

Sustainable Subdivisions

The Developer's Challenge

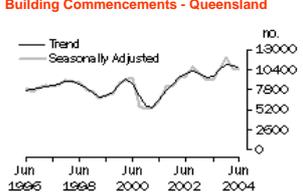
Michael Ambrose (CSIRO MIT)
 Elspeth Mead (QUT)
 Anne Miller (CSIRO MIT)



Expanding Cities



Building Commencements - Queensland



8.2% increase in dwelling approvals over the last year
 15.1% increase in dwelling commencements in Queensland



Australia's Impact

Australia's ecological footprint = 7.7 hectares/person
 Global Average = 2.2 hectares/person

=  4.3 Earths!

This is clearly NOT sustainable!

Australia's reliance on coal-fired power stations is the main reason




Energy efficiency codes

- Dwellings require certain energy performance levels
- Most States require 4 stars (Qld – 3.5 Stars)
- Challenges exist for the building industry in complying with codes
- Challenges for land developers to provide lots that aid compliance




Subdivision Drivers

- Yield; taking into account factors such as:
 - ❖ Cost of the initial site purchase
 - ❖ Projected return
 - ❖ Time necessary in which to gain the return
 - ❖ Legislation, local mandates and regulations
- Location - schools, child minding, shops, transport links
- Topography – often dictates development layout
- Zoning - land that is self or code assessable
- Allotment size – low density verses high density
- Competition – growing importance with slowing market
- Aesthetic Appeal - mature vegetation and landscaping
- Supply and Demand - familiar product to a familiar market



Sustainable Subdivisions

Defining Sustainability – What does it mean?

- ❖ How is the meaning interpreted in practice?
- ❖ How can it be measured?
- ❖ Who recognises the measures?
- ❖ Who pays?

Sustainable Subdivisions – our definition:
A method of actively reducing the impact that today's subdivisions, tomorrow's suburbs, have on the environment.



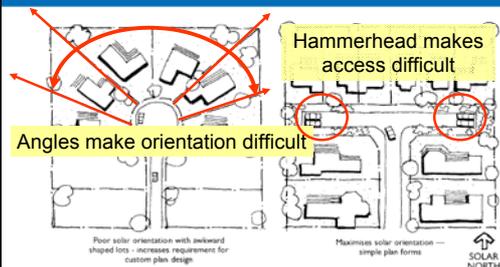

Measuring Barriers

● How is it measured?

- ❖ Current star ratings designed for dwellings not subdivisions
- ❖ Current requirements can be achieved without lot considerations, but for how long?
- ❖ Tools required to measure orientation, natural ventilation and light options
- ❖ Level playing field required



Regulatory Barriers



Preferred by many regulatory bodies

Preferred for solar orientation



Market Barriers

- Sustainability is not valued
- Valuers and financiers often do not see the ongoing financial benefits
- Consumer has to pay for innovation
- Developers penalised – eg no discount on water rates for providing decentralised treatment plant
- Sustainable factors are effectively devalued



Sustainability is Profitable!



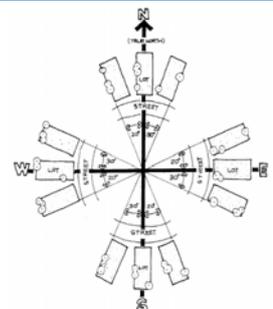
Rating Subdivisions

- Methodology originally developed by SEAV (Victoria) and SEDA (NSW)
- Relatively simple system which considers orientation, width and slope
- Assessing appropriateness for SEQ and further enhancement
- Possibility for future automatic tool linked to GIS systems

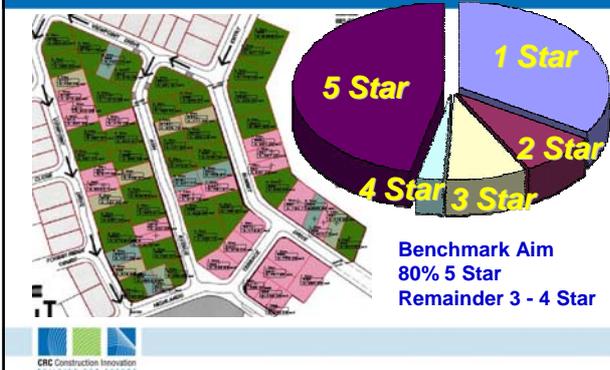


Determining Star Rating

- Determine lot orientation
- Measure lot width
- Adjust for slope
- Determine star rating



Rating of Development



Developers Driving Innovation



Sanctuary Pocket Development

- 400 home sites
- 33 hectare village
- 20kms west of Brisbane CBD
- Solar hot water system provided

Mandatory Energy Requirements

- Main living area faces north
 - Fluorescent lighting for high use areas
 - Ceiling fans/roof ventilation
 - Roof and ceiling insulation
 - Tinting for exposed windows
- CRC Construction Innovation
CONSTRUCTION INNOVATION

Scheme Success

- Majority of lots have been sold
 - Developer considering solar hot water and water tanks as mandatory for all future releases
 - BCC using development as their first trial Rainwater Tank Community
 - 1740 tonnes of greenhouse gas emissions saved each year
 - 108 million litres of water saved each year
- CRC Construction Innovation
CONSTRUCTION INNOVATION

Conclusion

- Required and desired sustainability practices need to be clearly articulated and consistent to retain the competitive nature of industry
 - Incentives to make sustainable practices more attractive to the developers, suppliers and the homeowners
 - Tools that measure energy efficiency need to be site specific, apply to all, take account of orientation, adjacent built forms, deciduous and evergreen vegetation and construction materials
 - Sustainable practices need to be recognised by the valuation and financial industry to overcome the financial barrier
 - Research to demonstrate that new and innovative models of sustainable development are more affordable than traditional models of development.
- CRC Construction Innovation
CONSTRUCTION INNOVATION