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# Discovery Rise

## Plotting the Future for JCU

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Alan Carpenter, Director, Discovery Rise, James Cook University

Caroline Stalker, Director, Architectus

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# Parallel Paradigm Shifts

University built environment

Urban design theory and practice

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# About JCU

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## Our Intent

A brighter future for life in the tropics,  
world-wide

## Our Purpose

Graduates and discoveries that make a  
difference

● Singapore

Thursday Island

● Cairns

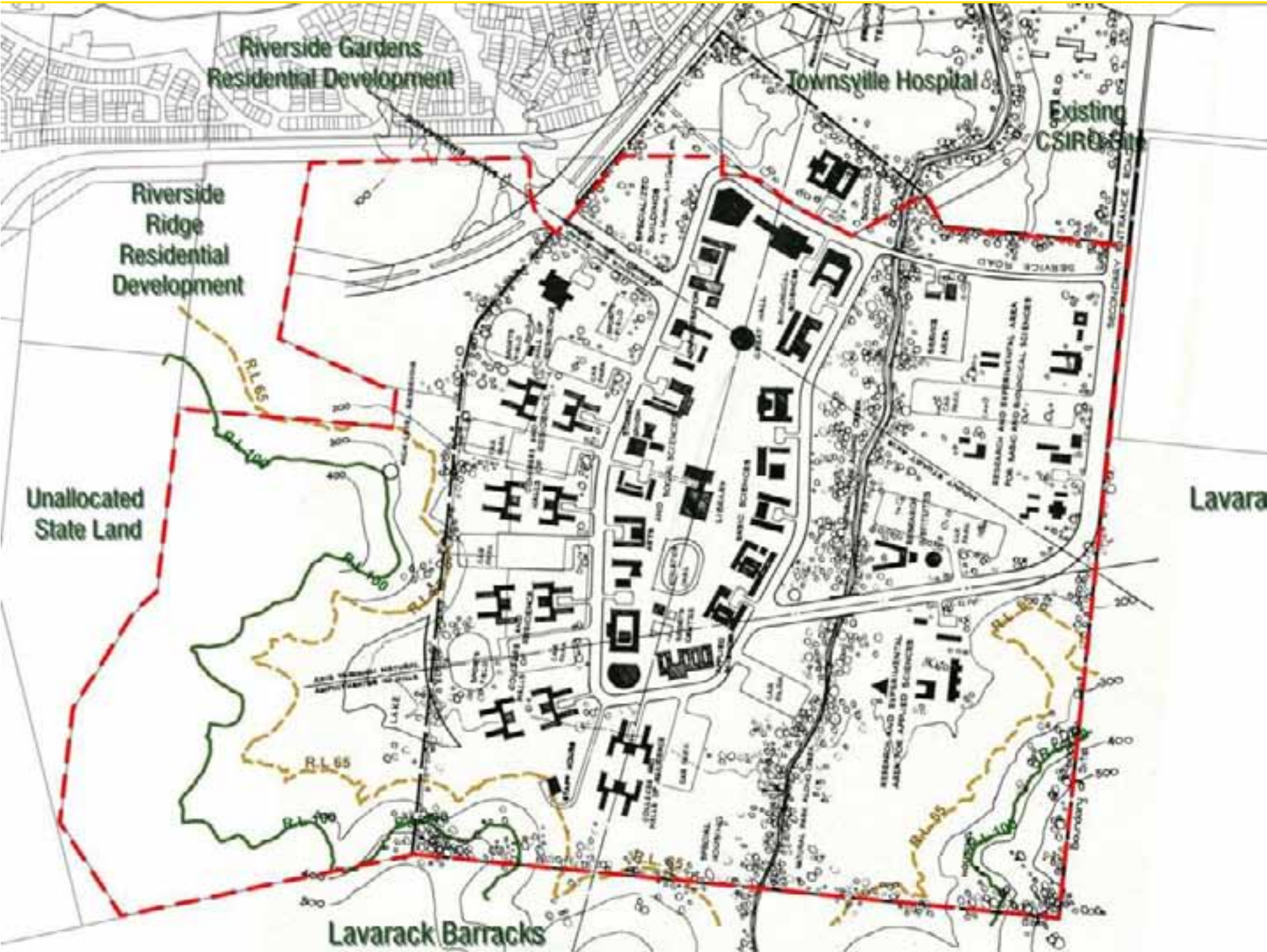
Mt Isa

● Townsville

● Mackay

● Brisbane





Riverside Gardens Residential Development

Townsville Hospital

Existing CSIRO Site

Riverside Ridge Residential Development

Unallocated State Land

Lavara

Lavarack Barracks



TOWNSVILLE CITY

AITKENVALE BUSINESS CENTRE

THURINGOWA CENTRAL

JCU - DOUGLAS CAMPUS

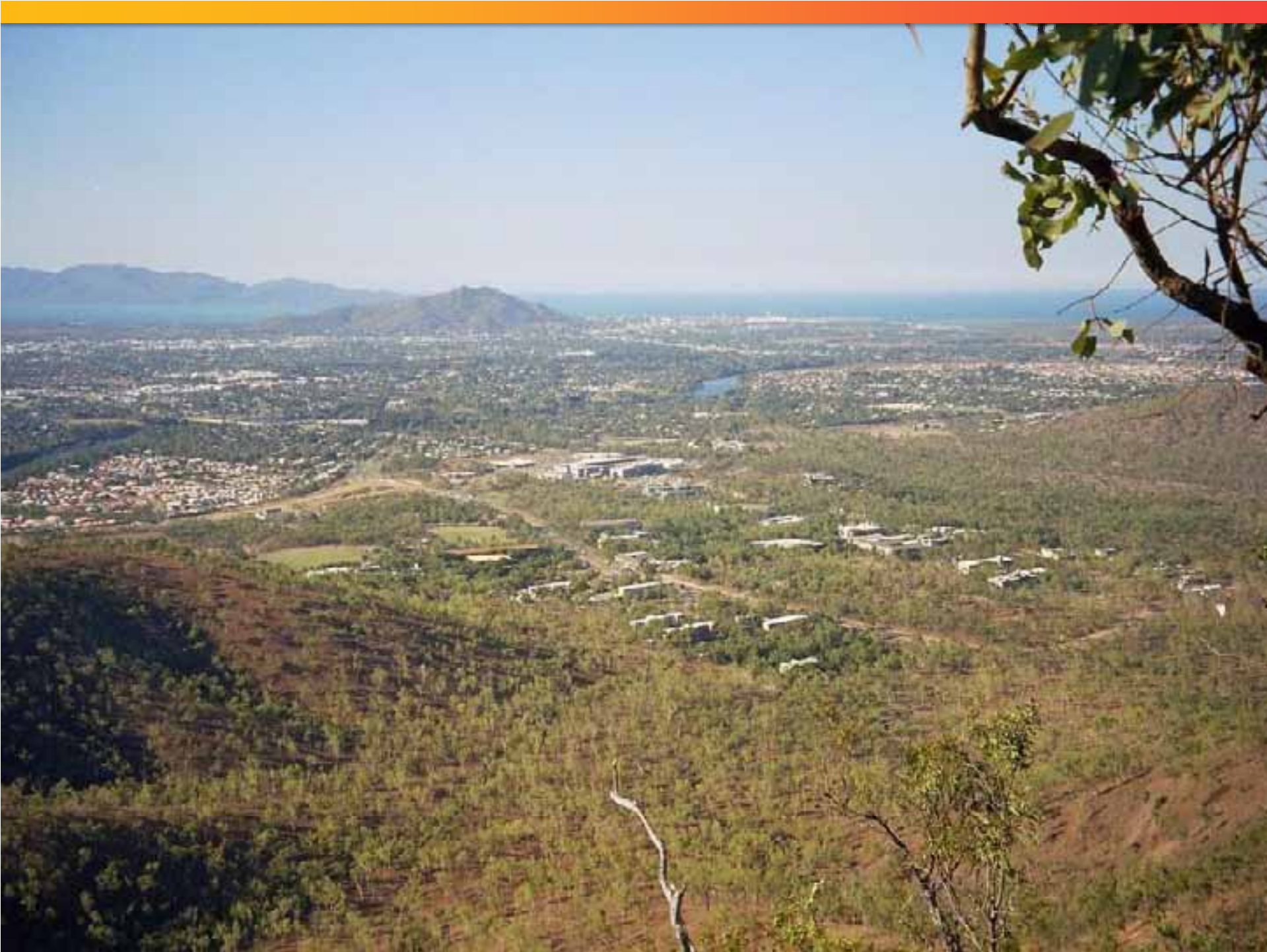
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# Shifting Ground

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## 1987 Dawkins Reforms

Larger and more business like universities

## 2003 Nelson Reforms

Mission diversity, status differentiation,  
research quality

## 2010 Bradley Review

Demand-driven system



# Consequences 1

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## Exposure to competition

### We need

- **points of difference**
- **attractors**
- **commercial partners**

# Consequences 2

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**Budgets increasingly stretched as ‘trophy’ buildings rarely adequately provide for**

- operating costs**
- headworks**
- landscaping**
- connectivity to other buildings**

# Consequences 3

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## Institutional campuses not sufficient

- Suburban / bush campuses
- Pavilions in the park
- Educational gulags

**We need to reconceptualise our campuses**



# The JCU Response

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## Discovery Rise

**A reconception and reshaping the built environment  
of Douglas Campus ...**

**...from an isolated institutional campus to an  
integrated university town...**

**... with its knowledge community building and  
strengthening North Queensland's knowledge  
economy**

# Parallel paradigm shifts

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- **University built environment**
- **Urban design theory and practice**

# Big Questions

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- Does place matter anymore?
- **What is a knowledge community and what is its urban context?**
- How big is big enough for a university campus?
- Where are the exemplars?
- What is the best governance structure?
- What are the tenure arrangements?
- How is the project funded?
- How long will it take?



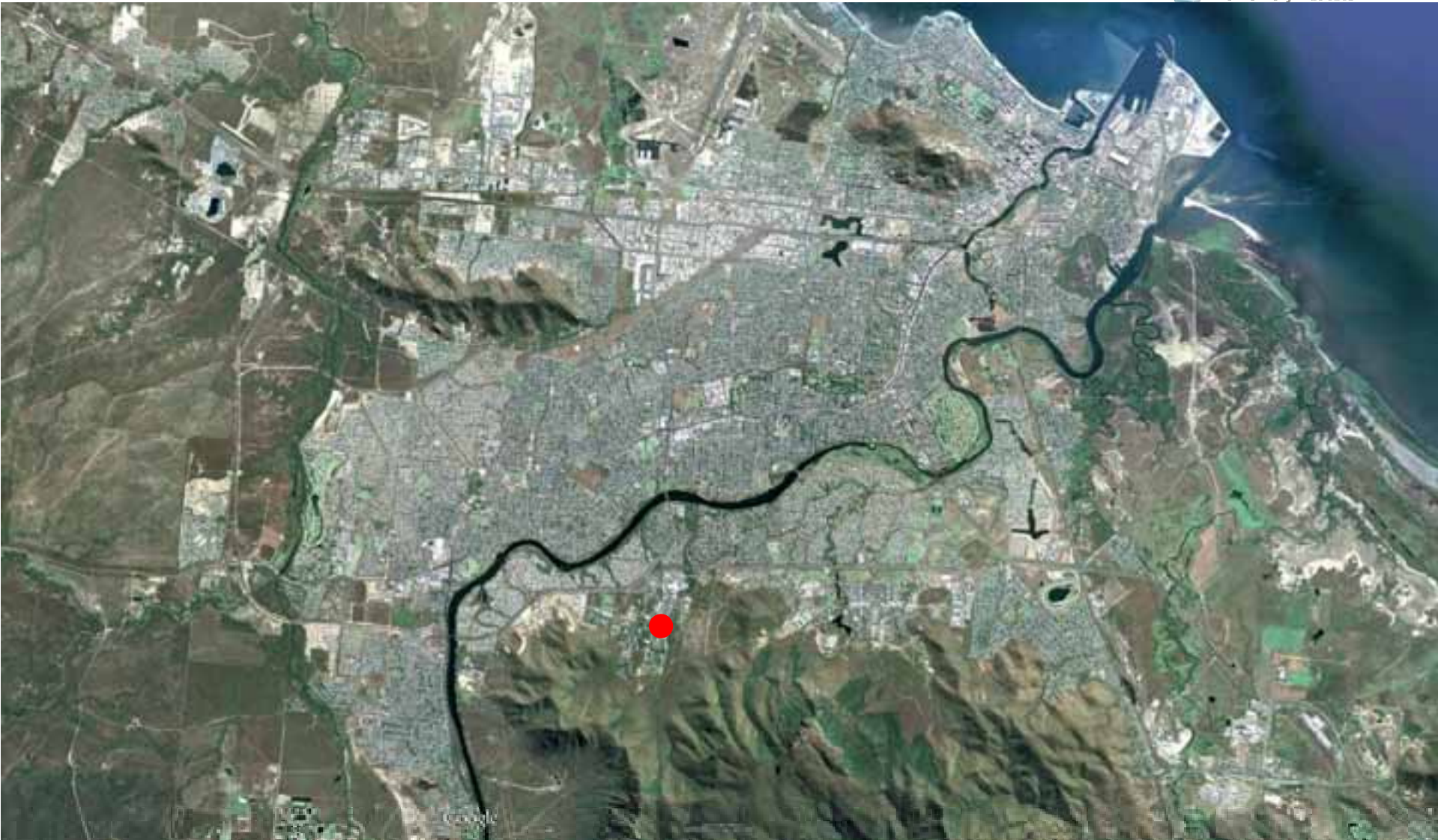
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# The Urban Design Journey 1950 - 2010

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Alan Carpenter, Director, Discovery Rise, James Cook  
University

Caroline Stalker, Director, Architectus





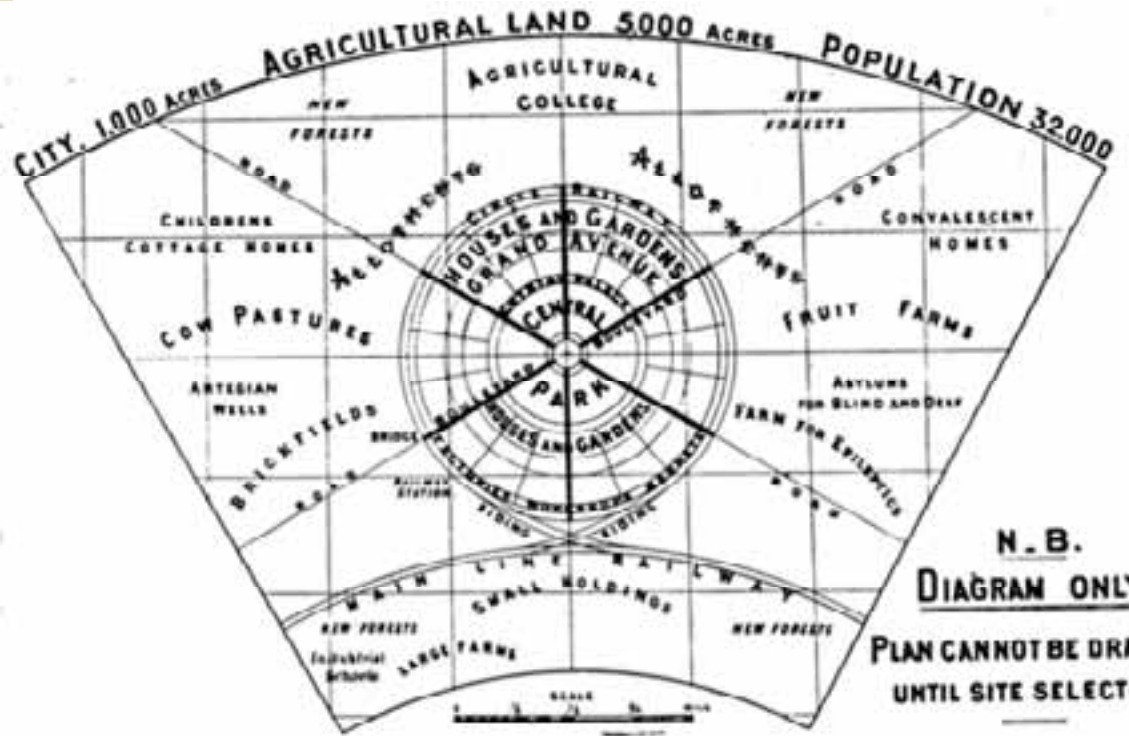


Ever - Expanding Post War Australian Cities





19<sup>th</sup> century industrial city



Planning reform movement – The Garden City



Land Use Zoning



Le Corbusier's La Ville Radieuse and Neimeyer's Brasilia



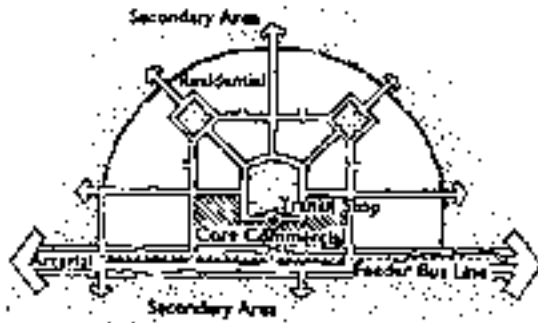


Brasilia





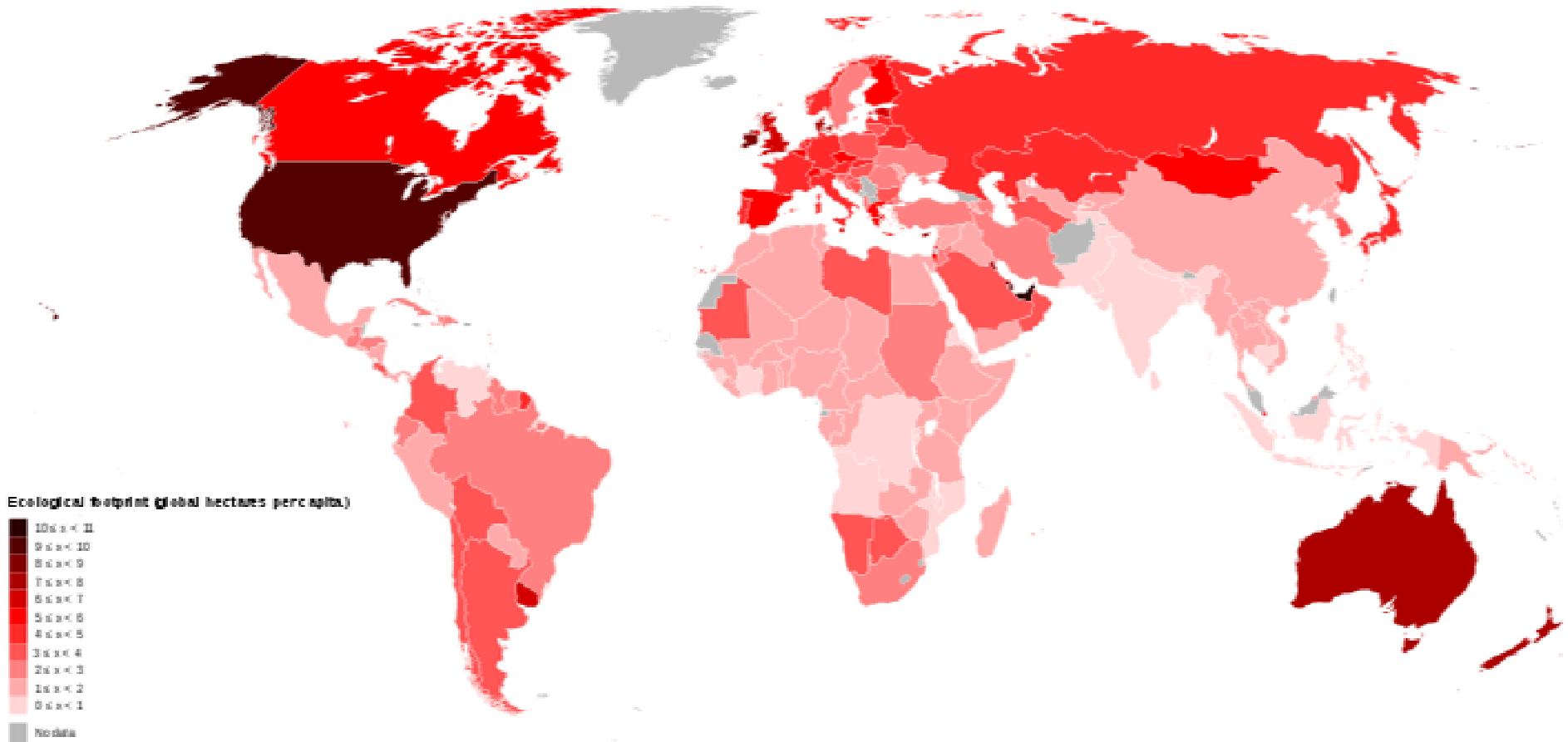
JCU today



Neighborhood TOD in Calthorpe *The Next American Metropolis* p 57;



American and British New Urbanism – Poundbury and Seaside







Airport

Nashville CBD

Central Light Industry Hub

James Cook University Douglas Hub

Smart Heavy Industry Hub

# Discovery Rise Urban Plan

1. Brief
  2. Site
  3. Plan Structure
  4. Tropical Urbanism
  5. Housing and Precincts
  6. Sustainability Approach
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### **JCU's Vision**

*The creation of a university town with a distinctively Australian tropical ambience which will incorporate energetic academic, social, artistic and commercial environments. It will be an integrated community of living and learning that will set a new benchmark in sustainability.*



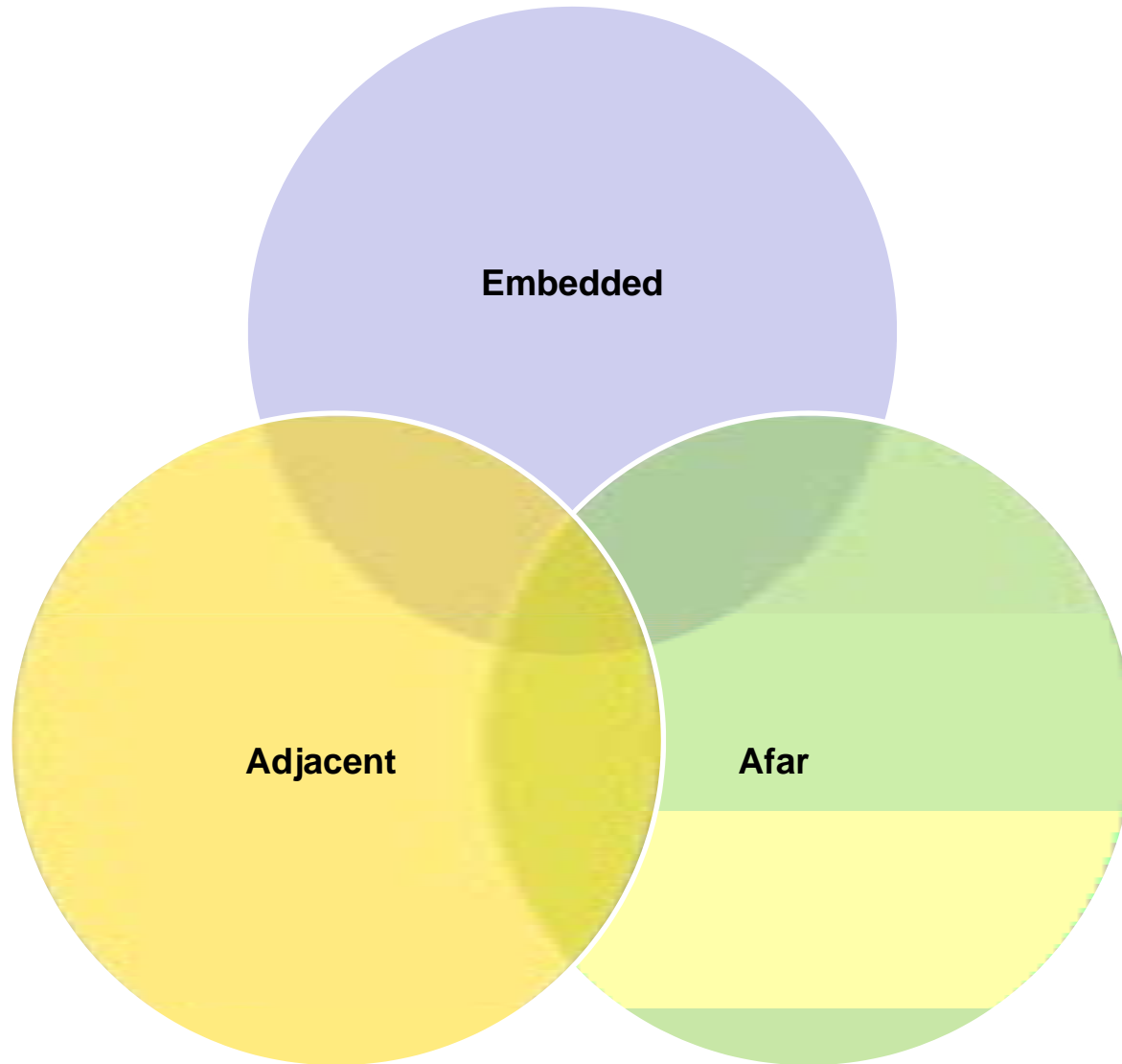
- Long term re-invention/recasting of JCU – no long a “Place Apart” but a university town, connected to the community of Townsville
- Highly integrated with campus life
- Informed by a clear understanding of who will live there and why they will come
- A community of 7000+ with it’s own economic agents:
  - 30% residential pop. involved in study
  - 60% of the residential working pop. (50%) will work at either JCU, the Hospital or in Townsville’s Knowledge Precinct
  - Variety of community needs and relationship to JCU – embedded, adjacent and afar



# Community Plan Elements

New population for Discovery Rise of 5444 people. This population would be made up of the following audience segments. In addition there are 1000 students already living on campus.

| Scenario 1_ Discovery Rise Residential Hub |                                 |  |          |       |               |
|--|---------------------------------|--|----------|-------|---------------|
| AUDIENCE AND DEMOGRAPHICS                  |                                 |  |          |       |               |
|  |                                 |  | Total DR |       | Townsville    |
| <b>A</b>                                   | <b>A Privileged Prosperity</b>  |  | 6.00%    | 268   | 2.76% 4,249   |
| <b>B</b>                                   | <b>B Academic Achievers</b>     |  | 37.40%   | 1,644 | 3.51% 5,392   |
| <b>C</b>                                   | <b>C Young Ambition</b>         |  | 5.00%    | 214   | 1.68% 2,588   |
| <b>D</b>                                   | <b>D Pushing the Boundaries</b> |  | 20.70%   | 923   | 14.29% 21,971 |
| <b>E</b>                                   | <b>E Family Challenge</b>       |  |          |       | 36.07% 55,449 |
| <b>F</b>                                   | <b>F Metro Multiculture</b>     |  |          |       | 0.01% 22      |
| <b>G</b>                                   | <b>G Learners and Earners</b>   |  | 24.49%   | 1090  | 4.76% 7,320   |
| <b>H</b>                                   | <b>H Provincial Optimism</b>    |  | 1.40%    | 63    | 6.22% 9,558   |
| <b>I</b>                                   | <b>I Farming Stock</b>          |  |          |       | 8.63% 13,268  |
| <b>J</b>                                   | <b>J Suburban Subsistence</b>   |  | 3.30%    | 149   | 16.18% 24,876 |
| <b>K</b>                                   | <b>K Community Disconnect</b>   |  | 1.70%    | 78    | 5.87% 9,019   |





- Landscape setting powerful.
- Birrell buildings important 'set pieces'
- Open, relaxed tropical landscape setting essential quality of JCU
- Good bones exist – axes, landscape, Birrell buildings,

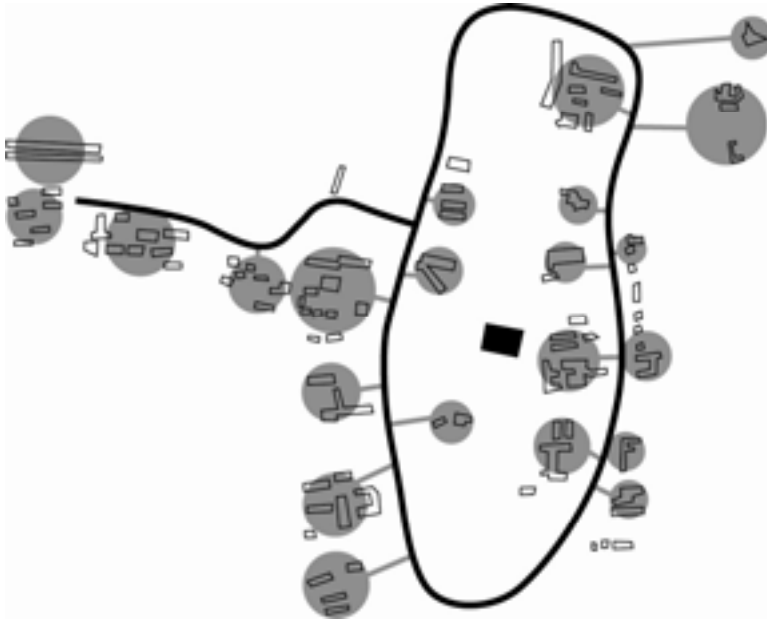


## Existing Conditions: Key Influences

Landscape setting - primary organiser for 1964 Birrell master plan

Need for evolution of this to respond to urban connections, western campus

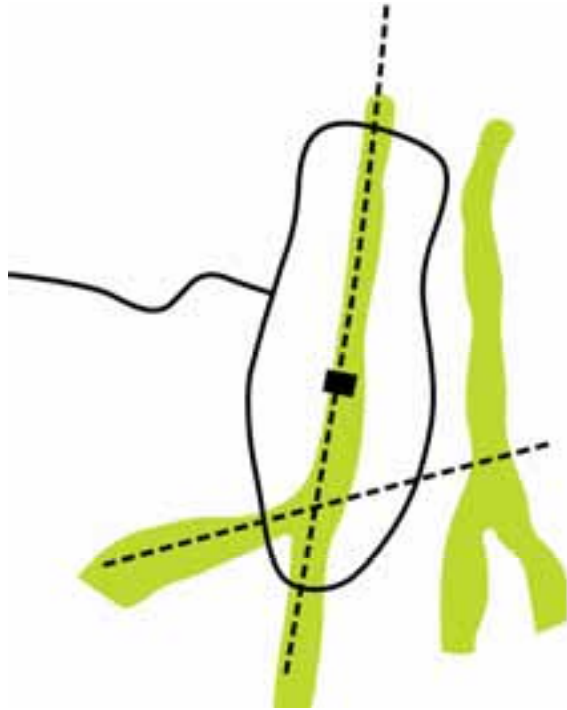




Car dominance and fragmentation

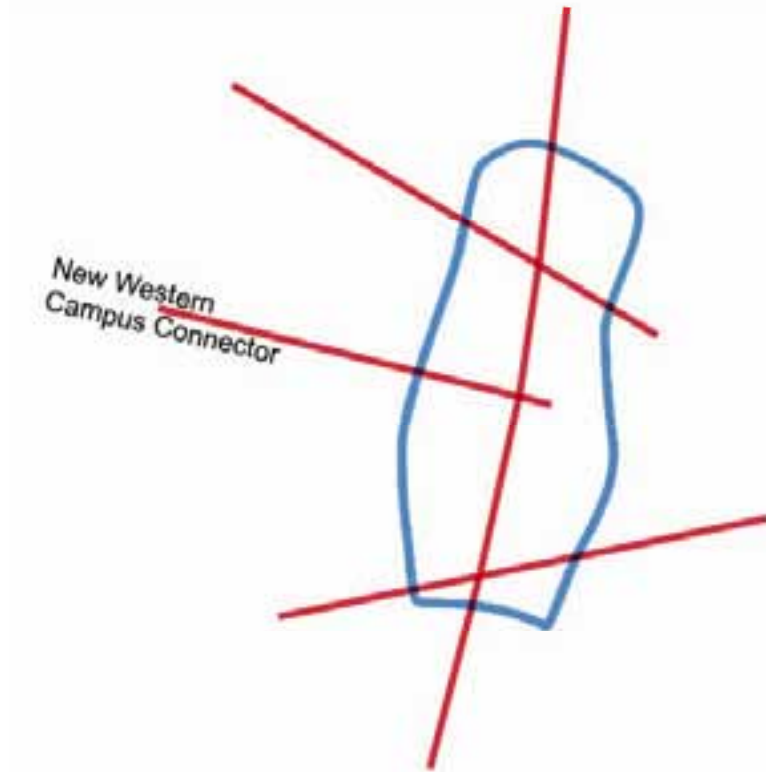


Academic core to be retained (building on Hassell 2002 work)



Desire to reinvigorate green corridors (building on GMG 2006-8 work)





## Organising Principles

Axes and ring road as connectors

Re-invigorate existing structure – overlay several layers of use and occupation to invigorate



Connect academic core to new uses 'retrofitted' amongst existing sites and at perimeter – more intense closer to core



Overlay of increased density of development at junctions of paths and on green corridors – creates 'hubs'





Mixed uses at junctions and new frontage and activity



Pedestrian routes and connections



Vehicular circulation to interconnect and cross but not dominate key axes





4 'hubs', 5 precincts






Range of housing types, embedded, adjacent and afar

Strengthening existing 'good' patterns while reorganising of uses around core

New school as western anchor

High density 'activates' connector streets and green corridors

# The Urban Plan - Precincts

| Hub  | Dwellings | Users   | Housing types  | Height                                      |
|--|-----------|---|--|---|
|  Discovery Central                   | 205       | Students, hospital workers, health professionals, visitors and patients, JCU staff. A number of buildings will have shops, cafes and offices on lower levels. There will also be some short term accommodation for outpatients and family of patients for the hospital. | Units - 60% 3bd, 30% 2bd, 10% 1bd                                    | up to 4-6 storeys                           |
|  Discovery Rise Town and Gown        | 139       | Students (local, international and mature age), academics, JCU staff. A number of buildings will be above student and university-oriented retail.   | Units - mix of 2 and 3bd   | up to 4-6 storeys                           |
|  Discovery Rise Residential Precinct | 182       | Residents of DR hills, students and JCU staff.  | 50% 3bd townhouses, 50% units 2-3 bd                                 | town houses: 2st. Units: 3-4st.             |
|  Discovery Rise Hills                | 1366      | Educated professionals, young families, health professionals, young adults, students, single parents, blue collar workers and retirees.   | 66% detached (small lot incl), 24% 3bd town houses and 10% 3bd units | detached and town house: 2st. Units: 3-4st. |
|  School Precinct                     | 355       | Young families, health professionals, young adults, students, single parents, blue collar workers and retirees.   | 50% detached (small lot incl), 20% 3bd town houses and 30% 3bd units | detached and town house: 2st. Units: 3-4st. |







- Legend**
- Douglas Hub and Discovery Centre community master plan by O'Brien
  - Detached housing
  - Attached housing
  - Small lot housing
  - New mixed use residential and academic uses
  - Existing Buildings
  - Enterprise Park
  - Existing Sports Oval
  - Green Corridors

The Urban Plan





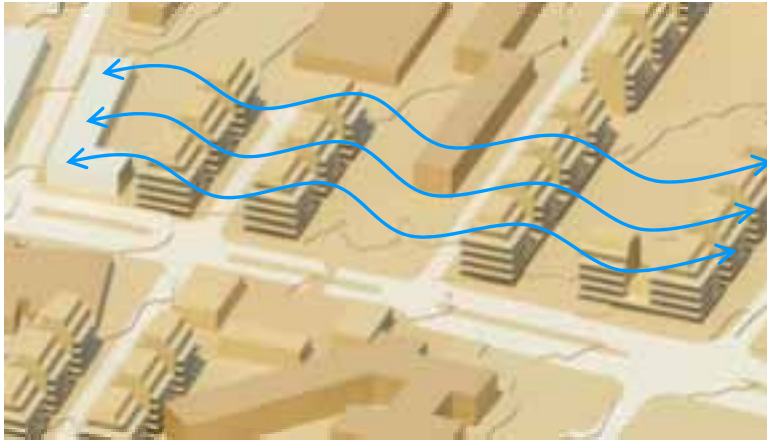
3D view looking south west



3D view looking south east



# Climatically Responsive Urbanism



**The Fragmented Perimeter Block**



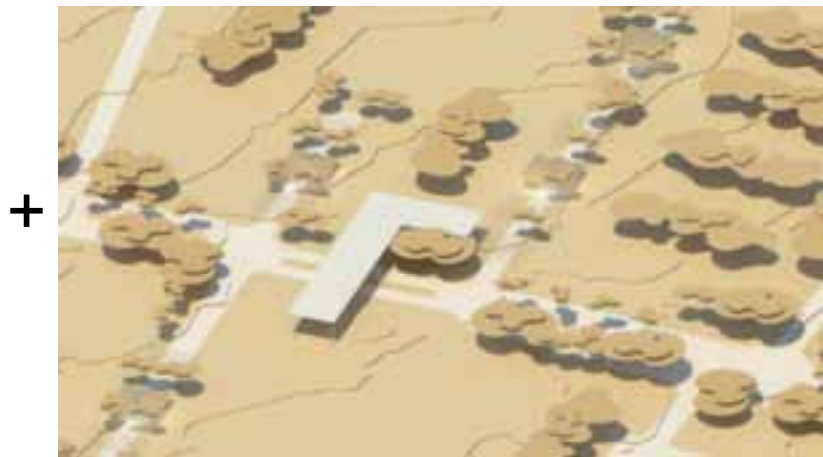
**Shady Edges**

Dry tropics – same rainfall as Brisbane but all in the wet season

Encouraging walking a challenge in summer

Avoid heat islands

Minimise A/C reliance



**Built and Planted Shade**



Buildings offer shady retreat spaces – layered; collonades, verandahs

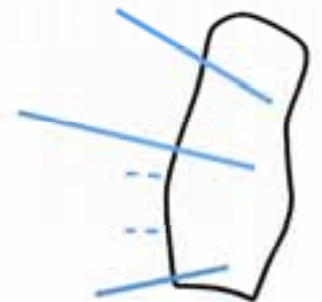
Continuous shade and shelter a priority

Combine with narrow –E-W streets where thermal mass and shade keeps streets cool





Cool, shaded E-W streets as connectors





North-south streets and spaces:

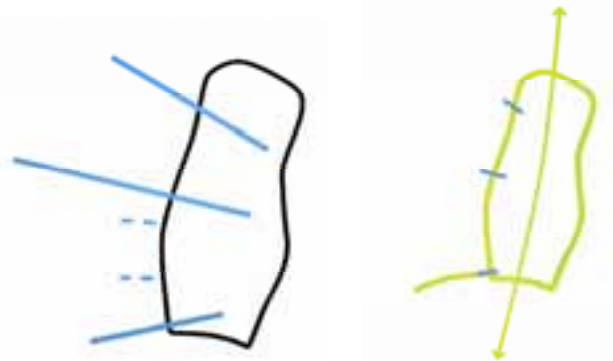
Larger scale planted shade, build shade at intersections







A continuously shaded and inviting 'ground plane'



All products need to be considered with a framework of biophysical impacts

LAND (soil, hydrology, vegetation, fauna, bushfire, topography)

ENERGY (design, climatic model, mechanical, renewable)

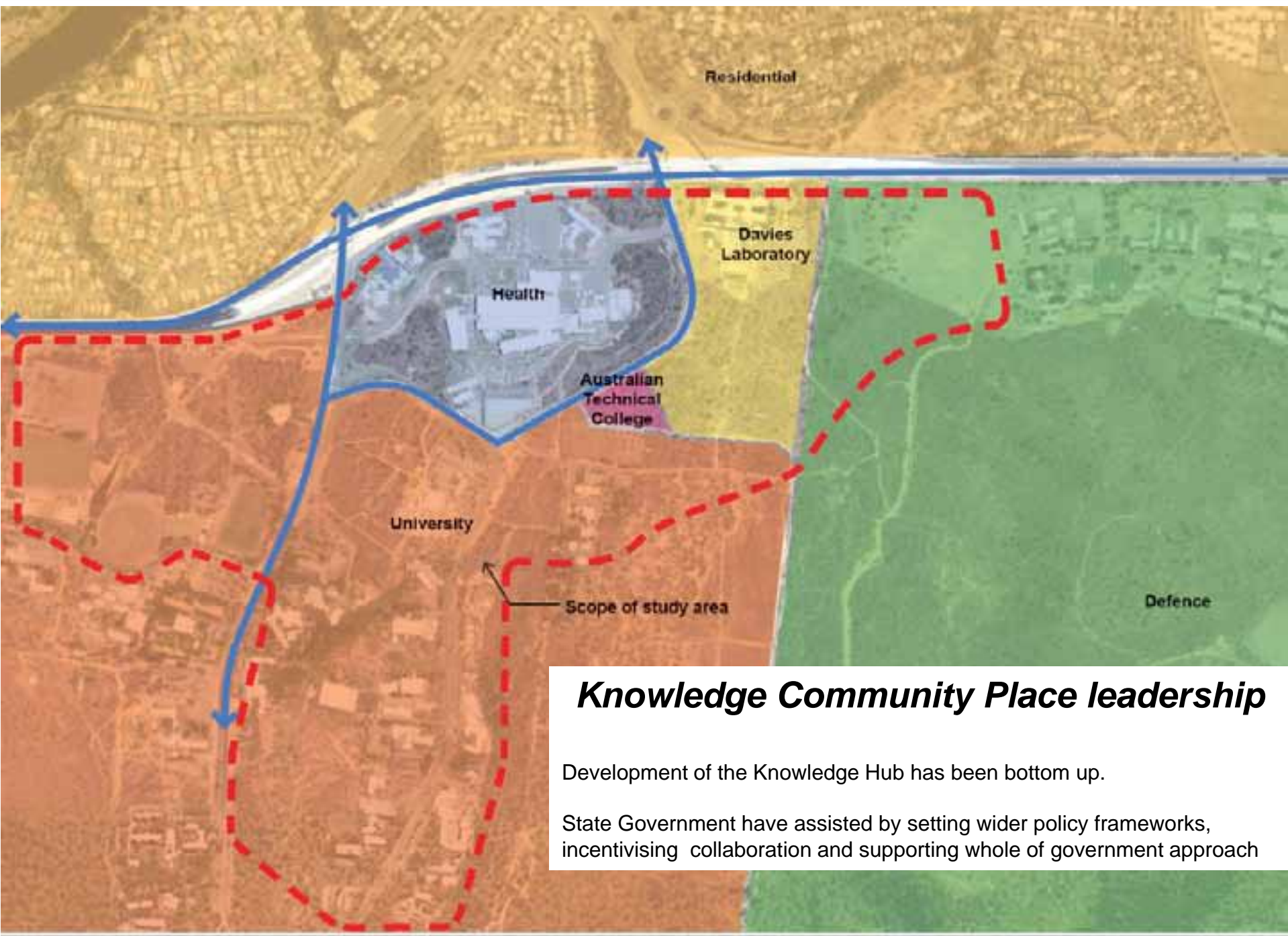
MATERIALS

WATER

WASTE (organic, non-organic)







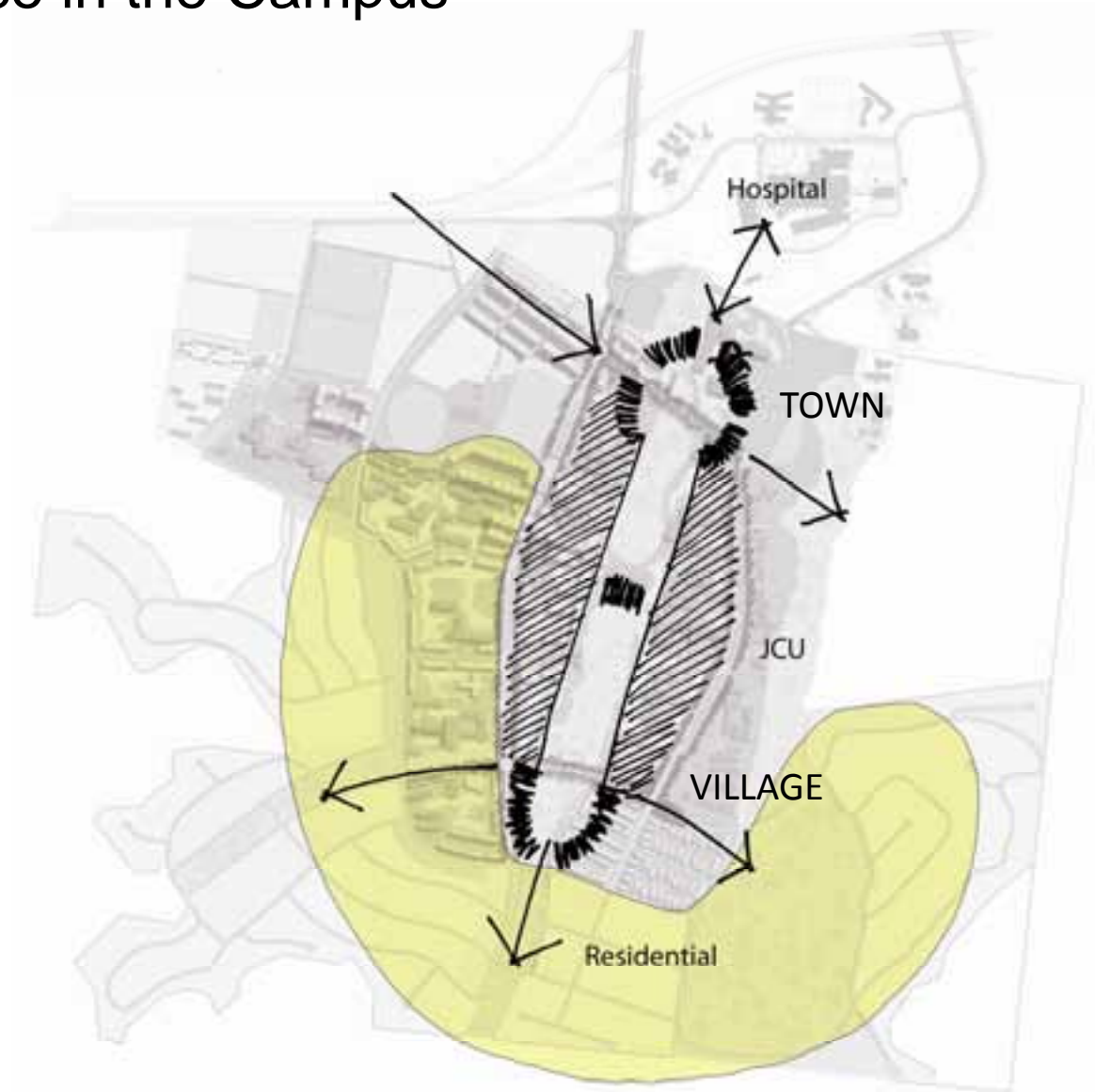
## ***Knowledge Community Place leadership***

Development of the Knowledge Hub has been bottom up.

State Government have assisted by setting wider policy frameworks, incentivising collaboration and supporting whole of government approach

# The Ideas Market: Its place in the Campus

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# Market Place at Crossroads

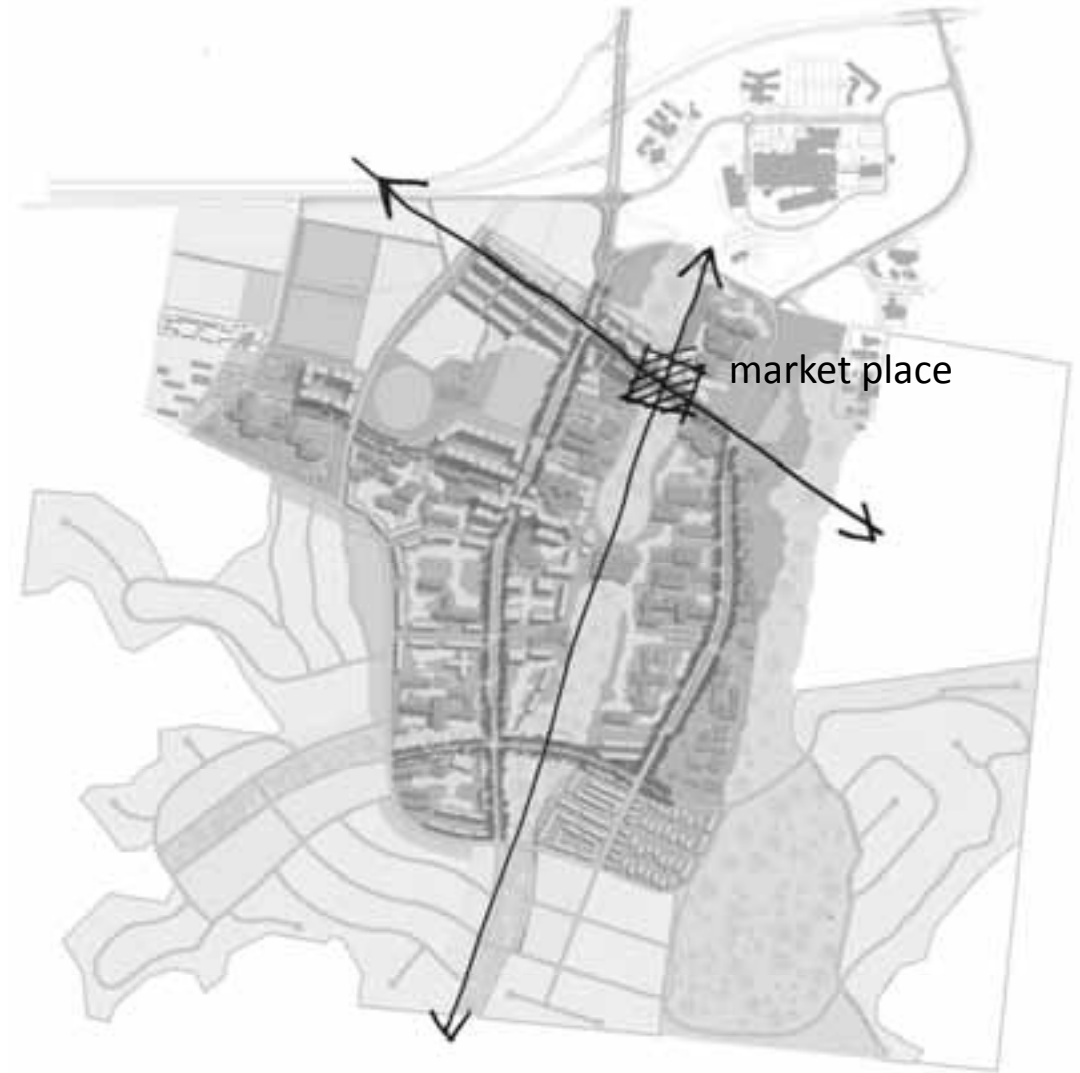
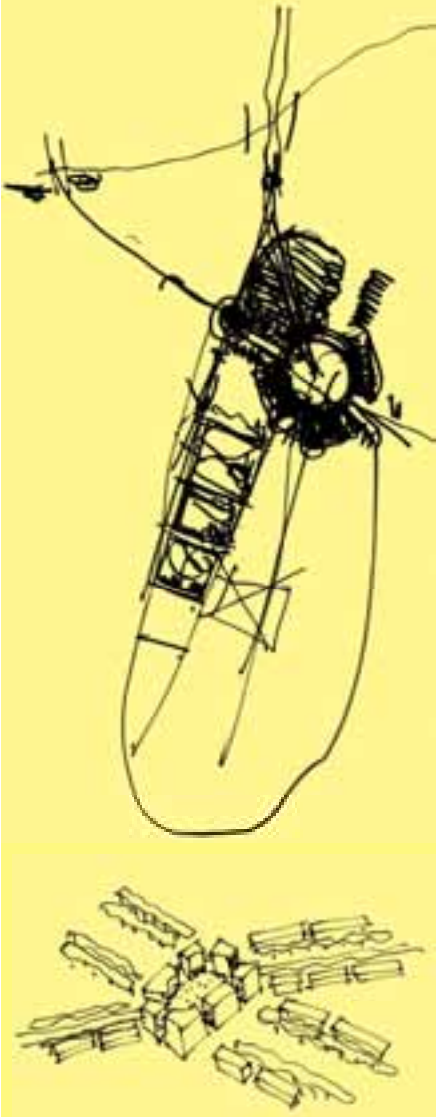
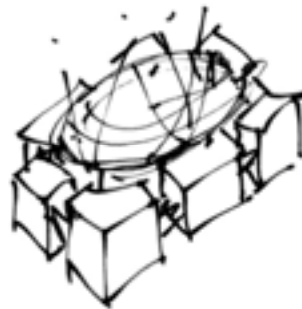
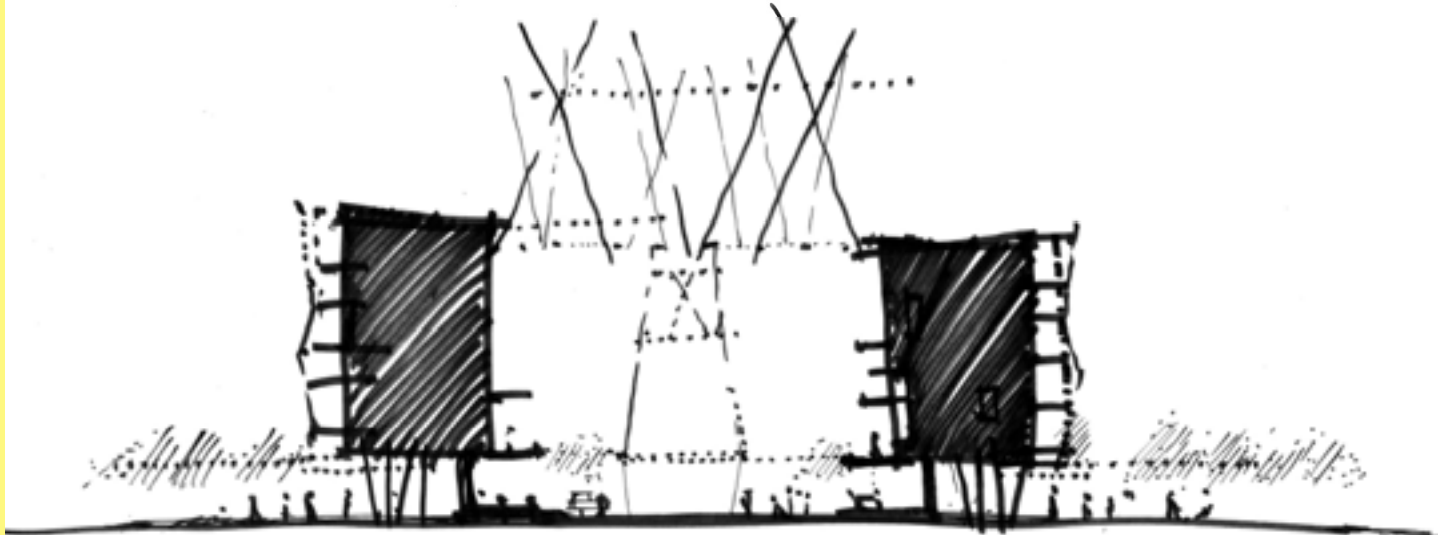
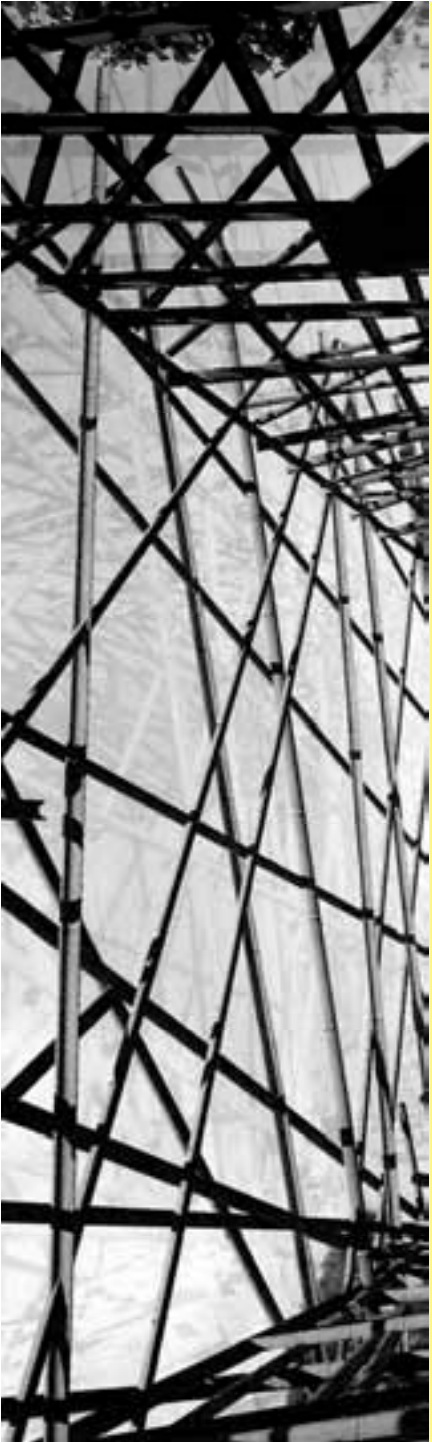


Image 01. market place at crossroads



# Intensity Stack + Shelter



net of shade  
basket  
ephemeral  
tropical canopy





# The Place where paths converge

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# What's in the Market Place:

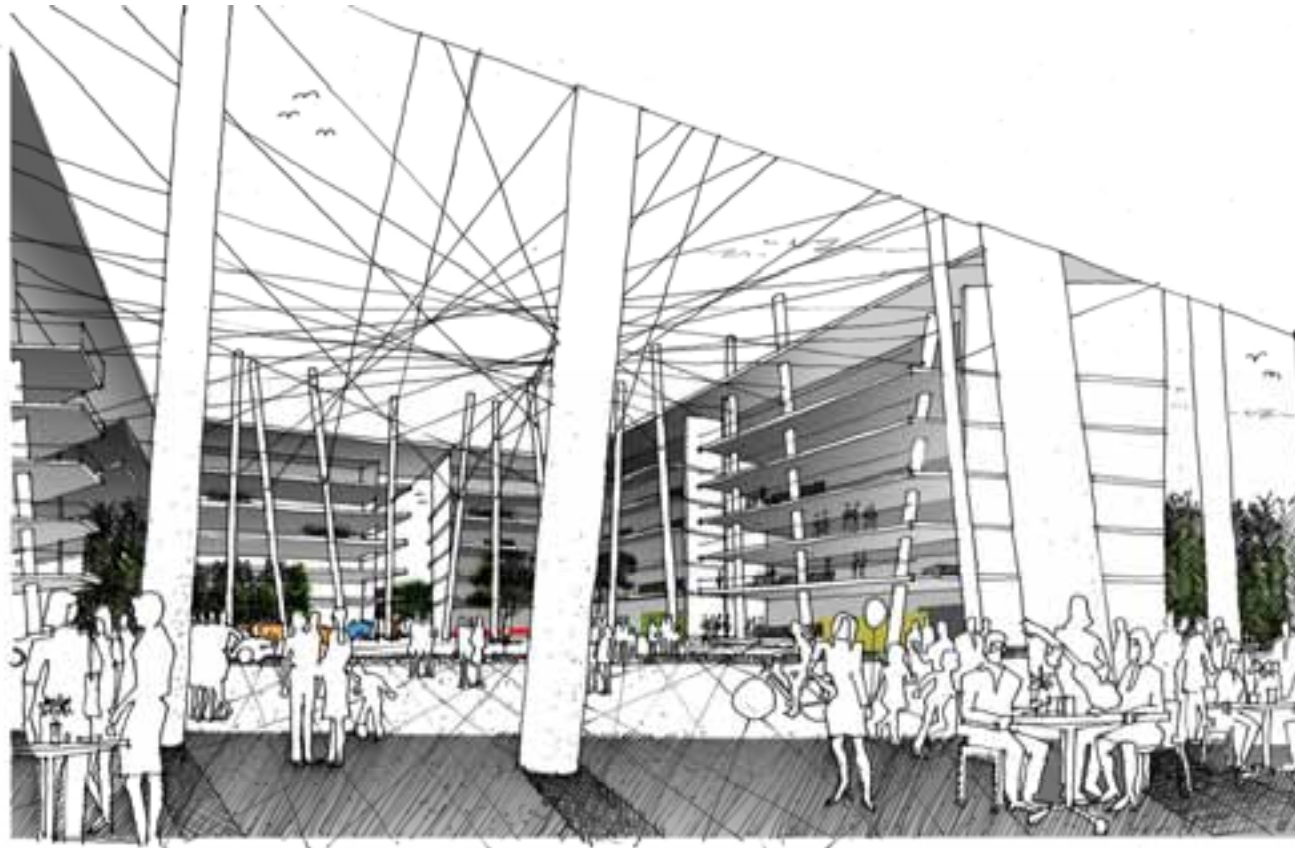
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- CBP entry and reception
- Sandwich shops
- Bank
- Pub + bottle shop
- Small Asian cafes
- Weekly markets
- Juice bar
- STA travel agent
- Ice cream shop
- Hairdresser
- Printers/stationers/binders
- Chemist
- Cornerstone Entry
- Block teaching space entries
- Screen for projecting keynote lectures
- Markets



# Heart

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# IMPLEMENTATION





END

Questions?