

# 05/09

## Infrastructure





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# Infrastructure of Big Ideas

## Stewart Verity

There are numerous examples of outstanding infrastructure projects, notably in France where architects and urban designers are regularly engaged. This civic dimension provides an over-arching public benefit that may otherwise not be achieved with the usual single-minded project delivery system typical of Australia.

It is important to think outside the square – especially on major urban projects. One of the best infrastructure projects in NSW was the building of the 1970s Sydney to Newcastle freeway – the results of that really thoughtful, fully considered, road design process are beautifully revealed.

A landscape architect guided the design and what could have been a gun-barrel carriageway deftly weaves through the terrain, unfolding spectacular views and adding immeasurably to the daily commute or one-off experience.

Another historic landmark is the Sydney Harbour Bridge, which demonstrates how its expression is an integral part of its function. While the four stone pylons served very little practical purpose to anchor or stabilise the bridge – and could be regarded as aesthetic additions at the time – it is interesting how un-anticipated opportunities were created through adaptive re-use. One pylon now incorporates an exhaust vent from the harbour tunnel, another holds a museum and the others support various lighting transoms.

The Industrial Revolution is flagged with these sorts of big infrastructure projects that also left such a grand legacy. In many ways more recent infrastructure projects have forgotten the public domain. When we recall even small projects such as the turn-of-the-20th century electrical sub-stations, these were treated as quite finely crafted objects in their own right and are so much better than the concrete or steel boxes we now see.

Melbourne's Royal Parade with its grand, 60 metre treed boulevard of tramway, roadway and bicycle lanes is really quite astonishing when you consider it was

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conceived well over a century ago. If only suburban arterial roads were now similarly conceived. Instead of the single purpose of moving vehicles along a corridor, we could have had boulevards. These would be pleasant for walking, cycling, transit and a wonderful outlook and address for higher density living and businesses as well as moving large volumes of traffic.

It is clear that when public infrastructure is considered holistically, the benefits are for the very long term. By contrast, one of our worst modern legacies is Sydney's Western Distributor which separates the city centre from the water. A lot of public effort will need to be expended to correct this blight. On the other hand, substantial change to Melbourne's Royal Parade is unthinkable.

Sydney's Olympic Park at Homebush Bay is an example of not quite fully considered infrastructure. It has very impressive sport and recreation facilities at the geographic centre of metropolitan Sydney – now not fully used. Had it been conceived as a major urban centre with a recreation focus, then we may have a better functioning centre with frequent public transport rather than now trying to retro-fit the area as an urban centre.

A lot of infrastructure is large and complex and driven by a delivery authority that will be measured by how fast and efficiently it can deliver such projects. By including a creative designer (an architect, urban designer or landscape architect depending on the project) broader thinking (and future benefit) can be brought to the project. This infrastructure can knit into the urban fabric and significantly contribute to the quality of life for that community.

When the Eastern Distributor was built near the Sydney CBD it meant that all of those heavy

traffic volumes along Crown St and Bourke St were removed. Those redesigned streets are now really wonderful to live along and experience and that was inconceivable 10-15 years ago.

The solution is to ensure that creative urban designers are treated as much more than set designers to decorate and disguise poorly considered infrastructure. Leaving it to others to find solutions to mostly singular problems and hoping for the best has really failed our cities.

Communities want a wider level of thinking about infrastructure and more sustainable solutions that generally enhance public life as well as achieving the more utilitarian objectives.

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**James Mooney** is an Associate Architect at Architectus Auckland. He has recently been involved in a number of large scale projects including residential, masterplanning and transportation.

# Auckland on Track

## James Mooney

Rail travel is making a comeback after years of dominance by private cars; the preferred means of public transport in Auckland, New Zealand's most populated city. Rising fuel prices, road congestion and a growing public awareness of sustainability issues have re-ignited public interest in rail infrastructure.

In the growth corridors of Auckland's western suburbs, rail is receiving special attention as government and city councils strive to achieve the optimum balance between public and private transport.

Over the past decade Architectus has carried out a number of projects in Auckland's west including the Waitakere Civic Centre in Henderson. Built to accommodate the Waitakere City Council and completed in 2006 the project is brought together around a bridging element that connects to the Henderson public transport interchange and provides a key link between areas previously separated by the rail corridor. Together with the nearby Waitakere Central Library/UNITEC project, also by Architectus, the Civic Centre and the transport interchange are intended to act as a catalyst for future Henderson central area development.

Further east, along the same rail line as Henderson, Architectus are currently completing documentation of the first phase of the New Lynn Transit-Oriented Development or 'TOD'. "Waitakere City Council wanted someone to take a cohesive overview of the project and it's context", says James Mooney of Architectus. "Given our previous work together we were chosen to act on their behalf. They were our initial client and wanted advice from an urban planning and architectural viewpoint. The issues included fundamental decisions such as where best to locate the station platform within the new rail trench following our work to identify the key opportunities for access within the New Lynn city centre." After this initial phase the Auckland Regional Transport Authority took over as project client and Architectus were engaged to see the project through to completion in 2010.

"In many respects the issues in New Lynn were the same as those at Henderson. In both cases the rail corridor bisected the community which had then developed around this dividing element. We had demonstrated in our previous work for Waitakere how it is possible to design a railway station and connect it more fully and elegantly to its surroundings" says Mooney.

Perhaps the key difference at New Lynn is the construction of a 350 metre long trench in order to separate the rail traffic from the at grade traffic in its various forms. Formation of the trench also makes possible the construction of a number of new bridges at grade and the re-construction of existing links that were previously compromised by the rail corridor. One of the new bridging elements serves as the at grade concourse encompassing the primary entry, enclosed waiting areas, staff amenities and ticketing facilities. Bus bays are located either side of the concourse to ensure ease of transfer between public transport modes and a covered bicycle park is provided on the concourse.

"What is encouraging," says Mooney, "is that at both Henderson and New Lynn, Waitakere City Council wanted more than a rudimentary shed. It recognised that good architecture and urban planning could provide the critical qualities of amenity, connectivity and functionality that have been historically missing from so many of these types of projects."

Success of the TOD project is dependent on relatively high density mixed-use development around the transport interchange in order to maximise access and therefore patronage. Uptake in New Lynn has been encouraging and already Architectus are involved in a number of projects that adjoin the interchange site including the surrounding streetscape works and an adjacent mixed-use development.

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**Professor John Hockings** is Design Director of Architectus Brisbane. His specialisations are in the fields of architectural design, urban design, subtropical design, and vernacular architecture, particularly in the Asia-Pacific region.

# Intelligent Infrastructure

## Professor John Hockings

The future of sustainable cities will be closely tied to the Federal Government's infrastructure stimulus programs. We have the choice of making large scale mistakes, or of achieving great successes with these projects.

To avoid these mistakes we must learn to treat infrastructure as an integral part of the total urban and natural environment. We must also apply the same parameters to infrastructure design as are applied to all other urban projects, typically architecture and urban places.

In the past, infrastructure has been generally treated as somehow different from the urban and natural environment. There has been an assumption that somehow people do not 'see' a freeway or a tunnel in the same way that they see all the other components which make up our world.

Even an extension to a suburban house requires an extensive planning review which considers, among other things, the effect of the proposal on the total amenity of the neighbourhood. However, eight lane freeways hundreds of kilometres long can be built through the guts of a city and countryside with apparent impunity and with no such assessment or approval process.

Infrastructure should better integrate with the environment. However, the intellectual thought brought to this often falls into the 'paint it with bright colours' urban design theory. This window-dressing approach (official graffiti) is not the way to approach the design of infrastructure.

All of us I'm sure can think of a local example where a retaining wall or overpass has been simply stamped with a leaf pattern or similar. If we approached the design of buildings the same way – make a box and then paint pictures on it – people would rightly be outraged.

When infrastructure projects escape the usual standards of care and imagination applied elsewhere, we have a fundamental

problem. The good news is that something can be done to remedy the situation.

As our cities grow more and more complex, and as infrastructure becomes more and more dominant, in the long term, the major designers of infrastructure need to be aware of the broader set of design parameters that come to bear on projects in the public domain.

The way to deal with it is to realise that it isn't just a face-lift problem, it's a design problem and infrastructure presents the potential to add character rather than rob a modern city of character. There is no reason why a freeway for instance shouldn't participate in a modern city in the same way that a football stadium exemplifies those possibilities.

As cities grow they have the potential to be enhanced through thoughtful design. It doesn't necessarily need a bigger budget, but it does need the right people in the team at the beginning. Then there is a real chance that those projects can be thought about positively and affectionately rather than experienced as something to be encountered and left behind as quickly as possible.

It is time for us all to understand what is being lost and what can be won with infrastructure work that speaks of a kinder, more thoughtful and intelligent dimension.

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**John Riordan** is an Associate Director of Architectus Sydney where he leads the urban planning team. He has particular interest and experience in strategic planning, urban design and statutory planning.

# Sustainability from Longevity

**John Riordan**

**“It is time for all of us to understand what is being lost and what can be won with infrastructure work that speaks of a kinder, more thoughtful and intelligent dimension.”**

**Professor John Hockings**

Infrastructure is so visible in our every day lives. From our schools, hospitals, bridges, bikeways and tunnels to our shipping ports and railway stations, infrastructure can have a positive community effect, or have far reaching negative impacts. How can we best provide for education? How do we best deal with the complex transport and freight systems that involve cars, trucks, containers and trains? How can an airport become an asset rather than a liability? These are fundamental infrastructure questions.

An example of a major infrastructure project is the new Sydney Ports project where Architectus prepared the Visual Impact Assessment for the expansion of the Port Botany terminal adjacent to Sydney Airport. Architectus had to consider the Ports' urban impacts, balanced with the project's engineering and operational requirements.

Not all architects and urban designers have the breadth of skills to deal with infrastructure design. It requires understanding and expertise to translate the urban complexities into legible outcomes. Many governments now recognise this, for example Queensland has empowered its first full-time Government Architect with the right to call in projects for appraisal. This allows a more integrated and holistic approach to new infrastructure works in that State.

Architectus Urban Design and Planning has assisted with numerous infrastructure projects that demonstrate clear community benefits. Chatswood Railway Station and transport interchange on Sydney's North Shore is a simple but effective example of how infrastructure can discover a new lease of life. The station previously divided Victoria Street, however Architectus' Visual Impact Assessment supported connectivity between eastern Victoria Street mall and the western side. Now the community and school-children especially, gather and meet while they're waiting to catch buses. The transport infrastructure has become something regularly enjoyed rather than negotiated.

What are the techniques for problem-solving on such an often grand or minor scale? Fundamentally we return to first principles to emphasise efficiencies of design and operation. It is about knowing how to avoid premature obsolescence, project redundancy and massively expensive retro-fitting. Opportunities can be identified such as the long term benefit of provided beautiful structures which can become part of our cities' identities, perhaps a tourist attraction and long term source of income. Parks play a large role in creating character and identity – rivers, green corridors, playing fields, water detention basins and environmental parks can provide for activities from walking tracks to large events and recreation or just return views for all to enjoy.

Sustainability has to underwrite infrastructure design and is much more than a 5 or 6-star energy rating – it's also about economic and social obligations. It is imperative to consider intertwined solutions from aesthetics through to function, and everything in between.

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# 01



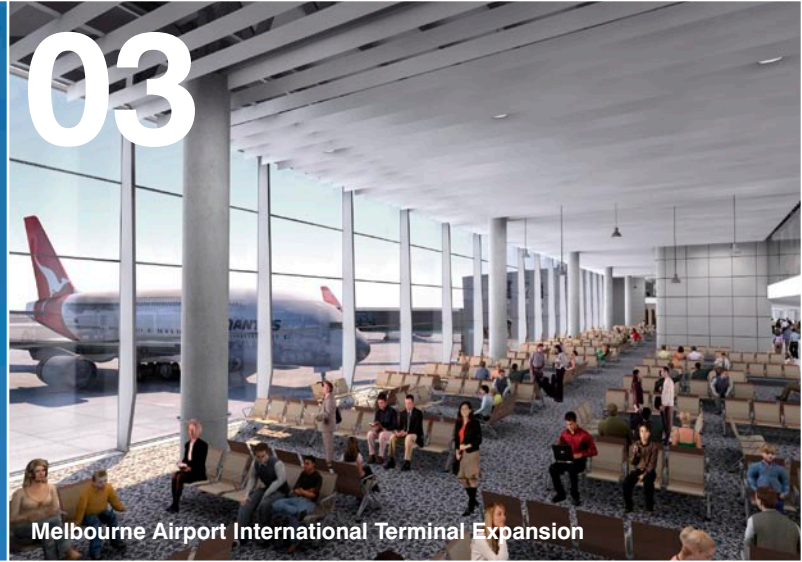
Melbourne Airport International Terminal Expansion

# 02



Victorian Channel Authority Shipping Control Tower

# 03



Melbourne Airport International Terminal Expansion

# 04



Eco-medians  
Doonside Residential Design Guidelines, Bungaribee Precinct. Image prepared by EDAW.



# 11



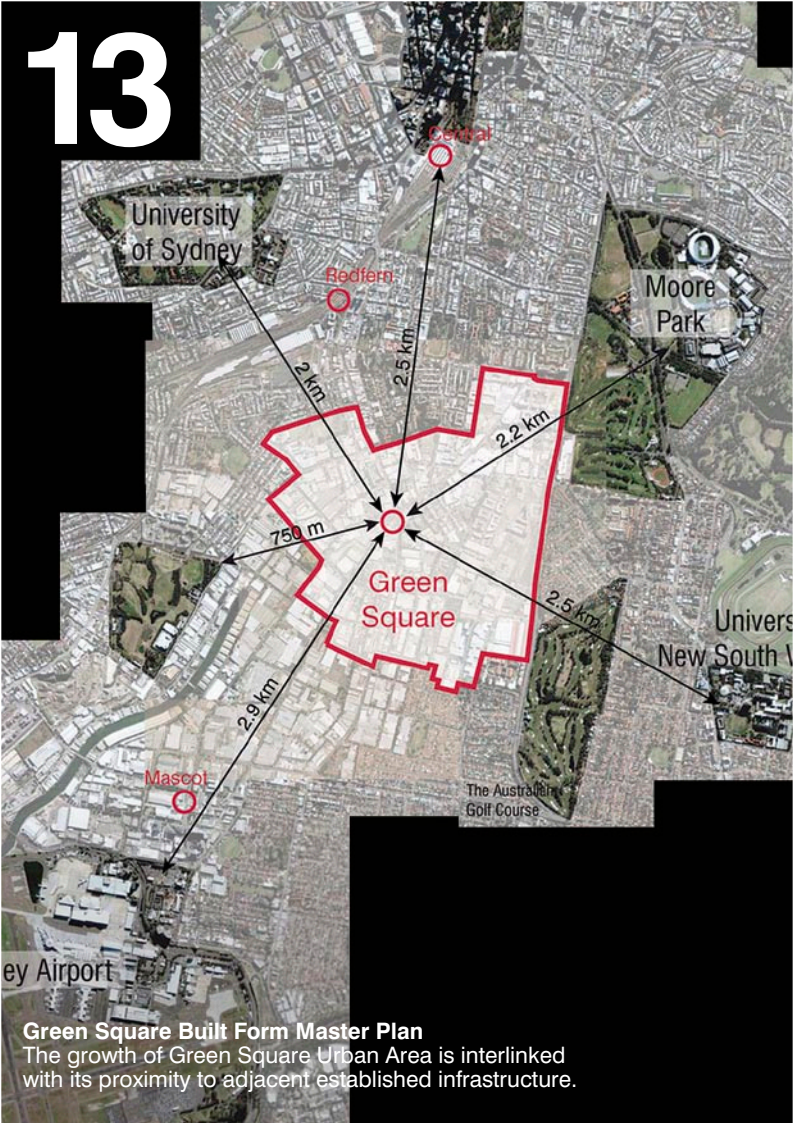
Sydney Airport Environs and Port Botany Expansion

# 12



Tank Street Bridge Design Competition

# 13



**Green Square Built Form Master Plan**  
The growth of Green Square Urban Area is interlinked with its proximity to adjacent established infrastructure.

# 14



Waitakere Civic Centre/Transport Interchange, Waitakere

# 15



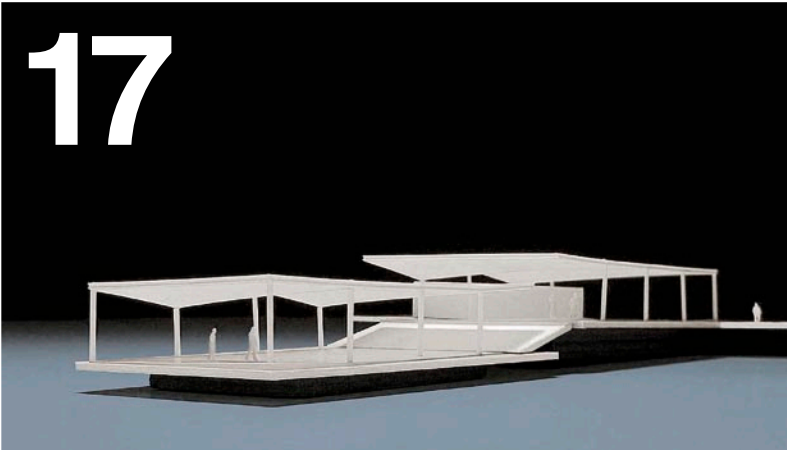
New Lynn TOD, Waitakere

# 16



Queen Street Streetscapes

# 17



NSW Maritime  
Sydney Ferry Wharves, Concept Design

# 18



Wynyard Quarter