

International Urban Design Conference

Gold Coast, 3rd September, 2009

Transit on the Edge

Mode, Urban Environment and Local Mobility

Understanding and Resolving the Conflicts

Paper by David Mepham

dmepham@goldcoast.qld.gov.au

Abstract

Many cities around the world are in the process of planning and constructing new urban transit systems. In the planning phase there is often debate about route and station location - should the transit run down the main street or the edge of the urban core? Where should stations be located and what factors determine this? Should station precincts serve parking or transit oriented development?

In the planning of the Gold Coast Light Rail project there have been similar debates especially in the centres of Southport and Surfers Paradise. In these centres the Gold Coast Light Rail is proposed to run through the dense urban core mixing with traffic and pedestrians.

This paper considers the way in which transit systems are located and function within the urban environment. The paper considers the mode characteristics and the nature of the transit corridor, the capacity to integrate the transit into the urban environment and the related consequences for passenger behaviour and local mobility decisions in these transit places.

Key Themes and Words

Transit, pedestrian access and mobility, placemaking, city building, transit oriented development, Brisbane Busways the Gold Coast Light Rail.

Preferred Citation

Mepham, D. (2009), Mode, Urban Environment and Local Mobility: Understanding and Resolving the Conflicts, Presented at the Second International Urban Design Conference, Gold Coast Australia, September 2009.

Introduction

The Gold Coast Light Rail is an at grade transit project that runs on the street and is integrated with its urban environment. The stations are proposed to enable placemaking and transit oriented development outcomes and will prioritise local pedestrian movement in the precinct so that the whole of the journey is a positive experience.

Such an objective seems logical enough but many urban transit systems are not achieving such outcomes. The heavy rail system in Brisbane does not integrate whilst isolated stations provide a get on nowhere and get off nowhere experience.

The Brisbane Busway system has not achieved at grade integration on account of the level of segregation to achieve time and capacity efficiencies. The Brisbane South East Busway runs alongside the freeway with stations out of centre and land use oriented to car parking. Where the Busway does run in the urban environment, such as in Melbourne Street, South Brisbane pedestrian movement is highly constrained with steps, lifts and pedestrian over passes. Newer stations such as the Royal Brisbane Woman's Hospital rely on extraordinary structure.

The paper considers how the choice of technology, that is the transit mode, impacts on the urban environment, the characteristics of the transit corridor, and associated influences on the route and station location and impacts on local mobility behaviour. The paper considers the two most popular new urban transit technologies Light Rail Transit (LRT) and Bus Rapid Transit (BRT). These are high capacity systems, BRT the mode of choice for Brisbane and LRT chosen for the Gold Coast.

The mode, urban environment and local mobility are inter-related and key to achieving transit oriented development (TOD) outcomes – that is high quality, higher density, mixed use places at transit stations where walking is the preferred choice for local trips. Achieving integrated land use and transit outcomes such as TOD is an objective of the South East Queensland Regional Plan.

This paper draws on key points from the author's PhD research dealing with the inter-relationship between transit mode, the urban environment and local mobility and the capacity to achieve transit oriented development.

Transit Corridors – The Seam or the Edge?

Kevin Lynch (1960) in the “Image of the City” discusses the difference between the edge and the seam, it is a theme touched on later by Jane Jacobs (1961) in “The Death and Life of Great American Cities” where she highlights concern with what was happening in cities, particularly in a time where the impact of the car was radically changing the urban environment with wider and faster roads dividing and degrading communities. Transport planners have generally accepted that time/capacity efficiencies for the car should be prioritised over the needs of the pedestrian. In many urban places road design and related land use planning outcomes have made walking less desirable to the point that many of us are making local trips in cars rather than walk or cycle.

The Gold Coast Highway is a road that defines a car oriented city but it is also an example of how a corridor has become increasingly hostile to all but the car. We celebrate the “strip” as an iconic drive through experience with the big signage, pavilion style buildings in parks and cars parks, the drive through motels, restaurants, service stations and shopping centres and the very long blocks with minimal crossings. Pedestrians and local business have retreated from the corridor and the architecture of the corridor has devolved from active and inviting frontages to kilometres of back of house service areas and tennis courts. This retreat is evident in the “H block formations” found in various centres along the corridor, note Surfers Paradise – Cavill, Orchid and Elkhorn Avenues or in Broadbeach – Victoria Avenue, Surf Parade and Queensland Avenue. Other examples of this abandonment of the Gold Coast Highway corridor are not difficult to find.

The Gold Coast City Council’s Thirty Year Transport Plan 1999 – 2020, refers to the highway corridor as a future ‘beachside transit precinct’, a boulevard for pedestrians, cyclists, transit and cars. This policy effectively reclaims the edge to create a seam, an active and interesting corridor in which traffic flows at reasonable speed, with more crossings and less fencing, whilst landscaping and regularly spaced trees provide a pleasant green space for those walking and cycling in the corridor. The Gold Coast Light Rail will run at grade on the street and where it runs in the Gold Coast Highway corridor it turns four lanes into two more easily traversed roads with convenient crossing at the station, not some place down the road. The LRT system provides a unique opportunity to rethink, redefine and reclaim this important corridor as a public space for the whole of the community.

Transit and the Urban Environment

Transit mode impacts on the urban environment even before it is constructed. The mode decision alone will influence the transit corridor and the station location and design and consequently the mode impacts on the urban environment. Key concerns are amenity and safety – how many vehicle movements in the station environment?

Buses efficiently serve lower density corridors but as vehicle frequency increases approaching major destinations they can become a barrier to local walkability. Guo et al (2001) argues that roads function as barriers in two ways, firstly through dynamic severance through moving traffic and secondly as static severance through the physical barriers on the road. Clark et al (1991) notes the impact of psychological barriers for pedestrian that arise when confronted with noise, pollution and the perceived risk of being run down. Such barriers are relevant to the design of transit especially in high capacity corridors.

Wide busy road corridors are common features of road based public transit. Successful bus routes and dedicated corridors evolve into busways, becoming freeways for buses so the urban environment is severed and alienated from pedestrians. Transit barriers and associated negative impacts can be found on the Gold Coast bus system. Consider the main bus route in Surfers Paradise which runs on the busy four lane Ferny Avenue. North and south bound stops are separated and located away from key destinations rather than in the pedestrian friendly Surfers Paradise Boulevard. The high frequency of bus movements create a range of safety and amenity challenges in the station precinct to the point that they are logically located on the edge rather than close to the destination.

In Scarborough Street, Southport each bus interchange stop provides for up to five buses, each bus pulling in and then out of each stop at any one time, so that there are significant numbers of unpredictable vehicle movements over and above general traffic movements. Even in dedicated corridors buses will tend to bunch and platoon so many arrive at the same time. There are the related amenity issues relating to noise and fumes that can make larger urban area bus stops incompatible with desirable place outcomes. Better technology can resolve some of these amenity issues but not the problems with frequency and unpredictability. The Southport bus interchange is located close to the centre and key destinations but resolves

movement and frequency problems through the use of heavy median landscaping and a pedestrian over pass.

The Gold Coast Light Rail will run in Surfers Paradise Boulevard rather than the adjacent corridor on Ferny Avenue. The boulevard is an important pedestrian precinct with strong day and night activity. Light rail lends itself to such environments, supporting place outcomes and even shared space solutions and this is achievable primarily due to fewer and more predictable vehicle movements. Light rail is able to move 10,000 passengers per hour at three minute frequencies; that is forty vehicles per hour compared to two hundred bus movements per hour.¹

In spite of the importance of transit to the community there may be conflicts between efficient transit and placemaking. Transit tends to attract cars and the need for parking where place qualities rely on the capacity to invite people to linger, relax, eat, drink, socialize and watch the world go by. Cars and parking and out of centre stations can be seen as core obstacles to achieving transit oriented development.

Achieving time and capacity efficiencies with good urban design and place outcomes are tied to the mode technology. Light rail's significant capacity is key to its ability to serve the centre, to go to where people want to go and to provide stations in accessible and comfortable locations that invite walking and cycling.

Urban Environment and Local Mobility

Great transit is about the whole of the journey, a great door to door experience. Getting to the station, being at the station, being on the transit and so on should be engaging. On the Gold Coast with so many great view corridors and glimpses the journey can be as significant as the great destinations. There is also the evening and night experience. Stops and stations on the edge can be mundane during the day but in the evening and at night the isolation and lack of passive surveillance can be a strong disincentive to walk up to transit.

Achieving transit oriented development outcomes is tied to how the urban environment invites walking also its importance to the environment. Transport expert,

¹ Note Light Rail CDIMP - LRT carries 250 (up to 300) passengers x 20 trips = 5000 x 2 direction = 10,000. Bus carries 50+passengers x 100 trips x 2 directions = 10,000 passengers.

Professor Graham Currie (2005) has noted the difficulties in achieving quality pedestrian accessibility with bus based systems and these are difficulties related to large vehicles at high frequencies although he finds that these can be addressed with specific measures such as in the underground Brisbane Queen Street Mall bus station.

The final question is - how does local mobility affect choice about non local mobility? Where the urban environment invites car mobility for local trips it seems likely that non local mobility is likely to be car based rather than transit based. Alternatively local pedestrian and cycle trips are more likely to result in transit use.

Encouraging local walking and cycling over driving in the transit precinct requires a planning and design focus on the whole of the walk up station precinct. The Gold Coast Light Rail project with Council has initiated a Corridor Access and Mobility Strategy to consider in detail the wider walkup environment at each transit precinct.

Corridor Access and Mobility Strategy (CAMS)

CAMS is a key initiative by the Council to support the Light Rail Project. The Strategy is focused on the whole of the journey experience. The walk to the station, the station “place” experience and waiting at the station, the transit ride and the walk trip from the end station to the destination. The local walk up environment is an important part of the journey that is not generally dealt with in transit project planning despite having critical implications for the success of the system.

The Strategy draws strongly on the principles of placemaking, transit oriented development and wayfinding. It applies Universal Access principles to the design of the urban environment. It draws on the ‘city building’ principles of the light rail concept design and the Council’s Corporate Plan focus area “A City Connecting People and Places”.

The Strategy will inform detailed design through the corridor and in the station precinct. It assists Council in its dealings with developers and the community in the precinct and guides Council in its design and works in the corridor to ensure continual improvement in the urban environment to encourage walking and cycling for all local trips in the precinct.

Conclusion

The relationships between transit mode, the nature of the urban environment and local mobility are complex but it is clear from a consideration of the interrelationships that the mode technology has important consequences on the location of the route and the stations and this has important consequences for the quality of the station precinct and the quality of station ‘place’ which impact strongly on local mobility.

The CAMS seeks to build on the natural advantages of the light rail, its ‘hand in glove’ integration into the urban environment and to ensure that walking is the natural choice and to ensure that the whole of the journey is a great experience.

References

Clark, J. M., Hutton, B. J., Burnett, N. Hathway, A., and Harrison, A. (1991) The Appraisal of Community Severance, Contractor Report 135, Transport and Road Research Laboratory, Crowthorne.

Currie, G. (2005), Strengths and Weaknesses of Bus in Relation to Transit Oriented Development, PATREC, TOD – Making it Happen Conference, Fremantle.

Gold Coast City Council, September 1998, Gold Coast City Transport Plan, Thirty Year Transport Master Plan 1999 to 2030.

Guo, X., Black, J., and Dunne, M. (2001) Crossing Pedestrians and Dynamic Severance on Main Roads, Road and Transport Research, September 2001.

Lynch, Kevin, (1960), The Image of the City, MIT Press: Massachusetts.

Jacobs, Jane (1961) Death and Life of Great American Cities, The Modern Library: New York.

South East Queensland Regional Plan, Department of Planning and Infrastructure, Queensland Government.

Translink Transit Authority, Gold Coast Rapid Transit – Concept Design and Impact Management Plan (March 2009) Queensland Government.