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Transforming the tourist city into a knowledge and healthy city: Reinventing Australia's Gold Coast

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Transforming the Tourist City into a Knowledge and Healthy City: Reinventing Australia’s Gold Coast

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Structured Abstract

Purpose – With rapid growth of Australia’s Gold Coast into a tourist consumption city (Mullins 2008) of half a million people, Gold Coast City Council (GCCC) seeks to diversify the city’s economy, lifestyle and culture. This paper investigates this transformation by reviewing policies, projects and programs arising from GCCC visions of a healthy city benefiting from knowledge based urban development (KBUD) (Yigitcanlar et al., 2008). Secondly, the paper aims to identify opportunities and challenges in developing the emerging cosmopolitan city as a knowledge and healthy city. The paper focuses not only on larger knowledge and health nodes along major highways but also investigates the potential for developing a network of smaller nodes with active transport, thus providing a more holistic and integrated perspective for long term sustainability of the city and region.

Design/methodology/approach – The research is based on documentary research of secondary materials such as government policy documents and plans relating to economic development, major infrastructure projects, urban design and community planning. The documentary research is supplemented by spatial analysis including field visits to the major and minor knowledge/health nodes in their urban/suburban contexts.

Originality/value – Much of the literature on knowledge based urban development (KBUD) has a stronger focus on larger metropolitan cities. However, this paper focuses on a smaller non-metropolitan city thus giving insights into how principles and practices of KBUD operate at a smaller scale. The paper also makes closer links between KBUD and healthy cities initiatives than is evident in much of the existing literature.

Practical implications – The findings of paper will have practical application for Gold Coast City Council in providing critical review to inform a strengthening of the Council’s current policies and programs on knowledge precincts, health hubs and urban health. The lessons from this paper will also be relevant for other cities and towns developing knowledge and healthy city initiatives, particularly those cities currently based on tourism and car dependency.

Keywords – knowledge cities; healthy cities; KBUD; Gold Coast.

Paper type – Academic Research Paper
1 Introduction

The Gold Coast is one of the fastest growing non-metropolitan cities in Australia, with a strong focus on tourism, education and lifestyle amenities. Since around the turn of the twenty-first century, Gold Coast City Council (GCCC), one of the largest local councils in Australia in terms of population, has sought to diversify the city’s economy, lifestyle and culture as it passed the half-million population milestone. The future vision of the city includes an expansion of business opportunities in education, research and development, and quality of life. The Council has embarked on a number of initiatives such as the Pacific Innovation Corridor, the Gold Coast Health and Knowledge Precinct, rejuvenation of the Gold Coast Cultural Precinct, and the introduction of Active Transport and Active and Healthy programs - all of which have potential to transform the Gold Coast into a unique knowledge and healthy city in Australia.

The objective of this paper is to evaluate some of these key planning and urban design initiatives for Gold Coast knowledge and health projects and to identify the opportunities and challenges in developing the emerging city as a Knowledge and Healthy City (KHC). The paper focuses not only on larger knowledge and health nodes along major highways but also investigates the potential for developing a network of smaller nodes with active transport, thus providing a more holistic and integrated perspective for long term sustainability of the region.

The paper begins by reviewing the literature on knowledge cities and healthy cities, before integrating the two in a framework for the knowledge and healthy city (KHC). The Gold Coast is then introduced and Gold Coast KHC policies are reviewed. The paper then analyses three key knowledge and health ‘precincts’, and key challenges and opportunities are identified for developing the Gold Coast as a KHC. The paper concludes by drawing lessons from the Gold Coast case study.

2 Ideas on Knowledge Cities and Healthy Cities

2.1 Knowledge-Based Urban Development

Knowledge precincts can be regarded as the spatial nexus of knowledge based urban development (KBUD) that chiefly refers to the clustering of R&D activities, high-tech manufacturing of knowledge-intensive industrial and business sectors linked
by mixed-use urban settings including housing, business, education and leisure (Yigitcanlar et al., 2008). Searle and Pritchard (2008) have identified three common knowledge precinct forms. The first form comprises knowledge generation activities which are clustered around corporate head offices of high order financial and business services. The second form focuses on the high-tech industry whereas the third form is based on cultural and creative industries, such as movie making. A knowledge precinct must demonstrate its relevance as part of the KBUD. It has to illustrate its ability to add value by attracting investment. Yigitcanlar et al. (2008) suggest five common themes and values of new knowledge precinct developments. These five themes are:

1. Living and working (mixed-use environments)
2. Centrality (proximity, clustering, premium access to different services and amenities)
3. Branding (symbol for branding a city as a knowledge city)
4. Learning and playing (interactive environments and living laboratories)
5. Connectivity (social networking, places of interaction, pedestrian orientation)

In addition to the five themes above, physical connectivity between places and legible transport networks is also an important aspect of creating a knowledge city. Metaxiotis and Ergazakis (2012, p. 162-163) have proposed “ten strings of actions” for the development of knowledge cities. Some key actions are: access to knowledge; and support of employment, innovation and entrepreneurship, quality of life, social and economic inclusion, and environmental conservation.

Metaxiotis and Ergazakis (2012) suggest that knowledge cities can also capitalise on key knowledge sectors, which are their key strength, and focus on developing and supporting these sectors accordingly, as in the case of Stockholm. Literature on KBUD has identified a number of critical factors in the development of knowledge cities (Carillo, 2006; Landry, 2006; and Yigitcanlar et al., 2007). Some of these factors include quality universities (to train knowledge workers and research new products and solutions), large and small private companies (to provide employment for knowledge workers and fund university research) and quality of life and place (to provide an attractive living environment for knowledge workers).

In regard to quality of life and place, accessible recreational facilities and spaces are essential. The importance of ‘place’ for knowledge cities, which can be achieved with urban design qualities that facilitate face to face contact, should also be recognised.
(Montgomery, 2007). Some of these design qualities include walkable streets, high quality public places and efficient public transport.

### 2.2 Knowledge-Based Urban Development in Smaller Regions

As the KBUD concept continues to attract the research community, the focus is primarily on large metropolitan cities. It is easy to assume that talented workers are typically attracted to places that have a critical mass of creative people and activities. This underlying assumption may be one of the reasons why research on KBUD is mainly centred on large metropolises. Waitt and Gibson (2009) argue that densely populated inner-city neighbourhoods are not necessarily the most creative places, as evidenced by the number of creative workers in peripheral suburbs of Wollongong in Australia. Similarly, Henkel (2006) found that small towns, such as Byron Bay, Ballina and Tweed Heads in Northern Regional New South Wales, have sufficient critical mass for the screen and creative industries to prosper and potentially contribute to the economic development of the region. Thus, while smaller regions may not necessarily possess some amenities or local assets that the larger metropolitan areas enjoy, opportunities still exist for them to participate, and potentially succeed, in the knowledge-based economy.

### 2.3 Healthy Cities

Urban population health is contingent upon not only the health sector, but also the manner in which the city infrastructure is planned and developed by local governments and other key stakeholders (WHO, 2012). Cities that support and promote physical and psychological well-being of their residents can be considered Healthy Cities.

#### 2.3.1 Key Design Principles for Healthy Cities

In its Healthy Spaces & Places guide, the Planning Institute of Australia (PIA) articulates ten design principles for planning Healthy Cities by creating environments that are conducive to active living for all community members (Bajracharya & Khan, 2011). Key principles include active transport, connectivity, parks and open space and supporting infrastructure (PIA, 2009). Through strategic planning, local councils should promote active transport modes (walking, cycling and public transport) as viable and attractive transport options for community members. Transport routes and links should be direct, and walking and cycling routes should connect places together.
Land area reserved for recreation and environmental conservation is essential for community members to interact and maintaining their psychological wellbeing. Adequate supportive facilities are necessary for encouraging a more active, physical lifestyle. Examples of such facilities are footpaths and adequate lighting which can encourage walking. Other important design considerations, as revealed in recent literature, include: an appropriate combination of density, mixed use and micro design elements, access to safe and vibrant open space (Kent et al., 2011), aesthetic value of places, and social inclusion (PIA, 2009).

2.3.2 Role of Government in Creating Healthy Cities

Local government authorities, as unique leaders of their cities, have “power to protect and promote their citizens’ health and well-being” (WHO, 2012). Local governments have a vital role in creating healthy communities through providing supportive environments for active lifestyles, as well as programs to facilitate physical activities (Heart Foundation 2009). GCCC, as the lowest tier of government, is the level of government that is closest to the Gold Coast community. As a result, it can lead the activities of governmental and non-governmental agencies in promoting active lifestyles on the Gold Coast (Wiggins & Lette, 2010).

However, an on-going review of the UK spatial planning system has revealed that most regional plans and core strategies either only slightly consider health and well-being issues or do not do so at all (Gray et al., 2010). Nevertheless, wherever the core strategies considered health, the area action plans integrate a number of health policies while local transport plans reinforced “the healthy elements particularly in relation to physical activity” (Gray et al., 2010, p. 10). Thus, there have been heightened concerns for health issues across various levels of plan making and local council functions.

2.4 Universities and Hospitals

Universities and hospitals are key infrastructure for the social and economic life of the city, and creating a knowledge and healthy 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 underpins the social and economic sustainability of the developing city region (O'Hare, 2011).

2.5 Active Transport and Connectivity in the Knowledge and Healthy City

O'Hare (2011) explored 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. O’Hare’s paper (2011) reviewed several case studies in the development of knowledge nodes and health hubs in the emerging city region of South East Queensland (SEQ), Australia. 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 concluded 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.

2.6 Framework for Developing a Knowledge and Healthy City

The literature review shows clear overlaps between concepts of knowledge cities and healthy cities. Figure 1 below synthesises these concepts and develops a framework for developing a Knowledge and Healthy City (KHC). The framework will be used to assess opportunities and challenges for the Gold Coast to develop as a KHC.

![Figure 1: Framework for the Knowledge and Healthy City](image-url)
The Gold Coast

The Gold Coast is one of the best known tourism destinations in Australia. Tourism is a major industry of the city, with over 10 million overnight and daytrip visitors, who spent AUD$4 billion collectively, in 2006 (GCCC, 2009). During the past century, the Gold Coast grew from a collection of holiday places into a pleasure oriented tourist city – a distinctive type of consumption city unlike traditional cities based on production (Mullins, 2008). The Gold Coast has an extensive coastline, offering over 50 kilometres of beachfront, hills and nature parks in the hinterland, and a sub-tropical climate. It has a coastal spine with reasonably high population densities, public transport and opportunities for an active lifestyle (Bajracharya & Khan, 2011).

The Gold Coast is set to host the Commonwealth Games in 2018, which is expected to result in a series of social and economic benefits to the city. The event is projected to attract over 120,000 interstate and international visitors and 10,000 athletes and officials (Giles, 2011), which will significantly enhance the city’s tourism industry. A number of infrastructure projects, over $2 billion worth (Gould, 2011), are underway to support the event. The predominant infrastructure projects are the Gold Coast Rapid Transit (GCRT), a light rail corridor running from Griffith University in Southport to Broadbeach, and an athletes’ village at Parklands, discussed further in section 6. The light rail service is expected to be running by mid-2014. Further sections, linking to the heavy rail line and to Gold Coast Airport, are anticipated to be constructed but funding has not been committed. The Commonwealth Games event will strengthen the Gold Coast’s brand as a tourism destination, and through the infrastructure projects underway – and the engagement of residents - there is an opportunity to brand the city as a successful KHC.

Various healthy and active programs are available throughout the Gold Coast. A major event is the Gold Coast Airport Marathon, the largest in Australia. A website, Get Active Gold Coast, has been established to assist residents in identifying and locating physical activities.
4 Policies and Programs on Knowledge and Healthy Cities

4.1 Knowledge City Programs

This section outlines two major initiatives to promote the Gold Coast and the greater region as knowledge cities.

4.1.1 Regional Planning Context for a Knowledge and Healthy Gold Coast

A regional planning context for the establishment of a network of knowledge nodes and health hubs was introduced with the first South East Queensland Regional Plan (SEQRP) in 2005 (Queensland Government, 2005). This new planning instrument built on the Smart State Strategy, which promoted “the use of knowledge, creativity and innovation to drive economic growth and increase prosperity for a better quality of life” (Queensland Government, 2005, p. 87). SEQRP 2005-2026 aimed to “support existing and emerging clusters of science, innovation, and research and development” (Queensland Government, 2005, p. 86). The Plan designated 14 “knowledge hubs”, mostly based on established and new university campuses. Two of these 14 knowledge hubs are on the Gold Coast, based around Griffith and Bond Universities. Health and medical related research is a major element of both universities (O’Hare, 2011).

The “Desired Regional Outcomes” 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, 2005, p. 1). Its “knowledge 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” (Queensland Government, 2005, p. 60). Centres are required to embody Transit Oriented Development (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” (Queensland Government, 2005, p. 75). 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...” (ibid.).

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, p. 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 following two innovation and technology programs directly respond to the ideas discussed earlier:

> 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, p. 115)

SEQRP 2009-2031 devotes 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 (O’Hare 2011). Nor is this linkage recognised by the GCCC PIC strategy discussed below.

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, p. 114). Southport and Robina (including Bond University) are prominent as the only designated Gold Coast nodes in both these categories of opportunity area. 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. SEQRP 2009-2031 strengthens the emphasis on health hubs, and health and health research facilities are central or significant elements of the two designated Gold Coast employment opportunity areas.
4.1.2 Transformation of Pacific Innovation Corridor from Highway Focus to a Transit Oriented Network

The Pacific Innovation Corridor (PIC), an initiative adopted in the GCCC 2003 Planning Scheme, identifies ten clusters of “knowledge-intensive” activities – including creative industries, education, environmental conservation, food, health and medical ICT, marine industries and sport along the city’s two highways (GCCC, 2011, p. 49). Both of these highways run north-south through the city: the Gold Coast Highway along the linear denser coastal urban strip, and the Pacific Motorway running past designated clusters around established and newer centres further inland.

The Pacific Motorway is identified as “the major communication spine within the Pacific Innovation Corridor” (GCCC, 2003, p. 48), while ignoring both the heavy rail line and the planned light rail route. The emphasis is on private road transport and telecommunications infrastructure rather than active transport, although there is recognition of the need for “supportive physical environments” and “attractive surrounds [offering] a high level of accessibility to knowledge resources and to people” (GCCC, 2003, p. 48). The policy on cluster development “encourage[s] mixed use communities” (GCCC, 2003, p. 49).

The existence of the PIC strategy within the Planning Scheme provides a good start towards achievement of the knowledge and health network proposed in this paper. Firstly, the PIC strategy provides a policy framework which can be expanded from the current highway focus. Secondly, the ten identified clusters include three of the critical knowledge nodes and health hubs – Southport, Robina-Varsity Lakes and Coolangatta-Tweed Heads. Refinement is needed, however, particularly to transform the PIC strategy from its highway orientation to more of a network. This will require the prioritising of existing and future public transport lines and active transport infrastructure, and recognising that mixed use development can only support knowledge exchange effectively if walkable streets are a strategic priority. In particular, there is a need to introduce east-west transit links between the two north-south corridors – notably between Robina (town centre, hospital and transit node), Bond University (Varsity Lakes) and the coastal lifestyle amenity of Burleigh Heads.
4.2 Healthy City Programs

This section outlines four major initiatives to promote active and healthy living in the Gold Coast.

4.2.1 Gold Coast Physical Activity Alliance and Gold Coast Physical Activity Plan

Gold Coast Physical Activity Alliance was set up in 2004 “to provide co-ordination, integration and strategic focus to physical activity efforts on the Gold Coast” (Gold Coast Physical Activity Alliance, 2010). The Alliance currently comprises around forty key partners, ranging from government departments to universities and common interest organisations.

The GCCC Physical Activity Plan (GCPAP) 2010-2020 is a strategic plan for the city comprising of an action plan and an implementation plan. The plan serves as the guiding document to plan, promote, market and encourage active lifestyle changes amongst Gold Coast residents. The GCPAP is based on a comprehensive background report and community consultation findings and concentrates on the promotion, marketing and creation of physical activity opportunities. The scope of the plan, however, needs to directly address the geographic and physical peculiarities of Gold Coast’s urban environment and its changing demographic profile.

4.2.2 Active & Healthy Program and Active Travel Program

GCCC has established the ‘Active & Healthy Program’ with comprehensive physical activity programs designed to suit all ages and fitness levels. These comprise the following programs: Citywide Program (which offers a variety of physical activities for everyone regardless of their demographic profile), School Holiday Program, and Vibe Youth Program (GCCC, 2011). GCCC has developed a range of fitness circuits and equipment in council parks throughout the city, and as mentioned previously the Get Active Gold Coast website assists residents in identifying and locating specific physical activities throughout the city. A number of activities relating to health and fitness, including those for seniors and people with disability, are subsidised by Council.

GCCC has initiated an ‘Active Travel’ program to improve the proportion of residents, businesses and visitors utilising active transport modes through developing an integrated network of walking, cycling and public transport routes. GCCC has undertaken a number of initiatives to encourage walking. The Council in partnership with the Heart
Foundation has established community based walking groups in different suburbs led by local volunteers. Another joint initiative of the organisations is the ‘1000 Steps’ program aiming to increase physical activity levels among local residents.

Gold Coast Bicycle Network Strategy (GCBNS) was first adopted by the GCCC in 1996. It recommended a range of actions for the co-ordinated provision of cycling infrastructure and programs. Some of the major objectives proposed in the GCBNS include: a city wide network of on road and off road bikeways, provision of bikeways as a requirement for development approval, and development of greenways and green bridges over water to improve route choices (GCCC, 1996).

5 Gold Coast Knowledge and Health Precincts

Four universities and five Technical and Further Education (TAFE) campuses are located throughout the Gold Coast. A number of public and private hospitals are established throughout the city, providing approximately 2750 beds (including the new Gold Coast University Hospital). Figure 2 displays the locations of tertiary education campuses and hospitals in the Gold Coast. A schematic diagram, which illustrates the relationship and connectivity between knowledge and health precincts in the Gold Coast, is shown in Figure 3. A diagram listing key recreational facilities and health and knowledge nodes in all precincts can be found in Appendix A.
Figure 2: Location of Tertiary Education Campuses and Hospitals in Gold Coast

- **Tertiary Education Campus**
  - K1: Gold Coast Health and Knowledge Precinct, Central Queensland
  - K2: University and TAFE (Southport Campus)
  - K3: Bond University
  - K4: Southern Cross University
  - K5: TAFE (Coomera Campus)
  - K6: TAFE (Ridgeway Campus)
  - K7: TAFE (Ashmore Campus)
  - K8: TAFE (Coolangatta Campus)

- **Hospital**
  - H1: Gold Coast Health and Knowledge Precinct
    - Hospitals:
      - Gold Coast Hospital
      - Pacific Private Hospital
      - Allamanda Private Hospital
      - Spedelove Private Hospital
  - H2: Pindara Private Hospital
  - H3: Robina Hospital and Robina Health Precinct
  - H4: Currumbin Clinic
  - H5: John Flynn Hospital
  - H6: Tweed Hospital

Gold Coast Hospital

Robina Hospital

Southern Cross University at Gold Coast Airport
Figure 3: Relationship and Connectivity between Knowledge and Health Precincts of Gold Coast
As illustrated in Figure 3, the three principal knowledge and health nodes are Southport, Robina-Varsity Lakes and Coolangatta-Tweed Heads. Southport and Robina are designated by the SEQRP as the locations for: Principal Regional Activity Centres; Health, Education and Training Opportunity Areas; and Employment Opportunity Areas (Queensland Government, 2009).

5.1 Southport

Southport, traditionally the city centre for the Gold Coast, is the largest knowledge and health precinct of the Gold Coast. An aerial view of Southport is displayed in Figure 4, which also annotates key nodes and issues for the precinct’s development as a knowledge and health hub.

Figure 4: Aerial View of Southport
Griffith University, CQ University and Gold Coast Institute of TAFE have campuses in Southport. Griffith University is part of the Gold Coast Health and Knowledge Precinct, which will establish a 750-bed Gold Coast University Hospital adjacent to the main university campus. The co-location of these facilities is intended to create a collaborative linkage between the university and the hospital, discussed further in Part 6.2.1 (Queensland Government, 2011). The challenge for the Gold Coast Health and Knowledge Precinct 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.

Southport is the principal health precinct of Gold Coast, with 752 beds provided by a number of public and private hospitals. The existing Gold Coast Hospital will be absorbed into Gold Coast University Hospital after its completion. Gold Coast Aquatic Centre, a major swimming facility of the city, and Broadwater Parklands, a major recreational park of the city, adjoin each other in Southport and support more active and healthy lifestyles.

The commercial centre of Southport is a mixed use traditional town centre environment, with retail, commercial and educational facilities, major bus station and proposed light rail stations centrally located within walking distance of each other. Although Southport is strongly connected to other coastal suburbs by bus, its transit connection to KHC nodes at Robina-Varsity Lakes and Coolangatta-Tweed Heads remains inadequate due to infrequent and indirect bus services.

5.2 Robina-Varsity Lakes

Robina and Varsity Lakes form the second largest health and knowledge ‘precinct’ of the Gold Coast, with major KHC facilities in two clusters 4.5 kilometres apart (Figure 5).
The Australian Government’s National Broadband Network plan is upgrading the internet broadband infrastructure across the country. As part of the plan, a new contact centre for customer enquiries will be established in Varsity Lakes, which will provide “more than 130 jobs” (Delimeter, 2012). The contact centre can act a catalyst for further development of the precinct as a knowledge hub.

Effective clustering and spatial integration of KHC nodes is underdeveloped in Robina-Varsity Lakes. Bond University is a major knowledge hub at Varsity Lakes, 4.5 kilometres from Robina’s Rail Station, Hospital and Principal Regional Activity Centre. Bond University’s immediate surroundings contain some mixed uses with business, residential and retail premises in the ‘new urbanist’ Market Square and Bermuda Point. However, these uses are spatially segregated due to Bermuda Street, a major arterial road, and the failure to develop major entries to Bond University from these centres.

The 364-bed Robina Hospital, adjoining Robina Railway Station on the Brisbane-Gold Coast railway, is a major health hub of the city. It recently underwent significant
expansion with funding from the State Government. The hospital is accessible by residents living along the Brisbane-Gold Coast rail corridor. However, there is limited connectivity between Robina and the majority of the Gold Coast population due to poor bus services. Most Gold Coast residents are forced to travel to this hospital by car, and insufficient parking has become a major issue for the hospital.

Physical connectivity throughout the precinct is limited by the following factors: indirect and infrequent bus services; disconnected and illegible road network; and a waterway network and golf course which significantly impede connectivity by all transport modes (see Figure 5 above). There are limited numbers of recreational parks in Robina-Varsity Lakes. Although Robina Woods Golf Course may appear to be a major recreational asset of the precinct, the facility is accessible only to golfers and is therefore unusable as a recreational space. As such, active and healthy lifestyles may be discouraged among residents in this precinct. Green Heart, a major parkland initiative of GCCC which has potential to encourage active lifestyles, will encompass Robina (GCCC, 2011). A major challenge of this program, however, is to ensure there is sufficient connectivity between the park and residents in Robina-Varsity Lakes.

5.3 Coolangatta-Tweed Heads

Coolangatta-Tweed Heads, straddling the state border of Queensland and New South Wales, comprise the third largest health and knowledge precinct of the Gold Coast (Figure 6).
Figure 6: Aerial View of Coolangatta-Tweed Heads

Two major hospitals, John Flynn Hospital and Tweed Hospital, are located in the precinct, providing approximately 550 beds in total. Three Southern Cross University campuses and a TAFE campus are located in Coolangatta-Tweed Heads. A Southern Cross University campus is situated at Gold Coast Airport, the fastest growing airport in Australia and a significant infrastructure component for KBUD. The courses offered at Southern Cross University campuses in this precinct are designed to complement each other (Southern Cross University, 2012). However, there needs to be greater active transport connectivity between the three campuses to underpin the complementarity between their courses. Physical connectivity within the precinct is significantly limited by lack of strategic collaboration between local and state governments across the border, which has resulted in insufficient cross-border bus services. At present, public transport usage in Tweed Heads only makes up one per cent of total trips taken (Todd, 2012).
The Oceanway initiative provides a shared cycling/walking route with recreational facilities along the main coastal suburbs of Gold Coast (shown previously in Figure 3) (GCCC, 2011). The Oceanway encompasses Coolangatta and can not only be a major driver of active and healthy lifestyles in the precinct but also encourage social interaction among residents. Tweed Heads in comparison, however, lacks adequate recreational parks.

An unresolved issue of the precinct is the differing state and local government legislations of Coolangatta and Tweed Heads, which adversely affects residents’ quality of life and business efficiency. Issues arising include tax anomalies, different transport rules, and different summer time zones (Northern Star, 2012).

6 Challenges and Opportunities for Developing the Gold Coast as a Knowledge and Healthy City

Challenges and opportunities for developing Gold Coast as a KHC are outlined below.

6.1 Challenges

6.1.1 Poor Connectivity between Precincts

Gold Coast is a highly car dependent city. North-south connection for cars in the city is strong with the following key roads: Pacific Motorway, which runs past inland suburbs, and the Gold Coast Highway and Bermuda Street, both of which provide links between coastal suburbs. However, east-west connection in the city is limited, with few direct routes connecting key suburbs together.

Gold Coast suburbs are poorly connected by public transport. Bus routes are mostly concentrated along the coastal suburbs from Southport to Currimbien as shown previously in Figure 3. Public transport is poor inland, limited by an impermeable urban structure and insufficient bus services. Most critically, the Robina-Varsity Lakes area lacks bus connectivity to other precincts due to infrequent bus services. Moreover, the issue of bus transport across the state border in Coolangatta-Tweed Heads should be resolved as soon as possible.
The heavy rail corridor, which currently terminates in Varsity Lakes, should be extended to Coolangatta and further to Tweed Heads to link the precinct to Robina-Varsity Lakes. The GCRT corridor should also be extended to Coolangatta-Tweed Heads to create a connection between the precinct and Southport. Such moves will strengthen the link between the three principal knowledge and health precincts. Opportunities for greater collaboration between health and knowledge nodes across the Gold Coast, discussed further in Part 6.2.1, will also be created.

6.1.2 Limited Active Transport Supportiveness

Although the Council has developed several initiatives for walking, there is still a need for a better network of walkways in the Gold Coast. Many neighbourhoods lack connected, safe and attractive footpaths. Despite the lapse of fourteen years after the development of bikeways in Gold Coast, the lack of connectivity of the urban structure for cycling is still evident. Cycle routes that exist are hardly used because cyclists are required to share the route with high volumes of vehicular traffic in many suburbs, particularly along major roads. Moreover, most cycle lanes are narrow and route choice is often poor and indirect. Given Gold Coast suburbs’ initial car oriented design, destinations are too far apart for reasonable journeys by cycling.

As discussed previously, public transport is poor in Gold Coast. There are plans to increase the bus services to isolated suburbs but these will still be along routes that are disconnected, which will limit the efficiency of the services. The GCRT only serves a small slice of the Gold Coast population that shows little appetite for public transport with only four per cent of trips as compared to Brisbane’s eight per cent (Queensland Government, 2011), both of which are very low by some international comparisons. It will serve a route already served by a frequent service but connectivity to the inland suburbs is still poor for many Gold Coast residents living outside the coastal spine. Many locals perceive the GCRT project as a tourist service not meeting their public transport needs.

6.1.3 Limited Availability of Recreational Parks

Despite the high attraction and scale of major recreational parks (Green Heart, Broadwater Parklands and Burleigh Heads National Park), the majority of the Gold Coast population stills lacks access to a recreational park. The natural waterways, canal estates
and golf courses that often separate the suburbs may superficially appear to offer an attractive outdoor active lifestyle but are effectively unusable as public open spaces by the residents of the suburbs. The canals in front of private property usually remain inactive while the privately operated golf courses cater exclusively to golfers, as in the case of Robina-Varsity Lakes discussed previously. Green spaces and parks, although extensive, are often the left over spaces from residential developments. The physical activity and recreational use potential of these parks is low. The limited availability of recreational parks may impede the ability of Gold Coast to attract more knowledge workers in the future and to encourage active and healthy lifestyles.

6.1.4 Limited Resources for Physical Activity Programs

Gold Coast has an impressive list of physical activities and programs for its diverse population. While the geographic area of Gold Coast is comparable to that of Brisbane, its population is less than half of Brisbane’s. With a small rate base and a relatively large geographic area, maintaining council parks and natural areas such as beaches and trails may prove to be a challenge as significant financial and human resources are required. Furthermore, there are inadequate human resources available for managing Council’s physical activity programs. Currently, the Council has only two full-time staff to manage its Active and Healthy Program. GCCC has to depend on support from private sector providers and other government departments to fund its activities. The greater challenge for the Council will be to initiate change in the urban design of the public spaces to produce a more supportive environment for the incidental physical activity associated with active transport (walking, cycling and public transport). This will require a much larger effort and commitment than its current resources would allow.

6.1.5 Exclusion of Disadvantaged Population in Physical Programs

Council’s physical activity programs need to be evaluated to gauge the extent they cater to the needs of the disadvantaged groups such as those belonging to the Aboriginal community and low income groups. With the ageing population, physical activity of the elderly assumes greater importance. Many disadvantaged groups are found in the more inland suburbs of Gold Coast whereas the majority of physical activity programs – and related infrastructure investments such as the Oceanway - are located in coastal suburbs. This underscores the importance of providing more physical programs away from the
coast to address the needs of disadvantaged population groups. A more direct and efficient public transport system to connect hinterland suburbs to the coastal areas is also essential. Such a move will encourage these population groups to be more involved in existing health activities.

6.2 Opportunities

6.2.1 Opportunity for Collaboration and Connection between Health and Knowledge Nodes

The three principal health and knowledge precincts of Gold Coast comprise both universities and hospitals, which are located in close proximity to each other. This implies high potential for collaborative linkages between hospitals and universities. Hospitals can support universities by providing practical training and training facilities for university students. Universities, on the other hand, can support hospitals by allocating health course graduates to hospitals as their knowledge workforce. Universities can also inform hospitals of new research findings in the health sciences field.

These opportunities are already being pursued. Gold Coast Hospital is “a teaching hospital” for health science students from Bond and Griffith Universities (Queensland Government, 2010). Meanwhile, the Bond University Clinical Education and Research Centre, recently established at Robina Hospital, provides practical learning facilities for Bond University students (Bond University, 2011). Tweed Hospital provides clinical teaching to students from Bond and Griffith Universities (North Coast Area Health Service, 2012). John Flynn Hospital has been offering a Diploma of Nursing through a partnership with TAFE (Ramsay Health Care, 2012). Southern Cross University’s Tweed Lakeside Campus offers degrees in nursing, allied health, occupational therapy, sports science, and clinical leadership, providing a strong basis for linkages to the hospitals in Coolangatta-Tweed Heads.

6.2.2 Attractive Setting for Active Transport

The Gold Coast’s extensive beaches and headlands provide a desirable setting for walking and cycling. The Council has responded to this opportunity with the Gold Coast Oceanway, a 36 kilometre pathway along the coastline from Main Beach to Coolangatta, as shown previously in Figure 3 (GCCC, 2011). The Oceanway, which comprises a walking and cycling route with recreational faculties, provides an attractive setting for
Gold Coast residents to become more active. The Oceanway has been a highly successful initiative with many local residents frequently utilising the network.

**6.2.3 Athletes’ Village as a Catalyst for TOD Development**

The proposed Commonwealth Games athletes’ village, with 1338 residential units (Stead, 2012), represents an opportunity to fast-track development of a mixed use TOD hub in the Gold Coast Health and Knowledge Precinct (GCHKP). The TOD hub will comprise high density residential uses (initially the athletes’ village), a main street with retail and office space, a major educational campus (Griffith University) and major health facility (Gold Coast University Hospital). The capacity of this hub to support the major KHC infrastructure (including the light rail) will be dependent on its supportiveness of active transport through creating a legible street network and an attractive environment for walking and cycling.

The GCHKP hub will be connected to other coastal suburbs by the GCRT light rail corridor. However, the GCRT corridor should be extended from Griffith University to the heavy rail station at Helensvale as soon as possible. This will create greater connectivity between Southport and other principal health and knowledge precincts. The hub will encourage a healthier lifestyle, in which walking and cycling is the main transport mode, for residents. Broadwater Parkland is located in close proximity to the GCHKP, and there is a need to provide a direct cycling route between the park and the athletes’ village.

**6.2.4 Opportunity to Promote Creative and Cultural Knowledge Industry**

According to GCCC (2012), film and television productions are a major business on the Gold Coast, delivering “thousands of jobs every year.” The Gold Coast’s key strengths in the film and television industry are its diverse range of locations and the availability of a world class film production facility (Village Roadshow Studios in Helensvale) and skilled film-making crew. GCCC is capitalising on these strengths and has been promoting the city as a film production destination to Japan and Korea, where the film industry is robust (GCCC, 2012). Thus, through local plans, the Council could promote Helensvale as a knowledge hub with a focus on creative industries. However, there needs to be greater connectivity between Helensvale and Southport. This can be achieved by providing more frequent bus services and expediting construction of the GCRT from Southport to Helensvale.
7 Conclusion and Lessons Learnt from the Gold Coast Case Study

While much of the literature on KBUD has a strong focus on large cities, this paper has provided insights on the emerging nature of knowledge precincts and health hubs in the smaller non-metropolitan city of Gold Coast. The paper has also advocated closer links between KBUD and ‘healthy cities’ initiatives than found in much of the existing literature. The paper has developed a holistic framework for the Knowledge and Healthy City (KHC), with quality of life, recreation and culture as other important elements in the city’s development. The KHC should not only focus on larger universities and hospitals but also on smaller educational and health institutions such as TAFE (community colleges), local health clinics, active transport and physical activity programs. Additionally, the city needs to focus on the quality of life, recreation and culture which could include developing mixed use centres, parks and open spaces, art galleries and other amenities. They can all contribute to enhancing place making and urban quality on the Gold Coast and attract and retain the knowledge workers in the city.

In the Gold Coast, while there is greater focus on the single large node of the Gold Coast Knowledge and Health Precinct, there is a strong need to also support the network of smaller and emerging nodes such as Robina-Varsity Lakes and Coolangatta-Tweed Heads precincts. The paper has identified a number of challenges of transforming the tourist city into a KHC. Some of the challenges include lack of active transport options, poor connectivity between precincts, and limited resources for physical activity programs. However, there are also new opportunities for developing the Gold Coast as a knowledge and healthy city by strengthening the network of emerging knowledge nodes and health hubs. With its long beaches and the natural green space hinterland, the Gold Coast provides an idyllic setting for a healthy and active city. The proposed Commonwealth Games in 2018 provides new opportunities to promote Gold Coast as a sports and healthy city and some of the knowledge nodes can take advantage of this new opportunity.

A number of lessons can be drawn from the Gold Coast case study for cities of similar nature in other parts of the world. First, the focus of KBUD should not be on one single node but a network of nodes complementing one another and developing synergies between them. There is a strong nexus between knowledge and healthy city concepts, with knowledge workers attracted to healthy and active places. Other cities can also learn from challenges the Gold Coast is facing and policies and programs the government has
initiated to develop it as a knowledge and healthy city. There is also potential to learn from how the Gold Coast can develop a long term legacy from major sporting events such as Commonwealth Games to further brand itself as a knowledge and healthy city with key investments in sports and recreation as well as public transport infrastructure. Developing knowledge nodes and health hubs also requires consideration for quality of life in terms of creating a vibrant public realm, access to nature and to recreational and cultural amenities. All these need to be integrated to make the KBUD concept more viable in small non-metropolitan cities such as the Gold Coast, particularly to transform them from mono-economy cities (largely tourism in the case of Gold Coast) to a more diversified KHC.
8 Works Cited


O’Hare, D. (2011). The development of knowledge nodes and health hubs as key structuring elements of the sustainable city region. PRRES Conference (pp. 1-11). Gold Coast: PRRES.


Appendices

Appendix A: Nodes and Facilities in Gold Coast Health and Knowledge Precincts