing for students, researchers and key workers, and heritage conservation (ACNU 2006). Of the "more than 1000" apartments built so far, 155 affordable housing units have been developed by Brisbane Housing Company; additionally, 456 student beds are available (Kelvin Grove Urban Village, no date). By locating major biomedical and creative industries research facilities outside the 1970s campus, the distinction between town and gown is deliberately blurred, thereby stimulating economic and social wealth beyond the university gates.

Gold Coast Knowledge Precinct, Griffith University and Regional Hospital

This is one of the most promising new developments in SEQ, as it combines a regionally significant knowledge node with the new 750 bed Gold Coast University Hospital on adjacent sites served by the Gold Coast Light Rail. A Gold Coast Knowledge Precinct with undisclosed numbers of affordable housing units and up to 6380 jobs in a 29 hectare TOD (Lawlor 2010) is to be developed immediately adjacent to both of these anchors. The challenge is for adjacency to be capitalised upon by the development of street oriented mixed use development that will prompt networking and exchange of ideas, and for an appropriate range of housing tenure and rental levels to be developed alongside these people intensive facilities. In addition, the light rail needs to be connected to the main railway line as soon as possible to support connections with other knowledge nodes in the region.

Adjacency with less integration and reduced synergy potential

PA Hospital research precinct and Boggo Road Urban Village (BRUV)

This precinct includes the PA Hospital, a major pharmaceutical research institute involving partnerships with UQ and QUT, a heritage listed former gaol, a 50,000m² Ecosciences Precinct building housing 1000 CSIRO and Queensland Government researchers, private sector development sites, and a major busway and 'green bridge' investment bringing these two precincts within five minutes' travel time to both UQ and QUT. The BRUV is intended to accommodate up to 500 housing units, of which 25% are required to be affordable housing (Boggo Road Urban Village, no date). According the Premier, there is "more than \$1 billion worth of construction planned for the area and on completion it'll be Australia's biggest and most advanced health and ecosciences research facility" (Bligh, 2008).

A major disappointment in this precinct has been the decision to locate the pharmaceutical research institute in a remote corner of the PA Hospital site, approximately 650m from the new PA Busway Station. Instead of locating this research institute next to the Bus Station, a 3500 space carpark has been placed here, meaning that research workers and hospital staff using public transport are required to walk 200m through a narrow carpark walkway with no natural surveillance and no active frontages or opportunities for related business or community development. Siting of the carpark has not left space for its 150m frontage to Ipswich Road to be activated or 'humanised', so this road continues to degenerate into one of Australia's ugliest major urban routes, providing diminishing value to adjacent precincts through which it passes. Similarly, at the major entrance to BRUV from Annerley Road and the adjacent Dutton Park residential area, pedestrian access is made indirect and inconvenient

through poor placement of retaining walls, discontinuous footpaths and absence of a 'green man' traffic light on the most direct pedestrian route.

Springfield Town Centre

A university campus and "Health City" are integral to the major town centre currently being established in Greater Springfield, a new town of 70,000 people in the SEQ Western Corridor (ACNU 2006). This town centre will be served by a new railway connection to Brisbane by 2013-14 and to Ipswich by 2021-26 (Queensland Government 2009a). The various components of this centre are arranged in separate precincts (education-health, retail, office, etc) around an informal central park, while the rail station will be on the northern edge, making it a kilometre or more walking distance from the education precinct and even further from the Health City. The 18 hectare "Education City" is developing 232,000m² of education facilities ranging from childcare through schools, TAFE and a university campus (Springfield Land Corporation, nd). The education precinct and Health City immediately adjoin each other, with a continuous street network facilitating face to face interaction between knowledge and health workers (Deicke Richards, nd). The arrangement of the town centre's other components in separate precincts, separated by 400-800 metre (five to ten minute) walks through parkland, may initially limit the inter-sectoral networking that is essential to knowledge precincts, however if these walks can be made legible, climatically comfortable, inviting and perceived as safe after dark, this combined knowledge node and health hub will greatly benefit the western corridor.

Creating synergy through integrating a non-adjacent knowledge node and health hub

Sunshine Coast University, Sippy Downs and the Sunshine Coast Regional Hospital, Kawana

The major elements of the Sunshine Coast's key knowledge node, health hub, transport investment and a Major Regional Centre (Sippy Downs) are split between two emerging nodes approximately seven kilometres apart. The knowledge node, immediately adjacent to Sippy Downs town centre, includes Sunshine Coast University and the Sunshine Coast Knowledge Precinct (SCKP). The Kawana health hub includes the new Sunshine Coast University Hospital, a health precinct, the new Kawana Major Regional (town) Centre and a station on the proposed major Sunshine Coast public transport corridor. Current proposals by the State Government, Sunshine Coast Regional Council and private developers are for TOD based urban design for both the Sippy Downs knowledge node and the Kawana health hub. The key to maximising the integration and synergies between the Sippy Downs and Kawana nodes will be the connection of the two by an active transport corridor along which will be developed a TOD at Palmview, incorporating affordable key worker housing and an innovation and enterprise centre (O'Hare and Hefferan 2007; SCRC 2010).

Emerging non-adjacent knowledge nodes and health hubs in need of integration

Logan

The Logan area, south east of Brisbane, contains numerous elements that contribute to knowledge creation and health, but these facilities are mostly located on isolated and non-adjacent sites, often poorly connected to town centres and the regional transit network. In the further development of SEQ, it will be a necessary challenge to better connect these facilities to maximise synergies between them and with the broader urban fabric. One area worthy of further investigation is around Loganlea Rail Station, where the Logan Hospital and TAFE College are close to the station and to each other. Strategies need to be developed to better connect the isolated Griffith University Logan Campus (two kilometres away by road; one kilometre in a straight line) to these facilities and to the Rail Station, in association with redevelopment of private land for business and housing to obtain a greater knowledge dividend from the currently uncoordinated infrastructure.

Robina and Varsity Lakes

The relationship between Bond University and the expanded 364 bed teaching hospital at Robina, five kilometres away, could be activated by introducing rapid transit to link the two; this would assist the connection of Bond University and its surrounding potential knowledge precinct to the Brisbane-Gold

Coast rail line, which is adjacent to the hospital. For Bond University to play a greater role within Varsity Lakes as a knowledge precinct and health hub, it will also be necessary to provide a more open and integrated interface between the campus and adjoining business premises and health facilities around Market Square and Bermuda Point. Such a move would vastly improve the efficiency and viability of improved bus services and potentially light rail.

Coolangatta and Tweed Heads

The southern Gold Coast and adjoining Far North Coast NSW region also have components that need to be more actively integrated into knowledge nodes and health hubs that would benefit the border area. Such efforts could be used as a justification for bringing forward the heavy rail and/or light rail connection to Gold Coast Airport and potentially across the state border into Tweed Heads and on to Murwillumbah and Lismore. The building blocks of this strategy would be Tweed Hospital, John Flynn Hospital, and the Southern Cross University campuses at Coolangatta, Tweed Heads and Lismore. The presence of Gold Coast Airport would be significant for this cluster, together with an expedited connection to the Robina-Varsity Lakes knowledge node and health hub described above.

Conclusion

There is a great deal of understanding of the role of university campuses in underpinning the economic competitiveness of a city region and individual localities. The references cited in this paper represent only a small proportion of the expanding research and literature on this important topic. There is less literature, however, regarding the similar value of hospitals and health hubs in supporting innovation and economic growth. This is despite recognition in government policy that hospitals are often closely linked to universities, and therefore also contribute to the economic value of the combined knowledge node and health hub.

The case studies outlined in the paper reveal that there are encouraging signs of knowledge based urban development (KBUD) (Yigitcanlar 2008) in the coastal and western corridors of SEQ and in inner Brisbane. There is reassuring evidence that investment in knowledge and health facilities is increasingly coordinated with public transport investment. The case studies strongly suggest, however, that mere adjacency of facilities is not adequate; a detailed urban design approach will be needed to ensure that high quality urban environments facilitate face to face interaction within these knowledge nodes and health hubs, so that these people places enrich the social, economic and cultural life of the city region. Further more detailed case study research, particularly comparative research across multiple city regions, is required.

References

- ACNU 2006 *Australian New Urbanism: a guide to projects* (2nd edition). Australian Council for the New Urbanism, http://acnu.org/display/project_book.html . Accessed 10 October 2010.
- Bernick, M and R Cervero 1997 *Transit Villages in the 21st Century*. New York: McGraw-Hill.
- Bligh, Hon. Anna 2008 Bligh kickstarts work on \$1B ‘Australian-1st’ Ecosciences centrepiece, http://boggoroadurbanvillage.com/files/pdf/Bligh%20kickstarts%20Ecosciences%20centrepiece_170808.pdf. Media release accessed 1 March 2011.
- Boggo Road Urban Village (no date) website, <http://boggoroadurbanvillage.com/content/standard.asp?name=Home>. Last accessed 1 March 2011.
- Calthorpe, P. & Fulton, W., *The Regional City: planning for the end of sprawl*, Washington, DC: Island Press, 2001.
- Deicke Richards, no date, Springfield Health City Draft Master Area Development Plan for Ipswich City Council, <http://www.deickerichards.com.au/assets/Projects/Urban-Design/UDNSSpringfieldHealthCity.pdf>. Accessed 10 October 2010.
- Florida, R 2005 *Cities and the Creative Class*. New York USA and Abingdon UK: Routledge.
- Florida, R, G Gates, B Knudsen and K Stolarick 2006 Universities and the Creative Economy, http://creativeclass.com/rfcgdb/articles/University_andthe_Creative_Economy.pdf. Accessed 10 October 2010.
- Gold Coast City Council 2009 Fifteen qualities of good urban places. http://www.goldcoast.qld.gov.au/t_standard.aspx?pid=4964. Accessed 10 October 2010.
- Hall, P and U Pfeiffer 2000 *Urban Future 21: a global agenda for twenty-first century cities*. London and New York: Spon.
- Jacobs, J 1961 *The Death and Life of Great American Cities*. New York: Random House.
- Kelvin Grove Urban Village (no date) website, <http://www.kgurbanvillage.com.au/>. Last accessed 1 March 2011.
- Lawlor, Hon. Peter 2010 Parklands development to deliver annual economic boost of up to \$550 million, <http://statements.cabinet.qld.gov.au/MMS/StatementDisplaySingle.aspx?id=71423>. Media release accessed 1 March 2011.
- Montgomery, J 2007 *The New Wealth of Cities: city dynamics and the fifth wave*. Aldershot, England and Burlington, Vermont: Ashgate.
- Newman, P (no date) The global city and the parochial city, unpublished paper located at http://www.wistp.murdoch.edu.au/teaching/N212/n212content/topics/topic4/papers/globalpar/global_par.html. Accessed 4 July 2005
- Newman, P. & Kenworthy, J. 1999 *Sustainability and Cities: overcoming automobile dependence*, Washington, DC: Island Press.
- O’Hare, D and M Hefferan 2007 Creating a sustainable Sunshine Coast: the potential contribution of an expanded Sippy Downs, *Queensland Planner*. Brisbane.

- Orr, B 1991 *Bond University: the beginning, 1985-1991 – a personal view*. Canberra: Branxton Press.
- Queensland Government 2005a *Smart Queensland: Smart State Strategy 2005-2015*. Brisbane: Department of Premier and Cabinet.
- Queensland Government 2005b *South East Queensland Regional Plan 2005-2026*. Brisbane: Office of Urban Management.
- Queensland Government 2007 *Smart Cities: rethinking the city centre*. Brisbane: Department of Premier and Cabinet.
- Queensland Government 2008 *Toward Q2: tomorrow's Queensland*. Brisbane: Department of Premier and Cabinet.
- Queensland Government 2009a *South East Queensland Infrastructure Plan and Program*. Brisbane: Department of Infrastructure and Planning.
- Queensland Government 2009b *South East Queensland Regional Plan 2009-2031*. Brisbane: Department of Infrastructure and Planning.
- Queensland Government (no date) Kelvin Grove Urban Village: overview. Brisbane: Department of Housing <http://www.housing.qld.gov.au/partnerships/kelvingrove/index.htm>. Accessed 1 March 2011.
- Searle, G 2010 Too concentrated? The planned distribution of residential density in SEQ, *Australian Planner* 47:3, pp135-141.
- Simmonds, R and G Hack (eds) 2000 *Global City Regions: their emerging forms*. London and New York: Spon.
- SCRC 2010 *Palmview Structure Plan (draft)*. Maroochydore: Sunshine Coast Regional Council.
- Springfield Land Corporation (no date) http://www.greaterspringfield.com.au/education_1.html?utm_source=adwords&utm_medium=cpc&utm_campaign=springfield_education. Accessed 1 March 2011.
- Yigitcanlar, T 2008 *Knowledge-Based Urban Development: planning and applications in the information era*. Hershey, Pennsylvania: Information Science Reference Publishing, ICI Global.