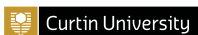


# #designperth

a joint vision for a connected,  
liveable and sustainable Perth

JUNE 2016



# FOREWORD

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## LINO IACOMELLA

WA EXECUTIVE DIRECTOR  
PROPERTY COUNCIL OF AUSTRALIA



The property industry is committed to growing strong and prosperous communities and we recognise this requires creative and diverse design principles for buildings and places. #designperth is a powerful demonstration that in a rapidly expanding city like Perth we can achieve more growth through greater housing diversity, including infill development.

Earlier studies by the Property Council and its partners showed we have the spaces. This report goes one step further and demonstrates bold and innovative designs to achieve more growth through infill development.

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## SENATOR SCOTT LUDLAM

AUSTRALIAN GREENS



Within these pages, you will catch a glimpse of a very different kind of city. It is the result of a unique collaboration between architects, property developers, planners, academics and political advocates. We tested the model with the 'Transforming Perth' project, and we were proud of the collective result, but big questions remained to be answered. Here we take them on directly.

What kind of communities can we build if good design is at the heart of our thinking? What possibilities open up if we demote the private car and place people and public transport at the top of the planning pyramid? How do we get past the stale formalities of 'consultation' and open up genuine deliberative dialogue with people with points of view we might otherwise disagree with? These questions are hard to answer, but too important to ignore if we are to build genuinely inclusive, prosperous communities.

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## KIERAN WONG+EMMA WILLIAMSON

CODA ARCHITECTURE + URBAN DESIGN



At CODA, we believe that design matters. We believe in the ability of good design to influence positive outcomes, not just for individuals, but for the wider community. This report outlines a vision for Perth that leverages design thinking and professional expertise to deliver better outcomes for communities in key infill sites across the metropolitan area. As architects, our understanding of design is not just what a building looks like, but how they operate, how well they function within their context and how much they contribute to the public realm. We imagine density, measured not by the number of people per hectare but in quality and access to social and public amenity and infrastructure. The process of a design enquiry, delivered by a collaborative team of experts, is a worthy tool to open up conversations about what Perth should aspire to be – a world-class liveable city, capitalising on its enviable climate, unique culture and diverse peoples.

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## PROFESSOR PETER NEWMAN

PROFESSOR OF SUSTAINABILITY  
CURTIN UNIVERSITY SUSTAINABILITY  
POLICY INSTITUTE (CUSP)



Perth has rapidly grown in my professional life from a small town to a large city with 2 million. Government is planning for 3.5 million and we have begun thinking about 5 million. Many Perth residents would prefer we did not grow much more. However people are coming here because its a good place to live and there are many opportunities. But there is precious little to show us how we can do even this as the infill models we have had so far are not very attractive. Understandably, local governments and communities across Perth are fighting such infill.

At CUSP we have been researching a range of ways that density can be made much more attractive. We have a lot of evidence that we really need such options to improve as the sprawling city is becoming more dysfunctional as suburbs spill further and further out. We welcome constructive debate about how we can make density work with enhanced amenity, accessibility, liveability and sustainability.

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## ACKNOWLEDGMENTS

Chantal Caruso, Office of Senator Scott Ludlam  
Lisa Shine, Marc Tarca and Akira Monaghan, CODA  
Sebastian Slate-Davies, CUSP  
David Moore-Crouch, the Property Council



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# 1.0 EXECUTIVE SUMMARY



Perth is facing critical questions on the future of our city. This study looks at the vision we share as a connected, liveable and sustainable city, and focuses specifically on current roadblocks and opportunities we have in the areas of Transport, Planning, Design, and Community Engagement.

It showcases design solutions at the individual site and precinct level, and provides for the first time an estimation of the true cost of different urban forms, comparing outer greenfields development with transit oriented infill.

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This is a joint study by the Property Council of Australia, the Office of Senator Scott Ludlam, CODA Architecture and Urban Design, and Curtin University Sustainability Policy Institute (CUSP).

The study summarises key challenges of Perth's urban development and growth pattern, including demographic changes, environmental limits, economic productivity, urban form, and climate change; and concludes there has been little improvement in addressing these challenges.

Current policy settings in the areas of Planning, Transport, Design, and Community engagement were reviewed, and were found to be lacking in driving or delivering the world class urban regeneration and communities we know are possible. To counter this, the study provides a suite of policy solutions in each of these areas in order to overcome the institutional barriers, inertia, and mixed messages about our future.

The study also showcases the importance of world class architecture and urban design thinking.

Building on the findings in the ground-breaking *Transforming Perth* released in 2013, which found a potential developable land supply of 1575 hectares along seven of Perth's current and future activity corridors, we provide real life examples of what sustainable, world class design infill could look like on the ground. Through a Design Charrette process involving Perth's leading urban design and architecture firms, eight sites were selected. Three of the best examples are provided, showing what is possible; in sites on Ranford Road, Great Eastern Highway, and Wanneroo Road.

Incorporating the lessons learnt from the design testing, a precinct-wide design approach was applied to the site on the Ranford Road corridor to demonstrate a hypothetical growth study highlighting the benefits of urban infill and regeneration.

**Perth now stretches 150km along the Swan coastal plain. Ten of Perth's largest growing suburbs are on average 33km from the CBD. This expansion has come at great cost, but until now the true economic cost of this growth has been hidden.**

In what we believe is a first for Perth, this study also provides the most comprehensive analysis of the true cost to government and individual households of greenfield compared to infill development. It found:

- The cost to government of providing infrastructure such as roads, water, communications, power, emergency services, health and education to greenfield sites costs \$150,389 per lot, compared with \$55,828 in infill sites.
- This translates to a saving of up to \$94.5 million for every 1000 lots developed in infill sites.



The hidden cost of providing infrastructure in greenfield sites represents an area of great potential savings if the government placed greater emphasis on infill.

This report extrapolated these figures to the current dwelling and infill targets for Perth, to test the potential economic costs and savings from 4 different development scenarios, using current targets in the *Perth and Peel @3.5million* plan. We found that compared to historical development patterns:

- Increasing Perth's infill target from 47% to 60% (the original target under the previous Network City plan) would save \$23 billion to 2050
- This would pay for the entire Perth Light Rail network as originally proposed 12 times over or 9 new hospitals the size of Fiona Stanley.
- A 100% infill target, focussing our entire growth in areas already earmarked for development would save an additional \$30 billion to 2050 .

In a first for Perth, this study also modelled a design scenario and the related benefits for precinct scale urban regeneration using the Ranford Road example. Comparing Business As Usual (BAU) development to transit oriented development alongside a Light Rail node, it found:

- **260% more increase in number of dwellings and residential population**
- **352% commercial space and employment**
- **187% in public open space and 27% more homes within 200m of green space**
- **335% increase in active frontage**
- **739% increase in public transport usage; and**
- **A significant increase in dwelling diversity with 52% more low and medium rise apartments**

This report also recognises there is no point simply showing more renderings of 'what is possible' without providing a serious examination of how the community is currently being treated when it comes to major planning decisions. The premise of this report is that allowing residents to make informed decisions and take part in the early stages of local area planning results in better outcomes for citizens, decision makers and developers alike. There is an international trend to increasing the inclusiveness of communities' values, visions, experience and opinions in planning outcomes.

This report puts forward the proposal that we must move beyond passive and flawed processes of simply seeking opinions and consulting with communities, to more active models that genuinely involve communities in deliberative forms of planning and visioning supported by effective resourcing at all levels of government. This report provides key case studies that demonstrate how this is possible.

In addition, #designperth articulates the major roadblocks to delivering high quality density and urban regeneration with a particular focus on Transport, Planning, Design and Community, and provides 13 Recommendations.

**Our report is a joint vision for a connected, liveable and sustainable Perth and provides what we hope to be a roadmap to all levels of Government and the community on the opportunities we have to move forward to realise, or at least discuss in earnest, this vision.**



## 2.0 INTRODUCTION



The true cost of development, the barriers to world class urban design, and the potential to more genuinely engage with communities in planning, are three of the most crucial conversations we believe need to be part of any conversation about planning for Perth's future growth.

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The aim of #designperth was to showcase an alternative vision by asking what is possible, by emphasising the importance of design and community vision in planning, through intensive design testing on real life sites, and through a sober examination of the true cost of different types of development. This report clearly identifies what is holding us back and provides practical vision of how to realise a truly liveable, beautiful city.

Perth has seen a dramatic expansion in its city boundaries, with a footprint some 150 kilometres in length. This has established Perth as one of the largest and most disconnected cities in the world.

Perth is regularly cited as one of the most 'liveable' cities and while the sustained mining boom has brought massive growth and prosperity for some, we are also one of the most unequal and unsustainable cities on a number of indicators. Our city needs a different way to grow.

#designperth portrays our different vision for the way Perth can grow and develop into a connected, liveable and sustainable city. By focusing on optimal development options for sites along some of Perth's key transport corridors, this report demonstrates how well designed and innovative density can transform streets and spaces into vibrant centres with a mix of housing, employment opportunities and services.

In 2013, the Property Council of Australia, the Office of Senator Scott Ludlam and the Australian Urban Design Research Centre released *Transforming Perth*, which studied the potential housing yield in underdeveloped areas of 7 out of 18 activity corridors identified as future rapid transit routes in Perth's Public Transport Plan for Perth in 2031. It found a potential yield of 1575 hectares, enough for 94,000- 252,000 new dwellings, and that Perth's entire infill target could easily be met through medium density development along just these seven corridors. It demonstrates activity corridors in Perth which could be transformed from congested, car heavy roads into a vibrant and attractive series of High Streets and urban villages.

Now the Property Council and the Office of Senator Scott Ludlam have joined with CODA Architecture + Urban Design and Curtin University to showcase how our metropolitan area can be activated through design led solutions to create vibrant, connected and well designed precincts.

Well designed infill development is critical to creating a liveable and connected city while meeting the needs of our ever growing population. Through intensive design testing on eight different sites, we depict a vision of Perth transformed into vibrant High Streets with a mix of housing, employment opportunities and services.

Our aim is that this report can be used to breakdown the blockages that are stopping Perth becoming the city that we need it to be through good planning, investment in transport infrastructure, meaningful community engagement and world class design.

**Welcome to the conversation.**



“

We all have a stake in the future of our cities, towns and regions, and we all share an idea that things can get better. but how and where to start is too often the stumbling block. sometimes we need to step back and ask if the vision for our place is setting the rules, or the rules are limiting our vision. #designperth brings a new co-operative approach to designing that vision for Perth.

**Tim Horton**

Registrar, NSW Architects Board  
Former Integrated Design Commissioner, SA

## 3.0 WHERE IS PERTH NOW?

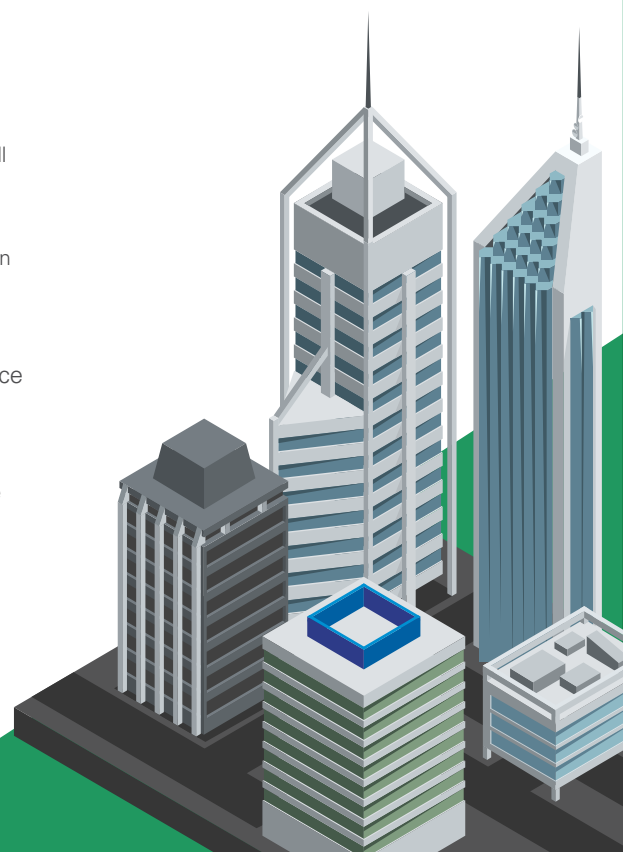
Perth ranks highly among the world's most liveable cities. However, the predicted growth, together with our continued pattern of development is placing a strain on sustainability and equity.

The *Transforming Perth* report of 2013 identified 5 key challenges Perth faces. (Table below). These challenges can be overcome through well-designed urban regeneration.

ISSUES	CHALLENGES
POPULATION GROWTH AND DEMOGRAPHIC CHANGES	<ul style="list-style-type: none"> <li>• Accelerated population growth at long distances from the CBD, employment, amenities and services</li> <li>• Aging population and increase in single occupancy households</li> <li>• Lack of housing choice and affordability</li> </ul>
ENVIRONMENTAL LIMITS	<ul style="list-style-type: none"> <li>• Accelerated loss of biodiversity and natural habitat</li> </ul>
ECONOMIC SHIFT AND URBAN PRODUCTIVITY	<ul style="list-style-type: none"> <li>• The competitiveness of a city is now determined by the knowledge economy and its liveability</li> <li>• Productivity now based upon providing new employment hubs, reducing congestion and attracting new businesses</li> </ul>
FORM OF DEVELOPMENT	<ul style="list-style-type: none"> <li>• Low density, growth patterns on the City's periphery, private vehicle dependence and lack of consistent high frequency public transport</li> <li>• About 60% of Perth's growth was in outer suburbs located 20-70km from the CBD over the last decade</li> </ul>
CLIMATIC CONDITIONS	<ul style="list-style-type: none"> <li>• A drying climate, with water scarcity and reduced rainfall</li> <li>• Impact of urban heat islands and reduced tree canopy</li> <li>• The effects of climate change: hotter, longer summers, more frequent bushfires, storm surges and coastal erosion</li> </ul>

Many studies have found infill housing development and urban regeneration at the precinct level can deliver jobs to local areas, makes public transport more viable, reduce car dependence and congestion, makes more efficient use of existing infrastructure, diversifies and strengthen local economies, improves quality of life, increase vibrancy and housing affordability, increase social inclusion, create opportunity for more active and healthier lifestyles, increase local character, uses less energy and water, preserve bushland and farmland and increase contact with nature.

#designperth will showcase how these benefits can be realised through excellent design-led solutions.





## CURRENT POLICY SETTINGS

The way cities grow is largely shaped by our state and federal policy settings. The following gives an update on policy since 2013.

### FEDERAL GOVERNMENT SETTINGS

There has been mixed messages from the Federal Government on its commitment to drive urban regeneration in our cities:

- In 2015, the *Smart Cities Plan* was introduced aimed at accelerating planning and development works on major infrastructure projects, including urban rail. The plan commits \$50 million for infrastructure planning and creates an Infrastructure Financing Unit, which will work with the private sector to develop financing solutions for key projects, including value capture and issuing bonds.
- Introduced City Deals policy aimed at boosting economic growth in Australia's cities. City Deals is a formal agreement between different levels of government on what investments and programs are needed to maximise economic growth in a city region.
- Appointed an Assistant Minister for Cities
- There have however been some setbacks, including the abolition of the Major Cities Unit, National Urban Policy, National Innovation Hubs program, Suburban Jobs program, and the COAG Reform Agenda programs on Cities and Housing Affordability.
- Infrastructure Australia's *Urban Transport Strategy* also failed to integrate concepts such as development density, corridor regeneration, active transport, activity centres, greenhouse gas emissions and addressing overall private vehicle dependence.

### STATE GOVERNMENT SETTINGS

The State Government has released a number of planning and transport strategies including:

#### State Planning Strategy 2050

Released in 2014, the *State Planning Strategy 2050* outlines a strategic planning framework for economic development, physical and social infrastructure. The strategy links sustainable transport planning and land development with increased density, mixed land use development, supporting public transport access and decreasing the need for individual vehicles. However its objectives are qualitative and the strategy lacks targets or delivery mechanisms.

#### Perth and Peel @3.5 million

*Perth and Peel @3.5 million* is the State Governments draft strategic land use plan aimed to show how to accommodate an expected population of 3.5 million in the Perth and Peel area by 2050, and its key objectives are for a Liveable, Prosperous, Connected, Sustainable and Collaborative city. The Plan proposes a more consolidated city through a better use of existing infrastructure and greater residential density and infill, and promotes activity centres, public transport corridors and an integrated transport network that supports urban and economic development. The Plan's priorities include most new homes and jobs being linked to activity centres with efficient public transport routes; reducing car dependence; ensuring efficient use of water; and ensuring the region's environmental assets are protected. The Plan maintains similar targets as *Directions 2031* and calls for

- An additional 800,000 new dwellings to house Perth's population growth to 2050;
- 380,000 of these new dwellings, or 47%, to be achieved through infill
- A focus on Activity Centres and increasing housing diversity.

The Plan's infill target of 47% is the lowest of any Australian capital city, and is targeted mostly to Perth's central

sub region, with low density residential expansion still the dominant form. The Plan locks in development beyond Yanchep and Two Rocks to the north, and as far as Dawesville to the south.

#### Perth and Peel Green Growth Plan for 3.5 Million

The Government is currently reviewing submissions for the *Perth and Peel Green Growth Plan for 3.5 Million*, which aims to integrate environmental protection and land use planning, and is based on the largest urban-based environmental assessment ever undertaken in Australia. Its key goal is to provide a more connected and big-picture approach to protecting the environment and streamlining planning and approvals processes for development. It proposes sensible urban development ideas including concentrating new urban zones on already cleared land, coordinating infrastructure planning across all utilities and transport agencies and corridors, and increasing urban infill.

The draft Growth Plan did not meet expectations to ensure the proposed policy delivers greater certainty, provides clarity on areas that are inappropriate for development, or protect Perth's iconic biodiversity, including Perth's Bush Forever reserves and Regional Parks.

#### The Draft Public Transport Plan for Perth 2031

Released in 2011 this Plan set the goal that by 2031 public transport will be the preferred choice of travel to Perth's strategic centres and through growth corridors. It achieves through the delivery of a new light rail network, more bus priority facilities and upgrades to existing routes. The Plan identified 18 future high frequency rapid transit routes, 7 of which were the focus of the Transforming Perth yield study report. The Plan also recognised that land use and transit should be integrated to support a denser pattern of future development (now called 'Transit Oriented Development').

The Plan is still yet to be finalised, and the state government has distanced itself from the light rail promise.

## 4.0 ROADBLOCKS



There are a number of roadblocks which are stopping high quality infill development and urban regeneration in Perth. Many of these roadblocks fall into four categories of Transport, Planning, Design and Community. \_\_\_\_\_

### LACK OF LONG TERM INFRASTRUCTURE PROVISIONING AND FUNDING PLAN

Urban regeneration is hard to accomplish without sufficient infrastructure in place to service new residence. Infrastructure Australia's first infrastructure plan calls for states to develop a 30 year infrastructure plan to provide certainty and deliver priority infrastructure projects. WA needs this to help promote urban regeneration

### LAND ASSEMBLY

Precinct level regeneration requires considered and strategic land assembly. Land ownership and lot size can restrict the efficiency and effectiveness of design outcomes, particularly when fragmented lots vary across multiple land owners. Given the complexity of preparing land for development, broader requirements for connectivity and strategic development are hampered.

### LACK OF EFFECTIVE ACTIONS IN THE DRAFT PERTH AND PEEL @ 3.5 MILLION

The connected city growth model within the *Perth and Peel @3.5million* Framework does not include effective actions to reach its 47% infill target. It does not deal with the current low rate of infill development, the absence of infrastructure provisioning or local government planning systems. Stronger measures need to be included to support councils to deliver on their respective infill targets, while improved planning, prioritising and delivery of infrastructure is also needed.

### OUT OF DATE LOCAL GOVERNMENT PLANNING SCHEMES

It is extremely hard to plan active communities and promote urban regeneration in the context of out of date planning schemes. The average age of Local Government planning schemes is 14 years. Regularly updating schemes, which are shaped by communities and driven by the Local Government will lead to good planning outcomes which deliver sustainable development. WAPC and State Government could assist in this process.

### R CODES

Amendments to *Residential Design Codes* (2015) reduced the number of apartments that can be built on blocks coded R30 and R35. The amount of parking was also increased to ensure every apartment will be allocated at least one bay. Changes like this stifle urban development and increase costs for developers, and impacts upon communities.

### STRATA LEGISLATION

Lack of meaningful strata reform has stopped low-density development areas being regenerated. Changes to the *Strata Titles Act*, such as the introduction of community title and leasehold, will make urban renewal simpler and a more attractive proposition.

### DESIGN ADVISORY COMMITTEES

Less than a third of LGA's in the Perth metro area have Design Advisory Committees (DAC). Limited expertise or resources exist for urban design, landscape or architecture in-house for LGA's, or State departments.

A DAC can provide design expertise and feedback on larger, complex developments prior to submission and as part of Development Approval assessments. The ability for projects of high design quality to be fast tracked through the planning process upon the advice of the DAC should be considered.

### PARKING REQUIREMENTS

Current onsite parking requirements can be arduous, but without readily available transport alternatives they are hard to reduce.

## COMMUNITY ATTITUDES

A lack of understanding that early, continual and genuine community engagement can be productive, and create a better product or outcome for more people. The easy default position is the 'minimum' requirement for planning based on the assumption that 'professional' planners have the capability to plan for the good of others by way of their education or expertise.

## REGULATORY REQUIREMENTS FOR COMMUNITY ENGAGEMENT IN PLANNING PROCESSES

"Public notification" periods and inviting "official submissions" are not ideal or genuine forms of participation – yet are often the only ways the community are invited to participate. They can also be counter-productive, or a deterrent to people who may have valuable input, local knowledge, or who are unable to participate via bureaucratic or traditional submission processes.

## DESIGN PROCUREMENT

Architects, Urban Designers and Landscape Architects have reported falling fee scales and more unfair contracting models, placing many firms, their clients and the outcome at considerable risk. Consideration in procurement should be to overall value and the provision of quality deliverables, and not initial fee costs.

## RIGID PLANNING FRAMEWORKS

Too great a focus on building envelope controls such as height and building setbacks, or too rigid the system of plot ratio, parking ratio rather than a focus on contextual response, amenity or design quality.

Design Quality assessment frameworks do not always utilise an evidence based approach to their formulation.

## SHORT-TERM GAIN OVER LONG TERMS COSTS AND VALUE OF GOOD DESIGN

Lack of mandatory assessment criteria that ensure whole of life value for money assessments, and consideration of public amenity in planning processes.



We need to ask - who carries the long-term costs of bad planning and design?

# 5.1 OPPORTUNITIES

## transport



Despite the numerous roadblocks stalling Perth's growth as a city, there are opportunities in all these key areas which would support urban regeneration in key metropolitan precincts.

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### OPTIONS FOR FUNDING PUBLIC TRANSPORT INFRASTRUCTURE

Rail infrastructure in Australia is expensive, and developing a comprehensive network in Perth will require substantial investment. There are a range of potential options for funding and delivering public transport infrastructure, with differing degrees of private sector involvement:

- Full public sector capital
- Some private and substantial public capital
- Substantial private and some public capital
- Totally private capital

In Western Australia transport infrastructure has been delivered under the first model – full public sector capital.

There is a lot to be learned from the experience of high density cities where substantial private investment has been facilitated into passenger rail. In low density Perth the bulk of rail investment may still need to come from the public sector.

Policy makers need to consider the equity and economic efficiency of different funding forms. Some options used in Australia and overseas may act as a disincentive for the infill development that is important to encourage in cities like Perth.

### FULL PUBLIC SECTOR CAPITAL

Public transport infrastructure is currently delivered wholly by public sector funding. The public sector performs all network and regional planning, and oversees the detailed design and engineering work, which is performed by private sector engineers. There are a range of potential mechanisms for raising government revenue from the increase in land values created by public transport infrastructure, which are collectively known as value capture.

### SOME PRIVATE AND SUBSTANTIAL PUBLIC CAPITAL

Private funding can be sourced through a mixture of sources. A successful example of this approach is London Crossrail. Crossrail is an underground heavy rail project connecting major employment centres. The project had substantial contributions from developers and a "Business Rate Supplement", an increment on the municipal rates paid by London businesses.

Of the £14.8 billion funding for Crossrail, £4.1 billion will be sourced from London businesses through various mechanisms, including the BRS. Financial contributions were also made from some of the key beneficiaries from the project, mostly developers.

### SUBSTANTIAL PRIVATE AND SOME PUBLIC CAPITAL

Substantial private capital can be supplemented by some government capital. Expected rise in property tax revenue could be hypothecated to cover part of the public contribution, such as Tax Increment Financing. This approach would ensure that the rail project is still generating all the capital required though some is from public sources at the three levels of government.

The Tokyo rail network is mostly privately funded and operated, by a range of companies, including privatised former public rail companies. Ticketing revenue is often supplemented by the profits of station-area land development and leasing integrated retail premises. In recent years, rising construction costs and a lack of low-cost farming land to develop has eroded profits for the Tokyo rail companies, and their finances have been bolstered by government grants and low-interest loans, guaranteed by the Development Bank of Japan, an effective subsidy.

## TOTALLY PRIVATE CAPITAL

Wholly privately-funded rail can be achieved with integrated property development. Government's role would be kept to in-kind activity to ensure land assembly and land acquisition, zoning and other transport planning integration is fully covered. It would mean that the project could be off balance sheet and hence would help with State Government credit ratings. This has been called the Entrepreneur Rail Model by Newman et al, (2016) There is still substantial scope to influence the layout of the network through land assembly.

However, the main value in this approach is to achieve public value from additional urban rail funded by the value derived from creating new activity centres around the rail stations.

The Hong Kong Mass Transit Rail Corporation (MTRC), while still majority owned by the Hong Kong Government, operates on commercial principles as if it were a fully private enterprise. Land is leased to the MTRC at pre-rail prices, and transit-oriented developments around the stations provide substantial returns to the MTRC, as well as boosting patronage through better land use integration. All four mechanisms need to be given higher priority in our urban planning, transport planning and financial planning.

It should be noted that the application of this model could be limited as Perth does not have equivalent density as Hong Kong, however similar projects are now happening in North America.





## 5.2 OPPORTUNITIES planning + design

### LOCAL PLANNING

One of major issues preventing good infill development is good Local Government Planning. Local planning integrates and balances economic, social and environmental needs and aspirations of the local community to provide an orderly approach to land use and change. They focus on land use, development, infrastructure and valuable features of the area.

It is essential that the planning framework of a local government reflects the vision that the Council has for the future growth and development of its district (usually articulated the 10 year Strategic Community Plan). In addition the framework should also be influenced by State Government strategic plans such as *Directions 2031* and the draft *Perth and Peel @ 3.5million*. This includes how a Local Government is going to meet its infill targets.

Strategic planning is vision based and is at the top of any planning framework. It is important to develop a community vision as part of the strategic land use planning process. A Local Government's strategic vision should tell a story about a place. It should identify what the community is like now, what it wants to be like and how it is going to get there. Listen to the community as that is where the story starts.

Strategic planning facilitates engagement with the community and developers allowing a local area to develop a shared vision which may lead to less consultation or dissatisfaction around development proposals.

Unfortunately in WA local planning is often fragmented and out of date which makes it extremely hard to plan active communities and promote urban regeneration.

An example of this would be Local Government Planning Schemes. Currently, the average age of Local Government planning schemes is 14 years. Only 3 councils have local planning schemes under 5 years old.

Under Planning and Development (Local Planning Schemes) Regulations, Local Governments have a duty to update their planning schemes every 5 years. The WAPC also have a duty to ensure that when a local planning scheme is submitted they must respond within 90 days before advertising. It then has 120 days after advertising to consider, make recommendations and submit for ministerial review - which then has no time-frame.

There is a role for Government in ensuring that both Local Governments and the WAPC are meeting this requirement. By ensuring that local strategic planning is up-to-date, Local Governments can create certainty, transparency and consistency for both developers and communities. **Engaging with all relevant stakeholders helps create the shared vision of the area and the impact that infill development will have on it.**

### STATE PLANNING

Recently, the State Government has released a number of Strategic Planning Frameworks aimed at meeting the needs of WA now and in the future. Specifically these include *Perth and Peel @ 3.5 million*, *Directions 2031* and the *Green Growth Plan @3.5 million*. There are a number of issues around these frameworks which is holding back high quality infill development.

Firstly, *Directions 2031* and *Perth and Peel @ 3.5 million* lack any effective action to reach its 47% infill target. It does not consist of any measures to deal with the current low rate of infill development, the absence of infrastructure provisioning or local government planning systems. There is an opportunity here for Government to revise the targets set out in these planning frameworks to reflect the potential for dwelling and job creation highlighted in this report. Furthermore, Government can introduce stronger measures to force councils to deliver on their infill targets.

Secondly, Government needs to step in to ensure that there is alignment between key state planning frameworks. Since the release of the draft *Perth and Peel Green Growth Plan @ 3.5 million* it is evident to see that there is inconsistency between it and the principles of *Perth and Peel @ 3.5 million*. There are concerns around how strategic assessment of Perth and Peel will be integrated into the sub regional plans.

The Government needs to take time to ensure that key strategic planning doc-



Current planning is structured to manage impacts, rather than to deliver visionary outcomes.

Peter Newton, Stephen Glackin and Roman Trubka

uments, such as these, are aligned and clearly identify land use opportunities to promote infill development to meet our growing population.

Lastly, Government needs to take an active role in developing a long term infrastructure plan which will help promote urban development and regeneration. Infrastructure Australia's first infrastructure plan calls for states to develop a long term plan to provide certainty and deliver priority infrastructure projects such as MAX Light Rail. These plans should take a 15-year-plus view, be updated regularly and integrated with long-term land-use planning processes. By taking a long-term view of infrastructure, governments can better plan for projected changes in demand, identify emerging challenges and establish a pipeline of well-conceived infrastructure reforms and investments.

The result is a long-term strategy that lays the foundation for a more productive Australia over the coming 15 years and beyond. Poor infrastructure planning, prioritisation and delivery is negatively impacting Western Australia. A single long term plan would create more certainty resulting in a pipeline of investment, which increases the quality and reduces the cost of infrastructure.

Furthermore, the establishment of a pipeline of future investments, as a result of rigorous long-term planning, provides the public and private sectors with the necessary information to effectively plan and coordinate their resources.

### STATE PLANNING POLICY FOR DESIGN QUALITY

A State Planning Policy (SPP) which guides Design Quality for all projects that interface with the public realm, including a requirement for a Registered Architect as lead designer for any Multiple Residential and Mixed Use development, or projects of significance.

### IN-HOUSE LOCAL AUTHORITY DESIGN EXPERTISE

Create in-house local government positions for designers and architects to enhance the design expertise at the local level. Design expertise on the client side can allow the development of better briefs, stronger project guidelines and more collaborative design processes. Integrated design considerations for precinct wide planning processes are also critical to ensure both character and responsiveness in built form and urban realm spaces are considered within any planning scheme and/or policy.

### CONSISTENCY AND CLOUT FOR DESIGN REVIEW PROCESS

Increase the number of Council's that utilise the services of a Design Advisory Committee and/or consolidate their services so that one joint DAC (JDAC) may apply to 3-4 Local Authorities. All DAC's should provide high quality design advice prior to DA submission to ensure design guidance and advice can be consolidated and Design Excellence achievable.

Create a State Design Review Panel that is required to assess projects of significance, or can be referred to by proponents wishing to seek a fast track approvals process through the demonstration of design excellence.

### DESIGN COMPETITION

Opportunity for LGA's or the State to adopt a Competitive Design Policy, which seeks to improve the initial design quality of proposal, and also protects the interests of all competing parties through reasonable remuneration and conditions. The City of Sydney Competitive Design Policy has created a culture of design excellence, and an awareness of the value of good design in enabling project planning and approvals processes to be streamlined.

## 5.3 OPPORTUNITIES community



We must move beyond passive processes of sharing information and consulting with (or 'at') communities to more actively involving communities in planning, visioning, and decision-making processes

### BE BRAVE, BE GENUINE

The premise of this report is that allowing residents to make informed decisions and take part in the future development and transformation of their neighbourhoods results in better outcomes for citizens, decision makers and developers alike.

It also provides an honest evaluation of where the community currently 'fit' in relation to its inclusion in and engagement with urban planning, and how this could be improved.

We believe genuine engagement done well, and done from the beginning of the planning process will lead to better outcomes and more certainty for the community, developers, and decision makers alike.

### COMMUNITY INVOLVEMENT IN STATE PLANNING

This report puts forward the proposal that we must move beyond passive processes of sharing information and consulting with (or 'at') communities to more actively involving communities in planning and visioning from the earliest part of the local planning process.

Building on the vision articulated in *Transforming Perth* and other studies showcasing urban renewal and regeneration which show 'what is possible', it's essential to ask how communities can be involved in processes to explore their own vision for more liveable and sustainable neighbourhoods.

There is an international trend to increasing the inclusiveness of communities' values, visions, experience and opinions in planning decisions.

In WA, each Local Government Authority has its own community consultation policies in accordance to their own planning schemes, residential design codes and related planning policies, with community consultation methods differing widely. All of the state planning and transport strategies described in this report were released as drafts, with public consultation invited. However, public input is typically limited to low numbers of submissions, and the level to which community feedback is incorporated meaningfully is probably uneven and always unclear.

The current, business as usual process for community consultation processes has a highly variable record of success and failure.

Decision makers need to recognise the value of engaging community members early in decision making processes, and take responsibility for fostering and resourcing higher quality and genuine engagement and collaboration with the community.

If done well, early engagement builds trust and knowledge of the process and project visions, and can ensure broader support for often complex and challenging concepts such as density and infill.

This will be a win for the community, developers, and governments at all levels.



Victoria Quay Precinct Plans: 2014  
Urban Design Forum by CODA + Creating  
Communities Australia

## THE SPECTRUM OF COMMUNITY ENGAGEMENT

The level of community involvement in planning decisions can be considered along a community engagement continuum, with passive 'information sharing' and consultation occurring at one end, and higher levels of engagement and influence towards the 'active participation' end of the spectrum.

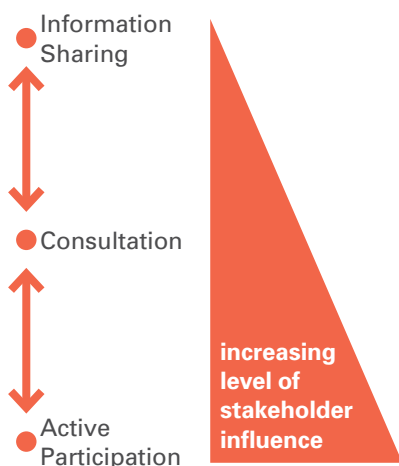


Figure: Continuum of community involvement

Adapted from "Engaging Queenslanders: An Introduction to Community Engagement" 2011

## Types of community consultation and engagement

Spectrum / Level of community involvement	Examples
<p><b>Information sharing/ Low</b></p> <p>One-way relationship in which decision makers disseminate information to communities. It can enable a large number of people to be informed of and learn about an issue there is no guarantee of receiving information back from the community</p>	<p>Advertising Briefings Fact sheets Online information Community meetings Shop fronts</p>
<p><b>Consultation / Medium</b></p> <p>Two-way relationship in which decision maker seeks the views of communities on policies or plans that affects them directly. Can occur at various points of the process, with effectiveness limited by degree community input will inform or shape decision making and the feedback on how their input was used. Is often perceived as a box ticking exercise on a predetermined decision.</p>	<p>Interviews Open days Surveys and Polls "Feedback" through forums and internet based events</p>
<p><b>Active Participation/ High</b></p> <p>Citizens or communities given a genuine role in decision-making, participating through a range of processes that encourage active partnership and even co-production with the government.</p> <p>Early and continuous engagement is critical for project success and community trust.</p> <p>Deliberative processes take more time and resources.</p>	<p>Community Reference groups Precinct or Advisory committees Action research Charrettes or 'inquiry by design' workshops Citizens Juries Negotiation tables Deliberative retreats Future Search conferences Participatory Budgeting 'Planning for Real' models Summits Citizen's panels (often 100-2000 people involved) Deliberative polling Community visioning</p>

# CALLING COMMUNITIES

The following is an extract of an interview with Professor Janette Hartz-Karp and Senator Scott Ludlam (May 2016) on the ways deliberative decision making can improve planning outcomes, and is so vital for the future of our City.

Hear the full interview at:

<http://greens.org.au/wa/designperth>

Professor **Janette Hartz-Karp** is a renowned practitioner, teacher and researcher in deliberative democracy (approaches to public deliberation and collaborative decision-making)

Practicing at CUSP, Janette has worked in the WA Planning Minister's Office, was the co-designer and co-facilitator of the 2003 Perth Dialogue with the City; Australia's first Citizens' Parliament in Canberra in 2009; and the Deliberative Governance and Participatory Budget project in the Greater Geraldton region, which won the 2012 UN LivCom Award for Participation and Empowerment.



**SCOTT:** Today we're talking to you about deliberative decision making and how to improve the way a democracy works and with a bit of a focus on planning and on city building and community building. Do you want to give us a brief overview of what this body of work is and what it is that you do?

**JANETTE:** I came to this work when I realised that we really don't have a clue what people would want if they really understood the trade-offs, the pros and the cons, the long term impacts. We only listen to experts - and that's great, but then they cut and implement whatever they want to do so that is a classic with planning. With deliberative techniques it became clear to me that it's not just about involving people, it's about sharing in decision making - it's about sharing in the problem, sharing in the resolution, sharing in the decision and sharing in the enacting of it. And that if people don't feel like they are involved in that, they just become cynical.

I think our democracy currently is under a lot of stress and trust rates in government are just getting lower and lower, so how do we get people to trust their government and governance.

I just think if they are more involved in understanding the huge problems people like you and other people in politics have in coming up with a way forward, let alone implementing your way forward, if they could be more a part of that I think we can get things done. That is the work I do.


**SCOTT:** So let's unpack a bit some of the technique - I've heard you speak before on a spectrum of engagement, can you just help us pull that apart a bit?

**JANETTE:** The trouble is we are getting fairly good at the 'consulting mode' and that is simply not able to produce the results people are expecting it to produce. Why are we spending so much time getting people's opinions? We have got to get people to think together, across divides, and then see if they can jointly resolve problems together. If people understand that and are given a part to play in the decision, they will give you time, and will give you their best thinking and they will do this in an empathetic way. And in my 16 years of doing this work I have never seen where they don't move towards sustainability for the long term future, where they don't move away from what's (just) in my back yard, to other people who are less well off than me, even the future generations even to other things on the planet. It is something we do as human beings; we just have to set the stage so people are encouraged to do it.

**SCOTT:** So let's come to a couple for example where you've actually pulled this off at scale, a really ambitious scale. Tell us about Dialogue with the City.

**JANETTE:** Dialogue with the City is both a really exciting story but in some ways for me in the long term is a really





If people understand the process, and are given a part to play in the decision, they will give you time, and will give you their best thinking and they will do this in an empathetic way.

Professor Janette Hartz-Karp

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despairing story. Everything people came up with at it in 2003 – it's not very different to what we've got to get to today! We started on a really grand scale, a really large random sample of 8000 people to find out what their issues were ... the aim was to get 1000 in the room for a whole day, and then got 100 people to continue to work with us and develop up the Plan, which became the State plan. But the problem was implementing, it just didn't happen, for a lot of reasons. We've got to do it better; we can't afford to keep doing what we're doing.

I really think that we so underestimate people, they understand that you can make things happen if you get people involved and you get them involved differently.

**SCOTT:** What would you abstract out as the basic principles, what are the threshold things that you need to happen for processes like these to have a chance of succeeding?

**JANETTE:** I think that one of the very difficult things is finding an issue upon which the decision makers are willing to share power. Because otherwise for me it's tokenistic. The second thing, is what's the real purpose of this, and how do we meet that purpose. Then we're into going to the broad community, then we're into getting people who represent that community demographically into the room, we need to create the conditions that they will deliberate...So it's about coming up with a resolution that could be implemented.

**SCOTT:** So what would be your message to those decision makers if they are a bit nervous or jittery about sharing power? What's in this for them?

**JANETTE:** The problem is they frame it in terms of 'I'm giving up power', or 'I got elected or I got into my position because of merit and I know this why would I want to hand it over to somebody else?' And what I try to say to people is that it's not simply more advice like the usual advice you get, it's advice which will help you implement.

**SCOTT:** What about if I'm a property developer, I'm working with very fine margins, I'm trying to put together a very complex deal, and I hear a phrase like 'slow thinking', what's in it for the developers who are sometimes actually the meat in the sandwich and sometimes they're the provocateurs, what's in it for them?

**JANETTE:** Slow thinking doesn't mean to say it is a slow process, I would say to developers, you will save huge amounts of money, because the minute you get lobby groups against you, the minute you get people, or governments scared of you doing what you're doing because they're getting bad publicity for it, it starts costing you a fortune, or else you start then having to make compromises that don't make sense to you. I just think they don't even have beautiful examples that they could see about how you could see what you want to do.

I mean, it's probably in everyone's interest that we get greater density in cities, certainly in parts, but we don't ever try to sell it in a way that people could see 'wow this could be beautiful!'

So I think you can save money, you can create something that you can feel proud of, and that's going to be good. For the future of the city, to boom, to be vibrant.



# 6.0 DESIGN MATTERS



We believe that architects and urban designers can play a pivotal role in how our cities develop if we engage in these conversations and use our skills in problem solving and communication to help imagine a better future for our cities and neighbourhoods.

## DESIGN TESTING:

In order to test a variety of the possible outcomes for high quality infill projects, an innovative design-thinking process was utilised. CODA worked with students from the University of Western Australia School of Architecture to research transport corridors identified as future transport corridors in the State Transport Strategy (draft).

Sites were selected along these corridors and were selected to be indicative of a range of possible development scenarios. All were greyfield sites, that had potential for high quality amenity with in addition of public transport.

A one-day intensive design charrette was then held, with teams from eight of Perth's leading architects and urban design practices supported by specialist experts in ESD and transport.

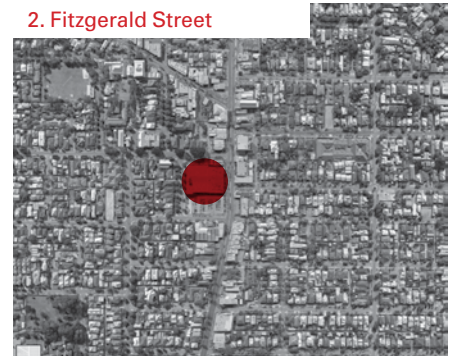
Each team was assigned a site, and outline brief and was tasked with preparing initial design responses for presentation to a jury panel of experts. The 8 design teams developed optimal design options for different housing and commercial typologies and identified any limitations that current policy settings have on achieving them.

Subsequent to the #designperth charrette the findings and recommendations of the design teams were incorporated into a precinct wide design approach to one of the sites, assuming the introduction of rapid transit networks (either BRT or LRT). Aligned to the "Benefits of Infill vs Sprawl" this work resulted in a hypothetical growth case study, that assumed both planning and transport changes designed to drive more compact, walkable and livable neighbourhoods.

1. Scarborough Beach Road



2. Fitzgerald Street



3. Wanneroo Road



4. Albany Highway



5. Stirling Highway



6. South Street



7. Great Eastern Highway



8. Ranford Road







**What is a charrette?**

The word charrette is French for “cart” or “chariot”. In the École des Beaux-Arts in Paris in the 19th century, it was not unusual for student architects to continue working furiously in teams at the end of the allotted term, up until a deadline, when a charrette would be wheeled among the students to pick up their scale models and other work for review while they, each working furiously to apply the finishing touches.



**WHO WAS INVOLVED?**

**Charrette Hosts:**  
Property Council of Australia  
Lino Iacomella  
Rebecca Douthwaite

**Participating Design Practices:**  
Ashton Raggat MacDougall  
Cameron Chisolm Nichol  
CODA Architecture + Urban Design  
COX  
Donaldson + Warn  
Gresley Abas  
JCY Architects + Urban Designers  
Woods Bagot

**Charrette Jury**  
Sen. Scott Ludlam, The Greens  
Timothy Horton, NSW Architects Board  
Kent Acott, West Australian Newspapers  
Jo Chin, Pindan

**Technical Experts**  
Dr Ryan Falconer, ARUP  
Mark Taylor, JBA  
Graham Agar, Full Circle ESD

# 6.0 DESIGN MATTERS

## Some highlights of the charrette



Great Eastern Highway

*"The COX team were given a very difficult site on the corner of Great Eastern Highway and Belmont Avenue, along the Perth CBD to Perth Airport transport corridor. Upon closer inspection, the site presented some great opportunities including the relative proximity to the CBD and the Airport, potential access to the Swan River, and 360 degrees views at elevated levels. These assets, together with the high degree of visual exposure to passing traffic, the supporting existing urban infrastructure and urban fabric provided some of the key ingredients for a potentially successful development."*

Nic Macormac, Associate  
COX



Ranford Road

*"Our scheme addresses the challenges and opportunities of being located in a peri-urban site and the dire lack of housing diversity within the area. It seeks to transform the area's car dominated and severe built and urban form characteristics into a vibrant pedestrian friendly urban village where people have housing, work and transport choices."*

*It is envisaged that a high quality, low rise, medium density infill development on this site will make efficient use of existing services and infrastructure, support an improved public transport and shared path network, reducing car dependency and responding to its place."*

Emma Williamson, Director  
CODA



Wanneroo Road

*"The site on Wanneroo Road in Tuart Hill is, on first impressions, rather uninspiring. But on closer inspection, through the lens of urban-design, a new development could have numerous benefits. Our concept design proposes a residential tower, of different sized apartments, set above a strip of retail tenancies that contribute to the existing streetscape."*

*In support of extra height for the residential tower, we suggest a linear landscaped promenade along the site's northern boundary. Extending this landscaped strip past the shopping strip and along the edge of the Primary School gives the community an attractive resource."*

Geoff Warn, Director  
Donaldson + Warn





“ discussions from the day...

### GOOD DESIGN MATTERS

Planning controls such as plot ratio area, parking and building heights were discussed as areas for relaxation or discretions of controls in order to better achieve outcomes.

Multiple design scenarios were tested through the charrette ranging from relaxations of typical planning controls such as plot ratio, to innovative thinking in relation to the footprint, flexibility and home ownership models of the multiple residential projects.

Design solutions such as parking bays that could be re-configured over time as adaptable spaces and potential residential floor-plates were offered to allow for the time scale requirements of the change in car usage.

Flexible building footprints, passive solar siting strategies, neighbourhood context and careful consideration of streetscape interactions were also investigated as a matter of priority.

### PRECINCT IMAGINATION

Understanding local character is key. Design teams responded to the sites and precincts with specificity due to the careful site analysis.

This should be required by local authorities by all proponents to indicate site specific thinking has been applied. Discussions within and across the teams included the question:

**“How can local authorities and state government agree on growth pathways for key precincts?”**

It was felt that best-case development scenarios are always prefaced by a clear strategic precinct plan. It is critical however that these are tested in planning phases with built form experts to optimise building envelopes, setbacks and controls that are site specific, robust and flexible, and do not preclude design innovation or alternative form responses (ie, not generic building forms for all higher densities)

### COMPETITION CAN BE GOOD!

Competitive environments such as a charrette, or invited design competitions produce innovative thinking that can often push boundaries and thinking of local authorities and clients Any precinct planning should seek design innovation, and careful consideration of planning controls must be effected into any statutory documentation.

**Collaboration and conversation are vital, and charrettes offer opportunities for a broader audience to engage with the process of design and planning in more meaningful ways.**



# 7.0 CASE STUDY

## TESTING THROUGH DOING:

#designperth both commissioned and researched best practice examples of projects that synthesise the best of community engagement process, high quality design, sustainable development parameters and genuine city building.

Over the course of the next chapter, #designperth outlines some key case study highlights across scales ranging from individual sites, to city blocks and entire precincts. We demonstrate the effectiveness and positive benefits of genuine community engagement through three outstanding case studies from Australia.

There are also real-world examples from Western Australia that demonstrate that there is both a desire and capability to deliver on these ideas, and these are highlighted at the beginning of the "Benefits of Infill and Urban Regeneration" chapter.

## THE CASE STUDIES:

### **Site Specific Charrette Responses:**

CODA Architecture + Urban Design  
COX Architecture  
Donaldson + warn Architects

### **Precinct Scale Design Testing:**

ARUP  
CODA Architecture + Urban Design

### **Community Engagement:**

City of Perth  
City of Greater Geraldton  
City of Wollongong



Greyfield precinct regeneration offers opportunities to engage citizens as ‘partners’ in development, from both planning, design and finance perspectives. This will require a new mode of engagement that departs radically from the established ‘placatory’ or ‘adversarial’ models that often come into play with populations targeted for redevelopment. This represents both a major opportunity and a major challenge for city planners.

Plans for more compact forms of urban redevelopment are stalling in the face of community resistance.

A new paradigm and spatial planning platform is required that will support timely multi-level stakeholder engagement, resulting in the emergence of consensus plans for precinct-level urban regeneration capable of more rapid implementation.

**Peter Newton, Stephen Glackin & Roman Trubka**

Greening the Greyfields: Unlocking the Redevelopment Potential of the Middle Suburbs in Australian Cities



# 7.0 CASE STUDY

## 7.1 infill site: CODA

### ARCHITECTS STATEMENT:

The CODA Scheme addresses the challenges and opportunities of being located on a busy road and the lack of housing diversity within the area.

The broad aspiration for the scheme is to improve economic, social and environmental benefits to this corridor whilst providing an attractive place to live and work, with housing choice, genuine affordability and quality landscape amenity.

It seeks to transform the area's car dominated and severe built and urban form characteristics into a vibrant pedestrian friendly urban village where people have housing, work and transport choices. It is envisaged that a high quality, low rise, medium density infill development on this site will make efficient use of existing services and infrastructure, support an improved public transport and shared path network, reducing car dependency.

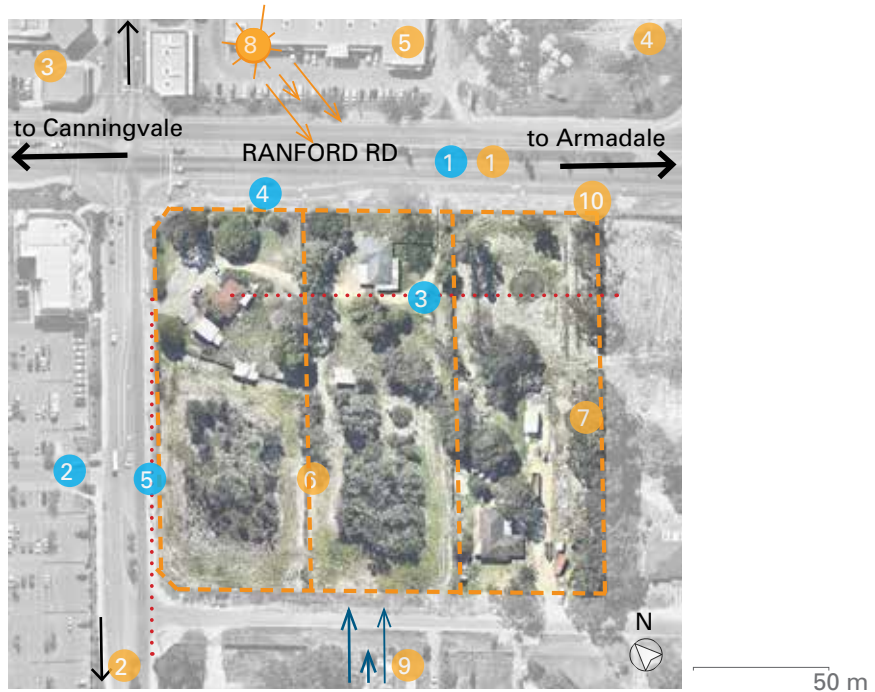
A diverse combination of housing typologies that CODA has developed previously were used to test the site strategy. These include maisonettes, adaptable ageing in place units (with carer accommodation), flexible and elastic housing that can adapt and be zoned to differing and changing occupancy needs as well as a series of smaller footprint (possibly modular) housing options as well.

Importantly no residential only building is over three storeys, except for the three-four storey mixed use buildings that address Ranford Road.

### Design Assumptions:

This scenario is based on the following assumptions:

- Zoned up to R80
- Circuit rail
- Land amalgamated
- High frequency public transport
- Mixed-use re-zoning



Location Plan with key transport corridors

### Opportunities:

1. Located on a rapid transport corridor Proximity to train station (17min cycle). Walkable proximity to:
2. School 470m
3. Supermarket / retail 150m
4. Childcare 200m
5. Heath and fitness 200m
2. Usable POS within 350 metres
6. Amalgamation of three lots however viable development options are also possible with 1 or 2 lot amalgamation.
7. Tree retention possible. Flat site minimises earthworks.
8. North-east to north-west main frontage, solar access.
9. South-West cooling breezes.
10. Access to bicycle networks along Ranford Rd.

Access to all services including electrical, water, sewer, communications (may require upgrade).

### Constraints:

Meeting parking requirements as prescribed by the City of Armadale Town Planning Scheme No.4 and Residential Design Codes.

1. Corridor design challenges (noise, traffic and air pollution can affect attractiveness and quality of life).
2. Opposite large format retail with extensive and unattractive carparking.
3. A Fibre Optic cable runs under the site with manhole access points.

Distance to regional centre. Closest is Armadale (10km).

4. Shared path (pedestrian and cycle) not yet linking to the wider network.
5. Overhead high voltage power lines adjacent to site (may require increase building setbacks).

2.3ha

amalgamated site area

125m<sup>2</sup>

plot ratio area per dwelling

111

additional dwellings over BAU approach with mixed use approach

10.4%

public open space compared to 0% in BAU model

50%

existing tree retention over BAU approach

27

commercial tenancies provided along street edge

### Business-As-Usual (BAU) Approach



32 single dwellings typical R20 scenario

### #designperth charrette scenario



143 apartments, duplex and single dwellings (R80)  
125m<sup>2</sup> per dwelling (excl roads/POS)

## Key Design Objectives

### Community

- Diversify housing typologies.
- Housing affordability.
- Ageing in place.
- Public and Community Amenity.
- Green Spaces (Physical and Mental health).
- Inclusive design, equality in the built environment.

### Access

- Prioritise the pedestrian & permeability
- Promote cycling.
- Exploit proximity to public transport.
- Limit car dependence.
- Screen parking from the street (landscaping)

### Economic

- Long term viability.
- Affordable housing and living opportunities
- Cooperative finance model.
- Diversify and strengthen local economies.

### Design Excellence

- Revitalise commercial precinct.
- Activation of the street.
- Inject character.
- High quality design for the public realm.
- Innovative housing typologies.
- Housing adapting to changing family needs including the needs of people with disabilities.

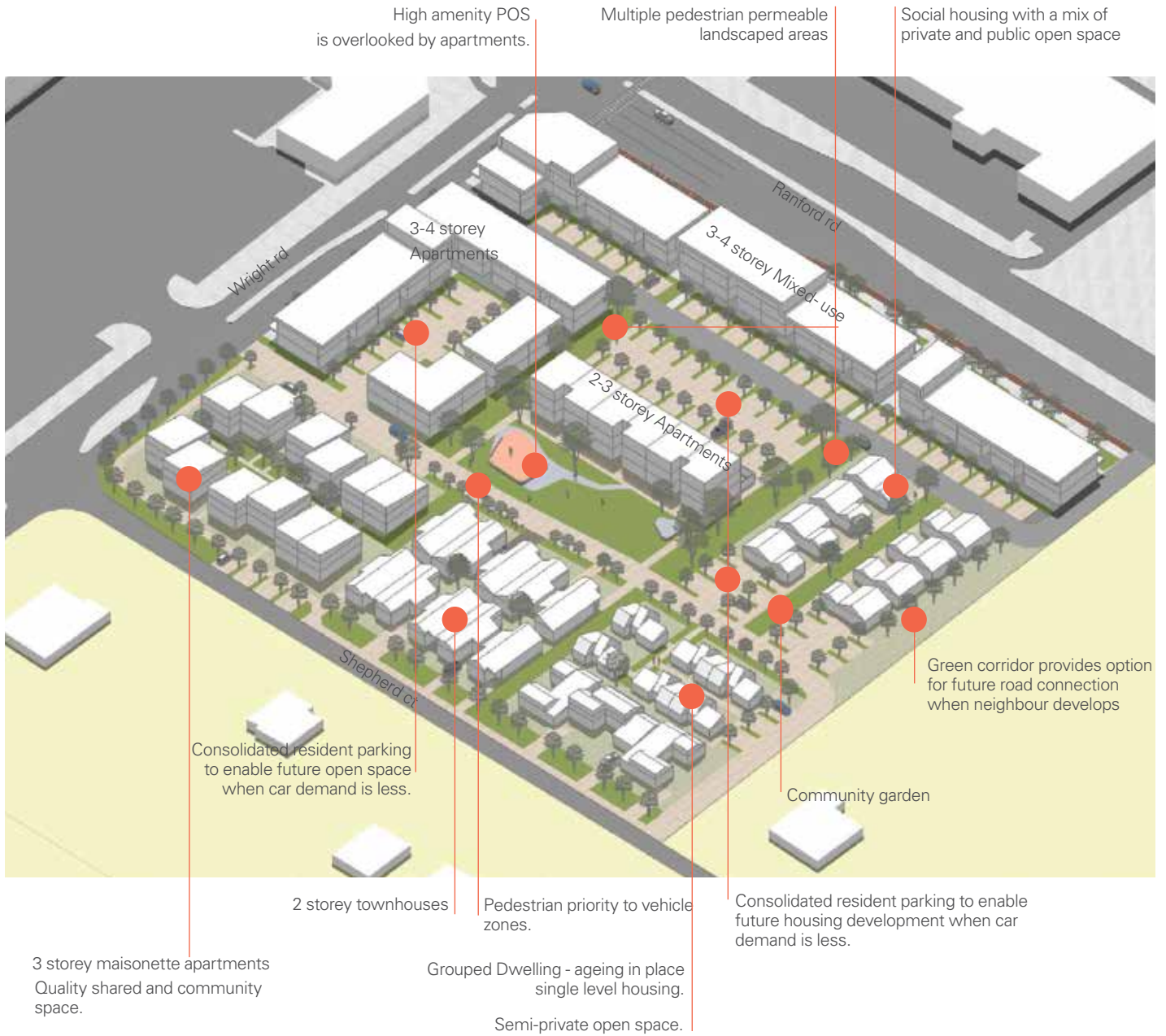
### Environmentally Sustainable Design

- Reduce noise and air pollution with landscape buffers.
- Retain mature trees.
- Provide deep root zones for new trees.
- Provide space for edible garden/therapy garden.
- Shared landscape amenity.
- Maximise north facing living spaces.
- Accessible open space that is easy for everyone to use.



# 7.0 CASE STUDY

## 7.1 Infill Site: CODA



ACCESS



PARKING



P.O.S & LANDSCAPING



DENSITY





We believe that architects and urban designers can play a pivotal role in how our cities develop if we engage in these conversations and use our skills in problem solving and communication to help imagine a better future for our cities and neighbourhoods. CODA

before



AFTER: internal POS view

before



AFTER: street view along Ranford Rd.

# 7.0 CASE STUDY

## 7.2 Infill Site: COX

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Site

### ARCHITECTS STATEMENT:

The Charrette involved Perth's leading architectural practices, teaming up with other industry experts to propose design ideas for better models of mixed-use development, at given sites along a key transport corridors.

Teams were expected to produce proposals that could be used to illustrate the benefits of better design in our expanding city.

The work completed during the day is to be developed further by the architecture masters students and this work will feature in the Transforming Perth 2.0 report.

The COX team were given a very difficult site on the corner of Great Eastern Highway and Belmont Avenue - along the Perth - Airport transport corridor. A significant challenge of the immediate site surrounds were the 9 lanes of traffic along Great Eastern Highway.

However the orientation of the site, the lack of existing streetscape, cultural or heritage value compounded the "issues" with the site.

Upon closer inspection, the site presented some great opportunities including the relative proximity to the CBD and the Airport, potential access to the Swan River, and 360 degrees views at elevated levels.

These assets, together with the high degree of visual exposure to passing traffic, the supporting existing urban infrastructure and urban fabric provided some of the key ingredients for a potentially successful development.

We proposed a mid-to-high density multiple-residential mixed use scheme – one with a high degree of shared residential amenity – a mix of public, semi-public and private.

The development was also predicated on two flexible retail spaces, along an internal pedestrian street, with linkages to a pedestrian footbridge and a rapid bus transport service.

The scheme included approximately 110 apartments (over 4 residential floors), sitting above a 2-storey high retail space to allow for dynamic retrofitting configurations and future flexibility. A single basement housed up to 100 car parking bays, generous storage, and plant and equipment.

The mix of apartments was aimed at delivering a diversity of compact housing choices. Predominantly studios and one-bed apartments, with some two bedroom apartments.

The development featured equitable access to natural light, equitable distribution of views, naturally ventilated corridors, some common balconies, common recreation facilities, common dining facilities, a common car and bike share scheme, part modular construction potential, along with modern waste management strategies.



On a political/policy level, the development assumed a 20% plot ratio bonus, which we deemed appropriate under potential new changes to the NRAS funding eligibility criteria.

The incentive proposal would be applicable to strategically located sites along these transport corridors, provided that certain conditions were met, e.g. a minimum percentage of saleable area (notionally 20%) would be required to be retained by the developer as rental-only at below market rates for a period of 5 years – similar to the NRAS requirements. In addition, there would be minimum sustainability performance requirements, as well as minimum common amenity provisions to complete the eligibility criteria.

The intent is to increase density, sensitively, into better quality developments by making them more viable initially, by providing partial funding, allowing greater development potential and to provide a recipe for on-going success.

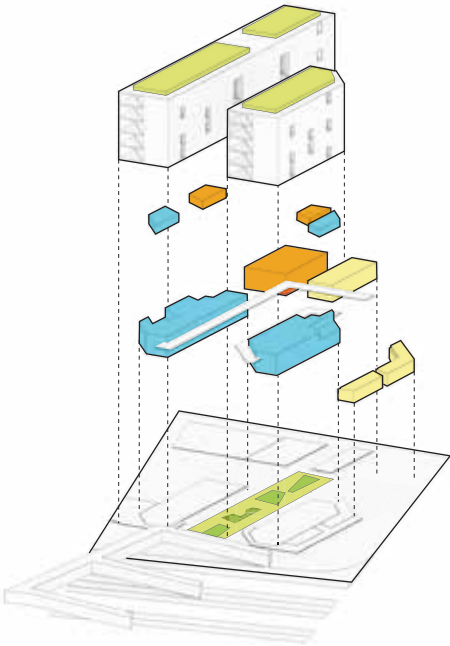
On-going developer investment, beyond the initial build and sell model would mean that they have some skin-in-the-game when it comes to the longer term success and self-sustainability of the development.

This should produce more vibrant, better quality developments, precincts and cities on a broader scale.





View across site to Swan River and Great Eastern Highway



Exploded Axonometric of main building components

# 7.0 CASE STUDY

## 7.2 Infill Site: COX

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The development featured equitable access to natural light, equitable distribution of views, naturally ventilated corridors, some common balconies, common recreation facilities, common dining facilities, a common car and bike share scheme, part modular construction potential, along with modern waste management strategies.

**3,895m<sup>2</sup>**

overall site area

**50m<sup>2</sup>**

plot ratio area per dwelling

**88**

additional dwellings over BAU approach with mixed use approach

**55%**

private open space

**5,895m<sup>2</sup>**

Plot Ratio Area using 20% bonus

**700m<sup>2</sup>**

commercial tenancies provided



SECTION: internal street view



before



AFTER: street view along Great Eastern Highway Rd.



AFTER: internal street view



# 7.0 CASE STUDY

## 7.3 Infill Site: Donaldson + Warn

### ARCHITECTS STATEMENT:

Perth needs to become denser.

Well-designed mixed-use urban developments are complex undertakings that require several disciplines and agencies to work together to maximise the numerous benefits that can be gained from developing in established environments.

The site on Wanneroo Road in Tuart Hill is, on first impressions, rather uninspiring. But on closer inspection, through the lens of urban-design, a new development could have numerous benefits.

The site's proximity to the city, to Osborne Park industrial area and nearby Library and sporting ovals, Dog Swamp shopping centre, and Malaga industrial estate to the north, are all positive attributes available to anyone living in the area. A primary school, high school and college are also near by.

Our concept design proposes a residential tower with different sized apartments, set above a strip of retail tenancies that contribute to the existing streetscape.

A variety of commercial tenancies occupy the northern boundary; their lower scale mediates between the tall tower and the single residential houses that are typical of the surrounding suburb. These commercial tenancies would be suitable for offices, medical suites, start-ups and similar businesses.

In support of extra height for the residential tower, we suggest a linear landscaped promenade along the site's northern boundary. Extending this landscaped strip past the shopping strip and along the edge of the Primary School gives the community an attractive resource—a nice shady green space that could be used for weekend markets and similar community activities.

The School could then share its current and future facilities, such as hall, swimming pool, library and courts with the community.

The rear lane across the rear of the strip shops could become activated and provide a better environment for retailers and alfresco diners than the heavily trafficked Wanneroo Road.



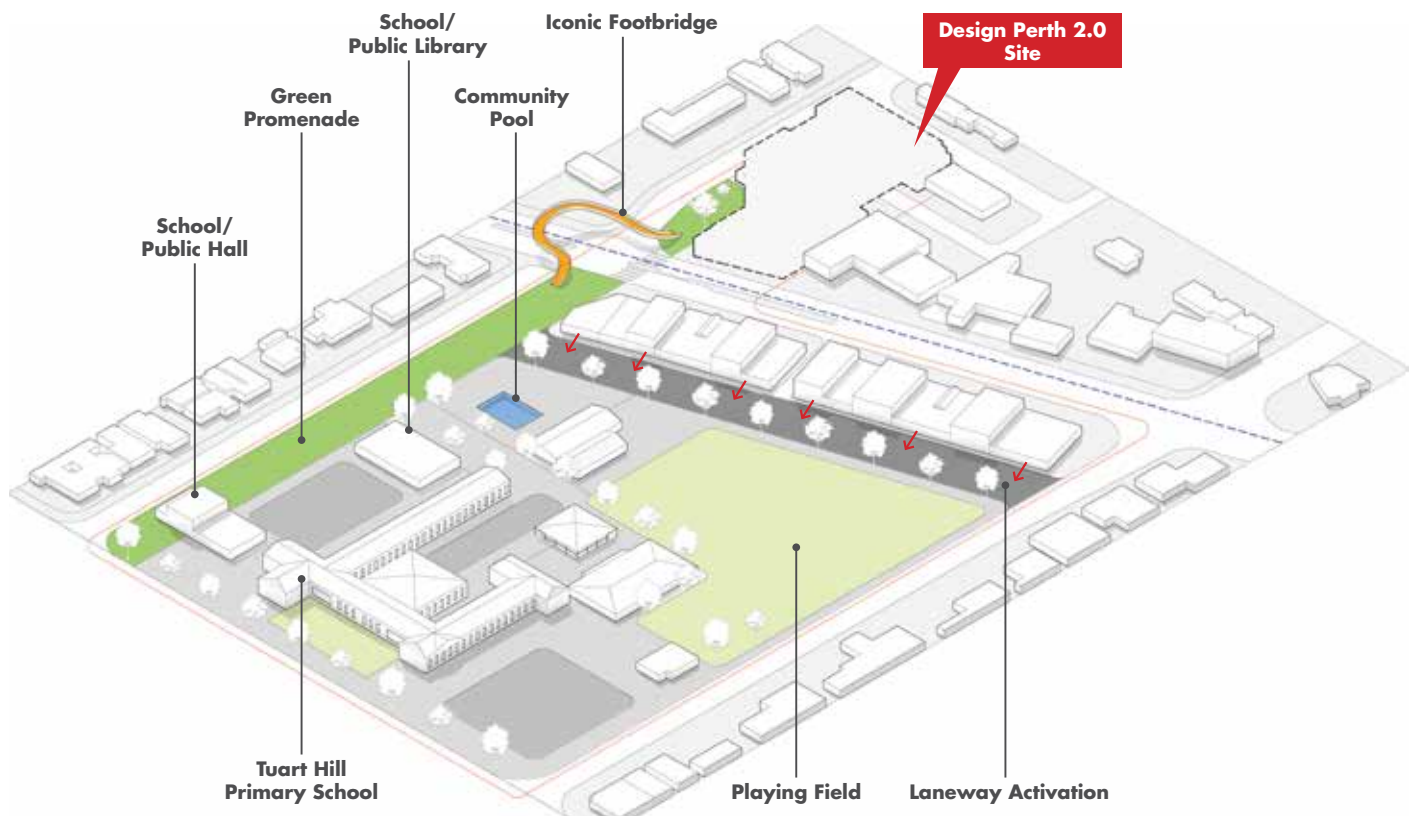
The addition of a distinctive pedestrian bridge over Wanneroo Road would provide easy access for people living north of the busy street. A distinctive bridge design coupled with an attractive well-designed tower, with green roof decks and covered terraces, would make a prominent landmark for Tuart Hill.

Developments of this kind tend to stimulate existing property owners and leaseholders to undertake improvements, and a quality development that offers different opportunities will improve the image, identity and property values of the surrounding neighbourhood.

Improved public transport would provide greater access to the amenities and make Tuart Hill even more appealing.



Affirmative Design =  
Communities not just buildings

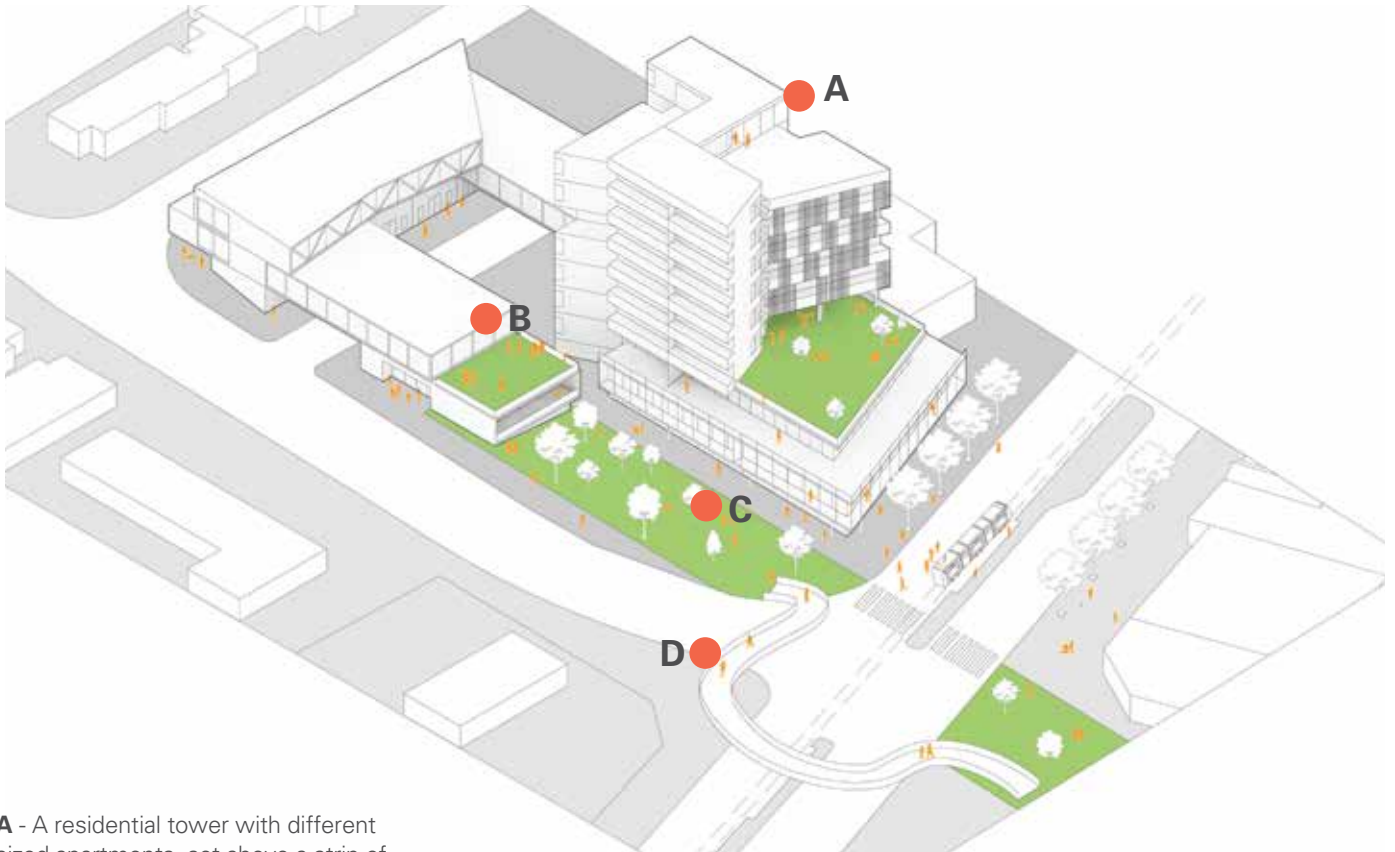


Precinct Concept

## 7.0 CASE STUDY

### 7.3 Infill Site: Donaldson + Warn

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**A** - A residential tower with different sized apartments, set above a strip of retail tenancies that contribute to the existing streetscape

**B** - Lower scale commercial tenancies mediate between the tall tower and the single residential houses that are typical of the surrounding suburb.

**C** - Linear landscaped promenade along the site's northern boundary.

**D** - Iconic pedestrian bridge over busy Wanneroo Road, links the site with the school via a green promenade





We consider urban density to be a positive change. If designed properly, denser environments provide more people with greater access to more variety and more amenity – more varied shopping, closer to work, easier access to the city with its entertainment and cultural provisions, and access to a greater variety of parks and recreational places.

before



AFTER: view from pedestrian bridge to school site

before



AFTER: street view looking to Wanneroo Rd

# 7.0 CASE STUDY

## 7.4 Precinct Scale: ARUP, 2012

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One of the main purposes of this report is to quantify for the first time in a Perth context, the benefits of well-designed infill development at the precinct scale. Two precinct scale studies are included, with the second being developed specifically through this report.

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### ARUP ADELAIDE CITY BLOCK CASE STUDY

Perhaps the best attempt to propose an ideal mix of elements for the Australian context is the Optimix model proposed by Arup for a 9ha city block in Adelaide (see section 2 Arup report).

This model by no means proposes a generic infill or precinct scale mix of elements for every development in Adelaide, but it is a comprehensive study that uses mathematical models and spatial measurement tools to assist transforming the 9ha area into a sustainable medium to high density mixed-use precinct (Arup 2012).

The report found that planning and design at a precinct scale in Adelaide is able to provide substantial benefits over traditional development approaches. **Based on three different scenarios, the researchers were able to calculate 23 separate benefits based on 112 dwellings per hectare with an urban density of 630 people +367 jobs/ha and a total residential population of 2403.**

The 'optimal' scenario assumed a localised energy plant is included, and residential 9 Star NABERS equivalent rated houses (Adelaide-based) and 5+ star NABERS commercial buildings.

It also included multiple non-residential uses including a gymnasium, library, Cultural Centre, Community Centre, Childcare Centre, Commercial offices, medical centre, food outlets (cafes, restaurants, bars etc), shops and retailers, as well as a car sharing scheme, centralised car parking with small number of car parking station available on lease, and almost five times less private car parking space (reduced from 33,233 sqm to 7,563 sqm)







## BENEFITS IDENTIFIED

Benefits of the Arup 'optimal' precinct scale model are summarised in table below, and when compared to business as usual development included:

- 10 times more public transport travel (mode share)
- 32% less residential water use
- Two thirds less energy consumption
- 33% reduction in the cost of living
- 27% less wast to landfill
- 88% energy generated on site
- 75% less carbon emissions over the whole precinct
- 27% more open space,
- Seven times more cycling infrastructure
- 150% more active street scape frontage

## 7.0 CASE STUDY

### 7.5 Precinct Scale: CODA Study, 2016

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Subsequent to the #designperth charrette, CODA used key findings from the various design teams and sought to apply these across a broader site area to develop a precinct wide case study.

The scale of the precinct allows for a variety of development scenarios to be tested, with the assumption of rapid public transport underpinning the redevelopment areas. Critical to this study was the assumption that an integrated, precinct wide planning process would occur to guide development, ensure subdivision and planning was considered and responsive to the local character and opportunities of the greater infill densities.

With less of a focus on transport corridors, and a greater emphasis on centres and targeted infill, the project does not project itself along the entire length of a road/rail network, but seeks to test a viable development scenario against a Business as Usual approach (BAU) that would be likely without either cohesive and integrated planning, or public transport upgrades.

A model of population and employment within 400m of the main street is used as the foundation for the precinct case study. Redevelopment of transport corridors created from the planned LRT will further enhance its effectiveness.

The adjacent plan depicts the desired plan and network for the LRT. New (Alexander Drive, before Fitzgerald Street) and existing (Canning Highway) activity corridors would need to experience some land use changes to enhance the effectiveness of the LRT system and further populate the 400m walkable catchments. In essence, this is the main principle for the precinct case study site.

In order for a precinct wide redevelopment to occur at this level, focus should be placed on the primary arterial road to play the role as an activity corridor.

Various planning constraints arise including the need for rezoning to establish the framework for this to occur. Urban planning needs to develop instruments to enable commercial and residential developments to gravitate around stations (Ginn 1998, 33).

A Structure Plan/Detailed Area Plan may be required to be adopted by the delegated authority. Other constraints include the amalgamation of some key lots.

A 1.2ha concept site, based on the Ranford Road case study (fringe/semi infill), was sketched at a before and after stage to apply redevelopment principles at a precinct scale.

The redevelopment is dependent on Light Rail Transit (LRT) running along the primary arterial road (urban corridor) of the major intersection. Three zones are established to determine (by distance from the primary arterial road) the appropriate scale and type of development to ensure the primary arterial road remains a pedestrian orientated activity corridor.

In order for the LRT to be viable, a high density and mixed land use urban environment is required within Zone 1 to support frequent use of the transport model.

Progressively, further away from the primary arterial roads, dwelling density decreases as the incorporation of big box shopping centres, light industry, health-care and education in Zones 2 and 3 becomes more appropriate.

Walkable catchments between 200m-400m are created minimising the need for the private motor vehicle and car parking. A downside to the design and redevelopment of fringe environments is the required land for car parking and adequate roads. An 800m catchment from the main LRT station would provide more access to the site, however is not appropriate for the scale of this study.

To develop a realistic and viable case study precinct, without relying on an actual site in Perth, CODA used a process of photo montage to 'stitch' together multiple sites and actual areas from the Perth Metropolitan area into a series of "before and after" images.

Using aerial photography created an overlay of sites from similar peri-urban areas, to build up a viable precinct map in both scenarios. Key sites were then adapted from the #designperth charrette responses and inserted into the "after" scenario to replicate specific design proposals that demonstrated both design quality and innovative density responses.

### PHOTO MONTAGE – 1



### BEFORE: BAU

This demonstrates a logical development situation whereby the western side of the main intersection resembles an existing infill area (closer to the City) taking montages from the Stirling and Vincent areas of Perth. The eastern side depicts an urban fringe environment, which is currently a low density subdivision, and remains mainly underdeveloped.

As seen in the image, big box shopping centres, bulky good stores and asphalt parking dominate primary arterial frontages.

### PHOTO MONTAGE – 2



### AFTER: LRT

The subsequent photographic montage incorporates elements developed at the #design-perth charrette. The intensification of the urban corridor is concentrated within Zone 1.

There are some areas which remain relatively unchanged between the before and after however the development patterns of the montage follow a realistic approach to show the time consuming nature of precinct development.

The western end of the corridor (fringe) remains underdeveloped, similar to the patterns that the broader site is experiencing and lower yield uses tend to move to Zones 2.

The main intersection is transformed into a neighbourhood centre with high levels of activity supporting the Light Rail Transit.

To some degree, Zone 2 and 3 undergo typical suburban development consistent with current trends in Perth. The intensification of urban corridors may take primacy over suburban development and in turn may be completed quicker, hence the large scale redevelopment of the corridor compared to minimal suburban growth.



# 7.0 CASE STUDY

## 7.5 Precinct Scale: CODA Study, 2016

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### PRECINCT CASE DETAIL TESTING:

The primary objective for this exercise is to identify the “on ground” key differences between a mixed use, medium to high density Light Rail Transit (LRT) scenario compared to a Business as Usual (BAU) approach. As the most significant transformations are due to the incorporation of Light Rail infrastructure within the activity corridor zone (identified as Zone 1) of the precinct, the comparison is focused on this zone only. Zone 1 in the case study area is approximately 73.2 hectares.

The potential benefits of introducing Light Rail Transit are clear and may include facilitating higher densities, increasing activation levels and promoting more employment and transport opportunities. Two diagrams of a BAU and LRT scenario were developed focusing on Zone 1. Each diagram depicted land use, zoning and neighbourhood blocks for future development.

### THE BUSINESS AS USUAL SCENARIO

The BAU Scenario (see image 1 adjacent) was designed to exhibit some features of Zone 1 from the Photo Montage, a mixture of street layout and block shape based on actual subdivision patterns evident in Perth inner and fringe areas. This diagram resembles a business as usual style subdivision with limited public transport options.

The absence of frequent public transport along the primary arterial road impacts the density of surrounding land uses. As seen in the diagram, there is some provision of Residential R40 zoning (medium density) located immediately surrounding the central commercial hub. In a typical urban/suburban layout the density decreases in all directions from an activity centre. The remaining residential blocks have been zoned R20 (low density). The BAU scenario of Zone 1 is limited to Commercial (red), Residential (yellow) and Public Open Space (green) land uses.

### THE LIGHT RAIL TRANSIT SCENARIO

Light Rail Transit can have many significant benefits on the design of the urban environment and how it is used. It activates the primary arterial road, intensifies the density of surrounding land uses and promotes higher levels of public transport use. This scenario was designed as an alternative to the BAU approach for outer, fringe urban corridors, with the objective of promoting the positive impacts of LRT infrastructure on a precinct’s land use, density, dwelling diversity, residential population, activation levels, employment population, public transport use and street network.

The scenario resembles a ‘best practice’ activity corridor format with high density, mixed use development orientated within close proximity to key transport nodes, a key feature of Transport Orientated Development (TOD). An efficient and permeable grid network accompanied by double the amount of Public Open Space (compared to the BAU Scenario) is also established. The provision of high density mixed use development (RC160 and RC80) supports the viability of a high frequency public transport network as well as the location of each major stop. To provide an appropriate interface between the highest and lowest residential zoning, the density gradually steps down to a Residential R80, then to R50 and R30/50. This draws on a similar strategy undertaken in the BAU example, illustrating the transition to lower densities towards Zones 2 and 3.

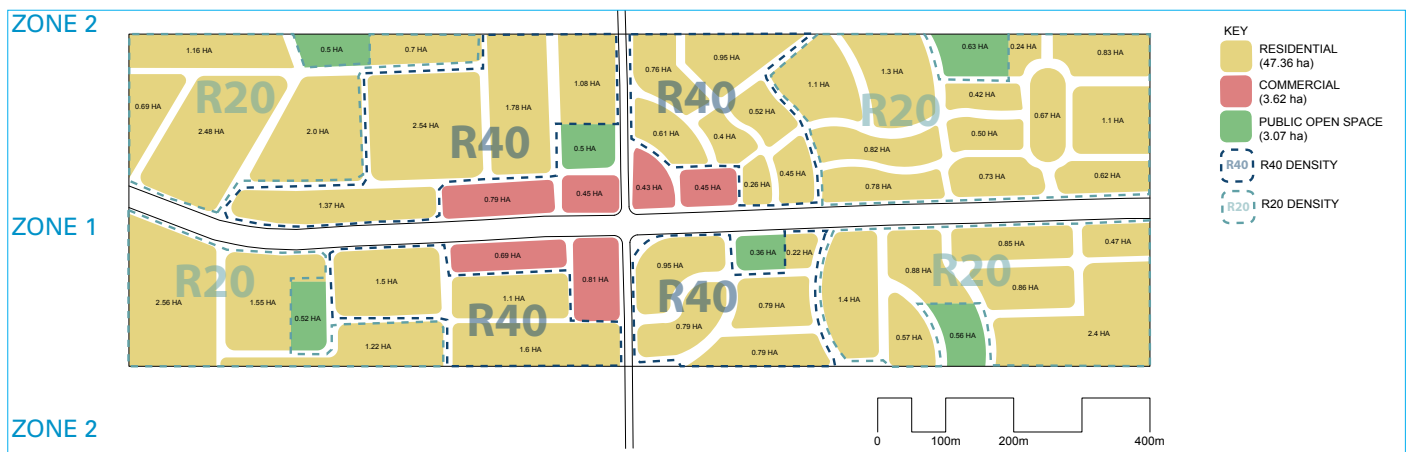




It is critical that cities seek to reinvent themselves, to undergo regeneration on a continuing basis as part of their process of evolution. This should be based on a clear idea of what the city needs and what is capable of being translated into development projects.

Peter Newton, Stephen Glackin and Roman Trubka

## 1. THE BUSINESS AS USUAL SCENARIO



## 2. THE LIGHT RAIL TRANSIT SCENARIO



# 7.0 CASE STUDY

## 7.5 Precinct Scale: CODA Study, 2016

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### BUSINESS AS USUAL AND LIGHT RAIL TRANSIT COMPARISON TABLE

Both Zone 1 areas were carefully assessed and compared in eleven (11) categories to show the key differences between the Business as Usual (BAU) Scenario development and the LRT Scenario.

The key differences are summarised in a comparison table below.

### FINDINGS PER CATEGORY:

**1.Total Number of Dwellings:** increases given the higher concentration of smaller housing types (Calculated using the relevant density coding and multiplied by the sum area specific to each density.)

**2.Residential Population:** Using an average the Perth average of 2.6 people/dwelling (ABS, 2011), the population in BAU increases by 260% in the LRT scenario.

**3.Residential Plot ratio:** increases due to allowable plot ratios for higher density codings (R80 and R160). Total Plot Ratio (plot area for residential development) is calculated using the applicable plot ratio to each density (as per the R-Codes) multiplied by the sum area specific to each density

**4.Commercial GFA:** increases due added commercial components of mixed use zoning in the LRT scenario. A sum of all commercial in each scenario. For mixed use, the lot area was reduced by 50% for a realistic approach to obtaining a sum of commercial GFA.

In these circumstances the commercial component of a mixed use block has a plot ratio of Nil, making it difficult to determine the maximum area used commercial development.

**5.Employment Population:** Using an average of 400 jobs per hectare, employment population grows by 352% between scenario's. Commercial GFA multiplied by 400 workers per hectare.

This figure was previously used by CODA + Pracsys in the Victoria Quay Precinct Plan Economic Modeling (2015) and was moderated with Arup's case study which was 367 jobs/ha

**6.Public Open Space:** Amount of POS increases by 187% due a higher POS provision capacity. More focus on POS in LRT scenario (high density urban environment). Sum of all public open space in each scenario

**7.Access to POS:** Using a 200m walkable catchment (scale of the site) from POS approximately 365 dwellings are located outside of the 200m pedshed in the BAU Scenario as opposed to 16 dwellings in the LRT scenario.

200m Pedsheds were used and centered at each POS location to determine how many dwellings were within a 200m walking distance from basic amenity

**8.Active Frontage:** Lineal active frontage to primary and secondary arterial road triples from the BAU to LRT scenario. Due to the increased commercial and mixed use which provides 3 times the amount of activation a BAU scenario would. Promotes significantly higher activity levels resulting in activation of shop fronts and footpaths. Commercial and Mixed use frontages to primary and secondary arterial road were added together to obtain a length figure of commercial activation to the street frontage

**9.Active Transport:** Travel time and walking time to nearby activity nodes are reduced to due to the increase of density and provision of mixed use land uses. Providing a denser urban environment reduces walking/travel time to nearby places of interest (especially work) and public transport. Cycling is also encouraged in a higher density environment. BAU presents an unsafe and unappealing environment for walking and cycling, travel time to places of interest increases significantly. 21% of working population of LRT example as opposed to 10% of working population for BAU example.

Percentages were obtained from similar suburban environments of Perth (Harrisdale for BAU and North Perth for LRT) from the 2011 ABS Census. Both suburbs had similar population and dwelling numbers compared to each scenario. Number of public transport trips was divided by the total working population of each suburb to obtain a percentage, which was then applied to the relevant scenario. The 21% LRT percentage matches the Arup "Best Practice" percentage of 20%

**10.Dwelling Diversity:** Increased density caters for a more diverse range of dwelling types in the LRT scenario, thus catering for more diverse occupancies. The sum of area for each R-Coding was divided by the total residential land use area for each scenario.

This gave a percentage for each density, which, determines the amount and type of dwelling permissible in each zone. Ratio provided for each dwelling type


**11.Tree Retention** – A statement (general outcome/principle) based upon the worked Case Study by CODA. A percentage would be difficult to calculate at this scale.

## BUSINESS AS USUAL AND LIGHT RAIL TRANSIT COMPARISON TABLE

CATEGORY	BUSINESS AS USUAL (BAU) SCENARIO		LIGHT RAIL TRANSIT (LRT) SCENARIO		COMPARISON
1. Total # Dwellings	1,316 dwellings		3,418 dwellings		260% increase
2. Residential Population	3,422 people		8,887 people		260% increase
3. Residential GFA	20.64 ha		42.42 ha		206% increase
4. Commercial GFA	3.62 ha		12.755 ha		352% increase
5. Employment	1,448 jobs		5,102 jobs		352% increase
6. Public Open Space (POS)	3.07 ha		5.75 ha		187% increase
7. % Dwelling's within 200m to POS	72.3% of dwellings are within 200m to POS		99.5% of dwellings are within 200m to POS		27.2% increase
8. Active Frontage	870 m		2,920 m		335% increase
9. Active Transport	145 public transport trips/day		1,071 public transport trips/day		739% increase in public transport use
10. Dwelling Diversity  Note: R20: Residential zone of 20 dwellings per hectare. RC80: Residential and Commercial (Mixed Use) zone of 80 dwellings per hectare.	Single Dwellings (R20)	60%	Single Dwellings (R30/50)	5%	55% reduction in provision
	Townhouse (R40)	30%	Townhouse (R50)	25%	5% reduction in provision
	Low Rise Apartment – Walkup (R40)	10%	Low Rise Apartment – Walkup (R50)	24%	14% increase in provision
	Medium Rise Apartment – Serviced	0%	Medium Rise Apartment – Serviced (R80 & RC80)	28%	28% increase in provision
	High Rise Apartment – Lifted	0%	High Rise Apartment – Lifted (RC160)	18%	18% increase in provision
11. Tree Retention	Tree retention to be maximised in LRT scenario due to additional Public Open Space and the opportunity for tree retention using an efficient grid network. In the LRT Scenario lots are larger and more flexible. BAU would generally see mass land development (removal of trees) for alternative street and lot types.				


### R Codes

Examples explained




**R30**  
Single Dwelling

Architect: CODA




**R40/50**  
Townhouse

Architect: BENT Architects




**R50**  
Low Rise / Walk-up

Architect: CODA



**RC80**  
Medium Rise (up to 5st)

Architect: MHN Design Union



**RC160**  
High Rise (up to 8st)

Architect: Neometro



# 7.0 CASE STUDY

## 7.6 Community Engagement

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There is strong evidence showing that the more engaged a community is from the **start of a planning process**, the more likely they are to ‘own’ the decisions affecting them directly. Collaborative community engaged decision making is known to provide cost effective, situation-appropriate, and widely supported solutions to urban development issues.

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### CASE STUDY 1: WA DEPARTMENT OF PLANNING'S 'DIALOGUE WITH THE CITY', PERTH (2003)

A ground-breaking approach to planning the entire city, using deliberative democracy tools.

In September 2003 Dialogue with the City was launched to give citizens a unique opportunity to contribute to the creation of a planning vision and strategy to guide Perth's future growth and development over the next two decades. It was the largest deliberative forum ever held in the southern hemisphere and is a valuable case study in deliberative democracy.

Deliberation is an approach to decision-making in which citizens consider relevant facts from multiple points of view, converse with one another to think critically about options before them and enlarge their perspectives, opinions and understandings.

The objective of Dialogue with the City was to jointly plan to make Perth the world's most liveable city by 2030.

The forum that drew together 1,100 participants from state and local government, industry, business, academia, special interest groups, community groups and a large random sample of residents from metropolitan Perth. These people considered how to manage the future growth of the city in a sustainable way, using a range of methodologies.

Informed dialogue was a feature of the deliberation. Over several years, the WA Planning Commission had employed experts to research and write discussion papers to underpin a new planning strategy.

Nine well-researched “discussion papers” provided the background information for the process. These papers were disseminated via the internet, through feature articles in newspapers, and through background briefing packs sent to all participants prior to the forum.

There are considerable advantages in large-scale community deliberation for government, the community and the institution of democracy. Government acquires the legitimacy to carry out plans that otherwise they may have been unachievable. The community has the opportunity to engage in important decision-making processes that will impact on their lives. And the process is made richer just in the sheer diversity of expertise and experience brought to bear on difficult planning problems.

The most important issue considered in the engagement was the sort of urban form participants wanted for the future of Perth: - network, multi-centred, compact or dispersed.

**Seventy two percent (72%) chose the network city model.**

### OUTCOMES

The deliberation continued over the following year with over 100 participants involved in creating the Planning Strategy, which was accepted in principle by the WAPC and State Cabinet.

From the outset, it was clear that state and local government would need to work together in a different way if the outcomes of the forum were to be implemented.

All Local Government participants in the Dialogue with the City forum were invited to attend a workshop to devise ways for effective partnering between the State and Local Government to action the outcomes of the Dialogue forum.

The Local Government forum developed a broad range of strategies to move the process forward.

**In terms of quantitative evaluation data, 42% of participants said they changed their views as a result of the dialogue, while many more admitted to broadening their views. Over 99% of participants thought the deliberations went okay or great, and 97% indicated they would like to participate in such an event again.**



Image: Hello City/ Property Council's 'Shaping Wollongong' visioning project  
<http://hellocity.com.au/shaping-wollongong/>

### CASE STUDY 2: CITY OF GREATER GERALDTON'S 'DELIBERATIVE PARTICIPATORY BUDGET'

Participatory Budgeting (PB) involves citizens in decision making about how to spend part or all of available government funds, for example by prioritising expenditure on local infrastructure, usually at a local, precinct or city level

In what is believed to be a first, the City's entire operational budget of \$70 million, as well as the City-region's approximate \$71 million ten-year capital works budget were determined through extensive deliberations involving two 'People's Panels', comprising randomly sampled representatives of the people, more than 20 public deliberations, small and large scale, face-to-face and online, integrated with social media.

The process was sponsored and organised by the City of Greater Geraldton with design, facilitation and implementation by Professor Janette Hartz-Karp, and Curtin University Sustainability Policy Institute.

A key principle of citizen's juries and deliberative forms of planning is that when citizens are actively informed and have authority to meaningfully contribute to their future. In this instance the community requested (surprisingly) the City to take a more ambitious stance regarding sustainability, alternative energy, and urban and regional planning, including immediate actions such as the planting of one million trees, extensions to bicycle paths, providing disability access, and going carbon neutral .

The project has won three awards at the International Association for Public Participation Australasia Awards .

A key feature was that all public deliberations were influential, which ensured the agreed outcomes of the public engagement would result in action. The process changed how the City operates, becoming more participatory, transparent and accountable.

### OUTCOMES

**A key findings was that adaptive management, involving high-quality deliberation among ordinary people, significantly raised people's trust in local government and their willingness to become more involved in civic life.**



### CASE STUDY 3: SHAPING WOLLONGONG: PROPERTY COUNCIL AND HELLO CITY

A strategic visioning project devised by The Property Council to provide a 'light on the hill' and define a shared future for the City.

It involved a high-profile all-of-Wollongong conversation happening across various media platforms and had a massive response locally. It included an Ideas-a-thon: an innovative public engagement event to create a sense of excitement and generate thousands of ideas for the enhancement of the City in which 41 teams took part, involving 163 participants and over 900 photos providing a beautiful and meaningful story of the hopes, aspirations and concerns of the City; and an Ideas Lab which brought together a broad range of stakeholders in an intensive creative and strategic workshop, involving 60 participants working in groups including senior managers at council and state government to local entrepreneurs, traders, developers and artists around specific themes. The Lab worked them through a rigorous process of developing, testing, refining and shaping ideas into well-resolved strategies each with its own short and longer term action plans .

### OUTCOMES

A final document *Shaping Wollongong* captured the thinking and future the participants saw for their community.

# 8.0 UNDERSTANDING THE BENEFITS OF INFILL AND URBAN REGENERATION



One of the main aims of this report was to quantify the true costs of Greenfield development compared with Infill development, and ultimately, whether it was possible to provide a dollar figure of the costs and benefits at different infill scenarios.

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There are many substantial social, environmental and economic benefits of infill development and urban regeneration.

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The 2013 *Transforming Perth* report described 18 key benefits for Perth, including reducing car dependency, delivering jobs and services to local communities, strengthening and diversifying the local economy, increasing social inclusion, reducing the cost of living, and preserving urban bushland and coastal habitats.

In addition to these benefits, more recent studies have found a number of new benefits, including infill development creating 4800 more jobs than greenfield developments, contributing \$197m more to the building sector for every 1000 net dwellings, and increasing the viability of public transport, with the PTA currently only recovering around one quarter of its operating costs, estimated to be \$1.1 billion in 2015-16 .

## The economics of urban growth: what are the true costs of development at the urban fringe?

The State Government provides significant financial support to residential development in the form of infrastructure and services, including roads, telecommunications, sewerage, power and water, transport, and services like health and education facilities, yet is unable to recoup these costs as some other commercial service providers can.

As infill development makes use of existing infrastructure, the cost to the government is significantly less than greenfield

development, though for some reason not widely discussed or acknowledged. In addition other costs, such as increased car dependence, increased travel time and decreased physical activity, are also more in greenfield developments.

It makes economic sense that our growth is accommodated by making better use of existing infrastructure. Existing infrastructure networks often have unused spare capacity, and can service additional people at a low marginal cost. By comparison, greenfield developments require new extensions to infrastructure networks, while the under-utilised infrastructure in established areas goes to waste. This potential for more intensive use of infrastructure drives economies of scale in cities as they grow.<sup>1</sup>

In 2003 the WA Department for Planning and Infrastructure estimated the costs to the State Government of different forms of development, and the cost of urban sprawl, as part of the State Sustainability Strategy. The Department estimated the costs to the State Government of different forms of development to be:

- Re-development in existing areas – no or minimal cost
- New development on the development 'front' - **\$30,000 per block**
- New development beyond the development 'front' - **\$66,000 per block<sup>2</sup>**

A ground-breaking Australian study by Trubka, Newman and Bilsborough in 2010 estimated the costs for infill and greenfield developments, and found the cost to provide hard infrastructure like roads, water, sewage and telecommunications

was \$136,000 per lot in a greenfield development, compared to just \$50,500 for infill.<sup>3</sup>

These costs were more in the greenfields areas as main roads, water and sewerage headworks and major electricity substations are subsidies from the agencies. These are real costs to government. The study also provided estimates of the extra transport costs due to longer commute times, extra car ownership and use, and parking costs that fall on individual householders. These costs over 50 years (in present terms) were \$244,000 per lot more for greenfield areas than infill areas and over the lifetime of a dwelling becomes very significant. They are around \$36,000 per lot per year.

As well the external costs due to greenhouse gases and the health and productivity impacts due to lack of physical activity associated with car dependence are estimated as these impact on the broader economy. Such broader impacts are around \$42,000 per lot more for greenfields over infill over 50 years (in present value terms), or \$3,000 per lot per year.

This study, which has been widely published in academic literature, became the standard reference for comparing the costs of urban sprawl with infill. Individual cities and individual projects have developed their own estimates of these numbers but the fundamental approach and the orders of magnitude remain the same.

In Perth there have been no recent or publicly available estimates of the true cost of urban sprawl and our comparatively low infill targets despite consistent planning advice and advocates suggesting we need to increase our infill ratio.



## White Gum Valley

White Gum Valley (WGV) is a 2.2ha medium density, 80 dwelling residential infill development located in the City of Fremantle. Led by LandCorp, WGV demonstrates design excellence on a number of levels by incorporating diverse building typologies, climate sensitive considerations, creative urban greening and innovative water management strategies. Key features include:

**60%** less grid energy compared to a typical Perth development

**70%** less mains water compared to the Perth metropolitan average  
Residents in the single-lot homes will save up to \$1,000 in power  
They will also save \$200 in water bills compared to the Perth average with 3kW PV upgrade and plumbed rainwater tank covered by a 'Sustainability Rebate Scheme'



## Cockburn Coast

Cockburn Coast is a redevelopment area south of Fremantle, part of a structure plan that covers a 331 hectare area. Beattie conducted a sustainability analysis of Cockburn Coast. This was done using the C<sup>CAP</sup> Precinct Tool, and involved modeling scenarios for both low and high-yield urban forms.

The low yield scenario was based on the District Structure Plan prepared for the area, while the high-yield scenario was derived from an assessment by design firm Hassell of the yields that could be achieved in the area.

Both scenarios performed significantly better than the metropolitan average against a range of sustainable development metrics, including private vehicle use, embodied CO<sub>2</sub>, energy use, water use and affordability.

Estimated precinct performance for a low-yield urban form scenario:

Transport: **15%** better than metro average  
Energy: **39%** better than metro average  
Water: **44%** better than metro average

High performance case:

**37%** better than metro average  
Embodied CO<sub>2</sub>: **23%** better  
Energy: **58%** better than average  
Water: **74%** better than average  
Affordability: **17%** better than average



1. Beattie, C. 2014. Decarbonising Cities: How can we design city precincts to maximise their potential carbon emissions?, Phd Thesis, Curtin University Sustainability Policy Institute

# 8.0 UNDERSTANDING THE BENEFITS OF INFILL AND URBAN REGENERATION

## METHODOLOGY

The cost estimates by Trubka, Newman and Bilsborough were for 2007. These prices were escalated to give an estimate of the cost of a range of infrastructure services for inner city infill developments and greenfield developments on the urban fringe for 2015.<sup>4</sup>

During the resources boom in the 2000s, the prices of materials and labour rose significantly, and well in excess of general consumer prices. For this reason, the Australian Bureau of Statistics' National Accounts publication were used to estimate the increase in costs and bring these to 2015 prices.

It should be noted that the costs of any particular infrastructure development will depend heavily on project-specific factors, and these cost estimates are best viewed as economy-wide averages.

The results are given in Table 1 for the government infrastructure. We note that the results for private travel costs and for broader social costs that have been previously reported in other studies are not included in this report.

Only Government infrastructure costs are used in the analysis for Table 1, and no private developer contributions were included within the per Lot costs.

We also note that public transport infrastructure and operating costs were not included in the final study by Trubka et al., and were not estimated as part of this study. Additional expenditure would be required for both infill and greenfield developments. While transit mode share is likely to be higher for denser infill development, greenfield development would require extensions to existing networks and services.

TABLE 1:	INFILL	GREENFIELD	COMPARISON
	cost per lot	cost per lot	cost per lot
<b>Government Infrastructure Costs (upfront costs)</b>			
Roads	\$5,623	\$33,583	\$27,960
Water and Sewerage	\$16,303	\$24,738	\$8,435
Telecommunications	\$2,847	\$4,103	\$1,256
Electricity	\$4,512	\$10,719	\$6,207
Gas	\$0	\$4,080	\$4,080
Fire and Ambulance	\$0	\$334	\$334
Police	\$0	\$429	\$429
Education	\$4,306	\$36,644	\$32,338
Health (Hospitals, etc)	\$22,237	\$35,759	\$13,522
<b>TOTAL COST PER LOT</b>	<b>\$55,828</b>	<b>\$150,389</b>	<b>\$94,561</b>

Source: Trubka, Newman and Bilsborough (2010); Future Perth (2001)



Population growth is not a bad thing if it is used to generate more sustainable cities. Every city needs to see its growth plan as an opportunity to create a better city - one that has a reduced footprint and a better livability.

## KEY FINDINGS:

The government cost to provide infrastructure like main roads, headworks, sewerage, communications, education and health services is up to **\$94,561** more per lot in greenfield developments than infill.

These infrastructure costs are three times more for greenfields than infill.

This is a substantial subsidy provided by government that could be saved if a greater emphasis on infill was made.

There is also a private transport cost impact in green fields over infill of **\$6,600** per lot per year on average over 50 years and a further **\$1400** per lot per year due to broader economic costs to the environment, health and productivity.<sup>5</sup>

There is a substantial economic cost associated with continued greenfield development, and helps us understand why cities that are re-urbanising rather than expanding outwards are being more competitive in the global economy.<sup>6</sup>

## THE POTENTIAL SAVINGS TO THE STATE BUDGET OF HIGHER INFILL TARGETS IN PERTH

This report has also extrapolated these estimates of public infrastructure costs to the current dwelling and infill targets for Perth, to test the potential economic costs and savings from different development scenarios.

Perth's current planning strategy, *Perth and Peel @ 3.5 million* estimates an additional 800,000 dwellings will be required by 2050 and proposes three city development patterns, with differing proportions of infill development. These are:

- **DISPERSED CITY** – the lowest density option and effectively a business as usual scenario. The Dispersed City has 30% of the required net new 800,000 dwellings being delivered in infill developments
- **CONNECTED CITY** – a scenario with 47% of the additional dwellings being delivered through infill. This is the WAPC's preferred future growth pattern, and the 47% infill target was originally developed in the Commission's Directions 2031 report.
- **CONTAINED CITY** – this scenario involves 100% of the required additional dwellings being delivered through infill development.<sup>7</sup>

Using the estimates of infill and green field development, and adding a fourth scenario of a 60% infill target (which was the previous target under the Network City plan, and is roughly the current Australian city average infill target) an order of magnitude estimate of the cost of these three scenarios can be made - refer Table 2.

## END NOTES:

1. Luis M. A. Bettencourt, Jose' Lobo, Dirk Helbing, Christian Kühnert, and Geoffrey B. West (2007) Growth, innovation, scaling, and the pace of life in cities, Proceedings of the National Academy of Sciences, 2007 vol.104 no.17.
2. <http://www.dec.wa.gov.au/our-environment/sustainability/state-sustainability-strategy.html>
3. Trubka R, Newman P and Bilsborough D (2010) Costs of Urban Sprawl (1) – Infrastructure and Transport, Environment Design Guide, 83: 1-6  
Trubka R, Newman P and Bilsborough D (2010) Costs of Urban Sprawl (2) – Greenhouse Gases, Environment Design Guide, 84: 1-16
4. Trubka R, Newman P and Bilsborough D (2010) Costs of Urban Sprawl (3) – Physical Activity Links to Healthcare Costs and Productivity, Environment Design Guide, 85: 1-13
5. Escalated from :  
Trubka R, Newman P and Bilsborough D (2010) Costs of Urban Sprawl (1) – Infrastructure and Transport, Environment Design Guide, 83: 1-6  
Trubka R, Newman P and Bilsborough D (2010) Costs of Urban Sprawl (2) – Greenhouse Gases, Environment Design Guide, 84: 1-16
6. See Newman and Kenworthy J (2015) The End of Automobile Dependence, Island Press, Washington DC.
7. Western Australian Planning Commission. 2015. Draft Perth and Peel@3.5 million.



# 8.0 UNDERSTANDING THE BENEFITS OF INFILL AND URBAN REGENERATION

## COSTS OF DEVELOPMENT AND POTENTIAL SAVINGS OVER A RANGE OF INFILL TARGETS FOR PERTH BASED ON THE COST OF GOVERNMENT FUNDED INFRASTRUCTURE PROVISION

TABLE 2	"DISPERSED CITY" CURRENT INFILL DELIVERY	"CONNECTED CITY" PERTH AND PEEL @3.5 MILLION TARGET	AUSTRALIAN CITY AVERAGE INFILL TARGET (AND FORMER TARGET UNDER NETWORK CITY)	"CONTAINED CITY"
Infill target	~30%	47%	60%	100%
Number of new dwellings by 2050	800,000	800,000	800,000	800,000
Total infill (dwellings)	240,000	376,000	480,000	800,000
Total greenfield (dwellings)	560,000	424,000	320,000	0
<b>Government Cost to provide infrastructure</b>				
Infill (\$b)	\$13B	\$21B	\$27B	\$45B
Greenfield (\$b)	\$84B	\$64B	\$48B	-
Total Cost (\$b)	\$98B	\$85B	\$75B	\$45B
Potential savings: comparing current patterns	-	<b>\$13 B</b>	<b>\$23 B</b>	<b>\$53 B</b>
Potential savings: comparing current targets	-	-	<b>\$10 B</b>	<b>\$40 B</b>



## KEY FINDINGS:

The study suggests that achieving a 47% infill target (off a base of about 30%) will save \$13 billion over the period to 2050 just in government infrastructure costs.

By increasing the infill target to our previous target under Network City of 60% (the Australian average infill target) there would be savings of \$23 billion over the period to 2050.

Lifting our target to 100% and concentrating all of our growth in our existing metropolitan footprint (as was easily demonstrated in Transforming Perth for example) would save \$53 billion to 2050.

To put these estimates into perspective, the Western Australian Government has budgeted for a \$5.9 billion asset investment program in 2016-17.<sup>7</sup>



**The key finding is that the potential savings to government in infrastructure costs alone by increasing our infill target from 47% to 60% are worth \$23 billion to 2050**

**This would be enough to pay for the entire Perth Light Rail network as originally proposed, 12 times over. It would also be enough to pay for 9 new hospitals the size of Fiona Stanley.**

Encouraging more infill development clearly delivers significant savings to the state government. When the savings to the community and broader economy are included then the numbers become even more convincing. On the economic savings alone, let alone the social and environmental benefits achieving higher targets should be a higher priority.

These findings only reinforce the benefits of a precinct-based design approach to infill and urban regeneration, and the urgent need for Government to support mechanisms and processes that will enable these required outcomes to make Perth a liveable, sustainable and connected network of urban communities.

## END NOTES:

7. Western Australian Department of Treasury estimates, as reported in the 2016-17 Budget Fact Sheets, <http://static.ourstatebudget.wa.gov.au/16-17/factsheets/asset-investment.pdf>

# 9.0 RECOMMENDATIONS

This report reflects on the recommendations made in *Transforming Perth* and advocates strongly for urgent action to promote and support world class infill development and urban regeneration, and stronger more sustainable communities.

All levels of Government need to do more to ensure that Perth becomes the city it needs to be.

## STATE GOVERNMENT RECOMMENDATIONS

- #9.1** Establish an **independent state infrastructure body** based on 21st century planning priorities and best practice principles, with the responsibility of planning, prioritising and delivering infrastructure. This will provide industry and communities with the confidence to plan for and invest in well - designed infill development. It's key roles will include:
- Finalise the Perth Public Transport Plan which will facilitate infill development along our key transport corridors.
  - A dedicated long term infrastructure mechanism and pipeline to support metropolitan-scale urban regeneration in Perth at the precinct or 'High Street' scale
  - A formal review and cost benefit analysis of different density scenarios for Perth and Peel, with a view to increasing Perth's infill target substantially
  - A cost benefit analysis of establishing an urban growth boundary for Perth

- # 9.2** Establish an **Urban Renewal Commission** involving key stakeholders from the government, private sector, academia and the community with responsibility for:
- Coordinating government agency involvement in redevelopment and regeneration Perth's future Activity Corridors and Activity Centres.
  - Coordinating infrastructure upgrades, including social infrastructure.
  - Identification of land consolidation opportunities.
  - Identification of savings (economic, social, environmental) to precinct scale regeneration
  - Prioritising precinct scale regeneration as an economic priority

- #9.3** Introduction of a **State Planning Policy for Design Quality**, supported by a Design Guide that provides best practice design advice and good examples to guide future residential multi-unit development and ensure favorable consideration by a DAC process and ultimately a Development Assessment Panel (DAP).  
The process should be flexible to allow for site and context specific process and require:
- Resourcing and expertise for the development of local government Design Quality Guidelines and Design Advisory Committees.
  - Creating an Integrated Design Strategy for Perth and WA's regions.

- #9.4** Support measures to ensure Local Governments meet infill targets set out in *Perth and Peel @ 3.5 million* and assist in leveraging community support for higher quality, context specific planning policy to promote infill development and urban regeneration.

- #9.5** Introduce **As-of-Right development mechanisms** and incentives, where developments are guaranteed a set approval time and transition through the planning process so long they occur in pre-approved areas and meet certain criteria –established through deliberative and participatory processes with the communities most directly affected. Criteria would include requirements around:
- preservation of heritage
  - high quality design
  - provision of affordable and diverse housing
  - sustainability and environmental performance

- #9.6** Introduce incentives in local planning schemes to promote higher-density developments along High Streets and in Activity Centres. This would include substantive density bonuses for:
- Discontinuance of non-conforming uses
  - Heritage protection
  - Provision of Affordable housing
  - Diversity of housing, including aged or dependent persons dwellings
  - Amalgamation of lots
  - Meeting high energy efficiency and sustainability criteria
  - Incorporating best practice design criteria aimed at improving comfort and quality of life, including noise reduction and privacy measures

- #9.7** **Reform the Strata Titles Act** to introduce Community Titles and Leasehold Titles which will facilitate infill development and urban regeneration.

- #9.8** Re-establish a **Sustainability Policy Unit** within the Department of Premier and Cabinet, with its first task to revise the abandoned State Sustainability Strategy<sup>(1)</sup> with a more strategic approach that prioritises transformative actions that lead to sustainable outcomes in decision making processes. Priority should also be given to revising the Sustainability and Settlements framework (Chapter 4) which includes growth management, revitalising declining areas, urban design, integrating transport and land use (especially to overcome car dependence), managing freight and regional transport, air quality, waste, water, energy, heritage and buildings.



## COMMUNITY ENGAGEMENT

- #9.9** Establish a new agency within the Department of Planning specialising in **Community Engagement and Stronger Communities**, with responsibility for:
- A formal follow up to the Dialogue with the City – looking at Perth’s long term future.
  - A commitment to a deliberative engagement process on a major urban regeneration project, possibly the first future Light Rail route from Perth to Curtin University and the Curtin City development.
  - Producing an ‘**Atlas of Excellence**’ of best practice collaborative urban planning for more liveable and sustainable neighbourhoods with low carbon footprints, in Australia and internationally, and resources to assist local government and industry.
  - A commitment to review current community consultation approaches with the view to move to genuine community engagement at the early stages of local planning processes, and a dedicated fund available for the local authorities to enable community engagement on planning decisions.

## FEDERAL GOVERNMENT RECOMMENDATIONS

- #9.10** Introduce a **Minister for Cities, Built Environment and Urban Regeneration** with a cabinet position and responsibility for the following:
- Re-establish the **Major Cities Unit** and reclassify urban regeneration as an urgent Nation Building activity
  - Re-establish the **National Urban Policy** and develop a long term strategy for regenerating Australia’s urban corridors as part of a revised National Urban Policy.
  - Revising states’ performance against their strategic plans and housing supply and infill development targets.
- #9.11** Include urban regeneration as a new criterion in cost benefit analysis of major infrastructure projects before Infrastructure Australia.
- #9.12** Re-establish the **National Housing Supply Council** and recommit to direct funding and innovative finance mechanisms to accelerate the provision of affordable housing as a national priority.
- #9.13** Play a greater role leveraging urban regeneration outcomes through assets it already owns;
- Review the effectiveness of the current Asset Disposal Policy in relation to its contribution to urban regeneration and the delivery of affordable and diverse housing that supports high frequency urban transit.
  - Conduct a national audit of Commonwealth owned land in urban regeneration areas in Australian cities with a view to identifying the role the Federal Government could play in strategic infill as a partner.
  - Introduce incentives for housing supply as outlined in the Property Council + Deloitte Access Economics report *A Federal Incentives Model for Housing Supply*, 2016

[1] Western Australia was the first Australian State to undertake a comprehensive assessment of what sustainability means for forty-two areas of government. The State Sustainability Strategy is based on a Sustainability Framework of eleven sustainability principles, six visions for Western Australia and six goals for government. The Strategy is at <http://www.dec.wa.gov.au/our-environment/sustainability/state-sustainability-strategy.html>

## #designperth



Good design is not an added extra or luxury, it is essential. There is an enduring connection between the state of our society and the state of our civic realm.

Sir Stuart Lipton, CABA Chair, 2003



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