

# ***TRANSIT-ORIENTED DEVELOPMENT IN WESTERN AUSTRALIA:***

*ATTITUDES, OBSTACLES AND OPPORTUNITIES*



**Planning and Transport Research Centre**

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John Luciano Renne  
Visiting Research Associate  
[j.renne@murdoch.edu.au](mailto:j.renne@murdoch.edu.au)

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## Executive Summary

Perth's *Network City: community planning strategy for Perth and Peel* (2004) calls for 60 per cent of urban infill development to accommodate a growing population over the next few decades. Transit-oriented development (TOD) provides the possibility for this growth to occur in a more sustainable manner compared to past development patterns. TOD is a strategy that encourages mixed-use and compact development around public transport nodes. It aims to reduce automobile dependence, encourage economic development, and increase housing and lifestyle choice.

The State Government of Western Australia has created the TOD Committee, a cross-agency partnership chaired by the Department for Planning and Infrastructure. It includes representatives of the Public Transport Authority, Transperth, the Department of Housing and Works, Main Roads WA, LandCorp, the redevelopment authorities and the Western Australian Local Government Association.

To assist the TOD Committee, this study gauges current attitudes, obstacles and opportunities for TOD in Western Australia. It builds on *Hope for the Future: The Western Australian State Sustainability Strategy* (2003) and *Network City*.

The study included a local government survey of head planners at all 24 local governments with rail stations to understand opinions on:

- The importance of TOD in achieving various goals
- The importance of planning tools in TODs
- The importance of specific land uses and design elements in TODs
- Impediments to TOD
- Views on TOD implementation
- Indicators for measuring the performance of TODs

The survey found that increasing transit ridership, spurring economic development and increasing housing choice were the most important goals of local government planners in Perth. The largest impediment reported was a lack of collaboration among governments and agencies. This indicates that more work is needed to bridge the gap between state government policy and local planning. Respondents felt that different implementation strategies were appropriate for different situations, but that the State Government should play a role in getting TODs built.

In addition to the local government survey, 37 interviews were held with public and private sector stakeholders. While the findings suggest the market for TOD is strong and growing, one of the biggest obstacles for the private sector is that every new TOD is like reinventing the wheel. Developers experience longer-than-usual delays through the development approval process compared to typical suburban developments. A lack of awareness and training among public employees responsible for various aspects of implementation is also a problem. This report discusses a number of other obstacles ascertained through the interviews.

Finally, this report recommends ten initiatives to strengthen TOD policy and implementation in Perth. The policy implications and recommendations section contains details on the following strategies:

1. Better marketing and branding for transit-oriented development
2. A central transport and land use strategy with targets
3. A TOD Code to guide the statutory planning process in TODs, including parking policy
4. Community participation in local visioning processes and the streamlining of development applications where they conform with the local TOD vision
5. Local and state government partnerships for implementation
6. A financing strategy, including an income stream to assist transit investment and land assembly
7. State government facilitation of TOD education
8. A plan for affordable housing
9. Linking TOD to the development of new education, health and other public buildings
10. A plan for tracking TOD outcomes.

# Introduction

Transit-oriented development (TOD) aims to concentrate jobs, housing, services and amenities around major transit facilities, especially rail stations. TOD is a strategy for reducing automobile dependence while encouraging sustainability.

*Hope for the Future: The Western Australian State Sustainability Strategy (2003)*<sup>1</sup> discusses the need to manage urban and regional growth, revitalising declining centres and suburbs, and integrating land use with balanced transport. The strategy encourages sustainable urban design based on the following principles:

- Incorporate collaboration in project planning and delivery
- Promote urban structures that support and integrate economic, social and environmental sustainability
- Foster community and local identity and character
- Integrate, connect and maximise access for all users
- Design for legibility, and local character and identity
- Provide diversity, choice and variety
- Respond appropriately to environmental features to create a sense of place
- Design for surveillance and safety

TOD is an example of the second of these principles. It promotes economic development, social diversity and environmental stewardship. The State Government of Western Australia also encourages TOD in *Network City: community planning strategy for Perth and Peel (2004)*.<sup>2</sup>

Because the Perth metropolitan region is expected to grow from 1.46 million in 2001 to about 2.22 million by 2031, TOD is seen as a key factor in managing urban growth. The *Network City* strategy was based on an extensive community outreach effort (called 'Dialogue with the City'). This consultation found that Perth residents wanted a future characterised by the following:

- A safe, vibrant city that is creative, diverse, harmonious and with accessible facilities for all
- A sustainable city which is future focussed, has quality of life and is capable of taking brave decisions
- An environment which is protected and enhanced, lets the public enjoy nature, is properly managed and has clean air and water

- The control of urban sprawl through more urban villages, mixing of uses, the creation of local identity and a sense of place
- A lifestyle which is friendly and casual, creative and set in a 'liveable, loveable, likable city'
- Housing which offers choice and diversity, yet remains affordable
- The valuing of Indigenous heritage and respect for all cultures, in a city for our children

The priority strategies of the *Network City* Action Plan seek to foster land use and transport integration to form a *Network City*, that is, a city based on a series of interconnected TODs. The plan seeks to limit urban sprawl by providing 60 per cent of required additional dwellings in existing urban areas and 40 per cent in new growth areas. It is recognised that to achieve this goal, a whole-of-government approach will be required, including partnerships between the State Government and local government to set and achieve targets. The plan must also set priority strategies for urban development, the economy and employment, environment and heritage, transport and infrastructure.

The report presented here captures the status of attitudes, obstacles and opportunities for TOD in Western Australia. Research for this project was completed by the Planning and Transport Research Centre (PATREC) of Western Australia from August 2004 to June 2005. The goal of this study, along with PATREC's international conference on TOD in Fremantle on 5–8 July 2005 (*TOD: Making It Happen*), is to better understand the benefits of and obstacles to TOD. PATREC works closely with the State Government's TOD Committee (chaired by Dr Mike Mouritz, Executive Director of Urban Policy in the Department for Planning and Infrastructure) to provide research that better informs public policy.

This study included a survey of head planners in all 24 local government authorities with rail stations to understand their opinions on TOD. Personal interviews were also conducted with 37 TOD stakeholders from the public and private sectors. This included private sector developers, state government employees, private sector consultants, redevelopment authorities and local officials.

Today, two of the largest obstacles to TOD are local resistance to higher densities around train stations in Perth's western suburbs and the lack of experience with compact development in the eastern suburbs; that is developers may fear investing in medium and high-density projects in these locations because the market for such a product is still unknown. TOD is also constrained because of a focus on park and ride facilities at the stations along the northern railway line and most future stations along the southwest rail line.



If the Perth and Peel regions are to achieve the goals stated in the *State Sustainability Strategy* and the *Network City* strategy, they must begin to better utilise the land around the public transport system, especially the rail system. This report is a step towards better understanding how TOD can help to realise the goal of 60 per cent infill development over the next 30 years.

The next section summarises TOD policy in Western Australia. This is followed by an outline of the study's research objectives and methods, a summation of the results of a local government survey about TOD attitudes, and a section that discusses the stakeholder interviews. The latter section not only encapsulates current attitudes but also identifies obstacles. Finally, the policy implications and recommendations section looks at opportunities for the future of TOD in Western Australia.



# Background of TOD Policy in Western Australia

## TRANSIT-ORIENTED VERSUS TRANSIT-ADJACENT DEVELOPMENT

Before summarising TOD policy in Western Australia, it is important to clearly define TOD. Two major research organisations, the Brookings Institution<sup>3</sup> and the Transit Cooperative Research Program<sup>4</sup>, recently released reports that acknowledged the difference between ‘transit-oriented development’ (TOD) and ‘transit-adjacent development’ (TAD). A TAD is “development that is physically near transit [but] fails to capitalize upon this proximity... [it] lacks any functional connectivity to transit – whether in terms of land-use composition, means of station access, or site design.”<sup>5</sup> A real TOD must seek to provide mixed uses in a compact, walkable environment. Calthorpe (1993) defined a TOD as:

“a mixed-use community within ... walking distance of a transit stop and a core commercial area. TODs mix residential, retail, office, open space and public uses in a walkable environment, making it convenient for residents and employees to travel by transit, bicycle, foot or car.”<sup>6</sup>

Others also have defined transit-oriented development. A study for the Transit Cooperative Research Program (TCRP) by Cervero, Ferrell and Murphy (2002) synthesised many sources to show the common elements of many definitions: A TOD is usually mixed-use, close to and well-served by transit, and conducive to transit riding. Furthermore, the study’s report stated, “Less universally subscribed to, though found in some definitions of TOD, are the following traits: compactness, pedestrian- and cycle-friendly environs, public and civic spaces near stations, [and] stations as community hubs.”<sup>7</sup>

*The New Transit Town* proposed a performance-based definition of TOD, which should meet five main goals: location efficiency, a rich mix of choices, value capture, place making, and resolution of the tension between node and place. Location efficiency comprises density, transit accessibility and pedestrian friendliness.<sup>8</sup> A rich mix of choices refers to people’s ability to have not only transport alternatives but also choice in housing, retail and employment. Value capture relates to household and community cost savings associated with transit use which is less expensive than automobile use. Place making is the ability for TOD to create attractive, pedestrian-friendly neighbourhoods replete with high-quality civic spaces, similar to many European cities. Last, “[TOD] involves the tension that exists between the role of a transit station as a ‘node’ in a regional transportation network and the station’s role as a ‘place’ in a neighbourhood.”<sup>9</sup> While the authors did not specify how to

measure each aspect, they gave examples of how to use this performance-based definition to understand more clearly the differences between TODs and TADs.

Confusion in the literature has also stemmed from the term 'TOD'. What some have called a TOD, others have referred to as a 'transit village', 'transit-focused development', 'transit-friendly development', or 'development around transit'. "Regardless of what development around transit is called, however, the desired outcome is the same: successful development, growing transit-ridership, and livable communities."<sup>10</sup>

## **TOD POLICY IN WESTERN AUSTRALIA**

Town planning in Western Australia comprises strategic and statutory planning. Discussed above, the *Network City: community planning strategy for Perth and Peel* sets the strategic vision for the region. Also dealing with strategic planning, the TOD Committee, formed in 2004, is chaired by the Department for Planning and Infrastructure (DPI) and has members representing the Public Transport Authority (PTA), Transperth, the Department of Housing and Works, Main Roads WA, the Midland Redevelopment Authority, the East Perth Redevelopment Authority, LandCorp and the Western Australian Local Government Association. This cross-portfolio group replaced the Urban Rail Station Redevelopment Coordinating Committee, formed at the request of the Minister for Planning and Infrastructure in 2001. The role of the earlier committee was to provide a planning context for the PTA's Building Better Stations capital works program. Since inception, the TOD Committee has:

- Reviewed the TOD potential of every station on the network (including major bus-only centres) and prioritised TOD activity in accordance with the following six criteria:
  1. Strategic significance of location, eg metro centres, university, hospital, recreation site
  2. Potential for maximising ridership, through increased catchment of residential, business or park and ride
  3. Infrastructure need, eg station, or road upgrades
  4. Potential for socioeconomic benefit (community activity, public safety, jobs, amenity etc.)
  5. Partnership potential, eg local government or private sector willingness
  6. Development opportunities, eg significant public or private land parcels adjacent and potential number of dwellings
- Established joint priorities across the portfolio (and other parts of government) for infrastructure investment and TOD development

- Formed a close association with PATREC to research and measure the effectiveness of TOD initiatives
- Instigated a program to regularly review these priorities and to refine the selection criteria and future success measures (in association with PATREC)
- Identified or acquired land through the Western Australian Planning Commission (WAPC) to protect future TOD opportunities particularly around the new South West Metro rail line
- Commenced a review of Development Control Policy DC 1.6 – *Planning to Support Transit Use and Transit Oriented Development*
- Commenced development of a model implementation strategy for TOD in Perth
- With PATREC, instigated the international TOD conference held in Fremantle on 5-8 July 2005

As part of its strategic planning, the WAPC encourages TOD through a Development Control Policy DC 1.6 – *Planning to Support Transit Use and Transit Oriented Development* (as noted above, the TOD Committee is currently reviewing and updating this policy). DC 1.6 has the following objectives:

- To promote public transport as an alternative to car travel and enhance mobility in the community, particularly for those who do not have access to a car
- To ensure the optimum use of land close to railway stations, bus terminals, transport interchanges and corridors containing frequent public transport services for residential, commercial and other intensive uses
- To maximise accessibility to rail and other public transport services, in particular high frequency bus routes
- To maximise accessibility by rail and other public transport to a range of work, shopping and other urban activities
- To facilitate safe pedestrian and cycle access to and from public transport services and a range of activities focussed around them
- To promote the development of a more sustainable urban form
- To promote designs for public transport that minimise any adverse impact on local amenity arising from public transport operations
- To ensure adequate consideration is given to public transport access by planning authorities, consultants and developers

With respect to TOD, DC 1.6 is one of the most innovative policies ever written across Australia and the United States. It spells out, albeit in general terms, the need for local

government to plan for high-density and mixed-use development around major transport nodes.

DC 1.6 encourages mixed land uses within strategic regional centres, especially major office development, major retail facilities, high-density housing, sporting stadiums and major entertainment venues. It also encourages increased residential densities and commercial and mixed uses within the TOD precinct of all major public transport infrastructure nodes. It specifies that medium- to high-density residential development should accommodate groups that are dependent on public transport, such as the aged, the socioeconomically disadvantaged, and those with disabilities. The policy also encourages uses that allow for retail and office space, and recreational, educational and entertainment activities within transit precincts or TODs. The policy specifies against low intensity commercial uses, such as showrooms and warehouses, low-density residential, public utilities and drainage reserves, and large areas of undeveloped public open space in areas where TOD would be appropriate.

DC 1.6 specifically calls for higher residential densities and reduced car parking provisions in town planning schemes,<sup>11</sup> to encourage walking, cycling and use of public transport. It recommends the implementation of TOD through the update of town planning schemes. Local governments are required to update their town planning scheme once every five years, and through this process the WAPC, which uses DC 1.6 to guide its decisions, may encourage them to plan for higher-density and mixed-use development. DC 1.6 also calls for a pedestrian-friendly, attractive urban environment with safe streets that have buildings up to footpaths, good footpath design, and safe at-grade pedestrian crossings. DC 1.6 also encourages the adoption of design standards in which the built environment contains shade trees, verandas and pedestrian amenities. Street networks should be interconnected and accessible within TODs and include a number of 'destinations' such as cafés and neighbourhood centres.<sup>1</sup>

In addition to DC 1.6, a number of other policies also encourage the integration of land use and transport planning with the aim of achieving more compact and mixed-use development in Western Australia. The Metropolitan Region Scheme (MRS) identifies reserves for future rights-of-way. The Metropolitan Centres policy identifies a hierarchy of locations for retail and commercial development at regional and district centres. The DPI is also currently working on an integrated land use and transport policy, which should be released within the next year.

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<sup>1</sup> There is a common view that DC 1.6 is not enforceable, however, a 2004 town planning appeal used it to provide a basis for rejecting a development proposed in Rockingham. Local and State Government (especially the TOD Committee) need a better understanding how to use current planning tools to encourage TOD.

Carey Curtis (1999)<sup>12</sup> concluded that Western Australia has innovative policies that work towards an integrated land use and transport system, but that these were not supported by a uniform policy described in a central document. It could be argued that the *Network City* is attempting to achieve this, but until a plan for implementation is released, this will remain uncertain.

The problem for TOD in 2005 is the same problem that Curtis identified in 1999: “there appears to be a misalignment between strategies and actions, with little evidence of implementation that achieves balanced transport outcomes.”<sup>13</sup> The successes of redevelopment authorities in places like Midland and Subiaco unfortunately affect only a small percentage of new development, most of which is low-density and automobile dependent. While Perth has had a history of planning, much of it has perpetuated a car culture. The *Network City’s* goal of 60 per cent infill development over the next 30 years will require substantial cooperation among the State Government, local government, the community and the private sector if TOD is to become more than a niche development product.





## Research Objectives and Methods

The purpose of this study was to understand attitudes to TOD by selected key stakeholders in Western Australia. A local government survey and interviews with stakeholders helped to define obstacles and opportunities. By better understanding current views on TOD across Perth, the State Government's TOD Committee can better formulate policy to overcome barriers.

A local government survey and stakeholder interviews were the two research methods used in this study. Conducted in March and April 2005, the local government TOD survey questioned each council's head planner, who received an invitation to complete an online questionnaire on behalf of the council. The sample of 24 local governments included all cities and towns with commuter rail stations in Perth and Peel. The response rate for the survey was 100 per cent.

Several members of the TOD Committee assisted with the development of the questionnaire, and a workshop at Murdoch University in February 2005 provided additional input from local government, State Government, redevelopment authorities, academics and other professionals. Finally, a pilot test helped in refining the questionnaire before planners filled out the final version.

From February to June 2005 interviews were conducted with 37 TOD stakeholders from the private sector, planning consultants, non-profit planning organisations (eg Planning Institute of Australia and the Urban Design Centre of Western Australia) and government (including State Government, local government and redevelopment authorities). The purpose of the interviews was to determine attitudes, obstacles and opportunities for TOD in Western Australia. Each interview lasted approximately one hour and was relatively unstructured. Interviewees were asked about their opinions on the status of TOD in Western Australia, obstacles to TOD, and their recommendations for improving policies. To respect the confidentiality of the interviewees, this report provides a summary of the findings without specific reference to individuals.



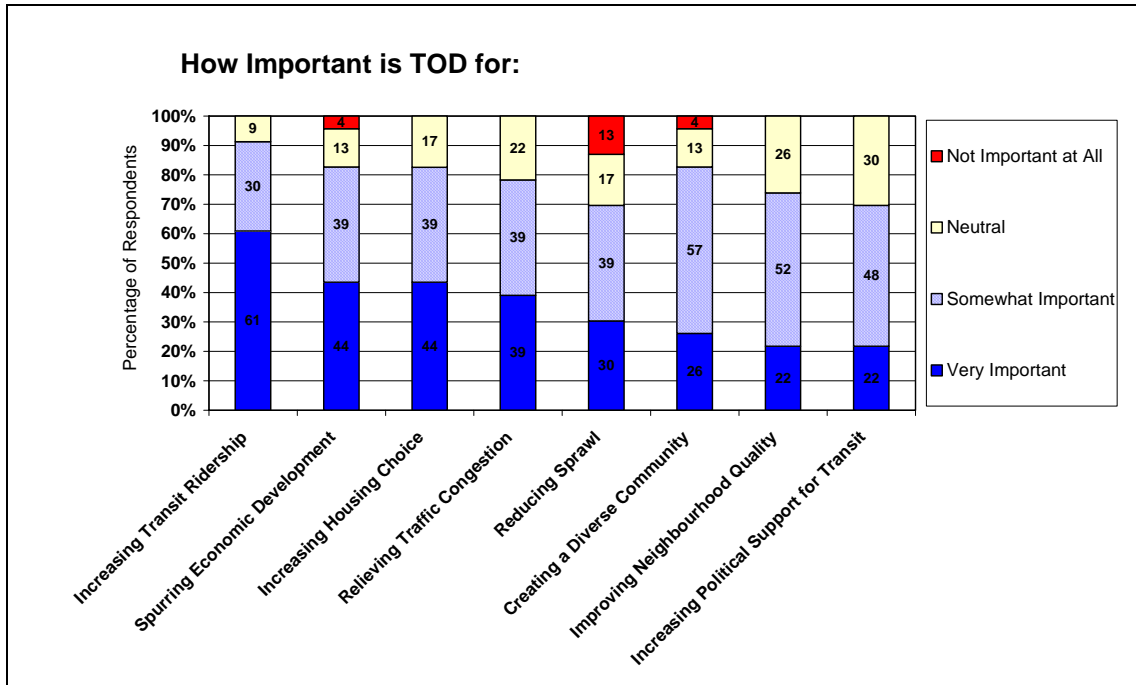
## Results of Local Government Survey <sup>14</sup>

This section summarises the results of a local government survey on TOD conducted in March and April 2005. The survey asked a variety of questions about the importance of TOD in achieving various goals, the importance of planning tools, the importance of specific land uses and design elements, impediments, views on implementation, and the importance of indicators in tracking TOD outcomes.

### TOD GOALS

The survey confirmed that planners across Perth agree on the benefits of TOD. Figure 1 shows that more than 60 per cent of respondents felt that TOD was very important to increasing transit ridership. Forty-four per cent reported that TOD was very important to increasing housing choice and spurring economic development, and 39 per cent reported that it was very important to relieving traffic congestion. For all benefit categories specified on the questionnaire, at least two-thirds of planners reported that TOD was at least 'somewhat important'. Only a minority of respondents felt that TOD was not important at all to reducing sprawl, spurring economic development and creating a diverse community.

**Figure 1: The Importance of TOD to Specified Goals**



## **LOCAL TOD POLICIES**

Land use planning is typically a responsibility of local government. In the United States TOD has mostly been a result of TOD policies at the municipal level. The planning system in Western Australia allows local governments to amend town planning schemes to encourage mixed use and higher densities around transit nodes. However, the initiative in TOD planning and implementation in Western Australia has been taken by the State Government. Councils often ignore TOD opportunities around rail stations because it is perceived that residents typically fear higher densities. This has been especially strong in the western suburbs along the Fremantle rail line. The Town of Kwinana was the only local government area that reported having a specific policy for TOD. This does not necessarily mean that other local governments ignore the integration of land use and transportation in promoting sustainability, but with respect to TOD it may reflect an attitude by local councils to leave TOD planning as a responsibility of the State Government.

## **IMPEDIMENTS TO TOD**

The local government survey asked a number of questions to understand impediments to TOD. Surprisingly, the highest rated impediment was a lack of collaboration among governments and agencies (see Table 1). In a separate question, planners were asked if they agreed that more cooperation was needed between the State Government and local government. Sixty-seven per cent 'strongly agreed' and an additional 25 per cent 'agreed' that more cooperation was needed. Over the past few years, the TOD Committee has facilitated policy and planning among state government agencies, but the survey clearly showed that planners do not feel that local governments are a substantial partner. Without State and local collaboration, TOD will remain confined to examples where the State actively facilitates TOD, for example where there are redevelopment authorities.

The only other major obstacle found was the predominance of automobile-oriented land uses. Most of the other impediments, including community opposition, inadequate transit service, the location of transit stations, local zoning restrictions, a lack of market demand (including developer and investor interest), commuter parking and lack of political support showed mixed results.

Most likely, different places face different obstacles. Impediments are also likely to change over time. Finally, this survey found that scepticism about TOD and the lack of local expertise in planning or implementation were not major issues inhibiting TOD.

**Table 1: Impediments to TOD**

<b>Impediment</b>	<b>Percentage of Respondents Who Rated Item as a Major Impediment</b>
Lack of collaboration among governments and agencies	71
Predominance of auto-oriented land uses	63
Community opposition	54
Inadequate transit service	54
Location of transit stations	54
Lack of developer interest	50
Local zoning restrictions	46
Lack of market demand	38
Lack of lender/investor interest and support	38
Commuter parking	38
Lack of political support	33
Scepticism among local governments	21
Lack of local expertise in TOD planning or implementation	13

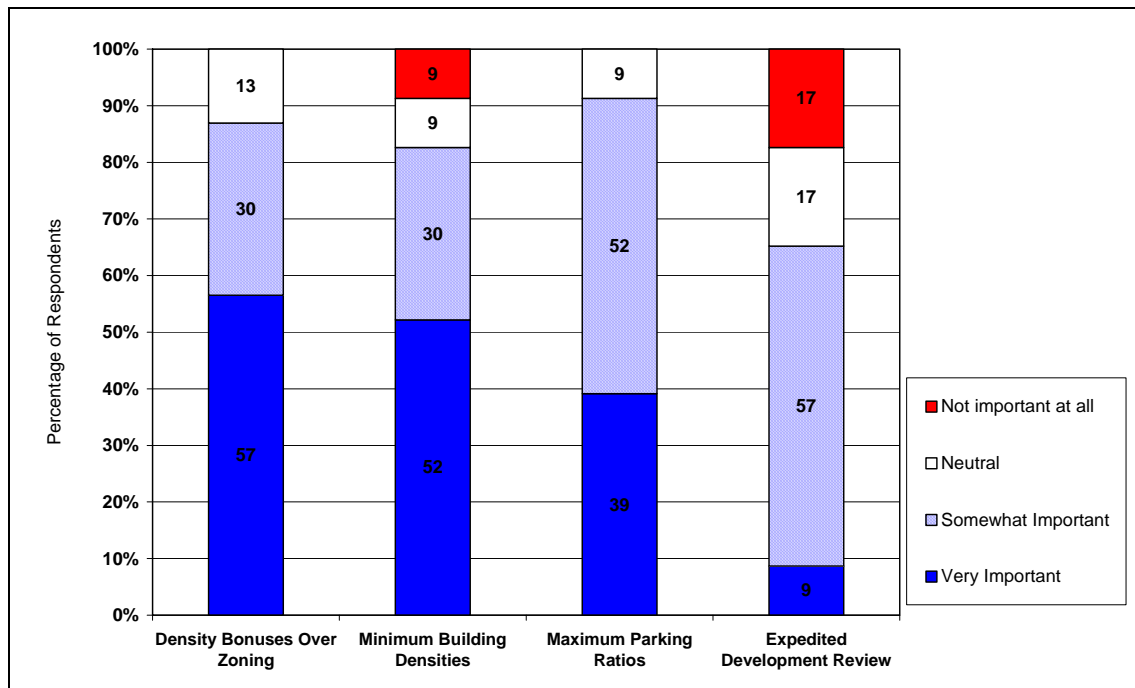
## **PLANNING**

Local planners felt that rail stations in Perth should receive special attention with respect to TOD planning. Seventy-five per cent of the respondents reported that it was ‘very important’ to ensure that the 800-metre areas around rail stations in Perth receive special planning attention to ensure the most appropriate development occurs. The remaining 25 per cent felt it was ‘somewhat important’. Surprisingly, only 40 per cent of respondents agreed that the State should create a TOD zoning designation – 54 per cent felt neutral. Fifty-eight per cent reported that TODs should contain minimum rather than maximum densities and 58 per cent felt that parking standards should be maximum rather than minimum.<sup>15</sup> Sixty-two per cent felt that railway stations should be a focal point for community activity and 75 per cent agreed that rail stations were the best location for medium- and high-density housing. Ninety-two per cent agreed that a jobs/housing balance should be encouraged in TODs and 54 per cent felt that affordable housing is an integral component of TODs. Eighty-three per cent agreed that pedestrians should have priority over automobiles in TODs.

Figure 2 reports the opinions of the local planners on four different planning tools for encouraging TOD. Eighty-seven per cent of respondents felt that density bonuses over zoning were ‘very important’ or ‘somewhat important’ for encouraging TOD. Eighty-two per cent felt the same way about minimum building densities and 91 per cent felt that it was either ‘very important’ or ‘somewhat important’ to require maximum parking ratios. Expedited development review was less favoured, but two-thirds of respondents felt that it too was important. Only a small proportion of respondents reported that minimum building densities

and expedited development review were not important at all for encouraging TOD (9 per cent and 17 per cent respectively).

**Figure 2: Importance of Planning Tools for Encouraging TOD**



As noted in the section on impediments to TOD, planners felt that more cooperation between the State Government and local government was necessary for encouraging TOD. When asked if the State should provide more technical support to plan station areas, 92 per cent agreed (including 33 per cent who ‘strongly agreed’). The remaining 8 per cent were neutral, and none of the respondents disagreed. This may reflect the sentiments of planners who felt that local governments do not have the staff and/or skills to plan effectively for TOD.

### **BUILT ENVIRONMENT, LAND USE, URBAN DESIGN AND DENSITY**

Because TOD entails the creation of high-quality, pedestrian-friendly and mixed-use urban environments, the survey asked a series of questions about urban design, the built environment and land use. As shown in Table 2, the vast majority of respondents rated a high-quality pedestrian environment, high-density housing and a mixed-use environment as very important (92 per cent, 75 per cent and 75 per cent, respectively). Over 90 per cent of the respondents rated bicycle racks, cafés and public plazas as either very or somewhat important. The majority of planners also rated grocery stores, restaurants, secure bicycle storage, newsagents, public art, markets, commuter car parks, pubs and bookstores as very or somewhat important. Clothing stores and nightclubs were the lowest rated elements.

Moreover, over half of the respondents rated bicycle racks and public plazas as very important.

**Table 2: Importance of Built Environment/Land Use Elements in TODs**

<b>Built Environment/Land Use Element (General)</b>	<b>Percentage of Respondents Who Rated Item as Very Important</b>	<b>Percentage of Respondents Who Rated Item as Somewhat Important</b>	<b>Percentage of Respondents Who Rated Item as Somewhat or Very Important</b>
High-quality pedestrian environment	92	8	100
High-density housing	75	25	100
Mixed-use environment	75	21	96
<b>Built Environment/Land Use Element (Specific)</b>			
Bicycle racks	54	46	100
Cafés	38	58	96
Public plaza	54	41	95
Grocery store	38	50	88
Restaurants	25	63	88
Secure bicycle storage	45	41	86
Newsagents	41	45	86
Public art	41	38	79
Markets	13	54	67
Commuter car parks	29	33	62
Pubs	17	38	55
Bookstores	4	50	54
Clothing stores	8	29	37
Nightclubs	4	8	12

Table 3 shows the results of several questions that asked about the importance of specific urban design elements. Over 90 per cent of respondents rated the following items as very or somewhat important in TODs: well-lit public spaces and footpaths, windows facing the street (“eyes on the street”)<sup>16</sup>, street trees, a large pedshed (an accessible street network for pedestrians), no blank walls, street awnings and/or porticos, outdoor seating (both public benches and private cafés and restaurants), buildings adjacent to footpaths, and traffic calming devices.

The two items rated highest as ‘very important’ (88 per cent each), well-lit public spaces and windows facing the street, illustrate the importance of design reinforcing a secure urban environment. People often fear compact urban settings because of safety concerns. A well-designed TOD (such as Subiaco) enhances safety. Often blank walls encourage vandalism and decrease people’s ‘sense of place’ in urban settings. Sixty-seven per cent of respondents felt it was very important not to have blank walls in TODs. Seventy-five per cent of planners felt that street trees were a very important urban design element. A perceived lack of contact with nature is another reason people fear urban living.

Pedestrian accessibility is a key component for successful TODs. Seventy-five per cent of planners rated this element as very important. Somewhat related, 67 per cent of planners felt that street awnings were very important design elements in TODs. Awnings and/or porticos provide protection for pedestrians from the rain in the winter and the hot sun during the summer. It is vital that planners and urban designers work closely with architects, engineers and others to create a unified precinct around transit nodes that enhance the quality of the local environment. One way to enhance the quality of the urban realm is to provide public and private seating. Seventy-five per cent of planners considered that public benches were a very important part of the urban realm and 67 per cent felt that café/restaurant seating was very important. Traffic calming is an area in which planners need to work closely with traffic engineers. Nearly half of planners felt that traffic calming was a very important design element in TODs.

Several questions in the survey sought to gauge planners' feelings on mixed use and density. Eighty-three per cent of respondents agreed that TODs should include mixed use – ground floor retail with residential or office space above. With respect to density, 58 per cent stated that their council would support a minimum density of 35 people living and/or working per hectare (10,000 people living and/or working within a one kilometre radius of a rail station). Only 17 per cent disagreed that R 80 should be the minimum density in TODs (33 per cent agreed and 50 per cent felt neutral). When asked if R 150 should be the minimum density in TODs, 8 per cent agreed, 34 per cent disagreed and 58 per cent felt neutral. Finally, 79 per cent agreed (with 50 per cent strongly agreeing) that local governments were more amenable to high-density development if the project had a superior design.



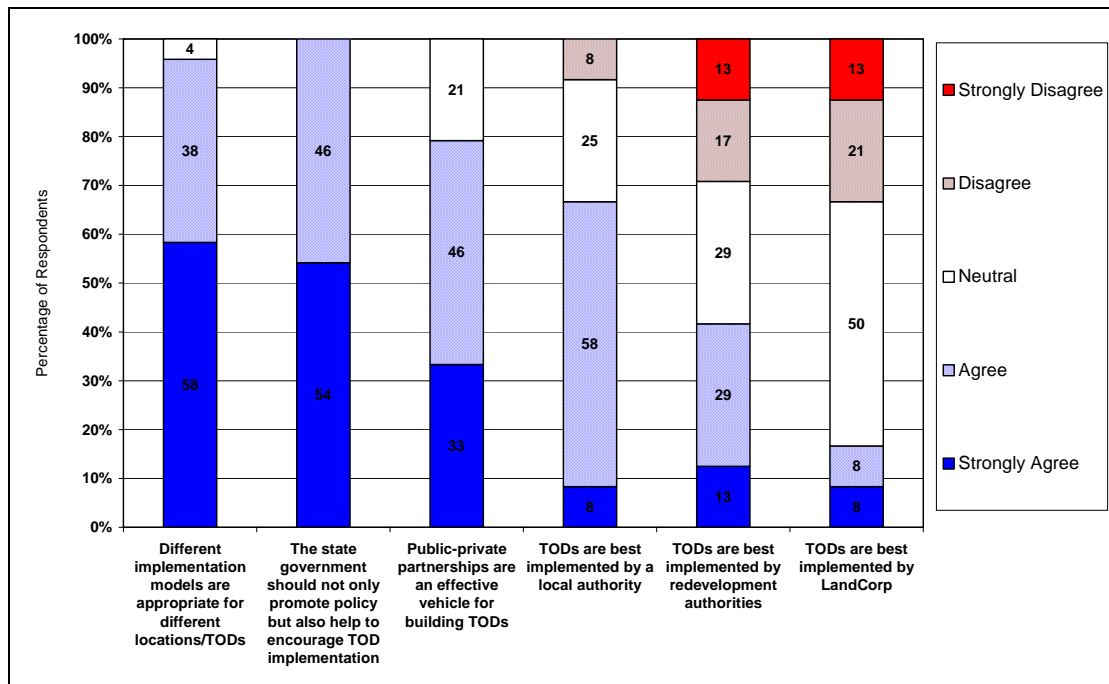
**Table 3: Importance of Urban Design Element in TODs**

<b>Design Element</b>	<b>Percentage of Respondents Who Rated Item as Very Important</b>	<b>Percentage of Respondents Who Rated Item as Somewhat Important</b>	<b>Percentage of Respondents Who Rated Item as Somewhat or Very Important</b>
Well-lit public spaces and footpaths	88	8	96
Windows facing street ("eyes on the street")	88	8	96
Street trees	75	21	96
Large pedshed (accessible street network for pedestrians)	75	21	96
No blank walls	67	29	96
Street awnings and/or porticos	67	29	96
Outdoor seating (public benches)	75	17	92
Buildings adjacent to footpath (minimal or no setback on street level)	71	21	92
Outdoor seating (cafes and/or restaurants)	67	25	92
Traffic calming devices (eg speed humps and narrow streets)	46	46	92
Variety of ground surfaces	25	50	75
Raised street crossings at intersections	21	42	63

### **IMPLEMENTATION OF TOD**

Intergovernmental cooperation with respect to TOD is a key component needing more attention in Western Australia. As shown in Figure 3, 67 per cent of the respondents strongly agreed that more cooperation between the State Government and local government is needed for planning TODs. Ninety-two per cent of respondents felt that the State should provide technical assistance to local governments when planning TODs and all respondents felt that the State should not only provide policy for TOD but also assist with implementation. It was clear from the survey results that a variety of implementation models is appropriate. Ninety-six per cent of respondents agreed that different implementation models are appropriate for different locations/TODs. Only 29 per cent agreed that TODs are best implemented by redevelopment authorities, 17 per cent felt TODs were best implemented by LandCorp, and only two of the 24 respondents felt that TODs are best implemented by local authorities. Finally, 79 per cent felt that public-private partnerships were an effective vehicle for delivering TODs.

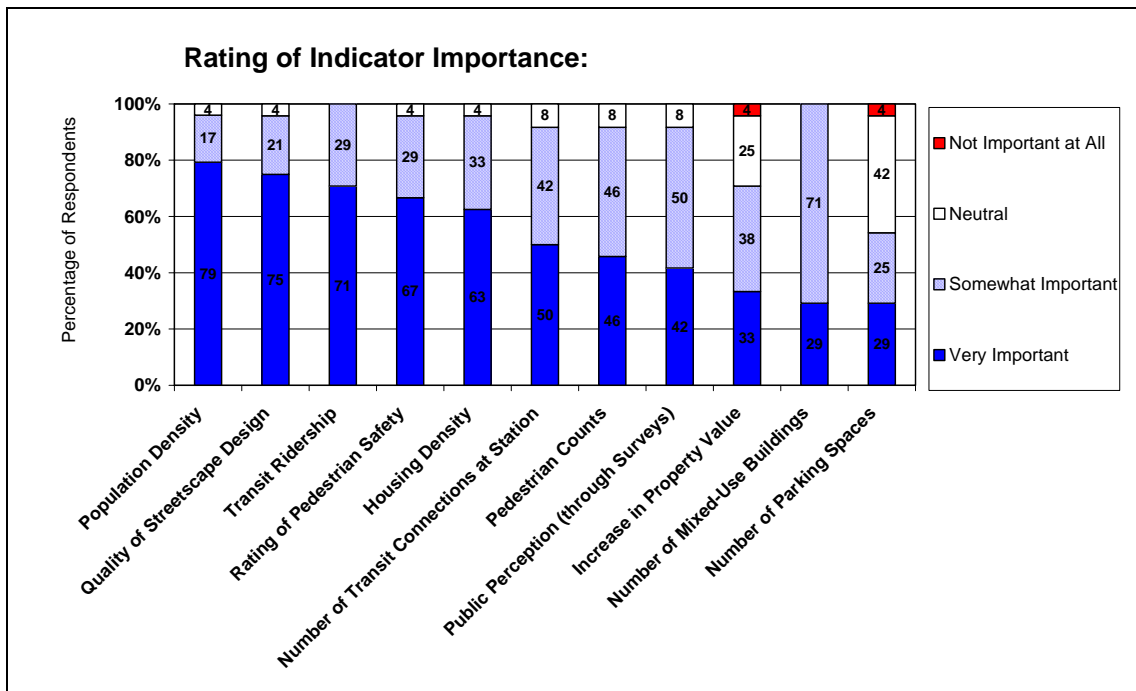
**Figure 3: Opinions on TOD Implementation**



## MONITORING AND MEASURING PROGRESS

The survey asked planners to rate the importance of eleven TOD indicators for monitoring the progress of TODs.<sup>17</sup> As shown in Figure 4, 79 per cent of respondents rated population density as a very important indicator. More than 70 per cent of planners rated a qualitative rating of streetscape design and transit ridership as very important indicators. A rating of pedestrian safety, housing density and the number of transit connections were rated as very important indicators by the majority of respondents. Pedestrian counts, public perception of success (conducted through surveys), and the number of mixed-use buildings were rated by almost all planners as being very or somewhat important. Seventy-one per cent of respondents felt that measuring the increase in property values was very or somewhat important and 54 per cent felt that tracking the number of parking spaces was very important or somewhat important.

Figure 4: TOD Indicator Importance





## Results of Stakeholder Interviews

This section summarises the results of the stakeholder interviews (the methodology is discussed above). The results are presented in three groups: private sector; redevelopment authorities and LandCorp; and State, local government and other interviews. The concluding section provides a summary of TOD obstacles.

### PRIVATE SECTOR INTERVIEWS

Interviews with the private sector included meetings with the heads of major development companies working on TOD projects in Perth as well as other real estate professionals such as sales agents. A consensus emerged that the market for higher density living in Perth is alive, strong and growing. Several noted that selling housing units in TODs was easier than originally expected, even in greenfield locations such as the Village at Wellard. One interviewee noted that the market for TOD began in the 1990s when people started to desire inner city living. For example, the success of sales at Subi Centro was not originally expected when the TOD was planned.

A sales agent and several developers confirmed that the typical buyer in a TOD is either a young professional or a retiree looking for an urban lifestyle. Five interviewees noted that changing demographics has strengthened the market for living in TODs in Perth. Young people are waiting longer to get married and more people are choosing not to marry. This has resulted in more households having fewer children. Furthermore, as baby boomers retire, the market for smaller, more compact units has increased, especially if they are within walking distance of public transport, retail, restaurants and other amenities.

Some people considering a move into a TOD perceive that there are problems with living near a train station. One developer stated that people feared noise and vibrations associated with living near a rail line. The first three or four lots next to the line did not sell as quickly as lots further away (but still within the TOD). In Wellard, for example, the decision to sink part of the rail line helped relax people's fears.

An agent noted that while many customers would like to live in a TOD, the supply of housing in Perth's TODs is so limited, and prices are so high, that many people choose automobile-dependent suburbs because they have no choice. He went on to note that for most individuals, housing is also an investment, so people would rather buy a house in a non-ideal location and drive to work than rent in a better location and walk to take the train to work.

The biggest obstacle for the private sector is the feeling that each TOD project is like reinventing the wheel. Although the State Government is calling for more TOD in Perth,

developers have the sense that the planning system is only set up to deal with the subdivision of land at the fringe and not the redevelopment of urban areas, especially in TODs. Every developer noted that their experience with rezoning and redevelopment consisted of numerous appeals that wasted much time and money. A four to six month delay was common for almost every application, over and above the standard process. All developers agreed that the Department for Planning and Infrastructure (DPI) should provide more guidance to local government about specifics in development applications. For example, strategic policy discusses the benefits of reduced parking requirements in TODs but the lack of specific guidelines about the exact parking requirements creates confusion for the private sector. Several developers felt that local government should have a mechanism for administering a TOD plan under a separate set of principles compared to typical suburban development. In several interviews, developers noted that obstacles for TOD did not necessarily stem from local government planners but could also come from engineers and other public sector employees who did not understand the TOD concept. Many traffic engineers still favoured automobile access at the expense of pedestrian and bicycle circulation. More education was needed to better inform professionals about how TOD differs from standard subdivisions.

The State's policy on commercial space, the Metropolitan Centres policy, has also been an obstacle for TOD. In several cases, developers noted that they would have increased residential densities but because they were limited in the amount of allowable commercial space, they were limited in creating a compact mixed-use environment. Under the Metropolitan Centres policy, the State mandates that large and medium-sized shopping centres be situated only in certain locations. Interviews with high-level officials at the DPI and the Western Australian Planning Commission (WAPC) revealed that local governments have the authority to make decisions on commercial space for anything less than 15,000 sq. m. (eg neighbourhood retail centres). Interviews with statutory planners at the DPI revealed that they sometimes reject development applications for commercial space less than 15,000 sq. m. if the local government has not submitted a plan for allocation of commercial space. This has created confusion for the private sector because at the strategic level, the DPI is encouraging mixed-use development in Perth's TODs, but when it comes to implementation, the statutory planning unit in the DPI is 'not on the same page'.

The uncertainty over the development approval process makes financing TOD more difficult for developers. Banks are hesitant to finance projects when the development approval process is unclear and the time associated with approvals is unknown. The public-private partnership model between LandStart (Department of Housing and Works (DHW)) and two separate developers for two greenfield TODs in Perth (the Village at Wellard being developed by Peet & Co. and Brighton Estate at the Butler Station being developed by Satterley) has

created more certainty as well as affordable housing opportunities in TODs. In both partnerships, the DHW buys back one in twelve houses for public rental housing. According to interviews with both development companies, the partnership has been successful. The government buyback creates more financial certainty. Moreover, the increased densities have led to more affordability for the market priced units because house and land sizes are smaller and thus slightly cheaper. One developer noted that his company does not trust the marketplace to build higher densities without the rail station. He stated that the project would be delayed if the Government does not commit to building the rail station sooner rather than later. Developers are willing to increase densities near rail stations but are less willing for bus-only stations. Some developers suggested a financing mechanism to allow the private sector to help pre-fund the construction of rail stations.

## **REDEVELOPMENT AUTHORITIES AND LANDCORP INTERVIEWS**

The State Government has been encouraging TOD in Perth through LandCorp (a state government developer) and through redevelopment authorities. Most interviewees agreed that the redevelopment authority model is successful because it depoliticises development approvals, allowing the higher densities necessary in TODs. Under the standard development model, developers must submit an application to the local council. Councillors often reject proposals with increased densities (usually any building over three storeys) because of perceived opposition by local residents. Councils are often more concerned with maintaining a status quo than taking a chance on encouraging sustainable development. Redevelopment authorities can make decisions without going through the local approval process. They are substantial owners of land within their boundaries and assume responsibility for its development. They also have statutory planning powers to prepare concept plans, and to plan and implement redevelopment schemes. With this combination of powers and functions, they are well equipped to ensure compact and mixed-use structures in TODs, provided they can obtain the cooperation of the owners of strategically situated parcels of land required for the TODs. Redevelopment authorities have all engaged with the community to ensure that the overall project is a good fit with the community's objectives, but they are not slowed down by outspoken community members who oppose change in the same way that local councils are.

Different legislation created each redevelopment authority, so they all differ slightly. A former program by the Commonwealth Government called 'Better Cities' provided substantial grants (in the range of \$30 million – \$60 million) that launched redevelopment authorities in Subiaco and East Perth. In Midland, the State Government has allocated \$100 million in low interest loans that must be repaid from the proceeds of the sale of land, which is the only source of income. In Midland, the local government lobbied for the creation of the redevelopment authority to help with the redevelopment of the former Midland Railway Workshops. Two of

the local government councillors serve on the board of the redevelopment authority, which also has a good relationship with the local business community. In the other examples, the relationship between the redevelopment authorities and local government does not appear to be as strong; some interviewees even reported outright tension at times between the authorities and local government. The normalisation of land from redevelopment authorities back into the control of local government may pose a future challenge. Several interviewees noted that the provision of ongoing services within the TOD might be an issue for local governments that often have budget constraints.

LandCorp is a state government developer that has the mandate to develop government owned land outside the jurisdiction of redevelopment authorities. It has worked with local government and state government agencies on TODs in Joondalup, Cockburn Central and Leighton. It is also exploring TOD opportunities in Maddington, Guildford, Mandurah, Alkimos and Harvest Lakes. LandCorp is able to operate in ways similar to a private sector developer, and this has both benefits and drawbacks. On the benefits side, LandCorp has been progressively encouraging TOD in Perth. Because it is represented on the State's TOD Committee, LandCorp is actively engaged in coordinating the complexities among local government and state government agencies such as the Department for Planning and Infrastructure and the Public Transport Authority (PTA). Similarly to redevelopment authorities, LandCorp develops lots and sells them to builders with specific design goals, and builders must commence construction within a certain timeframe or LandCorp will buy back the land for the original cost.

The drawback of LandCorp is that it is subject to the same approval processes as private sector developers. This is demonstrated in a recent proposal in Claremont, where LandCorp was working with the PTA to develop a parking lot into a mixed-use development, and the council rejected the application because of issues of design and density. Like any development application in Western Australia, it could have been appealed to the WAPC and overridden, but the State has yet to override local government in the implementation of TOD. Several interviewees noted that another drawback of LandCorp is its high internal rate-of-return requirements. Because it must generate relatively high levels of profit (often on a par with private sector developers), some felt that it must compromise environmental and social sustainability goals. LandCorp maintains that it has a genuine concern with promoting sustainability in its projects. It noted that each project holistically looks at the triple bottom line (economic development, environmental stewardship, and social equity) but ultimately it admitted that a project must make sense economically for the agency to invest because it uses state government funds, which must achieve a capital return. A couple of interviewees stated that LandCorp is unjustly competing with the private sector, but most agreed that like



redevelopment authorities, LandCorp is filling an important role for TOD implementation in Perth.

## **STATE GOVERNMENT, LOCAL GOVERNMENT AND OTHER INTERVIEWS**

Interviews were conducted with individuals from the Department for Planning and Infrastructure (DPI), Main Roads WA, the Public Transport Authority (PTA) and the Western Australian Planning Commission (WAPC) as well as several follow-up interviews from the local government survey. Interviews with planning consultants and non-profit planning organisations from across Perth are also summarised in this section.

The TOD Committee has been successful in cultivating relationships across state government agencies to identify TOD opportunities. As discussed above, the committee has reviewed the potential for TOD at all of Perth's major transit stations, as well as existing state government policies on TOD (eg DC 1.6). One of the most important achievements of the TOD Committee has been cross-agency cooperation. The committee, which meets monthly, continually monitors progress for each station. Individual members of the committee report on partnerships' efforts at specific locations with local government and private sector developers. The committee provides a forum to discuss problems and find ways to overcome obstacles. While this has been a good start from the State Government, the TOD Committee does not have statutory power. This limits its ability to implement TODs. Most interviewees felt that the TOD Committee should be the link between policy and implementation in Perth. They all supported an expanded role for the committee in the future, with the possibility of statutory power in implementing TOD.

The PTA, which initiated the TOD Committee four years ago, became an operational agency when organisational changes in the early 1990s led to planning responsibilities being consolidated in the DPI. A few interviewees criticised the PTA, including New MetroRail, the entity responsible for building the new southwest rail line, for failing to incorporate land use planning into that project.

An interview with New MetroRail revealed its preference for commuter parking over development in station precincts. New MetroRail considers that the success of the northern suburbs rail line, which predominantly caters for park and ride, demonstrates that more ridership is achieved with parking than with development. For example, it calculates that three hectares of parking yields more transit riders than would be achieved if developed at R 80.

Several interviewees felt that, as many other cities in the world have done, Perth should aim to develop the land over the tracks (which often requires the sinking of the line). The construction over the rail tunnel in Subiaco is a prime example where the PTA has allowed for land over its infrastructure to be developed. The PTA created a mechanism that allows for freehold land titles over the rail line. Covenants were placed on titles that clearly spelled out the responsibilities of the Government (PTA) and the landowner. This mechanism could serve as a model for other stations. Elements of the Subiaco land tenure agreement is going to be used for the William Street tunnel in central Perth. There has been some confusion about whether the PTA could engage in leasehold agreements to capture more value from land holdings adjacent to stations. An interview revealed that the PTA could legally engage in such contracts, but until recently, the culture within the organisation has not been supportive of such arrangements.

An interview with Main Roads WA revealed that the Liveable Neighbourhoods program has been helpful in reducing road widths in new suburbs. The interviewee noted that five years ago, Main Roads WA would have been seen as an obstacle to TOD because of its bias towards automobiles, but today it maintains a holistic approach to transport. This includes the integration of land use with transport, viewing all modes as equal. Main Roads WA's goal is to ensure that roads are safe and efficient, and lately this had meant more crossings and wider footpaths for pedestrians. The interviewee from Main Roads WA stressed the importance of community partnerships in implementing TODs. The partnerships in Midland, Maddington and Gosnells have been successful because they provide representation from State Government, local government, local industry and the community.

According to the City of Gosnells, fragmented land ownership is one of the key obstacles to TOD in addition to the lack of examples in the eastern suburbs. They felt that the State Government should work to facilitate partnerships, which include local government, the community and local business. The Maddington-Kenwick Sustainable Community Partnership is a good example because the goal is about community regeneration – including economic, environmental and social development with a focus on the built form. This forum included an in-depth community consultation to decide on goals and objectives. Gosnells felt that any redevelopment plan should be strongly rooted at the local level. They were not in favour of heavy handed control by the State Government imposing TOD on local government.

The Urban Design Centre of Western Australia echoed the need for more community consultation. Because residents typically oppose development based on design issues, community charettes and/or enquiry-by-design workshops can help alleviate fears by giving them a say. One planning consultant felt that the local opposition to the Leighton Beach TOD arose because the community did not have a say until it was too late. Others felt that TOD is

often a matter of regional significance and should be imposed on local governments, even if they oppose it.

A variety of mechanisms can be used to implement TODs. In addition to the standard private sector model, LandCorp and redevelopment authorities, guided development schemes and improvement plans are options. Under the Town Planning and Development Act, a guided development or resumptive scheme allows the Government to compulsorily acquire land. The problem is that in the past, these schemes have been controversial and have created financial problems for the local governments that operated them. They have also been unpopular with landowners. Improvement plans allow the WAPC to purchase or compulsorily acquire land. These plans also allow for landowners to be a partner in the redevelopment. The WAPC can delegate its powers to local governments or state government agencies such as LandCorp. In Perth, the new William Street station and redevelopment is being delivered through an improvement plan. The main drawback of improvement plans is that they must comply with local town planning schemes. A high-level official at the DPI suggested that this would do little to encourage TOD in locations where councils are opposed to higher density, but it may be possible for a change in legislation to give improvement plans more power in the future.

An interview with the statutory planning unit in the DPI revealed that policies for TOD are still unclear. Because of limited resources in recent years, Development Control policies (eg DC 1.6) have not been updated as often as they should be. For example, DC 1.6, which governs TOD, is not specific enough to the issues raised by TOD developments. This policy is currently being updated by the TOD Committee along with the creation of a new State Planning Policy on integrating land use and transport. An interviewee from the strategic planning area in the DPI also recommended that more guidance be provided on density and plot ratio on a station-by-station basis.

Interviews with the board members of the WAPC revealed much support for TOD as part of the *Network City* strategy. Several members felt that more examples of TOD are needed in Perth to display different models, including TODs with higher levels of housing affordability compared to East Perth and Subiaco. Some members conceded that the State has not been willing to use its powers in overriding local government. The five-year process of local government updating their town planning schemes is not always followed, but the consensus across all of the interviews was that local government must be a partner for TOD to be successful. Some members felt that commuter parking in TODs has not been adequately addressed. Moreover, one board member noted that integrated land use and transport planning is needed at the local level. This should include parking management plans and plans to facilitate the use of sustainable transport.

## **SUMMARY OF TOD OBSTACLES**

The TOD movement in Perth is gaining momentum. The cross-agency partnership through the TOD Committee, which includes LandCorp and the redevelopment authorities with the recent addition of a representative from the Western Australian Local Government Association, is a sign that the State Government is getting serious about TOD in Perth. Stakeholder interviews revealed that the market is strong and growing, and developers are even willing to invest to pre-fund the construction of stations in order to construct mixed-use and compact communities. The interviews revealed a number of obstacles. These include:

- Developers feel that each TOD is like reinventing the wheel. Longer-than-normal delays occur for most applications. This leads to difficulty for developers in obtaining finance because of the uncertain approval process.
- While the demand to live in TODs has increased, the supply is quite limited. This has driven up housing prices, especially for TODs located close to the city.
- People fear noise, vibration and safety issues associated with living near rail stations.
- While most planners understand the TOD concept, many engineers and other public sector employees do not.
- A disconnection exists between strategic policy and implementation. Developers feel the planning process is better equipped to handle the subdivision of land at the urban fringe than the redevelopment of urban areas.
- The DPI's statutory planning unit sometimes uses the Metropolitan Centres policy as justification for rejecting applications related to small amounts of commercial space in TODs, even though the policy is not intended to govern anything less than 15,000 sq. m.
- There is a lack of financing mechanisms that would allow developers to pre-fund or share the costs of constructing new stations or upgrading existing stations to better integrate them into private development. There is also no provision for using a value capture tax to help finance the cost of infrastructure.
- Redevelopment authorities work well in locations where the Government has control over large landholdings, but in locations where most of the land around rail

stations is under private ownership, there is more uncertainty as to which implementation model is most appropriate.

- LandCorp acts very similarly to a private sector developer with relatively high internal rates of return requirements for projects. Moreover, it does not have statutory power over local government for implementing TOD.
- The TOD Committee does not have any statutory power to implement TODs in Perth.
- Many interviewees felt that there is a lack of funding for TODs. The Commonwealth Government initiated redevelopment in Subiaco and East Perth through a 'Better Cities' grant, but this funding no longer exists.
- The normalisation of land from redevelopment authorities to local government may pose a challenge.
- Many local governments, especially in the western suburbs, oppose higher densities, which place the State in the awkward position of having to choose to override local control or abandon hopes for TOD in such locations.
- The PTA and Main Roads WA often ignore land use planning around their infrastructure, as demonstrated along the new southwest rail line. They rely on the DPI, but this means that land use planning is often an afterthought once the infrastructure is already in place and retrofitting is often difficult.
- Few examples of non-affluent TODs exist in Perth.
- Community engagement often does not occur early enough in the planning process.



## Policy Implications and Recommendations

On 5–8 July 2005, 260 delegates, mostly from Western Australia, met in Fremantle to discuss opportunities for TOD in Perth's future. The conference, *TOD: Making It Happen*, included international experts from Australia, Europe and North America. During the closing session of the conference, a panel of local and international experts discussed ideas for overcoming obstacles. The delegates also expressed their opinions in the public forum. This final section includes policy implications and recommendations stemming from this research project, opinions from TOD Committee members, and views expressed by conference speakers and attendees. The intent of this section is to provide the TOD Committee with a list of actionable items that could be considered to improve prospects for TOD in Western Australia.

### TEN RECOMMENDATIONS FOR TOD IN WESTERN AUSTRALIA

- 1. Better marketing and branding for transit-oriented development** – building on the *Network City*, the State Government should consider designating TODs as “Network Villages” or some similar concept that the public can grasp. The chosen name should sell a lifestyle associated with living in a TOD. LandCorp is using the term ‘Transit-Linked Village’. The State of New Jersey designates certain train stations as “Transit Villages.” First launched in 1999, the concept took several years for the public (including private business) to understand, but today the term is better understood by journalists, local officials, private business and the general public. For the term to be effective, it should be given a particular status in the planning process (eg if a site is declared a ‘Network Transit Village’, it will be eligible for special state government consideration and priority in the planning system).
- 2. A central transport and land use strategy with targets** – this strategy should provide more detail to the *Network City* to delineate where urban growth will be encouraged and how this fits in with a strategic transport vision. This will indicate to the private sector where compact and mixed-use development is welcome and where it should be discouraged. Moreover, it will clarify where the 60 per cent infill development is going to occur down to the station-area level and what percentage of this growth will be in TODs. Targets should be set for residential and employment growth on a station-by-station basis. A first cut at this by John Syme, a planning consultant in Perth, showed that a major portion of future growth could be accommodated in TOD sites.
- 3. A TOD Code to guide the statutory planning process in TODs, including parking policy** – this should be developed similarly to the Liveable Neighbourhoods Code into a workable set of guidelines as to what should govern the statutory

planning process in Perth's TODs. This should include factors like minimum densities and maximum parking regulations, as well as road widths, cycling and walking paths, and bus interchange facilities.

More research is needed to better understand appropriate parking standards in TODs. Parking requirements will vary by location, but generally TODs should have less parking compared to non-TOD locations in similar areas. Options should be considered for unbundling parking requirements from development codes in TODs. Commuter and shared parking opportunities are important topics that need more attention. Mechanisms should be explored for sharing with developers the costs of converting surface parking lots into structured parking to free land for development.

- 4. Community participation in local visioning processes and the streamlining of development applications where they conform with the local TOD vision** – the TOD Code should be generally workshopped and then specifically applied through community visioning processes to each priority TOD site. Local government and the State Government can then streamline development applications that conform to the vision.
  
- 5. Local and state government partnerships for TOD implementation** – the State should work with local government to determine the best implementation strategy for a TOD. A paper given by Ross Holt at the TOD Conference (“Creative Implementation Strategies”) and a paper prepared for the City of Gosnells by Ray Haeren of Taylor Burrell Barnett (“Maddington Town Centre Implementations Mechanisms, Issues Paper”) outline various implementation strategies. Implementation should include membership among major stakeholders, including private sector partners, with the goal of making development approvals clear, understandable and timely. There needs to be a body given statutory power to implement TOD. This could be a “flying squad” that prepares the TOD through land assembly, community visioning and tendering. The proposed new statewide redevelopment authority could achieve these goals.
  
- 6. A financing strategy, including an income stream to assist transit investment and land assembly** - similar to the open space fund, the WAPC should consider raising ongoing funds for transit investments, land assembly and other costs for encouraging TOD. Research is needed to identify the range of financial mechanisms associated with TOD that could be used to help build future extensions to the public transport system through value capture. This should include options for cost and revenue sharing arrangements with the private sector, and hypothecated taxes. Financing strategies should include active participation from Treasury. Financing



mechanisms should allow private capital to fund infrastructure in exchange for sharing development risks and rewards.

- 7. State government facilitation of TOD education** – TOD education should occur at multiple levels. A public marketing campaign could educate about the benefits of TOD, which could include the health benefits of the more active transport options of walking and cycling. Household marketing efforts, such as TravelSmart, could help individuals make more informed transport decisions when they move into TODs. The State Government could set up training programs for public sector employees about technical issues in TODs, such as road widths and footpaths. Teams of experts should also be available to assist communities with specific issues.
- 8. A plan for affordable housing** – the TOD Committee should explore options to better understand how housing in TODs can remain affordable. A range of government and market-based incentives should be provided so that households willing to own fewer automobiles can more easily afford housing in TODs.
- 9. Linking TOD to the development of new education, health and other public buildings** – the TOD Committee should look for possibilities for linking TOD with public and private educational centres as well as health facilities. Policies should encourage local governments to locate public buildings in TODs.
- 10. A plan for tracking TOD outcomes** – the TOD Committee should establish a set of indicators to measure outcomes across all TODs as well as a method for measuring outcomes against a set of initial goals for specific locations.



## Appendix 1: Local Government Questionnaire

### 1. Definition:

Has your council adopted a different definition of TOD?

If YES, what is it?

If NO, what is your personal definition?

**2. Research shows that having a minimum of 10,000 people living and/or working within a 1 km radius (35 people living and/or working per hectare) around a rail station is necessary to create an environment with mixed-use, walking, and transit riding. Would your council support this minimum target?**

If YES, how would you achieve this goal?

If NO, please list reasons:

**3. Does your agency have specific policies or a formal program designed to encourage TOD?**

If YES, how many staff are assigned to this activity?

If NO, does your agency encourage TOD planning and implementation in other ways?

If YES, please elaborate:

**4. Please rate the importance of each item below in TODs.**

(1 = Very important, 2 = Somewhat important, 3 = Neutral, 4 = Not important at all)

- \* Restaurants
- \* Bicycle racks
- \* Secure bicycle storage
- \* Grocery store
- \* High density housing
- \* Commuter car parks
- \* Cafés
- \* Markets
- \* Bookstores
- \* Mixed-use environment
- \* Clothing stores
- \* Public art
- \* High quality pedestrian environment
- \* Night clubs
- \* Newsagents
- \* Public plaza
- \* Pubs

\* Other

**5. Based on your council's experience, how important is TOD towards:**

(1 = Very important, 2 = Somewhat important, 3= Neutral, 4= Not important at all)

Please select a number for each item:

- \* Increasing transit ridership
- \* Increasing political support for transit
- \* Relieving traffic congestion
- \* Reducing sprawl
- \* Increasing housing choices
- \* Improving neighbourhood quality
- \* Spurring economic development
- \* Creating a diverse community
- \* Other

**6. To what degree is each of the following an IMPEDIMENT to TOD?**

(1 = Major impediment, 2 = Minor impediment, 3 = Not an impediment)

Please select a number for each item:

- \* Lack of market demand
- \* Community opposition
- \* Local zoning restrictions
- \* Lack of lender/investor interest and support
- \* Lack of developer interest
- \* Scepticism among local governments
- \* Lack of political support
- \* Inadequate transit service
- \* Location of transit stations
- \* Predominance of auto-oriented land uses
- \* Lack of local expertise in TOD planning or implementation
- \* Commuter parking
- \* Lack of collaboration between participating government agencies
- \* Legal Issues (specify)
- \* Other

**7. A recent study<sup>1</sup> found the following indicators of TOD as the most important for evaluating success. Please rate the importance of each indicator:**

(1 = Very important, 2 = Somewhat important, 3 = Neutral, 4 = Not important at all)

Please select a number for each item:

- \* Transit ridership
- \* Population density
- \* Housing density
- \* Quality of streetscape design
- \* Number of mixed-use buildings
- \* Pedestrian counts
- \* Rating of pedestrian safety
- \* Increase in property value
- \* Public perception (through surveys)
- \* Number of transit connections at station
- \* Number of parking spaces
- \* Other

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<sup>1</sup>Renne and Wells. "Transit-Oriented Development: Developing a Tool to Measure Success," NCHRP Research Results Digest 294. Transportation Research Board, National Research Council: Washington D.C., 2005.

**8. A TOD typically refers to the area within 800m of a rail station. How important is it to ensure that the 800 m TOD area around rail stations in Perth receives special planning attention so that the most appropriate development occurs?**

Please select one:

- \* Very important      \* Somewhat important      \* Not important

If 'Not important', please explain why?

**9. Please rate the importance of the following planning tools for encouraging TOD in Perth:**

(1 = Very important, 2 = Somewhat important, 3 = Neutral, 4 = Not important at all)

Please select a number for each item:

- \* Minimum building densities
- \* Maximum parking ratios
- \* Density bonuses over zoning
- \* Expedited development review
- \* Other

**10. Please indicate your level of agreement/disagreement with the following statements:**

(1 = Strongly agree, 2 = Agree, 3 = Neutral, 4 = Disagree, 5 = Strongly disagree)

Please select a number for each item:

- \* Local government has no input into transport decisions
- \* There needs to be more cooperation between state and local government in planning TODs
- \* TODs are best implemented by redevelopment authorities
- \* The best location for medium and high density housing is near rail stations
- \* The State should provide technical support to local government for station area planning
- \* The State should create a TOD zoning designation
- \* TOD zones should contain minimum densities rather than maximum densities
- \* TOD zones should contain maximum parking standards rather than minimum standards
- \* TODs should include ground floor commercial space with residential and/or office above
- \* A jobs/housing balance should be encouraged in TODs
- \* The State Government should not only promote policy, but also help to encourage TOD implementation
- \* Public-private partnerships are an effective vehicle for building TODs
- \* Local government is more amenable to high density development if the project has a superior design
- \* Railway stations should be a focal point for community activity
- \* Affordable housing is an integral component of TODs
- \* Pedestrians should have priority over automobiles within TODs
- \* Zoning of R 80 should be a minimum density for TODs
- \* Zoning of R 150 should be a minimum density for TODs
- \* TODs are best implemented by a Government developer (eg LandCorp)
- \* TODs are best implemented by a local authority
- \* Different implementation models are appropriate for different locations/TODs

**11. Based on your experience, how important is each design element in TODs?**

(1 = Very important, 2 = Somewhat important, 3 = Neutral, 4 = Not important at all)

Please select a number for each item:

- \* Variety of ground surfaces
- \* Raised street crossings at intersections
- \* Outdoor seating (cafés and/or restaurants)
- \* Outdoor seating (public benches)
- \* Public art
- \* Well-lit public spaces and footpaths
- \* Street trees
- \* Buildings adjacent to footpath (minimal or no setback on street level)
- \* No blank walls
- \* Street awnings and/or porticos
- \* Large pedshed (accessible street network for pedestrians)
- \* Windows facing street ("eyes on the street")

**12. Which, if any, state/local government policies does your agency currently employ to encourage TOD?**

12a. Do any of these policies have sufficient regulatory/statutory backing to ensure they are given due regard (i.e. are implemented)? If not, what, if any, regulation would you recommend?

**13. What would be your recommendations for changing current state and local government policies to better encourage TOD in Perth?**



## Appendix 2: Local Government Survey Results

## Frequencies

### Minimum Density of R35 (jobs or housing)

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	No	10	41.7	41.7	41.7
	Yes	14	58.3	58.3	100.0
	Total	24	100.0	100.0	

### Does agency have specific policies or formal program to encourage TOD?

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	No	23	95.8	95.8	95.8
	Yes	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

### Importance: restaurants

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	6	25.0	25.0	25.0
	Somewhat Important	15	62.5	62.5	87.5
	Neutral	3	12.5	12.5	100.0
	Total	24	100.0	100.0	

### Importance: bicycle racks

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	13	54.2	54.2	54.2
	Somewhat Important	11	45.8	45.8	100.0
	Total	24	100.0	100.0	

**Importance: secure bicycle storage**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	11	45.8	45.8	45.8
	Somewhat Important	10	41.7	41.7	87.5
	Neutral	2	8.3	8.3	95.8
	Not important at all	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Importance: grocery store**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	9	37.5	37.5	37.5
	Somewhat Important	12	50.0	50.0	87.5
	Neutral	3	12.5	12.5	100.0
	Total	24	100.0	100.0	

**Importance: high density housing**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	18	75.0	75.0	75.0
	Somewhat Important	6	25.0	25.0	100.0
	Total	24	100.0	100.0	

**Importance: commuter car parks**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	7	29.2	29.2	29.2
	Somewhat Important	8	33.3	33.3	62.5
	Neutral	6	25.0	25.0	87.5
	Not important at all	3	12.5	12.5	100.0
	Total	24	100.0	100.0	

**Importance: cafés**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	9	37.5	37.5	37.5
	Somewhat Important	14	58.3	58.3	95.8
	Neutral	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Importance: markets**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	3	12.5	12.5	12.5
	Somewhat Important	13	54.2	54.2	66.7
	Neutral	8	33.3	33.3	100.0
	Total	24	100.0	100.0	

**Importance: bookstores**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	1	4.2	4.2	4.2
	Somewhat Important	12	50.0	50.0	54.2
	Neutral	9	37.5	37.5	91.7
	Not important at all	2	8.3	8.3	100.0
	Total	24	100.0	100.0	

**Importance: mixed-use environment**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	18	75.0	75.0	75.0
	Somewhat Important	5	20.8	20.8	95.8
	Neutral	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Importance: clothing stores**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	2	8.3	8.3	8.3
	Somewhat Important	7	29.2	29.2	37.5
	Neutral	13	54.2	54.2	91.7
	Not important at all	2	8.3	8.3	100.0
	Total	24	100.0	100.0	

**Importance: public art**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	10	41.7	41.7	41.7
	Somewhat Important	9	37.5	37.5	79.2
	Neutral	4	16.7	16.7	95.8
	Not important at all	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Importance: high quality pedestrian environment**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	22	91.7	91.7	91.7
	Somewhat Important	2	8.3	8.3	100.0
	Total	24	100.0	100.0	

**Importance: night clubs**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	1	4.2	4.2	4.2
	Somewhat Important	2	8.3	8.3	12.5
	Neutral	14	58.3	58.3	70.8
	Not important at all	7	29.2	29.2	100.0
	Total	24	100.0	100.0	

**Importance: newsagents**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	10	41.7	41.7	41.7
	Somewhat Important	11	45.8	45.8	87.5
	Neutral	3	12.5	12.5	100.0
	Total	24	100.0	100.0	

**Importance: public plaza**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	13	54.2	54.2	54.2
	Somewhat Important	10	41.7	41.7	95.8
	Neutral	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Importance: pubs**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	4	16.7	16.7	16.7
	Somewhat Important	9	37.5	37.5	54.2
	Neutral	8	33.3	33.3	87.5
	Not important at all	3	12.5	12.5	100.0
	Total	24	100.0	100.0	

**How important is TOD toward increasing transit ridership?**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	14	58.3	60.9	60.9
	Somewhat Important	7	29.2	30.4	91.3
	Neutral	2	8.3	8.7	100.0
	Total	23	95.8	100.0	
Missing	System	1	4.2		
Total		24	100.0		

**How important is TOD toward increasing political support for transit?**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	5	20.8	21.7	21.7
	Somewhat Important	11	45.8	47.8	69.6
	Neutral	7	29.2	30.4	100.0
	Total	23	95.8	100.0	
Missing	System	1	4.2		
Total		24	100.0		

**How important is TOD toward relieving traffic congestion?**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	9	37.5	39.1	39.1
	Somewhat Important	9	37.5	39.1	78.3
	Neutral	5	20.8	21.7	100.0
	Total	23	95.8	100.0	
Missing	System	1	4.2		
Total		24	100.0		

**How important is TOD toward reducing sprawl?**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	7	29.2	30.4	30.4
	Somewhat Important	9	37.5	39.1	69.6
	Neutral	4	16.7	17.4	87.0
	Not important at all	3	12.5	13.0	100.0
	Total	23	95.8	100.0	
Missing	System	1	4.2		
Total		24	100.0		

**How important is TOD toward increasing housing choices?**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	10	41.7	43.5	43.5
	Somewhat Important	9	37.5	39.1	82.6
	Neutral	4	16.7	17.4	100.0
	Total	23	95.8	100.0	
Missing	System	1	4.2		
Total		24	100.0		

**How important is TOD toward improving neighbourhood quality?**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	5	20.8	21.7	21.7
	Somewhat Important	12	50.0	52.2	73.9
	Neutral	6	25.0	26.1	100.0
	Total	23	95.8	100.0	
Missing	System	1	4.2		
Total		24	100.0		

**How important is TOD toward spurring economic development?**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	10	41.7	43.5	43.5
	Somewhat Important	9	37.5	39.1	82.6
	Neutral	3	12.5	13.0	95.7
	Not important at all	1	4.2	4.3	100.0
	Total	23	95.8	100.0	
Missing	System	1	4.2		
Total		24	100.0		

**How important is TOD toward creating a diverse community?**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	6	25.0	26.1	26.1
	Somewhat Important	13	54.2	56.5	82.6
	Neutral	3	12.5	13.0	95.7
	Not important at all	1	4.2	4.3	100.0
	Total	23	95.8	100.0	
Missing	System	1	4.2		
Total		24	100.0		

**Impediment: lack of market demand**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Major Impediment	9	37.5	37.5	37.5
	Minor Impediment	9	37.5	37.5	75.0
	Not an Impediment	6	25.0	25.0	100.0
	Total	24	100.0	100.0	



**Impediment: community opposition**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Major Impediment	13	54.2	54.2	54.2
	Minor Impediment	10	41.7	41.7	95.8
	Not an Impediment	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Impediment: local zoning restrictions**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Major Impediment	11	45.8	45.8	45.8
	Minor Impediment	11	45.8	45.8	91.7
	Not an Impediment	2	8.3	8.3	100.0
	Total	24	100.0	100.0	

**Impediment: lack of lender/investor interest and support**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Major Impediment	9	37.5	37.5	37.5
	Minor Impediment	11	45.8	45.8	83.3
	Not an Impediment	4	16.7	16.7	100.0
	Total	24	100.0	100.0	

**Impediment: lack of developer interest**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Major Impediment	12	50.0	50.0	50.0
	Minor Impediment	8	33.3	33.3	83.3
	Not an Impediment	4	16.7	16.7	100.0
	Total	24	100.0	100.0	

**Impediment: scepticism among local governments**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Major Impediment	5	20.8	20.8	20.8
	Minor Impediment	12	50.0	50.0	70.8
	Not an Impediment	7	29.2	29.2	100.0
	Total	24	100.0	100.0	

**Impediment: lack of political support**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Major Impediment	8	33.3	33.3	33.3
	Minor Impediment	13	54.2	54.2	87.5
	Not an Impediment	3	12.5	12.5	100.0
	Total	24	100.0	100.0	

**Impediment: inadequate transit service**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Major Impediment	13	54.2	54.2	54.2
	Minor Impediment	4	16.7	16.7	70.8
	Not an Impediment	7	29.2	29.2	100.0
	Total	24	100.0	100.0	

**Impediment: location of transit stations**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Major Impediment	13	54.2	54.2	54.2
	Minor Impediment	6	25.0	25.0	79.2
	Not an Impediment	5	20.8	20.8	100.0
	Total	24	100.0	100.0	

**Impediment: predominance of auto-oriented land uses**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Major Impediment	15	62.5	62.5	62.5
	Minor Impediment	8	33.3	33.3	95.8
	Not an Impediment	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Impediment: lack of local expertise in TOD planning or implementation**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Major Impediment	3	12.5	12.5	12.5
	Minor Impediment	16	66.7	66.7	79.2
	Not an Impediment	5	20.8	20.8	100.0
	Total	24	100.0	100.0	

**Impediment: commuter parking**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Major Impediment	9	37.5	37.5	37.5
	Minor Impediment	12	50.0	50.0	87.5
	Not an Impediment	3	12.5	12.5	100.0
	Total	24	100.0	100.0	

**Impediment: lack of collaboration between participating government agencies**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Major Impediment	17	70.8	70.8	70.8
	Minor Impediment	3	12.5	12.5	83.3
	Not an Impediment	4	16.7	16.7	100.0
	Total	24	100.0	100.0	

**Indicator importance: transit ridership**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	17	70.8	70.8	70.8
	Somewhat Important	7	29.2	29.2	100.0
	Total	24	100.0	100.0	

**Indicator importance: population density**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	19	79.2	79.2	79.2
	Somewhat Important	4	16.7	16.7	95.8
	Neutral	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Indicator importance: housing density**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	15	62.5	62.5	62.5
	Somewhat Important	8	33.3	33.3	95.8
	Neutral	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Indicator importance: quality of streetscape design**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	18	75.0	75.0	75.0
	Somewhat Important	5	20.8	20.8	95.8
	Neutral	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Indicator importance: number of mixed-use buildings**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	7	29.2	29.2	29.2
	Somewhat Important	17	70.8	70.8	100.0
	Total	24	100.0	100.0	

**Indicator importance: pedestrian counts**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	11	45.8	45.8	45.8
	Somewhat Important	11	45.8	45.8	91.7
	Neutral	2	8.3	8.3	100.0
	Total	24	100.0	100.0	

**Indicator importance: rating of pedestrian safety**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	16	66.7	66.7	66.7
	Somewhat Important	7	29.2	29.2	95.8
	Neutral	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Indicator importance: increase in property value**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	8	33.3	33.3	33.3
	Somewhat Important	9	37.5	37.5	70.8
	Neutral	6	25.0	25.0	95.8
	Not important at all	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Indicator importance: public perception (through surveys)**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	10	41.7	41.7	41.7
	Somewhat Important	12	50.0	50.0	91.7
	Neutral	2	8.3	8.3	100.0
	Total	24	100.0	100.0	

**Indicator importance: number of transit connections at station**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	12	50.0	50.0	50.0
	Somewhat Important	10	41.7	41.7	91.7
	Neutral	2	8.3	8.3	100.0
	Total	24	100.0	100.0	

**Indicator importance: number of parking spaces**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	7	29.2	29.2	29.2
	Somewhat Important	6	25.0	25.0	54.2
	Neutral	10	41.7	41.7	95.8
	Not important at all	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**How important is it to ensure that the 800 m TOD area around rail stations in Perth receives special planning attention so that the most appropriate development occurs?**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	18	75.0	75.0	75.0
	Somewhat Important	6	25.0	25.0	100.0
	Total	24	100.0	100.0	

**Importance of planning tool for encouraging TOD: minimum building densities**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	12	50.0	52.2	52.2
	Somewhat Important	7	29.2	30.4	82.6
	Neutral	2	8.3	8.7	91.3
	Not important at all	2	8.3	8.7	100.0
	Total	23	95.8	100.0	
Missing	System	1	4.2		
Total		24	100.0		

**Importance of planning tool for encouraging TOD: minimum building densities**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	12	50.0	52.2	52.2
	Somewhat Important	7	29.2	30.4	82.6
	Neutral	2	8.3	8.7	91.3
	Not important at all	2	8.3	8.7	100.0
	Total	23	95.8	100.0	
Missing	System	1	4.2		
Total		24	100.0		

**Importance of planning tool for encouraging TOD: density bonuses over zoning**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	13	54.2	56.5	56.5
	Somewhat Important	7	29.2	30.4	87.0
	Neutral	3	12.5	13.0	100.0
	Total	23	95.8	100.0	
Missing	System	1	4.2		
Total		24	100.0		

**Importance of planning tool for encouraging TOD: expedited development review**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	2	8.3	8.7	8.7
	Somewhat Important	13	54.2	56.5	65.2
	Neutral	4	16.7	17.4	82.6
	Not important at all	4	16.7	17.4	100.0
	Total	23	95.8	100.0	
Missing	System	1	4.2		
Total		24	100.0		

**Local government has no input into transport decision**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	1	4.2	4.2	4.2
	Agree	6	25.0	25.0	29.2
	Neutral	8	33.3	33.3	62.5
	Disagree	4	16.7	16.7	79.2
	Strongly Disagree	5	20.8	20.8	100.0
	Total	24	100.0	100.0	

**There needs to be more cooperation between State and local government in planning TODs**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	16	66.7	66.7	66.7
	Agree	6	25.0	25.0	91.7
	Neutral	2	8.3	8.3	100.0
	Total	24	100.0	100.0	

**TODs are best implemented by redevelopment authorities**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	3	12.5	12.5	12.5
	Agree	7	29.2	29.2	41.7
	Neutral	7	29.2	29.2	70.8
	Disagree	4	16.7	16.7	87.5
	Strongly Disagree	3	12.5	12.5	100.0
	Total	24	100.0	100.0	

**The best location for medium and high density housing is near rail stations**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	4	16.7	16.7	16.7
	Agree	14	58.3	58.3	75.0
	Neutral	4	16.7	16.7	91.7
	Disagree	2	8.3	8.3	100.0
	Total	24	100.0	100.0	



**The State Government should provide technical support to local government for station area planning**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	8	33.3	33.3	33.3
	Agree	14	58.3	58.3	91.7
	Neutral	2	8.3	8.3	100.0
	Total	24	100.0	100.0	

**The State Government should create a TOD zoning designation**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	3	12.5	12.5	12.5
	Agree	6	25.0	25.0	37.5
	Neutral	13	54.2	54.2	91.7
	Disagree	2	8.3	8.3	100.0
	Total	24	100.0	100.0	

**TOD zones should contain minimum densities rather than maximum densities**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	3	12.5	12.5	12.5
	Agree	11	45.8	45.8	58.3
	Neutral	5	20.8	20.8	79.2
	Disagree	2	8.3	8.3	87.5
	Strongly Disagree	3	12.5	12.5	100.0
	Total	24	100.0	100.0	

**TODs should contain maximum parking standards rather than minimum standards**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	3	12.5	12.5	12.5
	Agree	11	45.8	45.8	58.3
	Neutral	5	20.8	20.8	79.2
	Disagree	4	16.7	16.7	95.8
	Strongly Disagree	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**TODs should include ground floor commercial space with residential and/or office above**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	8	33.3	33.3	33.3
	Agree	12	50.0	50.0	83.3
	Neutral	4	16.7	16.7	100.0
	Total	24	100.0	100.0	

**A jobs/housing balance should be encouraged in TODs**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	8	33.3	33.3	33.3
	Agree	14	58.3	58.3	91.7
	Neutral	1	4.2	4.2	95.8
	Disagree	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**The State Government should not only promote policy, but also help to encourage TOD implementation**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	13	54.2	54.2	54.2
	Agree	11	45.8	45.8	100.0
	Total	24	100.0	100.0	

**Public-private partnerships are an effective vehicle for building TODs**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	8	33.3	33.3	33.3
	Agree	11	45.8	45.8	79.2
	Neutral	5	20.8	20.8	100.0
	Total	24	100.0	100.0	

**Local government is more amenable to high density development if the project has a superior design**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	12	50.0	50.0	50.0
	Agree	7	29.2	29.2	79.2
	Neutral	2	8.3	8.3	87.5
	Disagree	2	8.3	8.3	95.8
	Strongly Disagree	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Railway stations should be a focal point for community activity**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	5	20.8	20.8	20.8
	Agree	10	41.7	41.7	62.5
	Neutral	6	25.0	25.0	87.5
	Disagree	3	12.5	12.5	100.0
	Total	24	100.0	100.0	

**Affordable housing is an integral component of TODs**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	4	16.7	16.7	16.7
	Agree	9	37.5	37.5	54.2
	Neutral	11	45.8	45.8	100.0
	Total	24	100.0	100.0	

**Pedestrians should have priority over automobiles within TODs**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	8	33.3	33.3	33.3
	Agree	12	50.0	50.0	83.3
	Neutral	3	12.5	12.5	95.8
	Disagree	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Zoning of R 80 should be a minimum density for TODs**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	2	8.3	8.3	8.3
	Agree	6	25.0	25.0	33.3
	Neutral	12	50.0	50.0	83.3
	Disagree	4	16.7	16.7	100.0
	Total	24	100.0	100.0	

**Zoning of R150 should be a minimum density for TODs**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Agree	2	8.3	8.3	8.3
	Neutral	14	58.3	58.3	66.7
	Disagree	4	16.7	16.7	83.3
	Strongly Disagree	4	16.7	16.7	100.0
	Total	24	100.0	100.0	

**TODs are best implemented by LandCorp**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	2	8.3	8.3	8.3
	Agree	2	8.3	8.3	16.7
	Neutral	12	50.0	50.0	66.7
	Disagree	5	20.8	20.8	87.5
	Strongly Disagree	3	12.5	12.5	100.0
	Total	24	100.0	100.0	

**TODs are best implemented by a local authority**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Agree	2	8.3	8.3	8.3
	Neutral	14	58.3	58.3	66.7
	Disagree	6	25.0	25.0	91.7
	Strongly Disagree	2	8.3	8.3	100.0
	Total	24	100.0	100.0	

**Different implementation models are appropriate for different locations/TODs**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Strongly Agree	14	58.3	58.3	58.3
	Agree	9	37.5	37.5	95.8
	Neutral	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Importance of design element: variety of ground surfaces**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	6	25.0	25.0	25.0
	Somewhat Important	12	50.0	50.0	75.0
	Neutral	5	20.8	20.8	95.8
	Not important at all	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Importance of design element: raised street crossings at intersections**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	5	20.8	20.8	20.8
	Somewhat Important	10	41.7	41.7	62.5
	Neutral	8	33.3	33.3	95.8
	Not important at all	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Importance of design element: outdoor seating (cafés and/or restaurants)**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	16	66.7	66.7	66.7
	Somewhat Important	6	25.0	25.0	91.7
	Neutral	2	8.3	8.3	100.0
	Total	24	100.0	100.0	

**Importance of design element: outdoor seating (public benches)**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	18	75.0	75.0	75.0
	Somewhat Important	4	16.7	16.7	91.7
	Neutral	2	8.3	8.3	100.0
	Total	24	100.0	100.0	

**Importance of design element: public art**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	11	45.8	45.8	45.8
	Somewhat Important	10	41.7	41.7	87.5
	Neutral	3	12.5	12.5	100.0
	Total	24	100.0	100.0	

**Importance of design element: well-lit public spaces and footpaths**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	21	87.5	87.5	87.5
	Somewhat Important	2	8.3	8.3	95.8
	Neutral	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Importance of design element: street trees**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	18	75.0	75.0	75.0
	Somewhat Important	5	20.8	20.8	95.8
	Neutral	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Importance of design element: buildings adjacent to footpath (minimal or no setback on street level)**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	17	70.8	70.8	70.8
	Somewhat Important	5	20.8	20.8	91.7
	Neutral	2	8.3	8.3	100.0
	Total	24	100.0	100.0	

**Importance of design element: traffic calming devices (eg speed humps, narrow streets)**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	11	45.8	45.8	45.8
	Somewhat Important	11	45.8	45.8	91.7
	Neutral	1	4.2	4.2	95.8
	Not important at all	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Importance of design element: no blank walls**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	16	66.7	66.7	66.7
	Somewhat Important	7	29.2	29.2	95.8
	Neutral	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Importance of design element: street awnings and/or porticos**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	16	66.7	66.7	66.7
	Somewhat Important	7	29.2	29.2	95.8
	Neutral	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Importance of design element: street awnings and/or porticos**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	16	66.7	66.7	66.7
	Somewhat Important	7	29.2	29.2	95.8
	Neutral	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Importance of design element: windows facing street ("eyes on the street")**

		Frequency	Per cent	Valid Per cent	Cumulative Per cent
Valid	Very Important	21	87.5	87.5	87.5
	Somewhat Important	2	8.3	8.3	95.8
	Neutral	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

**Correlations**

**Correlations**

		TOD zones should contain minimum densities rather than maximum densities	TODs should contain maximum parking standards rather than minimum standards
TOD zones should contain minimum densities rather than maximum densities	Pearson Correlation	1	.470*
	Sig. (2-tailed)		.021
	N	24	24
TODs should contain maximum parking standards rather than minimum standards	Pearson Correlation	.470*	1
	Sig. (2-tailed)	.021	
	N	24	24

\*. Correlation is significant at the 0.05 level (2-tailed).



## Nonparametric Correlations

### Correlations

			TOD zones should contain minimum densities rather than maximum densities	TODs should contain maximum parking standards rather than minimum standards
Kendall's tau_b	TOD zones should contain minimum densities rather than maximum densities	Correlation Coefficient Sig. (2-tailed) N	1.000 . 24	.453** .010 24
	TODs should contain maximum parking standards rather than minimum standards	Correlation Coefficient Sig. (2-tailed) N	.453** .010 24	1.000 . 24
Spearman's rho	TOD zones should contain minimum densities rather than maximum densities	Correlation Coefficient Sig. (2-tailed) N	1.000 . 24	.518** .009 24
	TODs should contain maximum parking standards rather than minimum standards	Correlation Coefficient Sig. (2-tailed) N	.518** .009 24	1.000 . 24

\*\* . Correlation is significant at the 0.01 level (2-tailed).



## Endnotes

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- <sup>1</sup> Government of Western Australia. 2003. *Hope for the Future: The Western Australian State Sustainability Strategy*. Perth: Department of the Premier and Cabinet.
- <sup>2</sup> Government of Western Australia. 2004. *Network City: community planning strategy for Perth and Peel*. Perth: Western Australian Planning Commission.
- <sup>3</sup> Belzer, D. and Autler, G. 2002. *Transit Oriented Development: Moving from Rhetoric to Reality*. Washington, D.C.: Brookings Institution Center on Urban and Metropolitan Policy.
- <sup>4</sup> Cervero, R., Ferrell, C. and Murphy S. 2002. "Transit-Oriented Development and Joint Development in the United States: A Literature Review," *TCRP Research Results Digest Number 52*. Washington, D.C.: Transportation Research Board, National Research Council.
- <sup>5</sup> Cervero, Ferrell and Murphy, p. 6.
- <sup>6</sup> Calthorpe, Peter. 1993. *The Next American Metropolis: ecology, community, and the American dream*. New York: Princeton Architectural Press, p. 56.
- <sup>7</sup> Cervero, Ferrell, and Murphy, p. 6.
- <sup>8</sup> Dittmar, H. and Ohland G. 2004. *The New Transit Town: best practices in transit-oriented development*. Washington, D.C.: Island Press.
- <sup>9</sup> Dittmar and Ohland, p. 32.
- <sup>10</sup> Dunphy, R., Myerson, D. and Pawlukiewicz. 2003. *Ten Principles for Successful Development around Transit*. Washington, D.C.: The Urban Land Institute, pp. vii-viii.
- <sup>11</sup> Town planning schemes are initiated by local governments and approved by the Minister for Planning and Infrastructure based on the recommendation of the Western Australian Planning Commission. They become the statutory planning regulation that governs development applications.
- <sup>12</sup> Curtis, C. 1999. "Turning Strategies into Actions – Integrated Land Use and Transport Planning in Western Australia", 23<sup>rd</sup> Australasian Transport Research Forum, Perth, Western Australia 29 September – 1 October 1999, pp. 349 – 363.
- <sup>13</sup> Curtis, p. 349.
- <sup>14</sup> See Appendix 3 for detailed results of the survey.
- <sup>15</sup> These two variables were significantly correlated at the 95 per cent level.
- <sup>16</sup> In the *Death and Life of Great American Cities* (1961) Jane Jacobs describes the importance of having windows facing streets in order to create a safer and more pleasant atmosphere as a result of having more "eyes on the street".
- <sup>17</sup> This author found these indicators were the most useful in monitoring the success of TOD in a study sponsored by the Transportation Research Board in the United States. For more information, please see: [http://trb.org/publications/nchrp/nchrp\\_rrd\\_294.pdf](http://trb.org/publications/nchrp/nchrp_rrd_294.pdf)