Making the Most of Transit Oriented Development Opportunities

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1 Introduction

Wealthy post-industrial cities around the world face a number of challenges in maintaining competitive advantage, economic efficiency and livability. Common challenges in the realm of transport include; infrastructure funding, congestion, long travel times, emissions and excessive energy use. Many of these issues can be traced to the use of low-occupancy vehicles. Although the current auto-intensive transport paradigm is generally popular, it is coming under pressure in terms of direct affordability, on-costs and a desire amongst many city-dwellers to have more options for their daily travel. Additionally, studies show that an auto-oriented transport system is economically inefficient. Increasing economic development and population growth tends to result in traffic congestion. This has attendant economic costs such as time delay, as well as pollution problems. There are also broader financial questions for governments continually funding new infrastructure investment for car travel.

Part of the solution might be to provide an attractive alternative to car-based lifestyles, and to this end many local governments in Australia and elsewhere are pursuing a number of measures to boost trips by walking, cycling and high-occupancy bus and rail passenger transit. Transit Oriented Development (TOD) is one of the potential measures which, if successfully implemented, might lead to a more sustainable mode share between public transit and the private vehicle.

The following working definition of TOD is proposed for this discussion:

A vibrant, relatively dense and pedestrianised mixed-use development precinct, featuring quality public space and immediate access to high-frequency public transit.

This paper will investigate some of the criteria for successful TOD precincts and propose a project-oriented approach to moving TOD from theory to delivery. For the purpose of this ATRF paper, the focus will be on the transit sector as leading stakeholders.

2 Recognising a Successful Transit Oriented Development Precinct

The **Transit Oriented Development** (TOD) concept has emerged relatively recently from origins in US planning theory and has at times struggled for understanding among the development industry and public sector. Dittmar and Ohland (2004) provide a range of late twentieth-century US TOD case studies, including major projects in Arlington Virgina, Dallas Texas, Atlanta Georgia and San Jose and San Diego California. The principles for successful TOD precincts can, however, also be observed in the transit-rich city centres of Western and Central Europe. The integrated land use and transport planning that has been pursued post-WW2 in Europe provides clear lessons for current attempts to establish something similar in the new world context.

Successful, highly pedestrianised precincts in European cities of various sizes have evolved out of older (pre-automobile) foundations that leaned toward medium to high density

settings, quality public spaces, a lively street life, mixed and varied land use for both commercial and residential purposes as well as more recent efforts in transport engineering that favoured public transit.

In Australia, we notice that wherever successful precincts exist in our metropolitan areas, a similar mix of positive factors is in evidence. Thinking of Queen St Mall in Brisbane CBD, we can identify that the precinct is vibrant and successful – trading at later hours to many other retail precincts in the Brisbane metropolitan area. A mixed-use dynamic is in evidence within a block or two of the mall itself, and the density of the area varies between high-medium to high density. In terms of the street itself, the public space is plentiful yet shaded, its hard-scaping is of a high standard and the mall sees steady pedestrian traffic to fill and enliven it. The success that these different factors lend to the precinct is underpinned by a transit interchange/terminal underfoot that puts the Mall precinct within easy reach of large portions of metropolitan Brisbane. By comparison, the US case studies reviewed by Dittmar and Ohland (2004, p22) indicate mixed results on many fronts, yet point to key performance-based success criteria such as; *location efficiency, rich mix of choices, value capture, place making and resolution of the tension between node and place*.

From the supporting components in evidence in European cities, and in many other locations throughout Australia and the world, common "success factors" emerge for TOD locations. These success factors should be studied and replicated wherever TOD is attempted or where urban renewal is pursued. A brief list of success factor categories might include;

- **High frequency, high capacity public transit** linking the precinct to the wider metropolitan area and providing good access. The transit should be integrated sympathetically with the precinct.
- **Mixed-use development** with street-front retail. Longer opening hours are an indicator of success. Offices and workplaces provide a support base of customers. Residential accommodation provides additional patrons – who hold a stake in the liveability of the precinct. The development needs to be competitive and viable in the open property market.
- **Public space** provision that, while generous, is never too large that the space becomes empty and loses its lively character. Cafes and restaurants should intermingle with public space. Up-market design is required for public space, incorporating climate-compatibility, quality hard-scaping and considerate planting.

These then are three broad success factors for TOD precincts. Where these factors are in evidence, we usually witness a popular location that forms the heart of a vibrant city, sub-centre or community. Recognising a successful TOD *product* is relatively straight-forward. The question now for modern planners becomes one of organising and co-ordinating stakeholders and institutions to deliver these favoured outcomes through a coherent and workable *process*.

2.1 Transit

The more that transit provides coverage across the region and connectivity between origins and destinations, the greater the potential ridership. (Hendricks et al 2005, p7)

To attract transit users, high quality, timely and cost effective services are needed. Vuchic (2005) lists the key attributes of attractive transit systems as; area coverage, operating speed, directness of travel and connectivity.

Any TOD precinct should function effectively as a key transit node – as an important location in a city-wide network of high-frequency and high-capacity public transit. People using the precinct for work or leisure should be seen as potential passengers boarding at the busy

station and moving effortlessly back to their place of residence, or to an appointment at another point in the transit network. Hendricks et al (2005, p7) states that if the transit does not function in a seamless and speedy manner, the performance and success of the TOD precinct is in question.

TOD has been suggested as ideally suited to high capacity fixed-rail networks (light rail, suburban rail and mass transit), but other research such as that from Hendricks et al (2005, p22) indicates its compatibility with the new generation of high-quality rubber tire networks incorporating bus-ways, reduced-emission low-floor buses and right of ways that provide modern buses an edge in speed over lower efficiency private motor vehicle traffic. There is also no reason why bus transit stops and stations should not be of a high standard.

In order to provide the seamless network that choosy passengers demand, integrated ticketing is a necessity for successful TOD as well as timed transfers from one line or route to another. Network legibility is also a requirement for a successful system and for successful stations embedded in TOD precincts, with passengers requiring easy-to-read route maps and regularly updated digital displays that provide instant information on transit departure times.

More generally, research such as that from Holt-Damant (2005) has indicated that the station itself can act as an attractor or a repellent to passengers and potential passengers. Investment in high quality, safe, secure and architecturally interesting stations is the hallmark of successful transit systems around the world. Southern Cross Station in Melbourne provides a contemporary Australian example of the benefits of investment in station environments, creating transit facilities that are true experiences and destinations in their own right and an effective “trade mark” for their transit system.

2.2 Lively, Mixed-Use Development Precincts

The rejection of monofunctional areas is a prerequisite for integration of various types of people and activities. Gehl (2006, p107)

Our favourite urban locations are invariably lively places, with some great restaurants, the occasional bar, a variety of shopping options and a thriving public space to provide a civic focus and opportunities for people watching. But how often do we notice that our “favourite places” are also generally easy to reach without using the car? Do we sometimes forget that we first experienced that favourite place on a daily basis because of a work commitment that brought us to the location regularly? Can we overlook the fact that a particular location is lively because of the commercial use of the surrounding area? And what about the opening hours of our favourite places? Do they shut up shop at 5 on the dot, or do they “happen to be” open a little longer?

Is it possible to distil and bottle the essences of our favourite places and re-use those ingredients in new projects? Lynch (1981, ch7) concedes that perceptions of locations are often defined by taste, but proposes that the “good” elements of precinct design are nonetheless distinguishing, and observable in many successful places.

To be a successful precinct, a TOD project needs to be lively. It needs to attract people. In order to do so, it needs to have a good choice of food. We need to be able to shop and pay bills and bank and get something fixed. People will also need to be drawn to a successful TOD location as a place of work – with office space for a variety of employment generating businesses or for a particular industry focus.

In order to stay lively after office hours, and in order to allow hospitality to operate profitably, there needs to be an environment in which the precinct keeps moving after 5pm. Retail

outlets will need to be operating in the evening and on weekends. Jacobs (1993, ch6) notes the importance of deliberately seeking to foster lively urban environments. Residential accommodation and hotels can provide a volume of people during the later hours and at times that would otherwise be quiet. Locally-based residents can provide "ownership" of the streets that assists with securing a safe environment. An army of office workers are out in the morning, at lunch time and after their doors close, but other customers, shoppers and people-watchers need to be enticed to generate atmosphere and activity. If people are living nearby and in apartments above street level, all the better for round the clock activity patterns. In the seminal work *The Death and Life of Great American Cities*, Jane Jacobs (1993, ch5) identifies the importance of economic and social diversity in engendering an environment that is busy at all hours.

Lively, active and popular precincts offer an attractive destination for leaseholders and property owners and they perform well in rental and property sales. TOD projects need to be competitive in the open property market in order to be successful. Zoellner (2004, p40) suggests that urban design assists with the essential "place marketing" strategies that new developments require in order to compete.

2.3 The Right Kind of Public Space

"*In cities, liveliness and variety attract more liveliness; deadness and monotony repel life."* (Jacobs, 1993, p129)

Public space is one of the cornerstones of successful TOD precincts. When assessing the role of public space in the urban fabric, our best examples come from Europe, where the city plaza has evolved from beginnings as a mediaeval marketplace, toward being a modern, stylish and functional focus of urban life. Gehl (2006, p101) recognises the importance of utilising public space as a mechanism to integrate all sorts of activities and functions.

Public space needs style to be successful. The quality of hard-scaping, street furniture and planting are probably more or less directly related to the success of the space and to the "quality" of patron it is capable of attracting. In Australia and Brisbane, climate-compatible design should incorporate lots of shade (of both built and growing kinds) and shelter from violent downpours.

In relation to the wider TOD precinct, the public space plays two key roles in underpinning success. Firstly, it provides a centre of activity – the nucleus of the precinct. Without a centre, the precinct does not have a point of arrival or an identity and does not function as an attractive destination in its own right. Secondly, if situated in close proximity to a busy transit station, the public space facilitates the fundamental human movement aspect of the location – acting as a meeting point and in providing for comfortable circulation of people, for passenger dispersal, and arrival.

Finally, and with regard to the necessity of a lively atmosphere as outlined above, the public square or park that provides the focus of our TOD precinct should be appropriately sized. Gehl (2006, p69) points out that if the square is too big and open, the atmosphere will be empty and barren rather than busy and lively. A "less is more" approach might work best and it is probably better that the space be a little crowded rather than a little quiet.

The quality of public space amenity is also an issue in terms of the property market outcomes in the precinct.

3 TOD Opportunities for the Transit Sector (and other Stakeholders)

Integrated transport policy should not just consider the accessibility requirements, but all the transport implications of various development strategies. (Bannister 2003, p119)

The potential payoffs for cities, business and communities in achieving successful TOD precincts are considerable. Less congestion is one popular potential outcome from TOD. More efficient transport is in favour with governments, and a recent study by Scheurer, Kenworthy and Newman (2005, p15) indicates that transit-focused urban examples are economically efficient when compared to cities with more auto-oriented planning.

The transit sector (including government transport departments, co-ordinating bodies and transit agencies) is generally concerned with operating an efficient service – one that is however heavily subsidised. An increase in passenger numbers can lead to an overall increase in cash requirements from the government and community, although the increased volume leads to more efficient and cost-effective transit provision on a "per-passenger" basis. Swenson and Dock (2004, p77) contend that the existence of a number of transit-linked mixed-use centres can act as generators of improved overall transport efficiency.

TOD literature (eg – Cervero 2005, Curtis & James 2004, Hendricks et al 2005, Hess & Lombardi 2004) offers the view that the transit sector can benefit a great deal from the development of a network of TOD-type locations, and the support and interest that the sector demonstrates toward the TOD concept is evidence of this. The benefits for the transit sector are said to include;

- Increased patronage and ticket revenue at the TOD location, and hence the network overall – creating efficiencies in capacity utilisation and per-unit operating cost
- Concentration of passenger throughput at up-scale locations where the transit facilities can be invested in accordingly
- Re-enforcement of the broader link between land-use and transit infrastructure
- Development of air-rights and transit related land holdings
- Opportunity for new sources of revenue in the form of rental income and land or property sale
- "Value capture"; an increase in property values is attributed to the creation of superior transit facilities and improved accessibility at a particular location after transit infrastructure investment. This might be returned or retained by the transit sector through a variety of mechanisms

Successful TOD precincts depend on quality transit, so the positive involvement of the transit sector in the development process is fundamentally important.

3.1 Boosting Patronage and Ticket Revenue

The greater the number of passenger trips a transit system carries, the better it serves citizen's and a city's needs. The more person-km a transit network carries, the more economically it operates. (Vuchic 2005, p186)

The correlation between intensive land use and relative concentration of transit passengers is common sense. Where a precinct or location functions as a destination in its own right, that destination is a key source of passenger volume and ticket purchase/validation. This holds regardless of the land-use at the precinct, whether office space, retail/leisure activities or even industrial usages predominate. It is often noted, however, that a mixed-use character contributes to a more balanced and consistent passenger throughput at various times of day and at different days of the week and throughout the year (including school

terms). As such, we might expect that a relatively intensely occupied precinct that contains office space as well as retail, restaurants and cafes can expect to see a variety of passengers arriving and departing from the transit station at different times and for different reasons. The increased and varied passenger market can contribute revenue and hopefully lead to a better utilisation of transit capacity and a more efficient employment of expensive transit infrastructure. These outcomes are of interest to the transit sector.

Vuchic (2005, ch4) suggests that in order to boost patronage, the attractiveness of the transit system needs to be competitive with the car in terms of speed, reliability and integrated metropolitan coverage. Where there exists a number of TOD type hubs and other passenger generators (such as hospitals and universities) dispersed through the wider transit network, we find the building blocks for efficient passenger movement and broader capacity utilisation in the network, with ticket revenues also better positioned. The Transit Co-operative Research Program's 2004 report (TCRP 2004, p9) identifies "increasing ridership" as the most common goal that surveyed US transit agencies put forward as their reason for initiating TOD projects.

3.2 Concentration of Passengers and Activity at Key Stations

New activities begin in the vicinity of events that are already in place. (Gehl, 2006, p23)

While bus transit offers the opportunity to draw passengers from a wider catchment of dispersed lower-density areas, it also ends up concentrating vehicle movements from the various branches into ever-narrower trunk lines that have increasingly higher frequencies of transit unit throughput and higher volumes of boardings and alightings at stations and stops that are ever more significant in relation to the "thickness" of the trunk on which they are situated. The stations on the "trunk" component of a bus transit system are similar in many characteristics to counterpart stations on a fixed-rail line. While passenger concentrations on the various stops and stations of bus trunks and fixed rail will vary – with some stations inevitably seeing heavier passenger entry and egress than others – it is the high volume locations that really count in terms of the efficiency of the system.

Among all of the built-environment factors that influence transit ridership, density in and around transit stations is the most important. (TCRP 2004, p446)

The key stations, nodes and terminals of bus transit and suburban railways, where the highest frequencies of service and greatest access to the wider metropolitan area are offered, provide the most logical locations to invest in up-market and larger scale transit station facilities. They also offer the best locational opportunities to capitalise on infrastructure investment through land development. In many cities around the world we witness a complicated and very close dance between transit capacity and service at a particular location and the pattern of development at that location, and Searle (2004, p44) points this out. A self-reinforcing (but long-term) relationship emerges with growth in land use intensity and the passenger volume at the nearest station affecting each other (Curtis & James 2004, p286). The more activity at a given station, the greater the potential for investment in station infrastructure to match demand. The better the station facilities, the greater the activity that accessibility benefits engender.

The cause and effect relationship between passenger volume, station infrastructure and service and activity in the surrounding area becomes so intertwined that it is difficult to pick apart. Nonetheless, the clear principle emerges that the transit sector needs to take a very serious approach toward what goes on at the key stations and nodes in its network. The benefits of doing so include efficiency, capacity utilisation and the ability to concentrate their transit station infrastructure spend where the biggest market and revenues can be found.

3.3 Metropolitan Structure

Full co-ordination between urban development and design of major transit networks is often the only way to achieve high efficiency of both land use activities and transit system operation. (Vuchic 2005, p190)

As with individual transit stations, so with the transit network – trunk and branch. By concentrating station activity and investment at selected locations, chosen according to their natural advantages in passenger volume, the transit network, systems and service also gradually evolve and adapt to fit a more efficient network pattern. This is the longer term effect of a more efficient transit network. If the network is legible, clearly defined and understood by the city's business community, local government and development industry as well as transit passengers it begins to play a stronger role in the urban structure. Bannister (2002, p239) supports the idea that co-ordinated land use and transport planning can achieve a great deal for urban structure over the long-run.

Theory and common sense tell us that land-use patterns follow transport infrastructure of all kinds - including sea and air ports, roads, major highways and transit networks. Many theorists such as Lynch (1981, ch10) also put forward the proposition that accessibility and hence transit infrastructure are perhaps *the* key positive determinants of land-use patterns, urban form and structure. Transit provides a major determining role in the evolution of cities because of the accessibility benefits that it confers over and above those offered by private automobile transport. One of the drivers behind the promotion of TOD as a viable concept for urban futures is that it can assist in reinforcing the crucial links between transit infrastructure and efficient cityscapes. Clearly this link can be enhanced by individual TOD projects, but also by medium and longer term adaptation of the built environment to fit transit provision. Both the TOD "big bang" approach to land use/transit connections and the longer term "evolutionary" development of more viable urban form are clearly dependent on local government planning policy and initiatives, as well as support from a variety of other stakeholders and actors in the ongoing delivery of projects that break with the post-war pattern of development in Australian and other new world cities to incorporate more sustainable, people-friendly, transit-based development.

This process of evolution in urban form and structure holds clear benefits for transit stakeholders working from a starting point as a low transit mode share new world city. In a rapidly growing and changing metropolis such as Brisbane, the stakes are higher and the evolutionary time frames shortened. Swenson and Dock (2004, p78) support the important role that TOD can have in achieving better regional transport and urban structure outcomes. Although this end can be conceived, there are a number of challenges and barriers that are faced at this stage.

3.4 The Development of Other Transit-Compatible Revenue Sources

…the urban development activity of (Japanese) *private railway companies has helped them to maintain stable profitability.* (Saito 1997, p9)

Wherever market principles are observed, development of well-situated land holdings can either take place profitably or be planned for execution at a time when conditions permit viability. Transit/land use theorists such as Cervero (2005) and the TCRP (2005) tell us that transit infrastructure carries inherent benefits and qualities that confer a land and property value premium according to enhanced accessibility. Clever land-holders and developers, understanding the importance of location, can manufacture this accessibility premium into profitable development projects when market conditions are favourable. Are governments, transport departments, transit co-ordinating bodies and transit agencies in a position to

capture and benefit from revenue sources linked to the activities that transit infrastructure spending and operating subsidies create?

Transit and other government agencies naturally tend to hold numerous land parcels that are excess of station footprints, located in immediate proximity to station facilities. These land holdings and air-rights provide the opportunity to reap revenue through activities that are often not considered to be core operations – but in most Australian cities, examples of development on transit agency and government land near stations and over tracks are not hard to find. The question now revolves around the transit sector's willingness to become involved in *new* development projects as part of a broader push for TOD.

While the transit sector in Australia has been attracted to development activity from time to time on an ad-hoc basis, Saito (1997) proposes that the Japanese private rail industry is one clear example of transit companies embracing transit-related land development wholeheartedly and systematically. In doing so, they have broadened their revenue and profit base and reinforced the efficiency of their transit businesses through building passenger numbers along their core infrastructure networks.

The major private railway companies can no longer be viewed as mere railway or transportation businesses. Today they are more like urban developers or local service businesses supporting the lives of people living along the railway line. (Saito 1997, p3)

While the Japanese examples sometimes vary from the Australian due to population densities and passenger volumes, there may come a time when Australian transit players become more readily enticed into passenger-generating land development and the accompanying business growth potential. These revenues (in excess of any associated ticket sales growth) can be engineered for delivery up-front and close to the period of transit infrastructure investment in the form of property sales. Alternatively, stakeholders may see benefits in holding built assets and generating ongoing rental revenue streams. Notably, in the US *ground leases* are the most common form of joint development/TOD revenue for transit agencies (TCRP 2004, p25). In the Australian context, this form of property transaction is uncommon and unpopular.

Devapriya & Elbing (2004, p122) point out that in the context of transport infrastructure projects, agencies seek "value for money" which is defined as "*providing the same infrastructure or service with less payments".* Where additional revenue streams from non-traditional sources provide these benefits, they might be said to offer a value-for-money proposition to agencies, government and the community.

Capitalising on the available value for money opportunities depends on clarification of issues such as land ownership, planning, the design and security challenges of building over rail as well as conceptualising and resourcing the initial stages of the development process.

3.5 Achieving Value Capture

Land uses determine the demand for transport and accessibility determines the price and hence the demand for land and buildings. (Bannister 2002, p139)

Remaining with the theme of property value premiums associated with transit infrastructure and service; many theorists indicate that the transit sector should be actively seeking to capture some of the transit-associated value uplift that their infrastructure dollars create.

Value capture as a fiscal objective distinguishes …public/private projects …initiated by transit agencies, which as a residual of their primary function, often control desirable development parcels. (Miles et al 2000, p273)

Traditional transit investment commitments are undertaken in Australia through cost-benefit analyses and through standard public-sector planning and funding approaches. There is an argument though, that the property value uplift caused by transit construction should come to be seen as a mechanism for partially self-funding infrastructure investment. By engineering a greater link between infrastructure investment and the financial benefits it creates, some of the uncertainty associated with funding these major undertakings may be reduced. The overall cash requirement from agencies and government to fund infrastructure upgrades may be partly covered by any development value or associated revenue opportunities. Curtis & James (2004, p294) cite the example of Butler-Brighton in Western Australia as an integrated land-development and rail infrastructure project, where after taking account of non-ticket revenues:

The estimated financial benefit for the state was envisaged to offset a major portion of capital cost to construct the railway.

While this concept is one of the most complicated that academics, government and transit professionals grapple with on the TOD front, land economics and standard accounting methodologies can provide a way forward. Two potential approaches stand out as offering the best prospects for achieving value capture from transit investment:

- Equity involvement in land-ownership vehicles and related property development projects from institutions investing in transit infrastructure
- Valuation of increases in land tax and local government rates associated with property value increases or TOD projects

Both of these potential starting points for value capture rest on standardised methodologies that are well understood within established professions. TCRP (2004, p126) points to additional property tax revenue as an outcome of successful TOD. The question of how the transit sector in Australia can access this revenue stream remains unresolved at this point. The TCRP study also concludes that in terms of development projects, “direct involvement” (such as equity/land venture participation in a project) offers clear opportunities for transit agencies and interested parties to achieve value capture (TCRP 2004, p174).

Southern Cross Station, Melbourne, April 2006. Photo: C Hale

4 Hurdling the TOD Challenges and Barriers

With all these advantages and benefits, one might expect a race to embrace TOD concepts and an explosion in TOD projects to coincide with population growth and transit infrastructure expansion. As yet however, the concept is in transition from theory to practice. In making this transition, challenges and barriers abound in a variety of fields including (but not limited to);

- Institutional roles and inter-agency co-ordination
- Project championing and project initiation
- Identification and utilisation of workable project structures
- The private/public balance
- Resources, personnel and skills for a "new" field
- Market dynamics

The TCRP (2004, p99) report categorises these challenges as *fiscal, organisational* and *structural*. Curtis & James (2004, p277) contend that overall in Australia, there has been a tendency to manage land use and transport planning through different government agencies and this must be seen as a limiting factor.

While the successful TOD "product" can be readily understood, it is a more difficult task to trace the requirements and track record of institutions and stakeholders in contributing positively to the development "process".

4.1 Institutions and Stakeholders – Delivering According to Strengths

Stakeholders and key institutions can deliver TOD through various supportive actions. These players and their roles might be listed to include;

Institution/Stakeholder	Most compelling role(s) in TOD projects
State government:	urban planning policy
State transport department:	transport strategy & policy, infrastructure funding
Transit agencies:	transit infrastructure, transport planning, transit station construction, land/air space development, high-standard service delivery, passenger safety and security
Local government:	local planning, zoning, public space provision?
Private developers:	constructing individual buildings
Private landholders:	sale or JV development of useful land
Consultants:	skills for project delivery (including concept design?), interagency facilitation
The public and local residents:	support and acceptance
Potential TOD Occupants:	property market outcomes

This list of actors covers many of the bases for moving TOD from theory, through the project development phase and on to agreements and then project delivery. Clearly there will at

times be competing and even conflicting interests which need to be balanced. Where the players listed above are willing and able to support the TOD delivery process through the roles they are naturally assigned, we can expect that a firm foundation exists for advancing projects. If any of the players do not deliver on their roles and responsibilities or show tendencies to veer into other stakeholder's territories, problems will surely follow. It would be helpful if there were an agreed and understood framework for co-operation on these matters, and Curtis & James (2004, p279) recognise "…*the need to establish an overarching objective for land use and transport integration."*

Stakeholders need to primarily deliver within their own sphere of influence, an idea supported by Curtis & James (2004, p283). It is helpful, for example, to have local government promoting the idea of TOD, but they should primarily be supporting its delivery through appropriate local planning and zoning. State government may not be a natural developer of TOD sites, but can make a huge contribution through funding transit infrastructure and service adequately and in having their land-use policy firmly and unwaveringly behind the TOD concept. In Queensland, there is consistent stated support for TOD in the Queensland State Government's Office of Urban Management *South East Queensland Regional Plan* (OUM 2006). An interesting question is the degree of momentum in transferring this stated policy support into project delivery. It might be noted that the transit sector has perhaps the greatest level of exposure to TOD projects, the most at stake in making TOD work and hence a leadership role would naturally be expected of these parties.

While many key activities are covered by the stakeholders listed above and their respective roles in TOD delivery, a number of "gaps" or missing links remain to be filled in the TOD project delivery equation.

4.2 Project Championing

Transit agencies are vital to TOD since, after all, they control where, when, and even if rail and bus services are delivered. Further, when it comes to joint development, transit properties occupy the front line of implementation, deciding if and when agency-owned land and air rights are to be leased or sold. (TCRP 2004, p40)

In line with their many natural responsibilities for TOD project delivery and with the immense opportunities that successful TOD offers the transit sector, we might well expect them to play an initial role in **project championing**. Indeed, their transport strategy and planning role best places them to make the early decisions as to which locations are most suitable for TOD projects. Additionally, Hess & Lombardi (2004, p28) suggest that their ownership of relevant land parcels confirms their central role in the land-based aspects of TOD projects.

In common with many of the stakeholders listed above, excluding private developers, the transit sector is not naturally positioned to trade land on the open market place, or to undertake development feasibility studies and move on to funding, development management, construction and sale/leasing of projects. On the other hand, it is probably not appropriate that developers initiate TOD projects of their own volition and in locations that suit their convenience without a firm basis in transport planning.

If this role is not acceptable to the transit sector, another player may need to step forward as project champion in order to get potential projects on the table.

4.3 Project Structures that Work

As long as TOD confers both public and private benefits, there is no replacement for public-private partnerships in advancing TOD implementation. Cervero (2005, p24)

The weight of evidence seems to lead to the conclusion that the transit sector is well placed to identify the preferred locations and champion a short-list of TOD projects. They also need to work with other stakeholders to identify a development management model that functions effectively in delivering TOD projects in line with their infrastructure schedules and priorities. This solution may involve regulatory and policy attention.

Curtis & James (2004, p282) speak of the key institutional delivery principles; function, organisation and accountability. In Brisbane, and other interested regions, there is a need to identify and build a model that provides key development management capabilities. Broadly speaking there are two options:

- Transit sector players create an in-house development management capability
- The transit sector and other major stakeholders source a development management capability in some other manner and work closely with the development manager to achieve their transport-related and other goals. The creation of a TOD Development Body might deliver this potential role.

Development management in Australia has changed immensely in recent years with the introduction of financial services reforms that require a financial services licence to raise equity for development projects. Robertson (2004) outlines this move into a managed investment structure for development projects in Australia. In a significant change, it is now expected that the development manager be a fully-qualified property economist (or similar) rather than a flamboyant character with a colourful history. Further, it is now expected that the competent and qualified development manager, in partnership with a financial services specialist (in practice the two roles are extremely difficult to fill by one person or even one organisation) are offering investors a financially sound project that has been established on the basis of at-valuation land acquisition, non-speculative revenue projections and independently derived project cost estimates.

These useful changes lead to the suggestion that project champions (whether in the transit sector or some other stakeholder) would be best suited in turning toward the mainstream development management and development finance approach. This approach is eminently practical for the mid-scale projects that suburban TODs will probably encompass (perhaps AUD$50m - $200m project cost). The delivery of TOD-type projects under an official Public Private Partnership (PPP) structure in Queensland is yet to be achieved, though in Spencer St/Southern Cross station in Victoria, we have an example with attendant strengths and weaknesses. Duffield & Regan (2004) point out that the Southern Cross project utilised a Special Purpose Vehicle (SPV) structure. The SPV provides the company structure for land ownership, project equity investment, and risk/reward balance. It is off the public sector balance sheet and able to operate with private sector flexibility.

If these suggestions proved workable, the project champion would have at their disposal a project initiation and development management model that should allow them to deliver a succession of TODs at preferred locations. The project issues and decisions are now simplified and fall into two dimensions:

- ***Land ownership*** (to be balanced through the SPV)
- ***Project steering*** (addressed via the TOD Development Body)

4.4 The Public/Private Balance

Public/private development is frequently organised under a quasi-public institutional structure that permits an organisation to operate with greater flexibility and fewer restrictions…
(Miles 2000, p284)

Operating within a mainstream Australian development finance and management structure, the TOD Development Agency will need to clarify the nature of its relationship with public sector TOD champions and other interested parties under the two dimensions of project steering and ownership.

In terms of **land ownership** – a TOD precinct will generally involve a mixture of public and private sector land ownership. Under the mainstream Australian development management and finance structural model, these various gradations of public/private ownership are easily accommodated in proportion to the equity capital ventured by the respective parties. Land is held in unit trust/SPV. A public sector champion might dilute their project risk and finance exposure levels by allowing private equity investment in the unit trust to some preferred level. Increasing the public agency's exposure to project risk and reward would be performed through maintenance of relatively higher proportions of equity invested. The TCRP (2004, p78) study identified that three quarters of the projects they investigated had an **equity partnership arrangement** in place.

Elbing & Devapriya (2004, p125) point out the risk/reward relationship benefits of equity investment approaches to PPP projects; *Risk allocation should establish long-term incentives for all parties involved. For example, sponsors of the SPV invest in equity in the company for long-term revenues instead of the traditional short-term interests in design and construction of publicly financed projects.*

In the **project steering** dimension, the options revolve around the degree to which any public sector sponsoring organisation maintains a level of control over project direction and decisions. They may well choose to have development management (including financial management) entirely in the hands of a dedicated TOD agency, or they may wish to somehow retain representation in day to day development management by way of staff representation in the TOD organisation. Elbing & Devapriya (2004, p121) contend that "*proper distribution of control between the public and private partners"* is of some importance.

4.5 Skills, Capabilities and the Right People for a Big Job

A recent report in the Australian Financial Review (AFR 06) identified "lack of suitably qualified personnel" as the overwhelmingly common cause for project failure. Curtis & James (2004, p283) identify the 'right' people as essential to delivering integrated land use and transport outcomes.

Higher-level skills are required to plan and execute successful TOD projects. Indeed, in order to understand the TOD concept at a workable level, professionals in disciplines such as architecture, planning, engineering, land economy and so forth need to be starting from the forefront of their fields. An interest in TOD generally comes to those practitioners who readily understand the limitations of traditional post-war development patterns and are already restlessly searching for a way out of suburban sprawl development typologies.

In putting together teams for TOD projects, project directors and team leaders will need to look for appropriate qualifications, with post-graduate study becoming preferable for TOD professionals. Prospective team members will also need to demonstrate a natural ability to work and contribute in a multi-disciplinary environment. The scale of some TOD projects will

test team member's commitment to medium-term time scales – requiring that harmonious working atmosphere be maintained throughout. Team participants need to be comfortable with urban design principles, need to have a working understand of transport planning and strategy and must invariably be strongly in favour of improved public transport outcomes.

4.6 Market Exposure

As with most real estate development, TOD occurs largely through the private marketplace. (TCRP, 2004, p76)

TOD projects in the US have at times been underpinned by Federal Government project funding that is simply not available in the Australian context. Clearly in the Australian environment, potential TOD projects will not differ substantially from other mainstream development projects in the funding resources and their need for self-sufficient viability. Regardless, the TCRP (2004. p86) study identifies the need for projects in the US (and elsewhere) to be "*driven by real-estate market fundamentals"* .

Although new TOD projects in Australia will have perhaps a greater diversity of keenly interested stakeholders than regular development projects, the project team cannot expect to rely on any particular agency or government funding mechanism to deliver schemes that do not stack up financially. The transit sector will have a major role in delivering the transit infrastructure proper, including station facilities and service to the TOD location. They may also have a role in getting preferred projects up and running. It is not envisaged, however, that transit agencies or any other government institution will be taking on major amounts of additional project funding and risk exposure simply to meet transport planning goals.

The projects need to be profitable, need to have a workable risk profile and should seek to deliver market-based outcomes in the production and promotion of residential accommodation, office space, retail and hospitality outlets. This market-based approach may mean that, as in the mainstream private development examples, projects that have been assiduously researched, designed and initiated will from time to time need to be temporarily slowed down or halted if and when market fundamentals in terms of the cost/return/risk equation are not certain enough. At other times, project staging may need to be monitored and adjusted according to projected market absorption capacity. This should not preclude at any stage the ongoing planning and design of TOD precincts, nor preparation in the form of land acquisition and assembly activities.

Curtis & James (2004, p294) report that in the Butler-Brighton case in WA; "*commercial imperatives were fundamental*". The fundamental constraint remains that no building be constructed where revenues do not adequately cover the build cost plus a risk margin.

Marktplatz, Bremen Germany, April 2006. Photo: T Lange

5 Making the Most of TOD Opportunity at Project Level

Project management theory and practice tell us that decision-making for projects is best devolved to the level of the project team – with dedicated and highly qualified professionals making the day-to-day choices on the basis of a close understanding of project requirements. These issues are reviewed in Cleland and Ireland (2002, ch8). This project-based decision making structure needs to be adequately separated and distinguished from the organisations and institutions that have sponsored the TOD concept.

Agencies and institutions have major workloads ahead in the establishment of an environment that is conducive to TOD project initiation. Policy and strategy needs to be fine-tuned, and workable project structures need to be identified and implemented in order that a number of TOD projects can self-manage without the need for constant reference back to the interested institutions and without draining the resources and attention spans of those institutions. It is only by dedicating and adequately resourcing independent high-performance project teams that TOD outcomes will be delivered

5.1 Project Development and Initiation

A dedicated team of specialists will be needed to identify projects with strong potential and to undertake the preliminary investigation, design and co-ordination required to bring the best of these projects through the project development phase (see steps 1 – 6 Appendix) and into initiation of the project proper.

This initial phase might include site review, short-listing of potential locations, preliminary precinct sub-divisional or footprint design, land pricing and land acquisition negotiations. These activities would lead to full scale design management, project financial feasibility studies, project financial structuring and require the establishment of project teams and consultant relationships. The TCRP (2004, p72) study identifies the font-end planning and land assembly activities as being fundamentally important, as well as the need to free up sponsoring agencies from internal policies that limit their activities in these areas (TCRP, 2004, p55). These activities are generally extremely intensive and it is often suggested that **project development** is a distinct discipline from project management proper (the project delivery phase).

5.2 Project Delivery

The development management team should be answerable to a project director(s) who would in turn be answerable to the sponsoring organisations and major stakeholders. The project director needs to have resources at the disposal of the project team in terms of dedicated project working space (easily overlooked), financial resources, independent decision making licence, as well as support from client-side professional project staff in the fields of planning, design, engineering, construction, property analysis/finance and property marketing. These professionals will in turn require the services of highly skilled and well-resourced consulting organisations. The project team will invariably need supporting administration staff, who might be drawn part-time from the sponsoring organisation, or operating on a full-time basis where applicable. It is also likely that transit sector professionals in transport planning and strategy will be part of the project team.

It is only through the establishment and dedication of independently-resourced project teams that the TOD concept has a chance of moving from theory to project delivery in coming years – making the most of the opportunity at hand.

6 Conclusion

In this paper we have reviewed and categorised some of the major success factors for TOD. In doing so, we have suggested that the criteria for measuring the success of TOD precincts lies with their performance in terms of transit strategy, lively mixed-use environments and the integration of popular public space within the precinct.

It has been suggested that transit agencies are a leading stakeholder, and that they may be best suited to an early project championing role for TOD. The transit sector (and other stakeholders) can derive a series of benefits from TOD, including but not limited to; boosting patronage and ticket revenue, concentrating activity at key stations, assisting the longer-term evolution of urban structure and form, developing non-ticket revenue sources and delivering “value capture”.

In relation to the process of TOD project delivery, we have suggested the need for inter-agency co-ordination, as well as a requirement that key stakeholders assist in TOD delivery from within their own sphere of influence. Potential project structures have been introduced, focusing on the utilisation of a TOD Development Management Body, Special Purpose Vehicles (SPVs) and Equity Partnerships. It has been suggested that there is a major requirement for the application of advanced skills in TOD project delivery, and that real estate market performance is fundamental.

Finally, independently resourced project initiation and development management teams have been identified as a key requirement.

Queen Street Mall, Brisbane, April 2006. Photo: C Hale

Appendix – Suggested TOD Project Steps

1. Project Team Formation

Steering & working committee, project team resourcing, project development plan

2. Scoping Study

Site review, basic planning review – development potential, acquisition scoping, transit station passenger volume assessment, competitive property market positioning and review, project conceptualisation and precinct sketch layout, initial financial feasibility study, identification of alternative options.

3. Project Scope Review

Attention to: Design, revenue, cost, timing, regulatory and planning, transit evaluation. **GO or NO-GO decision.**

4. Detailed design and masterplanning

Subdivisional footprint design, building envelopes & uses, station design, public space design, conditional site acquisition, building designs where applicable, detailed financial study.

5. Consultation

Government, community, industry. **GO or NO-GO decision.**

6. Formal Project Initiation

Equity finance, site acquisition. project construction planning, tendering

7. Build

Construction contract management, property marketing, sale of some land?

8. Commissioning & Operation

Completion of marketing program, property management, ongoing life-cycle maintenance

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