

CASE STUDY - EMPLOYMENT AREAS

TONSLEY INNOVATION DISTRICT, SOUTH AUSTRALIA

OVERVIEW

Tonsley Innovation District is a mixed use precinct focused on high-value manufacturing industries.

KEY FEATURES

RESIDENTIAL

- 11 hectares for approximately 650 homes and 1,200 residents.

HIGH VALUE INDUSTRY / COMMERCIAL

- 24 hectares for business (light industry or commercial use).
- Focus on minerals and energy resources; health, medical devices and assistive technologies; software and simulation and cleantech and renewable energy

EDUCATION

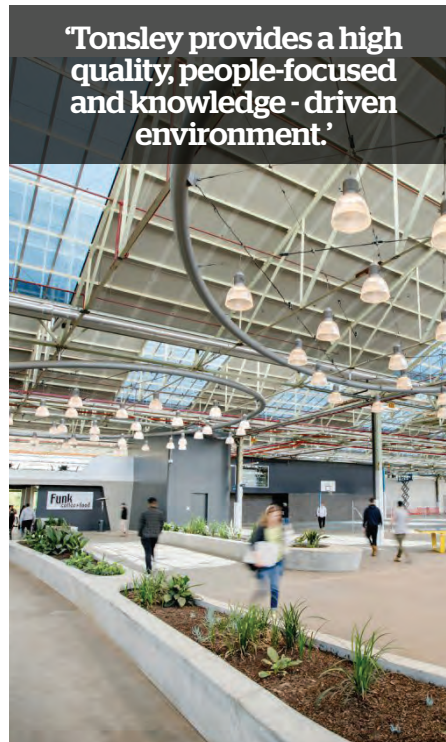
- 8,500 students to attend Flinders University and TAFE SA's Sustainable Industries Education Centre.

RETAIL AND CIVIC SPACE

- Town square in the refurbished, former automotive, main assembly building.
- Centre for social activity beyond 9-5 business hours.
- Shops, cafes, services and facilities.

LOCATION

South Rd, Tonsley, Clovelly Park, South Australia.



“Tonsley provides a high quality, people-focused and knowledge - driven environment.”



‘Australia’s first innovation district’

HOW IS THIS RELEVANT TO TOOLERN?

- The development of a strong ‘brand’ for an employment precinct which conveys innovation and resilient future employment sectors, such as will be needed at Toolern,
- A mixed use precinct including a focus for growth and fostering of manufacturing industries, which is the plan for the Toolern site.
- Incorporates a focus on renewable energy which is potentially a market-difference for Toolern as an activity centre.

WHY IS THIS INTERESTING?

It’s an example of mixed-use employment precinct manufacturing showcasing innovation. Tonsley can provide good references for dealing with difficult interfaces.

CASE STUDY - EMPLOYMENT AREAS

WERRIBEE NATIONAL EMPLOYMENT & INNOVATION CLUSTER

OVERVIEW

A national employment cluster, East Werribee will provide employment opportunities on the 775 hectare site of the former State Research Farm.

KEY FEATURES

- Anticipated to provide 58,000 jobs, 7,000 dwellings, 170 hectares of open space and waterways, and services and amenities.
- A multi-storey Town Centre with active retail, entertainment and commercial uses at ground floor level and residential and commercial uses above.
- A New State Research Farm Heritage Park/ Botanic Gardens surrounded by active uses.
- Waterway and open space network.
- A multi-storey Commercial Precinct including modern commercial towers and apartments.
- A Health and Learning Precinct with larger footprint medical and educational uses surrounded by green spaces and car parking areas.
- Modern medium & higher density residential, as well as conventional residential areas.

LOCATION

Princess Highway, Werribee East, Victoria.



'A new approach to integrated economic and land use planning'



'A leading edge innovation precinct'



HOW IS THIS RELEVANT TO TOOLERN?

- Potential learnings from the innovation strategy in a Melbourne greenfield setting, establishing employment businesses in an integrated way.
- Incorporation of precinct-scale water strategies both as an engineering solution but also as an identity - could be applied to Toolern Creek to unify the different areas together to make a cohesive precinct.
- The precinct is a good local example that is also located in the Western growth area, subject to the same market, growth and political forces.

WHY IS THIS INTERESTING?

Toolern employment businesses will exist in the same growth corridor as the Werribee precinct, with potentially market advantages around existing infrastructure and access at Toolern.

CASE STUDY - EMPLOYMENT AREAS

BALLARAT WEST EMPLOYMENT ZONE

OVERVIEW

The Ballarat West Employment Zone is an industrial estate providing for a range of manufacturing, agribusiness, construction, freight and logistics, and research and development uses.

KEY FEATURES

- 623 hectare (438 developable) precinct.
- Site is owned by Council (Ballarat Airport) and the Victorian Government.
- Well connected - located near Ballarat West Growth Area, the Ballarat Airport, rail infrastructure and the Western Link Road.
- Potential to deliver 9,000 local jobs for our community and inject \$5 billion into the economy annually.
- Bio Economy Innovation/ Research and Development Centre will allow companies to work collaboratively on projects and improve research and development capability for new and existing businesses.
- Co Gen Bio Energy Plant will reduce energy costs to ensure a more cost competitive environment for businesses.

LOCATION

Ballarat Ring Road, Ballarat West, Victoria.



HOW IS THIS RELEVANT TO TOOLERN?

- Similar connection and access advantages to Toolern's location just south of the Western Fwy and the ability to leverage future rail connections (subject to delivery).
- It is a local project also based in the Western growth corridor and so will have similar broader limitations and opportunities.
- The 'collaborative approach' could be a useful strategy for the Toolern employment and mixed use areas, particularly given the existing model of Western BACE.

WHY IS THIS INTERESTING?

Provides an alternative governance model potentially useful for Toolern into the future. It also provides a good example of constructive collaboration on a precinct-wide scale.

CASE STUDY - EMPLOYMENT AREAS

MERRIFIELD BUSINESS PARK

OVERVIEW

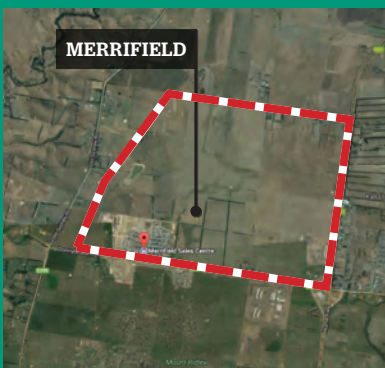
A 330-hectare purpose-built business park planned to accommodate both big and small business operators.

KEY FEATURES

- Co-located with the future 330 ha Merrifield Living precinct and 140 ha Merrifield City Centre precinct.
- 21 ha of landscaped open space (across Merrifield) including Merrifield Park.
- High-speed NBN connection.
- A proposed University, tertiary facilities and vocational training opportunities.
- Well located with 80% of the national population accessible within 12 hours using road, air and rail infrastructure.
- Clean energy solar paneling, including solar potential analysis offered to all occupants at Merrifield Business Park.
- Demonstrating innovations in energy-efficient street lighting and water-preservation.
- Full six-leaf UDIA and EnviroDevelopment accreditation across all categories of Waste, Energy, Water, Community, Materials, and Ecosystem.

LOCATION

Donnybrook Road, Mickleham, Victoria.



'Merrifield Business Park offers unrivalled flexibility and exposure.'



'...set to foster an environment of innovation and opportunity'

HOW IS THIS RELEVANT TO TOOLERN?

- Provide a business park incorporating a range in size of business operators similar to Toolern.
- Interface treatments and interaction between employment uses could provide learnings for Toolern.
- The site has a high standard of environmental accreditations as well as solar PV installation offered to all occupants and sets an example of what could be achieved at Toolern as a future activity centre.
- The site is a very similar size to Toolern's 392Ha of employment and mixed use, which may help to guide and determine appropriate densities.

WHY IS THIS INTERESTING?

Interface treatments between employment uses are crucial to good urban design outcomes. Sustainability incentives also potentially provide a point of difference to attract businesses and tenancies.

CASE STUDY - EMPLOYMENT AREAS

M1 & M2 INDUSTRY PARK, GREATER DANDENONG

OVERVIEW

M1 and M2 comprise approximately 120 hectares of commercial and industrial land, separated by an urban forest.

KEY FEATURES

- Multiple controlled estate entrances
- Quality controlled with protective covenants for types of uses allowed within the estate and garden maintenance.
- Environmentally sustainable design initiatives
- Lifestyle precinct including lake, walking tracks and restaurant
- Nature reserve with native trees, walking tracks and picnic facilities
- Architecturally designed buildings
- Dedicated showroom/trade precinct
- New child care centre and indoor kids playcentre
- Future provision for gymnasium
- High speed fibre optic internet capability
- Proposed inland port opposite
- Future provisions for mixed-use retail precinct

LOCATION

Abbotts Road, Dandenong South, Victoria.



'M1 and M2 Industry Parks are the sites for success..'

HOW IS THIS RELEVANT TO TOOLERN?

- This project uses an urban forest as an interesting way to divide the site into different precincts. As Toolern is much larger, incorporating some form of vegetation corridor or feature green space could aid the interface conditions between the employment and mixed use area.
- The project has a strong focus on providing amenity for residents whilst still acting as a workplace for others which could prove useful for the mixed use area of Toolern.

WHY IS THIS INTERESTING?

Embraces the key natural features of the precinct. It utilises an urban forest as a key feature for practical, environmental and aesthetic outcomes.

CASE STUDY - TRANSIT ORIENTED DEVELOPMENT

MOE, VICTORIA

OVERVIEW

The Frank Bartlett Library and Service Centre, designed by FJMT, has become a focal point for Moe, in regional Victoria

KEY FEATURES

- The redevelopment replaced a row of dilapidated shops adjacent to Moe railway station, as the first of two stages to revitalise the downtown district.
- The town suffers from high unemployment and a lack of local development has led to residents having to travel for key services.
- The centre creates a sense of identity, whilst importantly bridging between the north/south divide created by the railway tracks.
- The form shields from the noise and impact of the railway whilst opening up to the town centre, creating a new public space and community focus.

LOCATION

Moe sits within the Latrobe Valley in the Gippsland region of Victoria. It is approx. 130km east of Melbourne CBD.



WHY IS THIS PROJECT RELEVANT TO TOOLERN?

The project demonstrates that large scale development and especially TOD can act as a catalyst for further development opportunities and provide a community with facilities and services as it grows.

As Toolern is located on a railway line, is to be a metropolitan activity centre and is to become a major employment area for the greater western area, it is an appropriate location for this scale of development.

The public spaces created between built form, in close proximity to transport links, provide opportunities for markets, festivals and public and community events, as has been initiated in Moe.

WHY IS THIS INTERESTING?

A similar approach could be adopted to connect the employment area with the southern part of the town centre across the railway line.

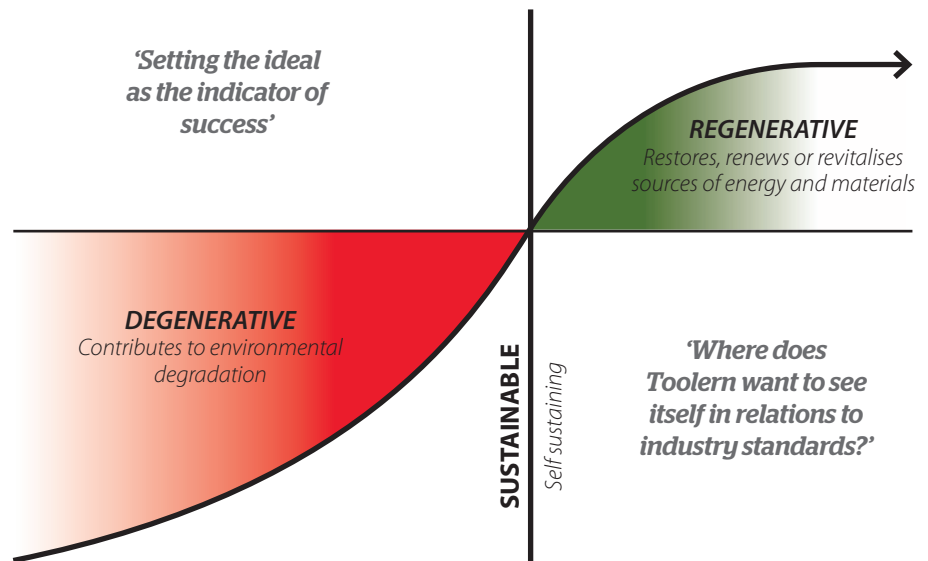
CASE STUDY - SUSTAINABILITY OVERVIEW

SUSTAINABILITY BENCHMARKING

In order to truly create a sustainable community, it is important to understand what the benchmark targets are, how these are achieved and look forward to even going further.

"We need to look beyond reducing our impact and towards regenerative design."

2016 Future Green Leader Olivia Leal-Walker



THE REGENERATIVE DESIGN PROCESS

Regenerative design is a process driven theory that aims to not only be self-sustaining but also to improve the surrounding environment.



The Regenerative Design Process

Sustainable design aims to provide for fundamental human needs; regenerative design goes further in that it plans for the future co-existence and co-evolution of humans and other species.

CASE STUDY - SUSTAINABILITY

ALKIMOS BEACH, WESTERN AUSTRALIA

OVERVIEW

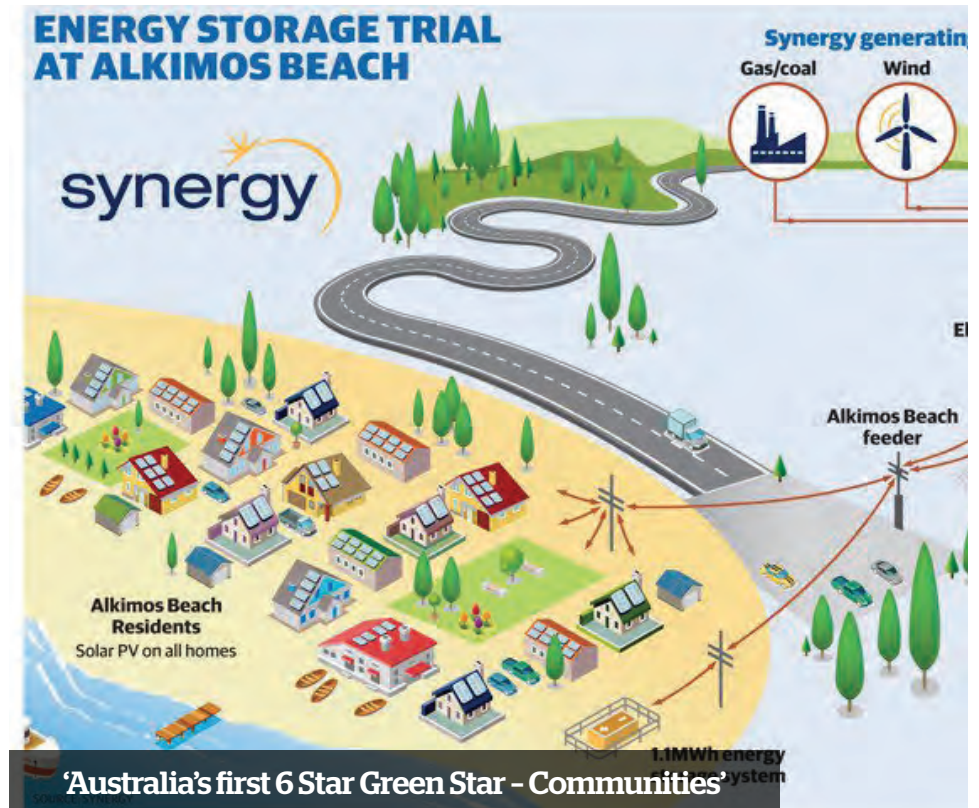
A 710 hectare master-planned community, awarded Australia's first 6 Star Green Star – Communities rating for a residential master-planned project from the Green Building Council of Australia (GBCA).

KEY FEATURES

- Mandatory solar panels and gas boosted solar hot water systems as well as other energy-efficient appliances for all homes.
- Smart water initiatives including stormwater retention, bore water irrigation and water efficient appliances in each home.
- Fibre-to-the-Premises internet connectivity.
- Australia's first community energy storage trial. More than 50 homes connected virtually to innovative solar energy storage to reduce peak electricity demand.
- A comprehensive education program providing energy, water and waste management tips.
- Connections to a regional town centre and transport links.
- Extensive park and shared trail networks (all homes are less than 200m from a park).
- Sprout Hub community facilities supporting micro and start up businesses.

LOCATION

Alkimos, Western Australia



HOW IS THIS RELEVANT TO TOOLERN?

- Demonstrates the benefits of a full 'masterplan' approach to the new communities model.
- Includes examples of both 'hard infrastructure' (designed places, streets etc) and also 'soft infrastructure' (incentives and community strategies) that will be needed for Toolern.
- Indicates the benefits of early delivery and staging of community infrastructure

WHY IS THIS INTERESTING?

Alkimos is the current industry leader as the first 6-star green star - Communities rating and provides an element of best practice for Toolern. It also demonstrates the trialling of technologies and initiatives.

CASE STUDY - SUSTAINABILITY

AURA, CALOUNDRA SOUTH

OVERVIEW

A masterplanned community awarded GBCA's 6 Star Green Star – Communities, anticipated to provide homes for over 50,000 people.

KEY FEATURES

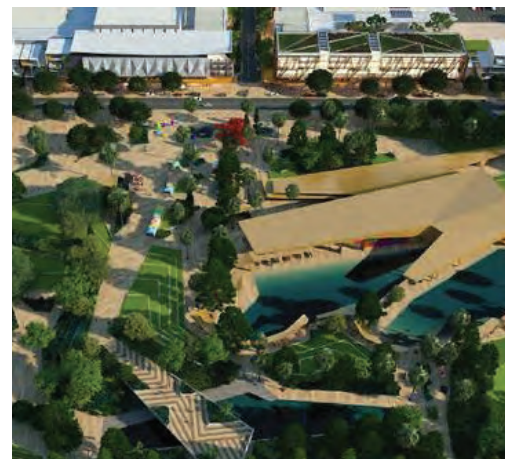
- 700 hectares of former pine plantation to be rehabilitated and designated as a conservation area.
- New habitats for rare and endangered flora and fauna species created.
- Installation of the most advanced water reticulation, filtration, storage and treatment system ever installed in any Australian community
- Annual environmental reporting.
- Establishment of an environmental education facility and sustainability awareness programs
- A dedicated Caloundra South economic development strategy aimed at creating 19,500 direct jobs and long-term local employment opportunities.
- Business innovation and incubator hubs.
- All homes will be close to parks and a maximum of one kilometre away from community vegetable gardens.

LOCATION

Caloundra South, Sunshine Coast,



'Aura is the largest mixed-use development ever undertaken under single ownership in Australia'



HOW IS THIS RELEVANT TO TOOLERN?

- Demonstrates the benefits of retention and celebration of natural elements of the precinct.
- The economic development strategy, developed in conjunction with the physical masterplan, could be a useful learning model for the Toolern precinct.
- Builds upon the concept of business and incubator hub already 'seeded' at Toolern via the Western BACE.

WHY IS THIS INTERESTING?

It will regenerate 700 ha of former pine forest and include a highly advanced water reticulation and treatment system

CASE STUDY - SUSTAINABILITY

BOWDEN, SOUTH AUSTRALIA

OVERVIEW

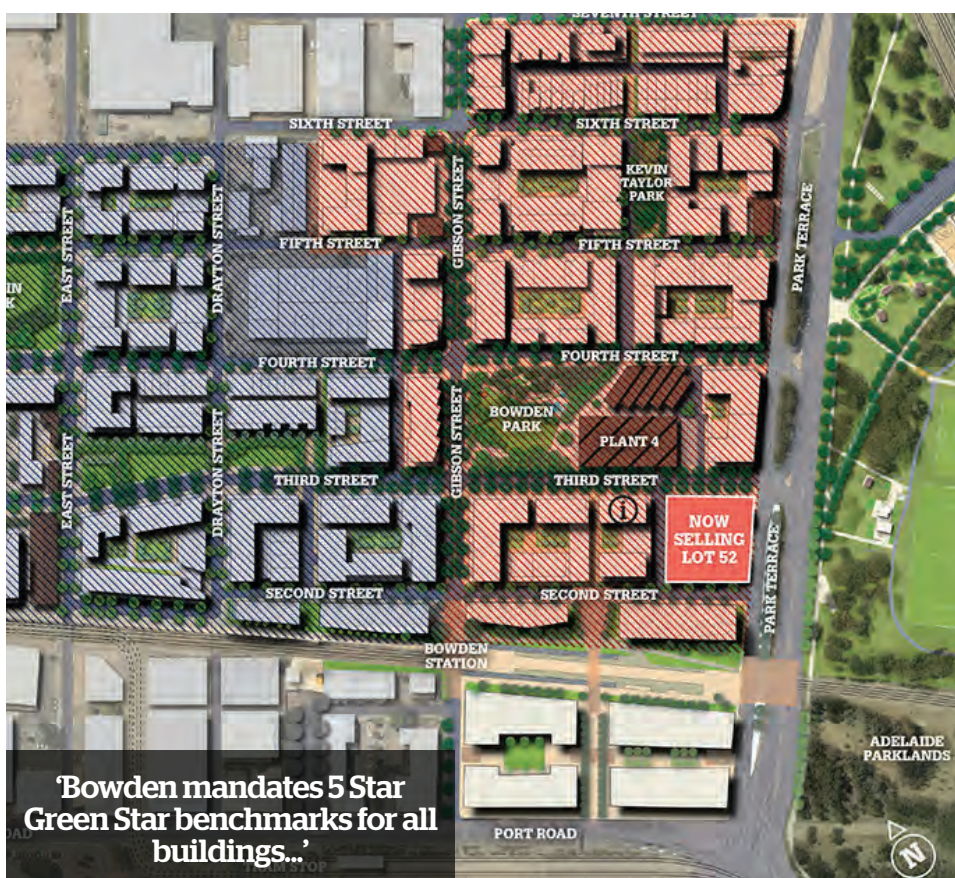
A 16.3 hectare and 6 Star Green Star – Communities, urban renewal project located on the western edge of Adelaide City Parklands.

KEY FEATURES

- All buildings at Bowden must meet 5 Star Green Star 'Australian Excellence' sustainability benchmarks.
- Highest concentration of Green Star homes in Australia.
- First terraces in Australia to receive a 5 Star Green Star rating.
- A transport and parking strategy that reduces the number of parking spaces allocated and encourages the use of public transport and alternatives to single car commuting.
- A state-of-the-art gym, cafes and restaurants, a pub, deli and a vintage shop.
- An artist-run, not-for-profit space for locals working in the arts.
- A photographic studio, art gallery and co-working space.
- A dance studio runs and a cyclists' collective.
- An Organic and Sustainable market on Sundays.

LOCATION

Bowden, Adelaide, South Australia



HOW IS THIS RELEVANT TO TOOLERN?

- Demonstrates the benefits of density when applied to a 'town centre' and transit oriented hub - with application around the Toolern Train Station.
- Includes examples of both 'hard infrastructure' (designed places, streets etc) and also 'soft infrastructure' (incentives and community strategies) that will be needed for Toolern.

WHY IS THIS INTERESTING?

It has the highest concentration of green star homes in Australia, with a selection of interesting medium density housing typologies being delivered in a highly price-sensitive market.

CASE STUDY - SUSTAINABILITY

ECCO RIPLEY, QUEENSLAND

OVERVIEW

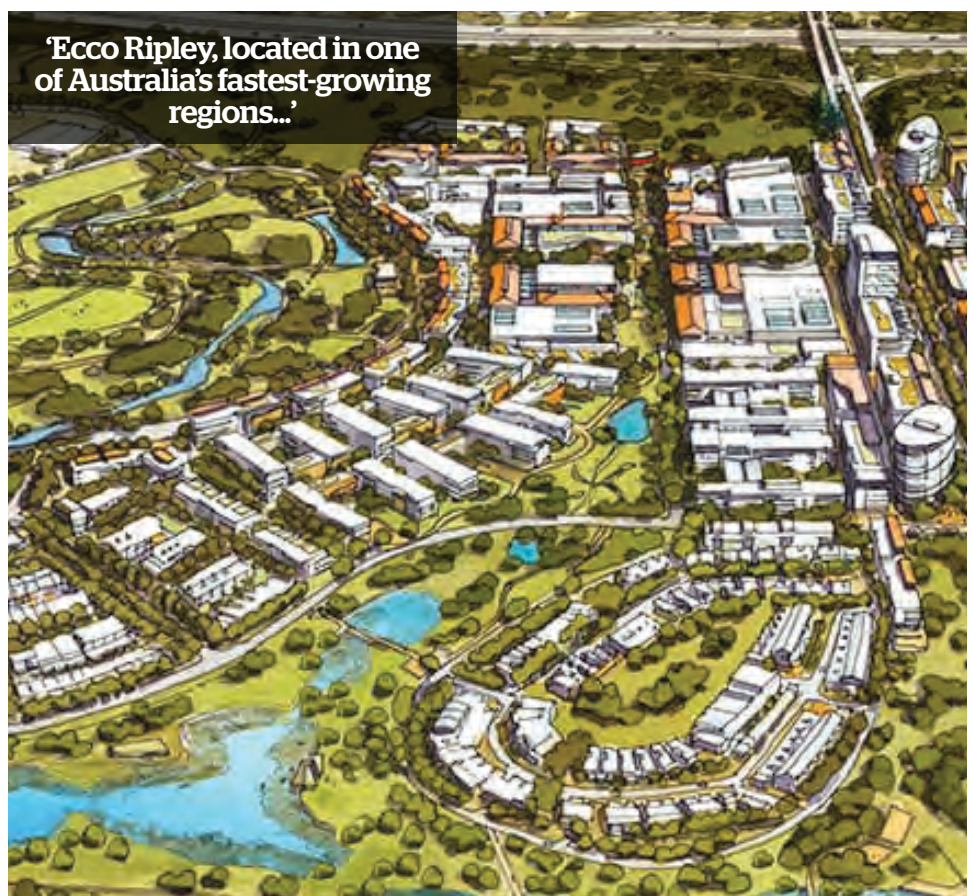
A masterplanned community awarded a 5 Star Green-Star Community rating from the Green Building Council of Australia.

KEY FEATURES

- Fibre optic cabling to all homes.
- Over 12,000 jobs expected to be created over the life of the project.
- 25% of housing will be affordable for first home buyers and key workers, 10% allocated for accessible housing and 5% for social housing.
- Development of an arts and culture program.
- Development of a 25-hectare Town Centre for Ripley Valley.
- Over 6 hectares of recreation parks and gardens.
- Every home within 400m of green open space.
- Large scale tree planting.
- An active transport plan, involving buses, on and off-road cycling, and pedestrian footpaths.

LOCATION

Ripley Valley, Ipswich, Queensland



HOW IS THIS RELEVANT TO TOOLERN?

- Demonstrates the benefits of a full 'masterplan' approach to the new communities model.
- A precinct-wide model of successful open space network benefiting both residential and employment areas.

WHY IS THIS INTERESTING?

It has an emphasis on affordable housing for first home buyers while still achieving environmental excellence

CASE STUDY - SUSTAINABILITY

BARANGAROO SOUTH, NEW SOUTH WALES

OVERVIEW

Barangaroo South is a 22ha urban renewal project located in Sydney. It will provide homes to around 1,500 residents and office space for 23,000 workers.

KEY FEATURES

- Over 50% of the site will be allocated to open public space.
- 100% of the waterfront will be publicly accessible.
- Aims to become Australia's first large scale carbon neutral community.
- One of only 17 projects globally to be part of the C40 Cities-Clinton Climate Initiative's Climate Positive Development Program.
- Capable of being water positive.
- On-site blackwater treatment plant capable of supplying one million litres of recycled water a day to the precinct and surrounding suburbs.
- Rainwater collection in each commercial tower.
- 6,000 square metres of solar panels on site.
- Energy education programs.
- Targeting zero net waste to landfill by 2020.
- Investigating on site energy generation including co-generation and tri-generation .

LOCATION

Sydney, New South Wales



HOW IS THIS RELEVANT TO TOOLERN?

- Demonstrates the benefits of significant public space investment, albeit in a distinctly different setting.
- Application of a strong governance and advocacy regime to deliver strong public realm outcomes, which could provide attractors for retail, commercial and civic tenancies and uses within the core of Toolern.

WHY IS THIS INTERESTING?

More than 50% of the 22 ha site (accommodating 1500 residents and 23000 workers) will be dedicated to open space

CASE STUDY - INTERFACES

ARTERIAL / FREEWAY INTERFACES

SIDE AND REAR FACING LOTS

EXAMPLE:

M1 PORT MELBOURNE, VICTORIA

- Industrial built form back onto and sides directly onto adjacent arterial road.
- No screening is provided.

LOCATION



POSITIVES

- Freeway / arterial width is minimised (i.e not expanded by additional roads and service roads adjacent).
- Side / rear fences or buildings define the edge of the public and private realm.
- Efficient use of space.

NEGATIVES

- Fencing / building dominant in the streetscape.
- Dense landscape planting could provide privacy and a green edge to the street but would require additional space.
- Adjacent building may require noise attenuation (a cost for builders).

REAR / SIDE FACING WITH PLANTED BUFFER

EXAMPLE:

EASTLINK, SCORSEBY, VICTORIA

- Mounding and dense vegetation screens adjacent uses from arterial road.
- Space required for planting / mounding approximately 35m wide.

LOCATION



POSITIVES

- Freeway / arterial width is minimised (i.e not expanded by additional roads and service roads adjacent).
- Landscaping defines the edge of the public and private realm and screens adjacent uses.
- Landscaping enhances of freeway / arterial appearance.

NEGATIVES

- Additional space required for landscaping.
- Dense landscape planting and / or mounding / sound wall is required to provide adequate screening.
- Maintenance required for landscaping.

CASE STUDY - INTERFACES

ARTERIAL / FREEWAY INTERFACES

OPEN SPACE / LINEAR TRAIL

EXAMPLE:

EASTLINK, NOBLE PARK, VICTORIA

- Open space provided as interface between arterial road and industrial uses.
- Open space approximately 100-160m wide and includes a wetland / drain and trails.

LOCATION



POSITIVES

- Landscaping defines the edge of the public and private realm and screens adjacent uses.
- Landscaping enhances freeway / arterial appearance.
- Provides opportunity for safe cycle and pedestrian access adjacent.
- Potential to collect and treat stormwater runoff from road network.

NEGATIVES

- Additional space required for landscaping / linear reserve (and possibly to provide separation between cyclists and pedestrians and passing cars).
- Maintenance required for landscaping.
- Limited passive surveillance for adjacent open space given grade separation and industrial uses backing on.

INTERNAL STREET ADDRESS

EXAMPLE:

WESTERN HIGHWAY, BURNSIDE, VICTORIA

- Industrial uses address arterial road.
- Internal service road provides access to industrial uses.

LOCATION



POSITIVES

- Adjacent uses address and provide surveillance of arterial / freeway.
- Less likely to see 'back of house' uses than if lots were backing on.
- Exposure for adjacent uses i.e. employment uses.

NEGATIVES

- Overall streetscape width expanded by roads, service roads and car parking adjacent - effective width up to 80m wide.
- Streetscape dominated by asphalt however additional landscaping could provide some relief and enhance the appearance of the freeway / arterial.
- Signage associated with adjacent uses may visually clutter streetscape.
- Maintenance required for landscaping.

CASE STUDY - INTERFACES

ARTERIAL / FREEWAY INTERFACES

BUILT FORM

EXAMPLE:

WESTERN RING ROAD, SUNSHINE WEST, VICTORIA

- Industrial built form back onto and sides directly onto adjacent arterial road.
- Landscape screening provided.

LOCATION



POSITIVES

- Built form screens adjacent uses.
- Materials used creatively provide visual interest and contribute to a sense of identity for the arterial road.
- Freeway / arterial width is minimised (i.e not expanded by additional roads and service roads adjacent).

NEGATIVES

- Potential overshadowing of adjacent uses.
- Cooperation and subsequent maintenance and management of buildings is dependant on individual landowners.
- Potential amenity issues for building i.e. solar access and noise.

SOUND WALL

EXAMPLE:

CRAIGIEBURN BYPASS, CRAIGIEBURN, VICTORIA

- Sound wall screens adjacent uses.
- Sound wall incorporates landscaping, lighting to provide visual interest and create a sense of identity.

LOCATION



POSITIVES

- Sound wall screens and provides noise attenuation for adjacent uses.
- Sculpture, lighting and artwork incorporated into design create a sense of identity for the arterial road and provides a landmark for passers by.
- Minimal space required for sound wall itself (additional required for landscaping etc)
- Freeway / arterial width is minimised (i.e not expanded by additional roads and service roads adjacent).

NEGATIVES

- Potential overshadowing of adjacent uses.
- Access required for maintenance.

CASE STUDY - INTERFACES

INDUSTRIAL / RESIDENTIAL INTERFACES

BUILT FORM

EXAMPLE:

WAVERLEY PARK, MULGRAVE, VICTORIA

- Housing is 2 storeys and indicatively 12m deep and 8-12.5m wide.
- Private open space is provided in the front setback. High solid fence screens front setback open space.
- Single garage product only.

LOCATION



POSITIVES

- Compact housing solution.
- Built form screens adjacent uses.

NEGATIVES

- High solid fence appears dominant in streetscape.
- Example is a single garage product only.
- Unique building product i.e. not available to all builders.

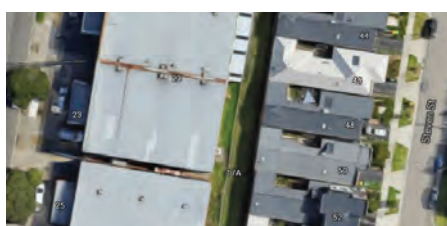
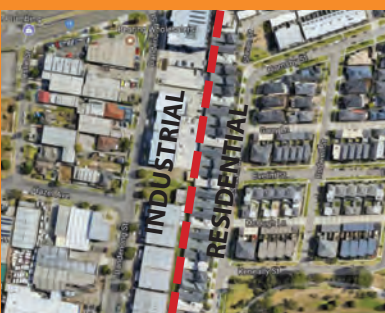
BUILT FORM

EXAMPLE:

METRO 3175 (FORMER DANDENONG SALE YARDS), DANDENONG SOUTH, VICTORIA

- Housing is 1-2 storeys and indicatively 28m deep and 9 - 12m wide.
- Private open space is provided in side setback.
- Industrial setback to avoid overshadowing of residential.

LOCATION



POSITIVES

- Compact housing solution.
- Built form screens adjacent uses.
- Streetscape appears residential (i.e. industrial is obscured).

NEGATIVES

- Unique building product i.e. not available to all builders.

CASE STUDY - INTERFACES

INDUSTRIAL / RESIDENTIAL INTERFACES

OPEN SPACE / LINEAR TRAIL

EXAMPLE:

FEDERATION TRAIL, TRUGANINA, VICTORIA

- Linear trail approximately 80-100m wide provides interface.
- Includes federation trail (a shared path that follows the heritage listed Main Outfall Sewer alignment).
- Residential uses address trail.

LOCATION



POSITIVES

- Open space / linear trail provides separation between industrial uses and residential uses - distance may mitigate amenity issues.
- Residential uses provide passive surveillance along north edge.
- Linear trail provides shared path connections (multi functional).

NEGATIVES

- Passive surveillance along southern edge is limited - industrial buildings back onto linear trail.
- Open space / linear trail requires maintenance.

ROAD

EXAMPLE:

MIDDLEBOROUGH ROAD, BOX HILL, VICTORIA

- 4 lane arterial road separates industrial / bulky goods and residential uses.
- Road includes street tree planting, naturestrip and footpath access.

LOCATION



POSITIVES

- Road provides separation between industrial uses and residential uses.
- Road is activated at all times of the day, by uses either side.

NEGATIVES

- Potential amenity issues for residential uses i.e. noise and safety relating to passing trucks.
- Some residential homes have high solid fencing which appears dominant within the streetscape. This may be in response to both the road and adjacent uses.

CASE STUDY - INTERFACES

INDUSTRIAL / RESIDENTIAL INTERFACES

TRANSITIONAL USES

EXAMPLE:

HANSEN PARK, FOOTSCRAY, VICTORIA

- Active open space reserve provides separation between residential and industrial uses.
- Some direct interface issues.
- Road also provided to edge of park on residential side.

LOCATION



POSITIVES

- Open space provides separation between industrial uses and residential uses - distance may mitigate amenity issues.
- Residential uses provide passive surveillance to adjacent open space.
- Other appropriate uses may include office, retail and community uses.

NEGATIVES

- Passive surveillance along industrial interface is limited given industrial buildings back on.
- Open space / linear trail requires maintenance.

REAR / SIDE FACING LOTS

EXAMPLE:

BOUNDARY ROAD, BRAESIDE, VICTORIA

- Conventional housing provided, backing onto industrial uses.
- Industrial built form backs onto residential uses.

LOCATION



POSITIVES

- Allows for conventional housing to be provided adjacent.
- Built form screens adjacent uses from the street.

NEGATIVES

- May be potential amenity issues for residential uses i.e. overshadowing, noise, air pollution associated with uses etc.
- Some industrial buildings are visible between residential built form.