

## **Walk 21 – 2010- The Hague**

*“Getting Communities back on their Feet – Promising approaches to support walking for a sustainable future”*

# ***Gold Coast Rapid Transit: Planning for Pedestrian Friendly Transit Oriented Development.***

*This paper is the work of David Mepham*

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## **Walk 21 Abstract**

*Stage One of the Gold Coast Rapid Transit project is a \$1 billion, thirteen kilometre urban light rail project running at grade through a high density urban environment. With future stages of the project there will be some forty kilometres of on street light rail.*

*The Gold Coast is the sixth largest city in Australia and its largest regional city with half a million residents. It also one of the fastest growing cities and a further 300,000 people are expected by 2030. It is a linear city and significant tourist destination stretching along 57 kilometres of beach attracting some sixty thousand visitors on any one day. The city has grown significantly in the post war period and its form and function is strongly oriented to the car and a major north/south coast road.*

*The light rail is well suited to this high density corridor. From the outset the project has been supported with an intensive planning and urban design response to maximise access and mobility in the transit corridor.*

*Transit corridors provide high quality mobility but they may become an obstacle to local accessibility. In Australian cities there are a number of Bus Rapid Transit (BRT) and Light Rail Transit (LRT) systems in operation and under construction. The BRT systems tend to be highly segregated and impermeable and tend to run on highway or river edges or are built in tunnels. BRT corridors and stations do not tend to support quality place or pedestrian supportive environments; instead they are likely to be isolated with stations in car parks. LRT corridors may have some segregated running but often run into highly urbanised areas, on street, at grade and supporting high quality place and pedestrian environments consistent with Transit Oriented Development.*

*The Gold Coast project provides an excellent example of a project that has been laid out in a car oriented corridor but with the capacity to achieve a high quality pedestrian experience. The presentation will look at the Gold Coast Rapid Transit and review the way in which pedestrian accessibility is being dealt with.*

*The Corridor Access and Mobility Strategy is a response to ensuring a high quality whole of journey experience for passengers, a journey that starts at home and includes a walk trip to the station. The Corridor Access and Mobility Strategy considers the whole of the pedestrian experience from footpath comfort and convenience to local area traffic management to road crossings and the location of stations. The strategy has been developed in collaboration with the local council which is also a partner in the light rail project.*

*This project is considered in relation to the author's thesis on transit mode and how this may or not enable transit oriented development and the high quality pedestrian environment associated with this type of development.*

## **Authors Background**

David Mepham is the Manager of City Building for the Gold Coast Rapid Transit Project, a \$1 billion light rail project under development in Australia. He has presented widely on transit and land use integration, urban design and local accessibility.

David is currently researching a PhD on the relationship between mode characteristics, transit corridor permeability and the capacity to achieve a supportive station place and pedestrian environment.

### **Published Papers:**

Transit Oriented Development – Making it Happen, Fremantle, 2005.

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### **Presentations**

Australian Property Institute Conference, *Transitioning from Space to Place*, 5 November 2010, Gold Coast.

Third International Urban Design Conference. *Light Rail for the Gold Coast – Achieving Place, Pedestrian Accessibility and Transit Oriented Development*. 30 August – 1 September 2010, Canberra.

Access Consultants Australia Conference. *Gold Coast Rapid Transit – Corridor Access and Mobility Strategy*. 30 April 2010, Tweed Heads.

State of the Region Summit – Connecting People and Places. *Connecting People and Places*. 15 October 2009, Gold Coast.

Second International Urban Design Conference – *Gold Coast Light Rail – Transit on the Edge*. 2 September 2009, Gold Coast.

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## ***Transit and Place – Achieving Mobility with Accessibility***

Many Australian cities are in the process of planning and constructing major urban transit systems. Such proposals are often tied to land development or urban renewal outcomes with a focus on improving the quality of centres.

The idea of Transit Oriented Development (TOD) is often used to explain the approach to transit and complementary land use planning. This is an approach that has been developed mainly in the United States which like Australia is challenged with transforming its car oriented cities into more livable and sustainable cities through the investment in transit. Features of TOD are higher densities with a mix of uses in a quality public realm. According to Schlossberg and Brown a core component of TOD success “also rests in the capacity of transit users to access the transit stop to begin with or to access key destinations after reaching their destinations.” (Schlossberg et al: 34)

The idea of TOD is one that is ever evolving and elements of the concept may be contested. The move seems to be towards a desire to achieve ‘softer’ outcomes such as place making, environmental, social, community outcomes and to enable local accessibility, although views here clearly vary. Australian academic, Graham Currie, discussing Bus Rapid Transit TOD, rated the issue of pedestrian accessibility as of moderate significance, “The significance of the issue should probably be rated as ‘moderate’ rather than ‘high’. While quality pedestrian access is a desirable part of successful TOD there is no evidence it is essential.” (Currie: 9) Although Currie’s view is contrary to the position of this paper his position highlights the problems of BRT transit corridor permeability that are discussed in this paper.

This paper is focused on Stage One of the Gold Coast Rapid Transit (GCRT) system, a thirteen kilometre light rail transit system running on street through the high density coastal edge of one of Australia’s most popular tourist cities. The project has recently commenced early works construction and will be operational in 2014.

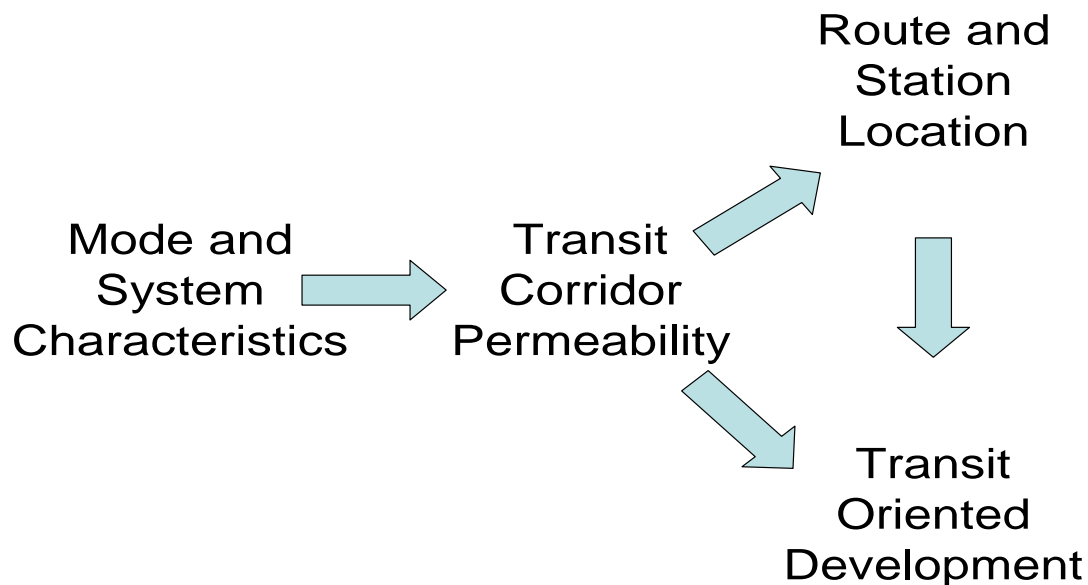
One of several collaborative projects between the project and the Gold Coast City Council is the Corridor Access and Mobility Strategy (CAMS) which addresses the walk up experience in some detail, collating information on the various elements to inform future works in the corridor. This work sits with a suite of other collaborative projects focused on the place and urban design outcomes, social outcomes and opportunities for local economic development.

The paper considers the issue of an accessible transit station environment and discusses the CAMS and the author’s thesis with a view to explaining at grade transit and the planning and land use outcomes and the way that they enable pedestrian friendly TOD.

The thesis argues that Mode and System Characteristics (MASC) impact on the level of Transit Corridor Permeability (TCP). Higher frequency vehicle movements such as those typically found in Bus Rapid Transit (BRT) systems, especially those that use conventional buses, will result in higher levels of corridor segregation, on the other hand light rail, with its significantly higher capacities per vehicle, has lower vehicle frequencies and higher Transit Corridor Permeability.

The issue of Transit Corridor Permeability is critical for the Route and Station Location (RASL). If the at grade corridor is highly segregated then it will not integrate into a main street environment. It is more likely that it will be located alongside another impermeable edge, normally out of centre. A related issue is the way in which Transit Corridor Permeability affects the station place and TOD. In BRT stations pedestrian movement is highly controlled and constrained and this has important consequences for land use and local social and economic activity in the station precinct. It follows that BRT stations have not succeeded in achieving TOD however have had better outcomes with park and ride.

In Brisbane, the State capital, an hour north of the Gold Coast, the South East Busway system adjoins a major freeway. The considerable success of the system as a high frequency, higher speed bus corridor has also created significant barriers to any land development and TOD. The BRT system in Adelaide adjoins a river park with stations in car parks. In both cases the corridors are impermeable and tend to adjoin other out of centre impermeable edges.



Urban light rail stations tend to be permeable and accessible and pedestrian movement is often uncontrolled and unconstrained and as a consequence the precinct unlikely to be cut in two by the transit corridor and is able to support pedestrian friendly uses and activities. The edge of the transit corridor and the station is the urban environment reflecting a hand in glove relationship between the transit and its place.

The point of the thesis is that the transit mode is critical to achieving accessible TOD. As the community aspire to a vision for their city focused on liveability and sustainability then urban transit policy needs to move beyond "mobility" to enhance social objectives, enabled by a commitment to "accessibility". It follows that new urban transit projects might be planned to enable this. The fact is more likely that they are not; it is normally too hard, consequently many transit systems are laid out with isolated route and station locations so that outside of the CBD "one gets on nowhere and gets off nowhere".

A light rail for the Gold Coast was an idea conceived in the planning area of the local Council in the 1990's. At the heart of the idea was a commitment to create a light rail transit system that enhanced the urban environment and would be a catalyst for change and renewal. Whilst the planners have tended to look to Europe for their city building inspiration they have drawn on the practical evidence and extensive transit experience of the United States, a country whose cities share many of the problems of car domination of the urban form as is found in Australia, and especially the Gold Coast. The transit/land use learnings include a particularly relevant report by the Transit Cooperative Research Program. In TCRP Synthesis Report 20, on "Transit Focused Development" a synthesis of significant transit research in the United States, they note several key learnings from the literature.

Firstly, the impact of rail transit on the urban environment is significant with increases in the value of residential and non residential properties near stations. Rail tends to stimulate intense development especially in CBD areas and developers tend to build higher value properties near stations on account of the higher rents that they can attain. In spite of the significant potential for land development it is desirable to have favorable market forces and important to have supportive public policies.

The synthesis report also considers the evidence on the way that land use impacts on transit use. Higher levels of transit are supported by a compact urban form. Significant employment and residential centres should be located to create bidirectional flows within the system. Transit use is supported by higher density development with less car convenience supported by a high quality pedestrian and cycle friendly station environment. (TCRP 1997)

Moving to a place and pedestrian oriented TOD requires planners and urban designers to consider the tensions between transit and place, effectively the mobility and accessibility tension. Consider the allocation and use of land in the station precinct, how planners, designers and traffic engineers respond to the insatiable demand for parking and how associated traffic is managed versus the uses that complement walking and cycling and local social and economic activities. Jan Gehl's thinking on how people use public space, the necessary, optional or social use of space is useful here. The transit station leans strongly to the necessary and functional use of space whilst the place elements lean to the optional and social. A transit/place balance consistent with TOD requires a commitment to accessibility and the quality of the station place. This approach takes planners beyond conventional thinking about transit planning and design.

The desire to achieve better land use and transit integration and TOD has tested the traditional policy boundaries. The regional planning policy has tended to tolerate a transport planning approach focused primarily on mobility and often only paying lip service to land use planning and other planning objectives such as social, environmental and economic policy and the higher level objectives of liveability and sustainability.

The reward in resolving the mobility/accessibility – transit/place tension can be a case of  $1+1=3$  - creating station transit places that are active and animated, achieve mobility with accessibility whilst also supporting a range of local activities, services and local economies in the station precinct. These are some of the benefits that will not appear in the cost benefit

analysis or the project business case and therein lays another opportunity for rethinking our approach to transport and land use policy integration.

The role of Gold Coast City Council in the early planning and conception of the project has ensured that many of these 'softer' objectives have been balanced and embedded into the GCRT DNA. Having achieved the right mode and permeability and the most accessible route and station locations the next challenge is how to build on the TOD opportunities. One of the many collaborations that has developed between the project and the Council is the Corridor Access and Mobility Strategy (CAMS). This is a key element of the City Building approach committed to a great whole of journey experience.

### ***Corridor Access and Mobility Strategy***

The CAMS project is a collaboration between Council's Transport Planning Branch and the City Building Team of the GCRT. City Building is concerned with three key objectives – to support an enjoyable whole of journey experience, to enable an attractive and active place experience and to contribute to the wellbeing – safety, liveability and sustainability of communities through the transit corridor. Getting the pedestrian environment right contributes to those other city building objectives – great place experience and community wellbeing.

The CAMS considers the impact of the station and the transit corridor on local accessibility with the wider walk up environment and experience. CAMS is committed to accessible at grade solutions. The following tools are being developed as part of the CAMS:

- a. Footpath Analysis – considers the width and condition of pathways, the level of comfort and safety, Disability Discrimination Act compliance and the provision of appropriate placed ramps at crossings.
- b. Pedestrian Level of Service – considers obstructions to footpaths, landscaping, footpath dining encroachments, poorly located street furniture, poorly located fixed signage and equipment and pedestrian LOS in key areas at key times;
- c. Pedshed Analysis – considers how far can be walked in five to ten minutes, the precinct area in relation to the significance of the station/interchange and intersection and arterial road crossing impacts. This includes an assessment of the transit corridor and station impact on local accessibility.
- d. Built Form and Frontage Analysis – considers the level of activity, the types of uses, day time and night time activities, the level of social activity.
- e. Local Area Traffic Management – considers actual traffic conditions and speed with signed speed and engineered speed, roundabouts, desire lines and crossings, pedestrian refuges at pedestrian crossings type/frequency and busy intersections.

Detailed disability access and some built form and frontage analysis has been completed. Footpath audits are soon to commence. Data is mapped into a GIS model the data can be built up and shared and inform all works in the corridor to improve accessibility. These

works are to be completed partly by the project, by Council and through works associated with new development contributions.

There is some degree of subjectiveness in assessing the pedestrian environment. Some areas may fail in some measurements but may still be considered as providing an enjoyable pedestrian experience. Consider for example a narrow crowded street in an attractive urban environment, the level of service may be low but on account of other factors such as the built environment the experience is rated highly.

Such an approach can be used in route and station location planning to inform route location supports pedestrian friendly TOD like outcomes or park and ride. A site that deserves particular attention is Surfers Paradise, the 24/7 heart of a city based on the consumption of leisure.

### ***Surfers Paradise Transit Precinct***

Gold Coast City is particularly car oriented on account of its low density suburbia and its considerable canal and cul de sac estates. It had a heavy rail connection between Brisbane and Southport until the late 1960's but the city has mainly developed in the post war – post tram period. The original settlement on the edge is defined substantially by the highway and its string of beachside villages, the most successful of these being Surfers Paradise.

This paper will briefly consider the Surfers Paradise precinct, an area characterised by its tourist orientation and high rise development located between the beach and the waterways. The GCRT route literally runs down the middle of this centre.

The 2.4 kilometre corridor through Surfers has had a number of histories and the evidence of each of these histories can be found in the urban environment. There is the original 1925 coast road which set off the original coast land boom. A significant section of the road winding through Surfers reflects its origins as the original, possibly pre European, track through the dunes. After 1930 the road became the four lane Pacific Highway as part of the national highway scheme, in this time new development starts to orient its address away from the road into side streets. From 2004 the road was reclaimed and remade as the two lane pedestrian friendly Surfers Paradise Boulevard with major through traffic detoured to an adjoining road. New development has quickly reoriented itself back to the Boulevard address activating frontages and animating the street.

From 2014 the road will substantially function as a light rail corridor with one way/one lane car traffic, slower, pedestrianised, safer and highly accessible. The corridor and the urban environment have been substantially shaped by the car and this poses a number of challenges but it is also evident that this high density lineal corridor is very well suited for a world class light rail experience.

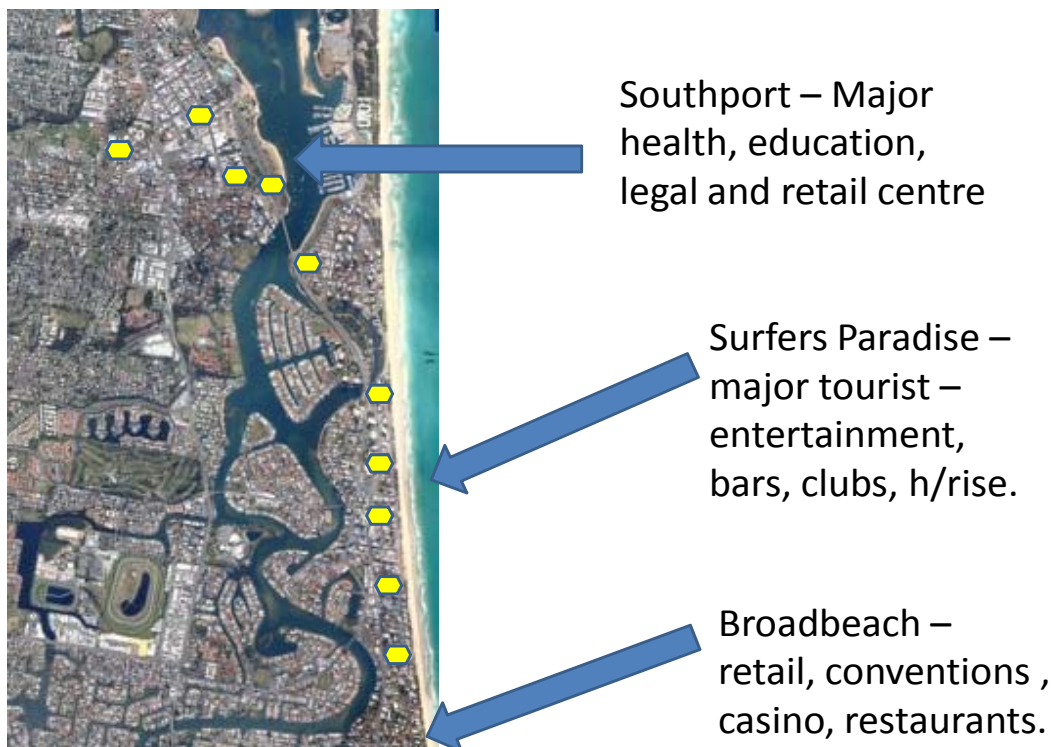
Surfers Paradise is a popular event destination and tends to attract a mix of young people and families. Surfers Paradise is also popular with retirees, often migrants from the colder cities in the south and living or staying in high density well serviced accommodation on the edge or closer to the services.

**Table 1. Method of travel to work - one method only.**

	Total trips	Car as driver %	Walked only %	Bicycle %
Gold Coast	177,448	80.9	3.4	1.1
Southport	8485	71.2	9.7	2.1
Surfers Paradise	6254	63.8	18.2	2.5
Broadbeach	1348	66.5	14.5	2.3

*Source – 2006 Australian Bureau of Statistics, Basic Community Profile, Table B45*

The higher density coastal centres on the edge tend to have considerably higher local pedestrian and cycle accessibility supported by high frequency north south bus services connecting to the key places and destinations on the edge. Table 1 shows the methods of travel to work, for those who do travel to work. The level of pedestrian trips is many times higher. The higher densities and proximity to work with lower incomes of some work areas and the generally accessible nature of the urban environment are some of the factors that may explain this outcome. It is less apparent why cycling is not proportionately higher.



The Surfers Paradise urban environment provides an interesting study for pedestrian movement. It has five transit stations proposed with overlapping catchments through a variety of urban environments ranging from the very busy built up area to a significant area of large vacant sites to the north of the central area. There are a number of issues and

opportunities in relation to walking and cycling, these are discussed below according to the following four points:

- Area – walk up to the proposed stations
- Architecture – in the corridor and station precinct
- Access – across the corridor
- Activity – in the station corridor and precinct.

**Area** - The walk up area is characterised by a flat and predictable grid like street pattern. Streets to the east run up to the beach. The land use is dominated by high rise residential and tourist accommodation, often in blocks with inactive edges, often high blank walls, tennis courts, service entries and half height car parks. Some older buildings remain but only a few detached homes. Many frontages are drive through and do not have an engaging relationship with the street front.

The outer sections of the corridor vary from the densely developed to a number of empty sites to the north. Mini golf, fun parks, car parks and other temporary uses have become established on future building sites acting as land banks for the next boom.

Closer to central Surfers the street fronts are a mix of shops, cafes, bars and restaurants, mainly on the north south corridor with side street activity increasing to the centre.

**Architecture** – Surfers had its first high rise built in 1960, a residential building of ten stories. The next fifty years would see a radical transformation of the area and the corridor with heights now up to 80 stories. The vertical nature of the city is critical to its image. The horizontal, street level, urban features of the city tend to be less memorable.

The corridor retains some of its car oriented “drive through” history, more so on the outer edges than the central area. This is most evident in the older motel architecture and in the not so old drive through high rise hotels. Sites even in the centre of Surfers continue to provide drive in access and even parking at the front of the building. Out of the heart of Surfers much of the older architecture is turned away from the street.

The architecture of the past decade has provided significantly improved vertical and horizontal outcomes. Active frontages, engaging architecture, animated public and semi public spaces prevail.

**Access** – Footpaths in the centre are of a high quality, widened into areas previously dedicated to parking and traffic, indicating the shift in priorities. The central Surfers area is a significant entertainment precinct with a very strong night time economy and this function has dominated the conservative access design with wire barriers treatment with associated footpath features and landscaping to limit jay walking and contain pedestrian movement to the footpath.

Further out of the centre the footpaths vary from wide, high quality treatments to the less impressive and sometimes unimpressive standardised 1.2 metre footpath, accompanied by the worn down grass to dust edges. Out of the centre there tends to be limited signalled or marked crossings relative to the numbers of pedestrians and the frequency of jay walking

increases although given the traffic conditions this is generally safe. People walk in groups and footpath width that might work efficiently where people platoon may not be appropriate to tourist traffic with its different patterns of movement.

New development is regenerating the central Surfers Paradise Boulevard address and this also enables new opportunities to improve pedestrian movement with on street parking replaced with wider footpaths, street furniture, improved finishes to footpaths and landscaping in the Boulevard and active frontages. The GCRT will reduce traffic speed and traffic will reduce to one lane in one direction. There are opportunities to review access arrangements through the area.

**Activity** – The central Surfers area is an active and vibrant area responding strongly in recent years to the Surfers Paradise Boulevard treatment, rebuilding a strong social economy on the corridor and in the busy side streets leading to the beach. Some footpath dining on the Boulevard provides animation and activity but sometimes at the expense of proper access for pedestrians. Other “improvements” such as landscaping, seating, signage may also work as obstacles to pedestrians where footpath space is limited.

Surfers Paradise provides a strong evening experience till late and it is normal to see families and groups strolling the streets. Later in the evening the area changes again as the restaurants close and the clubs open. Issues of lighting for fun and way finding with passive surveillance and CPTED design can help to improve the level of safety afterhours.

## ***Conclusions***

The Gold Coast Rapid Transit may be the first significant urban transit project that recognises that its success lies substantially with its relationship with the urban environment. The mode, permeability of the corridor, the route and station locations and ultimately the station precinct – TOD outcomes are inextricable tied to the success of the project.

Underpinning the design of the project has been the City Building vision with its three objectives to achieve an enjoyable whole of journey experience, an attractive and active place experience and the wellbeing – safety, liveability and sustainability of communities through the transit corridor. These are all tied to the quality of the pedestrian environment. To achieve this element alone contributes significantly to all other elements. It also ensures that the communities through the corridor benefit from the system regardless of whether they use it or not.

The Corridor Access and Mobility Strategy is an attempt to provide a quality whole of journey experience. Its success is based in the collaborative and holistic approach to the urban environment. It builds on the commitment made in the projects conception to be a great transit project that achieves transit with place and accessibility with mobility.

The thesis attempts to provide a framework for the higher level planning and vision for urban transit and accessible Transit Oriented Development. The GCRT provides a useful Australian example of how transit might be planned in the future. A case of transit achieving mobility with accessibility.

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