

Campus Master Planning and Public-Private Partnerships

Observations from
National University of Singapore

Singapore

- Island City-State on southern tip of Malay Peninsula
- Three prime ethnic groups; 4 official languages
- Population of 4.5 million on 682 sq km island (6,200 persons/sq km)
- 136 km north of the equator
- Climate: Equatorial/tropical rain forest
Average temp=27; av hi=30; av low=25
Average relative humidity: 84%

National University of Singapore

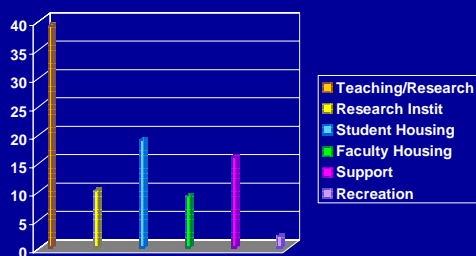
- Research university with 32,000 students taught by 14 Faculties
- Total faculty of 1,900 and 4,900 other staff
- 100 year history
- Substantial Government support
University "corporatized" in 2006
- International faculty, students, and institutional partnerships
- Substantial research program
- Global recognition

NUS Campuses

- Kent Ridge Campus – 150 ha home to most academic programs, housing, cultural, and recreational facilities (Adjacent to National University Hospital and Kent Ridge Park)
- Bukit Timah Campus – 5 ha, reopened in 2006 as home for law, public policy, and Asian study programs
- Outram Campus – houses new Duke-NUS Graduate Medical School (Adjacent to Singapore General Hospital)

NUS Campus Facilities

Total Space = 1,094,000 sq m
% Usage by Function



Campus Master Plan Goals

- Plan for growth to accommodate more students and research
- Preserve and enhance natural landscape and protect green space
- Integrate architecture and site planning to provide "sense of place"
- Create more "community space"
- Develop comprehensive utility plan

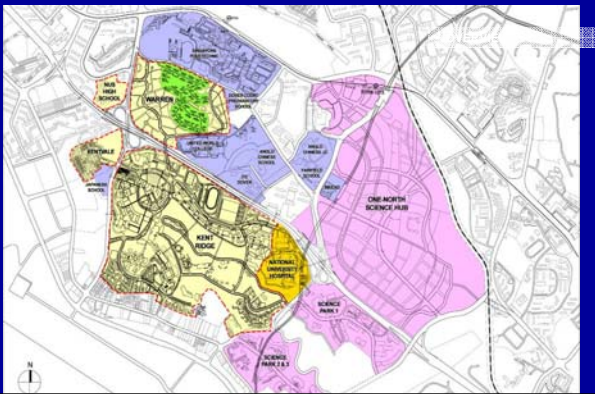
Master Planning Connectivity Issues

- Provide additional adjacency for related programs
- Increase “connectivity” within campus
- Assure easy linkage to adjacent National University Hospital, new “University Town”, and Kent Vale staff housing
- Improve linkage with Bukit Timah Campus, Outram Duke/NUS Medical School/ Singapore General Hospital, & Biopolis
- Integrate campus transportation plan with expanded MRT (rapid rail) system

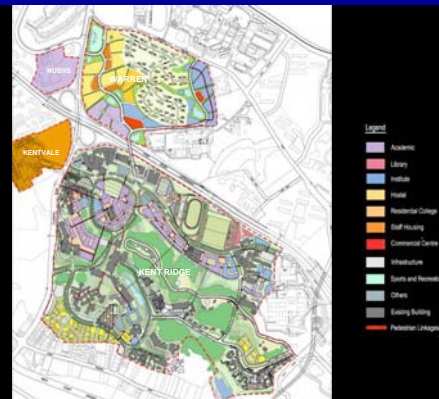
NUS Planned New Space (Occupancy within 5 years)

- University Town @ Warren Campus (PPP)
6,000 beds of student housing with related academic/recreational/auxiliary support facilities and 60,000+ sq m research space for affiliated international institutions
- Other core and satellite campuses:
research/med teaching space (80,000 sq m)
faculty/research staff housing (100,000 sq m)
teaching/admin support (26,500 sq m)
transferred research space (55,000 sq m)

NUS Kent Ridge Campus Area



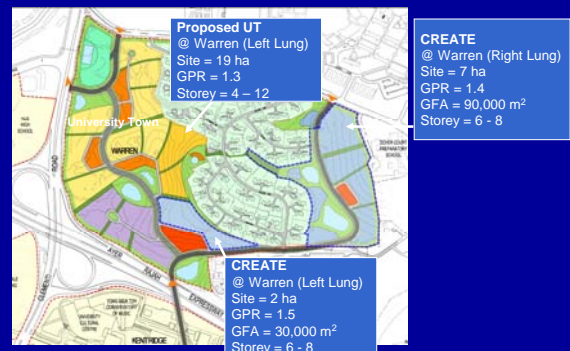
NUS Kent Ridge Master Plan



University Town @ Warren

- Themed undergrad residential colleges and graduate student residences
- Integrated teaching, academic support, social, recreational, and retail space
- Adjacent research space for intl. partners
- Sustainable development with experimental “sustainable college”
- “Linked” to Kent Ridge campus by bridge

University Town @ Warren



Public Private Partnership

- “University Town” to be developed utilizing “PPP” procurement process
- “Experimental College” – traditional delivery (design/bid/build & owner operate)
- Educational Space operation still under review
- Research space development independently evaluated
- Major criteria for PPP contract award include sustainability, educational innovation, and community engagement factors

Bukit Timah Campus

- Site of Raffles College, a predecessor of NUS, developed in 1920’s with post-war buildings
- Adjacent to Singapore Botanic Gardens (52 ha) and integrated into Park Service land
- Site returned to NUS in 2005 and first portion of renovated new campus opened in 2006
- Renovation consistent with national preservation and conservation standards and landscape design integrated into Botanic Garden
- Renovations and new construction completed in 2007 (total space: 38,000 sq meters)

Bukit Timah Campus



NUS Sustainability Committee

- Develop/promote sustainability strategy
- Assist and monitor implementation:
 - Experimental Green Residence (jointly with NUS/international partner research)
 - New construction/renovation (Green Mark)
 - Recycling/resource conservation
 - Utility generation/distribution
 - Transportation
 - Campus Green Space
 - New technologies

Singapore Green Mark Criteria NUS New Building Standard

Four levels of award

Biennial review

Base prerequisite standard plus additional points

Energy Efficiency	35%
Water Efficiency	15%
Site & Project Management	20%
Indoor Environmental Quality/ Environment Protection	15%
Innovation	15%

Challenges

- Climate
- Limited and costly land
- Utility infrastructure
- Integration with growing/evolving adjacent programs
- Limited understanding of sustainable options and ability to deliver/maintain
- Resources (financial and development capacity) in fast growing environment