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)

**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
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