CHAPTER 16

MEAN STREETS OR HIGH STREETS?
CHALLENGES OF IMPLEMENTING STRATEGIC PLANNING FOR ACTIVITY CORRIDORS IN PERTH

Anthony Duckworth-Smith

INTRODUCTION

Activity corridors, which are essentially the concentration of housing and jobs along road-based transport routes, continue to be put forward as a pattern of urban development to help meet strategic planning objectives for city growth. This is principally an urban consolidation tactic for cities which have historically developed in a low-density manner and are now seeking to reduce automobile dependence and use existing infrastructure more efficiently. They were promoted in strategic-planning policy in Perth with the release of the Network City community planning strategy (Western Australian Planning Commission, 2004) and, despite being relegated in subsequent policy, have now been placed back on the strategic-planning agenda (Western Australian Planning Commission, 2015).

Activity corridors are envisaged as a hybrid urban environment of private mobility, road-based transit, land-use diversity, dwelling and place quality. The concept in terms of urban structure is that of a walkable, attractive, transit-serviced right of way flanked by appropriately scaled buildings that engage the public realm. In many ways it seeks to resurrect the traditional urban type of the bustling high street and adapt it to contemporary circumstance (Figure 1). This urban vision considers roadway environments from both a place and transport perspective where
there is a balance between access, pedestrians, motor vehicles, business, residents and human occupation (Adams, 2009; Department of Planning (WA), 2013).

This balanced outlook is a hallmark of contemporary theories of urban liveability. Activity Corridors are therefore expressions of the modern planning and design ideas for liveable cities. Whilst this represents a compelling and important vision it also presents as one of the most complex implementation problems. In recent times significant roadways in the urban fabric have predominantly operated under the control of one authority with a relatively singular objective (traffic capacity). In addition, the fringing properties, which are implicated in the development of the Activity Corridor concept, are typically in fragmented ownership and cross multiple domains of local government. This specialisation and division of responsibility makes coordinated decision-making difficult (Vuchic, 1999).

This chapter investigates these and other challenges of implementing such a pattern of urban consolidation in Perth where
low-density development and reliance on motor vehicles are entrenched aspects of urban life. It presents background to the Activity Corridor concept and identifies the potential of such an approach to meet metropolitan urban intensification targets in Perth, drawing on recent work based around urban arterial roads. The chapter then moves on to discuss the challenges of implementation at a more localised scale, investigating the typical conditions of the routes which have been identified and asking what needs to be done to achieve the kind of balanced, liveable place which is the hallmark of the Activity Corridor concept. It does this by describing the transport and activity/built form objectives of the urban vision represented by the Activity Corridor concept and then presenting local implementation case studies against these objectives.

This makes clear some specific challenges for the implementation of Activity Corridors in Perth, highlighting some of the types and scope of capital investment and policy development required if the strategic planning for urban intensification in these locations is indeed to be realised on any significant scale. It can not only inform stakeholders about what needs to be done and where, with respect to implementation, but also, by default, raises the question as to the appropriate scale of commitment to such a pattern of infill given other potential options for achieving this.

BACKGROUND
The heritage of the Activity Corridor concept in city planning can be traced back at least to the 1960s with the appreciation of conflicts and opportunities along urban transport routes presented by such authors as Jane Jacobs (1961) and Colin Buchanan (1964). Spatial designs for cities organised around a central transport spine have a longer heritage. Notable precedents include the Ciudad Lineal of Arturo Soria y Mata (1882), Edgar Chambless’ Roadtown (1910) and Le Corbusier’s Plan Obus for Algiers (1932). In more recent times, in low-density cities, the concept of increasing urban
density around roadways has emerged in response to the need for a more compact city form; to integrate land-use and transport, reduce automobile dependency and connect people to employment and services. Toronto’s city-wide government officially initiated a plan to intensify jobs and residents along arterial corridors as part of their City Plan in 2002 (Jennifer Keesmaat, 2006). This strategy and accompanying studies identified 200 kilometres of property frontage that was potentially available for urban infill development which could accommodate 250,000 people (Brook McIlroy Planning + Urban Design & Pace Architects, 2010). In Melbourne, the potential of existing Tramway Corridors to provide medium to high-density infill housing was put forward by the city and state government in 2009 (Department of Planning & Community Development (Vic), 2009). This work focussed on the built form of lots fronting existing tram and priority bus routes within metropolitan Melbourne, arguing that there was the potential to accommodate somewhere between an additional 1 million and 2.4 million inhabitants in these locations. The approach used in quantifying the urban infill potential in these precedent studies was similar to that adopted for the Transforming Perth study of 2013 (Property Council of Australia, The Greens (WA), & Australian Urban Design Research Centre (AUDRC)). This study investigated seven arterial routes in Perth with an existing bus service and developed, through design-based research, a range of density scenarios for developable land parcels along these routes (Figure 2). The lots identified in Transforming Perth fronted either the major route or were within easy walking distance along a significant tributary roadway and were unencumbered by use or planning restriction. For instance, land with uses identified as heritage, civic, public, infrastructure and rural; any development less than seven years old; and 50 per cent of strata titled developments were exempt from consideration as a development site. The design research developed a series of schematic designs and potential building envelopes based on the primary contextual, residential planning, design and development constraints of these locations. East–west
Implementing Strategic Planning for Activity Corridors

Block orientations were considered as this was likely to limit the yield in terms of neighbour overshadowing particularly for density around roadways has emerged in response to the need for a more compact city form; to integrate land-use and transport, reduce automobile dependency and connect people to employment and services. Toronto's city-wide government officially initiated a plan to intensify jobs and residents along arterial corridors as part of their City Plan in 2002 (Jennifer Keesmaat, 2006). This strategy and accompanying studies identified 200 kilometres of property frontage that was potentially available for urban infill development which could accommodate 250,000 people (Brook McIlroy Planning + Urban Design & Pace Architects, 2010). In Melbourne, the potential of existing Tramway Corridors to provide medium to high-density infill housing was put forward by the city and state government in 2009 (Department of Planning & Community Development (Vic), 2009). This work focussed on the built form of lots fronting existing tram and priority bus routes within metropolitan Melbourne, arguing that there was the potential to accommodate somewhere between an additional 1 million and 2.4 million inhabitants in these locations. The approach used in quantifying the urban infill potential in these precedent studies was similar to that adopted for the Transforming Perth study of 2013 (Property Council of Australia, The Greens (WA), & Australian Urban Design Research Centre (AUDRC)). This study investigated seven arterial routes in Perth with an existing bus service and developed, through design-based research, a range of density scenarios for developable land parcels along these routes (Figure 2).

Figure 2: The seven arterial routes identified in the Transforming Perth study (Property Council of Australia, WA).
residential zonings. In four out of five instances, height was limited to three levels as much of the length of the roadways identified in the *Transforming Perth* study were located in relatively low-density residential areas. The research addressed the variability of the constraints by creating a series of typical lot configurations trialling five different lot sizes and testing the permissible built envelope and yield of each (Table 1).

These building arrangements and their resulting densities were then applied to the developable lots to calculate the potential yield of dwellings in these locations. This approach identified that of the order of 150,000 infill dwellings were theoretically achievable along the seven routes, which is approximately equivalent to the total number of infill dwellings required under current strategic state planning targets to 2031 (Western Australian Planning Commission, 2010).

So, as with studies undertaken in other cities, strategic-planning estimates of urban infill potential for Activity Corridor locations in Perth, which are based on developable land supply and preliminary building envelopes, appear promising. What, however, are the challenges of implementing this pattern of urban development to realise the Activity Corridor concept in Perth?

Table 1: Context and yield of schematic design typologies for road-based Activity Corridors. Res = residential, dw = dwellings, dph = dwellings per hectare, comm = commercial floorspace, pkg = parking.
IMPLEMENTATION CHALLENGE

Investigation of the routes selected in the *Transforming Perth* study identifies that the condition of the roadway environment, in terms of transport and place functionality and character, is significantly removed from that envisaged by the Activity Corridor concept. The routes investigated have typically evolved from busy residential and commercial streets through to urban arterial roadways which now carry large volumes of motor vehicles. They are configured predominantly around the principles of through-traffic capacity – maintaining high average travel speeds and avoiding vehicle delays. As a result, the carriageways have been widened, vehicle movements channelled and on-street parking restricted or excluded. In many cases, however, there are still vestiges of an older street character, such as relatively uncontrolled vehicular access and open property frontages reflecting the predominantly suburban nature of the urban fabric. Public transport is provided by road-based bus services typically with limited priority measures. Pedestrian and cyclist infrastructure is normally limited, although some newer sections of road feature exclusive cycle lanes. Generally, however, for the older routes, road capacity improvements in the last few decades have seen a gradual erosion of the pedestrian facility and amenity along these road segments (Figure 3).

The gap between the existing condition of urban arterial roadways and the kind of roadway environment represented in the Activity Corridor concept highlights a significant challenge for implementing strategic planning for Activity Corridors in Perth. This gap has been previously studied and classified in a Perth context by Curtis and Tiwari (2008). They propose transport and built form/urban structure as the two critical elements which constitute Activity Corridors (Figure 4). Their framework produced a range of arterial roadway types identified as either ‘suitable’, ‘unsuitable’ or ‘potentially suitable’ for transition to an Activity Corridor. Application of the framework to the seven arterials identified in *Transforming Perth* confirms that they would mostly fall within the ‘potentially suitable’ category.
These ‘potentially suitable’ locations require management of their transport function and activity/built form characteristics to successfully transition into Activity Corridors and close the ‘gap’. The strategic research conducted for previous studies discussed in this chapter suggests that schematic built form envelopes can be configured for either traffic-dominated or place-focussed environments. So in this sense, the theoretical yield is somewhat independent of the transport and urban activity/built form context. What then are the more specific challenges for implementation of the elements on the routes identified to effectively support the Activity Corridor concept and realise their urban infill potential? This chapter goes on to describe and explore these aspects, developing objectives for transport and urban activity/built form and then discussing these briefly using recent studies for Activity Corridor development along two of the urban arterials identified in the *Transforming Perth* study. In this way the general scope of the transformation required for urban arterials to sustain development toward an Activity Corridor in Perth is identified.

### The Transport Dimension

The transport system along urban arterial routes which supports the Activity Corridor concept can perhaps best be described as multi-modal and coordinated (City of Melbourne & State Government of Victoria, 2009; Vuchic, 1999). A review of reports and policy related to this aspect describes the following common characteristics or objectives.

- High-standard priority transit with convenient stops for walking access along the route;
- Roadway environments and infrastructure which allow comfortable and convenient pedestrian permeability across and along the carriageway;
- Low speed of motorised vehicles; and
- Balance of through and local traffic priority.

**Figure 3:** Typical potential Activity Corridor site – the urban arterial route of Charles Street in North Perth (Google, Digital Globe).

<table>
<thead>
<tr>
<th>TRANSPORT FUNCTION</th>
<th>Activities/Built Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ac-W1</td>
<td>High Intensity Activity</td>
</tr>
<tr>
<td>Ac-W2</td>
<td></td>
</tr>
<tr>
<td>Ac-W3</td>
<td></td>
</tr>
<tr>
<td>Ac-W4</td>
<td>Human Scale</td>
</tr>
<tr>
<td>Ac-W5</td>
<td></td>
</tr>
<tr>
<td>Ac-W6</td>
<td></td>
</tr>
<tr>
<td>Ac-W7</td>
<td>Sensitive to Through Traffic</td>
</tr>
<tr>
<td>Ac-W8</td>
<td></td>
</tr>
<tr>
<td>Ac-W9</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 4:** Proposed management framework for transitioning urban arterials to Activity Corridors with the typical conditions of routes identified in Transforming Perth highlighted (Curtis & Tiwari, 2008).

**Table:**

<table>
<thead>
<tr>
<th>TRANSPORT FUNCTION</th>
<th>Activities/Built Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ac-W1</td>
<td>High Intensity Activity</td>
</tr>
<tr>
<td>Ac-W2</td>
<td></td>
</tr>
<tr>
<td>Ac-W3</td>
<td></td>
</tr>
<tr>
<td>Ac-W4</td>
<td>Human Scale</td>
</tr>
<tr>
<td>Ac-W5</td>
<td></td>
</tr>
<tr>
<td>Ac-W6</td>
<td></td>
</tr>
<tr>
<td>Ac-W7</td>
<td>Sensitive to Through Traffic</td>
</tr>
<tr>
<td>Ac-W8</td>
<td></td>
</tr>
<tr>
<td>Ac-W9</td>
<td></td>
</tr>
</tbody>
</table>

**Key:**

- **AC** denotes suitability as an activity corridor
- **TC** denotes suitability as a Transport Corridor
- Ac-W denotes potential for an activity corridor subject to management of the built form, activity and transport function

**Figure 4:** Proposed management framework for transitioning urban arterials to Activity Corridors with the typical conditions of routes identified in Transforming Perth highlighted (Curtis & Tiwari, 2008).
These ‘potentially suitable’ locations require management of their transport function and activity/built form characteristics to successfully transition into Activity Corridors and close the ‘gap’. The strategic research conducted for previous studies discussed in this chapter suggests that schematic built form envelopes can be configured for either traffic-dominated or place-focussed environments. So in this sense, the theoretical yield is somewhat independent of the transport and urban activity/built form context. What then are the more specific challenges for implementation of the elements on the routes identified to effectively support the Activity Corridor concept and realise their urban infill potential? This chapter goes on to describe and explore these aspects, developing objectives for transport and urban activity/built form and then discussing these briefly using recent studies for Activity Corridor development along two of the urban arterials identified in the *Transforming Perth* study. In this way the general scope of the transformation required for urban arterials to sustain development toward an Activity Corridor in Perth is identified.

**THE TRANSPORT DIMENSION**

The transport system along urban arterial routes which supports the Activity Corridor concept can perhaps best be described as multi-modal and coordinated (City of Melbourne & State Government of Victoria, 2009; Vuchic, 1999). A review of reports and policy related to this aspect describes the following common characteristics or objectives.

- high-standard priority transit with convenient stops for walking access along the route;
- roadway environments and infrastructure which allow comfortable and convenient pedestrian permeability across and along the carriageway;
- low speed of motorised vehicles; and
- balance of through and local traffic priority.
The challenge of meeting these objectives in a local context is illustrated by reference to recent attempts by the state government in Western Australia to create a transport framework for future development of an Activity Corridor along Stirling Highway in Perth.

A significant early undertaking of the Stirling Highway Activity Corridor Study (SHACS) was to create the transport planning framework upon which the future ‘progress of detailed urban design and land-use planning could be based’ (Department of Planning WA, 2015). The study was presented as an integrated transport and land-use plan, however, the transport planning was initially separated from the urban design and land-use aspects. The study methodology appears therefore somewhat conflicted from the outset as it attempts to implement an integrated urban vision by considering it as a set of separate functions and commencing one part well ahead of the other. This approach perhaps illustrates the complexity of dealing with the implementation of such visions in cities whose policy environments have become increasingly fragmented. In order to assess the outcomes of this approach, the transport designs are discussed below in comparison to the Activity Corridor transport objectives described above.

**Transit**

The concept design plans provide priority ‘queue-jump’ bus lanes at signalised intersections along the route with on-road kerbside stops (Figure 5). There is no indication of the frequency or location of stops, standard of service or specific design considerations for waiting, boarding and alighting. The standard of transit presented would indicate a marginal increase over existing on-road shared bus service. This is particularly evident when assessed against the spectrum of transit facilities potentially available, including dedicated right-of-way systems such as light rail and bus rapid transit.
Pedestrian Facilities and Permeability

The concept design report indicates that ‘pedestrian facilities will have to be provided throughout the corridor in the form of a footpath’ that is to be located on the edges of the carriageway and crossing facilities, limited to signalised intersections (Sinclair Knight Merz, 2009). Consideration of mid-block crossings is absent as is their possible coordination with transit stops. The carriageway cross-section design criteria and incorporation of bus queue-jump lanes at signalised intersections indicates that pedestrians will need to negotiate a crossing width of up to seven lanes plus 3 metres of cycle lanes at these locations (Figure 5). At a four-way junction with a cycle time of approximately two-and-a-half minutes, the average delay for a pedestrian-crossing manoeuvre could be in the order of one-and-a-half to two minutes.¹

There is also no indication if this will be a priority phase, where pedestrians are exclusively protected from turning traffic, or if there will be some other spatial design treatment to enhance the pedestrian’s perception of safety and attractiveness. In lieu of
convenient or high-standard mid-block crossing opportunities, it is possible that pedestrians would need to travel 500 metres via a potentially hostile, signalised pedestrian crossing to access facilities on the opposite side of the carriageway which may be only 25 metres away from the original location. By way of illustration, in terms of striving for a balanced approach for road users, this is the equivalent of asking the driver of a motor vehicle to travel 25 kilometres to reach a destination that is only 1 kilometre away so that a pedestrian is able to walk there uninterrupted. The proposed design would therefore appear to substantially underperform in relation to this Activity Corridor transport objective.

**Vehicle Speed**
The concept design is based on maintaining a design speed of 60 kilometres per hour along the roadway with the state road authority indicating that a short section through Claremont is the ‘only section of Stirling Highway where they would consider a change’ and also advising that ‘on-street parking, street trees and other traffic calming measures would not be supported’ (Western Australian Planning Commission, 2010). The road authority has effectively ruled out any low-speed treatment which would support an Activity Corridor concept. In addition, the road carriageway designs provide generous lane widths for motorised vehicles, extensive channelisation and the use of generous road design geometry, such as high radius curves, seagull intersection treatments and wide medians. Overall the design is principally aimed at free flowing traffic at a consistent speed. The road design characteristics reinforce through-traffic priority and speed and do not match the objectives of the Activity Corridor concept.

**Traffic Priority Balance**
The performance of the proposed roadway environment with respect to traffic priority balance is closely linked to the road design aspects discussed against the previous objective. Local
turning manoeuvres and access more generally is restricted by the carriageway design which seeks to limit local road intersections to left-out and/or left-in only arrangements. On-street parking, which would provide the opportunity for local access to business and facilities, is denied. The design emphasis is squarely on through-traffic capacity and the elimination of potential conflict with local traffic, resulting in a reduced level of service for local traffic. This Activity Corridor transport objective would also therefore appear to be poorly addressed.

Summary
The SHACS case study is useful in that it illustrates in some detail the reality of implementing an Activity Corridor concept along an existing, busy, urban arterial in Perth. None of the transport function objectives associated with this vision are met and some are further undermined in relation to the existing condition. The focus on through-traffic capacity, characteristic of single-agency control of transport planning with entrenched policies, defeats the objectives of a multimodal and coordinated transport plan necessary to support the implementation of the Activity Corridor concept.

The failure of SHACS in terms of the broader study intentions is instructive. Firstly, it highlights the need to be clear about classifying Activity Corridors and what this represents in terms of the urban-development vision for the site. For example, is the intensification of housing along this route (characteristic of the Activity Corridor concept) suitable or broadly supported? Or is the roadway more suited to another use? Secondly, although the separation of transport from urban-design and land-use aspects decreases administrative complexity, it would appear to handicap the potential to achieve an integrated transport and land-use vision.
THE ACTIVITY/BUILT FORM DIMENSION

Whilst the possible intensified built form envelopes of frontage-development parcels are relatively well documented, there are other more localised objectives of activity and built form on Activity Corridor sites required to support the overall concept. The following objectives reflect these and could also be categorised as urban-design objectives. These are derived from both consideration of the physical descriptions and graphic representations of Activity Corridors in literature, as well as studies concerning quality of place aspects that belong to the urban scale (Duckworth-Smith & Babb, 2015; see also chapters 12 and 17) and include:

• high-quality public realm;
• managing exposure to pollution, especially noise and airborne toxins;
• provision of active street frontage;
• walkable precincts where the barrier effects of road-ways are managed;
• distinctive character and local identity; and
• appropriate transition of higher-density built form.

The Scarborough Beach Road Activity Corridor Framework (SBRACF) was prepared in 2013 to assist with the implementation of an Activity Corridor concept along approximately 10 kilometres of an urban arterial route through Perth’s central northern suburbs. The framework report supports an integrated urban vision of transport and land-use development presenting the route as a series of centres and links (Department of Planning, 2013). The following analysis considers the urban-design aspects of activity and built form presented in this study in relation to the Activity Corridor objectives listed above. It uses the Doubleview section which represents the ‘classical’ Activity Corridor condition – a fringing residential suburban pattern and a multi-lane carriageway.

High-Quality Public Realm

This objective refers to the treatment of the public realm in terms of spatial types, materiality, furniture, shade and protection. The
SBRACF specifies the need for ‘high quality landscaping and street furniture’ and that ‘street trees will help to frame the road, providing natural protection from weather elements and buffering noise from traffic using the road’ (Department of Planning (WA), 2013, p. 82). Although street trees are unlikely to significantly mitigate road noise, the intentions are in keeping with the Activity Corridor concept. There is little detail on what the design attributes should be in terms of planting, materiality and form. Clarification of some important details (for example the types of roadside environments envisaged, desirable canopy treatments, possible kerbing and paving profiles and materials as well as street lighting treatment) would make clear the ambition of the public-realm design and help communicate and reinforce the vision with respect to this objective.

Manage Exposure to Pollution
The operation of large numbers of motor vehicles powered by fossil-based fuels makes urban arterial roadways a significant source of pollutants in cities. This situation clearly defines a potential health and wellbeing risk for adjacent human occupation. The SBRACF omits any reference to either noise or air quality, despite this being one of the key contextual aspects of the site. In terms of this objective there is no guidance or discussion. This is surprising on public health grounds, given that this is one of the most important aspects of people’s perception of the quality of their residential environment (Bonaiuto, Fornara & Bonnes, 2003; Braubach, 2007; Fornara, Bonaiuto & Bonnes, 2010; van Kamp, Leidelmeijer, Marsman & de Hollander, 2003).

It may seem tempting to sidestep the pollution quandary by putting faith in an alternative transport future for urban arterials where the key drivers of pollutant production are diminished. This would mean a substantial shift away from private-vehicle use towards public, active and shared-transport modes as well as an accelerated take-up of ‘clean’ fuels and non-combustion-related propulsion. However, faith in a relatively swift transition to such
Chapter 16

an alternative scenario may be overly optimistic. Whilst investments in new public-transport infrastructure have seen significant increases (2 per cent to 3 per cent) in public transport’s share of the commuter-related passenger task (Bureau of Infrastructure Transport & Regional Economics, 2013a) and some emergent demographic sectors abstain from car use, there is little indication in Australian cities at present that the majority of the urban-transport task will move away from the use of motor vehicles (Bureau of Infrastructure Transport & Regional Economics, 2007, 2013b; Foran & Poldy, 2002). In addition, for a number of technological, economic and market-driven reasons, the take-up of non-combustion or clean propulsion systems remains fractional (Alternative Fuels Implementation Advisory Group, 2011; Australian Bureau of Statistics, 2015; Smit, 2014), despite other predictions (Bureau of Infrastructure Transport & Regional Economics, 2009). Further, the growing popularity of diesel fuel as a power source for motor vehicles is concerning as it has been increasingly linked to the production of ultra-fine particulate pollution. Overall discussion, analysis and speculation of mobility and propulsion futures as they relate to urban arterials and the Activity Corridor concept suggests a divergent spectrum of possibilities with equally divergent implications for the roadway environment pollution profile.

It is difficult then to predict the future pollution characteristics of urban arterials; however, experience and rational analysis would suggest that, barring catastrophic events and/or governance overhaul, they will remain significant sources of noise and air pollution for a considerable time. The design of Activity Corridors therefore, both in terms of the public realm and the fringing development, will need to take this into account, otherwise the attractiveness of dwelling along the routes will be significantly compromised and a substantial public health burden could emerge. Failure to consider this would undermine implementation of the Activity Corridor concept.
Provision of Active Street Frontage

The plan clearly indicates that an active interface in terms of commercial use is not applicable in the Doubleview section owing to the residential nature of the existing land-use and proximity of commercial centres. This places the emphasis back on ground-floor residential use, which presents other design challenges such as appropriate setback, configuration of floor plans to preserve amenity and wellbeing and the potential for future adaptation. The framework considers the interface as ‘low and permeable fencing and walls’ and does not address the specific contextual challenges for higher-density ground-floor residential development in these locations (Department of Planning WA & Western Australian Planning Commission, 2013). An example of addressing these challenges is presented by the design in Figure 6. This proposed residential ground-floor plan for an Activity Corridor along an urban arterial has taken into consideration the placement and orientation of the habitable rooms to enable the inhabitants to securely access light and ventilation, provides an adaptable plan if and when the roadway environment changes whilst still considering passive street surveillance.
Walkable Precincts Where the Barrier Effects of Roadways is Managed

Principally this objective can be assessed in terms of the ease and attractiveness for pedestrians crossing the main road. The SBRACF framework tends to concentrate on the provision of pedestrian facilities on the edge of carriageway rather than mention crossing manoeuvres. These are, however, very important as moving across the road enables people to reach transit travelling in the opposite direction and also improves access to local facilities and services. Concentrating on the linear nature of movement along the route seems to replicate the thinking of the traffic-capacity approach and neglects the important aspect of pedestrians crossing the carriageway. Possible ways to integrate this objective into the design include wider pedestrian crossing lanes, lower vehicle speeds, improved visibility of pedestrian facilities, substantial pedestrian refuges, reduced carriageway dimensions and changes in surface and road environment materiality (Hutchinson, 2011).

Distinctive Character and Local Identity

The SBRACF identifies local character in terms of the development of mixed-use local nodes and preserving the residential character elsewhere. Whilst land-use goals can contribute to building a distinctive character, this objective is also linked to spatial aspects such as building form, local material preferences, landmarks, topographical features, planting species and historical patterns of use and development (Lynch, 1960). In this sense, the representation of character in the framework is limited and based primarily on planning considerations rather than an appreciation of the local urban-design context. The aspiration for the project in terms of establishing distinctive character and local identity could, therefore, be substantially enhanced.

Transition of Higher Density Built Form

Higher density and mid-rise development on the properties fronting the roadway, which is characteristic of the Activity Corridor concept, creates an interface challenge between neighbouring
properties. Whilst side neighbours could be considered to be part of the Activity Corridor intensification zone and therefore less sensitive to adjacent changes in building scale and use, the rear transition presents as more of a challenge. Typically, the neighbouring lots to the rear are single or low-rise grouped dwellings with a detached suburban character. The SBRACF considers the need to ‘appropriately address established residential development behind the corridor’ and suggests greater rear setbacks as one way of achieving this. The Melbourne and Toronto examples discussed earlier in this chapter go further and provide guidelines for rear setbacks and outline building envelopes along different sections of the routes. More recent research undertaken as part of the Masters program at AUDRC in Perth has explored this issue in greater detail (Slater, 2015). This work identifies a range of urban-design tactics, which could be employed to transition the scale and use interface along the rear boundary such as build-to setback targets for different building levels and appropriate use of vegetation and screening (Figure 7).

**Summary**
The SBRACF would appear to perform somewhat more successfully in terms of the activity/built form objectives of the Activity
Corridor concept in comparison to the transport objectives of the Stirling Highway study. Although lacking design specifics, the framework indicates some overarching statements related to the objectives. The exclusion of the pollution aspect, however, undermines the integrity of the work as it is obviously a critical consideration. Similarly, a lack of guidance or discussion with respect to integrating higher-density buildings into existing low-density residential settings appears a significant omission.

CONCLUSION

Whilst estimations of urban infill potential along urban arterial routes are promising the implementation of the Activity Corridor concept requires a coordinated approach between transport, land-use planning and urban design. Whilst this may be reiterating a familiar doctrine of Transit Oriented Development (TOD), the case studies in this chapter illustrate the complexity of implementing such an approach in low-density, automobile-dependent cities such as Perth, working off an ambiguous vision and operating in a fragmented policy and decision-making environment. In the SHACS, the lack of clarity of the overall vision combined with a piecemeal project structure meant particular agencies monopolised the planning and design outcome making realisation of an integrated concept difficult, if not impossible, to achieve. The first stage of detailed Activity Corridor planning has pursued a traffic capacity paradigm echoing the flaws of previous decades of road planning with respect to achieving a balance of functional and place-based objectives. Perhaps the emphasis on through-traffic needs is correct, but if this is the case then the notion of it representing an Activity Corridor concept should be revisited.

The SBRACF study goes some way to depicting a more cohesive plan for an Activity Corridor. The lack of urban-design clarity, however, appears to weaken the potential of the work to build a convincing framework. If this was in place it could galvanise community, institutional and private investment in the
Implementing Strategic Planning for Activity Corridors

development vision. A shared and integrated vision of an Activity Corridor would allow different stakeholders to work in unison rather than see a piecemeal effort where either critical elements of the vision are poorly developed or certain agencies overtly control the planning and design outcomes.

It is clear that investment in the roadway environment, both in terms of providing a balanced transport function for all users and a public realm that supports human occupation, is required to engender a widespread pattern of urban intensification in line with the Activity Corridor concept along urban arterial routes in Perth. In addition, its implementation would require a shift away from a private-mobility focus in these locations and the accelerated uptake of non-combustion-related propulsion. This is a substantial undertaking for a city which has exhibited such an unshakeable reliance on cars. Without this shift, intensification is still technically possible, however it may not present as the open, liveable street which is the hallmark of the Activity Corridor concept. It would take another form, which may not be an attractive dwelling option for many people and/or require a serious rethink of housing design in these locations, to ensure amenity and quality-of-life standards are upheld. Bearing in mind the likely pace with regard to transformation of the vehicle fleet and the continuing need for personal mobility, attention to special building design seems an imperative if these locations are to sustain concentrated human occupation in the near future.

The scope and complexity of the effort required to achieve the kind of balanced, place-oriented future represented by the Activity Corridor concept along urban arterials, and the potential health and wellbeing implications of failing to adequately accomplish this, should be properly acknowledged. It will require a coordinated approach across government departments with significant up-front investment in transit and urban design to reconfigure substantial lengths of urban arterial roadways. Whilst not impossible, the technical, political and financial implications of this demand that the locations chosen are the most appropriate
in terms of being able to deliver on the Activity Corridor concept. For instance, sections of roadways which are in close proximity to existing transit and not overly burdened by through-traffic capacity demands, such that their carriageways can be relatively easily reconfigured, would seem to present as ideal demonstration sites. Beaufort Street and Scarborough Beach Road between Charles Street and Loftus Street are emerging examples.

The investigation also suggests that other approaches to achieving the strategic objectives of urban infill should be appropriately explored and compared. Other patterns of residential intensification in Perth could be just as (or more) effective and require less upheaval. For instance, dispersed suburban infill has been very popular in Perth for a number of reasons and it may be more generally suited to people’s needs and concerns regarding their residential environment. There have been issues with regard to character and spatial impacts on existing suburbs resulting from a dispersed infill pattern, but, if these could be addressed, might not such an approach, which aligns both supply and demand sides of the infill housing equation whilst avoiding complex and costly reorganisation of roadway environments, be better? In order to validate a widespread commitment to Activity Corridors in Perth there needs to be some form of common assessment framework which can, as objectively as possible, analyse and compare the different infill patterns. Subsequent urban–design research would be judicious if it tackled this objective. Such work could provide a substantial contribution to informing future planning and investment decisions such that the strategic objectives of urban infill are achieved in the most efficient, effective and enduring manner.

NOTES

1. This value is consistent with measured delays for pedestrian crossing manoeuvres at similar intersection configurations along urban arterials in Perth.
REFERENCES


Chapter 16

Department of Planning (WA) & Western Australian Planning Commission. (2010). Stirling Highway Activity Corridor Phases 2 & 3: Concept design report. Perth, WA: Department of Planning WA.


Western Australian Planning Commission. (2010). Directions 2031 and Beyond: Metropolitan planning beyond the horizon. Perth, WA: Western Australian Planning Commission.