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Delivering Quality Intensification in the Suburbs: A Case Study of University Hill, Melbourne, Australia.

Lee Beattie and Errol Haarhoff  
The School of Architecture and Planning, The University of Auckland, Auckland, New Zealand

Key words: University Hill, Suburban Re-Generation, Implementation, Design Led and Conformance Urban Planning

Abstract
Achieving compact urban development is a policy approach embedded in a range of urban growth management strategies typically found in Australasia and some North America cities. These policy approaches typically aim to counter the adverse impacts of urban sprawl by seeking to consolidate most of their future growth within existing urban centres and along transit corridors. However, delivering these outcomes, together with achieving quality residential environments and viable communities has proved to be problematic, especially within the suburban context, using conformance based plans commonly found in Australasia and North America cities. This paper presents findings from an investigation into one such suburban re-generation project located at the edge of Melbourne’s urban boundary, University Hill in the City of Whittlesea. The paper draws on information from interviews with a range of key stakeholders responsible for it’s development and implementation, including the built environment professionals involved in the design, the property developers and the regulatory authorities. The successful outcomes are argued to be largely related to the shared visions of the various stakeholders and their working relationships, and sufficiently flexible urban planning processes that gave the developers confidence to be innovative while responding to market conditions. The paper raises issues about the use of conformance based urban planning approaches for complex suburban re-generation projects.

Introduction
In response to on-going population growth pressures faced by a range of Australasian cities such as Brisbane, Sydney, Melbourne and Auckland, these cities have established a range of urban growth management strategies and urban containment policy responses. These policy responses generally seek to counter the adverse impacts of urban sprawl through concentrating most of their future development growth within an established urban boundary concentrated around their existing ‘town centres’ served by public transit (McCrae and Walters, 2012; Auckland Council 2012; Moloney, 2011; Woodcock et al/ 2010; Jain and Courvisanos, 2008; Randolph, 2007; Goodman and Wilmth, 2005; and Alves, 2004). The obvious consequence of these strategies is for future housing to be at higher densities involving a range of attached, multi-unit and multi-level typologies.

These growth management strategies have been extensively discussed and critiqued, including the experiences of North American cities, including the early adoption policy responses seen in Portland and Vancouver (Haarhoff and Beattie, 2011). Alves (2004) argues that the initial impetus for urban consolidation in this form revolved around a method of providing a wider range of housing choices and increasing the supply of affordable housing, associated with higher density, in the...
1980’s. This was later extended to incorporate a sustainable agenda based on arguments that linked urban density to transport energy consumption and emission controls (Newman and Kenworthy, 1999). However, as Alves (2004) points out, more recently urban consolidation has been more closely, albeit uncritically, associated with the idea of urban consolidation leading to ‘liveability’ and the community benefits of a compact city.

In the Victorian context, this approach is supported and encouraged by the Victoria State Government, where its Activity Centre Toolkit: Making it happen guide (2010), sees the concentration of development in and around Melbourne’s existing ‘activity centres’ as ‘the lynch-pins of a multi-centred structure for metropolitan Melbourne where people can enjoy the benefits of living closer to work with less congestion on the roads and public transport networks’. In a similar way, the Auckland Spatial Plan, sees an advantages of a compact city to be enhancing ‘social cohesion and interaction by attracting people across all demographic groups to a mix of cafes, restaurants, shops, services and well-designed public spaces’ (Auckland Council, 2012).

McCrae and Walters (2012) study of Brisbane underscores the value of these policy responses. They point to the perceived advantages of increasing density while utilising existing infrastructure, but also that ideally ‘urban consolidation also caters for commercial and retail activities in mixed use developments; local employment and amenity; social diversity; housing mix; better public transport; and more walkable, safer communities’ (McCrae and Walters, 2012).

Notwithstanding the persuasive arguments for urban consolidation strategies promoted by state, regional and local governments which seek better balanced communities enjoying greater urban amenity, delivering these outcomes is far less certain and plagued with difficulties in growth complexities of urban planning practice. This also includes the question of plan quality and implementation which has been problematic and limited in effect, especially in the areas of urban consolidation using conformance based urban planning approaches common in the new world (Beattie and Haarhoff 2011; Beattie 2011; Oliveria and Pinho, 2010; Alexander, 2009; and Laurian et al, 2004). For example, Randolph (2007) concludes: overall, the metropolitan planning strategies suggest an inflexible, over-neat vision for the future that, however well-intended, sits dangerously at odds with the picture of increasing geographical complexity that emerges clearly from recent research on the changing internal structure of Australian cities since the early 1990s. (Randolph, 2007).

In the Melbourne context, as Woodcock et al (2010), observed, while non-statutory, ‘seven years into the implementation of Melbourne 2030...not only has there been very little intensification of activity centres in established suburbs, but there have been few urban design visions that might engage the public imagination or that of the development industry’. This is supported by Goodman and Moloney’s (2001) examination of the spatial distribution of new housing in the City of Casey on the metropolitan fringe. This showed that very little new development was located within close proximity of designated activity centres or transit routes, thus not yet delivering on the policy aspirations.

McCrae and Walters (2012) in their comparative study of resident attitudes to consolidation in an inner and outer suburb planned for compact development in Brisbane, points to a number of resistance issues. This includes a tension between wanting the amenities that urban consolidation offers, but not to become overcrowded; recognising the advantages of good access to public transport, but a reasonable perception that car dependence will not easily change with resulting
traffic congestion; and that the value of local lifestyles will be under threat (McCrea and Walters, 2012). However, of particular interest was their finding that residents in the outer suburbs were more amenable to the perceived benefits of urban consolidation when compared to inner suburban case study residents.

Local community resistance to increasing density and disruption to the perceived advantages of their existing lifestyles have also shown to be present in the Melbourne context. For example, Alves (2004) points to resident resistance to medium density housing in the middle ring suburban area of Boroondara, Melbourne, a heartland for the Save our Suburbs (SOS) movement, preventing the urban consolidation in these suburbs.

Despite the difficulties, McDougall and Maharaj (2011) make the case that an investment in urban consolidation is worth the effort on the urban peripheries. They argue that this will be better achieved with more effective plans for creating jobs and services and improving linkages to other parts of the metropolis. They also point out that while the costs of better equipping fringe areas may be high, the benefits are those associated with workforce and transport productivity (McDougall and Maharaj, 2011).

**Challenges of Regeneration on the Edge: Case Study and Methodology, University Hill**

Of particular interest in this paper, are the challenges faced in achieving urban consolidation outcomes on the new world metropolitan peripheries that are traditionally dominated by low-density suburban communities, high levels of car dependency and limited local employment. In the authors view, one such example of a potentially successful suburban re-generation development project is being undertaken at University Hill within the City of Whittlesea.

The University Hill regeneration development project is located adjacent to RMIT’s Bundoora campus 18 kilometres from the Melbourne’s CBD, and was designated as a ‘Specialised Activity Centre’ within the local statutory development plan. The 104 hectare site was purchased by the developer (MAB Corporation) in 2003, and when complete is planned to have around 1000 housing units and generate approximately 4000 jobs (Victoria State Government, 2010).

A mixed-use development, it already has a significant number of medium density apartments, a supermarket and other retail outlets centred on a high street, and a range of business and manufacturing activities. The development includes good integration with the Plenty Road arterial, the metropolitan ring road, and adjacent Plenty Valley natural areas. The development is characterised by high quality urban design and architecture, resulting in a walkable neighbourhood of the kind to which urban growth management strategies aspire.

To better understand how this positive outcome was delivered in practice, the authors interviewed all of the key stakeholders involved in the project’s development and implementation, including the developer (MAD), the developer’s urban planning and urban design consultants, senior Council officials and key officials from the Department of Planning and Community Development to see if any key factors leading to its potential success could be determined.¹

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¹ While acknowledging the information provided by those interviewed, the interpretation of the information of this process and any errors of reporting are solely the responsibility of the authors.
The interviews followed the non-standardised approach outlined by Davidson & Tolich, (1999). This approach allowed for semi-structured open-ended questions of the interviewees into relevant areas of research to gain their perspectives, and reasons for their decisions, or as Forester (1999) argues, letting the urban planner tell their story. This approach was considered appropriate because of the highly technical nature of the urban planning topics under consideration, and the level of knowledge the urban planning professionals had of the urban planning process. Neither of these characteristics could be solely captured using only set questions. The key factors gained as to how the project was delivered and what potentially made it successful from the interviews process is set out under a number of subject headings below.

**Shared Vision**

The council had a vision concerning job creation in their peripheral metropolitan location, targeting ‘light blue’ and professional occupations and businesses, rather than what was perceived as declining heavy industrial activity, thus embracing the so-call ‘new economy’. The Council vision was initially shared in part by the developer who wanted to consider a mixed-use concept as a key driver for any potential commercial success in the site, as opposed to just ‘big-box’ retail and/or industrial usages. To achieve this the developer had to convince the Council that a true high quality mixed-use development would also achieve the Council’s employment growth goals. The Council had a view that every new housing unit should also be followed by at least one new employment opportunity to address the housing imbalance.

To this end the developer conceptualised the promotion of the business activity in relation to the provision of a high quality setting within walking distance of numerous amenities, including cafes, shops, childcare and mixed housing topologies. In essence, a high quality mixed use development. The vision was given physical form by the consultants, well argued and demonstrated in their report (MAB, 2003). This required a quality and more diverse environment, superior small services sector and clusters of affordable business premises with good exposure to the major arterial routes (MAB, 2003). The developer thus argued for an integration of the economic, environmental and social elements to create a sustainable long-term outcome for the community, and that in order for the proposed mixed-use development to be truly successful all proposed land uses must be present and incorporated in an integral manner. The council’s senior managers and elected representatives acknowledged that this vision would also achieve their strategic goals of ensuring employment growth. The agreed shared vision laid the basis for a collaborative urban planning approach, where all the parties were treated as equal partners through the process.

**Alignment of Plans and Policies**

The consultants refer to the designation of the site area as a Specialised Activity Centre in the then recently released Melbourne 2030 strategy, which they argued would be align to the above visions within the State urban growth management strategy. The vision was also well aligned to the City of Whittlesea’s Municipal Statement that identifies the Plenty Valley Corridor as an employment precinct and the Council had a good ‘track record’ with the State planning authorities, and supported Melbourne 2030. As a consequence, there were no objections by the State Government to the development proposals. However, all the parties commented that the lack of State government involvement was beneficial to achieving the outcomes in practice. Finally, the approval of the Development Plan

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2 Prior to the land purchase the site was zoned for a form of industrial development
Overlay (DPO) for mixed-use development concept was a critical element in the process. This allowed the developer a high degree of certainty for the up-coming consent process and thereby provided the ability to invest in the project over the long run, a point returned to below.

**Consenting Process and Partnerships**

All parties stressed that the successful outcome was a result of a strong partnership and shared visions between the Council (and its responsibility to the community), the developer (and its commercial responsibilities), and the design and urban planning consultants. Also underscored, is that the individuals concerned all had a long-term commitment to the project, with the same staff being involved for its duration removing any problems of the transfer of knowledge between policy formation and implementation. This is considered to be a critical factor in this development's potential success.

A key for the developer was having certainty over the consenting process in order to minimise commercial risk, and in support of this objective the Council agreed to a two-stage DPO approval process. The first stage involved the submission of a high level strategic framework and master plan indicating proposed usages, supported by an ‘enquiry by design’ workshop facilitated by the consultants. Identified in the workshop (and later incorporated into the Master Plan) were nine land-use precincts, each with overlapping boundaries, to permit flexibility for the developer to respond to unforeseen market demands and conditions.

This was followed by the development of more detailed ‘secondary’ DPO's related to nine defined precincts that permitted incremental development in response to market demand. This process enabled the developer to complete the infrastructure at the commencement of the project, including the road and public spaces, so that potential residents and businesses could visualise the final form of the project. This avoided the need for a highly detailed DPO at the commencement of the project prior to knowing what best mix of uses the market might demand. This is contrary to the usually higher prescriptive nature of conformance based urban planning documents, which typically set out the land use activity zones supported by a range of development controls detailing building bulk and mass.

The developer saw the success of the project lying in the Council’s willingness to provide flexibility in the consenting process, and in the absence of prescriptive planning controls and third party notice and appeal rights. Despite this absence, the ‘enquiry by design’ workshop provided a platform at the initial stage to involve all of the primary stakeholders, city councilors and state planning officials in contributing towards the shared vision achieved. Finally, having a single landowner, through the development and the initial implementation phases was also seen by all the parties as another factor leading to success.

**Design-led approach**

The developer clearly recognised the importance of quality design, and engaging with a design-led approach. The consultant-led ‘enquiry by design’ workshop provided a platform for transforming the visions into a single master plan that had the necessary flexibility for the developer, with a two-stage DPO approval process that allowed the Council to be fully accountable for the consenting processes. Exercising prior experience in the value of investment in quality design, the developer ensured that the consultancy team was able to deliver a consistent high quality and contemporary design outcome in all aspects of the project, including the urban design, architecture and landscape design elements. Another critical element in this design led approach, was the active and detailed involvement of the council officers...
involved in the implementation of the design led outcomes. This was supported by the developer’s decision to retain the same urban planning consultants throughout the implementation process. This, with the Council officers ongoing involvement in the process ensured that all the parties involved in the projects implementation understood and shared to the vision to ensure it was lost during the implementation process.

**Strategic implementation**

Staging a mixed-use development is crucial to its success, and needs to balance market demand against sufficient incentives to ensure investment in the range of uses planned. Careful design ensured that the large format retail development (Including a supermarket) did not counter the ‘main street’ concept, by placing parking in basements or at the rear of the buildings. This was feasible because these retail enterprises served a catchment much larger than the project site and positioned the development to attract subsequent business and residential usages.

**Conclusions**

University Hill provides a useful exemplar of a quality, mixed-use development, realising inspirational outcome expressed in urban growth management strategies. The key to its success in a relatively short period of time, questions the often assumed relationships between planning and action, and between implementation and results (Hoch, 2007; Berke et al, 2006; and Alexander and Faludi, 1989); or the premise that a plan will lead to a set of outcomes on its own account. There are valid questions over the degree of influence a plan can have over this process depending on which planning approach is used (Oliveria and Pinho, 2010; Alexander, 2009; and Laurian et al, 2004), that is, whether it is a conformance or performance based planning system.

Goodman and Moloney (2011) point to the fundamental link between the capacity to deliver a strategic plan (such as Melbourne 2030) and how the function of government is defined, and that under the politics of neo-liberalism, the primary role of planning is to facilitate market-led development to drive economic growth. This in turn requires a degree of cooperation between the key stakeholders to deliver community benefits while minimising risk on the part of the developer by removing the need for third party notice, decision and appeal at the implementation stage.

We also conclude in the case of University Hill, that there are other key factors behind its success that are perhaps beyond the remit of regulators and urban planners. These factors includes the availability of a large land holding in single ownership that has strategic location, enlightened developers who had the will and resources to take a commercial risk, a local authority willing to create more flexible rules to achieve its visions for local employment, and excellent urban planners, urban designers and architects able to produce an award winning outcome. This coupled with a situation where all the key parties (including on-going political support) were involved in both the policy formulation and implementation, created a situation where the agreed shared vision could be delivered in practice. However, the authors question whether this project could have been delivered without all the factors considered above being realised.

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Moreover, University Hill does not really meet other activity centre aspirations, especially the goal of reducing car dependency. Despite the presence of a tram terminal in Plenty Road, University Hill, like much of the metropolitan fringe, remains poorly served by efficient public transport access.

Finally, this paper argues for creating more flexibility in urban planning as opposed to the traditional conformance based urban planning and development process that enables innovative solutions to create better opportunities to deliver urban consolidation and quality intensification on the urban periphery, especially for large scale re-generation projects, this is tempered by the range of factors considered above which may not be present in all forms of re-generation opportunities. Consequently, an exemplar of development offering housing diversity, a walkable neighbourhood, good recreational and community facilities and local employment opportunities, University Hill reflects the aspirations expressed in urban growth management strategies. But perhaps the jury remains out on whether this is a success because of the urban planning initiatives, or a success in spite of them.

References


Alves, T. 2004, Medium Density Housing in Melbourne: The management of sustainability and democratic local communities under global pressure for increased urban efficiencies, 19th EAROPH World Planning and Housing Congress and National Housing Conference, 19-22 September, RMIT, Melbourne.


Beattie, L and Haarhoff, E., Governance: How to Achieve Urban Growth Management in Practice, a Practitioner perspective, New Urbanism and Smart Transport, Perth, Australia 26 – 27 September 2011


Davidson, C., and Tolich, M, 1999 (2nd Ed), Social Science Research in New Zealand, Pearson Prentice Hall, Auckland, New Zealand


Goodman, R., and Moloney, S (Ed), 2012. Melbourne’s Activity Centre Policy: A Post Mortem, Melbourne: RMIT University, Australia


Reed, D., 2008, University Hill, *Landscape Architecture Australia*, No. 119. 50-53


ABSTRACT
If we think about buildings in “business-as-usual” terms, the operational resource flows would be:
- Inputs – Energy, water and materials
- Outputs – Waste heat, waste water and solid waste.

Drawing on approaches already utilised in industrial process design, transport and modern management techniques, the concept of outputs as “waste” could be questioned. To enable built environment professionals to evaluate, optimise, visualise and communicate the potential for interlinking buildings, technically sophisticated tools are required for use at early development and planning stage.

A visualisation tool, currently developed by Sustainable Built Environments using Google Sketch Up, is presented to illustrate the possibilities of enhancing the urban ecology and most importantly provide decision makers with a instrument that allows to appropriately identify opportunities.

Keywords: Sustainability, Planning, Urban Design, Energy Efficiency

Introduction

Efficient resource use in buildings remains one of the key targets for new developments in Australia: green building rating tools such as Green Star provide guidance for a holistic assessments of water, waste and energy consumption of a variety of building typologies with significant environmental; the National Construction Code prescribes increasingly stringent targets for the maximum allowed energy consumption within the entire new Australian building stock; in addition to these two mechanisms, NABERS\(^1\) allows benchmarking actual energy and water consumption in existing buildings based on their bills. It is important to note that all of these voluntary and legislative tools are targeting individual buildings and their performance, i.e., they foster the optimisation of architectural and engineering systems within the site boundary.

The Green Building Council of Australia recently developed an ambitious addition to their suite of tools which is aimed at overcoming this shortfall. Rather than benchmarking single

\(^1\) National Australian Built Environment Rating System
developments the Green Star Communities Tool provides an assessment method to evaluate the environmental, social and economic performance of precincts. The tool is currently in its Pilot phase however it already raises an important question: Do precincts offer an opportunity to capture economies of scale that would allow us to build better buildings and provide better spaces?

Playing, living, working – Stripping a building down to its flows

From a technical perspective, a building in order to satisfy minimum requirements should provide a healthy environment, use only the minimum of resources required and of course be financially feasible to build and operate. While buildings can be quite intimate and emotional places and technical requirements do neither solely determine the overall success of the design nor its environmental performance, focusing on the technical aspects will allow for economical and environmental assessments of design strategies. In order to satisfy the minimum necessities during operation, a building then typically requires the following resource flows:

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<th>Inflow</th>
<th>Outflows</th>
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<td><strong>Electricity and gas</strong></td>
<td><strong>Heat emitted</strong></td>
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<tr>
<td>to run mechanical and</td>
<td>from people, equipment and</td>
</tr>
<tr>
<td>electrical services as</td>
<td>building services</td>
</tr>
<tr>
<td>well as all necessary</td>
<td></td>
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<tr>
<td>equipment (e.g. air-conditioning, lighting</td>
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<td>and computers for an</td>
<td></td>
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<tr>
<td>office)</td>
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<td><strong>Water</strong></td>
<td><strong>Sewage</strong></td>
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<tr>
<td>for potable and sanitary</td>
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<tr>
<td>use as well as for</td>
<td></td>
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<tr>
<td>supporting the</td>
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<td>mechanical systems</td>
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<td>supplied, via mains or</td>
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<tr>
<td>via rainwater harvesting</td>
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<tr>
<td><strong>Materials</strong></td>
<td><strong>Solar Gains</strong></td>
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<td>for ongoing maintenance</td>
<td></td>
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<tr>
<td><strong>Solid Waste</strong></td>
<td><strong>Liquid Waste</strong></td>
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Traditionally, these inflows and outflows are considered as a characteristic to which individual buildings are designed to. Public infrastructure is assumed to provide the inflows and capture the outflows. The current legislation and green building tools in place encourage the minimising of the amount of inflows as well as outflows by optimising the building fabric and mechanical as well as electrical services of individual buildings only (e.g. by optimising the fabric and building services). Green Star Communities now raises the question whether buildings could achieve better performance collectively by connecting the outflows of one building to the inflows of another: Can one office be cooled by moving its heat to another,

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2 There are many books and papers written about the cultural aspects of the built environment, e.g. Senett R, *The conscience of the eye: The design and social life of cities*, Faber and Faber, 1991
possibly residential building, that requires heating at the same time? Could excess rainwater, e.g. harvested on a big box retail development, be utilised in other developments nearby? Is it worthwhile to do this and are there any precedents that could be drawn on?

**Strolling into Process Engineering**

Process engineering is utilised in a large variety of industries such as food, biotechnology, pharmaceutical and chemical production. Much of this work includes optimising resource flows of production lines. As part of this they often deal with similar resources as occur in buildings such that the delivery and recovery of heat, water and waste. These streams often appear in extremes: elements within e.g. a factory might require extremely hot water or steam while sitting physically close to elements that require refrigeration. As a consequence a number of optimisation methods have been developed that help to reuse the outflows of one sub-process as the inflows of another. One of these methods is called *Pinch analysis*\(^3\) or *process integration*. The method is interesting in so far that it demonstrates how to think about different streams:

*Pinch analysis* aims to estimate the maximum useful heat that could be recovered in an industrial process to make the overall process more efficient. To achieve this, all heat loads of the various streams are combined and compared to the combination of loads of streams which require cooling in order to estimate the theoretically achievable maximum rate of heat recovery. By cascading the different heat requirements through heat exchangers, the physical processes is then designed to get as close as possible to this ideal efficiency. In addition to thermal systems, the method has also been used to optimise urban water systems\(^4\). Applying this idea to the built environment would need to include an analysis of the different resource flows of the various (proposed) building types on a site and identifying possible recovery streams. From there an economic evaluation could inform the feasibility of utilising resource streams across building boundaries. It would also be conceivable to use outflows of buildings in order to serve public spaces, satisfying e.g. irrigation or even electrical demands.

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\(^4\) See for example Manan ZA, et al, *Water pinch analysis for an urban system – A case study on the Sultan Ismail Mosque at the Universiti Teknologi Malaysia*, 2006
Third pipes, servers and local energy supply

The general idea of reutilising resource streams is fairly common and accepted within the building industry. Buildings already utilise three pipe air-conditioning systems which allow transferring heat from areas within a building which require cooling to areas which require heating. These systems are commercially available and are used within larger scale offices and mixed-used developments. Third pipe water systems provide recycled water from sewerage treatment plant to service lower grade water demands. A number of research papers have also been written about effective ways to cool server rooms by removing heat and use it to warm up nearby spaces\(^5\). The common theme among these examples however is again the optimisation of buildings within their own boundaries rather than extending the approach to development close by.

The City of Sydney recently supported the installation of cogeneration and trigeneration systems. A cogeneration system provides heat and electricity using gas in a very efficient and environmentally friendly way while a trigeneration system adds cooling on top of this. The problem when implementing co- or trigeneration is the following: in order to be feasible, they must be sized to maximise the use of the electricity produced. For economical and sometimes technical reasons, utilities have no incentive to allow building owners, who would like to implement any of these systems, to feed excess electricity into the grid. Therefore these systems are typically designed to only satisfy the base load electricity demand of one building: this is a portion that can range from less than 10% to around 40% of the total demand depending on the specific building type. If buildings could be connected to each other, co- and tri-generation systems could be significantly upsized leading to increased environmental and financial benefits.

Constraining Planning and Planning Constraints

Environmental Sustainable Design (ESD) has been a target of planning objectives in recent years. The difficulties councils faced when trying to implement ESD often related to conflicts with the Building Code. Ambitious councils asked for specific design initiatives to improve sustainability (e.g. double glazing) as part of the planning permit. The initiatives however were sometimes successfully challenged by developers arguing that the conditions of the permit overlap with Building Code requirements. Trying to establish building service provisions beyond the boundaries of individual buildings would seem to fit extremely well into the planning realm and could assist in making reasonable ESD planning provisions that

\(^5\) E.g. see Peck, R; Fogarty, P, *How to built a real green data centre Part 3*, NDY White Paper 2008
would clearly not clash with any provisions made in the building code. Projects, especially such as Armstrong Creek, Aurora or Maribyrnong, would provide a great opportunity to achieve higher efficiency by interconnecting development and also provide an innovative infrastructure for future generations. Many of the opportunities discussed above though quickly become fairly technical and reach into advanced engineering. How can planning respond to this and make a reasonable assessment of what efforts are worth pursuing?

**How can we visualise the potential?**

The discussion above highlighted that the technology to share resources between buildings is available. It also highlighted that there are administrative obstacles which require some resolution. To overcome the latter, it will be important for planners and decision makers to obtain a feeling for the potential benefits of sharing resources for a specific site or development so that potential legislative obstacles can be removed. Engineers can provide estimates for typical consumption patterns of various building types which can present a numeric assessment of costs and benefits, however in order to reach and influence legislation, it is believed that a visual tool would be preferred.

SBE is currently working on a tool that would enable planners to visualise resource demand estimates. The data required for the visualisation would rely on predictive thermal modelling of building typologies relevant for a specific project (e.g. retail, commercial, multi-residential). This is a well established technique in the building industry and currently used to optimise building fabrics and systems.

The visualisation of the resulting data is done via Google Sketchup as shown in the picture above, which illustrates one proposed style of representing data. By automatically reading the previously produced data from a file, the tool will animate the various loads occurring within the proposed project. The relevant time frame for different resources varies. For
instance, heating and cooling loads would need to be shared more or less instantly and would be visualised on an hourly basis for critical days. Since water demands and rainwater harvesting can be balanced by storage tanks, the visualisation of water resource streams might focus on monthly data.

It is hoped that the proposed visualisation will assist in not only highlighting the overall potential of inter-connecting building design but also assist planners to identify how often could a certain resource be shared between certain building types and which building types show promise for cross-utilisation of resource streams and should thus be located close to each other. Having access to this information could allow for better planning of large scale projects during their initial inception phase. The approach outlined above would face the typical uncertainties of predictive computer modelling which however is not significantly different to the uncertainties of modelling individual buildings. Further, given that retrofitting required infrastructure across existing developments is likely to be cost prohibitive, the tool and design approach would target new, precinct type developments such as Armstrong Creek, Aurora or Maribyrnong.

**Conclusion**

The sharing of resources already exists on different scales and also in different industries and the technologies that are required exists. Inter-connecting buildings has some potential to increase resource use efficiency within the building stock. With the release of GBCA’s Green Star Communities Tool, it becomes more likely such ideas are explored.

In order to facilitate cross utilising of resources beyond individual buildings, an assessment of the costs and benefits would have to be made early on during the planning stage. To assist in identifying potential benefits, SBE proposes a new tool for visualising demand and supply curves of precincts so that planners and decision makers can obtain a good understanding of the potential. Once the prospective benefits of interconnecting buildings are quantified, other obstacles could be addressed in a more focused way. The tool proposed is currently under development and planners and architects are invited to provide feedback, comments and ideas. Redirecting resource streams between buildings will require some significant organisational efforts. The approach is also prone to create split incentives between stakeholders which would require creative economic models to overcome. Tools and ideas such as outlined above would be the first step when evaluating the potential benefits for interconnecting buildings and assist in deciding which further steps should be undertaken.
Urban Density – an Activity Centre Panacea or Placebo?

Mrs. Yogeshwari Biju

City of Casey Council

Melbourne, Victoria, Australia

ABSTRACT

“The meeting of two personalities is like the contact of two chemical substances; if there is any reaction, both are transformed.” 1  Carl Jung

Carl Jung’s insight into the human condition reflects the exact dilemma presented in the urban fabric of Berwick Village in Victoria’s exploding outer south-east. How can the needs of an evolving and growing population be accommodated and nurtured whilst preserving the defining characteristics that have attracted and sustained its resident population for so long?

Nestled at the foot of rolling leafy hills, the Berwick Village activity centre exudes a gentle charm reminiscent of a more traditional English village, with low scale built form along High Street and smatterings of heritage buildings. Dappled cool shade from avenues of large exotic tree canopies bathes all the major streets, and an eclectic mix of fine grain shops are tied together with classic High St verandahs.

However the nostalgia attached to the local character is now in tension with the transformative effects of the area’s urbanization into a sub-regional centre. The creeping pressures of parking, traffic and circulation, and unsympathetic new built form threaten to strip the heart of the centre of its defining attributes, and render it another placeless activity centre.

The Structure Planning process for the Village seeks to marry the urban densification aspirations of State Policy with the existing Village character. The key to maintaining the character and amenity in a neighbourhood is the balancing of public and private benefits. This paper focuses on the challenges of planning and designing in established high character activity areas; how to identify strategic sites for substantial increase in density whilst preserving local character; and the embedding of the resultant principles in the Berwick Village Structure Plan and Urban Design Guidelines.

Key words:
Place - Identity, Neighbourhood Character, Urban Densification
INTRODUCTION

“First there was downtown; then there were suburbs; and then there were malls”. 2

The evolving ‘creative civilization of the ground’ 3 has become the battle front of two nebulous yet conflicting forces in contemporary Australian society: ‘growth’ and ‘quality of life’. This has spread predictably to the City of Casey, one of the fastest growing municipalities in Victoria, where the leafy township of Berwick has become immersed in the seemingly irreconcilable dichotomy (refer Image 1).

Increasing density is often presented as the panacea for our growing city. However the frenetic growth and hyper-densification of cities in China with their resultant social and urban outcomes has shown that density is by no means an end in itself. It can end up a hollow promise; a placebo that does not deliver the aspirations of planners and urban designers.

However, these negative precedents are not defining of the role of density, as there exist many successful and well resolved marriages between urban character and intensive development which provide insights that light a way forward. Exploration of better urban density designs needs to be an essential component of our planning mechanism.

Further, there is a strong link between urban form and sustainable development. It has been well documented that a sustainable city ‘must be of a form and scale appropriate to walking, cycling and efficient public transport, and most importantly encourage social interaction’. 4 The principles underpinning the drive for densification are crucial to its successful implementation, and if these are embedded into the controls and policies guiding development then density becomes an important strand in the delivery of a thriving urban fabric.

Growth is not simply more houses. 5 Whilst intensification of Activity Centres across Victoria is generally accepted as a fait accompli in our contemporary planning and housing policy, the research literature is inconclusive on the benefits. 6 The primary objective is to build a thorough understanding of the human significance of a ‘place’, without which it is
impossible to define the characteristics that render it special, let alone to know how to repair existing places in need of mending.  

These ‘place’ considerations inevitably lead the discourse directly to the issue of local neighbourhood character, those key elements in which the community takes pride and invests a sense of ownership. That dominant image of a place and the entire urban landscape thus becomes “the symbolic repository of value of all kinds – economic, political, aesthetic and religious”. One of the key planning goals is to ensure that changes in suburban form and density are responsive to the local character and expectations.

Places of cultural significance enrich people’s lives, often providing a deep and inspirational sense of connection to community and landscape, to the past and to lived experiences. The sweeping forces of urban change and the meeker forces of preservation continue in conflict across the country. This paper aims to reinforce an approach to suburban densities that can embrace the need to grow yet does not compromise the local character innate in some traditional street based centres.

Long established and thriving suburban centers are a culmination of individual Australian value decisions about the best ways to live, work and play, and reflect our societal beliefs about what constitutes a ‘home’. These centres are the delicate balance between the unlimited development opportunity and the effective and cherished character that provides local address. Our new growth areas are now witness to the creeping and seemingly unfettered trowelling of this ideology across green field sites, and planners and urban designers increasingly realize that these formative suburban centers are the crucible of Australia’s urban future.

Using the Berwick Village at the City of Casey in south-eastern Melbourne as our canvas, this paper is an attempt to dispel the notion that communities have to lose in this intensification and growth process, that density does not equate to bartering away the old traditional urban patterns and nostalgic sense of nineteenth century place just to make way for an inferior twenty-first century model. It focuses on what our communities could gain simply by exploring the factors underlying the resistance to change, understanding the critical elements that define the place, and identifying strategies through which that character can instead be enhanced. Its time to redefine some of the density
misconceptions construed through the current planning system, and to employ more innovative structure planning processes to heal the relationship between growth and character.

**Setting the Scene: the ‘place - identity’ of Berwick Village**

The Berwick Village Activity Centre is identified as a Major Activity Centre under State Government and Local Planning Policy. The Activity Centre covers more than 170 hectares, comprising land extending from the Bill Hudson Reserve in the west to St Margaret’s School in the east, from Pioneers Park in the north to the Princes Freeway in the south; including Monash University, Chisholm Institute and Casey Hospital (refer Image 2).

Berwick Village (the Village) holds significant historic, cultural, economic and social values within its urban fabric providing design richness and collective place, and delivering a community narrative of Berwick identity. Nestled at the foot of rolling leafy hills, the Berwick Village activity centre exudes a gentle charm reminiscent of a more traditional English village, with low scale built form along High Street and smatterings of heritage buildings. Dappled cool shade from avenues of large exotic tree canopies bathes all the major streets, and an eclectic mix of fine grain shops are tied together with classic High St verandahs (refer Image 3).

The Village is a mix of heritage buildings (Victorian, Tudoresque, neo-Gothic and Venetian style architecture), accessible from all sides on public transport and well connected by a good network of streets. There exists a high level of north-south and east-west permeability through intimate walkways, laneways, arcades and pedestrian-prioritised streets. Its northern aspect to the sun provides appropriate micro climate and thermal comfort for excellent outdoor dining and informal ‘people spaces’ (refer Image 4).

**Community Resistance: beyond the NIMBY syndrome**

Conversely, the nostalgia attached to the local character is now in tension with the transformative effects of the area’s urbanization. The creeping pressures of parking, traffic and circulation, unsympathetic new built form, declining health of the older trees and limited space to plant new ones, combined with a huge community resistance to change and intensification collectively threaten to strip the heart of the centre of its defining attributes, and render it another placeless activity centre.
The real challenge for Council Officers has been to enhance and build upon the positive image of Berwick as a desirable place to live, to attract business investments, to create employment opportunities, to draw future residents and to strengthen the community pride in existing residents. This has been sought through the consistent facilitation of developments that acknowledge local cultural, historic, environmental and climatic factors in shaping design solutions for the Area.

**Structure Planning Process Matters**

The Structure Planning process for the Village seeks to marry the urban densification aspirations of State Policy with the existing Village character. A successful union must go beyond the mere accumulation of borrowed features and compartmentalization of growth, by laying out a blueprint for genuine integration of new built form into the existing palette and massing.

A new way of defining and regulating new development was required. The planning process commenced with specialist background research that included a review of the centre’s existing policy, commercial and socio-economic context, a thorough urban design analysis and neighbourhood character study, as well as compilation of information about the centre’s land use, employment and customer composition. This depth of immersion in the site and the breadth of analysis provided a solid foundation for delivery of a meaningful and truly place-based strategy.

Community consultation for the development of this Plan was guided by a Community Stakeholder Strategy prepared for Council in 2008. Consultation included key stakeholder workshops, focus groups, and a series of design charrettes, all overseen by a cross-functional project Steering Committee. This approach extracted a rich and insightful understanding of what is valued and most important to the local community, and also what types of existing and possible activities are most disliked or feared.

Workshops highlighted the…”small-town, friendly historical aspects” and “…less tangible characteristics such as the social and community mix, and the people. In insensitive development, congestion, lack of parking, lack of facilities for young people, and antisocial behaviour around night spots” were highlighted as community dislikes.
All these became inputs that helped inform the vision, keeping it focused on what the community actually cares about rather than an “ivory tower” presumption.

**A Strategic Vision: to eliminate the density cynicism**

The Plan sets out a vision for the future of the Village and addresses four main themes - land use, access, built form, and the public realm. It identifies local character and land use precincts within the centre, as well as strategic sites to accommodate growth.

“A thriving commercial centre which meets the needs of a growing regional population while retaining its essential Village character. It will maintain links to its country village heritage and will remain a vibrant, friendly, pleasant and attractive place to be. It will provide development opportunities for retail, commercial and residential, but in the context of a high quality built environment which promotes environmental sustainability.”

The strategic response to this vision is an integrated package of proposals which sees High Street enhanced as the social and retail spine for the activity centre. Clarifying this zone of character has opened opportunities for more intensive development away from High Street in less sensitive locations, yet still proximal to the activity.

The densification of form and its distribution pattern is triggered by the Capacity Modeling Study\[14\] prepared for Berwick that forecasts the demand and supply regime for retail, commercial, community and residential floor space over time. A density simulation of the urban future of the Village sets some design parameters for growth. The scale and character of High Street will be maintained in accordance with this by limiting new development to two storeys, but allowing for infill and second storey development of small offices and shop-top housing (refer Image 6).

The pedestrian scale and atmosphere will be enhanced by further landscape and design improvements to the streetscape and the central median strip. The lanes, walkways and arcades feeding into High Street will be strengthened and improved, with provision for additional walkways to achieve an engaging and activated pedestrian environment for shoppers, workers and visitors. Walking links to nearby parks will be created to promote a
healthy and active lifestyle, and offer high amenity open space close to the activity hub (refer Image 7).

High Street will remain as the social and community heart of the Village by ensuring that future development is spread evenly - or balanced - on both the northern and southern sides of the centre to prevent High Street from becoming geographically lopsided and marginalised. The Berwick Village Activity Area reveals excellent development and intensification opportunities as there are a number of strategic sites and several precincts which can accommodate growth without compromising Berwick’s special character (refer Image 5).

**Urban Design Strategy: juxtaposition of reassurance and stimulation**

Urban design and architecture can and must contribute to the neutralization of losses by eliminating oppressive spatial effects and compensating them with ‘allure’. Piecing together the complex puzzle of built form and urban realm in a considered and intelligent manner can produce high quality interior and exterior domains. The urban design approach of Casey is based on an optimistic intensification of the Village that is about maximizing density. This is not merely increasing leasable floor space or people, but instead is an optimizing and guiding the delivery of a mixture of ‘place’ ingredients to deal with particular problems that are inextricably connected with the former.

The Urban Design Guidelines provide detailed built form and public realm guidance for all property owners, developers, building and design professionals, planners and the community on how to achieve the development vision for Berwick Village, as expressed in the associated Berwick Village Structure Plan. The City of Casey continues to strongly encourage property owners and developers to have a clear understanding of the Berwick Village Structure Plan and Urban Design Guidelines prior to the lodgement of an application; in order to be able to respond and adhere to the Council’s vision for Berwick Village.

The Strategy lays out a few non-negotiable design criteria that all the future developments must respond to. The following key design elements that strongly contribute to the local identity (refer Image 3) are underlined as the ‘character statement’ for the Village, being:

- Heritage Buildings & Character
- Fine Grain, Pedestrian Friendly, Street Based Activity Centre
- Native and Exotic Mature Trees
- Pleasant Views to the Hill, Impressive Approaches and Long Distance Vistas of the Landscape
- Low Scale, Vertical Rhythm, Verandah Style Built Form within the Village Centre

This will mean from a community point of view, there is clarity and reassurance that the area will continue to retain its heritage feel; and from a developer perspective there is ample opportunity to meet the preferred yield and allow a contribution to the public realm; with Council overseeing the overall process of achieving that strategic vision.

The Urban Design Guidelines document provide detailed built form guidance that is assembled in three parts; general design guidelines for the study area, precinct design and development guidelines that is precinct specific design requirements to meet the preferred precinct character outcome, and strategic site design requirements that is site specific design objectives and requirements that the development should respond to.

The key design parameters guide developments to achieve a safe, attractive and walkable street that is pedestrian scale with appropriate architectural proportions along the street wall and cross section. Decent and sensible setbacks respect and appreciate the local heritage buildings and heritage trees. Building heights up to 16m or more (on strategic sites nominated for intensification) with 4m setbacks above 2 storey levels, express and respond to existing heights, reduce visual bulk and avoid blocking of solar access. Smart and green building design is also encouraged, that is generally fine grain and active at the street level and is not detrimental to the residential amenity.

More intensive development is possible on strategic sites (including large sites around the Berwick Train Station and Clyde Road for Transit Oriented Development) and adjacent precincts, but needs to be guided by urban design principles that set high standards for design and amenity as well as protect and enhance the place identity. Development in these areas will easily accommodate the forecast growth over the Plan’s period to 2030, based on the Capacity Modeling for the Village (refer Images 8a & 8b).
Resident activists effectively showed openness to change when convincing design techniques founded on strong design research and motives were presented. Supportive three dimensional models, artist impressions and animated digital visualizations, all assisted this understanding and ownership during the public consultation process (refer Image 9 and 10). The sensitivity surrounding the potential bulk and height of higher density were addressed through appropriate design controls on setbacks and preferred street themes. In the context of this new and rigorous development policy in Berwick, the development industry has shown significant interest in emergent opportunities for attractive and liveable built environments. New development proposals have proven to be inclusive and enhance the precinct’s character, including the full spectrum of commercial, recreation and housing environments.

Epilogue: a thriving urban form follows culture

“A centre should bustle; and should be full; full of people, of functions and of movements”. 16

Berwick Village is being carefully sculpted to deliver higher densities whilst preserving the key attributes of its established character. Commitment to character is imperative to the density dialogue, creating spaces that exude comfort, style and harmony in the built form. The city is a product of its cultural context, expressing and organizing itself according to the values of a culture. Arbitrary patchwork approaches will lack a consistent identifiable internal and external quality, diluting the character it attempts to preserve.

Research proves that resilient systems have multiple controls that are efficient on different scales. A distribution of diversity within and across scales is therefore critical to successful execution of development in a character sensitive precinct 17 Parallel to what Dante puts in the picture on the warmth and comfort felt by a interloper who is a connoisseur of such ‘places’, and that Dante-esque 18 vision brings him an electrifying experience; for that is precisely the significance of the unexplained of outer suburban centres.

A well informed urban design strategy will only mediate and facilitate the process of achieving a high quality development outcome for the community, but the local community has the final say. This concept naturally highlights the positive characteristics which shape neighbourhood identity and those which detract from it. It reinforces the importance of local planning to ensure that:

- Desirable characteristics are maintained and reinforced
• Past mistakes can be remedied
• Scenarios for future developments can be established.

"It is not possible to make great buildings, or great towns, beautiful places, places where you feel yourself, places where you feel alive, except by following this way". And, it is increasingly apparent that, by understanding densities; well molded urban structures which are themselves as ancient in their form, as the trees and hills, and as the local communities are, can be created.

The most obvious issues that future development forms will address are; accommodating growth, energy consumption, accessibility, economic viability, ecological integration and protection, social and community enrichment, political achievability, popular aspirations of quality of life and the burden of proof of success.

**Place Based Approach for Activity Centres: addressing the anomalies of the planning system**

Place and identity are dynamic social constructs that we often come to see as fixed and natural, but both are dynamic, changing with each other reflexively. A better understanding of place and identity is fundamental to transforming cities. The key to maintaining the character and amenity in a neighbourhood is the balancing of public and private benefits. Private development should provide the best outcome for the site and its residents; however it must also extend to the broader neighbourhood identity and amenity. By clarifying the preferred neighbourhood characteristics for each area where a plan will apply, a context and agenda for change is established that provides clear guidance for councils, communities and developers.

This can be achieved only if the Structure Plan offers a whole package of cultural and spatial qualities of a ‘place’. The study also clearly demonstrates that variation of age, texture, and scale in buildings inherently brings a degree of richness to the streetscape that encourages walking and supports quality of life. The reason why high-rise isn’t the panacea but an inactive placebo for some Centres; as the more extreme urbanists believe, is the same reason that we need to conserve these character areas equally.
Successful and vibrant high-density centres are not born simply through tall buildings, but a granular multiplicity of building styles that foster a diversity of form and function. This is ultimately pro-density, but manifesting incrementally in the right places and in the right ways.  

Through detailed research Casey has been able to negotiate a good outcome and wide acceptance of the development proposals; alleviating the continued community objection and skepticism of the Structure Plan’s efficacy.

There is no doubt public faith in Victoria’s planning system is low following several contentious suburban overdevelopment cases; and with the unsatisfactory and disquieting situation continuing, there is pressing need for local governments to restore confidence and certainty in the community through reforms, including more transparency in its decision making, simpler planning processes and assurance in outcomes; to conceivably lead “the one timeless way of city making; that is a thousand years old, and the same today as it has ever been”.

Acknowledgement
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End Notes


5 City of Casey (2011) Inquiry into Liveability Options in Outer Suburban Melbourne, Report to the Minister of Planning as part of the Logical Inclusion and Liveability for Growth Areas submission


24 Quotes from Dunn, L. (2009) “*Preservation Green Lab*”, National Trust, Seattle
Appendices

Image 1: Regional Context Map

Image 2: Berwick Village Structure Plan Area

Image 3: Berwick Village Character Statement
Image 4: Berwick Village Design Elements
Image 8a: Street Themes
Image 8b: Street Themes

Why the 1917 Geddes Plan did not Materialise: Planning for Planning’s Sake in the Case of Dhaka

Bayezid Ismail Choudhury
University of Sydney, Sydney, Australia

Urban planning is inherently a political process addressing social justice and social coherence. However planners are fixated with the physical and social aspects of planning, overlooking its deeper aspects. This paper discusses one master plan for the city of Dhaka. The 1917 plan by Patrick Geddes, developed at a time when the British had abandoned their plan for Dhaka to become the provincial capital of Bengal. In this instance the planner lacked the cultural awareness to address the requirements of the people of Dhaka and the plan failed. The initiatives can be argued to represent ‘planning for planning’s sake’. This paper will try to provide new insights for failure, arguing that the perceived failure may, in fact, be interpreted as a political approach by the planner.

Key Words: Geddes, Dhaka, Master Plan, Politics, Social Injustice, Planning

(Stream: Political Strategies)
Introduction

Dhaka, the capital of Bangladesh once regarded as the Venice of the East, has been one of the most significant cities in the subcontinent since the Mughal rule. Once a Mughal capital, it declined in prominence when the colonial British government moved the capital elsewhere in 1715. However, it was valued for its strategic location by the Buriganga River and the British relocated the provincial capital to Dhaka in 1905. This decision was overturned in 1911. Dhaka again regained its significance as the capital of East Pakistan, with the emergence of Pakistan as an independent nation in 1947. East Pakistan became Bangladesh and Dhaka its capital in 1971 (Choudhury, Faruqui, 2009).

Several master plans have been developed for Dhaka since the beginning of the twentieth century. The first was proposed by Patrick Geddes in 1917, during British Colonial rule. The partition of Bengal in 1905 and Dhaka’s promotion to capital of the Eastern province ushered in a new era for the people of Bengal, particularly for Muslims. Partition was a significant factor in the major social, political, cultural and infrastructure developments of Dhaka at this time (Chakraborti, 2009). But due to the annulment of partition in 1911 Dhaka lost its prominent position. It was against such a backdrop, in 1917, that Geddes formulated his master plan after a short visit to Dhaka in 1916. Geddes had been invited by the Governor of Madras, Lord Pentland, to design several cities in India (Hayder, 1987). ¹

Geddes’ report comprises nine chapters in a brief 22 page document, including chapters like Geography and Town Origin, Survey of Dhaka, Study of Quarters in detail, Housing issue, discussion on Open Spaces, discussion on Cannels etc (Geddes, 1917). He underscored the need for comprehensive town planning. Inspired by the beauty of Dhaka, his vision is mostly rhetorical and utopian, firmly planted in the western tradition. Although the geography of Dhaka and other social aspects were defining factors of his plan, he failed to inspire a vision that could be formally implemented. Hayder (1987, p. 12) argues, “His proposal was an informal document - a sketchy guideline for the future development of the city. It never met with formal

¹ Geddes studied natural science in London and Paris. He started his career at the University of Edinburgh in 1880 as a part time lecturer in natural science at the School of Medicine. Later he became Professor of Botany at Dundee College. He was engaged in town planning activities during this time (Meller, 1990).
recognition”. He argues that the main drawback of this plan was its incompleteness and lack of detail (Hayder, 1987).

This paper argues, however, that it was not due to incompleteness or lack of details that Geddes plan, did not materialise. Rather it was due to lack of political insights and a failure to address prevailing social injustice. This argument is based on the premise that political vision and awareness and understanding are major factors in the success of urban planning. Hoch (1994, p. 361) asserts, “planners may engage in the politics of vision, interests, and advocacy and do well. Planning thrives, however, in the political domain of deliberation and consensus”. This paper considers Hoch’s perspective in examining the contributing factors in the failures of the Geddes master plan.

The Essence of Successful Planning: Understanding the Dynamic of Politics and Addressing Social Injustice

Planning is a broad issue encompassing social, political, cultural, physical and environmental aspects, often viewed within the limits of physical terrain. Physical issues like land use, land allocation, and development control planning dominate the realm of urban planning. However, the essence of planning is rooted in its political dynamics and its democratic potential. Too often, the political context, involving interaction of people in a city is ignored. Cherry (1970, pp. 61-2) points out, “up until now planning has been obsessed with the idea of place: instead, it is argued that the essence of the city and city life is interaction”.

Planning is a process requiring a deep and thorough understanding of underlying socio-political issues and trends (Cherry, 1970). Thus politics emerges as an inseparable part of planning as it pertains to its social context. The domain of planning has been politicised more so than most other professions (Dimitriou, 1973). As such the dynamics of politics in urban planning is a reality (Greer, 1964). This dominance of politics in urban planning also emerged from the discourse set out by many scholars, such as Vasu (1979), Post (1996) and Friedmann (2005). The pervasive role of politics in planning makes it necessary for planners to be more aware of the political context in which they operate.
The Dynamic of Politics and Social Injustice — the 1917 Geddes Plan

The immediate history of politics and social injustice prior to the 1917 Geddes master plan has its roots in the 11th century. From that time a complex ethnic and religious situation characterised the life of the city of Dhaka and the rest of Bengal. After lower caste Hindus embraced Islam as religion, a new identity of Bengal Muslim’s evolved. This conversion gave them a sense of emancipation from the Hindu Brahmins² (Uddin, 2006; Khan, 1985). This Islamic identity was a strong feature of the subsequent cultural and political development of Dhakaites (Khan, 1985), particularly the emergence of Muslim nationalism during the period of British intervention in this region (when the British took over from Mughal and Nawabi rule after the battle of Plassey in 1757)³. The Hindus became close to the British and thus Muslims of this region were marginalized (Ashraf, 1982). With few exceptions, the Muslim people of Dhaka remained apart from all kind of social, political and cultural development until the early 20th century (Akhtar, 2009).

The Hindu dominated administration was mainly governed from Calcutta, which was the capital of India till 1912 and the major administrative and cultural centre in the early 20th century (Khan, 1985). Despite a much greater contribution to the national economy, Dhaka and eastern Bengal remained under-developed.⁴ The people of Dhaka, especially Muslims, were well aware of their deprived status and desperately sought the attention of the British, shifting from their previous anti-British stand (Ray, 1985).

² The first chronicle of Hindu Muslim conflict was in the 13th century in Bengal and other parts of India. This long standing conflict and mistrust continued in India and Bengal till the creation of the Muslim state of Pakistan (East and West) in 1947 based on ‘Two Nation Theory’. Jinnah, the father of Pakistani nationalism propagated the idea of two nation theory in all India Muslim league Conference in 1940. The grievances of Bengali Muslims culminated due to dominance of Hindu landlords over the Muslim peasantry in the first half of the 19th century. The eruption of Ferazee and Wahabi movement by the Muslims was a reaction to the tyranny of Hindu landlords in Bengal (Chattopadhay, 1977).

³ The Mughal (Muslims from Central Asia) emerged as one of the supreme powers in the history of Northern India when Babar, the first Mughal ruler, defeated Ibrahim Lodi in 1526 (Baxter, 1998). The Mughal took over Bengal and Dhaka in 1610 and renamed Dhaka as Jahangirnagar after the Mughal ruler Jahangir. Dhaka was made provincial capital at that time (Schendel, 2009). Later in 1715 the capital was shifted to Murshidabad, leading to the decline in the importance of Dhaka (Baxter, 1998). The Battle of Plassey in 1757 marked the end of Mughal rule in Bengal with the defeat of Nawab Siraj-udidoula. Following this battle the British ruled in Bengal (Schendel, 2009).
1977). Some of those in the British elite understood the situation and were sympathetic to the plight of the Muslims. In February 1904 Curzon visited eastern Bengal.\(^5\) He understood Muslim grievances and the distress and neglected administrative and educational structure of Eastern Bengal and Dhaka (Ray, 1977).\(^6\) According to Ray (1977, p. 34), “all this could happen, because ‘the old government was engrossed’ with Calcutta and the surrounding areas where they were spending practically the whole revenues of Bengal”. Lord Curzon responded by creating a new province of eastern Bengal and Assam by dividing greater Bengal (Ray, 1977). On 16\(^{th}\) October 1905, the partition of Bengal came into effect. Dhaka became the capital of Eastern Bengal and Assam (Akhtar, 2009). Despite Hindu dissatisfaction and the majority of the British supporting the Hindus the partition went ahead because of Curzon’s unyielding support for the Muslims (Ray, 1977).\(^7\)

The partition of Bengal ushered in a new era in the life of Dhaka with a promise and hope of renewed development in all sectors, especially education, administration and architecture (Chkraborti, 2009; Islam, 2009).\(^8\) Chakravarti (2009, p. 252) writes, “As the capital of the Eastern Bengal and Assam, Dhaka regained its dignity and many of the government offices with all their paraphernalia were established in the city”.

The partition of Bengal and with Dhaka as capital also opened horizons for the politically conscious Dhakaites. Thus the ‘All India Muslim League’ was born at Dhaka in 1906 (Islam, 2009; Schendel, 2009). The partition was also instrumental in the introduction of representative politics in urban municipalities including Dhaka, later

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4 Dhaka and the adjacent area of east Bengal became important economically in the 1850s due to the Crimean war, as most of the jute supplied came from this part of India. This jute boom contributed significantly to the national economy of India (Akhtar, 2009).

5 Lord Curzon was appointed as Viceroy and Governor General of India in 1899 and again in 2004 (Gordia, 1993).

6 There are several theories in relation to this partition. Ray asserts, the British did this partition to facilitate administrative convenience. The British administration covered an area of 189,000 square miles and with a population of 78 million was too large to be administered effectively (Ray, 1977). Dhar, on the other hand asserts, it was a predetermined move on the part of the British to divide and rule the Muslim and Hindu community and create disharmony (1987). It is, however, fact that the relationship between Hindus and Muslims became seriously strained due to the partition (Ray, 1977).

7 The act of Partition by Curzon did not please most of the Hindus and he appeared to them as a reactionary dictator with lack of vision (Ray, 1977). However, Biswas (1995), a Hindu academic asserts, the act of division by Curzon was a prudent one to address the grievances of the majority of deprived Muslims in Bengal and Dhaka.

8 Governor’s Residence and Curzon Hall are two architectural examples from this period (Schendel, 2009).
expanded to other areas (Schendel, 2009). Thus the fruits of partition transcend the boundary of Dhaka.

The Hindus of Calcutta feared the loss of power and economic control due to the development of Dhaka’s administrative reform and infrastructure and agitated against partition. In particular, lawyers in Calcutta were concerned at changes in the High Court in Dhaka (Ray, 1977; Schendel, 2009).

Finally in the face of Hindu resistance the Prince of Wales King George V, annulled the partition of Bengal on 12 December, 1911 at the Durbar of King George V (Cronin, 1977). To many Muslims the politics of the British and Hindus had combined to deprive the Muslims and Dhakaites from their fair share (Khan, 1985).

With the annulment of partition Dhaka was no longer a capital city and development ceased. Chakravarti (2009, p. 252), a Hindu scholar argued, “The annulment of the partition of Bengal virtually reduced the status of Dhaka almost to that of the earlier time”. It was against such a backdrop that Geddes devised his plan for the development of Dhaka. The commissisoning of Geddes was mainly undertaken to appease the aggrieved people of Dhaka (Biswas, 1995). But it did not consider the political context and was not sympathetic to the social injustice of the annulment of partition. Further shocking to Dhakaites, the report was published in Calcutta by the Bengal Secretariat Book Depot. All those Geddes acknowledged in the report were Hindus, further demonstrating a disregard of the Muslim majority in Dhaka.

Muslim leaders in Dhaka continued their political activities to stop the annulment decision but failed. They were in part appeased when finally Lord Harding, the viceroy of British India in his sojourn in Dhaka recommended the secretary of state to India to establish the University of Dhaka (Islam, 2009). On 2 February 1912, the government of India decided in principal to establish the University of Dhaka and formed a commission named ‘Calcutta University Commission’ to look after the matter (Islam, 2009). Thus the Hindu government commission assumed authority and interfered in this decision. They ensured as much delay as possible to establish the University of Dhaka (Biswas, 1995). Geddes’ plan included much discussion about the University.
In Retrospect

Geddes' failure to acknowledge the troubled history of Dhaka and his lack of awareness of the sense of marginalization of the people of Dhaka meant that his plan was doomed. Rather than seek to understand the political, cultural and social context in which his plan would operate, Geddes developed his plan for planning's sake. The true strength of planning lies in the identification of the root causes that hold back the development of society (Cherry, 1970). The story in this paper show that the Geddes plan was initiated when Dhaka was stripped of its provincial capital status and thus the hope that came with political emancipation was not fulfilled because of intervention by a colonial power. Geddes plan took a utopian approach to land use and social planning, working in isolation from the context in which the plan would be implemented. The plan could have seized the opportunity to adopt a cross-cultural perspective, assuming the role of negotiator and mediator, thus enabling planning that encompasses advocacy and democracy and comprehensively addresses the needs of the people and society. As Hendler (1995) states, the role of planning is to resolve past wrong and uphold the right of deprived citizens. This view is supported by Catanese (1984, p. 27), “The planners should learn the skills of the politician with regard to compromise, conflict resolution, negotiation, and arbitration. This is the only way for the planners to become a significant force for change". Hoch’s view that “The visionaries, however encounter serious difficulties in politically charged setting:” (1994, p. 299) can be applied to Geddes’ plan.

In summary, we may conclude that for planning to be successful it is imperative to consider the political milieu, the setting, the context. How can this political understanding be better incorporated into the role of the planner, without undermining the profession? As Post (1996) states, “As a result of the political strain, planning as an autonomous profession is increasingly discredited” (p. 125). Politics is a reality which plays a pivotal role in realizing the perceived idea of planner.
References


THE OPPORTUNITIES INHERENT IN AN URBAN DESIGN APPROACH TO CONTRIBUTE TO THE PRODUCTIVITY OF TOWNS, CITIES AND REGIONS.

Gareth Collins
Principal Manager, Centre for Urban Design
NSW Roads and Roads and Maritime Services, Sydney, Australia

ABSTRACT

Major infrastructure, be it utilities, transport, educational or health based, needs to contribute to society according to its role. However with the vast sums of state and federal money spent on infrastructure projects, are we getting the best out of them with regard to creating productive neighbourhoods, cities and regions? Adopting an urban design approach to the design of major infrastructure can ensure infrastructure projects contribute so much more than the narrow (although essential) purpose they provide.

An example of this wider contribution is the opportunity for infrastructure development to help revitalise areas, enhance commercial prospects and provide space for creativity - all significant drivers in making society productive and vibrant.

Transport perhaps has the greatest opportunity with a wide network of corridors throughout the built environment, which in urban areas both provide a structure for development and a place for all sorts of commercial and creative activity. Furthermore transport has the opportunity to open up or release new areas of activity.

This productivity contribution can be at the regional scale such as the enormous employment areas created since the M7 motorway opened in Western Sydney; at the city scale such as the revitalisation of the old Hume Highway and Dean Street in Albury; and at the local scale such as the contribution of the Bonnyrigg busway station to the local shops, business and new housing. The contribution of low rent - low amenity road corridors to starter business and cash poor creative groups should also not be overlooked when considering transport hierarchies.

INTRODUCTION

The purpose of this paper is to demonstrate that urban design is of vital importance to the economic well being and productivity of cities and regions and transport infrastructure presents a major opportunity in terms of stimulating productivity beyond the transport role it provides. Indeed this paper makes the case that only achieving a transport improvement from transport infrastructure would be not be best value for money and a lost opportunity.

URBAN DESIGN AS A SHAPER OF CITIES, TOWNS AND REGIONS

Urban design is often considered in a narrow way. It has for example been confused with work that results in parks or artworks or a process of improving the design of buildings or infrastructure. Occasionally a cost for urban design is described covering work to make
something look better. Urban design is often separately discussed alongside landscape design as if the urban design relates to structure and landscape design relates to natural and growing things.

Urban design is however the shaping of our cities, towns and regions. It applies to the work that we do in developing our places, maintaining them and setting direction for future change.

If urban design is this, then it must by definition cover all aspects of the built environment, including buildings, bridges, streets and roads, rail, ports, airports, landscape, parks and any other artefact or land use. It must also be fundamental to planning and engineering not something that can be added on and costed separately.

Based upon this definition it is logical to suppose that urban design has the capacity to influence how a city town or region works, to ensure that all the things that people appreciate in a city – open space, good connections, good housing, attractive environment, and safe and vibrant community and business places are considered and included in town and regional planning.

Urban design, in philosophy at least, has of course always existed, either through the work of people like Bradfield in Sydney, Hausman in Paris, Robert Adam in Edinburgh; or through the culture of societies such as that of the Victorians or the Romans; or simply through attrition - the gradual removal of the worst aspects of the built environment and retention of the best through a respect for heritage. However none of these drivers of city design are a given. Societies may not value good cities; people like Bradfield, Hausman and Adam are rare and need patrons; time does not always improve things and much quality has been lost.

Bradfield’s Sydney Harbour Bridge design was wide enough to accommodate rail systems and traffic levels 70-80 years after it was opened. Its form and details have helped create an iconic global structure. Its contribution to the NSW economy is significant.
WHAT MAKES A PRODUCTIVE CITY?

The Australian Government’s ‘Our Cities Our Future’ policy requires that the development of cities needs to meet productivity, sustainability and liveability objectives. Under productivity it promotes aligning workers and workplaces and making one accessible to the other. It supports education, research and innovation. It requires integrated planning and land use. And it promotes investment in public transport.

The relationship between productivity, sustainability and liveability are also stressed in ‘Our Cities Our Future’, and the policy highlights a dynamic relationship between the three objectives. Sustainability means we can best support productivity in a sustainable manner not in a way in which productivity will ‘dry up’ over time. Liveability means we can offer workers or visitors a high quality of life and therefore attract more and better workers (and visitors).

Edward Glaeser in his book ‘Triumph of the City’ points to the success of Vancouver saying it “attracts talent by being one of the world’s more pleasant places to live…. It regularly lands at the very top of global quality-of-life rankings, and that helps it attract thousands of talented migrants each year”.

This connection between quality of life and economic well being was supported when comparing global rankings of quality life with global ranks of wealth.

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Comparison of quality of life and wealth using two established ranking systems. The shaded cities are common to both lists. (It is to be noted that many of the unshaded cities in the quality of life ranking rate relatively highly in extended listing of wealthiest cities).
In summary, well designed cities with good transport, shopping, eating, housing and health facilities in a safe, attractive, clean and green environment help make productive, wealthy places. But what is a well designed city? Is it simply a question of putting all these attributes together or is there more than that?

Edward Glaeser argues that the city cannot be made successful by buildings and projects alone. “Perhaps the most common error was thinking that cities could build their way to success with housing projects, grandiose office towers, or fanciful high-tech transit systems. These mistakes came out of the all-too-common error of confusing a city, which is really a mass of connected humanity, with its structures.” Cities need structure certainly, but this structure needs to support people and their desired activities in a liveable environment.

Herbert Girardet supports this idea and in ‘Cities People Planet’ advocates that liveability is a part of a sustainable future and argues that:

“A liveable city agenda should:

• make places of beauty, diversity and easy contact
• develop vibrant local communities with diverse living choices
• integrate a diverse range of economic activities
• revitalise underutilised land for community benefits
• protect and enhance natural environments and biodiversity
• enhance the benefits of climate, natural setting and architecture
• facilitate cycling, pedestrianisation and public transport
• assure efficiency of traffic flow and minimise traffic impacts
• enhance public participation in decision making”

In order to address these principles urban design in transport has a significant role to play. In no particular order five key design ideas for helping structure and shape a liveable and therefore productive city can be postulated. These are by no means exhaustive and there are many other design principles (for example those relating to sustainability or asset management) but all the five below relate to productivity and economic well being.

1. Create opportunity for human interaction, education and commerce
2. Provide a high quality attractive public domain
3. Ensure security and safety
4. Provide green space
5. Ensure freedom of movement
Create opportunity for human interaction, education and commerce

The shape and form of cities needs to support human activity. Roads and streets being one of the main determinants of city form consequently have a powerful role to play in stimulating human activity.

Allan Jacobs wrote in his book ‘Great Streets’, that “Streets are public showcases, meant to exhibit what a society has to offer, and to entice. The entrepreneur offers the goods, displays them, comes out onto the street as much as will be allowed with wares to be seen.”

Roads and Maritime Service’s urban design policy ‘Beyond the Pavement’ builds upon this idea and asserts that ‘road systems are more than just infrastructure for the efficient movement of people, goods and services. As well as meeting traffic needs, these road systems have a prime influence on the structure, revitalisation and functioning of the urban environment.’

Much has been written about streets, but key economic urban design characteristics include a macro scale layout that allows good connections; a strong city form or imageability; and generous space for pedestrian movement and activity.

At a smaller scale, characteristics include a fine grained built form that allows diverse business use and competition; small block sizes allowing multiple connections to surrounding streets and thus maximised patronage by local residents and pedestrians; and a diverse access strategy incorporating bus stops, taxi stands and car parking.

The layout of a street and road network can fundamentally affect the economic viability of a place. A well-connected high street with small block sizes and multiple side streets provides direct connections and a substantial patronage for business (Sydney, left). A street pattern with parallel roads with limited connections does not create an efficient pedestrian network for commerce and car use is encouraged (Edinburgh right).
As well as streets, towns and cities need traffic free squares or plazas that allow unrestricted activity for markets, people watching, entertainers and community events. This need for such space is deeply ingrained in society and in our historic towns, such as the market place or the town square where people would gather to buy and sell their products and hear news.

This desire for public space and the significant economic benefits has inspired many projects that have reclaimed city space from road space. For example the San Francisco community removed the Embarcadero freeway and created a new plaza on the waterfront, this has created new opportunities for the city and enhanced economic well being.

The Embarcadero expressway in San Francisco was removed to create a public square and a place for public meeting and events

These spaces need not be large but they do need to be free of complexity and therefore available for use. These spaces also provide a pause or breathing space in the city, the combination of space and building creating visual interest, a sense of enclosure, of protection and a place for the commerce of cafes and eating.

Gordon Cullen wrote about “A square for all tastes” in his seminal book ‘Townscape’.

Towns and cities also need space and opportunity for business and enterprise. New streets in lower rent areas for start up business, industrial and storage complexes connected to motorway and rail systems, shopping and retail facilities within train stations and airports. These need to be designed into the city or transport facilities so that they form part of the customer experience, not tacked on.
The M7 motorway in Sydney stimulated economic revitalisation in western Sydney. Since the motorways’ opening in 2005, the Western Sydney Employment hub – connected to the M7 – has developed significantly and is predicted to create over 36,000 jobs by its completion.

Provide a high quality attractive public domain

Design quality is important, if not to create a city that its inhabitants can be proud of and inspired to high performance, but to create a place that attracts people. Whether new workers or visitors, beautiful, interesting and artistic cities draw and attract people.

Design quality is also of vital importance in gaining customer and community approval for new projects. It is not possible today to produce utilitarian projects in our towns and cities. Community consultation processes and urban design go hand in hand in developing and delivering a project. Demonstrating an in depth understanding of local values; scouting the project to ensure it fits in to the local area; and designing the project so that it contributes aesthetically and sustainably to the area are all vital aspects of delivering infrastructure...
If urban design can help deliver vital infrastructure, then it is playing a role in economic development and productivity. The inner west busway project completed in 2011 was a controversial project generating significant community input. The project was scoped and designed to improve the Bay Run a popular jogging and walking track and replace a park needed for construction with a modern useful facility. The bridge was designed with elegant tapered piers and a cantilevered deck to create a slender form. The design of the project has significantly helped in gaining community acceptance of the infrastructure.

Design quality occurs at both macro and micro scale. At the large scale it is recognisable to the world through the great public buildings, the grand vistas, avenues, crescents, squares and parks of all valued towns and cities. These aspects create in essence a branding of the place, advertising that this is a good place to live, work and visit. In this respect protecting and conserving the best historic built form is of great value in creating the productive city.

Dean Street in Albury. The main street forms a strong recognisable boulevard in the town punctuated at either end by the war memorial and a new cable stay pedestrian bridge. This built form is recognisable and used to advertise or brand the town and attract visitors. (Tourist information photo left)
Due to its prominent location on the Pacific Coast and elegant form and alignment, Seacliff Bridge near Wollongong has improved the imageability and tourism potential of Wollongong. It has also provided a useful 'stage set' for many car adverts.

At the smaller scale, design quality is recognised through its timeless nature, its elegance, its durability and also its creative artistic influence. This artistic input is common to many vibrant cities. It is something that the community enjoys and provides a unique sense of place and point of distinction.

Palma in Mallorca, Spain is an exciting bustling town. The art installations, particularly from Joan Miró (whose wife was Mallorcan), add an additional layer of vibrancy and distinction to the place as well as help draw visitors and the business they provide.

In a similar way, the creative input provided to the Tumburumba Road Bridge on the Hume Highway makes for a more interesting highway and contributes to the marking of the access road to Wagga Wagga.
Branding is also something that can be effective in design terms. It can be used to provide an identifiable image to infrastructure such as the M7 Westlink motorway in Sydney. This branding can help differentiate the motorway product and was something that Westlink, the motorway company, invested heavily in.

The Royal Bank of Scotland funded the provision of an access bridge to its headquarters in Edinburgh. The bank included some well designed branding into the distinctive arched form.

Ensure security and safety

Safety and security feature prominently in all the listings for the best cities and here are economic urban design characteristics that can help ensure a safer environment.

These do not relate to standards, access and geometry requirements, which can be achieved whether or not an urban design process is followed. They relate to how the built environment is structured so that the environment looks, feels and is safe and that mitigating elements such as fences, cul-de-sacs, one way streets, noise walls, underpasses, safety cameras and security officers are not needed. In this way it can be seen that urban design is not primarily abut designing these things (although that is often the case) but is also about avoiding the need for these things (and therefore also saving money).

Underpasses are sometimes necessary but their need should be avoided. Aside from the unpleasant spaces they create and the sense of vulnerability they instil, they actually deter people not attract them and thus do not contribute to liveability and the economic well being of the city.
Surveillance is the key consideration meaning that city spaces should be visible, overlooked and populated, not hidden, unfrequented and uninhabited. Structuring and shaping a city which has good surveillance means that streets are important because they are overlooked and busy. It means that parks and open space need to be bounded by streets not backed onto the edge of housing. It means that mixing residential and business land uses, not segregating them, will keep places busy and vibrant 24 hours a day. And it means that walls, barriers and tunnels are minimised, because while protecting us from danger they actually make our environments less secure.

Provide green space

Access to open space is an essential requirement for quality of life. Cramped surroundings and a lack of greenery can make lives miserable, unhealthy and unproductive. Whereas space for recreation, exercise and relaxation can create healthier, more resilient communities and cities.

Much has been written about the health benefits of open green space and it was a subject clearly understood by the Victorian health planners as is evidenced by the remnants of this health system in the Sydney harbour hospital sites at Callan Park, Gladesville and Parramatta. Today we are rediscovering the health benefits of open space and for example the range of courtyards, parks and open space provisions at Westmead Children’s Hospital in Parramatta is generous.

The recuperative effects of green space were recognised by the Victorian health planners. Today the Callan Park hospital site (middle right of the picture) is an important place for the residents of the densely populated inner west of Sydney to relax, recreate and prepare themselves for the working week.

In terms of transport, open space can have significant benefits. It provides a landscape structure in which transport corridors can sit, allowing shading tree avenues in urban areas
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or wider landscaped verges in rural areas. It creates a buffer, which can minimise visual impacts, noise and air pollution and wind exposure and thus allows valuable development possibilities near roads and streets. It can provide public space as a setting for rail stations and airports.

The new intersection for Tweed Heads on the Pacific Highway, shown here under construction on the Banora Point project, incorporates a generous landscape setting which creates a distinctive entrance to the city. The businesses in the area had a hand in shaping the design and wanted to create something special while allowing good visibility of their premises.

Open space also is also a valuable commodity for providing high quality rest areas and service centres. In the former, visitor information can provide wayfinding to towns and local attractions. In the latter businesses dedicated to serving travel needs can thrive.

Urban design principles relating to the provision of open space include: the need to interconnect open space so that it creates a web of greenery throughout the city; the need to incorporate trees as an urban forest; and the need to provide frequent open space so that it is accessible within walking distance to city dwellers.

Rest areas visitor information signage on the Pacific Highway at Paddy’s rest area near Kempsey. The double sided structure provides local information about the area, its history and attractions and was jointly developed by RMS and Destination NSW

Open space on a land bridge delivered as part of the Eastern Distributor project in Sydney. It is a small but valuable piece of land especially for city workers to relax at lunchtime. It also provides an appropriate setting for the art gallery of NSW which otherwise would have been a deep road cutting.
Abbotsbury Park in Western Sydney was built as part of the M7 project and provides a large area of open space of great value to the surrounding residential areas.

**Ensure freedom of movement**

The science fiction novels of the 1970s (for example Joe Haldeman’s the Forever War) envisioned a future where we lived in great arcologies – enormous city buildings that overcame transport problems, optimised energy use and provided safe, climate controlled environments.

While the arcology might not be the answer, dense living can help overcome transport issues. Co-locating transport hubs and apartments such as at St Leonards in Sydney, can contribute to a more productive city as can ensuring both business and residential use is mixed. The old and new towns of Edinburgh are a good example of this with the 5 - 6 storey tenement buildings of the city supporting both shops, offices and residential use in the same space. Urban design can help ensure that these dense urban form solutions are well designed, pleasant places to live and work and integrated into the form of the city.

Whatever the density of the buildings, built form should be aligned and structured to allow freedom of movement and connectivity, not lead to dead ends and one way streets. The roads and streets should be proportioned to incorporate the cycle routes, footpaths, bus stops, road lanes and therefore contribute to solving the transport problem. They should be laid out and arranged so that the rail and bus stations sit within the built environment and contribute to place, not sit isolated within vast car parks.

Bonnyrigg station on the Liverpool to Parramatta Bus Transitway is located centrally to provide good connectivity to the shops and housing at Bonnyrigg.
The Hayward station of the San Francisco Bay Area Rapid Transit was situated in a sea of car parking, which was not the best outcome for the city in terms of productivity, sustainability and liveability. An urban design approach to reshaping and revitalising the area has produced a more productive built outcome and placed the station within a civic environment.

The Champs Elysees in Paris is approximately 70m wide. Of that width the central 25m or so are for roads. The footpaths are each over 20m wide. The boulevard accommodates main routes, service roads, bus routes, footways and cycle ways for around 2km connecting key areas of Paris yet is also an important part of the built environment. It is a colossal street in terms of scale and economic contribution but is as a multiway boulevard is a model for many towns.

CONCLUSION

There is clearly a relationship between high quality cities and economic vibrancy and productivity.

Many of the elements relating to the high quality productive city can be put in place through financial, planning and engineering processes, however turning these elements into a city with quality, with that x factor that sets it above simply a collection of facilities, needs urban design.

Urban design can help ensure opportunity for commerce is maximised; it can create diverse high quality environments that attract people and stimulate economic activity; it can make places feel safe and secure to work and live in; it can help ensure a healthy life and environment through well designed green space; and it can create highly permeable and accessible built environments in which people can move freely about.

These attributes cannot be added on to a city they must be ‘designed-in’ at the regional, local and street scale. When this happens we give ourselves the best chance to get the most productive and highest performing environments.
Does place-making lead to socially sustainable communities? A Case Study of the Fortitude Valley Renewal Plan in Brisbane.

Sébastien Darchen, PhD. Lecturer in Planning
School of Geography, Planning and Environmental Management, University of Queensland, Brisbane, Australia

ABSTRACT

This paper analyses the Fortitude Valley Renewal Plan (2007) from the perspective of social sustainability. The objective is to develop policy recommendations to incorporate social sustainability in a pro-active manner in the regeneration process. This research is based on the analysis of planning documents and on semi-directed interviews with urban stakeholders involved in the regeneration process. In conclusion, we present relevant social sustainability criteria to measure the impact of the renewal plan on the existing community.

Key words: Urban regeneration; Inner-city suburbs; Place-making; Social sustainability criteria, Fortitude Valley (Brisbane).
1. Introduction

Fortitude Valley is an inner city suburb that is currently being regenerated. It is an iconic suburb in Brisbane, known nationally to be a major entertainment precinct in Australia. Like other Brisbane inner-city suburbs (New Farm, Teneriffe, Newstead and Bowen Hills), Fortitude Valley was designated as a priority area for regeneration by Urban Renewal Brisbane (URB). In this paper we present the process that led to the adoption of the “Fortitude Valley Urban Vision” (2007a). We first contextualise urban regeneration in Australia and then we focus on the case study of Fortitude Valley. In the conceptual framework, we define the concepts of ‘place-making’ and of ‘social sustainability’ and we explain how the two are interrelated.

The objectives of the paper are as follows:
- To explain how the concepts of ‘place-making’ and ‘social sustainability’ are related in a context of urban regeneration;
- To analyse to what extent social sustainability has been incorporated in the renewal plan;
- To identify key criteria to measure social sustainability outcomes of urban regeneration in the case of Fortitude Valley.

2. Conceptual framework: urban regeneration, place-making and social sustainability

2.1 Urban regeneration in the Australian context

Inner city revitalisation and housing re-investment associated with gentrification has proceeded swiftly throughout the 1990’s in all of Australia’s 5 largest cities (Sydney, Melbourne, Adelaide, Brisbane, Perth) (Badcock, 2001). Major Australian cities are currently undergoing changes in character and structure (Forster, 2006). Economic growth is accelerating in Australia, but many researchers argue that social polarisation and exclusion are getting worse in the process (Forster, 2006). Despite this, social sustainability has not been widely studied in the context of the urban regeneration of Australia’s major cities, and there is evidence that it has not been a major focus of urban renewal projects thus far.

2.2 Defining social sustainability
It is first important to mention that social sustainability is considered as being neglected in mainstream sustainability debates; priority has been given to economic and environmental sustainability in particular in the context of planning (Woodcraft et al., 2011). According to Dempsey et al. (2009), social sustainability relates to the notions of ‘social capital’ and ‘social cohesion’. When considering community social sustainability, the overarching idea is meeting the social needs of community members today without compromising the communities future, and specifically, the following aspects can be considered:

- Interaction with other residents or social networks;
- Participation in collective community activities;
- Pride or sense of place;
- Residential stability (versus turnover);
- Security (lack of crime and disorder).

Misguided urban regeneration has been recognised to cause economic and social exclusion, and it is thought that a stronger focus on the provision of mixed housing should be taken as it can bring economic spin-off effects, and deliver community cohesion (Garner, 1996). In fact, the provision of affordable housing is widely recognised as a key catalyst to initiating social sustainability and promoting inclusion and cohesion (Randolph, 2004). Traditional methods of assessing social sustainability such as through employment, or poverty alleviation, as being replaced with concepts such as happiness, social mixing and sense of place, which are not as straightforward to measure (Colantonio, 2010). Social impact assessment is considered appropriate from urban renewal projects, based on the typical timeline and nature by which they incorporate policy, planning and community involvement (Glasson & Wood, 2009). Assessment methods should go beyond employment to include issues such as health, crime, deprivation, social inclusion, community integration, community services, and public open space (Glasson & Wood, 2009).

2.3 Place-making and urban regeneration

The concept of ‘place’ is difficult to define and discuss in a consistent way, which is aligned with other ambiguous terms such as ‘identity’, ‘community’, ‘character’ and ‘home’ (Dovey, 1999). Theories of place, stem from a wide variety of realms such as philosophy, social theory and geography, being applicable to a wide variety of scales ranging from local to global (Dovey, 1999). Geographers look at place as socially constructed through many complex connected elements including interactions of...
groups and people, institutionalised land uses, political and economic decisions, while the language of representation suggests place is a spatialised movement of global flows of labor, good and capital exchange (Martin, 2003). Place may be a convergence of all of these discussed theories and elements.

In the case of the practice of urban design, and urban regeneration and renewal, place is concerned technically with the built form and with spatial order (Dovey, 1999). From a more experiential perspective, place-making can be seen as the practice of creating urban character, atmosphere, feeling or ambiance of a local urban area (Dovey, 2010). We argue that urban regeneration must find a balance between incorporating the identity of place whilst developing an improved sense of place.

3. Methods

In regard to the methods the planning documents relevant for the renewal of Fortitude Valley: the “Fortitude Valley Urban Vision” (2007a) and the Fortitude Valley Neighborhood Plan (2010) were critically analysed. Semi-directed interviews with key stakeholders involved in the regeneration process (see list of interviews at the end of the document), were then conducted. A focus was taken on how social sustainability was integrated in the renewal plan. Based on a literature review, three key components have been identified to analyse social sustainability: 1. Urban design objectives (including urban transportation); 2. Achievement in regard to affordable housing; 3. Public engagement process.

4. Analysis of the Fortitude Valley regeneration process

4.1 Defining the “Valley” identity

Brisbane’s lack of urban tradition makes it unique as an Australian city; Brisbane has the reputation of being a largely suburban city (Fulton, 2011). The Valley has an identity that is multifaceted and it has a unique identity in Brisbane comparable to Temple Bar in Dublin; it has gone through periods of up and downs to become the place to be (interview May 24th 2012). Fortitude Valley is also a high density neighbourhood and is associated to the issue of entertainment noise, some residents having forced the closure of entertainment venues (Radbone, 2010). The ‘Valley’ is often referred as a ‘cauldron of culture’, it is also referred as a placed that is edgy and where individuality is encouraged (Valley Chamber of Commerce, 2007, p. 10). The Valley also has a low-income community that is transient, where homelessness and
social issues are still present, and still has a destitute side that contrasts with the entertainment district identity.

4.2 Increasing pressure for regeneration
Strategically situated 1 km north east of the Brisbane CBD, and approximately 130 hectares in size, the ‘Valley’ is ideally positioned to accommodate growth as a result of public transport infrastructure improvements, and its close connections to the CBD and the surrounding residential areas (Urban Renewal Brisbane, 2007a, p. 4). The Valley like other inner-city suburbs in Brisbane is being regenerated under the lead of (URB). (URB) was financed by the Federal Government in 1991; similar institutions have been set up at the same time in other capital cities (Interview July 6th, 2012). One of the rationales behind the creation of (URB) was to avoid the development of Brisbane as a ‘200kms city’, and the development of a “deadzone” in between the CBD and the outer ring of residential suburbs (Interview July 6th, 2012).

Since the 1990s there has been a steady increase in the residential population in Fortitude Valley. Between 2004 and 2008 the population grew from 4 820 to 6 141; as at June 2011 the estimated population was 6 376 persons (ABS, 2012). Despite the growth of residential population, there is increasing pressure on neighbouring areas close to the CBD to accommodate growth; Fortitude Valley as an inner-city suburb has been identified as key growth area in the SEQ regional plan (2008).

4.3 The urban regeneration process.
The process started in 2007 with the Fortitude Valley renewal plan, which was a command from the Brisbane City council to Urban Design group Hassell. It then led to the development of the neighbourhood plan for Fortitude Valley.

4.3.1 Urban design component
As stated by the urban designer who was in charge for the development of the Valley Urban vision, the plan focuses on the built environment, and social sustainability was not a priority identified at that time (Interview May 24th, 2012). The Chamber of commerce who was heavily involved in the process insisted that one of their priorities was to develop a day-time economy. Another objective of renewal is to progressively change the identity of the valley as an ‘entertainment precinct’, the idea of creating a precinct for the creative industries is now favored (Interview May 24th, 2012). A strong imperative in the Valley urban vision is to enhance the urban design quality in the
precinct adjacent to the train station, to improve the areas attractiveness for new residents and businesses (Interview May 24th, 2012). In regard to the improvement of transport connectivity two strategies were taken: 1. To increase the density around the train station; 2. A series of catalyst projects. For point 2, one of the innovative components of the plan is to oblige developers to provide a mid-block link to increase connectivity for pedestrians (Interview May 24th, 2012). Another important point is on the public realm, the neighbourhood is lacking access to the public realm and to green spaces (Urban Renewal Brisbane, 2007b). Catalysts projects have been identified, these projects are driven by several objectives: to enhance heritage elements, create landmarks for the Valley, create benefits for the community, and to enhance business development (Urban Renewal Brisbane, 2007b).

4.3.2 Provision of affordable housing
Our interviews reveal that there is a lack of effective mechanisms in Queensland to deliver affordable housing in a context of urban regeneration (Interview June 29th, 2012). Given the pressure for redevelopment and the strategic location of inner-city suburbs like Fortitude Valley, preventing displacement of low-income households was a real challenge associated with renewal and, it was not a priority of the regeneration process. The Brisbane Housing Company (BHC) was created in 2002 and funded both the State and Brisbane City Council ($15 million each) to prevent the displacement of low-income groups in the inner city; (BHC) has three large developments in the Valley (Green Square, Warry Street and Bonnie Street); however our interviewee mentioned that this is not enough to cover the housing needs of the low-income group (Interview July 11th, 2012). The Green Square project is a landmark for social housing delivery as the building includes social services and 80 affordable units in the heart of the Valley (Interview July 17th, 2012). There are other initiatives (e.g., Project Micca – support agency to provide on the ground services to homeless people) but they are not directly related to the renewal plan (Interview July 11th, 2012).

4.3.3 Public engagement process
According to our interviews, the public engagement process has included different stakeholders, but low-income community groups have limited power and are not organised enough to have an impact on urban planning decisions (Interview June 29th, 2012; July 6th, 2012). Key stakeholders like the Brisbane Housing Company (BHC) - a task oriented business of creating viable and affordable buildings- have not been
heavily involved in the decision process during the framing of the Urban Vision for the Fortitude Valley Renewal Plan.; Two workshops were held in 2007: a ‘directions’ workshop in March and then an ‘options’ workshop at the end of April 2007 (Urban Renewal Brisbane, 2007b). Our research reveals that low-income groups in the Valley community, which are transient in nature, have not had a significant influence during the renewal decision-making process.

5. Conclusion

We have identified several obstacles in regard to the integration of social sustainability in the case of the Fortitude Valley Renewal Process. Social aspects are not a priority of the renewal plan and this can be explained by different reasons:

- The pro-development culture in Queensland;
- The strategic location of the Valley makes it a neighbourhood prone to gentrification;
- The low-income community in the ‘Valley” is not sufficiently organised to have an impact on the decision-making process.

We can state that the sole emphasis on “place-making” is not sufficient to create a sustainable community in a context of regeneration. We recommend that the enhancement of the quality of the built environment should be twinned with actions to prevent the displacement of low-income groups. Our research reveals that the Fortitude Valley Renewal Plan is likely to foster the gentrification of the area, as there is not sufficient pro-active mechanisms integrated into the renewal process to prevent the displacement of low-income groups. In summary we recommend two strategies to implement socially sustainable urban regeneration: 1. Proceed to a Sustainability Assessment (SA) to improve strategic decision-making in a context of urban regeneration; 2. Evaluate the regeneration process by using relevant criteria. For the case of Fortitude Valley we have selected a set of criteria based on the work of Colantonio and Dixon (2011): amenities and services (anticipate demand change over time); housing choice and access; local environmental quality (improve and maintain quality of public realm); social integration and diversity; community development (opportunities for self-expression). The next step for this research will be to apply relevant indicators to measure social sustainability achievements of the regeneration process.
6. References


Brisbane: Brisbane City Council.

Interviews
Interview with Urban Brisbane Urban Renewal, May 18th 2012.
Interview with Principal Designer Hassel Group, May 24th 2012.
Interview with Chamber of Commerce, June 29th 2012.
Interview with Urban Planner Brisbane Urban Renewal (Manager 2004-2010), July 6th 2012.
Interview with Brisbane housing Company (BHC), July 11th 2012.
Interview Green Square Project, July 17th 2012.
Thinking outside the Big-Box: Design strategies for intensification of Melbourne’s regional shopping malls

Shane Murray and Lee-Anne Khor
Monash University, Australia

Kim Dovey and Ian Woodcock
University of Melbourne, Australia

Abstract
This paper explores opportunities for transforming Melbourne’s regional shopping malls into sustainable, diverse urban precincts. It draws on a larger research investigation for the Australian Research Council called Intensifying Places: Transit-Oriented Urban Design for Resilient Cities, which aims to develop and test a range of urban design visions for transit-oriented development. The research examines the contemporary role of large suburban malls within various urban networks, including their relationship to other activity areas, public transport connections and built form contexts. Through a series of speculative designs, focusing on Northland and Chadstone Shopping Centres, this paper investigates potential design strategies and infrastructure upgrades required to incentivise sustainable urban transformations while recognising the challenge of remaining economically attractive to shopping centre owners.

Key words design approaches, urban intensification, strategic infill redevelopment, sustainable design, regional shopping centres, middle suburbs, transport-oriented development, activity centres.
Introduction
To meet the urban challenges brought about by climate change and population growth, Australian cities are seeking to transform established urban areas into sustainable, higher-density environments. Victoria’s current planning strategy promotes more intensive use of existing activity centres and public transport networks, however, in the ten years since Melbourne 2030 was introduced, very few strategic infill projects have been realised. Aspiring redevelopments have been thwarted by complex design and infrastructure requirements, land assembly challenges, economic risk and community resistance to change. New approaches will be required in our transition to a more sustainable urban condition.

Distinct from redevelopment strategies focusing on tram and train corridors, Melbourne’s regional malls (Property Council Australia 2007) offer a different model for intensification. They represent ideal development sites in terms of their size, condition and location. Interestingly, these privately owned complexes have evolved as surrogate ‘public spaces’ in contemporary societies, a contentious fact validated by their activity centre status (DPCD 2008). Although serviced by extensive bus networks, their mono-functional retail purpose heavily relies on car-based visitation. ‘Big box’ retail cores are thus overwhelmed by grade and multilevel parking, representing an underutilisation of these valuable sites. Largely under single ownership (Productivity Commission 2008) and relatively unencumbered, shopping malls have potential to judiciously transform into sustainable urban centres that deliver a diversity of housing, employment and public amenity. However regional malls are economically very successful (Productivity Commission 2011), affording owners little incentive to change their current operations. The question then becomes: can we generate innovative urban design proposals that are economically attractive to centre owners as well as achieve the imperatives for a sustainable city?

Background Research
This paper draws on an Australian Research Council linkage project called Intensifying Places - Transit-Oriented Urban Design for Resilient Cities (Dovey & Murray 2012). With government and industry partners, this research involves a multi-scalar examination of existing and potential transport networks, urban design morphologies and architectural design typologies that could lead to innovative strategies for more effective, higher quality intensification in our cities. Regional shopping malls are one of five case study types examined by this research, which is still ongoing. Preliminary findings are outlined in this paper.
Melbourne’s Regional Shopping Malls

There are 17 regional malls distributed across metropolitan Melbourne (Property Council Australia 2007) with an aggregate site area of more than 300 hectares. Primarily constructed in 1960-1975 (Yamashita et al 2006), malls are generally located in the middle suburbs where traditionally low-density and dispersed building forms, combined with variable access to public transport, have engrained an unsustainable car-dependent culture. Due to a highly atomised pattern of land ownership, assembling suitable sites for intensification in these regions is a significant challenge. The scale of regional malls and their current ownership models warrant further investigation as a viable alternative for delivering sustainable urban transformations.

Fig 1. Regional Shopping Malls in Melbourne
Image: Rutger Pasman

The shopping mall model was imported from America (Productivity Commission 2011), where they were initially used to deliver services and amenity in the rapid expansion of fringe developments after World War II (Dunham-Jones & Williamson 2009). Suburban retail centres were designed for car-based patronage from the outset, reflecting increases in personal motor transport at the time. Maximising parking on the periphery of sites was intended to separate vehicles from a pedestrian-focused retail core; a model that has remained unchanged for nearly 60 years. Early American malls comprised the same elements found in traditional ‘main streets’: a mix of low to mid-rise retail, office and community service distributed around open-air pedestrian avenues. By the 1980s, shopping
had become a primary leisure activity for suburban dwellers (Dunham-Jones & Williamson 2009). Malls expanded correspondingly, enclosing their pedestrian streets and eliminating mixed-uses in lieu of additional anchor stores and speciality shops. Unable to compete, smaller shopping strips and plazas began to fail, limiting walkable access to amenity in affected neighbourhoods. With the incorporation of entertainment venues, such as cinemas, video arcades and bowling alleys, regional malls grew into ‘lifestyle centres’, supplanting traditional forms of public space (Hajer & Reijndorp 2001).

A similar pattern of development can be observed in Melbourne. Chadstone was the first freestanding mall to be constructed in 1960 and has undergone 35 cycles of extension and refurbishment since (CFS 2011) to become Australia’s largest, most successful retail centre (SCN 2012). Northland and Westfield Doncaster have both recently undergone considerable upgrades, retaining a monumental standing in their respective networks of activity centres. This continual growth and expansion is characteristic of Melbourne’s 15 other regional malls and, in each case, the model of an enclosed big box amid expanses of car parking has endured.

Urban and architectural commentators (CNU 2009; Goodman 2005), have demonstrated how regional malls not only encourage car-based visitation but, in fact, propagate car dependency in the suburbs due to their scale, location and distribution. Retail complexes originally developed ‘out-of-centre’ remain dislocated from rail networks and other forms of amenity in their regions. Having made redundant older, smaller retail centres (and with them more traditional forms of public space and community facilities), regional malls are often the only place suburban dwellers can purchase a variety of goods in one trip, see a film or frequent venues otherwise unavailable in their neighbourhoods. These isolated centres are serviced by extensive bus networks that intersect on these large sites. However, bus
journeys tend to be long, indirect and services can be infrequent (Leader Newspaper 2010). To reach regional shopping centres, distributed over vast distances for economic viability, patrons are obliged to take extended bus rides or drive considerable distances. Transport surveys indicate that regional mall catchments can be more than 20 kilometres (DPCD 2011) and that cars are the main mode of transport for 83% of customers (Directional Insights 2009).

Malls developed on, or near, rail-based transit have similar proportions of car and public transport travel modes. Our research suggests several reasons for this: 1. Poor connections between centres and stations (observed through fieldwork); 2. Big box malls sell large items and encourage multiple purchases. Carrying quantities of goods on public transport is difficult; 3. It’s quicker and easier to get in the car. Despite their proximity to rail, they have similar levels of parking to out-of-centre retail facilities (Yamashita et al 2006).

The sheer size and mono-functional nature of malls hamper walkability of surrounding neighbourhoods. The immensity of these sites, relative to their residential contexts, impedes smaller, localised movement patterns. Striations of physical barriers fortify the mall from its environs including long, uninterrupted periphery walls, duplicated road systems (private mall roads with adjacent public roads running parallel), wide bands of parking and the enclosed big box centre itself. Through-transit is impeded, particularly at peak operating periods when vehicle congestion can bring roads to a stand-still and pedestrians/cyclists are confronted with precarious, unpleasant journeys. Combined with adjacent arterial roads, circumnavigating malls can be onerous. Outside operating hours, empty malls become impenetrable boxes surrounded by swathes of abandoned carparks. Individuals passing through after trading closes are left vulnerable in these uncertain environments.

Fig 4. Northland shopping centre: western interface to residential area. Image: Lee-Anne Khor

Fig 5. Northland Shopping Centre: eastern interface to public open space. Image: Rutger Pasman
Clearly, regional malls are not solely responsible for the unsustainable suburban condition we are now confronted with however, their prominence in these landscapes calls into question their role in future development strategies and the onus on them, if any, to contribute to Melbourne’s sustainable transformation. All 17 complexes coincide with nominated activity centres (DPCD 2008). Policy aspirations for developing sustainable mixed-use precincts are accompanied by cursory design guidelines (DSE 2005) that lack any indication of the public inputs necessary for successful transformation. Reluctant to risk the financial certainty of their proven operations (CFS 2011), malls have generally disregarded activity centre ambitions and have continued to expand their big box retail model. It is unlikely that innovative design alternatives will be driven by the market alone.

**Design Opportunities and Implementation Challenges**

This paper examines the opportunities and challenges associated with the intensification of Melbourne’s regional malls through a series of speculative designs focusing on Chadstone and Northland Shopping Centres. Three different scenarios for redevelopment were generated and tested in each location: 1. Minimum; 2. Intermediate; 3. Maximised intervention. The collection of scenarios explore potential staging for adaptive precincts as well as examine the potential impacts on the broader environment should regional malls remain largely unchanged.

![Fig 6. Chadstone context map.](image1)

![Fig 7. Northland context map.](image2)

*Images: Rutger Pasman*
Minimum Intensification
Transport upgrade: Tram from Malvern/Caulfield through mall connecting to existing networks in north.

Urban Development: Higher intensity above mall along major road frontage. Mixed use, mid-rise development of parking areas. Public connection through big box centre.

Image: Kim Dovey

Intermediate Intensification
Transport upgrade: Underground rail extension from Alamein to Hughesdale stations. Tram from Malvern/Caulfield through mall connecting to existing networks in north.

Urban Development: Breaking up of mall. High intensity redevelopment of airspaces. Integration of small grain, mixed uses at edges of mall site.

Image: Tom Morgan

Maximum Intensification
Transport upgrade: Underground rail extension from Alamein to Oakleigh stations. Tram Dandenong Road through mall to industrial zones. Tram from Malvern along western edge of mall connecting to existing networks in the south.

Urban Development: Mid-high rise redevelopment of industrial zones. Small grain, mixed use redevelopment of mall interfaces and parking areas.

Image: Lee-Anne Khor + Tom Morgan
Fig 9. Northland Design Scenarios

**Minimum Intensification**
Transport upgrade: Dedicated, high frequency bus along Murray Road. Bus interchange relocated to public domain.
Urban Development: Strategic seeding of development around new bus interchange and at edges of mall site.
Minimal change to big box centre.

Image: Rutger Pasman

**Intermediate Intensification**
Transport upgrade: Tram corridor along Murray Road. Elevated east-west rail line on Bell Street.
Urban Development: Breaking up of big box mall. Integrative redevelopment of industrial zones + large grain retail sites.

Image: Rutger Pasman

**Maximum Intensification**
Transport upgrade: Underground north-south rail La Trobe University. Tram corridor along Murray Road. Elevated east-west rail line on Bell Street.
Urban Development: Changed urban morphology. Big box retail transformed into a high intensity, mixed use urban precinct.

Image: Ian Woodcock + Tom Morgan
Size and location

Large retail premises are ideal redevelopment sites because they are generally well located with regard to other forms of amenity in the middle suburbs, they are relatively unencumbered (e.g. flat, asphalted ground surfaces, simple building forms) and their size allows for ambitious density increases through a diversity of built form solutions. While interface conditions with adjacent suburban neighbourhoods are sensitive to resident resistance, there are substantial development opportunities that do not reduce existing residential amenity and could increase it significantly. With appropriate transit upgrades and good quality design, significant levels of intensification could be delivered with limited impact on surrounding properties. Strategic redevelopment approaches could increase connectivity, employment opportunities and amenity both locally and regionally and, with suitable economies of scale, effective district-wide sustainable systems (energy, water, waste, technology) become more viable.

Transit infrastructure

Enhancing transit within or near regional malls could deliver significant connectivity improvements for metropolitan and local networks. Retail complexes lacking heavy rail services tend to be strategic locations for metropolitan transit upgrades. For example Northland is 800m from Bell Street, a priority corridor nominated in Victoria’s Transport Plan (2008). The potential magnitude of redevelopment across the network of malls (see Replicability and Uplift) is a noteworthy consideration when weighing the costs and benefits of sizeable transit investments.

Minimum transit interventions could also achieve significant urban benefits and improve network functionality. For example, relocating bus interchanges from within privatised malls to adjacent public road arterials creates new opportunities for corridor redevelopment and increases transport access for surrounding businesses and residents. Eliminating the need for buses to wind through shopping centres, and introducing dedicated bus lanes with higher frequency services, would significantly improve journey times and offer a more equitable alternative to car based travel. More research is required to better understand the trade-offs between transit investments, benefits for the broader urban environment and the viability of development proposals that can solicit involvement from mall owners. A key goal of this design research is to explore and test the scope of possible morphological transformation and its various impacts on sustainability, amenity and urban design.

Breaking down the barriers

While spatial obstacles exist within mall sites, their impacts reverberate well beyond their boundaries. Breaking down physical and perceived barriers is imperative for improving connectivity in the surrounding context and needs to occur with or without intensification of
the shopping centre itself. Design strategies outlined in Activity Centre guidelines aren’t contested here, however, robust and enduring solutions will need to be developed in a site-specific manner and supported by corresponding upgrades outside the mall’s boundary. For example, pedestrian and bike connections across adjacent highways are just as important as those through the mall.

Minimal intervention could increase connectivity through the site but significant intensification potentials can only be realised with substantial changes to the mall’s built form model (Fig 8 & 9). Given the public relevance of these facilities (SCCA 2011, Productivity Commission 2011), it could be argued that development approvals should be contingent on qualitative measures for porosity and access that more closely align with the virtues of genuine public space.

Mix, grain and distributions

Attaching smaller forms of retail onto blank faces of big boxes or increasing the number of ‘lifestyle’ facilities and the hours they operate (entertainment, restaurants, hotels, gyms, hair salons) only serve to mask the spatial and qualitative issues large malls present for the broader urban environment. Unrelated, but complimentary, programmes distributed across these expansive premises (office, residential, education/training, community services) are needed to provide the necessary connections and critical mass of activities to sustain higher density outcomes. Ideally, this would include vertical integration through mid-high rise redevelopment of air space above the mall. However significant benefits can also be achieved by reconfiguring car parking and improving the treatment of mall interfaces.

Innovative design solutions will be required to resolve the conflict between retaining large anchor stores while reducing parking provisions. These strategies could potentially assist existing retail centres to overcome current market challenges confronting the sector (e.g. online retailing competition, rising fuel costs). In all instances the extent of built form transformations must be matched with appropriate upgrades to active transport infrastructure.

While the basic ingredients required for sustainable mixed-use precincts often exist within close proximity to regional malls (Fig 6 & 7), the necessary connectivity, density and contested activity is lacking for them to emerge as engaging and resilient urban ‘places’.

Regional malls have the potential to become strategic nodes in a better-connected transit network for the metropolitan area, with a capacity to deliver considerable density increases that could leverage funding for transit upgrades. The role of regional malls in contemporary urban networks needs further examination and debate. While commercial viability is integral to the success of any redevelopment proposal, the dialogue around mall intensification
needs to highlight the potential spatial quality and strategic urban benefits these centres represent at a site, neighbourhood and metropolitan scale.

Replicability and Uplift

The 17 regional malls possess recurring attributes that provide clues for potential uplift in intensification across the metropolitan area. Most regional malls adjoin major arterial roads (minimum four lanes) that could accommodate new transit infrastructure to incentivise higher density redevelopment. Large-grain sites, varying in age, condition and functionality (light industrial, bulky goods stores, service industries) are often adjacent to or nearby large retail centres. Integrative redevelopment proposals for these properties could deliver effective and replicable intensification outcomes. Malls are also generally bounded by low density residential areas (on at least one side) and in proximity to generous public open spaces such as creeks and parks with high levels of amenity. Yet the introverted malls turn their back on these contexts regardless of the potential. Improving these interfaces would enable a diversity of higher density housing, better public open spaces and increased accessibility within the area, benefits that could have reciprocal gains for the malls themselves.

Underutilised urban assets on, and around, mall sites beckon new and innovative design strategies for sustainable transformation. Catalysts for higher density redevelopment may not in fact lie within mall sites, but rather, the most effective opportunities could be found in the connections between malls and other built form typologies. With good quality design and strategic foresight, upgraded linkages between existing zones could incentivise uplift in market-led redevelopments at a range of scales and locations. Strategic initiatives may also provide further motivation for mall owners to adjust their own development models.

Conclusion

Regional shopping malls offer replicable, judicious opportunities for a diversity of intensification outcomes due to their scale, ownership and distribution across Melbourne’s suburbs. The complex social role that malls have inherited (and generated), as well as their physical size and influence within the suburban fabric, requires a sensibility and approach that extends beyond the boundaries of their sites. Creating new centres that demonstrate design quality, sustainable performance and economic relevance at a building, site, neighbourhood and metropolitan scale requires better integration of architectural and urban design expertise with economic, social, transport and planning concerns.

Intensification of regional shopping centres could potentially deliver considerable urban benefits and initiate uplift in market-led developments. It remains to be seen if the explorations outlined in this paper would provide the necessary incentives to solicit contributions from shopping centre owners. Innovative re-designs of regional malls would require significant shifts in the way owners, patrons and governments perceive their role in
contemporary urban landscapes. The efficacy of development outcomes will rely on the alignment of ambitions and cooperative partnerships between all parties involved.

References

CNU (2009) Congress for the New Urbanism
DSE (2005) Activity Centre Design Guidelines, Victorian Government Report, Department of Sustainability and Environment
Property Council of Australia (2007) Shopping Centre Directories, Online Definitions, www.propertyoz.com.au/Article/NewsDetail.aspx?id=228, cited 10 July 2012. This paper adopts the Super-regional and Major Regional shopping centre classifications defined by the Property Council of Australia. These facilities exceed 50,000m2 of gross lettable retail area and comprise: two or more department stores; one or more supermarkets; 150 or more specialty shops; entertainment and leisure attractions.
Innovative strategies to foster spatial and social resilience in high vulnerability suburban environments

Aida Leon
University of South Australia, Adelaide, Australia

Jasmine Palmer
University of South Australia, Adelaide, Australia

ABSTRACT
Numerous Australian suburbs are experiencing a renewal cycle with ageing building stock being replaced at minimal increased dwelling densities. Failing to contribute to population density and demonstrating little improvement in relation to resilience to sustainability challenges. This paper proposes a design approach which aims to generate more sustainable suburban environments over time, fostering suburban resilience through adaptive evolution. The approach to confront suburban un-sustainability is a dynamic process that determines the capacity of a system to accept change through novelty, learning and self-organisation. To test the design approach, it is hypothetically applied to an existing highly vulnerable Adelaide suburb currently undergoing redevelopment. Innovative urban development approaches are required to enable communities to accept and direct change, collectively confronting future uncertainty.

Keywords:
Resilience, Suburban, sustainability, vulnerability, strategy, adaptation
Vast expanses of Australian suburbs are experiencing a cycle of renewal with ageing building stock being rapidly replaced through private investment. Such re-investment fails to significantly contribute to population density, leaving these areas with little improvement in relation to resilience to future sustainability challenges. The retrofitting of post war ageing suburbs represents an opportunity to shift the development model and move toward a more viable future; one which is less oil dependent and presents local opportunities for residents. To confront challenges such as peak oil the pre-emptive development of more experimental and innovative approaches to urban renewal are required. This research explores ways to enhance social urban resilience and foster behaviour change to accept and embrace changes required to achieve and maintain more sustainable urban environments over time. To this end, resilience literature is reviewed in relation to both spatial and social qualities. From this review a design strategy is proposed of supporting suburban evolution through resilience. To test and demonstrate the proposed strategy it is then hypothetically applied to an existing highly vulnerable Adelaide suburb currently experiencing ad hoc redevelopment.

**Suburban Vulnerability & Resilience**

Any system exposed to external threats without the tools or knowledge to manage them, may be vulnerable to undesired change and unable to adapt constructively. Suburban vulnerability is often focused on managing natural disasters; however Dodson and Sipe (2008) suggest the factors which make Australian suburbs vulnerable are the lack of means to manage anticipated oil price increases, car dependency, income level and mortgages.¹ To limit the scope of this research it is necessary to determine an external threat to which Australian suburban environments are likely to be exposed in the future. Peak oil, as described by the peak oil vulnerability tool is employed as this external threat.²

Reducing vulnerability implies moving towards sustainability in all levels and scales of a system. Several authors such as Crabtree, 2006, Folke *et al*, 2003, Smit and Wandel, 2006, and Cummings, 2010, discuss the requirement for dynamism in sustainability; the need to foster the capacity of accepting change and adapting, assuming sustainability as a continuously evolving desired state in which the aim is constant

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²The "Vulnerability assessment for mortgage, petroleum, and inflation risks and expenditure"(VAMPIRE) is an index developed by Dodson and Sipe (2008) that determines zones of our cities most vulnerable to peak oil and provides guidance as to which suburbs and suburb types most urgently require intervention for increased resilience.
system adaptation and improvement of the ability to respond to change. This is contrary to current approaches to sustainable suburban developments which rely on more stable, measurable states and often rely heavily on technological intervention. When reviewing adaptation strategies, resilience is revealed as the property that allows systems to successfully adapt to change, and as a desired characteristic to help transform suburbs into more sustainable systems. The building of resilience within suburban communities may be a feasible path to progressively transform suburbia, fostering acceptance and implementation of constant adaptation as the system’s desired state. A dynamic suburban system will react positively and adapt more successfully to changes, constantly evolving and adjusting to external threats as it moves towards truly independent and sustainable structures.

**Resilience Definition**

The use of resilience theory across several academic fields for different purposes has led to the concept being somewhat flexible and ambiguous. After reviewing different definitions of resilience in different fields, this research employs a definition of resilience common to several scholars of the ecological sciences (Salt and Walker, 2006, Carpenter *et al*, 2001 and Folke *et al*. 2004). Hence, in this case: *Resilience is defined as a dynamic process that determines the capacity of a system to accept change, without affecting its critical identity, function and structure.* To clarify the role of resilience in a change process it is vital to describe the stages that determine transformation (See Figure 1, and Table 1). The central topic of this research is the resilience stage, focusing on the system elements which determine resilience and the ways it could be enhanced. In order to operationalize the approach, it is required to ask, “What is resilient? To what?” To respond to these questions it is necessary, firstly, to understand the system’s identity, functions, structure and the associated feedback loops. Secondly, the system’s resilient elements need to be identified in both the social and spatial contexts and, based on the particular qualities of the specific locations, the desired dynamic state needs to be established, discouraging any position where changes are viewed as undesirable or where evolution is design out of being.

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**Stable State**
The condition of a system which persists with the same structure over time, without being exposed to disturbances, functioning in one permanent state.

**Threat**
Known or unknown factors that represent disturbance or disruption of a stable state. May include environmental, social, or resource changes.

**Vulnerability**
A measure of susceptibility of a system which is threatened by the impact of external or internal factor.

**Resilience**
A dynamic process that determines the capacity of a system to accept change, without affecting its critical identity and structure.

**Adaptability**
The capacity of a system responding positively to change, absorbing changes into the system structure and improving its functioning around new practices and methods.

**Transformation**
The adoption of a new dynamic state, which includes the critical functions of the original state but with changes included in the decisive structure.

**Threshold**
These are critical limits beyond which further change causes the reorganization of the system towards an unusual trajectory, changing its structure and functions.

**Change**
The alteration of elements within the system; the shift between states; it could be the generator and outcome of transformation at the same time.

**New desired dynamic state**
The state that has resilience as part of its components allowing change and adaptation, considering it as the constant variable. Using learning and self-organization, to achieve a sustainable functioning, and constant revaluation.

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**Table 1. Glossary of definitions**

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<tr>
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<td>The adoption of a new dynamic state, which includes the critical functions</td>
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<tr>
<td></td>
<td>of the original state but with changes included in the decisive structure.</td>
</tr>
<tr>
<td>Threshold</td>
<td>These are critical limits beyond which further change causes the re-</td>
</tr>
<tr>
<td></td>
<td>organization of the system towards an unusual trajectory, changing its</td>
</tr>
<tr>
<td></td>
<td>structure and functions.</td>
</tr>
<tr>
<td>Change</td>
<td>The alteration of elements within the system; the shift between states; it</td>
</tr>
<tr>
<td></td>
<td>could be the generator and outcome of transformation at the same time.</td>
</tr>
<tr>
<td>New desired dynamic state</td>
<td>The state that has resilience as part of its components allowing change and</td>
</tr>
<tr>
<td></td>
<td>adaptation, considering it as the constant variable. Using learning and self-</td>
</tr>
<tr>
<td></td>
<td>organization, to achieve a sustainable functioning, and constant revaluation.</td>
</tr>
</tbody>
</table>
Resilience and Sustainability

Many of the key concepts of climate change and sustainability literature are linked to resilience. Resilience and sustainability objectives and methods of construction are however different and whilst resilience is a pre-requisite of sustainability, as it is the acceptance of change, resilient systems are not necessarily sustainable. Table 2 summarises views of numerous scholars, demonstrating the blurry relationship between the attributes of sustainable and resilient systems. This blurriness highlights the complexity of defining a process to build resilience as distinct from a process to achieve sustainability. The aim here is a future state of spatial and social sustainability through enhanced resilience, not to reinforce existing unsustainable conditions.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Explanation</th>
<th>Attributes</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>may be detrimental</td>
<td>Some undesirable system states can be very flexible and persist through time and change.</td>
<td>is always desirable</td>
<td>It improves the use of resources and ensure equality across the system</td>
</tr>
<tr>
<td>has specific objectives</td>
<td>It is necessary to determine &quot;what is resilient to what&quot; being specific in the targets and objectives to reach</td>
<td>is an holistic approach</td>
<td>It has to take into account an extensive range of variables to be effective</td>
</tr>
<tr>
<td>is opposite to optimization</td>
<td>The more optimized the parts of a system, the more dependent the system becomes, losing its capacity of adaptation</td>
<td>is based in optimization</td>
<td>It commonly relies and depends on the improvement of efficiency and optimization through technology reliance</td>
</tr>
<tr>
<td>is not always sustainable</td>
<td>Involves the endless use of resources to adapt, evolve and grow. Adaptation can create and undesired impact.</td>
<td>is not always resilient</td>
<td>It is a complex goal that is determined by the system performance in several different ranges</td>
</tr>
</tbody>
</table>

Table 2. Differences between resilience and sustainability

Social Resilience.

After reviewing the relevant literature (Adger, 2003, Obrist et al, 2010, Buikstra, 2010, Sapountzaki, 2007, Ernstson et al, 2010) social resilience is defined here as a process of social involvement and learning among different groups at various scales, where the capacities of persistence and adaptation to change are improved, developing self-organization, flexibility and problem solving abilities. From Robert Putnam’s to

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5 Cumming, G, 2001, p.197
7 Ibid
8 Williams, K, et al, 2011, No 55, p.2
Bourdieu's definition reviewed by Ziersch et al (2007), to Sherriebet al (2010) and Cumming (2011), social capital, is established as the foundation of resilience. This research proposes the resilience of suburban social fabric be analysed through the four properties of *identity, function, structure, and feedback*, each of which will be influenced by the scale of analysis (Table 3). Understanding these four properties determines the initial stable state and helps describe the desired dynamic state, the scale of change processes, the social groups involved and relationships within the system.\(^\text{12}\)

<table>
<thead>
<tr>
<th><strong>Element</strong></th>
<th><strong>Definition</strong></th>
<th><strong>Factors</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identity</strong></td>
<td>The characteristics that make a social system unique and recognizable will serve as reference for change in adaptation processes.</td>
<td>Social capital, social memory(^\text{13}), people's livelihoods, systems of norms, regulation, traditions and mind set(^\text{14}).</td>
</tr>
<tr>
<td><strong>Functions</strong></td>
<td>They rely on the performance of its representative institutions and the social economic trends that influence change the status of social networks and their performance.</td>
<td>Institutional change, economic structure and demographic change(^\text{15}).</td>
</tr>
<tr>
<td><strong>Structure</strong></td>
<td>The ability to respond to change will be defined by the social relationships at different scales, the influence of institutions and by its level of access to different types of capital.(^\text{16})</td>
<td>Social structures, social actors, institutions and the level of access to capital.(^\text{17})</td>
</tr>
<tr>
<td><strong>Feedback</strong></td>
<td>The adjustment to change process is determined by their feedback loops. Helping decision making and evaluation of the suitability and effectiveness process(^\text{18}).</td>
<td>Proactive capacity of communities, flows of communication between individuals and groups</td>
</tr>
</tbody>
</table>

**Table 3. Properties of resilience systems to be analysed and the factors that determine social resilience**

**Spatial Resilience.**

In contrast with social resilience, the literature surrounding spatial resilience is noticeably sparse. The main contributor to the field, Cumming, describes it as the mode in which internal and external changes of relevant spatial variables impact on a system's ability of adaptation, throughout multiple scales.\(^\text{19}\). Translating this definition to the suburban context, spatial resilience refers to the way in which changes in outer and


\(^{13}\)Sapountzaki, K, 2007, p.276

\(^{14}\)Cumming, G, 2001,p.197

\(^{15}\)Adger, N, 2000, Pp 347-364

\(^{16}\)Ibid.

\(^{17}\)Obrist, B, et al, 2010, P.288

\(^{18}\)Adger, N, 2000, p. 361

inner spatial structures at certain scales, might impact on the process of the acceptance of change. Analysis of the spatial resilience of suburbs includes external factors such as: context, connectivity and spatial dynamics and at the local specific scale, internal factors such as: internal arrangement of components, system morphology, system boundaries, spatial variation, modularity, internal phases, and system properties of location\textsuperscript{20}(Table 4). Spatial resilience depends on the scale of analysis and on the hierarchical relationships between different scales within and outside the system\textsuperscript{21}. An analysis of the interplay of spatial patterns conducted on a high vulnerability suburb, revealed a complex association between resilience theory and spatial features of the suburban context. This exploration of the inner and outer factors of spatial resilience showed that the elements with potential to increase suburban spatial resilience are: availability, identity, variation, flexibility and innovation, as defined in Table 5.

<table>
<thead>
<tr>
<th>External Factors</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Context</td>
<td>Controlled by the interdependencies and current change trends in the immediate surroundings. In high vulnerability suburbs, the distance to urban centres and location of social activities, determines vulnerability levels. Spatial regulations such as national and regional economies, policies and development plans set the boundaries for inner resilience.</td>
</tr>
<tr>
<td>Connectivity.</td>
<td>The exchange of functions between internal and external spaces establishes interdependence and communication beyond the system borders. Higher connectivity provides higher suburban resilience.</td>
</tr>
<tr>
<td>Spatial Dynamics.</td>
<td>Includes spatial feedbacks and spatial subsidies. The former, is the analysis of growth patterns and change within the suburb's border, which are important in learning about feedback processes and their development. The spatial subsidies are the networks of spatial dependency of the suburban area upon other areas.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Internal Factors</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal arrangement of components</td>
<td>Spatial organization informs the potential for change. Change and development is not necessarily centred on the alteration of spatial characteristics but rather in the change of use and function.</td>
</tr>
<tr>
<td>System morphology</td>
<td>Includes the analysis of dimensions, geometry, form and limits. Establishes the functional performance and mobility patterns of the area. The more resilient morphologies have physical availability of space, and allow flexibility.</td>
</tr>
<tr>
<td>System Boundaries</td>
<td>The characteristics of the limits or borders of the systems determine the capacity of adaptation, influencing the exposure to outer threats.</td>
</tr>
<tr>
<td>Spatial Variation</td>
<td>The causes and consequences of trends in spatial changes should be clearly identified as they inform potential future change trends.</td>
</tr>
<tr>
<td>Properties of Location</td>
<td>Determine the unique characteristics of an area, revealing the stable status for spatial resilience and holding the critical structure of the system in a process of change.</td>
</tr>
</tbody>
</table>

\textsuperscript{20}Cumming, G.2011, p.900.  
\textsuperscript{21}Ibid p.900.
Spatial Availability. The existence of physical area for the development of spatial solutions directly influences the potentialities for adaptation and change. This factor might be restrained by planning and design directives, thus creative thinking is required to confront the lack of space availability.

Spatial Identity. The key elements that maintain the systems function and hold its structure and identity need to be identified, specifying the elements that must be preserved. The system's boundaries play a key role in the reinforcement of resilience, because they identify a suburban area and control the permeability of the system.

Spatial Variation. The change trends that a suburban system could be exposed to, might determine the direction of adaptation and the social elements that define it. They need to be assessed to determine their impact on the vulnerability of suburbs.

Spatial Flexibility and Innovation. The approach for greater resilience proposes a creative process to determine to what extent a specific element can be changed. The elements that are not going to be changed or substituted might be reconsidered not in isolation, but within the system's functioning. Allied to this is the decisive shift of suburban adaptation which will require system' restructuring and the supply of novel options for new spatial use. Spatial change allows desired change in the social fabric of suburbs, such as the social mix, an increase in job opportunities, a boost in local productivity and less reliance on private transportation.

Table 5. Elements that determine spatial resilience in suburban environments

<table>
<thead>
<tr>
<th>Spatial Element</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spatial Availability</td>
<td>The existence of physical area for the development of spatial solutions directly influences the potentialities for adaptation and change. This factor might be restrained by planning and design directives, thus creative thinking is required to confront the lack of space availability.</td>
</tr>
<tr>
<td>Spatial Identity</td>
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</tr>
<tr>
<td>Spatial Variation</td>
<td>The change trends that a suburban system could be exposed to, might determine the direction of adaptation and the social elements that define it. They need to be assessed to determine their impact on the vulnerability of suburbs.</td>
</tr>
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<td>Spatial Flexibility and Innovation</td>
<td>The approach for greater resilience proposes a creative process to determine to what extent a specific element can be changed. The elements that are not going to be changed or substituted might be reconsidered not in isolation, but within the system's functioning. Allied to this is the decisive shift of suburban adaptation which will require system' restructuring and the supply of novel options for new spatial use. Spatial change allows desired change in the social fabric of suburbs, such as the social mix, an increase in job opportunities, a boost in local productivity and less reliance on private transportation.</td>
</tr>
</tbody>
</table>

Strategy proposed.

Innovative urban development approaches are required to enable communities to accept and direct change, collectively confronting future uncertainty. Without such an approach existing unsustainable suburban fabric is likely to perpetuate as a result of ongoing reinvestment in the status quo. It is proposed a strategy to support the transformation of existing unsustainable suburbs to more resilient and sustainable environments over time. Such transformation demands the development of a scalable and flexible approach; converting vulnerabilities into potentialities by creating tight feedbacks, strong social capital networks and fostering capacity for innovation, through learning and acceptance of change. Importantly, the strategy proposed adapts to location and reflects the spatial and social realities of the existing suburb.

Design Process. First, the spatial and social elements discussed in the previous section are mapped to generate a comprehensive view of the current state. The cross-mapping of these elements provides an innovative lens through which to view the existing, observing resilience challenges and identifying spatial vulnerabilities. The cross-mapping of the spatial and social resilience elements is then used to determine the desired state and define the strategy direction.

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Figure 2: Macro Mapping of Social and Spatial Elements- Northfield South Australia.

<table>
<thead>
<tr>
<th>Elements to analyse</th>
<th>Cross mapping analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vulnerability</td>
<td>Stable State</td>
</tr>
<tr>
<td>Identity</td>
<td>Current Level of Resilience</td>
</tr>
<tr>
<td>Structure</td>
<td>Steps of development</td>
</tr>
<tr>
<td>Function</td>
<td>Current Level of Resilience</td>
</tr>
<tr>
<td>Connectivity</td>
<td>Steps of development</td>
</tr>
</tbody>
</table>

**Social Fabric Mapping**
- Mobilizing times to public and private transport to work and basic services
- Social fragmentation or social clusters
- Low densities
- Housing tenures
- Social groups
- Density population
- Public and private transport hubs
- Historic areas
- Heritage

**Spatial Structure Mapping**
- Low densities
- Prices of the land
- Economic centres
- Availability of space
- Landmarks
- Building typologies
- Views
- Open Spaces
- Available land, build and unbuilt form
- Character of zoning private and public areas
- Zoning
- Activity
- Street layout
- Flows
- Private/Public
- Housing Stock
- Main streets
- Visual connection to other suburban transit transport
- Open / close space

**Social & Spatial Cross mapping analysis results**
- Vulnerable elements
- Causes of vulnerability
- Fundamental elements for system’s identity
- Critical Structure
- Main System’s Functions
- Critical connections
- Networks
- Final Diagnosis
- Final Vision for the plan

Table 6. Social and spatial elements mapped for suburban analysis.
Implementation Process. Building upon the existing literature in both social and spatial resilience, and combining the results of the analysis of a high vulnerability suburb, it is proposed this process should employ three distinct yet interrelated stages to increasing suburban resilience: learning and engagement, adaptive and innovative capacity and self-organization.

Learning and engagement: as a first step, the stakeholders and holders of social capital identified in the social mapping such as social institutions, residents, and planning authorities, need to be engaged in the transformation process. Larson (2010) and Hordijk and Band (2011), agree that effective community engagement and a common understanding of the capacity to combine types of knowledge, are crucial for the long term improvement of adaptive capacity and resilience enhancement. Subsequent to community engagement, it is required to provide to the community, learning tools and mechanisms to understand the changes that will be required. Adger, 2003, and Carpenter et al, 2001, argue that taking theory into social organisation is central to adaptation, presenting social organisation and local institutions as the safest way for experimentation. Within social institutions, learning initiatives could be developed and assessed, being critical that those institutions adapt themselves first to change processes, revaluing their own functioning and working models.(Table 7).

Adaptive and innovative capacity: The activities learned need to be practiced and plans proposed need to be assessed by the community, implementing feedback loops\(^\text{23}\). The maintenance of active and functioning systems, and the ability to create new structures and dynamics following possible system breakdown, may depend on the strength and innovative capacities of the social fabric. Several authors (Ernstson et al, 2010,

Fischer, J, et al. 2009, Allen and Holling 2010) suggest that social networks will produce and support innovation, creating innovative structures of information, re-establishing system arrangement and functioning, allowing the system to be dynamic both in its internal structure and connectivity. The conception of possibilities and potentialities depends on the ability to embrace change, thus, innovative capacity needs to be exercised, practiced and improved to constantly evaluate the change process and promote adjustments to the desired dynamic state. (Table 7)

Self-Organization: This stage will allow residents to re-establish the functioning of the suburban system adapting it to the learned practices, rearranging the social structure around potential changes of space use, establishing the resilient-dynamic state as the desired state. This brings the question of the role of local initiatives relative to the assessment and exploration of adaptation measures (Table 7). The presence of strong social capital networks will allow groups to access resources and support and to problem solve. Wilhelm, 2011, demonstrates that a high degree of social unity, self-structuring, self-control and independence is what gives resilience to local communities. Thus, the capacity to incorporate change within the system without losing its critical structure and main functions is the major expression of resilience. After the reorganization, the system will evolve into a resilient system that could go through adaptation processes, engaging constantly in the adaptation and transformation cycle (see Figure 1).

Analysis of the existing state can be undertaken from a variety of outlooks in direct response to the resilience quality or threat being analysed. In this research the threat of peak oil, in relation to personal transport, has been employed as a test case for the strategy. Other threats for which resilience may be assessed could include demographic change, food security, climate change risks etc.

In line with resilience objectives the proposed strategy aims to make social networks more flexible, proactive and diverse, generating and improving the capacities of persistence, adaptation, self-organization and problem solving abilities, which might reflect later in the spatial context innovation. This is proposed through the introduction of new models of interaction and combinations of activities to foster change towards more sustainable lifestyles.

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Learning and engagement stage

- Identification of opportunities and strengths
- Recognition of vulnerabilities
- Understanding of the causes of vulnerabilities
- Exposure to other examples of urban adaptation
- Exploration and evaluation of change options
- Distribution of information through local campaigns and workshops
- Participation of community in the dissemination of information
- Experimentation with learning activities and spatial prototypes on site

Adaptive and innovative capacity stage

- Practice of previously learned skills
- Establishment of feedback methods for prototype development
- Consideration and review of policies, regulations and plans
- Fostering of local innovation
- Local adaptation of foreign change examples
- Citizen participation in collaborative action

Steps of the self-organisation stage

- New models of decision and intervention processes
- Establishment of new values and living practices determining the dynamic state
- Intervention of public and private space for collaborative consumption
- Establishment of new design rules for redevelopment
- Intervention and retrofitting of existing houses

Table 7. Proposed Steps for Enhancing Resilience in High Vulnerability suburbs

Hypothetical Application Northfield, South Australia

The proposed strategy has been hypothetically applied to the suburb of Northfield, South Australia. The suburb was selected due to its high vulnerability status under the Vulnerability Assessment for Mortgage, Petroleum, and Inflation Risks and Expenditure (VAMPIRE) as described by Dodson and Snipe (2008).

The design proposed for Northfield aimed for the progressive transition from steady state to desired state through the gradual application of a development plan shaped by stages of densification via individual projects which promote change and adaptation (Figure 4). The desired state was established by determining the strengths and opportunities of the area, without limiting it to the current status, pushing the boundaries and taking existing change trends as an opportunity to solve the challenges revealed in the analysis. The transition from steady state is developed through the progressive implementation of changes into a development plan that directed the trends towards a more sustainable, flexible state. It includes elements that foster more pedestrian orientated suburban environments and the inclusion of mixed use in higher density development. The design process showed the need for polycentric suburbs where different types and combinations of activities can be performed.
As an initial intervention (Learning and Engagement) the Infill Transformation Cell is proposed as a capacity building demonstration project, an example of how increased resilience can be achieved within the existing suburb without wholesale redevelopment. It is a building which combines the activities required for transformation, presenting an example for the community and the developers of a mixed use community focused building. In the case of Northfield the Infill transformation Cell proposes to combine...
community areas, business incubators, and residential use. It occupies a portion of land that originally accommodated 4 houses, and achieves an increase in density by locating 18 apartments above community spaces. The main objective of the model is to engage suburban residents with the activities and building typologies proposed to demonstrate the potential for positive change.

The design’s principal outcome was the opportunity to challenge the status quo of Australian suburbs, highlighting the dormant potential for sustainable development.

Conclusions
The application of the strategy to a high vulnerability suburb demonstrated that the analysis of social and spatial elements is a complex problem. The hypothetical design experiment in Northfield presented a progressive development plan, which combined the activities required for transformation in an Infill Transformation Cell as the first step towards greater resilience. A resilience approach focuses on the achievement of dynamic system states and the capacity to manage change. It becomes an approach to confront suburban un-sustainability; a dynamic process that determines the capacity of a system to accept change, through learning and engagement, adaptive and innovative capacity, and self-organisation. This approach is not a prescriptive concept; it is a framework that allows the interpretation of existing suburban conditions and to question future suburban sustainability. The creation of experimental examples of suburban transformation would generate impact not only in the suburb of implementation, but in the broader framework of policies and norms, extending the learning process beyond residents to the councils, institutions, planning authorities and policy makers.

References


Occupant comfort, the housing industry and electricity infrastructure: understanding the synergies

Wendy Miller and Hoda Shah Nazari (presenting author)
Queensland University of Technology, Brisbane, Australia

ABSTRACT

Despite increasingly stringent energy performance regulations for new homes, south-east Queensland has a high and growing penetration of, and reliance on, air conditioners to provide thermal comfort to housing inhabitants. This reliance impacts on electricity infrastructure investment which is the key driving force behind rising electricity prices. This paper reports initial findings of a research project that seeks to better understand three key issues: (i) how families manage their thermal comfort in summer and how well their homes limit overheating; (ii) the extent to which the homes have been constructed according to the building approval documentation; and (iii) the impact that these issues have on urban design, especially in relation to electricity infrastructure in urban developments.

Keywords: building simulation, housing, thermal performance, urban infrastructure

Introduction

South-east Queensland’s predicted population growth will require an additional 754,000 dwellings [1], providing challenges and opportunities for urban design. Despite a relatively benign subtropical climate (26-28° south) where 65% of annual hours are within 18-28°C, the region currently has more than 1.6 million air-conditioners servicing about 1.2 million dwellings. 74% of the region’s homes are thought to have air conditioners and the rate of installations in 2010 was around 3000 systems per week[2]. 13% of the region’s electricity network is utilised for less than 1% of the year – on extreme temperature days – representing a massive overcapitalisation in infrastructure that must be passed on to consumers and through infrastructure charges on developments [3]. The optimisation of house design and construction to provide occupants with thermal comfort whilst reducing reliance on heat removal devices, has benefits for occupants as well as electricity networks and urban development [4-6].

The aim of the research was to examine, from multiple sources, the thermal performance of six houses during a period of four consecutive hot summer days. The purpose of the research was to gain a better understanding of the synergies between
house design, house performance and occupant behaviour. Such understanding underpins the design and cost of energy infrastructure in urban development.

Methodology

The houses: The objects of the research are six detached dwellings in a master planned residential estate - Springfield Lakes – in Queensland, Australia (latitude 27.6° south). All dwellings are one story and were constructed between 2004 and 2009 (since the introduction of energy efficiency regulations for housing). The estate is located in climate zone 2 (sub-tropical) as determined by the Australian Building Codes Board and climate data set 10 (Amberley) is used for building simulations according to the Australian National Home Energy Rating Scheme (NatHERS) [7].

The families: The houses are occupied by a total of 18 individuals. Family types vary from single parent families to couples with children and adults without children. The employment status of adults includes full-time, part-time and shift-working jobs. One or two adults of each household participated in a semi-structured interview including general demographic questions followed by specific questions about the house air conditioning (AC) system and how frequently occupants use the AC during summer. The survey also included questions about occupants’ thermal comfort expectations and how they behave during hot days before turning on AC (Table 1).

Data collection: BersPRO 4.2, an accredited simulation program under NatHERS, is being used to simulate the thermal performance of the building envelopes according to the building approval (BA) plans for each house. To measure actual thermal performance, each of the houses had multiple temperature sensors installed in the main living room, bedroom and another section of each house (e.g. office or second bedroom). A sensor was also located on the main air conditioner (AC) outlet of each house (the main living room) and in the outdoor patio area. Sensors recorded temperature data every 15 minutes, at a resolution of half a degree Celsius. A relative humidity sensor was also placed in the main living room. The period of study for this paper was February 28 – March 2, 2012. These dates presented four consecutive days where the maximum temperature was over 30°C, as recorded by the Bureau of Meteorology (BOM) at weather station 040004 (Amberley), approximately 22 km north-west of the Springfield Lakes. Key temperature data is shown in Table 2.
Table 1 Demographic, construction and experiential variables of case study houses

<table>
<thead>
<tr>
<th>Indicator</th>
<th>House Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of occupants</strong></td>
<td></td>
</tr>
<tr>
<td>Child</td>
<td>0</td>
</tr>
<tr>
<td>Adult</td>
<td>1</td>
</tr>
<tr>
<td><strong>Occupancy</strong></td>
<td>Work from home</td>
</tr>
<tr>
<td><strong>Building area (m²)</strong></td>
<td>198.48</td>
</tr>
<tr>
<td><strong>Internal living area (m²)</strong></td>
<td>182.03</td>
</tr>
<tr>
<td><strong>AC system/s</strong></td>
<td>Whole house ducted</td>
</tr>
<tr>
<td><strong>Number of ACs</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Other cooling</strong></td>
<td>Ceiling fans</td>
</tr>
<tr>
<td><strong>AC use during summer</strong></td>
<td>Day: office &amp; living room; whole house when hot</td>
</tr>
<tr>
<td><strong>AC thermostat set point</strong></td>
<td>24°C</td>
</tr>
<tr>
<td><strong>Use of window openings for cross ventilation</strong></td>
<td>Not in summer</td>
</tr>
</tbody>
</table>

Table 2 Amberley BOM (and Springfield Lakes) weather observations for study period

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Minimum temperature (°C)</strong></td>
<td>17.9(22.16)</td>
<td>16.2(21.66)</td>
<td>17.3(21.16)</td>
<td>16.9(20.66)</td>
</tr>
<tr>
<td><strong>Maximum temperature (°C)</strong></td>
<td>30.4(35.16)</td>
<td>32(34.66)</td>
<td>31.9(34.16)</td>
<td>33.2(36.16)</td>
</tr>
<tr>
<td><strong>Mean temperature (°C)</strong></td>
<td>24.15(26.5)</td>
<td>24.1(26.86)</td>
<td>24.6(26.99)</td>
<td>25.06(27.19)</td>
</tr>
<tr>
<td><strong>9am Temperature (°C)</strong></td>
<td>26.1(25.6)</td>
<td>23.8(27.17)</td>
<td>25.6(27.17)</td>
<td>25.8(27.17)</td>
</tr>
<tr>
<td><strong>9am relative humidity (%)</strong></td>
<td>73</td>
<td>83</td>
<td>72</td>
<td>62</td>
</tr>
<tr>
<td><strong>3pm Temperature (°C)</strong></td>
<td>29.5(34.67)</td>
<td>31.4(34.66)</td>
<td>31.4(33.66)</td>
<td>32.4(35.16)</td>
</tr>
<tr>
<td><strong>3pm relative humidity (%)</strong></td>
<td>48</td>
<td>46</td>
<td>39</td>
<td>39</td>
</tr>
</tbody>
</table>

Results

All households stated that they operated their air conditioner/s in response to changing external climatic conditions, rather than leaving the AC on all / most of the time during summer (Table 1). Their reported behaviour closely matches the assumptions made by NatHERS i.e. that occupants will manage their comfort by firstly using natural means (e.g. opening windows), secondly by using mechanical means (e.g. ceiling fans to increase air flow and hence sense of comfort [8]) and lastly by removing excess heat.
(e.g. through air conditioning). The cooling set points of the air conditioners, though, are not reflective of their stated decision points to operate the air conditioner, but rather seem to be a reflection of government and utility messages that seem to convey that 24-25°C is the optimal temperature for operating air conditioners [9, 10].

External temperature measurements at Springfield Lakes reveal higher minimum and maximum temperatures than weather station data (table 2), although similar diurnal temperature range. This is not unusual as housing estates are likely to suffer from the urban heat island effect due to higher radiant heat and restricted ventilation due to urban forms (building and road materials and urban layout). The mean temperature for these four days was 2.4 degrees hotter than Amberley. Histograms allowed analysis of how different rooms within each house responded to the external temperature over the period of 96 hours (figure 1). Assuming an adaptive comfort band of 18-28°C [6, 11], the histogram shows that the main bedroom and living room overheated – making these rooms hotter than the external temperature. It also shows that it is likely that the bedroom and office air conditioners were on for very short periods of time, but that the air conditioner in the living room was not utilised.

![Figure 1: temperature histogram of House 2 Feb 28 – Mar 2](image)

A comparison of the thermal performance of each of the main bedrooms with each other and the external temperature (Figure 2) shows that, with the exception of H1 which was air conditioned overnight, none of the bedrooms cooled overnight to the same extent as the external air. The slow rate of cooling in these rooms would seem to indicate that night cooling strategies are either not available (e.g. poor design) or are not being utilised by occupants (e.g. not opening windows overnight). H1 bedroom shows an internal temperature lag of approximately 2 hours and that this room
exceeded the external temperature by several degrees. This would seem to indicate that the design features of the house (especially insulation and shading) are not being effective in limiting heat transfer into the building. The air conditioner was used to remove excess heat from about 5.30pm. (Note that all rooms show a temperature lag.) H6 bedroom indicates that it is likely the shift worker turned on the AC at about 1pm and that the thermostat was probably set to about 26°C.

![Main bedroom temperatures 1 March 2012](image)

**Figure 2: comparison of bedroom temperatures March 1**

**Discussion and Conclusion**

The growth in the reliance on the electricity market to provide occupant comfort by pumping out excess heat, has significant economic, ecological and social implications [5]. Increased regulation of the thermal performance of the building envelope is meant to reduce the need for occupants to purchase space heating and cooling which accounts for an average of 38% of Australian household energy use and 20% of greenhouse gas emissions [12]. More analysis is needed on these houses (and the additional 20 houses being monitored), to try to identify why these houses appear to be overheating in summer. There is some evidence, based on initial examination of each house’s design documentation and thermal images, that underperformance could be attributable to multiple parties in the housing supply chain, including designers, builders and the regulatory system, building inspectors and certification processes. This would be consistent with findings of underperformance in other energy efficiency technologies [13]. The thermal performance of bedrooms in particular needs addressing. NatHERS
assumes that bedrooms are unoccupied for much of the day and therefore no cooling energy is applied prior to 4pm (for the process of house efficiency ratings). However in this study, only one house out of six was unoccupied during the day and four of the six houses had occupants who were very likely to regularly use bedrooms during the day and night (e.g. shift workers and young children). Furthermore, the overheating of the bedrooms (and the living rooms) presents challenges for electricity distributors as cooling of these spaces is likely to occur between 4-8pm, the peak demand time.

Increasing the energy efficiency of the building envelope is considered the first vital step in moves towards zero energy homes [14] and one could argue that if houses were designed and built to dramatically reduce or eliminate over-heating, then the contribution to peak demand would be minimal. More research is required in this area, including the role that building simulation software, combined with regulatory compliance checking of buildings as constructed, could contribute to planning of our energy infrastructure to reduce overcapitalisation and lower costs.

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References
Abstract

Contemporary projections of urbanism often give a spatial clarity to the city yet overlook the potential for more potent personal interpretations and meaningful ownership of space. Introduced here is a method of investigation into urban spaces whose ultimate aim is to establish new frameworks for interpretation of and engagement with those spaces. The study proposes Performative Urbanism as a participatory act as well as a challenge to certain preconceptions of urbanism. The city is viewed as a performative resource of embedded narrative, one that comes into being through unquantifiable acts of individual participation in public space. By allowing for the possibility of incompleteness, and by introducing the liminal through non-physical interpretations of space, contextual conditions are outlined for an experimental architecture of installation, performance and media, an accommodative framework allowing explorations into the relationship between public space, society and the narrative.

Keywords
Narrative, fictions, indeterminacy, mapping, uncanny, performance.

Performative Urbanism
Developing an Indeterminate Context for Incongruous Acts

Thomas A Rivard

“Yes, yes, every house here has the inner courtyard, if you can find it.”1

In Shaun Tan’s short story, No Other Country, a newly immigrated family discover, seemingly within the confines of their suburban home and reached via the attic, a secret garden. The family accept the existence of this garden, though they cannot explain it. Via an intuitive appropriation of a scenario whose origins and boundaries they cannot discern, they nevertheless write themselves into a personal interpretation of their own domesticity, an individual ownership of space via a ritual that is neither wholly fictional nor completely corporeal.

Unlike Tan’s readily accepting family, we too easily assign to the city a spatial clarity and material fecundity that constrains our personal interpretations of it, as well as our sense of individual ownership. This paper investigates some potential strategies for reading (or interpreting) the fabric of the city differently, beyond the boundaries of what we understand the physical potentials of the city to be. The opening narratives and projects are presented as “re-framings” of the urban fabric, introducing a central idea: the strategic re-contextualisation made possible by insinuated personal interpretations. Beyond this, consideration is then given to the nature of spaces that will afford these interpretations as well as allow subsequent physical interventions to reinforce these shifts in interpretation.

Taken together, these two investigate strategies (the entry point for personal interpretation and the indistinct territorial opportunity within which it takes place) establish the contextual field within which projects of Performative Urbanism will eventually be situated. As such, these paired considerations constitute more the establishment of territory in which projects will be conceived, developed and deployed than a conclusive definition of the instruments themselves. These future projects will intervene in this territory (both physically and interpretively) to catalyse individual narratives insinuating our presence within the spaces of the city.

The stories of Edgar Allen Poe, product of the rise of the great metropolis, with its concomitant impenetrable crowds and unfathomable spaces, illustrate an attempt to personally navigate the space of the city.2 It may be said of Poe’s work that, as per the epigraph to his short story, The Man of the Crowd, “es lässt sich nicht lessen” – it does not permit itself to be read.3 In this particular story, the unnamed narrator (standing in for Poe himself who, though then famous as a fabulist, would become equally infamous as an ambulist) obsessively stalks an equally unidentified elderly gentleman for the whole of a night and day through a murky crowded
London, enticed simply by the sheer difference communicated by the man’s face: “the absolute idiosyncrasy of its expression.”

Poe’s narrator ascribes to his quarry a disreputability based on a personal reading of his appearance, and a presumed narrative to match: “how wild a history...is written in that bosom!” His pursuit ultimately leads him no closer to either understanding or engaging with his subject; instead, the peregrination through London seems the most important outcome of the story. Indeed, if it was the city that fascinated and inspired Poe, it is the resultant evocative documentation of the city that attracts many to his writing in turn, attributing to it a resonance lent by its own sheer experiential density and narrative inscrutability.

Walter Benjamin, attracted by this (seeming) urban incompleteness (and its presumed attendant dangers), referenced the framing of the work as more important than the plot: he found in Poe’s tale the bare carcase of the detective story, or the indeterminate pursuit through the City, comprising the pursuer, the crowd, and the unknown man who is always in the midst of that crowd.

Consistent to these renditions of this notionally simple walk through a day and night in the life of London is a personal interpretation based on a reading of a single incongruous element in the field: in this case the unprogrammed character. The narrative Poe constructs brings him face to face, as he eventually sees it, with “the genius of deep crime,” and he abruptly abandons his pursuit. Benjamin, not too far behind, delights in the fear engendered by this deliberate romanticising of the city, and its consequent heightened elevation of the self in this imagined milieu.

In both instances, what is required for the creation of this condition is simply the prompt of the incongruous element and the subsequent personal interpretation applied to it. These synchronous strategies relish the unknowability of the resulting experiences or events; the insinuated narrative is implicit in creating the space into which the reader (or city dweller) travels.

A similar strategy of the incongruous object affording a re-framing of urban space is evident in filmmaker Peter Greenaway’s project The Stairs/Geneva: The Location. Though primarily a maker of neo-baroque films of excess and spectacle, Greenaway has also worked concurrently...
with installation and architectural (and urban) fabric. He proposes these works (materially situated in corporeal space) as an antidote to the singularity of a representational vision imposed by an (immaterial) cinema. The premier installation of The Stairs was completed in Geneva in 1994: over a period of 100 days, 100 white wooden staircases were deployed around the city to be climbed by the public. At the top of each staircase was a viewport framing a “living picture postcard,” accompanied by a one sentence commentary. Concerned with materiality, multiple viewpoints and a desire to activate the audience, Greenaway’s intent was to induce a sense of defamiliarisation coupled with a heightened consciousness of one’s orientation in space.

Focused on the idea of the frame and the operation of re-framing, Greenaway’s project was an attempt to deviate from the authority of the frame in cinema, which establishes an imposed and uncritical position, reducing the audience to simply the role of voyeur. Instead, the Stairs project privileges the participant who, while conscious of performing the act of viewing (both within the structure and in the larger context of the city), also “performed” the project itself, transforming the city into a collection of stages, with each viewer becoming an active participant in the work.

Similarly to Poe’s story, in which the ambulation through London becomes the (unwitting) context for the work, Geneva also features as the milieu of the Stairs project. While participants could reference a numbered map locating each Stair, most encountered the project simply by stumbling upon one at the Stairs while wandering through the city on daily business. The map, a recurrent feature in much of Greenaway’s work, acts less like a linear script and more like a list of entry points offering access to an open-ended and changeable narrative, one subsequently constructed according to the participant’s trajectory.

As Geneva becomes both site and subject for potential narratives, Greenaway’s “audience” is transformed into multivalent active participants; the act of looking is simultaneously developed into a performance of the city integral to the experience of the Stairs project. Finally, negotiating the map activates the entire city as the field of the work. In this way, by not being explicitly framed itself, the Stairs escapes the limitations of much public art, where the audience is presented only one aspect of a work – here, the experience continually oscillates between introduced fiction and re-presented fact. The work becomes an instrument in both interpreting the city and writing new personal narratives upon it.

As opposed to accepting the city as an inert agglomeration of built fabric and the resultant spaces formed by their disposition, we need to discover opportunities and create methodologies whereby we can perform the city, as well as perform in it. However, the codification of behaviour as insinuated by the fabric of the city consigns much urban action to the realms of the legislative and the consumerist. Lefebvre’s writings outline a society whose spatial structures are delineated economically by forces of capital, socially specified by cultural production and politically regulated by the state. Congruent points on the boundary of a culture that demands precision, rationality and above all clarity, these forces present a public realm that is increasingly branded, deracinated and politically circumscribed – clearly defined and delineated to the its material limits.

Given that this production of space and its subsequent occupation is no longer the privileged domain of architects, the discipline must, like contemporary art, abandon its autonomy to fully embrace the opportunities inherent in new complex urban orders. Performative Urbanism offers a means by which to re-frame urban space to offer its occupants agency in determining their place in that space. Inhabitants become partial authors of their environment and well as producers (and interpreters) of their meanings, reconfiguring understandings of space so that the relationship between performative subject and the architectural object becomes “productively unclear.”

Contrasted with this deliberate ambiguity is the greater cultural condition of aestheticisation in which much architecture and urban space is created: the concession of primacy to the representational has displaced social space in favour of legible space. Beholden to the value systems that make them manifest, the productive processes of describing (and making) space result in a highly specific “world of the image” instead of one in which the imagination is allowed to operate.
Genuine public space is fluctuating, multifunctional and ever-changing – these transformative places need to bear an incompletion that affords personal expression and individual interpretation. Given that architecture is a discipline dedicated to valorising the common, how is it then possible to create opportunities to facilitate cultural mobility, places where a shift in perspective and perception becomes possible?

Crucial to this search is an operation of mapping that offers, as did the index of Greenaway’s Stairs, a re-framing of multiple access points into contested territory, instead of a quantification of absolutes. The speculative works of Lebbeus Woods propose a strategy of “freespace,” whose currency exists in its resistance to appropriation in conventional terms: alien landscapes within normal buildings, they are formally and materially distinct, “spaces of strangeness, challenge, potential.” These projects, for locales as varied as Sarajevo, Havana and San Francisco, imply extensions of the possibilities of space, while they actively depend on the continued existence of normalised territory.18 Paradoxically enough, and as Poe well understood in his peregrinations through the city, the “truly strange,” that unfamiliar space of transportation and transformation, can only exist within the terrain of the familiar.

![Fig. 2 – Lebbeus Woods (b. 1940 USA). Freespace Sarajevo, 1997.](image)

Poe, Greenaway and Woods all operate with the preconception of a fundamental “unknowability,” a concern posited by Giambattista Vico in his uncertainty towards scientific reason. Vico was reacting against a rationality that would circumscribe the world, and in its presumed completion limit the possibilities, not of understanding it, but poetically engaging with it. He believed that Cartesian epistemology could only provide a mechanical description of the world; to move beyond this requires using the language or fabric of the past itself as a discursive framework for action.19 Thus, within the context of this investigation we needs tools to make a map of the familiar that contains within it the possibilities of the unfamiliar, so that it might be (mis)read.

In 1762, the Venetian engraver Giovanni Battista Piranesi published the *Ichnographia Campi Martii antiquae urbis*.20 These six contiguous etchings depict stone fragments on which are incised a plan of the Campo Marzio, the Forum of ancient Rome. Though containing a collection of recognisable monuments, on closer inspection the plan bears little resemblance to Rome, either ancient or 18th century, despite seeming distinctly “Roman.” Containing such marvels as the gates to the Underworld, Piranesi’s map depicts a real city as well as one located in the imagination, and in prehistory, where the primitive and mythic underlie the labyrinth at the base of the palimpsest.21
The context of Piranesi’s work, which seemingly proposes destruction, restoration and reconstruction in the single image, is the tradition begun in the 15th century of *instauratio urbis* (literally “the instalment of the city”), attempts to restore the form of ancient Rome. Previous depictions of Rome in this genre showed Rome as constituted by only a select few monuments or ruins, the *mirabilia*, or marvels. However, rather than simply documentation of the ruins, these reconstructions were aimed at restoring Rome as both capital of the ancient and the modern worlds. Instead of an illusory overall plan, potent individual structures made up the city, connected by fields of blank space (*vacuo*), in which the reconstruction of the city could take place.

Over these romantic readings and re-readings of Rome loomed the shadow of the Enlightenment, which challenged antiquarian scholarship with science, namely archaeological knowledge. Archaeology was recruited to supplant the myths of ancient knowledge with empirical methods putatively free from ideology. Directly, cartography replaced the allegorical narrative of maps with the exactitude of numbers and objective data. The leading figure in this effort, and producer of arguably the second most famous map of Rome, was Giovanni Battista Nolli, author of the *Nuova pianti di Roma*, now simply known as the Nolli plan. A leading Roman surveyor, Nolli used the most current measuring instruments and techniques to create (14 years before Piranesi’s plan) the first cadastral map of Rome; one which depicted not only monuments, but individual buildings, major and minor spaces, courtyards, fences, fountains, stairs and countless other elements in spectacular detail. It also marks the first time the north-south axis was used in a map of Rome and as such, purported to be a comprehensive map of the “real” Rome.

In the face of these developments, Piranesi’s work assumes a critical dimension, actively resisting scientific objectivity in favour of a city still informed and formed by speculations, allegations and narrative, instead of simply facts. The Campo Marzio is thus Piranesi’s reaction to the descent of the rationality of the Enlightenment: it contains within it the real and the unreal, the past as well as the future. As a critical fragmentation of time and space, the map posits a disjointed geography of excisions and allegory; importantly, one wide open to interpretation.

Piranesi concocted a free architectural fantasy, combining elements liberally to transpose the material substance of Rome in the realm of the irrational. Piranesi’s map prefigures Poe and Benjamin through its construction of the city as labyrinth, a product greater than its constituent elements, infused with collective mythmaking and based on an underlying palimpsestic fabric. The City, for Piranesi, was “an intricate network of sites of interpretation.”

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Fig. 3 – Giovanni Battista Nolli (b. 1701 Italy). *Pianta Grande di Roma*, 1748.
The modern city has within it similar sites of interpretation, areas that likewise have both physical and psychical qualities, opening the way for the construction of an imaginary paradoxically specific to place. These territories have been characterised by Ignasi de Sola-Morales as *terrain vague*, a broad operative meaning that encompasses vacant as well unencumbered, or free, space. The relationship between these two terms, absence of use and spatial expectancy, points to the fundamental potentials existing in the fabric of the contemporary city and its *terrains vagues*. Void as absence, but also as promise, as the space of encounter.

A further interpretation of the term *vague* delivers the sensibility of the uncertain, or indeterminate. In these discontinuous spaces, which defy complete categorisation, either physical or conceptual, non-use becomes translated to cultural obsolescence. Instead of an active present, memory, coupled with expectation, is the predominant characteristic. And, as Sola-Morales outlines, the Romantic imagination that still exists within our contemporary sensibility delights in these memories and expectations, finding in them the openings to establish our own individual narratives.26

Instead of the literal depiction of territory, Piranesi’s labyrinthine mapping altered the geography, scale and content of the city to create spaces of indeterminacy. De Quincey and Coleridge were only two of the most famous of Piranesi’s admirers to find within his works the spatial equivalent of what in their written works are deliberate manipulations of temporal space, indeterminate gaps in the narrative to which the reader’s implication was invited.27 The labyrinth, that place of wandering, is held to be the origin of the city; its innate indeterminacy promising an inherent openness, or the possibilities of personal interpretation.28 In the same manner, Deleuze held that this construct, in its manipulations of both time and space, eliminated the literal: in response, rather than cartographers, we need to assume the role of “cryptographers,” who can decipher the connections between fissures in physical matter and our personal insinuations into those gaps.29 As per Constant, this “dynamic labyrinth,” suggests the re-framing of space open to modification (the indeterminate space of *terrain vague*) via a personal interpretation (the insinuation of the narrative). – this establishes the context within which Performative Urbanism will be developed.

Fig. 4. Giovanni Battista Piranesi (b1720 Treviso), *Il Campo Marzio dell’Antica Roma*, 1762.

Performative Urbanism will operate less as a methodology of urbanism dedicated to built form than as a series of discrete and self-centred operations. These actions align more closely to the idea of the instrument than the object, both in terms of the analysis they provide of urban fabric.
and the embodiment of personal desire insinuating itself on the opportunities discovered. Tschumi insists that there is no architecture without action, program or event; architecture as a cultural product has a material resonance only fully realised when operated.

The possibility of a project to present open conditions as platforms for interpretation will oblige Performative Urbanism to operate as a strategic design tool – by realising divergent attributes of place we assemble an archive of possibilities within which to develop proposals that both illuminate the conditions of space while affording the creation of new meanings. These may be meanings excavated from the material context, implied mythical narratives, incongruous programmatic suggestions or historical implications. As such, the projective terrain for the future projects of Performative Urbanism is not only a physical territory, but an immaterial one; both corporeal and conceptual.

The search for an operative context for Performative Urbanism explored here is a dualistic process: a narrative re-mapping of place that paradoxically aims to expose vacancies, or terrains vagues; and an insinuation of narratives across and onto the territories in question. The spaces that result, neither wholly physical nor completely conceptual, become the fields for subsequent exploration and development, both in analysis and projection.

How does an architecture act on these sites, with their indeterminacy and vague definition? Constructively, this state of indeterminacy provides an openness within which we can locate our embodied selves. In the city, these vacant and expectant spaces will provide the opportunities to express our own incongruity in the world – to personally perform in, and occupy, the city.

This situating of the field of Performative Urbanism offers a re-perception of urban spaces based on incompletion and incongruity, and suggests future operations that will only then be legible in our own experiential terms – projects that are dreams of things in which the viewer plays the role of the dreamer.

“Very strange, you know, because nowhere else has this thing. No other country.”

Endnotes

4. Ibid, 112.
5. Ibid, 113.
8. Criminality as a means of erasing oneself from the constituents of the City also became an operative practice: the Situationists considered the dérivé a subversive activity in large part because they did not shop.
9. Ibid, Gilloch, 142.
10. The crime story and the consequent urban pursuit was a trope directly adopted by Bernard Tschumi in constructing his Manhattan Transcripts, which also projected a certain inscrutability of event across the metropolis. Tschumi, Bernard.  *The Manhattan Transcripts*. (New York: John Wiley & Sons, 1994)


20. Venice, as is well known, is a quasi-fictional city founded on uncertain ground; it is both unmappable and sensually genuine. It ought to come as no surprise that a Venetian sensibility applied to Rome would generate a deeper reading than that of a mere Roman surveyor.


22. Aureli, Pier Vittorio. *The Possibility of an Absolute Architecture.* (Cambridge: MIT Press, 2011), 108-115. So treasured has been Nolli’s accuracy that his map was used by the City of Rome’s planning department up until the 1970’s.

23. Ibid, Bloomer, 70.


25. Ibid, Bloomer, 72.


27. Ibid, Vidler, 37.


**Illustrations**

Fig. 1 – Peter Greenaway (b. 1942 Wales). *The Stairs/Geneva: The Location,* 1994. Ph. Christophe Gevrey.

Fig. 2 – Lebbeus Woods (b. 1940 USA). *Freespace Sarajevo,* 1997.

Fig. 3 – Giovanni Battista Nolli (b. 1701 Italy). *Pianta Grande di Roma,* 1748.

Fig. 4. Giovanni Battista Piranesi (b1720 Treviso), Il Campo Marzio dell’Antica Roma, 1762.
Opportunistic Destinations: Transforming Railway Stations into Sustainable Urban Centres

Martina Juvara¹ – Phillip Roös²

¹ Sinclair Knight Merz (SKM) Colin Buchanan, London, UK
² Sinclair Knight Merz (SKM), Melbourne, Australia

ABSTRACT
All over the world stations are changing to become new urban centres and destinations. Some flagship projects, like Atocha in Madrid or Grand Central in Manhattan, make great destinations with shops, restaurants, museums and exhibition spaces. The urban spaces around them have been redesigned to provide excellent public areas and rationalise functional needs. Suburban stations also have the potential to follow the same trend. After all, stations are places of high symbolic value, they are central to the life of many people and include all sections of society, while generating high footfall and stimulating the economy. For this reason, Station Master Planning must focus on ‘place’ as well as ‘product’ to respond to the multiple opportunities. Considering the need that designs of stations need to be sustainable and preserve and value the public spaces, this paper reflects on the case study of the station master plan of the Tottenham Hale Station in London where SKM Colin Buchanan applied opportunistic urban design principles and created a new, significant urban square for north London and a local destination for leisure and investment. The design methodology are transferred to the local context of Melbourne where the unique spatial circumstances of suburban stations along the New Regional Rail Link line are reviewed, highlighting how these stations possesses specific opportunistic and sustainable urban design answers.

Keywords: Opportunistic Design, Urban Centres, Public Spaces, Master Planning.

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The Nature and Troubles of Urban Centres

The global economic crisis has prompted two parallel debates about the nature and workings of urban areas. In battered Western economies, consumer spending has rapidly decreased and shopping is no longer promoted by Governments as the goal of a strong society. In the UK, the Government has launched a campaign to diversify the economy away from consumerism - and at the same time, launched a review to identify what would stem shop closures and re-launch town centres (The Portas Review, December 2011).

In parallel, new studies on urban societies are focusing on subjective aspects of ‘Quality of Life’ and well-being, which include sense of belonging, community and other indicators that point to urban identity. Urban centres, of course, are key to identity and social interaction: they are the places of encounter and activity: the places that give their name to whole communities. Strong centres play a key role by creating necessary focal points at the urban scale, and connect spaces to living communities (Alexander, C. 2002).

A new way to sustain urban centres as community places, without ever-expanding retail must be found. Prof. Laura Vaughan of University College London has studied for years the nature of suburban centres from a social, spatial and historic perspective. Her recent work indicates that shopping is often a ‘collateral’ activity, and that in history, centres develop, move or die according to the breath and range of functions that they have and (very importantly) according to the transport system (Vaughan, L. 2009).

Transportation connects parts of cities and helps shape them, enabling movement throughout the city. The various different transport systems help define the quality and character of cities, and make them either friendly or hostile to pedestrians; and walking creates contacts and communities. The best cities are the ones that elevate the experience of the pedestrian while minimizing the dominance of other modes of transport. Stations are linked to high density urban environments where walkable communities can flourish (Elkin et al, 1991).

The Opportunity: Stations as Destinations

The opportunity is therefore very clear. Stations are not only essential to sustainable mobility and a way to reduce car commuting. They can be destinations and drivers of
local economies: the foundation and originators of sustainable urban centres for the next generation. Stations support a sustainable urban form (Barrett, G.1996). Acting as centres for urban communities, they initiate activity centres that in essence provide the three pillars for sustainable development, supporting social, economic and environmental outcomes. After all, stations have high symbolic and place-making value: many locations take the name or change name after the station name. Grand Central in New York names the whole district, and inspired books and films. Paddington Station in London has even named a teddy bear and a book series. They instantly provide a profile and identity to their locality. The grand designs of some stations have also given cities the civic buildings are necessary anchors to cohesive and progressive societies.

Stations, even the smallest suburban ones, are also central to the life of many people: like many, I take the train to work every day and meet people there, use the hairdresser of the station, know the guys that hold the grocery store, and so on. All sorts of people use stations, with no distinction of class or origin; they meet and mingle, in a place that is inclusive and dense in social interaction. Because of their role, stations generate very high levels of concentrated footfall. In many places, the footfall is actually sufficient to support and sustain a public space with shops and cafes. The normal rule of thumb is 500 people per hour can support a small independent shop or cafe. In London, all suburban stations generate 3-4 times that much and main stations have about 10 times as many people walking to or from the station, and 50 times as many interchanging between modes: stations have more footfall than most corresponding shopping streets!

Figure 1 - Footfall between modes of transport at London Euston (Major Station) demonstrating the very high interrelation with the street, 2008 Data Survey, SKM Colin Buchanan
Combining town centres (struggling to generate footfall) with stations, appears to be the obvious and sustainable response to the troubles of shopping streets. This is further reinforced by evidence that good transport is spatially linked to job density: where there are jobs there must be good transport – and where there is good transport there can be jobs. SKM Colin Buchanan provided sufficient proof of this correlation that the UK Parliament agreed to proceed with new rail infrastructure in London, and justified an additional levy on businesses⁶. This is illustrated in the graph below.

![Graph showing correlation between station and job density](image)

**Figure 2 - Correlation between station and job density, based on London, SKM Colin Buchanan, 2007**

Famous stations all over the world like Atocha in Madrid, St Pancras in London or Grand Central in New York are transforming to become destinations, as well as stations: places where the concourse is also a meeting place, a green glasshouse or a ballroom for celebrations, and shops, museums, exhibitions, medical centres and other facilities congregate. The need is to ‘fertilise the city’ with these initiatives – taking them outside and integrating them with the streets.

The model also works, perhaps even better, in the suburbs, where issues of identity and the sustainability of urban centres are more difficult.
London Tottenham Hale Station: an Area Transformed

To achieve this goal, stations should not be designed as ‘products’ and functional pieces of infrastructure: they must be ‘places’. This is what SKM did, when commissioned by Transport for London (TfL) to provide a pre-feasibility study for Tottenham Hale Station, in the north London suburbs, an area affected by poverty and poor employment. The station provides an important connection between rail (including a link to one of the airports) and the metro system. It is perceived by the local council as a gateway to jobs elsewhere in the city. The station, however, is one of the ugliest places in London: a complicated jumble of bus and other access roads, with a diminutive entrance to one side, and surrounded by mighty through-roads and retail sheds. The fun architectural details added to the station by architect Will Alsop in 1991 were a brave approach, but now, a bit tarnished by time, they are only a faint mitigation to the harshness of the whole space.

When SKM started working in 2007, we knew we had to look at more than station capacity and efficiency of interchange. We had the opportunity to look at ‘place’ and create a new urban centre. The conditions were ideal: we had a fabulous team covering the full range of transport demand and transport planning, led by the in-house Master Planning team and architects for station design. The client team was equally strong and committed: a combination of very experienced professionals of the TfL Interchange Team, other representatives of all transport modes, the Greater London Authority and the planners of the local council.

Embracing a much wider perspective was possible through dialogue between stakeholders and structured explorations of scenarios until a win-win situation was found. In this particular case, we used ‘multiple references’ by finding transport justifications for urban design improvements, and by proposing an economic and delivery framework for place-making and change.

For example, we extended the survey of passenger movement and were able to demonstrate that many people walked to and from the station to the nearby areas: less than the number of people changing trains within the station, but many more than originally thought. The opportunity was to present the creation of a public space in terms of transportation benefits: a space to be used to ‘distribute’ pedestrian movement away from the station, in an efficient and effective manner; direct, safe, step free and directly linked to the road crossings to the residential neighbourhoods.
At the opposite end of the spectrum, we explored the station area as a destination in itself and as an opportunity for investment. It was necessary to agree on the correct ‘pitch’: sufficient change to create a new urban heart for Tottenham, and a place of pride and investment, but also appropriately scaled to this area and this community: the outside environment, the square and buildings, essentially belonged to local communities and should be designed in a way that would enhance their identity and daily life. The square allowed the connection between formerly divided housing areas, light industry and retail; it offered seating, a fountain and opportunities for public art and it included a cafe, small restaurants and four other shops.

The final Master Plan created a new, significant urban square for north London and a local destination for leisure and investment. The square replaces existing roads and turning loops outside the stations, provides the catalyst for new development above and beside the station, and rejoins the northern and southern sides of Tottenham Hale. But it also performs as an external concourse, distributing movement between rail, buses and street, achieving considerable journey time savings and clarity of routes.

Now, three years after completion of Master Plan study, and in a period of financial constraints, implementation at Tottenham Hale is getting closer; pre-planning consultation over the creation of square and bus station took place in October 2011 and the works to modify the adjoin roads is timetabled for late 2012.

Figure 3 - Tottenham Hale Station before and after proposals, SKM Colin Buchanan, 2008
Melbourne New Regional Rail Link: a Great Opportunity

Just as stations in major city centres can be destinations and drivers of local economies, the model can also be applied to suburbs, where issues of identity and the ongoing sustainability of these communities are paramount in their context and survival (Engwicht, D. 1992). This is indeed the case for many suburbs in the outskirts of the Melbourne area. The population of Melbourne is set to grow more than one million by 2030. Higher population will locate in identified growth areas, with centres located in North Melbourne, West Melbourne and South East Melbourne. This will require a change in the overall urban footprint of the city changing from a monocentric city with one major CBD centre, to a polycentric city with multiple CBD-like centres.

In response to these growth needs, The Regional Rail Link project has jointly been funded by the Victorian State and Commonwealth Governments, providing opportunities for the stations along this line in the West Melbourne corridor to initiate new and future urban CBD-like centres.

As part of the Work Package C Alliance Works of the Regional Rail Link Project, the design and construction of four new stations in the Footscray to Deer Park section has considered initiatives for the stations to be catalyst of growth and sustainable development.

According to the Footscray Station precinct Planning and Urban Design Framework (2009), the vision for the future of the Footscray precinct is to provide a place which aspires for:

- Liveability: a highly prized living and working community with a sense of place
- Economic growth: a premier destination centre, with various services, civic functions, shops, entertainment and reinforcing the market as a regional hub
- Economic sustainability: a learning community, training and business innovation centre.

Acknowledge the opportunities along the corridor, Footscray Station as well as West Footscray Station opens up the opportunities to become new urban centres and destination hubs.
The upgrade of Footscray Station, and the redevelopment of West Footscray Station take into account the urban transition of city to country, and the station designs apply the principles of best practice sustainable urban design such as; Identity, Connectivity, Ecology, Humanity, Regeneration and Sustainability.
At Footscray Station the forecourt initiate a new focal point, resulting in an urban square to connect the existing Footscray Market with commercial and mixed use residential development opportunities creating unique character and sense of place. The station forecourt, the new urban square also acts as a precinct landmark, providing ease of way finding and distributing movement between rail, buses, street, and pedestrian pathways.

![Image](image-url)

**Figure 6: Footscray Station Forecourt as new Urban Centre and Focal Point, RRL Footscray Deer Park Alliance, 2012(*Image by Hassell)**

The stations along the RRL corridor provide opportunities to become destinations that promote green, sustainable places. As centres for compact, walkable urban places, the stations result in opportunities where the combination of human scale urbanism, with a mix of uses and services, a range of housing options, extensive train systems, and the ability to walk and bicycle as part of daily life all make for sustainable, green living. Using the Sustainable Design Integration Framework developed by SKM as guidance, for design of stations and adding safe, clean, renewable energy into the mix, true sustainability results.
Conclusion

This paper argues strongly that stations are places of high symbolic value, transit centres that have the potential to be centres for urban communities, initiate activity that in essence provides the three pillars for sustainable development, supporting social, economic and environmental outcomes. Strong centres play a key role by creating necessary focal points at the urban scale, and connect spaces to living communities: the opportunity created by railway stations for cities and neighbourhoods should never be wasted.

References


iii Vaughan, L - on going research of the Space Research Group of UCL Barlett School http://www.space.bartlett.ucl.ac.uk/people/laura/


vii Colin Buchanan (now SKM Colin Buchanan) for Transport for London (2008), Tottenham Hale Interchange, London


x Victorian Government, Regional Rail Link Authority (2011), Regional Rail Link Sustainability Policy, RRLA, Melbourne.

xi Department of Planning and Community Development, City of Maribyrnong (2009). Footscray Station Precinct Planning and Urban Design Framework, SJB Urban, DPCD, Melbourne.
Urban Design Possibilities and Barriers for a Mid-Size American City

INTRODUCTION

Lafayette, Louisiana is a mid-size city with a population of 220,000 in the metropolitan area. This city has thrived due to the success of the oil industry, the university, and regional urban growth. Lafayette was named Vermilionville in 1821 and it was renamed in 1884 to Lafayette. It is the commercial center for Southwest Louisiana including business and medical. The success of the latter part of the 20th century and suburbanization is typical of most American cities of this size, with a fragmented downtown core and traditional neighborhoods in the past decade. In addition, the recession has halted many proposals for the repair of the city center. Even before the recession, there were many barriers to its redevelopment. An equated zoning, a dysfunctional planning system, strong private property rights, strong lobbyist for suburban developer agenda, and an anemic public transportation system have all hampered the redevelopment of the core. In addition, the cost of building urbanistic versus on a greenfield site on the perimeter of the city has discouraged redevelopment as well. The Community Design Workshop (CDW), a graduate studio from the School of Architecture and Design at the University of Louisiana at Lafayette, has been working with the city for the past 17 years to provide both urban strategies and economic tactics for redevelopment of the city’s urban core. Two projects from the past two studios have helped to identify some of the barriers and possibilities for redevelopment. The first project, Freetown, a neighborhood whose name comes from the area in which free African-Americans lived and worked, is occupied by students and faculty, as well as a mix of commercial and industry. The CDW has been making urban proposals on how to redevelop this one story neighborhood into a two to three story mixed-use development. The second neighborhood, which is the Oil Center, sits adjacent to the University of
Louisiana at Lafayette across from Girard Park. This area was developed for the newly emerging oil industry in the late 50s and 60s. This housed geologists, engineers, landmen and wildcatters, as well as some commercial properties and a hospital. The development of this area again was a single story, single program. The CDW made proposals and wrote an urban code to redevelop the Oil Center district into a mixed-use office and housing. The city of Lafayette is in the middle of its comprehensive plan; its last comprehensive plan was in the 1970s. The consultant’s strategies are for large buy in collaboration from neighborhoods, businesses, and public officials. The challenge for this city and the comprehensive plan is to overcome the multitude of barriers that exist within a mid-size American city.

ORIGINS OF URBAN FORM

Lafayette, Louisiana’s morphology is impacted by the French long lot that is a special land structure that exists within Southwest Louisiana and up the Mississippi Valley (Figure1). This agrarian structure allowed the French colonist access along the bayou for transportation and the movement of goods. The partitioning of the land allowed main routes to the interior and created a long, thin land organization. The long-lot system divides large acreages into long narrow strips of land. Each long lot had a narrow frontage on the river only 5 to 8 arpents wide, but extended as much as 40 to 60 arpents deep. Cities along the Vermillion River and the Bayou Teche are organized to this morphological structure which impacts the urban form. This urban form facilitates travel perpendicular to the bayou, but becomes problematic when traveling parallel to the river. Contemporary road systems have to cross these individual land boundaries. Jean Mouton laid out the French long lots in 1821, and the city’s original 20 block position is far inland and aligned on the North-South Axis (Figure 2). Lafayette’s early development and expansion was forced within the existing organization to the French long lots. “In the beginning, most businesses were located near the church or the courthouse or between the two. Lee Avenue later cut diagonally across the southeastern part of the map, and the cross streets and lot lines were reoriented to that axis...After the railroad tracks were laid northeast of town, streets in new additions were laid out to run parallel or perpendicular to the tracks” (Kiesel 12). Lafayette’s success also contributed to Mouton securing the parish church and securing Lafayette as the parish seat of Lafayette Parish.
In 1887, the urban form was impacted by the southern intercontinental railroads which came through the city of Lafayette. The railroad forced an economic-driven shift to the city grid (Figure 3). The city’s grid shift toward the railroad is an effect of land owners developing around the infrastructure. The railroad provided a corridor to connect industry to bring resources beyond the Mississippi River. Another bearing on the urban development happened in the late 19th century when the University of Louisiana at Lafayette was sought by several cities of the area, but the city of Lafayette instituted a tax to buy the land and donated it to the state for the use of the University. After the first graduating class of 1904, the University has been an economic engine since that time. "Higher education came to Lafayette in 1900 when the Board of Trustees decided to locate Southwestern Louisiana Industrial Institute there. The Girard family gave 25 acres of land, local citizens pledged $8000 in cash, and the parish passed a two-mill property tax to support the school. Local banks offered loans totaling $10,000 against the proceeds of the tax, so the school could begin work immediately" (Kiesel 39).

**SUBURBANIZATION OF A CITY**

Many issues contribute to the suburbanization of Lafayette, Louisiana. Beginning in the 1950s through the 1970s, the nation goes through a population boom of post-war America. In addition, government support of infrastructure, such as roads, water, sewer, and electricity helped expand most American city’s periphery. Lafayette was no exception. Office parks, suburbs and the American strip became common place to suburban development.
Also, another restriction to the urban growth of Lafayette is the facilitation of the automobile. The Federal-Aid Highway Act of 1956 passed by Congress and initiated by Eisenhower, created a network of interconnected roads across the country. These main arteries lead to negative consequences that penetrated the urban core of cities. The interstate emerged in Lafayette in the late sixties and was completed across the basin within the mid 1970’s. The interstate shifted the economic activities to the suburban fringe. The interstate and highways became economic engines that expanded the development of cities away from the urban core. This displacement affected Louisiana cities and began the organization and emergence of suburban neighborhoods. Single-family homes encase the surrounding areas of the urban core in Lafayette (Figure 4). “Within the overall scope of the ranch house type, an evolutionary pattern of development is evident. Primarily, both the size and complexity of the floor plan layouts increase. In fact, the house type evolves through three rather distinct phases from modest basic ranch type, on its way to the sprawling, highly articulated ranch rambler” (Rowe 73). These subdivisions create entire communities where family incomes and demographics are almost completely similar. The suburban neighborhoods separated the residential and commercial development, depriving the access of walking for daily needs. These subdivisions mostly consist of single-family homes placed within a field of green landscape, garages that replace porches, and roads conforming to a hierarchy (Figure 5). Dead-end roads feed into residential streets that lead into the large collector roads to current shopping malls and strip malls hidden behind large parking lots.
Johnston Street is a major artery running through the heart of Lafayette (Figure 6 and 7). It began as a modest country highway and grew into today's five-lane state highway that links a series of important landmarks in Lafayette: the University of Louisiana at Lafayette campus, the Cajundome, and commercial districts along the street, including the Acadiana Mall. It is also the spine for thoroughfares that branch out to many other places throughout the town. This major artery shows characteristics of most American commercial strips. With a series of object-oriented architecture placed in a field of parking lots, landscape is either miniaturized or pushed to the margins of the development. The architecture becomes a flat generic response to the automobile as in any American city. Big box stores, malls, gas stations, car salons, and fast food restaurants, with a collage of signage, makes for a typical suburban development that can happen anywhere in the United States. As a connector of so many important buildings and activities, this causes extreme congestion, one of the major problems with the existing condition. In addition, this major thoroughfare lacks a presence as a connector for a community that has a unique history and a rich and vibrant culture. Instead, Johnston Street is a sad reflection on our postindustrial society. It is a ubiquitous nowhere, shouting of 20th century commercialism and living proof of the cancerous urban sprawl to which our society has become victim. In the pretense of progress, the automobile has come to dominate our built environment, and our public realm has sacrificed its aesthetic identity and, most importantly, its safety. The result is an erosion of the individuality of our communities, and the unregulated sprawl has reduced us to a homogenous society seduced by speed and convenience.

**BARRIERS**

The barriers to redevelopment in a mid-size American city are numerous but can be categorized into physical, bureaucratic, policy, economic, and political. The physical barriers to redevelopment can be seen in the city's urban form. This urban form was generated by the land division of the French long lots. This land pattern is useful in an agrarian economy with transportation on the river, but with established neighborhoods and developed road networks, this land pattern is problematic. In addition, the vision for this early town was somewhat limited with the original design of 1821 with just 20 blocks and limited space for right of way for roads and streets. Additionally, the lot sizes were average 40 feet by 80 feet making it difficult for contemporary redevelopment. These modest lot sizes can be seen in the 1912 plan for the city of Lafayette (Figure 3). From a bureaucratic point of view, the city has an outdated zoning code that is based on the suburban development principals. Pyramidal zoning separates land uses, institutes setbacks from the street and produces oversized parking requirements that eat up valuable land and hinder a more compact building model. The Lafayette Consolidated Government Zoning Ordinance states set backs for the general business zoning district are, “Front- 20 feet; Side- for detached dwellings, 5 feet per side; Rear- for dwellings, 10 feet; Where lots are created adjacent to or abutting a substandard public right-of-way, a building setback line shall be placed at a distance from the public right-of-way equal to the sum of one half of the right-of-way deficit and the zoning setback for the applicable
zoning district.” (USA, LCG). The setback policy which is suburban in nature excludes any mixed-use or urban buildings fronting on the public right-of-way such as sidewalks or public spaces. Administratively, the city’s planning department is organized in code enforcement based on the suburban model. The traffic department deals with road planning and its development. Both departments rarely converse with each other and traditionally defend their turf. Some planning is executed by the traffic department but it has just recently started to understand form base codes and develop incentive programs. At a state level, Louisiana currently has no mechanism to assemble a series of properties for urban redevelopment. Governor Kathy Blanco’s administration passed legislation that favored strong property rights over redevelopment. Nationally, the unemployment rate is at 11 percent and the political climate is detrimental to the redevelopment of the city. “Strong public opposition to TIF districts, particularly from the Tea Party of Lafayette, forced officials to pull from consideration three different plans that would have either created or opened the door to create TIF districts in the Lafayette area during the past half-year alone” (Persac). The Tea Party’s extreme position of fiscal responsibility has forced Lafayette Consolidated Government and the University of Louisiana at Lafayette to withdraw proposals for Taxing Incremental Financing Districts (TIF). This political movement at a national scale is having a tremendous impact at a local level. Additional political pressure applied to a city council comes from developers that do not have the skill set to build multifamily housing in an urban context and continue to only build three bedroom family housing. The barriers for the redevelopment of Lafayette’s urban core are numerous and wide ranging from physical to political. Unless some of these barriers can be overcome, urban redevelopment will be delayed and will follow the anemic pace of the last 20 years.

POSSIBILITIES

The city of Lafayette and the region has always had a history of creative and energetic involvement for the redevelopment of Lafayette. The Chamber of Commerce and other civic groups have been hyperactive in the interest of the city. These groups have been instrumental in procuring and supporting the comprehensive design that began six months ago. This civic process that the community has been engaged in has brought a new optimism to the city. The process is encouraging more development in the urban core and establishing an urban code. It also has been publicly discussed to reorganize the departments of planning and code revision into one streamlined department. The hope is that the plan will set some priorities for the redevelopment of the city’s urban core. Concurrently, the University has also engaged in a master plan. What is optimistic is that the Masterplan for the university and the comprehensive plan for the city are proceeding forward with an unprecedented dialogue between the two. The dialog between the city and university is one of corporations, whereas before they acted as an independent agency making plans in isolation. The best example of this is the recent sale of the horse farm and land swap that benefited both parties for the development of a new passive park in the middle of the city. There is also optimism in the region with an economy that is rebounding. “In March, Lafayette Parish’s
unemployment rate was 4.8 percent—almost unheard of in many parts of the country—and more than 14,000 new jobs have been added since March 2011” (McElfresh). Opportunities exist to operate a hybrid condition of suburban-urban landscape of this American mid-size city. This American urban landscape is, at best, a difficult entity to read and comprehend. This difficulty may be attributed to the collision of two very different city types that make up the urban condition. This condition is composed of the traditional city, and its post-industrial counterpart, the suburban city. Each has its own reading, its own properties and elements. The traditional city, with its layers of history, contains highly distinctive urban elements perceptible in its containable spaces, grids or fields, block structure, and commercial core, even if they have been fragmented by 20th century development. These elements produce a clear datum whereby one is capable of reading the city’s fabric. It is within this backdrop of hybrid urban form, political and bureaucratic barriers and current economic and policy opportunities that the Community Design Workshop (CDW) has operated in Lafayette and the region in the last seventeen years.

THE COMMUNITY DESIGN WORKSHOP

The School of Architecture and Design provides expertise in urban design, planning, landscape design, architecture, housing, and preservation. The Community Design Workshop (CDW), located in the School of Architecture and Design at the University of Louisiana at Lafayette, helps cities, small towns, and neighborhoods to visualize their potential as a community. It has completed a series of projects including urban design and planning strategies for small towns such as Breaux Bridge, Carencro, Kaplan, and Opelousas to name a few. The CDW has worked in urban neighborhoods and districts. The Downtown Development Association and the CDW worked together to develop an urban code for the downtown area of Lafayette. The CDW has also completed the planning and re-development of the Simcoe Street Corridor Project for Lafayette. The project’s aim was to repair and remake an African-American neighborhood ravaged by 20th century circumstances. The CDW has worked closely with the planning organizations of Lafayette by designing new streets, formulating a new arterial design program, and creating plans for a five-lane North-South beltway for Lafayette Parish. I-49, an interstate project, was weaved into the context of the city. Additionally, the CDW has worked on Johnston Street which is a suburban American strip and proposed a much more pedestrian and urban typology. The CDW has also worked extensively with the devastation that was caused by Hurricane Rita in 2005 which impacted the small towns of Delcambre and Cameron, Louisiana. The CDW works in collaboration with the graduate Architecture 502 Urban Design Studio of the University of Louisiana at Lafayette. This pedagogy allows the students to engage in urban design strategies that will have an influence on the development of Lafayette and the surrounding areas of Acadiana.
TWO PROJECTS

Two projects that illustrate the possibilities of redevelopment are the neighborhoods of Freetown and the Oil Center. Freetown is an original subdivision called the Mouton Addition (Figure 8). Prior to the Civil War, many freed slaves in Lafayette settled in this subdivision, along with a heterogeneous mixture of lower and middle class Caucasians. Over the years Freetown, as it became known, served as a melting pot of various cultures including, among others, African, Cajun, Lebanese and Middle Eastern, Greek, Spanish and Irish. The residents of Freetown came together and developed into a strong neighborhood community. Traditionally, this area has been home to university professors and their families. The other study area referred to as the Oil Center was developed by Maurice Heymann beginning in the 1950s through the 1970s; the Oil Center provided valuable office space for an emerging oil industry in south-west Louisiana (Figure 9). Originally established as a Lafayette office park, the Oil Center is a suburban city model that is surrounded by suburban housing. “The importance of the Oil Center extends beyond the oil business. The Oil Center has become a city-within-a-city, containing professional offices, retail shops, a shopping center, banks, brokerage firms, a medical clinic, florist shop, gift shops, drug stores, art galleries, and post office” (Lafayette: Its Past, People & Progress 78). This condition has restrained the Oil Center’s horizontal expansion and has forced a more urban vertical redevelopment. With both projects the CDW organized a series of charrettes with the stakeholders where precedents of successful urban districts and neighborhoods with diverse programming were introduced. The fabric of these example urban districts called for mixed-use building typologies which allowed the cities to be much more vibrant and compact. The CDW analyzed these precedents and synthesized them with the concerns of the stakeholders and the context of the existing condition in the Oil Center and Freetown/Port-Rico. The CDW made a huge stride in building consensus and generating momentum amongst stakeholders and the general public regarding the redevelopment of both of these districts.
The urban design strategy for the Oil Center Office Park was not only to transform the overwhelming majority of its single-story/single-use structures into mixed-use low to mid-rise buildings, but to also reverse the primacy of the automobile over the pedestrian by creating a greener and walkable community (Figure 10). The urban plan was forced to take into consideration that a significant public transportation system will not come into existence in the city of Lafayette and therefore, automobile access and parking would maintain its influence in all aspects of programming. Additionally, the challenge of maintaining automobile access and parking, while giving primacy to the pedestrian, was further compounded by the relatively small city block sizes and the high groundwater table of the area. The main parking strategy that would allow the density of the Oil Center to expand from single story to low and mid-rise buildings would focus on the creation of parking decks embedded into the center of the urban blocks where each development or building would screen the parking from the street and pedestrians. Additionally, a shared parking strategy for mixed-use buildings was integrated into the overall Master Plan (Figure 11). In order to capitalize on the proven value of diversified programming in the use of urban districts, the Master Plan offers urban buildings with...
commercial and/or retail space on the street level, office space on the floors above, and to be capped with residential space on the top floors.

The pedestrian urban space between the building skin and the curb edge is energized by generous sidewalks and positioning the edge of the urban buildings close to the street to allow for the increased activity of commercial development on the lower floors (Figure 12). To incorporate more green space into the redevelopment project, four types of green spaces were included in the Master Plan: urban parks, streetscapes, linear parks and a river walk. The landscape of the existing boulevards would be redeveloped into tree-lined boulevards and streets, and the secondary streets would include landscaping at the corners of the blocks. The planned extension of the existing thoroughfare to the river would incorporate a linear park along the street edge, and urban parks would be incorporated into the block structure in the Districts. This system of parks would include additional landscaping, urban furniture, lighting and benches throughout.

Figure 12 Coolidge Blvd Proposed Section

Figure 13 Oil Center Office Park Building Design

Figure 14 Oil Center Office Park Streetscape Design
Urban Code

The second task for CDW studio was creating an urban code for the Oil Center. For mixed-use urbanism development to exist there must be a mechanism to change a suburban environment into a more vertical and compact urban environment. Working concurrently with the studio, the CDW was able to introduce preliminary code requirements. These requirements were then tested and expanded as individual student projects developed throughout the semester (Figure 13). Best practices and test cases were identified and discussed at the charrettes and public meetings. Strategies for developing an urban-suburban hybrid code were chosen for the city’s extreme suburban development and dependency on the automobile. (Figure 14) Many model codes were documented, analyzed and compared. The urban code for City Place in Dallas, Transit Oriented Development Code in Austin, Buckhead Village District in Atlanta, as well as the Louisiana Overlay District, were studied, documented and analyzed. Best practices and code analysis reviewed height restrictions, setbacks, floor-area ratios, programming efficiencies, proximity slopes and parking (Figure 15). The studio projects revealed the strength and weaknesses of the developing code. Typically, these hybrid codes strengthened and defined public space such as streets and squares. Requirements for parking placement and reduction in automobile spaces linked to programmatic and transportation needs were varied. The analysis of these core elements of best practices were synthesized and reorganized to the new Overlay District of the Oil Center. The code also gives bonuses for pedestrian environments such as landscaping, bike racks, paving, public spaces, LEED certification and parking garages. These bonuses would permit a higher floor-area ratio than otherwise allowed.

Figure 15  Bendel Street Section
IMPLEMENTATION STRATEGIES

Through the public meetings and charrettes, the issues of implementation strategies were explored. These strategies all involved developing an urban code with urban design, architectural standards and economic development. Over the years, the CDW has been studying implementation techniques in the form of TIFs, Business Incentive Developments and Overlay Districts. A TIF District is a planning tool that supplies economic incentives to the developer and builder in redeveloping urban districts. TIF District monies can be used for a variety of infrastructure needs: roads, streetscapes, parking garages and even construction costs of new buildings.

A financial framework makes the development of a hybrid suburban-urban condition possible. Taking cues from cities such as Dallas and Lafayette itself, the Oil Center’s code threads residential architecture into the existing fabric and procures success through economic stimulation. The concept of a multi-use environment dense with purpose and activity can be realized through the merger of commercial, residential, medical and other types of usage. This reinvestment in streetscape, utilities, land acquisition, parking garages and new buildings will directly enhance the living environment.

FREETOWN

Freetown sits strategically between the University to its south and the Downtown Lafayette on the western border. Jefferson Street, the main street of downtown, traverses Freetown as well, and McKinley Street intersects Jefferson at ninety degrees. McKinley Street also bisects the campus at its heart. Freetown is positioned in relation to the University and the Downtown, making it ripe for redevelopment. This intersection of streets creates an armature of structure in which the graduate studio organized their urban strategies. Other important urban strategies were to establish a clearly defined public space and to transform the single family housing on prominent streets into multistory mixed-use urban buildings. The urban plan proposes a five-year plan (Figure 16), 10-year plan (Figure 17) and 25-year plan (Figure 18).
Urban Design

Freetown’s position between the university and the downtown has created a great need for redevelopment. Programs that can bring life to this district are a more dense mixed-use fabric of housing and commercial supported by additional infrastructure of parking, pedestrian walkways, and landscape. The overall proposed plan is broken into three phases. Phase One proposes the development of four blocks and the intersection of Jefferson and McKinley Streets in the Freetown neighborhood (Figure 19). Within the four blocks would be the placement of a grocery store that occupies an existing building with a parking garage that extends over the roof of the existing structure. On the smaller block adjacent to the park, the existing industrial buildings remain and include new construction, mainly housing, to reflect surrounding typologies. On the final block, new construction would be executed to reflect typologies of old warehouses and will include housing, commercial, offices, and restaurants. The parking for this block would be consolidated to the core of the block thus keeping the urban edge and creating a dense street presence. Phase Two and Three would continue down Jefferson Street and to the Downtown area and McKinley Street to the University. The redevelopment would include two to three story buildings with housing, commercial, and parking. There would be two other green spaces placed strategically within the neighborhood and they would offer different amenities to the neighborhood.

Other studio proposals also present an opportunity to connect both the University and Downtown Lafayette. Through the redevelopment of McKinley Street, that connection can be formed. The intersection of McKinley Street and Jefferson Street then becomes the primary node through the establishment of McKinley Park (Figure 20), commercial shops on the opposite side of Jefferson along McKinley Street. In order to accommodate parking, three parking structures are proposed. These structures are internalized on their respective blocks and are surrounded by mixed-use buildings in order to keep an active urban street front and sufficient to provide public parking for the majority of the entire development. The park consists of commercial and mixed use developments surrounding a large, public green space. The northeast end of the park is
home to a culturally rich development, programmed with an open farmer’s market, restaurant, classrooms for culinary arts, music venue, theater, and art galleries. The other mixed-use developments consist of cafes and retail shops that act as an extension of the park through outdoor seating.

Architecture

Many of the proposals for the Freetown neighborhood take on a more urban quality along the prominent Jefferson and McKinley Streets. The architecture is kept at a small scale to allow it to relate to the existing neighborhood (Figures 21, 22). The site strategy pushes itself to the sidewalk edge and has the parking in the back of the building. This maintains the urban edge and keeps the sidewalk activated. Within the ground floor along the sidewalk, the building footprint carves out space for interaction with the street. These mixed-use buildings animate the street with public space for outdoor dining. Apartments are designed for the upper floors with terraces for the restaurants and the apartments. Parking was organized to the back of the buildings or parking was tucked underneath, but screened from the street.
Streetscape

In order to redevelop McKinley Street and the surrounding neighborhood, a plan has been generated to connect the University of Louisiana at Lafayette and Downtown Lafayette through the McKinley Street Corridor. An option to create a pedestrian promenade along McKinley Street is available. Three different schemes allow for a variety of options within the plan of the promenade (Figures 23, 24, 25). In urban environments perception of the street is important. In the proposed pedestrian promenade, traffic would be diverted to peripheral streets, creating a bike path in the center bordered by landscape. The sidewalks would be widened to allow for outdoor seating. Balconies can be used to create an arcade for shade. Also included would be a playground at the corner of McKinley Street and Jefferson Street. The McKinley Street Streetscape Design Project is funded from the Quarters Apartments, making amends for the design of their complex. The overall design was a joint effort between neighboring property owners, the Lafayette Consolidated Government, and the University of Louisiana at Lafayette. It calls for a ten-foot sidewalk up to the property line, a four-foot planting strip, along with ten-foot lanes on a two-way street. Streetlights are placed between the sidewalk and planting strip, at forty-foot spacing, with a tree falling in the planting strip between each interval (Figure 26).

CONCLUSION

Lafayette, Louisiana is indeed facing challenges and barriers to the redevelopment of their urban core. The city is at a pinnacle point within their history. There is great optimism that many of these barriers will be mitigated by the new comprehensive plan. It has already been discussed that the reorganization of the planning and transportation departments will become more streamlined and updated with a contemporary code. Bernard Zyscovich, FAIA quoted in a meeting saying that the suburban code was outdated and needed to be revised. Discussions are also occurring with banks and developers to allow for a much more competitive loaning program to the
disadvantaged urban sites within the core. The other great strength for the city of Lafayette in the past four years is that the creative class has been so instrumental in a public discussion of a true urban form and traditional neighborhoods. Of course, support from the University and the Community Design Workshop facilitates a public discussion on architecture that identifies opportunities within the city and advances urban design principles.
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Urban Informality in the Developing World; Opportunistic urban design processes and prototypes for the developed world

Jeremy Schluter

School of Architecture and Building, Deakin University, Geelong, Australia

ABSTRACT: The turn of the twenty first century heralds a fundamental shift in the world’s population towards cities in what has been termed The Urban Age, most visible in the developing world. Instead of the dichotomy of ‘First World models’ and ‘Third world problems’, research has begun to explore the complexities of urban informality revealing new approaches to the complex creation of urban spaces. This paper will analyse the prevailing perspectives in order to develop an understanding of informality as an urban evolution through necessity. Finally through an analysis of professional urban design experiments the paper highlights opportunities and challenges within the developing world for new and exciting urban design processes in the developed world.

Keywords: Urban Informality, right to the city, UrbanThink Tank, Urbz, Camberwell.

INTRODUCTION: The 2007 publication The Endless City proclaimed a fundamental shift in the world’s population away from the rural and towards cities in what it termed The Urban Age [Burdett & Sudjic, 2007]. Presenting a snap shot of urban issues from both developed and developing cities, the publication also contributes to the dialectic surrounding the growing gap between these formal and informal worlds.

In her article from 2005 Ananya Roy refocusses the issue by stating that ‘the study of cities today is marked by a paradox: much of the urban growth of the 21st century is taking place in the developing world, but many of the theories of how cities function remain rooted in the developed world’ [Roy, 2005, pp. 147]. Instead of the dichotomy of ‘First World models’ and ‘Third world problems’, Roy contends that understanding the complexities of urban informality might uncover new approaches to the complex creation of urban spaces in these cities. These approaches must recognise the citizen’s ‘right to the city’ [Roy, 2005, pp.147-8], a concept introduced by Lefebvre in 1968 in which he claimed all citadens [urban citizens] had the right to take part via participation in the process of making the city and appropriation or occupation and use, in order to create new spaces of un-met demand in the city [Lefevbre, 1986].

This paper aims to build on research that seeks to reveal new and radical approaches for urban design from within the urban informality of the developing world. In critiquing the binary dialectic of the formal and informal worlds an alternative interpretation of urban informality emerges as ‘evolution through necessity’ or ‘the quiet encroachment of the ordinary’ [Bayat, 2000, pp. 536]. The paper then analyses the
work of two urban design offices that contribute to this context whilst critiquing two manifestations of the ‘right to the city’ in the developed world by comparison. It will conclude by arguing that there are opportunities within the developing world for exciting new urban design processes and prototypes applicable to the developed world.

**DEFINING INFORMALITY:** ‘Informality is associated with modes of human settlement and trade or exchange that occur outside of formal legal structures and processes’ [Porter, 2011]. Earlier analysis of such structures and processes establish a distinct binary dialectic between the ‘formal’ and the ‘informal’ presenting them in contrast and opposition. In this binary dialectic, the formal is ordered, organized, and planned, resulting in ‘broad public benefit’ [Devlin, 2011] versus the informal which is unplanned, lacking of formal order or logic [Varley, 2010], and a ‘health hazard, a threat to social order’ [Hernandez & Kellett, 2009, pp. 11]. In later research this dialectic is avoided by rebranding it ‘urban informality’ releasing the terminology from its dichotomous relationship with the formal [Roy, 2005]. This re-branding also avoids the misinterpretation of the ‘in-form-al’ as lacking in form or structure, with its urbanity more recently understood as having formal characteristics that produce an alternate, seemingly chaotic, yet none-the-less coherent neighbourhood character [Ingin & Islam, 2011, Varley, 2010, Vekstein, 2009, and Brillembourg & Klumpner, 2009].

One of the significant and appealing characteristics of urban informality is its apparent direct manifestation of the rights and needs of those inhabiting these cities, demonstrating their ‘right to the city’. The idea that urban informality emerges purely to suit the needs of those who use the city negates the fact that it evolves out of direct necessity to survive in the most marginalized and impoverished urban communities. In a combination of these perspectives of urban informality in what I term an ‘evolution through necessity’, Asef Bayat conceives ‘the quiet encroachment of the ordinary’ [Bayat, 2000, pp. 545]. He defines this as ‘the silent, protracted but pervasive advancement of the ordinary people on the propertied and powerful in order to survive and improve their lives’ [ibid]. It is this idea of an urban evolution through necessity that can provide the full perspective to urban informality enabling it to be viewed in all of its contradictions, complexity, beauty and horror, avoiding the binary dialectic through understanding and acknowledgment.

**URBAN THINK TANK [U-TT]:** One group that have been involved in both research and built outcomes within urban informality, principally in the barrios of Caracas, Venezuela, are Alfredo Brillembourg and Hubert Klumpner who founded Urban Think Tank [U-TT]. Initially a non-profit research group, U-TT’s ability to engage
with both the problems and opportunities of urban slums evolved out of a desire to understand and [re]present the urban informality they observed. Working in a world where nothing is ideal and everything is meaningful, U-TT aim at simply ‘avoiding catastrophe’ from the point of view of avoiding the worst case scenario rather than dreaming of the ideal end point [Brillembourg & Klumpner, 2009, pp.129]. This approach is manifest in projects of insertion that directly improve the needs of the city.

A significant project in the barrios of Caracas was their idea for a cablecar system that hovers above the informal settlements and provides public transport links between the informal and formal worlds. By elevating the public transport system and tucking stations into gaps of crowded neighbourhoods, minimal to no clearing of existing dwellings was required [Stephens, 2008]. The cable-car network also resolves the steep slopes of the barrios where ‘the walk to the top of the hill in Barrio La Cruz is equivalent to a 39-storey building, about 1000 steps’ [Eulich, 2010]. Another initiative developed by U-TT to provide improved urban access is a modular stair system. The system is pre-fabricated and installed by local residents, brought up the hill in parts and assembled on site to resolve the maze-like site access. It can be re-configured to conform to the contorted existing urban structure and not only provides improved and new direct access connections but can replace the un-safe existing networks which decay largely due to the lack of proper drainage infrastructure and maintenance.

U-TT have also created community buildings that act as urban catalyst in community improvement. Their first such project was the vertical gym in Bello Campo completed in 2004. Built over an existing make-shift soccer field within dense urban fabric, the vertical gym provides basketball courts, dance studio, weights training, running track, rock climbing wall and soccer field by stacking the facilities vertically. According to their website the facility ‘bustles with activity day and night, and welcomes an average of 15,000 visitors per month. Crucially it has helped lower the crime rate in this barrio by more than 30 per cent since its inauguration.’ [U-TT, 2004]. This manifesto for stacking community facilities vertically integrates into whilst referencing the urban structure of its site in the barrios by its stacked and intensely layered program within and even on top of the building with its disappearing mesh upper walls protecting the roof-top sporting field [U-TT, 2004].

THE DEVELOPED WORLD AND ‘THE RIGHT TO THE CITY’: Fundamental to their [re]presentation of urban informality U-TT’s work aims to ‘reverse the top-down hierarchy of governance in the public sphere in favour of bottom-up, locally driven action’ [Brillembourg & Klumpner, 2009, pp. 133]. This idea of a grass-roots making of
the city also exists in the developed world, however analysis of two manifestations of this reveals the potential for a more radical engagement with all citizens to promote a more layered urban future in the developed world.

Firstly both Lefebvre’s 1968 text and David Harvey’s 2008 revisiting of it have inspired a renewed call-to-arms from urban design professionals in the developed world to [re]engage in the city in a movement of ‘grass-roots, bottom-up claims on the city’ [Stickells, 2011]. This idea appears in ‘The Right to the City’ symposium hosted by UTS in 2011, the popularisation of Guerrilla Gardening, proliferation of pop-up shops, museums and parks, Jamie Oliver’s ‘Food Revolution’ and numerous temporary urban installations which this paper refers to as DIY urbanism. Aside from its favourable promotional press, DIY urbanism has been described as a product of the ‘bohemian bourgeois’ questioning whether it is genuinely motivated by empowerment, politics, or simply lifestyle [Zeiger, 2011]. Unlike the work of U-TT where insertions of necessity empower a reduction of crime rates or improved physical access to the city, DIY urbanism can often be reduced to beautification or ego. This superficiality is often further amplified by the involvement of commercial funding arrangements that support market testing, gaining publicity or profit [ibid]. In addition to this critique, Hill argues that DIY urbanism reinforces an oppositional agenda to the top-down provision of urban space which just as validly stakes a claim on city making. By implication this critique calls for a more positive embrace of both urban approaches to foster more inclusive processes, as seen in U-TT’s insertions of communal necessity through projects facilitated by larger, top-down authorities.

This opposition between top-down and bottom-up processes is also manifest in the second example of the ‘right to the city’ in the developed world: NIMBY, or Not in My Back Yard. Michael Sorkin describes this as ‘oppositional culture [in which] one of the only ways that citizens can engage planning and other public processes is by their power to say no’ [Hill, 2010]. Nowhere is this played out more vividly than in Melbourne’s suburb of Camberwell, where the accepted urban narrative is of a neo-traditional Edwardian/Victorian village. This narrative is propagated by highly organized local action groups such as the Boroondara Residents Action Group [BRAG] fronted to the media by celebrity residents Jeffrey Rush and Barry Humphries presenting a vividly articulated and fiercely defended yet static perspective of Camberwell’s place identity, rather than the complex and contradictory views of all urban citizens [Lewis, 1999, Winkler, 2008]. Research has acknowledged that although ‘the ‘character’ of the suburbs is seen as under
threat...it [the threat] is sometimes recognised as more ideal than real’ [Woodcock et al, 2004]. Here, the politics of fear, anxiety, difference, and memory are key players in an attempt to corner the ‘right to the city’ for some at the cost of others less vocal. As Hill states, “Cities are constantly in tension and inherently unbalanced systems... For successful cities to emerge unscathed... an informed, engaged and enabled urbanism needs to inhabit both professional circles and everyday people” [Hill, 2010].

URBZ: An example of a practice attempting to bridge this gap between professional circles and everyday people exists in the urban informality of Dharavi, Mumbai, India in the office of Urbz. Where U-TT adopt an architectural approach of intense observational research focussed on the physical environment followed by the creation of buildings and urban propositions, Urbz adopt an activism approach where community interaction aims to encourage a true and radical participation in the city.

One such method adopted by Urbz is their creative workshops called Urban Typhoons. These workshops bring together urban thinkers such as artists, researchers, architects, planners, sociologists, and political activists [urbz.net/projects.html] and team them with local communities to produce innovative outcomes in promoting urban transformation. These ‘outcomes’ are not in the form of a building, object, new paving or art installation, but are ideas, visions, processes and concepts. These outcomes reinforce the aim of the Urban Typhoon ‘of giving the residents the authority to conduct the process of developing the urban environment’ [Andersson, 2012, pp. 32], visibly more social than spatial in its focus. Through engaging directly with the community, participants ‘tell a story’ of the residents not about them, but by them [ibid, pp. 35].

Of their work it has been proposed that ‘taking a leaf from Venturi, Scott Brown and Izenour’s book, they [Urbz] claim that learning from the existing landscape is a way of being revolutionary’ [Grimma, 2012, pp. 63]. I think their work is more revolutionary than simply understanding and learning from the existing landscape; they focus on enabling and facilitating the grassroots involvement of bottom-up development in promoting a true enactment of the communities ‘right to the city’. Furthermore they run counter to the architectural model of look, listen, understand and then propose a solution. They open a dialogue to enable both the community and the urban design professionals to discover new processes from opportunities within the existing social and built networks. In this way they have begun ‘dealing with urban development on a social level rather than on a spatial one’ [Andersson, 2012, pp. 70]. In urban activist mode, they fundamentally aim to re-democratize social and physical space by including the ‘have-not citizen’ in the planning, creation and structuring of the public sphere [ibid].
**IMPLICATIONS FOR THE DEVELOPED WORLD:**

I began by proposing that understanding urban informality in the developing world might reveal new urban design approaches for the developed world, so what can and should be applied and how?

Firstly in order to avoid the current paradigm of either idealised models or superficial problems a more layered, complex and contested urban perspective should be adopted that represents all citizens, and not only the group with the loudest voice as in the case of BRAG in Camberwell. Secondly, urban space that can truly lay claim to being respectful of Lefebvre’s ‘right to the city’ is evolutionary by nature. Urban informality evolves rather than being imposed or instantly created, as do most if not all cities. In order to work within this context, practices have learnt to understand & embrace the existing urban fabric as an evolutionary process rather than advocating revolution. Equally cities must continue to evolve through an open concept of inclusion and temporality, overcoming desire for static urban narratives such as in Camberwell.

Thirdly is the concept of necessity in creating urban space. Working within urban informality where urban space is often literally created by the residents, innovative practitioners Urbz and Urban-Think Tank effect positive change with the city and not for the city, by involving the community through more radical form of public interaction rather than mere participation. This process brings about meaningful ideas for nuanced insertions of necessity rather than objects of mere beautification, ego or greed as has been the case in examples of DIY urbanism of the developed world.

Finally is the dialogue between the bottom-up and top-down processes in the making of urban space. Urban informality is a direct result of a pure bottom-up process, however the resulting poor conditions prone to mud-slides, flooding, collapse, and struggle for basic services provides a renewed perspective on the merits of the top-down provision of urban space. A middle ground between these two forces is harder to come by, particularly within the developed world where grass-roots community action and DIY urbanism so often results in an oppositional dialogue with top-down urban provision. The real challenge, as explored through Urbz’ Urban Typhoons and U-TT’s work, is in greater integration of both top-down and bottom-up forces in creating negotiated and layered cities for all.

So by understanding and embracing the evolutionary nature of cities, promoting public interaction in city making, providing urban infrastructure and nuanced insertions of necessity rather than revolution, and facilitating a more positive relationship between top-down and bottom-up processes, more layered, lively, accessible and contested urban spaces can facilitate every citizens right to urban space.
BIBLIOGRAPHY


Boano, C, 2009, ‘Conflicting urbanism in Dharavi: dialectics of mega-projects and mega resistances and the dialectics of “right to the city” ’ in (Proceedings) NAERUS Conference "Challenges to open cities in Africa, Asia, Latin America and the Middle East: shared spaces within and beyond", Rotterdam.


<http://gravedad.cl/?p=43>, retrieved 20/05/2012.


Lefebvre, H, 1968, Right to the City, Anthropos, Paris.


Netherlands Architecture Institute [NIA], 2011, TESTIFY! The consequence of architecture, exhibition NIA Gallery, Rotterdam.


<Urbz.net/about/>, retrieved 26/04/2012.

<Urbz.net/art/dharavi-shelter>, retrieved 26/04/2012.

<Urbz.net/projects.html>, retrieved 26/04/2012.

<urbantyphoon.com>, retrieved 22/05/2012.


Transforming Historic city centres
An Integrated Approach of Urban Design & Historic preservation.

Prof. Seemantini Soraganvi, Associate Professor. SMAID College Vallabh Vidya Nagar, Gujarat (India).

Abstract:
The wave of urbanisation that is sweeping across the country represents one of the greatest opportunities as well as one of its most serious challenges. The Historic city centres that change and develop in parallel to urban development led to change in functions which are root for many issues. Built heritage which are landmarks of the city have been preserved and renovated over the years. In recent century preservation has been seen as completely separated from Architecture, urban planning of the city. Author tries to describe in this paper an integrated approach, of preservation and urban design to enhance eminence of the historic city centre. As we integrate traditional architecture in the contemporary context we need to find ways and means to integrate preserved old buildings to act and function on a day to day basis this will be explained through the case studies. Outcome illustrate that integrated approach including both preservation and urban design could create an urban character that would attract people to use these urban spaces for varying activities throughout the day and also beneficial for economic generation.

Key words: Urbanization, city centers, deterioration, integrated approach, enhancement, economic generation.

1. Introduction: Throughout the 20th century world cities have grown in size and importance. Ironically cities have vital importance as economic engines, hubs for transportation and communications, cultural centre and homes to the majority of the earth’s people at the same time cities are also place of many archaeological vestiges which reminds us of our past glory and become the source in projecting the cultural heritage of their built form. Cities are in a constant change both qualitatively and quantitatively. The spatial development in this process which is called urbanization was followed by a process of change of the urban texture. Although the spatial effects of urbanization and change affect the whole city, these effects are stronger in the city center. Consequently, the Historic city centres that change and develop in parallel to urban development and the functions of the historic city centres can change and led to a loss of connection of the centres with their peripheries. In parallel to the urban development and change, city centres gradually become more populated, pedestrian and vehicle traffics increase, parking lots and roads become insufficient, and visual and physical pollution and other environmental effects increase. Because of the characteristics of their historical textures and the structural wear, city centres are not able to adequately meet the needs of transportation, communication, space, area, and
etc. (Tekeli, 1998). As a result, it can be said that the population of the old/historical city centres decrease due to the change in the physical structure of the cities; that some functions of the cities disappeared or that it is inevitable that the functions of the center will move out of the center (development from the center to the outside); and that this change will go on due to the dynamic structure of the city. To deal with these issues it is necessary to integrate historical preservation as well as urban development for social and economic development of the urban areas.

2. The role of Historic Preservation in Urban Development: Historic Preservation has been seen for a long time as field completely separated from architecture, urban planning and the economic development of a city. It has even been seen in a negative light as coming from a community of people who actually intend to obstruct economic growth of an area by creating dogmatic rules within the process of redevelopment. But now, even the methodologies of Historic preservation are changing and there is an approach to an integrated view of preservation and urban Design. Buildings from the past are intrinsic to the planning system and need to have an equal and well integrated place in the present urban fabric.

3. Integrated Approach: Historic urban areas face the challenge to find the right balance between the preservation needs of the (tangible) cultural heritage and needs of today’s and future “users” of historic urban areas. But the cultural heritage can also serve as asset to support an urban development. Which ensures the multifunctionality, attractiveness and competitiveness of a place. This can not be achieved by traditional, uncoordinated mono-sectoral policies, it demands an integrated approach which balances and coordinates the different demands and interests on historic urban areas, linking and safe-guarding of the historic urban landscape to dynamic, attractive and competitive economic, cultural and social centres for inhabitants, visitors, tourists, property owners and entrepreneurs to live in, to work in, to shop in and to invest in.

In the following the above mentioned issues regarding change of urban development causes change in functions of historical city centres too, which is root for many issues like deterioration of historic city centres, congestion parking problems, losing visual integrity with new development, lack of easy accessibility and mobility are abridged through following integrated approach,
3.1 Visual Integrity- “Visual integrity” is of high importance for the safeguarding of the tangible cultural heritage values of historic urban landscapes as it affects the overall aesthetic impression of the historic area, its unhindered deceivability and its dominating effect from a distance ref fig (1). It also is of great significance for the identity (building) of a place as in case of Vilnius.

Figure -1 showing Preserving/ re-establishing View perspectives, townscape characteristics and panoramas. (Source-HERO Guide book).

The term “Visual integrity” refers to the wholeness and intactness of the historic urban fabric and landscape:

i) Physical safeguarding/ restoring of the (protected) historic fabric (monuments, historic (groups of) buildings, open space).

ii) Preserving/ re-establishing view perspectives, silhouette, townscape characteristics and panoramas.

iii) Preserving/ reconstituting visual relationships to the surrounding landscape.

3.1.1 Benefits: Design guides for the visual integrity of historic urban areas can help to properly preserve the view of historic buildings. Sometimes the regulations are just written from the preservation point of view, not taking into account the present-day requirements for liveable and attractive urban setting.

3.1.2 Approach:

i) Generally, the height of new buildings should be aligned to the heights of the existing historic building stock. This requires the appropriate heights for new buildings to be designed in the context of each individual historic townscape.

ii) Protection of visual key views and the views of landmark buildings, which strongly contribute to the distinctiveness of the historic urban landscape.

iii Raising of awareness by relevant stakeholders (in particular owners, inhabitants and tourists) about value, requirements and needs of historic urban landscapes.

iv) Monitoring of panoramic views is implemented with the help of selected viewpoints. The 3D GIS city model data base was prepared and allows modelling and testing of new developments in the existing building context.
3.2 Setting up of tourist routes- The urban spatial structure or the layout pattern of streets in the old city center region is not easily recognizable by the visitors and also not connected back to city areas. Therefore, it is necessary to provide accessible routes for better understanding and easy experience of street organizations ref fig (2), eventually leading to a better city. The tour routes can be classified by the circulation form and the program on the route; the Loop and the network types in terms of circulation form, the historical/cultural, the shopping and the city landscape types in terms of the program. Each route is setup by the order of integration value in order for the tourists to find the ways for accessing major attractions. The make-up of tour routes is also determined by how much the routes can be overlapped with the integration core of the old city center.

3.2.1 Benefits: economic development can be positively affected by well-preserved historic buildings which provide a special atmosphere and a unique location for business activities. The (cultural) tourism sector relies on attractive historic urban areas; also well-preserved buildings in a historic setting present attractive housing areas. Such links have to be considered and coordinated, being the backbone of the integrated approach.

3.3 Improving (alternative) mobility and accessibility: Many inhabitants left the old cities to find green spaces, access to property, larger housing, and a new sense of individual freedom and social belonging. In that period, historic centres were considered as picturesque and touristic areas. A detrimental imbalance rapidly grew between residential functions and “attraction” functions. Saturation of urban traffic, growing commuting constraints and distance to daily amenities has changed our relationship with suburbia. Making historic cities car-free and improving the conditions for pedestrians is a vital strategy to keep the historic city alive to tackle the parking issue Congestion pricing scheme is one of the solution in order to reduce long-term parking stays and traffic while promoting business in the historic city which is one of the good practice applied in city refer point(4) for detail of this system. pay and ride system private electrical vehicles system is one of the strategy to reduce congestion and environmental pollution.
3.4 Integrated cultural Heritage management plan: The Integrated Cultural Heritage Management Plan will help to build a balance between demands of heritage preservation and needs for upgrade and new development in the historic urban site”. (Gediminas Rutkauskas, Director of Vilnius Old Town). Integrated Cultural Heritage Management Plans present in this way an innovative instrument to effectively manage Historic city centres and the development of urban areas and with the intention to have attractive, competitive and multifunctional places. They coordinate the demands of the cultural heritage with the demands of the manifold “users” of the historic urban area. The content of management plan is as explained below,

i) Description of the area (kind of cultural heritage, state of preservation, etc.)

II) Statement of significance and identification of individual values, authenticity and integrity

iii) Challenges, threats and opportunities for the cultural heritage

iv) Instruments for safeguarding the cultural heritage

v) Policies, concepts, plans, instruments, structures, etc. which are of relevance to the Historic urban area and the cultural heritage

3.5 Integrity through the Material-Design professionals differentiates between taste and design quality. Taste is subjective, while quality is measurable. Prescriptive planning tools such as height restrictions, envelope limitations, and requirements to use certain materials all attempt to provide qualitative design measures. In many places, it is only when a historic building or area is involved that issues of design quality and character are included in the planning process through development or impact assessment. Clearly there is a need to provide guidance or establish well-understood standards to assess new development occurring within treasured streetscapes, neighbourhoods, or historic landscapes. Ait Ben Haddou in Morocco. This World Heritage Site is an example of an urban settlement in which vernacular traditional building forms and materials continue to be used for new construction, resulting in an architectural integrity and authenticity that offers a harmonious relationship between the natural and social environment ref fig(3) .
Fig 3-Ait Ben Haddou in Morocco. This World Heritage Site is an example of an urban settlement in which vernacular traditional building forms and materials continue to be used for new construction, resulting in an architectural integrity and authenticity that offers a harmonious relationship between the natural and social environment. (source- Article GCI newsletter)

4. Learning from Italy: Its main tenet was that conservation of historic ensembles cannot be limited to preservation of their visual and aesthetic character but must also include consideration of the underlying physical, social, and economic structures, as well as the larger citywide systems ref fig (4).

The objectives of the program are
i) To support the maintenance and to restore the built heritage, not only of the main historic core but also of the historic cores of the peripheral districts and outskirts;

ii) To provide an important intervention for the diffusion of a culture of urban maintenance in the whole city, essential for the improvement of the safety of the citizens, of the environmental quality and for the exploitation of the urban fabric;

4.1 The importance given to the city’s typological and morphological character as a basis for future interventions, the effort to maintain the existing residents through establishment of a housing rehabilitation program funded by the municipality, and the adaptation of monuments and historic buildings to house public services.

4.2 In those same years in Italy, new national legislation was introduced to cover detailed forms of intervention in historic urban areas. Their attempt to re-establish a sense of place and an awareness of the historical vicissitudes of each place as a basis for planning.
Assisi, Italy. The management plan for Assisi, developed in 1969, included the innovative concepts of protection of city views and establishment of a local public entity.

Bologna, Italy. The 1969 plan for Bologna introduced the idea of integrated conservation of historic ensembles, which held that conservation cannot be limited to preservation of visual and aesthetic character but must also include consideration of underlying physical, social, and economic structures. (GCI news letter)

5. Learning Valletta Local Council, Malta: In 2007 a congestion pricing scheme was implemented, the Controlled Vehicular Access system, in order to reduce long-term parking stays and traffic while promoting business in the historic city. An ‘Automated Number Plate Recognition’-based system takes photos of vehicles as they enter and exit the charging zone and vehicle owners are billed according to the duration of their stay. This step was geared to increase and extend the core pedestrian zone and was dovetailed with the embellishment programme of the City centre.

The scope behind Controlled Vehicular Access was manifold:

i) It substituted the V-Licence (annual licence paid specifically by motorists to access Valletta), which was not controlling the increase of vehicle numbers accessing Valletta.

ii) It created a fair pricing system for access for all.

iii) Diminished access and pollution to the core streets of Valletta.

iv) It promoted and catalysed greater pedestrianisation.

v) The core became more commercial and dynamic.

5.1 Objective: The main objective was to pedestrianise the core of Valletta thus fulfilling the objectives of the Accessibility. It was one of a series of initiatives as e.g. the Park and Ride System and the Electric Taxis to reduce access of private vehicles into Valletta.
5.3 Lesson learned and Recommendations: When compared to other countries that make use of congestion charging models, the Maltese system makes use of a wider array of innovations including variable payments according to the duration of stay, flexible exemption rules, including exemptions for residents within the charging zone, and monthly or quarterly billing options for vehicle owners. Pre-payment facilities, including direct debit arrangements and purposely designed vouchers, are also available. The billing system was designed in Malta and has been described as a state of the art ‘next generation congestion charge billing solution.’

6. Conclusion

It is an outcome of this research paper that, in today’s contemporary world we are living two parallel lives, where we see new urban development completely independent from old historical urban area. Realization of the fact that old historical city centres we treat as our past are actually our future is extremely important. The question arises here is the challenges to integrate old historical urban fabric with new rapid development? Visual integrity which balances identity of historical buildings with new urban development. Setting up of tourist route for better accessibility of city centres will generate good economy for the city. Making historical city centres car free, ride and pay system solve the problem of congestion and parking system. Heritage Management Plan will help to build a balance between demands of heritage preservation and needs for upgrade and new development. An integrated approach preservation and urban design effective attempt to tackle the above mentioned issues. Finally, the recent extension of conservation thinking to the realm of the intangible is a reminder that the identities of places will live as long as we are capable of sustaining their distinct human dimension. A sense of place must be cared for and regenerated every day if it is to reflect the values and traditions of our societies.

References
2. HERO Heritage as opportunity Guidebook.
4. Our Cities The challenge of change research paper.
5. Spiro Kostoff-City Assembled
6. Sustainable Urban Neighbourhood Building the 21st century home-David Rudlin and Nicholas Falk.-


11. Conservation perspective the GCI Newsletter.


13. Koolhaas Rem “Contemporary city”.

14. Krier Leon “The Reconstruction of European City”

15. Good practices compilation


**Websites**

1. European Foundation Centre, [www.efc.be](http://www.efc.be)

2. w2.unhabitat.org/cdrom/wuf/documents/Networking events/Added material/Cultural Heritage/Paper I by Sylvio Mutal.pdf

3) [http://www.holcimfoundation.org/Portals/1/docs/F07/WK-Grn/F07-WK-Grn-praendl02.pdf](http://www.holcimfoundation.org/Portals/1/docs/F07/WK-Grn/F07-WK-Grn-praendl02.pdf)

4) [http://www.ciesin.columbia.edu/repository/pern/papers/urban_pde_ojima_hogan.pdf](http://www.ciesin.columbia.edu/repository/pern/papers/urban_pde_ojima_hogan.pdf)


Abstract

The term ‘small urban space’ is intermittently dispersed among literature from several disciplines and has not been defined or consistently applied. The absence of a concise definition, along with inconsistent use, does not necessarily invalidate the term. However, questions are raised such as; what constitutes a small space, what differentiates these spaces from other urban spaces, and what is the concept of small space? This paper introduces an approach to the investigation of small urban space as an idea from research in progress, and recognizes that a shared and underlying understanding of the term may exist among design professionals. In addition, opportunities are identified for the promotion of small space as a necessity within current and anticipated urban environments.

Keywords: small urban space; urban research

Introduction

This paper introduces research now in progress which seeks to define what is meant by the term ‘small urban space’, a term which lacks consistent application among the urban disciplines. In addition to defining the term, this research seeks a more concise description of what small spaces are, particularly within the context of current and anticipated built environments. What is a small urban space is the underlying question this research asks; however, investigations based on this question alone become too broad and may take a number of different approaches. Two approaches were developed to focus the research and pursue an investigation of small urban spaces (see figure 1). This research specifically aims to differentiate small spaces within the wider category of urban space.

Differentiating these spaces may offer a better understanding of the term, its appropriate use, and what constitutes a small space. If validated at the conclusion of
this research, these outcomes support the distinctiveness of these spaces and offer insights for their promotion and integration as necessary components of the built environment. The following discussion identifies some opportunities for small spaces as a response to promoting and providing open space in urban and suburban settings; summarises the inconsistent use of the term ‘small urban space’ in the literature; and introduces the investigation of small space as an idea.

Opportunity for small spaces

Most cities throughout the world are expecting significant increases in urban population including Auckland, cities in Australia, and Northwest America and Canada. In addition, many if not most of these cities deploy similar growth management strategies of which urban intensification is a predominant objective. Yet despite this and other counter-sprawl initiatives (smart growth, compact living, and sustainable cities) it is unlikely that suburban growth will end abruptly.

In most instances it is easier for smaller spaces to have an influence on their surroundings in denser environments than in less dense ones. Yet as cities begin to reach their physical boundaries with sprawling growth, new pressures are exerted on suburban areas as they transition from lower densities to higher densities (Currie, 2011). Among these emerging and competing pressures the provision of open space and other urban spaces can no longer be seen as an amenity, but they must now be viewed as a necessity (Seymour, 1969). Particularly in previously built environments where consolidation strategies are employed to manage population forecasts (Randolph, 2007). Inserting smaller spaces within these environments may provide the best way to ensure access to open space is available to the greatest number of people (Currie, 2011).

The need for access to open spaces throughout an urban environment is growing a growing trend in most places. However a summary of recent research suggests that simply providing more publicly accessible open space in denser urban environments does not necessarily translate to an increase in the frequency of its use (Byrne, Sipe, & Searle, 2010). This is not to say that the current supply of open space is adequate, rather it points out the importance of such issues as spatial distribution, diversity of spaces, and the overall quality of the urban environment; opportunities where smaller spaces, as a component of urban form, can help improve our urban environments.

The notion of a small space is linked to the idea of social connectedness – where people’s sense of place references their everyday environments – and the ability of
urban design to foster such ‘routine encounters and shared experiences’ is essential in place-making (Knox, 2005). Successful places not only have an ordered and legible urban form, but they also have a variety of places for informal, casual meetings; friendly bars and pubs; various settings in which to purchase and/or consume food; and a variety of places to sit, wait and watch other people. These attributes, as well as others, contribute to the sense of belonging, friendliness, vitality and continuity of cities and urban places (Montgomery, 1998). The idea or experience of social connectedness, which urban design strives for in place-making efforts, can be realized by providing a variety of quality spaces. Strategies focused on smaller spaces may offer better opportunities for providing more spaces as well as greater diversity among spaces, thus promoting social connectedness in urban settings.

Spatial distribution of open spaces is a concern for both urban and suburban environments as it relates directly to accessibility. One suggestion is that the reurbanization of suburbia through more urban development is not entirely negative towards open space. Providing a more urban structure may also deliver a better distribution of spaces despite the fact that less space is provided (Thomas, 2010). Another recommendation recognizes that immediate changes to development patterns are not likely and suggests focusing on the improvement of the relationship between people and parks over time by encouraging denser development around current open space (Talen, 2010). And yet another option is simply to provide open space where it is needed which may be easier said than done where development is already dense or anticipated to be so. With regards to the issue of spatial distribution, small spaces may prove to be a large part of the solution. They offer flexibility and diversity, both of which may prove strategic in providing accessible open space in urban environments.

However, the quality of open space is an important consideration with regards to user needs and it may be that smaller spaces are better able to provide a higher level of design for less. In addition smaller spaces individually and collectively contribute to urban life. Walking is an elemental way to conceptualize and become acquainted with the urban environment. As such walking can be a means of inspiration, creativity, and discovery. Small spaces dotted throughout an urban environment play an integral role in the experience of traveling from place to place by foot in the city (Wunderlich, 2008). Quality of life, to which open spaces generally make a positive contribution, is the outcome of people and their interaction with the environment (Nasution & Zahrah, 2012). Small spaces distributed throughout an urban area elevate the quality of life, so long as they are designed to attract users and fulfil their needs. Small urban parks that
offer a ‘break’ or ‘refuge’ from the hustle and bustle of work and daily activities can provide a setting for psychological restoration, or mental rejuvenation, through contact with nature. This is a particular concern in dense cities and urban areas which are intensifying (Nordh, Hartig, Hagerhall, & Fry, 2009).

These are among the opportunities being explored in this study. This suggests that we seriously consider a viable delivery mechanism of smaller spaces for providing necessary open space amenities throughout urban environments, particularly with regards to growth management strategies where areas are planned for higher densities.

**The term small urban space**

Casual conversations expressing various notions of the term are subjective, yet seemingly accepted among those present with heads nodding more or less in agreement. However, any appeal to the literature is of no benefit either as there is little written on the term itself. The absence of any descriptive or concise definition leaves the term and its use open to subjectivity and differences of opinion. This lack of definition has led to a novel use of the term as evidenced by its use in titles and abstracts only, or as an introductory term which is later replaced with another term such as open space, greenspace, parks, and so on.

The term itself was first introduced in the latter half of the twentieth century. First in 1969 with the publishing of Small Urban Spaces: The Philosophy, Design, Sociology and Politics of Vest-Pocket Parks and Other Small Urban Spaces (Seymour, 1969); and again in 1980 with The Social Life of Small Urban Spaces (Whyte, 1980). Despite the introduction of the term and both works using the term in the title, neither one explicitly defines small space. From these authors the term gained an association with to two types of open space; the pocket park and the corporate or bonus plaza.

Available literature and academic interest in the term is intermittent with some continuing the trend of its application to small parks or the bonus plaza. Other literature uses the term to describe a wider urban area within a district (Gómez, Gil, & Jabaloyes, 2004), or an area containing new industry clusters (Hutton, 2004), or in reference to census tracts (Séguin & Divay, 2002); referring to the statistical unit corresponding to a population between 4,000 and 5,000 residents. However, all of these cover a significantly larger area when compared to a single plaza or pocket park.

How a term is used suggests something about how it is understood; and from the inconsistency noted from the literature it is apparent that the term lacks clarity,
specifically in reference to what a small space is or is not. Use of the term can be
categorized into three groups, those that apply the term to small parks and plazas,
those that apply the term to larger sections of urban environments, and those that
substitute the term for another.

In a more recent work the term is used again in line with the earlier works of
Seymour (1969) and (Whyte, 1980). Currie (2011) identified five foundational elements
from the literature that are necessary for a small park or any open space to have a
meaningful influence on its surroundings. A space must be authentic, accessible,
adaptable, functional, and distinct in order to meet the needs of the people who are to
use the space. Addressing the need for small parks and other open spaces Currie
places the term back in the context of a singular space and not a collection of spaces,
buildings, and roads as would be found in an urban district or census tract. However,
the five elements suggested do not define the term or help to differentiate small space
from other spaces as these are foundational to most successful urban spaces. The
insights gained from Currie, Seymour, and Whyte do help to describe some
characteristics and associated activities of small parks and plazas, but this knowledge
has not been used to distinguish these spaces among the general category of urban
space.

However, the inconsistencies regarding the application of the term do not
necessarily invalidate it, but raise further questions, such as: what is a small urban
space, what distinguishes them from other urban spaces, and whether parks and
plazas are the only types of small space? Considering the gaps in the timeline of the
literature, perhaps a better question to ask is why has there been so little written on the
term itself in the last forty years? Speculating for a moment, there may have been
previous attempts to define small space, but were seen as convoluted with too many
variations. If this were the case then we are left with no account of the attempt from
which to continue the investigation. Perhaps when the term was first introduced there
was simply no need to define it, as there may have been a common understanding
among those who promoted it and this has subsequently eroded with time. This last
speculation is the basis for an avenue of investigation in which it may be possible to
extract a description of small space by consensus.

Small urban space as an idea

In a letter to the editor of the New York Times an architect wrote disputing the
Parks Commissioner’s statement that Petrosino Park – a small triangular plot between
Lafayette Street and Cleveland Place – was nothing more than a traffic island. Although agreeing that it was not a park, the architect indicated that it was a small urban space. The editorial briefly comments on the overdesign of American plazas and its cluttered streets in comparison to many European towns, and remarks that small spaces should be well located and simply designed to create more humane places. Pedestrian friendly environments that are a pleasure to be in and offer people variety. The architect concludes “Lower Manhattan has a number of small spaces; however, we seem not to have any idea how to develop them” (Rosenthal, 1996).

From this account we surmise that, at least in the mind of the architect, there exists an idea which allowed him to identify and categorize Petrosino Park as a small space. While it is unclear as to how this particular design professional was able to categorize this small space, his account from the editorial represents an ability to do so. Since design professionals generally share common fundamentals in education and practical experience, the possibility that those practicing architecture, planning, and urban design would have notions of small space similar to Rosenthal is likely. Defining or describing the term small urban space as a developed, collective idea extracted from the expertise and experience of design professionals is one of the anticipated outcomes of this research.

The idea of small urban space, or the investigation of small space as an idea, is a qualitative research approach and is represented by the right side of the diagram in figure 1. The investigation consists of two components; the first involves returning to the broader literature on urban space and identifying themes that may be interpreted as describing small space or a particular aspect of it. The second component involves interviewing design professionals in the public and private sector with an emphasis on what distinguishes small space from other space and how they may be identified. It is anticipated that a collective mental idea of small space will emerge from the interview responses. This collective idea can then be compared with the themes extracted from the literature on urban space, particularly noting similarities and differences. From these results the term small urban space may be defined as a descriptive construct, which then can be used to help differentiate these spaces from other urban space.

This paper introduces the research approach on the right side of the diagram in figure 1, the investigation of small space as an idea, and presents an intended outcome for defining the term as a more descriptive mental construct. The approach represented on the left side of the diagram is an investigation of the term as a type or category of urban space. Not discussed in this paper, but as part of this research, this approach
seeks to answer the questions whether or not small spaces can be differentiated as a type and whether or not parks and bonus plazas are then the only variations of small space. Both investigations are presented in the diagram which suggests an outcome of one or the other or both, or as some combination of the two. Additional approaches may also emerge from this research or other research.

Figure 1 Differentiating small urban space: diagram of proposed research

Conclusion

While the term ‘small urban space’ has not been defined or described in a more concise way, it is not without merit. Small spaces have demonstrated their value and contribution to the quality of our urban environments in the past and may continue to do so. There are emerging opportunities for such spaces in our current and anticipated urban environments; however, use of the term does not suggest a uniform application or understanding of its meaning. Therefore, the research introduced in this paper, now in progress, seeks to define the term and its applicability more precisely. An approach in the form of an investigation seeks to define the term based on the collective understanding of the term and its use from professionals practicing in urban and design disciplines. This collective understanding may help to construct an operational definition of the term as a descriptive idea; which can then be used to identify and differentiate small spaces as distinct entities among urban spaces and within urban environments.
References

Byrne, J., Sipe, N., & Searle, G. (2010). Green around the gills? The challenge of density for urban greenspace planning in SEQ. *Australian Planner, 47*(3), 162-177.


ABSTRACT
The need to realise a higher density of houses within Australian cities has shown a preoccupation with the demolition of existing buildings, and the construction of multi storey apartment buildings. While adapting urban form for higher densities is a necessary process for ‘living sustainably’ (Blair et al. 2004), some recent developments have neglected the space of the street (street space) as a vital part of urban life (Alexander et al. 1977; Jacobs 1961).
This paper outlines a study being undertaken to assess the opportunities for occupying residual space on the outside of existing buildings within the urban streets of Newcastle. The study makes a case for urban streets that are compact and diverse, and where a sustainable urban form can be achieved through the the gradual adaptation and re use of existing buildings. The paper also discusses how the boundaries of residual space are mapped using the potential of; planning policy, historical precedence, the local environment and the existing street space¹. The residual space is then occupied with new spaces that gradually repair the urban condition and reinforce an active engagement with the environment.

Keywords: urban opportunities, residual space, street space, housing, diversity

1. ADAPTING URBAN FORM FOR SUSTAINING URBAN LIFE

As places of significant resource consumption and waste production, the form of cities has become an important part of the ‘living sustainably’ debate (Blair et al. 2004). The design of the urban landscapes affects a range of social and environmental goals; it can facilitate a reduction in motor vehicle usage by creating an enhanced sense of place where home and work are in close proximity (Wheeler 2008); encourage walking, cycling, and social interaction by increasing densities; increasing diversity (Jacobs 1961), and establishing social spaces that have a strong relationship with the street (Gehl 2001; Burton et al. 2005). There are however many approaches directed at achieving sustainable urban forms (Jabareen 2006). Many of these operate at different scales, from the layout of activity centres and streets within a city, through zoning maps and planning controls that shape street form and use, to requirements for a buildings relationship with its local environment and occupants.

This paper will investigate the opportunities that a sustainable urban form might take if a more compact and diverse built form was established within the existing urban fabric.

¹ The physical space of the street formed by the surface, texture and elements that define it.
Critical to this conceptual approach will be the formation of a *street space* that has the potential to create and maintain urban life (Frank 2010), while embracing social diversity as a “room by agreement... the walls of which belong to the donors, dedicated to the city for common use” (Louis Kahn 1979 quoted in Abramson 2008).

### 1.1. COMPACT URBAN FORM

Compactness of the built environment embraces urban connectivity, suggesting that future urban development should take place adjacent to existing urban structures (Wheeler 2000), and potentially within the spaces between and around buildings that have been left undeveloped. Adopting compactness as a strategy for sustainable urban growth also suggests that further population increases will occur within the existing urban fabric, and at the expense of further development on the fringes of the city (Jabareen 2006). A compact urban form is also a strategy that maintains the unbuilt landscape around cities for farming and as natural reserves. It intensifies the use and efficiency of urban infrastructures such as; public transport, roads, and more broadly, the economic sustainability of businesses within the urban core (Shoup 2008; Lee & Leigh 2005).

Observers critical of the compact city movement have questioned its preference for a highly regulated and rigidly controlled environment (Neuman 2005). Durack and Leatherbarrow (in Durack 2001) have argued that a more sustainable compact urban form is achieved with an “indeterminate urbanism” that recognises the “discontinuities and inconsistencies” (Durack 2001 page 64) as opportunities for adaptation and resolution. An acceptance of topographic, social and economic discontinuities within the urban fabric can support cultural diversity and compactness, providing opportunities for smaller scale initiatives.

### 1.2. DIVERSITY WITHIN URBAN STREETS

For Jane Jacobs (Jacobs 1961), diversity within urban streets is vital for creating places where people want to live. Diversity fosters distinctive qualities (Seamon 1979 pages 143-152) and where these qualities are close to each other, promotes walking as the preferred way of engaging with the city (Wunderlich 2008). Trancik adds that urban design should emphasise the grouping and “sequences of outdoor rooms of the district as a whole, rather than on the individual space as an isolated entity” (Trancik 1986 page61).

Diversity, as opposed to a mix of land use, represents the “social and cultural context of the urban form” (Jabareen 2006) that promotes diverse public and private spaces with a range of densities. A diverse *street space* will then be utilised by people from different cultural, social and economic backgrounds. This tolerance for diversity must also embrace a tolerance for conflict that is perhaps a part of its necessary condition (Sennett 1992).
1.3. THE SCALE AND COMPOSITION OF ELEMENTS WITHIN STREET SPACE

The street elevation of an urban building "is like the city itself: by definition multi-layered and also transparent, as it reflects and conveys different spatial and social 'layers'" (Neumeyer 1999). The layering of form, and the organisation of elements within street space plays a role in establishing its social use and urban character. Cooper and Salingaraos have argued that the street space of modern buildings are typically composed from elements of a limited range of scales, with the number of elements at a given scale not being sufficient to form an element of a larger scale (Salingaros & West 1999; Cooper 2003). This type of street space lacks 'legibility' (Lynch 1960) and creates ambiguities about how the space might be used (Seamon 2004). Street space that facilitates observance of visual information at a variety of scales can formalise the composition of elements within the street space, making it more coherent and a more desirable as a place to be (Alexander 2001).

2. RESIDUAL URBAN SPACE

Residual space on the outside of existing buildings is created by a process of production that has decided against its inclusion as a built form (Tonnelat 2012). Within street space, the residual is framed against a built form from that it has been excluded from, while being held on the other by a theoretical surface defined by the potential of planning policy. Often the form of the residual is segmented, complex and marginal in shape, having the character of a sliver or shard (Garde 1999). But some residual space is large in volume, created either as the spatial by-product of a modernist urban and architectural planning practice (Tonnelat 2012), or as the outcome of a low intensity land use paradigm (Wikström 2005).

2.1. MAPPING RESIDUAL SPACE

Mapping the residual identifies the interstitial space between territory and visualization. Once created these maps can be interpreted, providing a new discourse for an existing situation or reveal latent opportunities (Brook & Dunn 2011 page 12). Intrinsically bound to the physical landscape, mapping the residual identifies it as both measurable and finite in dimension. Given the complexity of the built environment, being able to accurately model this space is a great technical challenge (Vanegas et al. 2010), however it is the detail of the surface measured at the human scale that becomes so useful in residual maps (Ingold 2000 page155). Modern urban planning methods that utilise planar techniques often fail to identify the residual because the neighbourhood scale of the analysis generalises the differences, lacking the sensitivity of measurement required. However all mapping of physical space suffers from the process of abstraction that necessarily removes the “richness of life experience and the detail of human-environment interactions” (Roth 2009). While the abstraction of the
residual for mapping does render a “violence” upon the complexity of urban life (Roth 2009), this study has attempted to limit the loss of information by accurately constructing a textured model that includes significant building details at human scale. The method includes a photographic study of the street space, these images imported into PhotoSketch\(^2\) and used to prepare the model in Sketchup\(^3\). This model defines the surfaces of the existing urban form and can be used to superimpose a theoretical model of the potential built surface (NCC 2012). The residual space, mapped as the difference between the two models, can then be described and used for understanding the space where change might occur. The images below show some of this process, clockwise from top left; 1.1 shows the form model of the existing buildings, 1.2 the residual space at ground level (blue) defined by the existing built surface and the theoretical built surface (both orange); 1.3 shows the residual space at the fourth storey; 1.4 the form of the residual space given the maximum heights\(^4\).

![Figure 1.1, 1.2, 1.3, 1.4: Mapping residual space for the case study](image)

### 2.2. HISTORICAL PRECEDENCE FOR OCCUPYING SPACE OUTSIDE BUILDINGS

Photographs of the urban streets of Newcastle from 1850 through to 1920 show that the pedestrian pathway space beside the road was defined by columns, bound by retail space at ground level, and enclosed overhead by a continuous awning, deck or enclosed space. This space above the pedestrian pathway was usually accessed from an internal private dwelling space at the first level and existed with varying degrees of

\(^2\) www.brainstormllc.com/

\(^3\) http://sketchup.google.com/

\(^4\) Floor space ratios defined in the Local Environment Plan {NSWGovernment:2012vz} would have an effect on the amount of residual space that could be occupied, however this study is concerned only with the form of street space and its potential for repair.
enclosure. There is little research about the legal and urban processes that created these enclosures, however they appear to have evolved as a direct function of the street as a pedestrian space, and at a time when motor vehicles had little influence on urban form. The removal of these enclosures occurred progressively from the 1920’s for a variety of reasons, including; ‘streets’ becoming ‘roads’, as the speed and mechanisation of vehicles increased, the dilapidation of the structures due to their lightness of construction, the advent of modernism, and changes to the way that real property was measured using cadastral mapping. Citing historical precedence, the Newcastle Development Control Plan (NCC 2012) promotes the construction of an awning or covered space along the pedestrian pathway, assessing other enclosures on merit. The re-occupation of this now residual space along urban streets could become an important resource for achieving a more compact urban form while providing a mechanism for adapting street space that lacks social use, and a sense of urbanity (Sitte 1945).

Figure 2: Images of Newcastle streets in the early 1900’s showing the number of habitable enclosures above the pedestrian footpath (from Flickr).

3. OCCUPYING RESIDUAL SPACE

The interrogation of streets for new spatial possibilities is being lead as much by residents who use them daily (Forsyth et al. 2010), as it is by business who are trying to find new ways in securing an economic advantage (Mehta 2007). Measuring the boundaries of residual space establishes a zone for experimentation where new urban forms might be constructed, or where existing forms might be adapted (Brook & Dunn 2011 page 136). Recognition of residual space within the urban form is an important first step in describing the boundaries of opportunity, it begins the process of visualisation and experimentation (Akkerman 2009).

3.1. OUTDOOR ROOMS WITHIN STREET SPACE

Forming partially enclosed rooms within street space produces ambiguous spaces that are neither inside nor outside (Kornberger & Clegg 2003). The use of an outdoor room at the front of an enclosed internal space establishes a transitional, or sacrificial, zone between inside and outside, helping to moderate temperature, air movement, while filtering publicity and privacy. This fold in the surface of street space is often created by
the layering of movable parts, screens or walls that enable a range of different environmental conditions to be achieved within the space, mediating between the inside and outside. Venturi (Venturi 1966 page 86) states that it is this tension between inside and outside that creates an event, and helps make architecture. Critically the outdoor room allows informal observation of the street while inviting the public to share symbolic possession through active or passive surveillance.

3.2.SMALL HOUSES WITHIN URBAN STREETS
Recent studies conducted by the Australian Housing and Urban Research Institute (AHURI) (Gurran et al. 2008) have discussed that a higher density of smaller houses within urban areas would greatly raise environmental sensitivity and affordability, while developing “spectacular synergies” (Blair et al. 2004 page 13) with urban issues such as reducing; pollution, greenhouse gases, resource and energy usage, and deferring or avoiding costly utility infrastructure expansion. These synergies “mean there is considerable potential for obtaining greater housing affordability at both construction and operating stages” (Blair et al. 2004 page 13). There is also an established need within the Newcastle region for affordable housing (NCC 2005), with smaller households being most in demand.

4.DESIGN PROJECT: THE WINDOW
The street form of many newly developed urban buildings within Newcastle appear to have little critique for the potential of urban life, nor have they considered the spaces of enclosure within the street that are required for people to use them more intensely, interact with each other, and gather. Images of buildings used within the case study are shown below.
The case study presented investigates the street space around two significant commercial buildings constructed within the last decade. Instead of creating urban spaces where people might dwell, they have developed an introverted relationship with the street they sit passively within, appearing more interested in their own object than any opportunity to become part of the social and urban structure of the city. The street space created presents an abstract notion of place, where social interaction is only superficially considered as a way of allowing a single entry into a building. Street furniture is placed within public space as if on a modernist canvas, proportioned only in relation to itself, not the public who might use it. Planning controls, that promote activity at the street edge (NCC 2012), appear to have had little effect in establishing street level space that is either visually or physically permeable. Much of this surface is given over to building services, driveways, blank walls, imprinted fixed glazing units, access stairs and ramps directed toward elevated access podiums. The upper levels of the buildings contrast the street level surface with shear fixed glass facades that have few elements to interrupt their visual openness. It is this contradiction in urban permeability that provides the opportunity for adaptation and creates the built surface of the residual space mapped.
The design project, the window, makes a case for more compact and diverse urban streets within Newcastle. The residual space identified at the front of the existing buildings is occupied with a mix of uses including retail, commercial and housing. At the ground level, new columns are positioned at the boundary with the pedestrian space being clearly defined through enclosure, new spaces for retail are established behind and the space above inhabited with a mix of small houses and spaces that extend the existing commercial space. It is envisaged that this process of repair would occur gradually over time, adapting the existing spaces as required and as opportunities arise. The occupation of the residual space begins with the removal of one of the fixed sheets of glass on the upper level of one of the buildings, providing a window that allows fresh air to enter the workspaces behind. The now openable window becomes a deck space that itself becomes enclosed as other fixed glazing is removed, and more deck and enclosed spaces are constructed. The occupation of residual space continues until the new form reaches an equilibrium where only minor changes are required to facilitate changing use patterns. The schematic of the resulting street space shows a diversity of use with; a mix of commercial spaces; small houses where none existed previously, and new retail opportunities at ground level. The street space, unchanging and symmetrically repetitive becomes visually diverse and more coherent as its elements become more numerous at recognisable scales, and themselves composed to form larger elements. The use of outdoor rooms within the street space brings the buildings occupants to the outside where they can interact with the street, taking in the views, while importantly establishing a mechanism where the internal environment might be moderated or controlled without the use of air conditioning. Through the outdoor rooms, each part of the street space is open to a finer scale of manipulation by the occupants, and together they begin to read the time of day and year, and the nature of habitation. Urban patterns and the effects of the local environment measured by built forms has a long history (Rudofsky 1964), and has been shown to have a significant impact on establishing and reinforcing urban life (Alexander et al. 1977).
By establishing the potential form of street space, the window shows how a gradual adaptation of residual space might allow urban areas to become more compact and more diverse, while activating internal spaces with their significant social, physical and economic environment.

5. BIBLIOGRAPHY


5 A time-lapse video can be found on Vimeo, https://vimeo.com/47765712


Frank, L., 2010. STREETSCAPE DESIGN: PERCEPTIONS OF GOOD DESIGN AND DETERMINANTS OF SOCIAL INTERACTION.


Gehl, J., 2001. Life between buildings,


Jacobs, J., 1961. The death and life of great American cities,


NCC, N.C.C., 2005. AFFORDABLE HOUSING STRATEGY, Newcastle City Council.

NCC, N.C.C., 2012. Newcastle City Centre West DCP Section 6.02,


