

Transit Oriented Development:

When is a TOD not a TOD?

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ABSTRACT

Transit-oriented development (TOD) is becoming increasingly popular with governments, planners and developers, particularly in cities designed for and highly dependent on private vehicle travel and suffering the disadvantages of the resulting urban sprawl. In a world faced with energy, water and climate challenges, successful TODs have the potential to address pressing environmental and social issues such as environmental sustainability, housing affordability and the need for healthy, resilient and adaptable communities. This paper draws on studies of international practice, particularly in US cities comparable in density and level of car dependence to Australian cities. Major obstacles to TOD and factors which lead to optimal developments are examined, as well as the potential benefits of TOD. While TOD has drawn criticism from various quarters, this paper argues that much that has been labelled TOD is lacking in the transit focussed planning, quality and range of amenities, diversity of site use and housing as well as the ‘walkability’ needed for vibrant, sustainable communities to emerge, and hence should not be classified as TOD.

Introduction

This paper aims to assess the potential of TOD as an alternative form of development in car focused cities which are struggling with the need to adapt rapidly to the challenges of climate uncertainty and peak oil. It looks at the major drivers which have led to the rise in popularity of TOD, its potential wide-ranging benefits, the path to achieving success in the conception and implementation of such a complex undertaking and the many obstacles that may beset it. The argument is made that developments incorrectly described as TOD, which fail to include sufficient of the essential ingredients of TOD, have attracted criticism of the concept.

The paper draws on an analysis of Australian and international best practice, principally in the USA, reinforced by the author's recent experience in the USA, Germany and France, inspecting TOD sites which have achieved varying levels of success, and speaking with developers and local government representatives. The review of recent literature in the TOD field was undertaken to provide a basis for in-depth analysis of affordability and sustainability issues related to TOD. It is an early step in a larger undertaking which seeks to devise a planning framework for integrating lifetime affordable housing in compact transit-oriented locations which will become viable, liveable communities.

What is TOD and why is it popular?

While there is no single, universally accepted definition of transit-oriented development, there are several essential elements about which there is common agreement: the

development or centre will be pedestrian friendly, contain a mix of residential, commercial and other uses at higher densities, clustered around and within easy walking distance of a transit station. Commentators agree that aiming for a one size fits all definition is likely to be counter-productive. It can be argued that for a successful development to occur, all stakeholders should agree on a definition which incorporates and defines their aspirations and goals. A major report of the US Transportation Research Board observes that

TOD is viewed and defined differently throughout the country, with its most common traits being compact, mixed-use development near transit facilities and high-quality walking environments. (Cervero, 2004, S-1)

Calthorpe makes the distinction between urban and neighbourhood TODs which, according to their location within a city, size and purpose, will have different foci, needs and requirements. He suggests that the surrounding ‘secondary areas’ which support a TOD with amenities requiring lower density like schools and parks, should meet specific requirements in order to support rather than detract from the viability of the centre, such as being within cycling distance and excluding certain, often car related, uses such as ‘big box’ retail outlets (Calthorpe, 1990, p2).

As local conditions, expectations and perceptions of desirability vary markedly from one urban area to another, a productive path is for stakeholders to collaborate and develop their own definition or ‘vision’ of TOD which is appropriate for the location. For

instance, density targets which would find acceptance in a relatively compact city may prompt strong opposition if imposed on a location with a tradition of much lower density. Similarly, the juxtaposition of new and different land uses in redevelopment projects needs to be sensitive to the character of existing built form and acceptable to current residents. Cervero contends that 'standard designs, cost pro formas and building code templates need to be challenged for each and every transit-oriented project, in large part because the TOD market is not 'standard' (in Knaap et al, 2007, p 165).

The fundamental attributes of TOD have much in common with the principles of New Urbanism, Smart Growth and Growth Management. Smart Growth, for instance, is defined according to outcomes that achieve six goals including 'liveable' neighbourhoods that are safe, convenient, attractive and affordable for all people and provide access to employment and services through a range of transport options which help manage congestion, pollute less and save energy (www.smartgrowthamerica.org). However this association can be a drawback, attracting criticism directed at these sometimes contested movements (Newman, Beatley & Boyer, 2009, p97).

Dittmar and Poticha (Dittmar & Ohland, 2004) believe TOD needs to be defined in a way that requires consideration of the function and performance of entire places and systems. They also propose a performance-based definition of TOD, suggesting that the term should be reserved for projects that achieve five main outcomes: location efficiency, a rich mix of choices, value capture, place making and the resolution of the tension between transport node and place (p21). For such a definition to be useful, it needs to be

easily replicable but contextually sensitive (p20). As these goals appear in many recent analyses of and prescriptions for successful TODs, they are examined in a later section.

A focus on social and environmental goals as well as economic success is becoming a defining feature of good transit-oriented development and a significant factor in the wide appeal of such development. The Center for Livable Communities (1996) concluded that ‘Building near transit has been identified as one of the major ingredients in creating a “livable community”... ’ (p.1). A Center for Transit-Oriented Development (CTOD) study (2004) for the US Federal Transit Administration (FTA) found that over the next 25 years at least a quarter of new households could be looking for housing in transit zones, ‘a staggering figure, since only a small portion of all new housing is being built in these locations today.’ (p.7).

TOD may be seen as a contemporary iteration of an earlier, pre-car form of urban development which is common in many European and Asian cities and present in the central, older parts of most Australian cities. Australian interest in recent US reinterpretations of this more compact and varied form of development is due to the similarity of its low density, highly car dependent cities and the pressing need to tackle a similar range of social, economic and environmental challenges. In both countries these cities have exploded in physical size since the advent of widespread private motor vehicle ownership in the middle of last century and the ensuing dominance of the role of the car in urban planning.

Cervero comments on the broad appeal of this return to a more compact, varied form of development and three of the major goals it achieves:

In America, TOD resonates with the general public and often finds support across political and ideological lines. Transit-oriented housing stands as one of the most promising mechanisms for promoting multiple urban policy objectives – affordable housing construction, sprawl containment and reduced car dependence (Cervero, 2007, p165).

However a CTOD (2004) study cautions that TOD ‘is not a national panacea; it is a specific tool that requires different policies in different contexts (p34).

A significant driver in the quest for alternatives and the consequent burgeoning interest in TOD is the need for governments to protect vulnerable, low income households. The economic burden of transport on outer suburban residents is paralleled by the burden on the public purse of providing infrastructure where economies of scale are absent.

The hitherto unacknowledged environmental costs of suburban sprawl are becoming more apparent as cities encroach on agricultural land, biodiversity is lost and pollution from vehicle emissions continues to rise. In order to minimise local, regional and global environmental impacts, the Green Building movement advocates locating projects close to public transit and community amenities to reduce car dependency (Global Green USA, 2007). A more compact urban form has become desirable, as evidenced by its appearance in the strategic plans of all Australian capital cities. However, as Calthorpe

acknowledges, 'transit and infill are [not] trivial pursuits, but ...they are not and never will be the whole story.' (Calthorpe, accessed 21/1/09).

Fundamental demographic changes such as the rapid increase in the number of households and decrease in size of households have contributed to an undersupply of suitable, affordable housing which is also driving change in cities seeking a more sustainable urban form. The link between the often separate spheres of public transport and housing provision has become clear, and pursuit of a productive integration of the two, land use transport integration or LUTI, has become a priority for all state governments in Australia. The importance of this link and the need for integrated planning is amply demonstrated in the directive of the US Congress to the Department of Housing and Urban Development (HUD) and the FTA to collaborate to ensure that affordable housing is an integral part of TOD. This initiative is raised later in the paper.

When is a TOD not a TOD?

Since the relatively recent rise in popularity of the TOD concept there has been a tendency for any new development near a transit station to be labelled and marketed as TOD. Hank Dittmar, in observing that redevelopment of railway stations often utilises 'conventional single-use development patterns, with conventional parking requirements so that the development is actually transit adjacent rather than transit oriented', coined the term TAD. (Cervero, 2004, p5).

The answer therefore to the conundrum: *When is a TOD not a TOD?* is:

When it is a TAD.

At the risk of overworking the acronym, it is also possible to identify TODs that have not quite made it because they are a tad under planned, a tad under financed or a tad under inspired. Dittmar and Poticha refer to ‘a legacy of ambitious promises and naïve executions’ (2004, p20) which has led to some scepticism about the value of pursuing TOD.

A report to the US Federal Transit Administration claimed that many successful TODs are the result of ‘clever exceptionalism’, required ‘persistent advocacy and extraordinary public attention’ which has resulted in a lack of good examples to showcase, too few developers and planners with expertise in TOD and ‘too few elected officials and advocates to champion exemplary projects’ (CTOD, 2004, p.9).

Development close to transit which is not pedestrian and cyclist friendly, fails the walkability test (destinations within a 10 minute walk), does not include a rich mix of uses appropriate to the population it is supposed to serve, is not well served by feeder transit services or connected to larger regional transport networks, should not be referred to as TOD. Similarly, developments where car parking ratios for residents, shoppers and commuters remain generous, and private car use continues at former levels, will struggle to develop the sense of place and community to which genuine TOD aspires. A development which does not achieve a balance between residential and commercial uses

or utilise and expand on existing employment, facilities and social capital is likely to not meet its potential.

A highly experienced TOD developer laments that in the US there are far more TADs than TODs, the major distinction between the two being that TOD must be shaped by the transit. He asserts that in much of America TOD is 'illegal' in that local development codes do not allow for essential TOD features. Hence an essential first step in planning a TOD is to change local planning regulations (Arrington, 2005, p5-6). The inclination of developers and others to market development which more closely resembles TAD as TOD can damage the reputation of the latter.

Challenges

While TOD has far greater potential to increase transit ridership, reduce the number of car trips and lead to economically viable, vibrant and sustainable communities, its innate complexity means that it faces a host of challenges or potential obstacles. Cervero comments on potential barriers in The Odds of TODs (Knaap et al, p151-2), pointing to fiscal, political, institutional and organisational factors. While some of these challenges are generic to all dense infill development, more specific to TOD are resolving the conflict between transit node and desirable place, negotiating reduced parking formulas, resisting pressure for park and ride next to stations, meeting the challenge of timing and coordinating multiple funding sources, investors and contractors for complex, mixed use development and overcoming developer reluctance to take on potentially risky vertical mixing. Other challenges include negotiating and establishing stakeholder agreement on

outcomes, creating a supportive regulatory and policy environment and convincing investors (CTOD, 2004, p9).

Issues such as increased residential densities or changes to neighbourhood character may provoke strong opposition to a proposed development, the 'Not in My Backyard' or NIMBY reaction, unless predicted and catered for with careful education and promotion backed up by genuine and extensive community consultation processes (Rice, 2009). The consultation stage is seen by experienced developers as so vital that it warrants the engagement of top professional facilitators to run community workshops. There is a powerful case for beginning with a vision shared by all stakeholders and agreement on common goals (Dittmar & Poticha, 2004, Cervero, 2004).

Developer and builder resistance to new trends or reluctance to take on the higher building costs of taller buildings can also be an issue in cities where the concept of TOD is novel. Without statutory guidelines and strong collaboration between public and private sectors there is the potential for unbalanced development, such as a preponderance of profitable top end condominiums or the omission of important TOD design features relating to public space. Restrictive local government regulations and zoning can further complicate development. Dealing with these at an early stage gives developers certainty and confidence.

Potential benefits of TOD

Despite the many hazards to be navigated, studies of TODs deemed successful on a range of indicators by different stakeholders comment on the multiple and overlapping benefits, social and environmental, in addition to the most common measure of increased property value (CTOD, 2008).

Ranked high among social benefits is the reduction in commuting time and stress that results when transit users can depend on a high quality service characterised by frequent, dependable arrivals and departures, clean, safe and attractive carriages and an appealing station environment. However a service needs to compete favourably with the private vehicle in trip time, convenience and cost to attract a level of ridership which ensures the financial sustainability of commercial enterprises near the station. Of even greater value to TOD residents is ‘the trip not taken’, when local employment, services and facilities reduce the need to travel.

Another drawcard of a well designed TOD is the high level of amenity within a comfortable walking distance. Successful TODs integrate quality retail, community facilities and other services which ensure commuters and residents of nearby suburbs utilise local services as they walk, cycle or arrive by feeder transport. Transit riders are pedestrians as they enter and depart from stations. A well conceived station precinct not only ensures that commercial enterprises prosper but, importantly, the investment in place making attracts people and encourages them to linger, leading to a sense of familiarity, safety and engagement which helps a community to grow.

Living near good public transport can reduce the proportion of household income spent on travel which indirectly makes housing more affordable. The Housing and Transportation Affordability Index, a new information tool developed by the Brookings Institution, quantifies the impact of transportation on the affordability of housing choices in the US. Transportation costs are often underestimated or ignored, yet may increase to 25 percent of household expenditure in locations far from urban centres. The Index aims to provide consumers, policy makers, lenders and investors with the information to assess the true affordability of a neighbourhood (CTOD and Center for Neighborhood Technology, 2006, pp1-2).

Dodson & Sipe's vulnerability index of Australian cities, VAMPIRE (vulnerability assessment for mortgage, petroleum and inflation risks and expenditure) indicates where, in the interests of equity, priorities for new suburban public transport services lie.

Modest extensions to existing suburban rail networks combined with comprehensively planned and high quality local suburban bus services would be a cheaper and more sustainable option for redressing suburban oil vulnerability than costly underground inner city services (Dodson & Sipe, 2008, p40).

Living close to transit is a logical choice for people on low incomes, those who cannot drive or cannot afford a car, such as the elderly, students and immigrants, people with disabilities and families requiring social housing and support services. The value to these different groups increases when a development also offers employment opportunities and

contains essential facilities such as medical and dental clinics, schools and day care, with easy connections to specialist services and government agencies at linked centres. While it takes greater forethought, consultation and collaboration between the public and private sector to implement, it is feasible to integrate affordable, suitable and desirable housing for people in lower income groups in TODs without creating pockets of disadvantage. Practices such as building a range of housing sizes, ensuring different tenures, building energy and water efficient dwellings that lower utility costs long term and making garaging optional through 'unbundling' increase the housing options for people on lower incomes, and consequently increase social diversity and equity. However, a 2009 report on recent collaboration between US federal housing and transport departments reinforces this author's finding that there is little research that specifically links TOD to affordable housing (US Government Accountability Office, 2009, p50).

Diversity in housing is important in allowing people to remain within the same location at different life stages, the expectation of which leads to greater personal investment in a community. With good design, smaller dwellings for singles of all ages and couples without children, who make up approximately 40 per cent of households, can be co-located with larger dwellings for families with children in a more compact development.

TOD based on urban infill principles, using grey or brownfield sites, particularly along transit corridors, can contribute enormously to the revitalisation of declining urban centres. Additional time and costs associated with the clearing and remediation of polluted sites, land acquisition and assembly of land packages is offset to varying degrees

by the fact that much of the necessary infrastructure, including the transit corridor, is already in place. Most Australian cities have large areas of former industrial land relatively close to the CBD and generally adjacent to rail corridors, parks or vacant land. There are advantages to existing residents in economically depressed areas when redevelopment attracts new era employment opportunities but the challenge to retain affordable housing must be met.

The scope for environmental benefits provided or enhanced by TOD is the subject of considerable debate, focussed on the likelihood or otherwise of increased settlement densities leading to a reduction in vehicle emissions compared with traditional low density suburbia. A much quoted Australian critic of increased density in urban areas has concluded that there is not strong evidence that increasing density necessarily leads to increased public transport usage (Troy, 2004, p9). However US studies indicate that residents of TOD are more likely to use public transport for journeys to and from work and that, allowing for socio-economic differences, they drive significantly less than residents in less compact suburbs. This issue has been subjected to more than 100 rigorous empirical studies, a meta-analysis of which indicates that

People living in places with twice the density, diversity of uses, accessible destinations, and interconnected streets drive about a third less than otherwise comparable residents of low-density sprawl. (Urban Land Institute, 2009, p6).

Much of the debate about the environmental benefits or otherwise of higher density development predates the 2006 release of the Stern Report and Al Gore's An

Inconvenient Truth, milestones in rapidly changing public perceptions of the sustainability of current consumption of land, fossil fuels and other resources. Housing preferences do change. The increased property values that follow the development of higher density, amenity rich locations focussed on transit nodes are an indication of its market appeal to a significant and expanding demographic. Consumer preference surveys conducted in the US indicate that one third of respondents prefer 'smart growth' products. If shorter commuting time is included, this kind of housing appeals to another quarter of the market (Urban Land Institute, 2009, p6).

Higher density development focussed within walking distance of a transit station reduces the demand for greenfield sites on peri-urban agricultural land which is then lost for food production. Importantly, increased density at transit hubs also reduces the pressure for redevelopment of mature low density suburbs, large tracts of which will remain for those who prefer this form of housing (Gleeson, Troy). Provision of good feeder services ensures that those who live further from transit nodes can still access the benefits of TOD and reduce their dependency on cars.

A reduction in the number of private vehicles used for daily commuting impacts positively on urban air and water pollution levels, as well as reducing road traffic congestion. While many TOD residents will retain a car, they do not experience the total reliance on private vehicles which can force residents of transit-deprived outer suburbs to run two or more vehicles to manage lengthy cross-suburban journeys to work and other destinations. For people living in poverty owning a single car can be out of reach, while

the cost of running a second car can mean the difference between renting and homeownership for many middle income households (Dittmar & Poticha, 2004, p22). Clearly the ‘triple bottom line’ disadvantages of car dependency will continue to drive the quest for alternatives.

Provided that a TOD is well planned, the increased density of dwellings per hectare can be achieved without unnecessarily high rise development. Building up reduces the footprint of buildings which should allow generous public open space. However, mandates for minimum areas of open space are important to ensure the attractiveness of the site, to provide for healthy activity and the essential human need for connection to the natural world, and to preserve biodiversity in urban areas. Many households will forego the responsibility of private outdoor space if they have ready access to parks, playing fields, community gardens and wild spaces. Compromise needs to be sought in establishing building heights which yield attractive returns to developers yet are still of a scale to gain acceptance by residents, particularly in cities with a tradition of low density development.

There are economic benefits for a wide range of stakeholders involved in TOD, both public and private. Dittmar and Poticha refer to this as value capture, although the term does not have a purely financial meaning.

Capturing value, accrued either to the household or to the community, should be a key objective of TOD, thus allowing individuals to lead affordable lifestyles and

letting communities reinvest the profits derived from their good work (Dittmar & Ohland, 2004, p26).

Some developers have been quick to note the good return on their investment in TOD, although generally the wide range of expertise, experience and access to funding required for such complex, large scale, long term investment favours large companies. Interviews with 35 developers involved with TOD projects in the US indicated that ‘developers have a positive view of TOD as a viable and growing market niche’, giving its financial record a rating of 5 on a scale of 1 to 7 (Cervero et al, 2004, p96). A study for the FTA by the Center for TOD estimated a significant demand for TOD in the next 25 years, their market assessment indicating that over a quarter of all new households could be looking for housing near transit (Arrington, 2004, p10).

Savings to governments may accrue through the ability to apply various forms of leverage, the formation of strong public-private partnerships and the sharing of risk. Use of brownfield sites for infill development, where there is extra capacity within existing infrastructure, can result in significant savings compared with providing new infrastructure to widely dispersed settlements. Putting in light rail, a major expense for state governments in Australia which does not share the US tradition of privately funded rail, demonstrates long term commitment to a project and generally attracts associated investment more readily than public transport based on buses, although guided busways and bus only lanes on roads with good amenities at stops can be reasonable and cheaper alternatives where projected ridership is not huge.

The financial benefit to households of fewer car journeys or lower levels of car ownership resulting from close proximity to good transit has been discussed. Property owners benefit as values inevitably increase in response to the concentration of amenities in a well planned TOD. This trend is so ubiquitous within successful TODS that the challenge for governments is keeping rents in the private rental market affordable for lower income households.

Achieving TOD potential

In 2004, the US government funded Center for TOD analysed the first generation of TOD projects in order to extract the lessons learned, resulting in the edited book, *The New Transit Town: Best Practices in Transit-Oriented Development*. This fundamental 'How to do it' manual has gained widespread popularity among TOD commentators and practitioners. In the book, Dittmar & Poticha elaborate on the five essential elements of TOD, which they believe dovetail with numerous 'livability indexes' – location efficiency, a rich mix of choices, value capture, place making and resolution of the tension between node and place (p21).

Location efficiency, or the conscious placement of homes in proximity to transit, is considered crucial to building a region which is both efficient and equitable. A commitment to providing high-quality affordable housing in TOD projects seems to be particularly important (p25). Three key elements to ensuring location efficiency are

density, to provide sufficient customers for the transit, *a central location for the transit stop* to ensure accessibility and *pedestrian friendliness*.

A rich mix of choices is required to ensure housing for different life stages and more mobility and shopping options than conventional development, as well as job opportunities to allow people to live close to work.

The benefits of value capture for governments, developers, property owners and residents have been discussed. It is important to note that value capture is unlikely to occur for all stakeholders unless strong partnerships between public and private sector interests are forged. The opportunity for reduced expenditure on transportation and wealth capture through home ownership are particularly significant for residents on modest incomes. Studies have demonstrated that ‘proximity to transit tends to increase the value of a home, while proximity to a highway tends to decrease its value’ (Cervero & Duncan, 2002, seen in Dittmar & Poticha, 2004,p28).

The importance of investing in a quality public environment can not be underestimated. Dittmarr & Poticha suggest that ‘place making may be as important a factor in the success of TOD as access to transit.’ (p21). While neglect of the pedestrian environment was seen as one of the main limitations of early TODs, more recent developments provide excellent examples of ‘walkability’, a characteristic that assists in building a sense of community or social capital, which is closely linked to physical and mental wellbeing (Jacobs, 1964, Frumkin et al, 2004, Calthorpe & Fulton, 2001).

A host of planning strategies and design principles have been demonstrated to ensure the pedestrian focus of a TOD: putting retail at ground floor, avoiding building setbacks, blank walls and parking lots, ensuring destinations that attract people throughout the day, making footpaths wide enough for social use, keeping block lengths short and streets easy to cross, building internal pedestrian plazas, installing bike lanes with buffering from cars and car parking, undertaking green landscaping with large trees, providing shelter from sun and rain as well as good wayfinding information, attractive seating, street furniture and lighting, and meeting the needs of disabled travellers (Burden, 2001, Charlier et al, 2002, Renne & Porta, 2005, Liedstrand, 2006).

The tension between node and place refers to a station's dual role as a node in a regional transportation system and its role as a neighbourhood. The key to balancing the development mix is in understanding the station's role in the transit network and metropolitan economy. Stations in predominantly residential neighbourhoods will require a different mix of uses from those that are at transit interchanges or major employment centres (Curtis, 2005). The imperative for successful TOD of any size or location remains ensuring the walker has precedence.

Achieving these five essential elements is an enormously complex undertaking. Newman and Cervero (draft paper, 2008) describe a planning framework they see as an essential underpinning to successful TOD. This includes a policy framework which determines where centres need to occur, another policy framework to link centres with rapid transit, a

statutory planning base requiring development to occur at the 'necessary' density and design at each centre so that it is viable, and a public-private funding mechanism for transit provision or refurbishment. The great value of a statutory underpinning to TOD is the certainty it provides for developers, investors and local governments. Private sector involvement in rail development may help ensure successful integration with land use via profitable associated projects that help pay for the transit infrastructure.

One of the greatest opportunities but also one of the great challenges of TOD is its potential to provide housing for households on less than the median income. While the logic of locating those most dependent on public transport close to stations with enhanced amenities is obvious, rising land values can squeeze out lower income households from both private rental and home ownership unless governments intervene. Understandably, developers have a predilection for profitable luxury apartments rather than low cost housing. One of Australia's best known examples of TOD, Subiaco in Perth, is not famous for its affordable housing options. In California, a state-wide mandate prevents subsidies to non-profit developers being spent on affordable housing unless it is located close to transit, leading to extensive partnerships with transit agencies (Renne, 2005, p39). It is also important that ways are devised and implemented to control or subsidise rents and to assist lower income earners achieve home ownership.

In 2007 the US Congress directed its departments of housing and transport (HUD and FTA) to collaborate to 'better coordinate public transportation and housing policies and programs', noting that 'the preservation of affordable housing should become an integral

part of transit-oriented development policies'. HUD and FTA were tasked with developing a best practices manual to assist communities to establish mixed-income transit-oriented development, to be published in 2009. Additionally, an Interagency Working Group was established to coordinate activities between the two agencies and identify other opportunities for promoting collaboration between housing and transit providers. While a September 2009 (GAO, 2009) report indicates that some enhancement is still needed, these initiatives should ensure a place for affordable housing within TOD and produce some exciting outcomes which hopefully will translate to the Australian scene.

Conclusions

Despite the increasing popularity of TOD, and the proliferation of guidelines on its implementation, many new and proposed developments have not and will not achieve their potential. The reasons can be many and complex, but four factors appear responsible for most failures: the developments are only TADs not TODs, the power of public-private partnerships was not invoked, genuine community consultation was not sought or acted on and there was insufficient focus on and investment in place making.

As we have seen, TAD fails because it does not make the transit station the point of focus and generally allows car access to dominate over transit, walking and cycling. Without strong collaboration between public and private sectors, a development may struggle with big picture regulatory and financial issues or a lack of inter-disciplinary planning experience and expertise.

Another stumbling block can be the failure to take seriously the processes of community consultation and achieving a shared vision. This process has proven to be critical to avoiding both costly delays due to organised resistance as well as conceptual mistakes. In redeveloping an existing neighbourhood, importance must be placed on valuing the cultural heritage, respecting the rights and aspirations of existing residents and achieving an appropriate balance in the mix and staging of residential, commercial and community uses.

Above all, TOD fails if there is not sufficient funding and long-term commitment to place making, creating destinations that people of diverse backgrounds want to visit as well as attractive communities to live in. Excellent attention to detail in public realm design such as the landscaping and street furniture that may be seen in European and US TODs can help compensate for shortcomings such as incorrect parking formulas.

Although some early TODs have had a patchy start and attracted criticism for their shortcomings, the concept appears to be gaining rapidly in popularity as its manifestation gains in competence and complexity. The challenges are many in creating a successful TOD but the rewards for creating great places to live and work would appear to be commensurate.

Endnotes

Smart Growth America

This is an umbrella organisation for a coalition of organisations which advocate community reinvestment, farmland preservation, affordable housing, transportation reform and environmental preservation (www.smartgrowthamerica.org). Smart Growth is defined according to outcomes that achieve six goals including ‘liveable’ neighbourhoods that are safe, convenient, attractive and affordable for all people, access to employment and services through a range of transport options which help manage congestion, pollute less and save energy, investment in existing communities and their heritage, sharing of the benefits of increasing prosperity, lower costs for infrastructure provision and household transport, and preservation of open space ‘from forests and farms to wetlands and wildlife’

Reconnecting America

This is a national non-profit organization working to better integrate transportation systems into communities with the goal of creating and capturing value. It provides both the public and private sectors with an impartial, fact-based perspective on development-oriented transit and transit-oriented development

Center for Transit-Oriented Development (CTOD)

The main program of Reconnecting America, CTOD is the only national nonprofit effort dedicated to providing best practices, research and tools to support market-based transit-oriented development. It focuses on using transit investments to improve housing affordability and choice, revitalize neighbourhoods and provide for value capture. CTOD is funded by the US government, serving as a national clearinghouse for best practices in TOD and helping to develop standards for TOD. (www.reconnectingamerica.org/public/tod)

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