

## KELVIN GROVE URBAN VILLAGE

**Andrew Hammonds**

**HASSELL**

*Kelvin Grove Urban Village is the first inner-city development of its kind in Australia. It is a master-planned community that demonstrates best practice in sustainable, mixed-use urban development, and brings together educational, residential, health, retail, recreational and business opportunities. From the outset, the Queensland Department of Housing and Queensland University of Technology saw this project as an opportunity to demonstrate the three dimensions of sustainability – environmental, economic and social, all within the constraints of an inner city context. The delivery of sustainability has been the focus through site acquisition (1999), master planning (2000), infrastructure design and construction (2001 – 2003), building design and construction (2002 – present), and management (2003 – present). In 2004 a review of the project was undertaken. The Integrated Master Plan refined the vision and focused on ongoing management and implementation. It will deliver the fourth dimension of sustainable development – the creation of a successful place and vibrant community at Kelvin Grove Urban Village.*

### 1.0 BACKGROUND TO THE PROJECT

Kelvin Grove Urban Village is the first inner-city development of its kind in Australia, where a government and university have come together to plan and build a new integrated community. The Queensland Department of Housing and the Queensland University of Technology (QUT) are working in partnership to create a mixed-use development on 17 hectares at Kelvin Grove, two kilometres from Brisbane's GPO.

The vision for the Kelvin Grove Urban Village is centred on the core elements of learning, creativity, community and sustainability. A new urban centre for Brisbane is being established based on traditional planning principles, with a town centre and shops on the main street and connections with the surrounding neighbourhood.

Important social and affordable housing needs will be met, within a mixed-use urban setting, enriching the existing neighbourhood and creating a supportive social environment. Approximately 800 units of accommodation are planned for the site which will largely be developed by the private sector. Up to 200 units will be affordable housing with a portion of these developed and managed privately. The aim is to create a diverse social mix of residents from different lifestyles and backgrounds.

The Brisbane Housing Company (BHC), which currently has two of its four sites in the Village under construction, is an independent, not-for-profit organisation. Using initial funding from the Queensland Department of Housing and Brisbane City Council, the BHC is developing a portfolio of housing for people on low incomes in Brisbane, offered at below-market rents to households on low incomes.

The Queensland Department of Housing will progressively sell its land to developers for the design and construction of residential, retail and mixed-use developments in line with the Village's vision and master plan. QUT will be constructing a mix of educational, research, commercial and community buildings over the next 10 years.



**Figure 1. Brisbane Housing Company project showing retail at ground level, with housing above** (Arkhefield architects)

Construction on the Village Centre began in September 2004 – it will be the retail and residential heart of the Kelvin Grove Urban Village. The retail levels will include a supermarket, specialist shops and streetside cafés and restaurants. The residential component will consist of 213 apartments.



**Figure 2. The Village centre** (TVS architects)

The first phase of the Creative Industries Precinct was completed in December 2003 and includes new teaching and research facilities for QUT's Creative Industries Faculty, an enterprise centre, production spaces such as a television studio and public exhibition and performance spaces. In addition, 2004 has seen a successful first season for the La Boite Theatre Company in its new 400-seat theatre located at the Precinct.





Figure 3. The master plan





**Figure 4. The creative industries precinct**  
(HASSELL + Francis-Jones Morehen Thorp [FJMT])

Located in the heart of the Village, the Institute of Health and Biomedical Innovation (IHBI) is an interdisciplinary research initiative which has established a new model of research enterprise. The Institute integrates the research strengths of QUT's health, science and built environment, and engineering faculties. Construction of the Institute building commenced in July 2004 with an expected completion date in early 2006.



**Figure 5. Institute of Health and Biomedical Innovation (IHBI)** (Donovan Hill architects)

## 2.0 PROJECT OUTLINE

### 2.1 Project details

#### Client

The Queensland Department of Housing and Queensland University of Technology

#### Consultants

##### Master planning phase – 2000 to 2001

##### Infrastructure phase – 2001 to 2003

The Infrastructure and Major Projects Unit at the Queensland Department of Public Works was responsible for delivering the project for State Government.

##### Project management

Project Services, Department of Public Works

##### Master planning, urban design, landscape architecture and project coordination

HASSELL

##### Civil engineering, services, traffic and geotechnical

Connell Wagner

##### Quantity surveyor

Rider Hunt

##### European heritage consultants

Allom Lovell

##### Environmental engineering and ecological studies

URS Asia Pacific

##### Public consultation (Master planning phase only)

The Rowland Company

##### Retail planning (Master planning phase only)

Patrick Partners

##### Energy strategy (Master planning phase only)

Integrated Energy Services

##### Master plan review phase – 2004

##### Project management

The Hornery Institute

##### Master planning, urban design

HASSELL

##### Project implementation phase – 2004 to 2007

##### Project management

Ranbury Management Group

##### Urban Design Manager

HASSELL

##### Community Development Manager

The Hornery Institute

##### Year of completion

Full development of the Village concept is expected by 2010.



**Figure 6. Latest aerial image of Kelvin Grove Urban Village**

##### Floor area and number of storeys

The site area is 16.57 hectares.

The total allowable ground floor area is 192,900 square metres excluding sites with heritage constraints.

The plot ratio varies from 0.8 to 4.2 times the site area.

The height throughout the Village will vary from three to nine storeys.

### Cost at completion

The total project value is estimated to be \$800 million. The infrastructure budget was \$38 million with a further \$18 million projected to be spent during the implementation of the Integrated Master Plan.

### Number of people in occupancy

It is expected that the number of residents will range from 2,000 to 2,500, excluding workers, students and visitors. QUT will have a total population of 12,000 students and staff at Kelvin Grove.

## 2.2 Location and climate

The site is located northwest of the city centre of Brisbane and forms part of the City West Precinct. Kelvin Grove is surrounded by the suburbs of Spring Hill, Herston, Red Hill, Newmarket and Wilston.

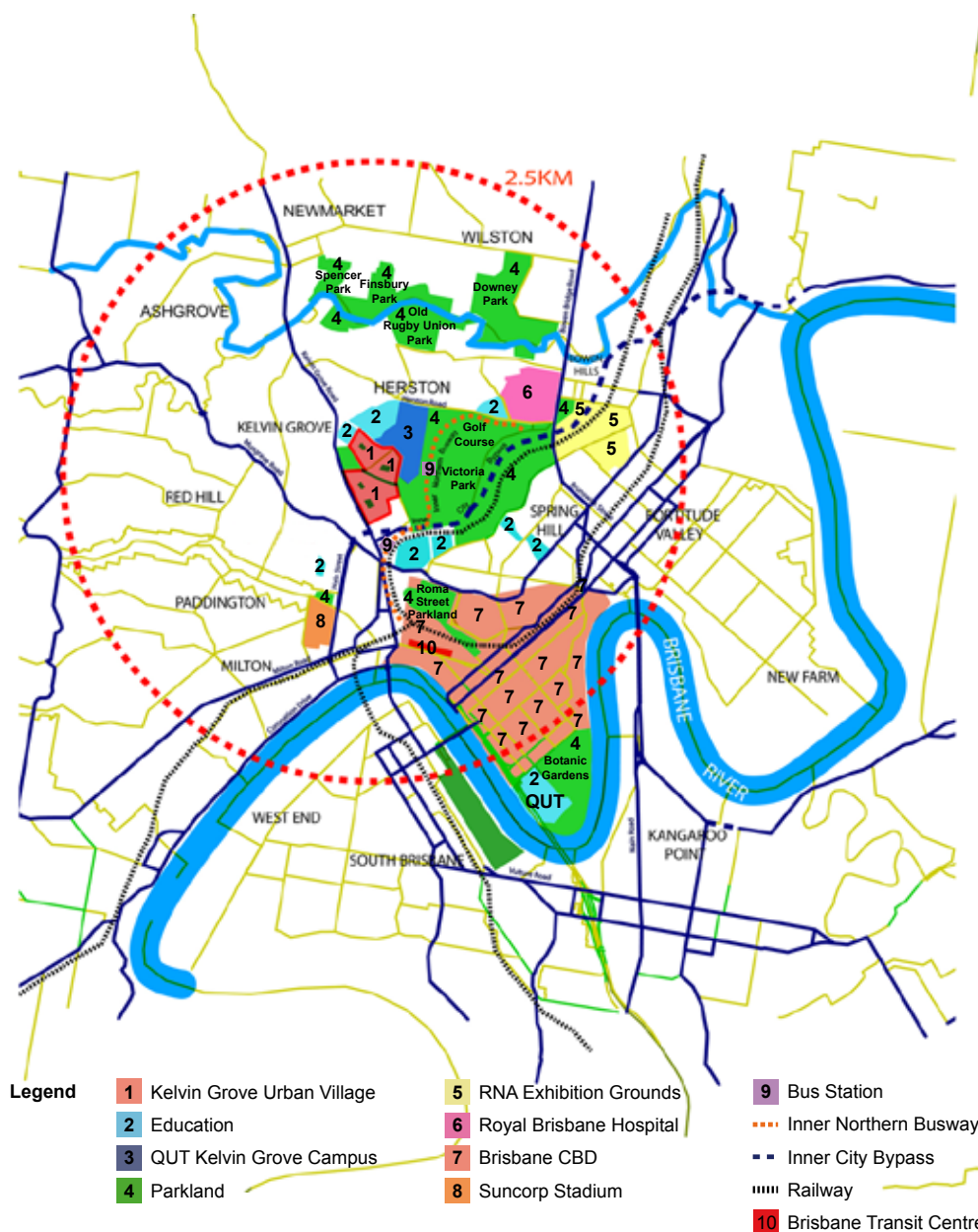
Immediate neighbours include QUT and the Kelvin Grove State College. Brisbane enjoys a sub-tropical climate with mild winters and hot summers tempered by cooling storms. Summer temperatures range from 19 to 29°C and winter temperatures range from 9 to 21°C.

## 3.0 DESIGN PHILOSOPHY

### 3.1 Design intentions

The design of Kelvin Grove Urban Village is underpinned by the following objectives.

- 1 Deliver a best practice model for an inner urban, mixed-use development with an economically viable community.
- 2 Create a place with a distinct identity and a strong sense of community.



**Figure 7. Location of Kelvin Grove Urban Village within Brisbane's inner city**

- 3 Achieve real integration between QUT and the community.
- 4 Develop a range of innovative affordable housing opportunities close to the central business district.
- 5 Champion the principles of sustainability throughout the design and operational life of the development.
- 6 Establish the Queensland Department of Housing and QUT as market leaders in the arenas of education, place-making and social innovation.
- 7 Reflect whole-of-Government outcomes, aligned with strategic policy areas including *Smart State*.
- 8 Create new job opportunities.

### 3.2 Strategic design directions

The Village will use sustainable techniques to create buildings which are suited to the functional, topographical and climatic influences. Each building elevation will be different, and varied in form and detail. Large sites are to be developed as a collection of adjacent buildings rather than as a single complex. Most sites will be developed to the maximum ground floor area allowable, with minimum site boundary setbacks, and each building will be designed on the basis that adjacent sites will be fully developed, and achieve acoustic privacy and good views for all residents and users.

The Village is designed to be more sustainable, with solar power and efficient appliances reducing the amount of energy used, water consumed and waste produced.

The main street of the Village will have wide footpaths and landscaping to encourage pedestrians and allow activity to spill out into the public realm. The buildings will have minimal setback, preferably zero, with awnings providing weather protection. Other parts of the Village will become progressively more residential in character, with sub-tropical architecture and climatically appropriate design solutions.

Buildings in the Village will be diverse in appearance from their immediate neighbours (with distinct materials, details and colours). Additionally, buildings



**Figure 8. Bus shelter with PV cells**

will be scaled in accordance with the intent of the site, to help define the public spaces formed by the grid of streets, and will be adaptable to accommodate a diversity of uses over time. Buildings will overlook and focus activity on the streets and public places to create safe, active streets and parks, in order to meet the requirements of the Brisbane City Plan planning scheme policy 'Crime Prevention through Environmental Design'.

## 4.0 SUSTAINABILITY OBJECTIVES AND ACHIEVEMENTS

### 4.1 Metropolitan scale – the strategic view

From the outset, the Village was an example of reducing the rate of expansion of the ecological footprint of greater Brisbane through the development of this inner city site with much higher than urban fringe densities. The Village makes productive use of existing inner urban infrastructure, both social and physical, delivering greater environmental efficiency.

### 4.2 Economic sustainability

The Village is pursuing greater economic sustainability by substantially expanding the employment centre and delivering new residential and commercial development at appropriate inner urban densities.

There is strong integration between university centres, the public realm and commercial and community infrastructure. This is aimed at creating close relationships between the residential, commercial and university parts of the new and surrounding neighbourhoods. The University will be developing facilities in the Village that encourage interaction between businesses, residents, students and staff. The Creative Industries Precinct has already established an enterprise centre of 11 established and developing businesses which include an advertising agency, a multimedia business, an IT firm as well as the administrative offices of the La Boite Theatre Company.

### 4.3 Social sustainability

The master plan emphasises the connections to the existing neighbourhood to encourage the wider community to walk or cycle to the facilities of the new centre for the suburb of Kelvin Grove. Significant local shopping and community facilities will be included for residents, workers and visitors to the Village. There are public transport services along Kelvin Grove Road, through the Village and via the Inner Northern Busway, which also services the site.

A mixed income and mixed tenure residential neighbourhood will promote a wide range of household types and physical housing forms. 'Crime Prevention through Environmental Design' principles have been

be utilised to create a safe neighbourhood. The mixed-use concept encourages interaction, while urban design policies which require active building frontages and 'eyes on the street' help create a safe public realm.

Furthermore, the university has reused various heritage-listed buildings on the site which has not only met social sustainability goals but also achieves retention of embodied energy.

#### 4.4 Environmental sustainability

The design of the Village placed emphasis on creating a strong green corridor linking McCaskie Park to Victoria Park. Equally, existing pre-European settlement trees in both Kundu Park (Tallowood) and Grey Gums Park have been retained and strongly reinforced by some 340 advanced growth trees. This has impacts not only for flora and fauna but also for local air quality.

Materials were recycled from the existing site, reducing embodied energy and waste. Almost 100 per cent of timber materials were recycled, including a quantity restored for reuse as street furniture for the Village. Concrete slabs were removed and more than 800 tonnes crushed to various forms of aggregate for re-use as road base. Aluminium, steel items, metal fixtures, fencing and lighting were also recycled with some products donated to community groups for re-use.

The infrastructure works included roads and services, the creation and landscaping of various public parks, and a substantial planting program which focussed on native species, designed to play a role in the micro-climate of the Village. Gravel-filled trenches were designed to remove hydrocarbons, particulate and some dissolved pollutants (through filtration and adsorption on to soil particles); litter baskets in gully pits were installed to collect rubbish from storm water; and storm water in-line devices were incorporated to collect coarse sediment and retain oil.

The stormwater design focussed on implementing primary controls such as grass swales, porous pavements, and infiltration trenches. Working with the Council, the relationship of stormwater management on the site was closely coordinated with the role of the new York's Hollow wetlands, created several hundred metres downstream by the Inner City Bypass project. While Kelvin Grove Urban Village could have managed its own stormwater generated on site, there was also substantial storm water from upstream that had to be managed. This required the storm water run-off to be directed to adjacent wetlands.

The potential to use photo-voltaic cells to power street lighting was also explored in detail. However, the requirement by the utility authorities that the street system also be serviced by a parallel conventional system led to the decision not to proceed and instead focus on the use of such cells in the design of individual buildings.

Similarly, because of the urban nature and density of the Village, issues of rainwater collection and re-use, and grey water re-use, were transferred onto the building scale.

## 5.0 ENVIRONMENTAL CONTROL METHODS

### 5.1 Current design guidelines

Developers of sites within the Village are currently required to demonstrate that their project meets industry best sustainable practice by addressing the requirements of the KGUV Design Guidelines, April 2005. Section 3 of the Design Guidelines details the sustainability requirements, and the framework for reporting and monitoring the ESD benchmarks and sustainable initiatives are based on the following categories:

- energy efficiency: e.g. capitalise on the use of natural light and energy efficient appliances
- transportation: e.g. setting maximum on-site car parking provisions to encourage alternative transport means, providing facilities to promote bicycle use
- biodiversity: e.g. sustainable plantation and recycled timber use has been encouraged
- atmospheric management: e.g. CFC and HCFC based refrigerants, and halon fire suppression systems are avoided
- water management: e.g. the use of AAA-rated tapware, toilets and showers, the use of timers/sensors in irrigation systems
- indoor air quality management: e.g. natural ventilation and maximised cross ventilation, provision of rain protection and insect protection for windows to allow them to continue to operate, use of internal paints, adhesives and finishes with low pollution qualities
- waste management: e.g. waste sorting facilities to promote recycling of solid waste and reduce landfill, using life cycle impact analysis in the choice of construction materials
- light and noise pollution: e.g. significant noise sources are thoughtfully designed and appropriately located
- monitoring and implementation: e.g. maintenance of sustainability measures, inclusion in each unit or tenancy of metering devices to collect data on water and energy consumption for research and educational purposes.

Each category provides a series of sustainable initiatives, and developers are required to comply with each initiative (either optional or mandatory depending on the relevant category).



## 5.2 Review of sustainability benchmarks

The 'Design Guidelines' are currently being reviewed against existing sustainable initiative benchmarks to provide a comparative analysis of current Kelvin Grove Urban Village goals and best practice guides, versus current world best practice goals and designs. Preliminary findings of this review have recommended the following changes:

### Proposed approach for office and educational projects

Office and educational projects will be benchmarked against Australian Best Practice as scored under the Green Star Office design tool. Projects shall achieve the minimum number of credits per sustainability category.

### Residential

Residential projects will be assessed against the Queensland Sustainable Housing Code (QSHC) with two major sustainability categories – environment and social sustainability. The current deficiency in the QSHC is that it does not have a category related to management of the project.

### Retail

There is currently no relevant Australian retail benchmarking tool that can be referenced. The Green Building Council has committed to establish a shopping centre tool by June 2006.

Two approaches could be adopted: leave the Design Guidelines in place for retail and include the requirement for a Green Star professional to be appointed, requiring the project to comply with the management category in Green Star Office Design. The alternative approach would be the application of Green Star Office to retail based projects, excluding credits that are not relevant to retail.

- The Queensland Department of Housing then uses a form of development lease during the construction process to confirm the preparation of a detailed sustainable development strategy and the subsequent delivery on the environmental design undertakings by each developer.

## Project review and approval committees

The design review committee consists of the Queensland Department of Housing, QUT and HASSELL, as urban design manager. It meets regularly with developers to discuss proposals for the Village at the 'sketch design' stage, the 'pre-development application' stage and the 'developed design' stage. The design review committee then submits its recommendation to the project control group for final deliberation and formal approval of designs for all improvements and buildings proposed for the Village.

Developers are encouraged to seek opportunities for informal feedback by presenting at the design review committee meeting. Feedback from developers has reinforced the relevance of this process, providing a sense of certainty for future developments. Advisers on the design review committee actively work with the developers and their designers to add value to projects or seek solutions to problems. The committee has a degree of flexibility in being able to relax prescriptive requirements of the guidelines in order to meet specific site or project outcomes.

While approval by the project control group does not guarantee development approval by the Brisbane City Council, the intent of these Design Guidelines is to complement and not conflict with the Brisbane City Plan 2000, and specifically the Kelvin Grove Urban Village Local Plan.

## 6.0 MANAGEMENT OF PROJECT IN USE

### 6.1 Project design review and approvals process

Complementing the Integrated Master Plan is a Local Plan and series of Design Guidelines, which set out the required sustainability standards. Developments submitted must conform to these documents and site-specific design guidelines to obtain approval from the project control group. Obtaining statutory approval from the Brisbane City Council is the responsibility of each developer.

#### Tender process

The typical process of selecting a private project within the Village requires each developer to:

- indicate their design intentions
- agree to an extensive raft of environmental design requirements
- indicate in what other additional ways they propose to implement their pursuit of environmental design best practice, besides those detailed in the Design Guidelines

### 6.2 Site specific design requirements

Site Specific Design Requirements (SSDR) are prepared for each site within the Village, approved by the project control group and issued to developers as part of the sale or development process. These SSDRs focus on the requirements of the Integrated Master Plan, the Design Guidelines and the Kelvin Grove Local Plan for each particular site.

### 6.3 Compliance with the design guidelines

To reinforce compliance with the Design Guidelines, the Queensland Department of Housing utilises development leases or development bonds. QUT utilises its facility procurement program and internal design guidelines.

The design compliance checklist incorporates the sketch design stage, the pre-development application stage and the developed design stage, and the developer is required to demonstrate to the design review committee that the agreed outcomes from previous design review processes have been incorporated into the completed project.

A compliance proposal is required at the developed design stage of design for approval by the project control group through the design review committee. The developers will propose a plan to monitor and report on compliance with the design guidelines. This will be undertaken by a party independent of the developer.

At the completion of construction, the developers are required to submit a compliance report (produced by an independent party) for approval by the project control group. The report will demonstrate how the completed project complies with the design guidelines or approved variations.

#### 6.4 Principal body corporate of Kelvin Grove Urban Village

A principal body corporate is being established to manage the ongoing development of the Village. Once all the projects are complete the body corporate's primary role will be to provide estate maintenance of the Queensland Department of Housing land in the Village to a level beyond the Brisbane City Council standard. Other functions of the scheme are to maintain the development style within the Village through a requirement for all lots to adhere to the Integrated Master Plan and Design Guidelines documentation. The body corporate scheme at Kelvin Grove Urban Village will also be responsible for the ownership of information, communications and technology infrastructure that is to be provided during the development of the Village.

### 7.0 SUCCESSFUL PLACES – THE FOURTH DIMENSION OF SUSTAINABLE DEVELOPMENT

In 2004 a review of the project was undertaken by The Hornery Institute and HASSELL for the Queensland Department of Housing and QUT. There have been times when the three rings of sustainability functioned like the triangle of opposites. In addition, compromise was often required to 'meet in the middle'. The review focused on sustainability outcomes to deliver the fourth dimension of sustainable development – a successful place.

People increasingly need to feel that they belong, are welcome and make a contribution to the community in which they live and/or work. This need is intensifying as information technology and mass transportation change the cadence of daily life, facilitating real time global communication, a blurring of traditional work/leisure patterns, remote working, independent living and unfettered opportunities for travel.

In its desire to achieve a vibrant community at Kelvin Grove Urban Village, the Integrated Master Plan builds upon the following key principles:

- 1 A thorough understanding of the people who are likely to live, work, study and play there.
- 2 The creation of a clear identity and image.
- 3 The recognition that success of places is often secured by activity, animation and ambience.

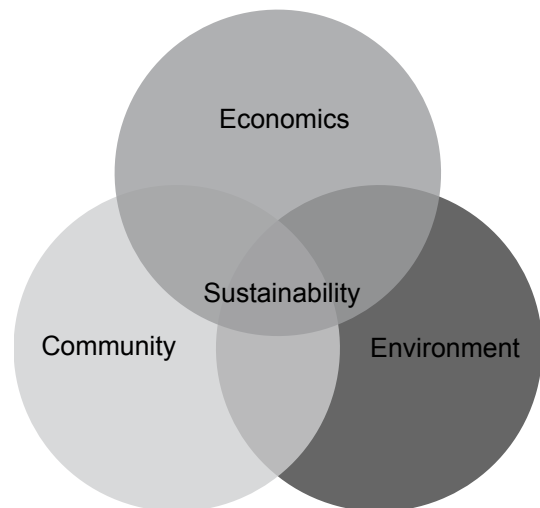


Figure 9. The sustainability challenge

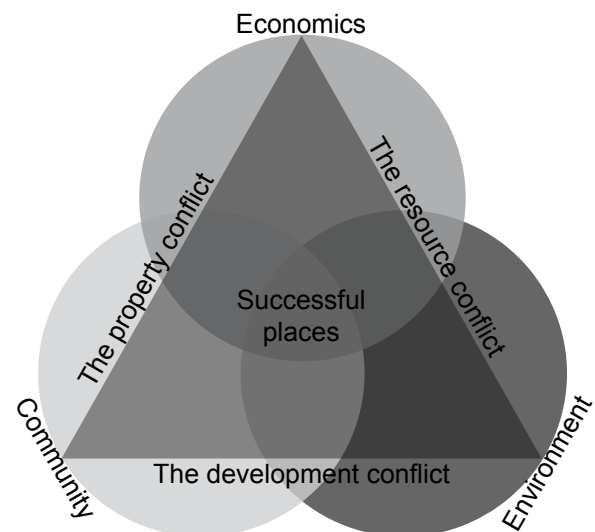


Figure 10. Triangle of conflicting needs



Figure 11. The fourth dimension

- 4 Places are about people, and good urban design must encourage and facilitate face-to-face interaction and engagement.
- 5 Mixed use really must mean mixed use – with a blend of uses and activities to address the needs and meet the expectations of the users, changing as they change over time.



The success of a place goes to the heart of sustainability; where social, economic and environmental aspects overlap people are happier and more secure. The flow-on effect of this is that more people are attracted, social networks develop and businesses perform better.

The Integrated Master Plan refined the vision and focused on ongoing management and implementation. It is a holistic guide to shaping Kelvin Grove Urban Village as a unique place and ensuring that it can adapt and evolve over time. It integrates the requirements of social, cultural and economic development with detailed place making strategies to provide a blueprint for the community at the Village. The Integrated Master Plan seeks to translate the concepts of the original report, with its ambitious visions and strong urban design intent, into a living neighbourhood with a framework for its delivery. In excess of 200 strategies are currently being implemented to deliver desired outcomes in relation to thirteen goals.

Establishing a clear identity and sense of place, together with meeting a spiritual need to 'belong', should be considered as the fourth dimension of sustainable development.

## 8.0 POST OCCUPANCY EVALUATION

The Queensland Department of Housing and QUT have committed to delivering a dynamic research agenda by using the Urban Village project to improve social and urban outcomes across Queensland and beyond. A number of research projects will be implemented over the next three years.

One of these projects is a study monitoring sustainable energy and utilities use by residents and tenants to provide carefully researched solutions and options regarding energy services. The Village has the potential to showcase world's best practice in the supply of greenhouse efficient energy services as well as innovative energy management and control technologies. Measurements can also be put in place to ensure developers disclose information about their development to allow for the long-term collection and analysis of technical and social data that impact on patterns of energy use.

The research findings are expected to indicate where significant utility-related savings can be made, and where innovative sustainable technologies can be cost-effectively employed.

In support of this, the project has commenced surveying attitudes in the existing neighbourhood towards environmental, social and economic outcomes, and is working with QUT's Faculty of Built Environment and Engineering to map out a framework for wide-ranging research into aspects of urban sustainability.

## 9.0 LESSONS LEARNT

There has been widespread support from the development community in Brisbane for the sustainability outcomes being generated by Kelvin Grove Urban Village. We cannot underestimate the influence of a committed client/developer. The ability of the designer and other consultants to deliver these outcomes has been varied. The design review committee often has to take a proactive role in the delivery of buildings within the Village.

The focus for the delivery of public spaces has been based on the street side public realm, as opposed to formal urban spaces such as a village square or plaza. The influence on the ground level activities of the adjacent buildings on street public realm was underestimated in the original master plan and design guidelines. This has now been enhanced through the Integrated Master Plan report, currently being implemented. The green spaces within the Village tend to be either natural or ornamental. They may be 'tweaked' in the future to be more functional by the evolving body corporate.

The trade-offs between functional requirements of projects and urban design outcomes will be judged by future residents and visitors. The La Boite Theatre makes an important and positive contribution to the Village. In hindsight, an opportunity may have been missed to create a more active street edge in such a prominent location. Other trade-offs may be required in the future to deliver broader benefits to the community.

The delivery of overt subtropical architecture has been varied. There is a difference between buildings performing environmentally and responding to the climate and some buildings 'seeming to perform'. There does not seem to be agreement on the expression of subtropical architecture – particularly for multi-storey residential and commercial buildings.

There will continue to be discussion about the benefits of strong design guidelines at the expense of variety in built form outcomes. Outcomes in relation to good urban design have been non-negotiable. However, the flexibility exercised by the design review committee to approve alternative solutions in some instances, has been viewed as critical by the developers and their designers.

The Design Guidelines do not, and should not, be setting a benchmark for design quality. This should be delivered through the calibre of the architects and other consultants.

## 10.0 CONCLUSION

The Kelvin Grove Urban Village project has set out to achieve and demonstrate best practice in environmental design and management, as part of a broad 'triple bottom line' sustainability agenda. This agenda was embraced at initial conception and has flowed through subsequent and continuing stages. The Integrated Master Plan will drive the creation of a successful place and vibrant community at Kelvin Grove Urban Village.

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## BIOGRAPHY

**Andrew Hammonds** is international discipline leader of planning for HASSELL, and principal of the Brisbane office. He has 15 years experience in urban planning and urban design in Queensland in the public and private sectors. The current President of the *Australian Institute of Urban Studies*, he has taught design and planning and presented papers at several national and international conferences. He has extensive experience with major projects including the Boggo Road Gaol Master Plan, Pathways at North Lakes and the award winning Master Plan for the Kelvin Grove Urban Village. Andrew was awarded the AV Jennings Churchill Fellowship for 2001. He is recognised for his role in promoting sustainable development within South-East Queensland.

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