

Public Use Zone: A new paradigm for suburban rail station design for Australian cities

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Abstract: The potential of suburban rail stations to be key civic nodes within the network of urban public space in Australia is greatly under-developed. A radical re-conceptualisation is required, on at least two levels. Firstly, the rhetoric of neoliberal privatization has progressively diminished the role for public infrastructure in supporting communal life - citizens have become customers, stations have become mono-functional and instrumental. Second, public transport facilities must operate as intermodal exchanges, to foster increased mode share for sustainable transport and meet increasing demand. Combined, this is one of the most challenging issues facing Australian cities. It is an inter-disciplinary, multi-dimensional problem in which innovative, integrative and visionary design research has a significant role to play. Beyond a technically-oriented paradigm premised on engineering, safety standards and vandal-proofing, design approaches need to re-frame station design quality as public place-making, while also meeting international best practice for intermodal operation.

While stations are the functional and symbolic nexus between the transit system and the city, most stations across Melbourne are difficult to find and to get into and belie the significant public investment in them, thwarting their catalytic role in metropolitan strategies premised on transit-oriented intensification. This paper reports on a collaborative research project that examines the prospects for a radical re-positioning of rail stations by design premised on a public place-making design approach. We review two case studies in Melbourne and reflect on the potentials for a paradigm shift through university-industry partnerships in design-research on re-visioning existing stations.

Introduction

The potential of suburban rail stations to be key civic nodes within the network of urban public space in Australia is greatly under-developed (Hale 2013). A radical re-conceptualisation is required, in the cultural and political value given to public transport, and in terms of what stations can do. The history of stations and station design in Australia follows the global narrative of rise, fall and recuperation, linked to the central role in urbanization that transportation has and ways that the cultural values associated with different modes have changed over time (Hale, 2013). The dominance of rail and other public transport modes in the early 20th century was supplanted very quickly by the private car between the 1950s and 1960s. This decline in cultural importance was accompanied by a reduction of station design to 'functional' criteria focused on a minimal level of amenity with low levels of shelter, linked to the idea that public transport was for people 'unable to afford cars' (Mees, 2010). Continuing this longstanding cultural shift in political and social values ever since, the rhetoric of neoliberal privatization has progressively diminished the role for public infrastructure in supporting communal life - citizens have become customers, stations have become mono-functional and instrumental.

In the face of this eviscerated public realm, the need for dramatic modal shifts towards public transport and the active modes that support it has never been clearer. Far more than merely being seen as opportunities for higher density development, public transport facilities must operate as intermodal exchanges, to foster increased mode share for sustainable transport and meet increasing demand. The unpredicted dramatic increases in rail patronage that have occurred in Melbourne since 2006 did so without significant improvements in services or urban density, and as Gaymer (2010) notes, can mostly be explained by community attitudinal changes "that 'ideologically' align them to public transport" and further "that future patronage forecasts are likely to be sensitive to further changes in community attitudes" (Gaymer, 2010:1). Rather than taking this as an excuse for business as usual, this means that there is a need to think in terms of a different kind of urbanism, what we might call 'transit urbanism', one that represents:

... a built form and a mobility environment where transit is a far more respectable alternative to travelling than currently is the case in much of the industrialized world. It is an environment

where transit and the built environment harmoniously co-exist, reinforcing and enhancing each other in the process' (Cervero 1998:4)

This combination of conceptual, cultural, planning policy and technical shifts is one of the most challenging issues facing Australian cities. It is an inter-disciplinary, multi-dimensional problem in which innovative, integrative and visionary design research has a significant role to play. Beyond a technically-oriented paradigm premised on engineering, safety standards and vandal-proofing, conceptual approaches are needed that re-frame station design quality as public place-making, while also meeting international best practice for intermodal operation (Hale, 2013; OVG, 2011; Maher and Skinner, 2011; Green and Hall, 2009; Coxon, Burns and De Bono, 2008). This paper reports on early findings from a collaborative research project that examines the prospects for a radical re-positioning of rail stations premised on a public place-making design approach. We review two case studies in Melbourne and reflect on the potentials for a paradigm shift through university-industry partnerships in design-research on re-visioning existing stations.

Re-orienting transit-oriented development

While stations are the functional and symbolic nexus between the transit system and the city (Meeks, 1956), most stations across Melbourne are difficult to find and to get into and belie the significant public investment in them, thwarting their catalytic role in metropolitan strategies premised on transit-oriented intensification (DPCD, 2002; DPCD 2008). The transit-oriented logic of transit-oriented development (TOD) is assumed to be simple and tends not to acknowledge the conundrum of which should come first – the intensification or the improved transit? Assumptions about the likelihood of a market or otherwise for intensification are primarily based on the land-values in the catchment and analysis of recent trends based on the status quo as far as transport facilities are concerned. TOD is a complex area of practice, and while relatively new to Australia, it is embraced in one form or another by the metropolitan strategic plans for Australia's capital cities. At the same time, most of the planning research and guidance concerning the intensification of station local catchments (see for example the excellent global summary of the state of TOD practice edited by Curtis, Renne and Bertolini, 2009), pays only passing attention to the key role of stations and their design. However, the design quality of the transit facilities that serve a place could be seen as a catalyst for transformation rather than a hoped-for by-product of market-led intensification and uplifts in property values. Hale suggests that much of the approach to TOD is influenced by US-centric literature, whereas:

[many] Australian neighbourhoods perhaps already carry inherent TOD-style design, density and diversity characteristics and improvements to the quality of architecture, access planning and service-provision at a significant number of *extant* rail-served destinations is already a pertinent question. (Hale, 2013:11 – italics in original).

Furthermore, it has long been argued that improvements in transport services alone lead to higher patronage (Mees, 2000), and more recently, that such services will need to appeal to an increasingly diverse public that now includes white collar professionals who could afford to drive but would prefer not to (Gaymer, 2010).

Current Practice

The redevelopment of Melbourne's second-most important central city station Spencer St into Southern Cross in 2002 was a complete transformation that saw passenger circulation completely re-organised and significant retailing, food and beverage outlets added beneath an iconic singular wave-form roof that provided complete weather protection for almost every platform. Southern Cross was significant as a political gesture to re-establish the status of public transport. However, the limited number of redevelopments of suburban stations since have been much more modest in scope, often driven by the need for grade separations to relieve traffic congestion, with station briefs focused on facilitating universal access standards. Staff accommodation areas, waiting rooms and secure bicycle parking have also been included in new buildings that have allowed some contemporary architectural expressions to emerge – notable examples of this type include Nunawading, North Melbourne and the three stations on the South Morang Line extension and upgrade. However, such work has been constrained by a focus on a set of narrow access standards and concerns for vandal-proofing. Many other recent stations have been an exercise in the artful deployment of extremely long ramps and stairs finished in robust materials to resist attack (for example Figure. 1). Such grade separation of pedestrians via overpasses and ramps to facilitate access to the station with the tracks at grade isolates stations from their local context and leaves most of the physical divisions between communities in place.



Figure 1. Williams Landing Station – the artful deployment of ramps and stairs (note lack of weather protection). Photo: Authors, October 2013.

This is not to deny the architectural merit of some recent work that has been creatively wrought within these constraints, and indeed, some of the best examples have been recognised by Australian Institute of Architects' awards for both architecture and urban design. However, while the current Victorian standards (Victorian Rail Industry Operators Group, 2011) include some worthy placemaking aims (VRIOGS 2011:9; OVGA 2011), a small kiosk is the only non-transport related program included at higher-order stations, while weather protection requirements remain limited and the scope of projects is governed by the 'station footprint' within VicTrack land. As such, there is very limited potential for even recent stations to be genuinely vibrant nodes in the network of urban public space.

Transit For All – an industry-university collaborative design research project

Detailed questions of how the design of stations in suburban contexts can support greatly increased mode share is a complex and very real inter-disciplinary and multi-dimensional problem. The 'Transit for All: better station design and access infrastructure' project (TFA) was conceived as a collaboration between two departments at The University of Melbourne – architecture and engineering – that engages with key stakeholders: public transport agencies, local governments and private sector design firms. The project has two primary aims. Firstly, to investigate how station design in suburban contexts could be improved through application of placemaking approaches, and secondly, to develop the basis for an ongoing research collaboration between the parties. Between them, transport agencies manage the land resources (VicTrack, Department of Transport, VicRoads), the public transport system (Public Transport Victoria) and operate the trains (Metro Trains Melbourne). Local government is charged with the responsibility for ensuring better urban design and planning (including for transport) at the local precinct scale, within the constraints of state policy. Yet it is State Government agencies that are charged with the task of implementing and running upgrade projects for public transport. While project teams are often adept at navigating this complex set of interests it is inevitable that the focus within an individual project will be constrained due to very short timeframes and prevailing conceptual frameworks about what stations are.

Most suburban stations in Australia prioritise transport functionality above all else, meaning that they tend to be stand-alone facilities for controlling the flow of passengers on and off trains, frequently difficult to find and to get into, often without basic amenities such as public toilets, and largely disconnected from their contexts in terms of modal transfer or as places of social encounter and exchange within their locale. Stations have become this way through a very long tradition of treating them as engineering and safety problems rather than urban design and placemaking opportunities. The idea that stations can fulfil these needs is the driving force behind the research project with a series of graduate design studios at its heart.

Thus, the methodology of the project is structured to bring stakeholders together around a series of Masters design studios as the heart of the research endeavour rather than as adjunct to it. In addition to the usual project meetings between researchers and partners, the key forum for engagement is the studio. Local and state government partners present background material on

case study sites to students; design partners present their own work for international and local contexts to an audience of other partners, researchers and students; researchers give presentations on current research related to the project to audiences of partners and students, including international best-practice references (Green and Hall, 2009; NetworkRail, 2011; Transport for London, 2009). Formative and summative design reviews are attended by this large and varied cohort of engaged stakeholders. While involvement in the studio process with key actors from practice may not necessarily be new, the range of stakeholders and their level of engagement is much higher than is usually the case. And while the involvement of most, if not all of the industry partners with station design projects may not be a new experience, the engagement with a design process that is framed beyond the bureaucratic constraints of everyday practice provides the space to explore the potential of new ideas in sufficient depth to assess their applicability in real, local contexts where they would otherwise be unimaginable.

Previous work for such case studies may vary from almost nothing to structure planning proposals, feasibility studies, engineering studies for limited upgrades, land acquisitions for projected transport capacity increase scenarios and yield studies for development. However, what none of the sites have yet had is an integrative approach to stations as place-making exercises focused on their ability to create, shape and connect public space, or to incorporate a wide range of complementary programs to activate that space. Some of the design partner presentations into the studio have indicated that when speculative precinct planning has been undertaken by an architect, it has been conducted outside the scope of the project, primarily to inform the architect's design approach, though still limited by the standards and constraints of current station design practice rather than any vision of what stations could become if key parameters were opened up (Maher and Skinner 2011). However, a key reason for making the studio central to the research project is that any design consideration of a site either by students or professionals helps position it as a potentially real design project, which has the potential to shift a given location up in the priorities of Government. The production of place-based imagery helps make the issues more tangible and literally give visibility to a problem and a range of potential solutions. While images from high-profile international precedents are known to many within the industry, there is an enormous difference between a de-contextualised image from another culture and a design for a specific place that one is familiar with.

Public Use Zone: Stations as 'community connectors'

In response to the research agenda set by the Transit For All research project, the studio, titled 'Public Use Zone', investigated models for interchanges that work as both functional transport hubs and key civic nodes in urban public space; rather than privileging engineering, safety standards and vandal-proofing as is standard real-world practice, the studio re-framed station design quality to also address public space design, urbanity, identity and place (OVGA 2011; Maher and Skinner, 2011; Coxon et al 2008), from the theoretical perspective that places emerge from their connectivity more than anything else (Massey 1994). To achieve this, the hierarchy of priorities was revised, placing the question of 'what makes space public?' at the top of the agenda, with an open-ended brief that in addition to dramatically up-graded transit capacities included significant complementary programs such as retail, hospitality, commercial, community, recreational and cultural facilities within the station but not necessarily within the standard 'footprint' on VicTrack land (Hale, 2013; Hale and Miller, 2012; Maher and Skinner 2011).

Case studies: Reservoir and Burnley

From an extensive range of case studies drawn from the five partner local government areas and those nominated by state agencies and design firms, the first two case studies were selected from the list by the authors. The key selection criteria were typological difference from each other in as many ways possible, with sufficient generic properties to be potentially replicable and to have been nominated by local government partners to ensure relevance and buy-in. Reservoir station in the City of Darebin (Figures 2 and 3) and Burnley Station in the City of Yarra (Figures 4 and 5) were the first two case studies of 8 or 9 planned.



Figure 2: Reservoir station in streetscape context. Photo: Authors, February 2013



Figure 3. Reservoir station – the only pedestrian crossing place for several hundred metres. Photo: Authors, February 2013

Reservoir is a large socio-economically disadvantaged suburb in Melbourne's northern region, with its rail station at its centre, but not at its heart – the rail line and the complex intersection of a pair of parallel arterial roads divide the activity centre into two quite separate halves. Structure planning has been ongoing for the last four years, much of it premised on the potential for transit-oriented development within the station catchment, a combination of intensification of the existing low-rise retail strips and the redevelopment of a large parcel of VicTrack land that the station sits within and that, aside from parking for 495 cars and a bus terminus is largely vacant land. Having tested a number of scenarios, Darebin had settled on undergrounding the station for two reasons - to maximise potential air-rights development (though limited to 4-storeys) and to allow a proposed extension of the tram from West Preston to be extended through Reservoir and ultimately to La Trobe University's Bundoora Campus 3.5km to the east. Senior council staff envisage a 15-year process to achieve the grade separation, having agreed on the above arrangement. At the start of the studio, VicTrack, who were initially unfamiliar with Darebin's planning work, provided some outline air-rights development scenarios comprising a big box retail development and a community facility, with an indicative underground station.



Figure 4. Burnley Station from beneath Burnley Street overpass. Photo: Authors, February 2013



Figure 5. Burnley Station from Burnley Street overpass. Photo: Authors

Burnley station is located in the inner-eastern suburbs just before the bifurcation of busy lines serving Melbourne's east and south east. The local area is gentrified and well-served, the Swan Street tram corridor strip running parallel to the railway 80 metres to the north. Immediately to the south is a largely heritage protected Victorian residential precinct with a transitional industrial area on its western edge along the main north-south vehicular only Burnley Street. Pedestrian access from the residential area to Swan Street is via two narrow underpasses, only one of which leads to the station. The City of Yarra's Swan Street Activity Centre structure plan envisages intensification of up to 10-storeys along the Swan Street corridor north of the station, but has little to say about the role of Burnley station or other transport issues. As part of the briefing given to students, a new north-south medium capacity bus route was added along Burnley St to fill a gap in the transit network; VicTrack provided an outline proposal for a 8-10 storey air-rights commercial or residential development adjacent to the Burnley St overpass over the western end of the station.

Studio design outcomes

Nine students completed the studio, with five schemes for Reservoir and four schemes for Burnley. Two Reservoir designs were underground stations, three elevated schemes. Two of the Burnley projects left the tracks at grade, one elevated the station, and another lowered it by a few metres.



NORTH PLAZA ELEVATION



SOUTH PLAZA ELEVATION

Figure 6. Reservoir station – proposal for elevated rail. Image: Kat Christie

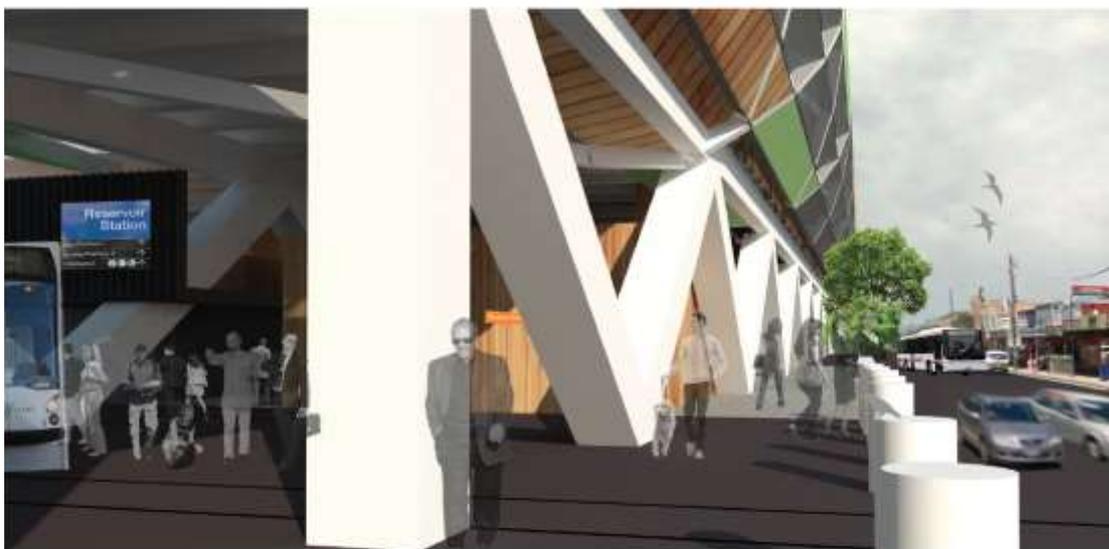


Figure 7. Reservoir Station proposal for elevated station – street view. Image: Kat Christie

All incorporated a mixed-use program of retail, commercial, community, recreational and cultural uses tailored to their locations – the fixed items being a small-format supermarket and 10 small retail tenancies. Students introduced additional functions such as childcare, libraries, education hubs, youth centres, sporting facilities and cycling hubs, with some indicative proposals for office and residential uses. The Reservoir designs all accommodated the complementary programs within the VicTrack land; The Burnley schemes that attempted to stay within the ‘station footprint’ found it the most difficult to achieve a good outcome (although all were far better than existing conditions), and those that selectively acquired adjacent land, or extended their reach into public land beyond that owned by VicTrack, achieved the most well-resolved designs in the terms of

broader placemaking agenda.



Figure 8. Reservoir Station proposal for elevated station – street view. Image: Alec Richardson

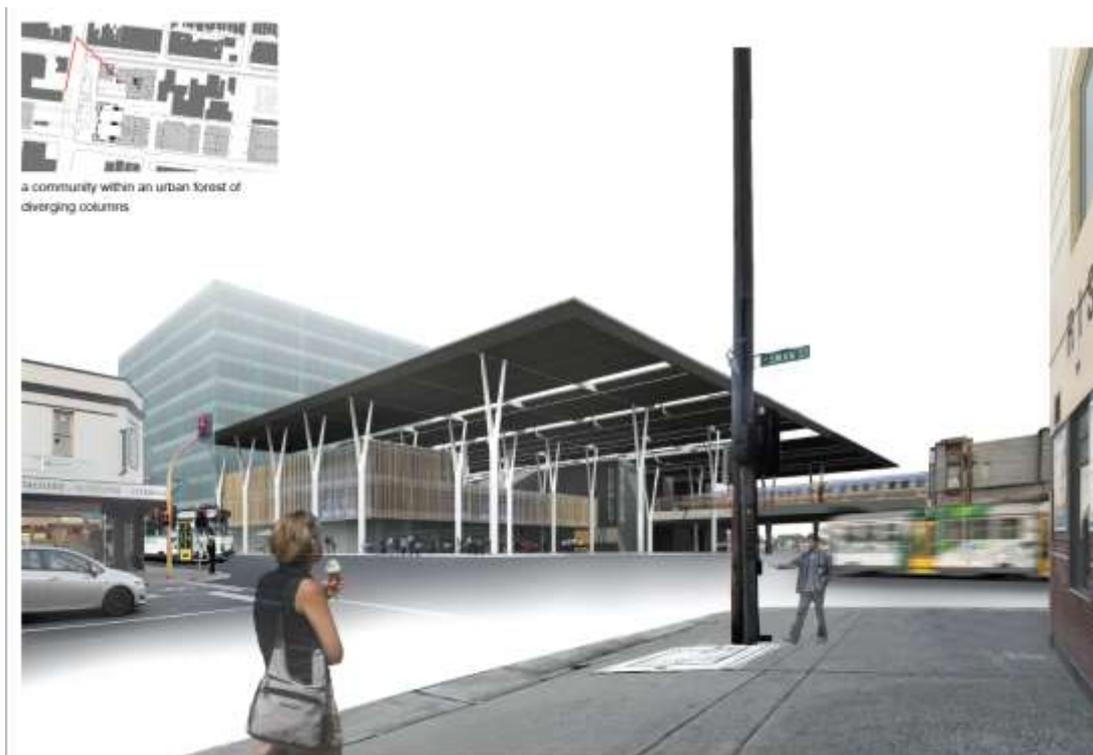


Figure 9. Burnley Station proposal for elevated station. Street view. Image: Farah Yusuf



Figure 10. Burnley Station proposal working with existing infrastructure. Image: Jason Nunn

Discussion – design research findings

A key moment for the research exercise was the final studio review, where the resolved student designs were presented to a panel of planning and design academics, senior representatives from the State planning and transit agencies, Local Government officers and industry design professionals actively engaged with transit hub projects. The responses to the student work summarized here represent views a wide range of individuals directly involved in the design and operation of Victoria's public transport system, with professional backgrounds spanning planning, architecture, urban design, civil and structural engineering, transport planning, and property development. The findings demonstrate some key lessons for the future design of transit interchanges that challenge the designs found in recent Victorian projects.

An overwhelming message from the panel was that elevated railway solutions have much more potential than the panel previously thought. Melbourne is facing a multi-decade underinvestment in grade separation that is seriously impeding the operation of some routes and restricting the ability to run greater service frequencies. Elevating rail lines could achieve this separation at a much lower cost than placing rail underground or in a cutting, yet 'rail over' is not the way government is thinking – recent grade separation at Nunawading, and the forthcoming Springvale and Mitcham separations have all been 'rail-under'. The preferred option at St. Albans is 'rail under', and at Ormond, a 'rail-over' option is not even being canvassed. Perceptions of a lack of safety and negative amenity impacts from 'rail over' appear to be the main drivers of these decisions, yet without any significant research having been undertaken to build an evidence base for making what are significant investments of public funds. The potential of collaborative design research to refocus the perceptions of senior strategists and decision makers in this regard is thus a prime motivation.

The projects that elevated the rail (three in Reservoir and one in Burnley) demonstrated to the panel that apart from the cost considerations the outcomes could become positive parts of the local public realm. The simpler pedestrian movement paths for these solutions are better connected to the surrounding area and the space beneath the rail lines can quite plausibly be used for a wide variety of uses, but especially, larger floorplate retail uses. One panel member noted that it is easier to do elevated rail when you don't need to go to community consultation since fears about noise and visual impact usually weigh heavily on above-ground options. A countervailing opinion was that the design effort visually expressed in the sound baffles (which could be transparent or opaque, depending on the context, much like the ubiquitous, and much higher, soundwalls along freeways) would help make it clear that a well-designed solution could actually be a positive feature. The elevated schemes might also be more easily constructed, and minimize or virtually

eliminate service disruptions, limiting the impact on the local community and potentially shifting the economics of the whole project.

A second clear message was that interchange projects in Melbourne need to move beyond existing property boundaries separating public infrastructure from neighbouring private development. Successful projects will not only fulfil a transport interchange role but will also become multi-functional hubs, strongly engaged with their surroundings. Their design needs to be premised on the station being a small, but central part of a wider precinct offering greater retail and employment opportunities. The projects all demonstrated the programmatic richness that comes through mixing public and private ownership. The obvious question posed to the panel was “why is this not happening in real life projects”? In places there will be a need to literally extend the development footprint beyond publicly owned land, which will require a more entrepreneurial attitude towards place management and development risk. It may in places require government agencies to acquire land for uses that are ancillary to public transport but important for making the location work as an integrated place. This will require a reconceptualization and expansion of the criteria by which the state has traditionally acquired and managed land for transportation purposes in situations where current landholdings compromise the ability of a station precinct to function in this integrated manner, as well as an enhancement of the capacity of inter-agency collaborations at state level to realize projects of this type. Governance is a key problem for delivering mixed precincts – how can local government and private groups be involved in the development process? It will require much greater levels of coordination between both spheres of government and multiple stakeholders to achieve the kinds of visions that the panel responded so positively to.

The panel couldn't identify a single cause for the conservative design approaches usually seen in Melbourne station designs, but did suggest it is exacerbated by a risk minimisation mindset overlaying a complex network of different actors with differing motivations and mandates. Design approaches that start from stations as places, as demonstrated through this work, offer potential alternatives. For example, public safety was repeatedly identified as a key issue for station designs, particularly outside of peak periods or late at night. The common response is to draw on CPTED design approaches such as improved sightlines, lighting and avoiding concealment locations. These approaches are well established but are fundamentally defensive in nature and have led to stations that are superficially safe but thoroughly uninviting. The alternative demonstrated in many of these projects is safety through intensification, where the emphasis is less on defence and more on encouraging positive behaviour through increased use across the whole day. A second example is the response to the engineering issues posed by rail. Rail infrastructure is premised on being a sterile zone that is highly regulated and tightly controlled to ensure the efficient and safe high speed movement of very heavy vehicles. The key question is how can this singular focus be loosened to allow other activities to be introduced without compromising safety standards? Stations are quite clearly not just about rail as they are an interchange between multiple transport modes, and many have noted the critical role of pedestrian movement as the linking mode between other forms of transport (Mees 2010: 184; TfL 2009). A place-based approach also recognises the role of station precincts in connecting communities on either side of the rail corridors. Railway lines act as a barrier and so stations need to become the connecting element seamlessly bridging either side. The design of these precincts must extend far beyond their role simply as movement conduits premised on efficient intermodal connection.

When considering the design of transport interchanges a continual issue was whether stations should necessarily be landmarks. There is tension between creating an iconic or heroic form as a dramatic insertion that literally marks a location as a destination, compared with creating a more nuanced and responsive design that might get lost in its context. Many intertwined issues are brought up by this, including the role of stations in a local community, the cost implications of heroic design and ensuring the design specifically responds to context. The projects all responded to this question in various ways but most avoided creating landmarks for their own sake, and the panel responded favourably to distinctive responses that stitched well into the local context. One panel member from the development sector noted that a high quality station design would make it easier to convincingly argue for much greater development scale in the surrounding area. While an iconic design might cost more, it might possibly bring forward development demand and in turn bring forward an integrated project that would otherwise take longer to be viable. Distinctive design aesthetics do not necessarily require very large scale gestures. It was notable that despite being a student project that encouraged experimentation there were few quirky design responses. Instead most tended towards slick and "high design" grand schemes that could otherwise be described as a careful or conservative response. It would appear that the presence of industry and government

representatives through semester reinforced the implicit importance of business cases in justifying a design response.

Conclusions

Potentially one reason why the outcomes of the studio were so interesting is that they were simultaneously very realistic and very provocative. All of the schemes proposed by the students were readily constructable and more or less feasible as proposals for consideration. The level of architectural detail meant that the public spaces described could be quite tangibly investigated – which goes well beyond the level of detail a professional team would apply to what is effectively a strategic assessment of the site potential. The continual involvement of such a wide range of professional viewpoints in the studio process (including transport planning, urban planning, civil engineering, urban design and architecture amongst others) meant that the proposals were grounded in best practice thinking about the problems without requiring the students to become experts in issues outside of design. In this the studio process models professional practice where design needs to be the integrative process of reconciling divergent technical approaches to solving a given problem, just at an earlier stage than design thinking would usually be engaged. The realism also meant that the challenges posed by the studio work were not easily dismissed. The questions posed by the work were in effect directed squarely at preconceived assumptions. A prime example is the number of ‘rail-over’ stations that received favourable comment at the final review, despite the strong reservations of many of the government experts expressed during the earlier briefings, with both the local governments being prompted to review their structure plans.

The approach to station design advocated here and on which the research program driving the studio is premised is focused on the value of placemaking and integrative urban design. In one way, the studio process itself can be seen as borrowing much from placemaking thinking, derived from an understanding that places emerge from the interactions, connections and processes that they facilitate rather than any deterministic relations between form and function, design and experience. The mutual exposure of architects, senior bureaucrats, academic researchers/teachers and students to each other’s expertise and skills with the freedom to think about a design problem in a congenial setting enabled flows of new knowledge in all directions that is multivalent rather than linear, reflexive rather than didactic, reflecting the nature of placemaking itself. However it is asymmetrical, in the sense that what is ‘transferred’ is not equal between the participants, but depends on perspective in relation to positions within the studio. At one level, the students have the most to learn about what a good station is, what good urban design is, what placemaking is and so on, and the industry stakeholders and researchers/teachers are there to facilitate their learning. At the same time, the sites are real and have been selected by the industry partners for a variety of reasons, the main one being that there is a need to learn what the possibilities and potentials are for those sites as places beyond what has already been done, beyond what is made possible by current planning or economic conditions, but especially, beyond the constraints imposed by the widely held prejudice against ‘rail over’ solutions. The studio demonstrated that, beyond merely matching current transport outcomes, ‘rail over’ can provide significantly improved results in terms of actualizing the potential of a much broader and ambitious placemaking agenda for stations. This insight is a critical one that provides the nexus between the concerns of transport planners and advocates of transit-oriented development in Australia. The policy implications are numerous, one of which is investment in extended research to: explore the advantages of, and to overcome the cultural barriers to, elevated rail as a solution to both upgrades of existing infrastructure and proposals for extensions of suburban rail.

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