

Higher Education Infrastructure Expansion: The Case of Wits

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ABSTRACT

Responding to a range of imperatives and stimulated by partial Government funding, the University of the Witwatersrand embarked on a programme of infrastructure expansion that has exceeded expectation. A number of factors underpin the mobilisation of this R1.2b programme, including:

- The vision of an improved campus for students, staff and society,
- A leadership focus on fundraising and alternative financing mechanisms,
- Optimism tempered by rigorous budget control and cash flow management,
- A programmatic approach to delivery supported by governance structures to integrate diverse stakeholder objectives within an overarching academic and spatial vision,
- Dedicated project management ensuring consistent delivery, monitoring and reporting,
- A commitment to innovation and value-based contractual arrangements that reward performance, promote collaboration, long-term relationships and improving delivery,
- A culture of continuous value engineering to ensure that all projects remain within budget

The paper builds on the presentation made in August 2010 and highlights lessons learned in the programme's evolution from its first R60m project in 2007 to the present scale of delivery, with expenditure approximating R1m per day.

Keywords: leadership; financing; innovation, delivery, improvement; value

INTRODUCTION

Wits University traces its roots back to the South African School of Mining, which started in the diamond mining town of Kimberly in 1896. In 1904 it transferred to the newly established city of Johannesburg and in 1922 was granted university status. It is now a fully comprehensive, research intensive University, ranked number two in South Africa and Africa. It aspires to be ranked globally amongst the top100 universities by 2022 when it will celebrate its centenary anniversary. Today the University comprises seven insular clusters of disciplines on two separate campuses spread over 440 hectares with over 250 buildings. It is the owner of Sterkfontein (part of the Cradle of Humankind World Heritage Site), Wits Rural Facility, Wits Donald Gordan Medical Centre (specialist hospital), a theatre complex and Planetarium.



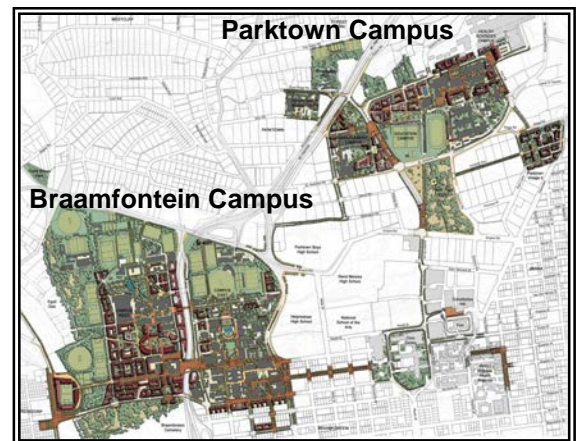
The infrastructure need

Through its early existence and the decades of apartheid Wits catered primarily to a relatively small white population. Up to the 1960s its student population never exceeded 5000. The 1994 transition to democracy opened the hallowed doors of learning to all races and propelled an unprecedented enrolment growth. By 2000 the student population had grown to 18000, expanding to 29000 in 2010 and expected to reach 30000 by 2012.

Enrolment growth has resulted in a dire shortage of classrooms, laboratories, offices and residence accommodation. Space carved out to accommodate growing undergraduate enrolments has also impinged on the capacity of research institutes, programmes and units. Some of the University's infrastructure was aging and out-dated. This includes much of the Western half of its Braamfontein Campus, formerly the Milner Park Showground, which is separated from the original campus by the M1 motorway. Acquired in the middle 1980's the showground infrastructure was hastily converted to University purposes.

Lack of appropriate space has also constrained opportunities for improved service and, indeed, for the exercise of important responsibilities. For example, Wits owns and looks after significant collections of African artwork, which languish in its basements and are rarely displayed to the public. Many of the short courses offered by the University were forced to take place in rented accommodation resulting in lost revenue and increased cost to the public.

In addition to space constraints, the University has had to respond to other infrastructure imperatives, including refurbishment and modernisation. It has invested across its campuses in data connectivity and uninterrupted power supply systems. In areas of demonstrated research leadership it has managed to attract infrastructure funding from other sources such as the National Research Foundation, which is supporting construction of a R14m Paleontological Centre.



Opportunity and challenge – Government funding, 2007-09 and 2010/11

In early 2007, when the Department of Education provided a first 3-year allocation of infrastructure funding to Universities, Wits had already conceptualised and commenced fundraising for a range of projects. Amongst these were projects prioritised by the Vice Chancellor and known as the Big 5. Wits University was well positioned, therefore, to submit proposals for three of these projects, which qualified for partial funding within the category of science and engineering (the priority disciplines identified by government at the time). By September of 2007 Wits was ready to commence construction on the expansion and refurbishment of the FNB building in an estimated value of R62m, providing two large state-of-the-art teaching venues (450 and 350 seats each). By late 2008, the R70m contract for expansion of the Chamber of Mines Engineering Building was awarded and less than a year later the R178m Undergraduate Science Centre went on site.

To implement these projects Wits was challenged to raise a total of R132m to augment the DOE contribution of R203m. At the same time it continued to fundraise for the two remaining "Big 5" projects, namely the Wits Art Museum (R68m), which is now under construction, and the new Public Health Building (R140m), which will start on site in October 2010.

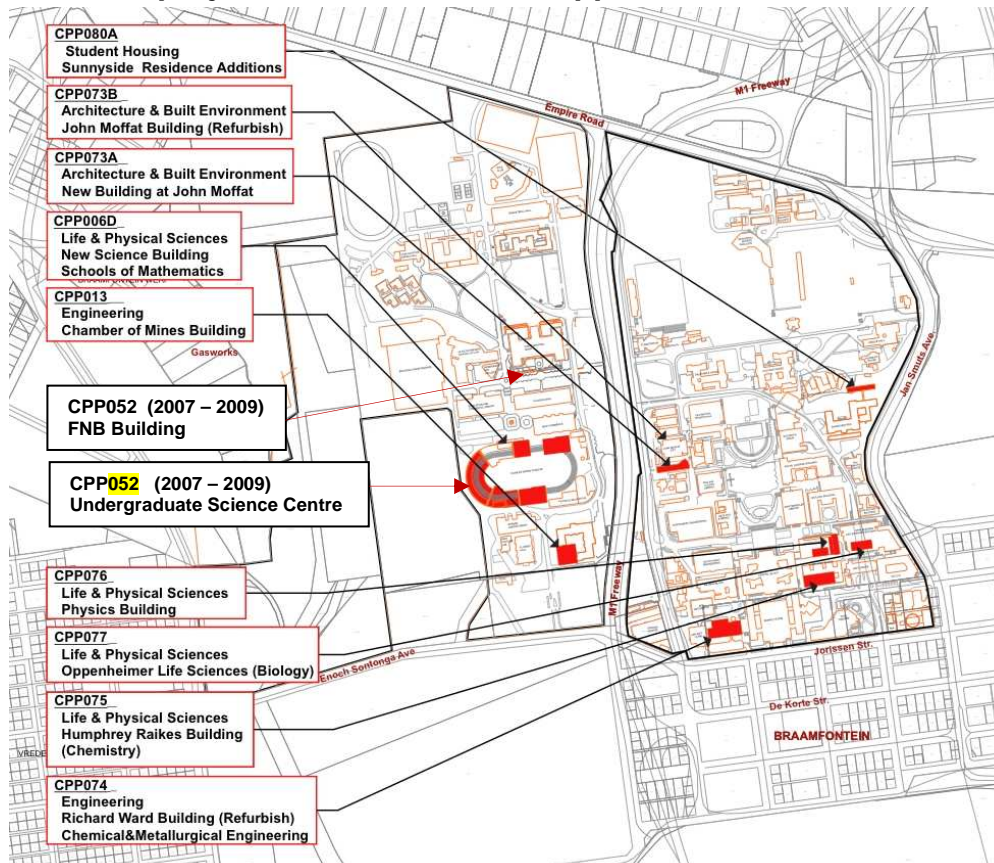
Late in 2008, the Department of Education signalled its intention to allocate a second tranche of partial funding for 2010 and 2011 across a broad range of disciplines, including student accommodation. Institutions of Higher Education were required to bid for a total of R3.2b, of which R2.6b was allocated to Universities and the balance to Universities of

Technology and Comprehensive Universities. Relevant projects would need to demonstrate the ability to raise the enrolment and throughput rate. Universities would be required to contribute between 25 – 50% of combined total project costs, depending on the DOE's assessment of the institution's financial capability. After careful consideration Wits decided to apply for funding in an amount of R400m, (12% of the total available allocation). The final DOE grant to Wits amounted 10% of the eligible allocation to Universities. This was a result of several factors, namely: Wits' academic capability in Science, Engineering, Health Sciences and Education, well motivated projects, its demonstrated track record on the 2007 - 09 projects. Funding was ultimately approved in September 2009, by the newly established Ministry of Higher Education and Training (DoHET).

DoHET and Wits Council approved project budget and infrastructure projects for 2010/11 and 2011/12		DoHET APPROVAL			WITS COUNCIL APPROVAL		
		Total Cost	DOE	WITS	Total Cost	DOE	WITS
1	Architecture and built environment	20.8	12.8	8.0	20.8	12.8	8.0
1.1	New building at John Moffat						
1.2	Refurbish part of John Moffat						
2	Engineering in Universities	63.5	40.0	23.5	63.5	40.0	23.5
2.1	Chamber of Mines Building refurbishment						
2.2	Richard Ward – additional floor						
3	Health sciences	140.3	70.3	70.0	140.3	70.3	70.0
	New Health Science Building (Public Health)						
4	Undergraduate life and physical sciences	52.0	26.0	26.0	78.0	26.0	52.0
4.1	New science building - Schools of Maths Sciences						
5	Masters and Doctoral in life & physical sciences	33.0	17.6	15.4	33.0	17.6	15.4
5.1	Refurbish Humphrey Raikes Building (Chemistry)						
5.2	Refurbish Physics Building						
5.3	Refurbish Oppenheimer Life Sciences Building						
5.4	Research equipment						
6	Student Housing	358.3	70.0	288.3	523.3	70.0	453.3
6.1	Parktown Village – private finance						
6.2	Sunny Side Residence extension						
7	Teacher training	50.0	32.0	18.0	50.0	32.0	18.0
7.1	Lecture Theatre A (500 seat)						
7.2	Lesideng refurbishment						
7.3	Lesideng addition						
	TOTALS	717.9	268.7	449.2	908.9	268.7	640.2

Wits' decision to commit R640m was based on a substantial portion of this amount (R430m) being funded as a bank loan for new student residence accommodation. The financial viability of the scheme to deliver 1200 new beds at affordable student rentals depended on a Government funding injection of R60m. This meant that Wits' actual cash commitment of R210m had geared a total infrastructure programme of over R900m. Together with the 2007-09 commitments, Wits' fundraising challenge amounted to R348m, gearing a total of R1.2b.

Location of projects funded with the support of DoHET



University of the Witwatersrand , Braamfontein Campus (East & West Campus)



University of the Witwatersrand, Parktown Campus (Management, Education, Health and Residences)

ORGANISATION, GOVERNANCE AND CAPACITY

As early as 2007 the University Council raised concern about the institution's capacity to deliver the growing portfolio of capital projects, which also included the development of an R80m short-course centre, as well as over R50m investment in Generator Houses and an ongoing upgrading programme comprising numerous projects ranging from R1m – R4m. Management had to convince Council that it could raise the required matching funds and could effectively manage and govern such a large scale construction programme.

Under the leadership of an experienced practitioner (seconded by the construction industry) Wits reconstituted its Capital Projects Programme and established governance structures that have proved extremely effective in integrating the necessary stakeholder consultation processes with the line function responsibility for project development and delivery.

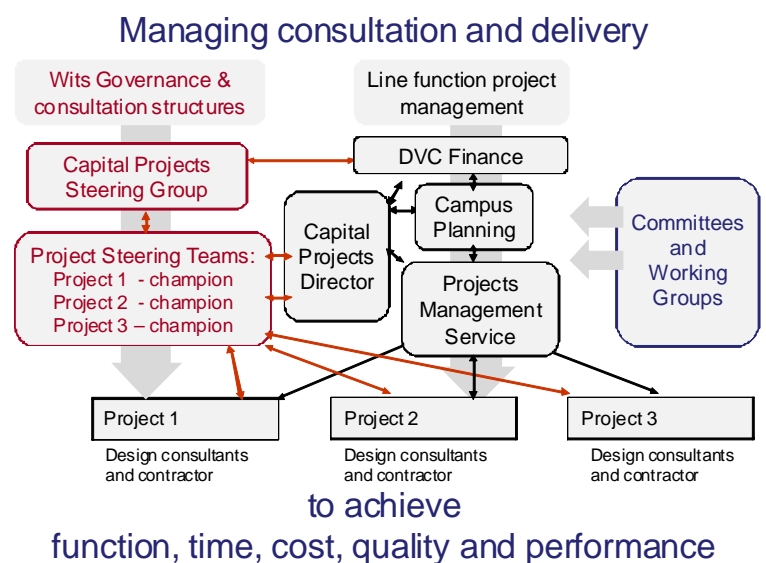
Line function and project consultation

The Capital Projects Programme manages the delivery of projects as a line function responsibility, reporting to the Deputy Vice-Chancellor: Finance and Operations. It also coordinates project development, ensuring consultation between the design team and relevant University clients throughout the project delivery cycle. In 2008 the Programme established dedicated project management capacity to enable state-of-the-art contracting and delivery strategies as well as budget and cash flow monitoring and reporting.

Integrating client aspirations

For each project, a Project Steering Team is established to coordinate consultation around the needs and aspirations of users and faculty stakeholders. An academic project champion is assigned to drive effective stakeholder input in the development of the project brief as well as project fundraising, which is a line function responsibility of the DVC:

Advancement and Partnerships. The Capital Projects Programme integrates stakeholder engagement with project design and management, ensuring adherence to budgets, policies and timelines.



Integrating the University's overall needs and aspirations across all projects is directed by the Capital Projects Steering Group comprising

- the Vice Chancellor (ex-officio) and the Director Special Projects in the Vice Chancellor's Office as well as three Deputy Vice Chancellors, namely
- DVC: Academic, (Chairperson),
- DVC: Advancement and Partnerships,
- DVC: Finance and Operations,
- Director: Campus Development and Planning,
- Director: Capital Projects Program,
- Director: Development and Fundraising Office

Together with academic project champions, the Capital Projects Programme reports to this Steering Group, which meets 3 – 4 times per annum and approves and monitors project budgets, design briefs, implementation timelines and project fundraising progress. This

leadership structure plays a critical guidance role, inspiring confidence, mobilising resources and moderating expectations.

Drawing on University Expertise

The Program is further informed by several working groups and committees, meeting approximately every 2 months, including:

- Campus Planning and Development Working Group
- Capital Projects Finance Working Group
- Space Allocation Committee
- Infrastructure for teaching Working Group
- Energy and sustainability Working Group

INNOVATION TO ACHIEVE DELIVERY AND VALUE

Early in 2008, the Capital Projects Steering Group approved the recommendation to establish a competent full-time project management capacity. Tenders were invited resulting in a two-year renewable contract with the service providers, who are permanently based on campus with domain knowledge of the University, its academic rhythm, its structures and procedures. The decision has enabled the streamlining of project processes, effective budget control, monitoring and reporting. Importantly it equipped the Capital Projects Programme with the confidence to adopt a pioneering procurement and contracting strategy that has led to greater certainty in project cost outcomes and has yielded improving construction performance and efficiency.

Adopting an innovative procurement and contracting strategy

South Africa's established construction procurement methodology is based on a traditional and outdated model inherited from colonial Britain, which commenced a programme of comprehensive reform in the late 1980's. The essential drawback of the methodology is that it separates the design and construction process, making the design consultants responsible for the design, specifications and Bills of Quantities, which are then used to invite tenders from prospective contractors. (It is probably the only manufacturing process that fails to draw on the knowledge and experience of constructors at the design stage). Tenders are then awarded, often to the lowest bidder, setting the scene for adversity, claims, budget overruns and poor performance.

Using the New Engineering Contract (NEC) adopted in the UK reform process, the Capital Projects Programme selected the Target Cost contract option that has been used by some South African clients on large scale, repetitive infrastructure projects like pipe-laying. To our knowledge, Wits is the first South African client to use this contracting strategy on building contracts, which have a wider and more complex range of activities. It was a decision taken, therefore, in full knowledge that a huge learning curve would be required by the project management and design teams as well as by prospective contractors. And, indeed, the decision was met with some scepticism, by the industry.

The NEC form of contract demands a proactive approach to project management. The Target Cost option of the contract is designed to promote solution-oriented collaboration between the role-players. The key mechanism for achieving this is the establishment of a target cost, based on the principle that any cost savings or over-runs will be shared by the client and the contractor. With this embedded principle of "shared gain and pain", the focus of the contracting parties is no longer on apportioning blame, but on finding solutions.

It is not the focus of this paper to unpack the model in detail. However, it is important to note that the target cost is based on the contractor's actual costs plus a tendered mark-up. During

the construction period, payment is based on the detailed assessment of the contractor's real costs. This is a labour intensive process that redefines the role of project cost management. Importantly, once tendered on this basis, the exacting cost management procedures satisfy governance requirements for a reappointment of the winning bidder on future contracts, provided the client is satisfied with performance. Thus, the award of contract establishes a "Framework Contract", which may last for a period of 3 - 5 years before it is again necessary to test the market. Wits has recently tendered the new Public Health Building in order to establish a second Framework Contract on its Parktown Campus.

Programmatic improvement and the innovation in contracting methods has required expert advice and an ongoing capacity building process for all involved in the projects. But the establishment of a collaborative and long-term contractual relationship has brought substantive benefits to both the client and the contractor. Some of these are highlighted below on the basis of Wits' recent project experience.

Chamber of Mines Engineering Building - 4th Quadrant (R70m target project cost)

Unlike the traditional contracting method, the target cost contract relies on full and complete design documentation which allows the contractor to price all programme activities. Many (if not most) cost over-runs on traditionally procured building projects, including South Africa's 2010 stadiums, are the result of incomplete design and the concomitant allowance of provisional sums. Completed in April 2009, this "pay-as-you-go" phenomenon was experienced on the Wits FNB Building (Wits' first DOE project), with the full cost of budget-overruns only becoming apparent when it was too late to take corrective action.

Built in the late 1980s, the Chamber of Mines Building was left incomplete due to lack of funds, rendering it largely dysfunctional. The completed construction of its 4th Quadrant has delivered a suite of new engineering laboratories and related facilities that respond to our planned growth in Engineering enrolments, graduation and post graduate research. In September, 2010, we will commence the reconfiguration and refurbishment of the building in line with the 2010-11 DoHET project approval. The 4th Quadrant represented the second DOE-supported project and the first to use the target cost strategy. The project commenced on site in January 2009 and was completed within budget in February 2010 by the same contractor who had also won the tender for the FNB Building.



During this first target cost contract Wits adopted a non-negotiable stance on construction health and safety and has collaborated with the contractor on a programme of continuous improvement that has yielded a comprehensive change of culture. We have now embarked on a similar joint programme to improve quality management.

Wits Science Stadium (R178m target project cost)

Since mid 2009 Wits has pursued a continuous process to value engineer this project in an effort to bring costs within the approved control budget of R178m. This has posed particularly tough challenges as the project involves the complex provision of large undergraduate science teaching laboratories and the equally complex conversion of the existing Charles Skeeen Stadium into large lecture venues and tutorial rooms. The project will deliver:

- A total of 1100 bench spaces in 3 laboratories (Chemistry, Physics and Biology), each equipped with supporting services, storage and preparation facilities
- Five large state-of-the-art lecture venues accommodating 1570 students with capacity ranging from 250 seats to 450 seats
- 20 tutorial rooms providing a total capacity for 830 students.

The target cost framework contract used on the Chamber of Mines 4th Quadrant enabled the negotiated appointment of the framework contractor, who was invited to participate with the design team in the value engineering and design development process. To date this ongoing process has brought estimated project costs down from R201m to approximately R184m. With careful management we are optimistic that final costs can still be reduced to within the approved control budget. This is a critical objective given that the DOE contribution of R110m leaves Wits with a daunting funding challenge of R68m.

To enable an early start on site (November 2009) the project team adopted a two-staged contract approach with a first stage target cost of R40.5m for the demolition, civil engineering and structural work. In March 2010, completed design work enabled finalisation of the target cost for the remainder of the project, which is scheduled for completion in March 2011. An approach of this nature, with efficiencies of both time and cost, would have been impossible using traditional procurement methods.

The Wits Art Museum (Estimated cost R68m)

The design for the Wits Art Museum dates back to an architectural competition that was concluded in 2004 with the winning project design estimated at the time in the cost of R58m. Since then, cost escalation has increased the estimate to R68m with private sector sponsorship lagging well behind this target. With diminishing hope of bringing the project to fruition some donors began to waver in their commitment.

In December 2009, when potential sponsorship reached a value of R38.5m, Wits brought the framework contractor and the design team together to explore a phased approach to project implementation. A subsequent value engineering process confirmed that a first phase of the Art Museum can be delivered within the existing budget of R38.5m, with full realisation when further funding becomes available. The project went on site in April 2010 – again using a two-stage contract approach. Completion is anticipated in May 2011 and Wits is confident that a functioning facility will stimulate further donations towards the end objective.

FUNDRAISING, ALTERNATIVE PROJECT FINANCING AND DELIVERY

Under the DVC: Advancement and Partnerships, Wits has established dedicated capacity to fundraise for infrastructure expansion. Our experience indicates that successful fundraising demands the sustained effort of academic champions as well as the commitment and conviction of top leadership. Towards the end of 2009, when the Chamber of Mines 4th Quadrant was nearing completion, virtually no funding had been raised to augment Government's contribution of R50m (for the 4th Quadrant) and R30m (for the refurbishment of the existing building). Wits faced a fundraising shortfall of R38.2m. The Vice Chancellor embarked on a sustained campaign in the mining sector that yielded full sponsorship of the outstanding amount by January 2010.

But many academic disciplines do not have the support of such well-endowed sectors of the economy and there is no guarantee of success. As early as 2004, Wits began exploring alternative financing and delivery options, particularly for projects that have the ability to generate revenue and to repay a loan. Options explored by Wits, include:

- loan financing using the University's own capital,
- private sector finance using varied combinations of the turnkey options, ie design, build, operate, finance and transfer.

Wits Professional Development Hub (R90m short course centre)

The University of the Witwatersrand offers over 250 short courses across its five faculties. Wits Enterprise is a self-funding, commercial entity that assists individuals, industry and government to access training and contract research from within Wits Faculties and Schools.

Until recently, Wits Enterprise short courses were conducted wherever space was available on campus and often off campus in commercially rented premises. An accessible and advanced centre was urgently needed for both Wits Enterprise and Wits Language School. The vacated “College Campus” Buildings at the north end of the Braamfontein Campus provided an ideal development opportunity, with direct access from Empire Road enabling University outreach to key sectors of South African society.

The combined facility of the Wits Professional Development Hub provides well equipped teaching and support facilities for close to 1 000 students as well as staff facilities, meeting rooms and informal work areas. An automated audio visual system enables video conferencing, bringing internet and teaching aids into the classrooms and offices.

A compelling business case convinced the University Council to provide loan funding for the extension and refurbishment of the existing buildings and the provision of adequate parking for staff and students. The project was completed in mid-2010 and the loan will be repaid over a 10-year period from the revenue generated by the short courses offered to the public.



Existing College Campus



New Professional Development Hub

The Parktown Village Residence Development (R490m)

Current student residence capacity is limited to 4502 beds, located within 23 residences across the University’s five sub-campuses on the Braamfontein and Parktown Campus, and in Hillbrow. The magnitude of demand and associated construction costs call for an out-of-the-box approach that draws in private sector finance in a cost efficient way, addresses some of the immediate needs and builds the on-campus residential stock for an improving quality and affordability over a long-term horizon.



The conceptualisation of the Parktown Village project dates back to 2006, when Wits approached the development market for expressions of interest to deliver a privately financed and operated, turnkey project for 1000 new beds on under-utilised Wits-owned land (Erf 815) adjacent to the Parktown Campus. Since then Wits has navigated a huge learning curve, considerably reshaping the original development model into a simpler design-and-build project that is financed by a structured bank loan directly to the University. The loan will be repaid from student rentals over a 20-year period and constitutes Rand Merchant Bank’s (RMB’s) first ever 20-year loan to any institution. All the major banks were approached and RMB was able to offer the lowest interest rate based on a structured loan agreement (with escalating repayments) as opposed to a “vanilla” loan (equal repayment amounts over the entire term).

During the course of the evolving development agreement, two important decisions made by the University contributed to the project's improved financial viability. The first was to take out a direct bank loan rather than do this through the developer. The second was to retain the responsibility for student rentals and for operating and maintenance costs. These decisions reduced the risk, development fees and profit. At the same time Wits has retained and benefitted from the competency and efficiency of the developer's management team. There is no doubt that the scale and complexity of this project would have outstripped Wits' direct management capacity.

The project comprises 14 new two- to three-storey blocks. Bachelor units, two-bedroom, three-bedroom and four bedroom units, providing versatile accommodation for undergraduate and post graduate students in a comprehensive development that includes the full servicing of the land, green spaces, pedestrian walks and on street parking. The DoHET contribution of R60.5m offsets the financing costs and consequently brings student rentals to within an affordable level, thus addressing a critical project viability factor. The site currently houses a few low-rise residential buildings with heritage value and accommodates 135 students. Some of the heritage buildings will be used to augment shared facilities such as laundries, study and computer areas, TV and common rooms, as well as housekeeping, cleaning and management offices.

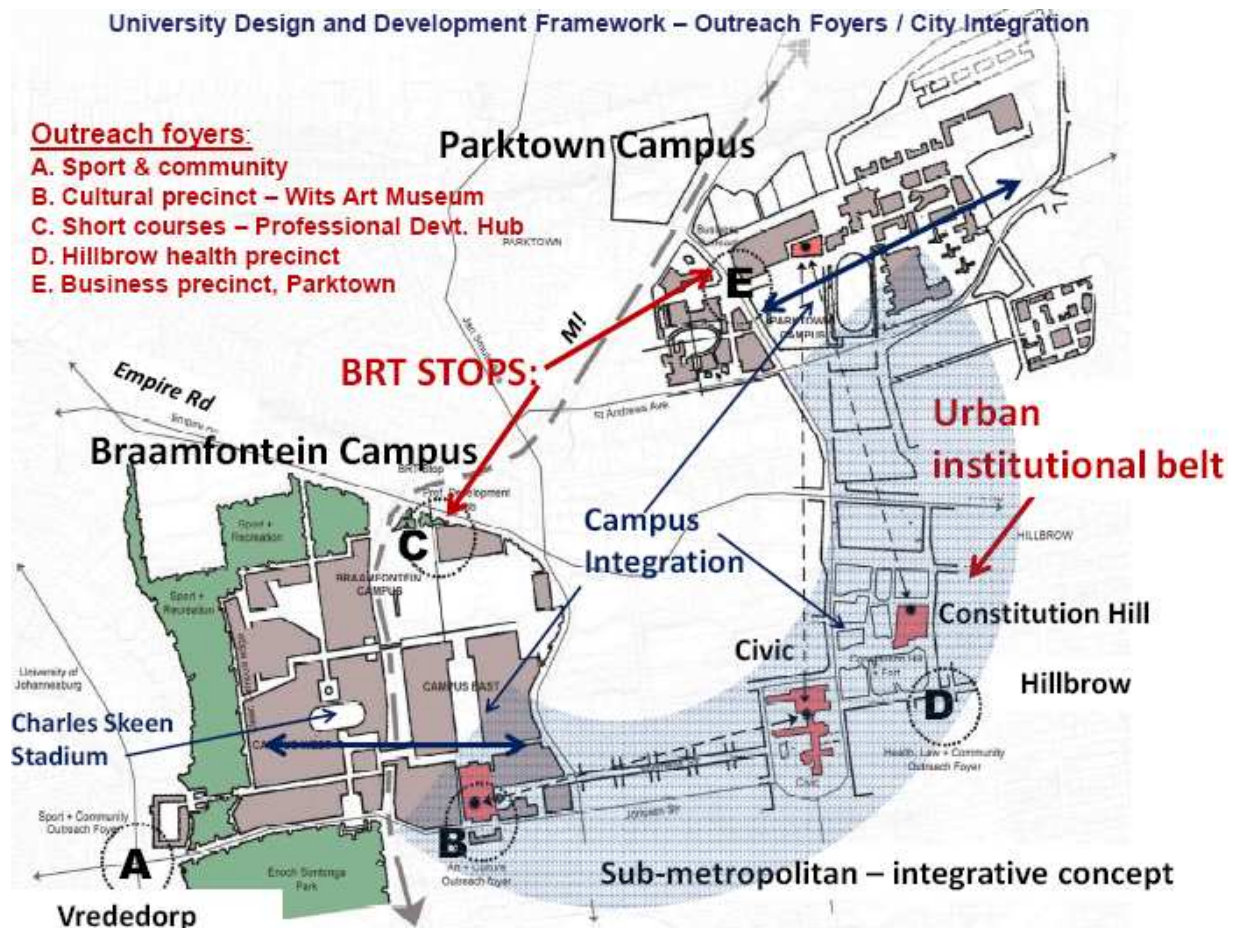
Value engineering of the project design coupled with detailed negotiation has brought the development costs within the rental affordability of comparable student residences. It has reduced the estimate of construction and financing costs from R511m to R490m. The original estimate is set out below:

<i>Item</i>	<i>Description</i>	<i>Amount</i>	
1	Property costs	R	479,000.00
2	Legal costs	R	660,000.00
3	Funding costs	R	4,537,773.00
4	Construction cost	R	303,331,800.00
5	Professional fees	R	35,200,723.00
6	Management costs	R	20,919,343.00
7	Statutory costs	R	3,740,288.00
8	Promotion costs		
9	Tenant cost	R	31,601,260.00
10	Financing cost	R	44,234,628.00
11	Sundry provision	R	9,073,510.00
12	Estimated of escalated capital investment at 14 January 2011 (VAT excluded)	R	453,778,325.00
13	Value Added Tax	R	57,336,113.00
14	Estimated of escalated capital investment at 14 January 2011 (VAT included) Note: Interest on financing charges as per point 10 above is VAT exempt.	R	511,114,438.00
	TOTAL Construction Area		34451 m ²
	Total rentable number of beds in scheme		1199

A range of approvals (including ministerial, heritage, rezoning and other statutory approvals) enabled a construction start in April 2010 for completion and full occupancy by the 2012 academic year.

WITS SPATIAL DEVELOPMENT FRAMEWORK – CONTEXT AND DIRECTION

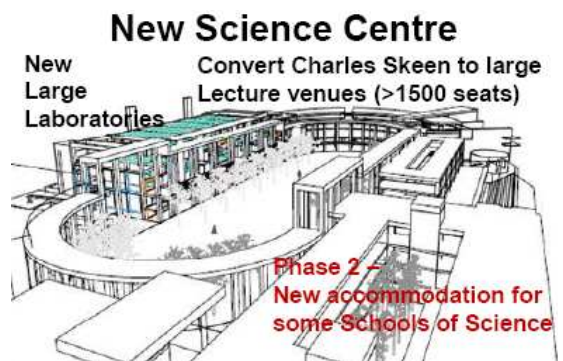
The development of a comprehensive Spatial Development Framework has proved an invaluable tool for achieving consensus on complex and often tough choices – particularly those relating to academic expansion and location opportunities. The need for such a framework became apparent early in the development of the current infrastructure programme. Completion of the spatial framework in 2009 has played a pivotal role, helping Wits to avoid the pitfalls of opportunistic short term decisions and to adopt a longer-term perspective to growth, reintegration within the city and greater integration between its two campuses and within these campuses.



The location of the Professional Development Hub and the Wits Art Museum are shown on the above plan as important outreach foyers in the University's objective to reintegrate itself within the fabric of the City. During development of the spatial framework, the urban design team interacted with the city and were able to identify a range of resonating goals. The process enabled the optimal positioning of bus stops for the new Bus Rapid Transport system (BRT). The framework also provided important direction on the gradation of space, improved pedestrian movement and a long-term approach to vehicular movement and the ever present parking challenge.

At a project strategic level, a notably difficult decision was the location of the DOE supported Undergraduate Science Centre, which is described above. At the end of 2009 we finally achieved a breakthrough in relation to a range of inter-linked problems that impeded design progress. These problems included location and cost challenges for a centre of this scale, the densely built-up nature of East Campus and the insoluble decanting problems that were associated with options explored on this part of Campus that is home to the Science Faculty.

Three factors helped us to reach consensus on a bold move to locate the project to the less developed West Campus. Firstly, parallel work undertaken on the University's Spatial Development Framework supported academic expansion in this direction as well as the shift of sport facilities to the campus edge. Secondly, conversion of the existing Charles Skeen Stadium to large lecture venues provides compelling cost and environmental efficiencies. Finally, the prospect gained a critical mass of support when the second round of DOE funding offered further project potential and the medium-term possibility to relocate some schools of the Science Faculty to this part of campus. In the long term, the decisions made will free up space on East Campus for the future expansion of the Faculty of Humanities. Last, but not least, the new Wits Science Stadium enables a giant step for campus improvement. It creates an east-to-west science and engineering precinct and provides a new pedestrian nodal point and a square of distinction that consolidates the inherited Milner Park showground as an integral part of the original University.



CONCLUSIONS

Key modalities for success

Wits University has a long way to go to achieve the required infrastructure and dignity of space to support its aspiration for academic excellence. In recent years great strides have been taken to meet this challenge and a number of factors have contributed to the rapid expansion of the University's infrastructure delivery programme. These include:

- A vision and commitment to an improved campus,
- Forward planning – even when funding appeared remote and illusive. In fact, our experience indicates the need for continuous campus planning and development as a permanent capability enabling ongoing technological adaption and the ability to extend capacity during periods of significant infrastructure expansion,
- Expanded infrastructure delivery has required dedicated governance structures to support consultation, financial management, reporting and decision making. Financial discipline has helped to moderate unreasonable stakeholder expectations that can easily escalate costs and limit the



- potential for other equally important projects,
- Government's injection of partial funding has enabled an attainable gearing of sponsorship funding and loan finance. Fundraising has required dedicated focus and conviction, the championship of leading academics as well as of the top leadership.
- A programmatic, client-led approach to project delivery, backed by competent project management has enabled a continuous focus on improvement and the paradigm of "getting it right every time".



Innovation

In-house and outsourced competence has enabled bold innovation, including:

- The adoption of value-based contracting strategies: integrating design and construction and optimising delivery efficiency (target cost and framework contract)
- Introduction of continuous value engineering, involving the design team, contractor and academic clients (Wits Science Stadium and Art Museum)
- The gearing of private sector loan finance (Residence development) and own loan finance (Professional Development Hub)

Commitment (mindset) leading to synergy

An initial pledged amount of just over R200m from the DOE has stimulated the University's commitment to a capital development programme of over R1.2b. In turn, this commitment has mobilised the resources of the University and the private sector. Once the governance and management capacities were established and the fundraising drive commenced, other infrastructure projects developed and have found a way forward.

Challenges and reward

The commitment made has brought with it immense financial challenges that are still with us and require continuous leadership focus. The intervention of the Vice Chancellor succeeded in mobilising donor funds for the Chamber of Mines Engineering Building in the nick of time. The successful completion of the Wits Science Stadium involves the daunting challenge of raising a further R68m, while the Public Health Building is still R20m short of the target cost. As a result of these and other infrastructure investments, Wits' cash flow and financial reserves will remain under stress until at least 2013. However, as recently as 2008 the University would hardly have envisaged the spectacular infra-structure improvements now underway. These are changing the face of Wits & equipping the University for the future. Despite the financial pain, few voices are arguing that this infrastructure development effort at Wits will not prove worthwhile.