

Close out Report

of the New Universities Project Management Team on the

Development of New Universities in
Mpumalanga and the Northern Cape

01 NOVEMBER 2011 - 31 JULY 2017



UNIVERSITY OF
MPUMALANGA



SOL PLAATJE
UNIVERSITY



WITS
UNIVERSITY



higher education
& training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

Acknowledgements

The New Universities Project Management Team would like to express sincere appreciation to a number of people who contributed in various ways to the establishment of the new universities.

The former Minister of Higher Education, Dr Bonginkosi Nzimande, skilfully negotiated the political terrain across national government sectors and across the provincial and local spheres of government to clear obstacles from the path of establishing the new universities.

The Minister was ably assisted by a dedicated team of senior officials who worked tirelessly to mobilise the necessary support among their colleagues in government and the higher education sector. The Director-General of the Department of Higher Education and Training, Mr Gwebinkundla Qonde, and senior staff, including Dr Diane Parker, Dr Engela van Staden, and Ms Brenda Swart in particular, were exceptionally resourceful and responsive in terms of the leadership and support they provided at different times and in more than 130 formal governance meetings chaired by Dr Parker between 2012 and 2017.

The project benefited beyond measure from the collective experience of Project Steering Committee members who provided expert advice and astute guidance at crucial stages of the project – and whose names are listed below.

Council members (including the Interim Councils) of both universities played a vital role in making key decisions on academic programmes and the associated infrastructure priorities that enabled the project to maintain momentum.

The newly appointed Vice Chancellors of both universities, Prof Thoko Mayekiso and Prof Yunus Ballim, provided essential leadership in project refinement and the establishment of the requisite infrastructure delivery management capacity in order to assume ownership for the construction programme at the respective institutions.

Finally, the delivery of this project would not have been possible without the leadership, advice and support provided by several individuals and departments in the University of the Witwatersrand. Under the leadership of the former and present Vice Chancellors, Professors Loyiso Nongxa and Adam Habib respectively, the idea that one university could avail its infrastructure delivery capacity in support of building additional capacity in the system became a reality. The advice and input of the Wits Legal Department led by Ms Dawn Taylor allowed the project to move beyond several key constraints. The Wits Tender Committee, adeptly chaired by Dr Ian Jandrell (Dean of Engineering), processed and approved nearly 140 procurements to a value of over R1.4 billion, and the Wits Finance Department processed monthly payments which at the peak period of delivery in 2015 exceeded R3m per day.

**Members of the New Universities Project Steering Committee
(at different times over the period between 2012 and 2016)**

Dr Diane Parker (DHET) - Chairperson	Prof Twana Kupe (Wits)
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Mr F Patel (DHET)	Prof Ian Jandrell (Wits)
Mr Shai Makgoba (DHET)	Ms Jenny Glennie (SPU)
Ms Brenda Swart (DHET)	Prof Chris de Beer (UMP)
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Dr Pearl Nkosi (NIHE, Northern Cape)	Prof Hennie Kruger (UJ)

Abstract of the Close-out Report: Development of New Universities in Mpumalanga and the Northern Cape

Towards the end of 2011, the University of the Witwatersrand (Wits) was approached by the Department of Higher Education and Training (DHET) to provide specialised delivery capacity for the implementation of government's decision to establish new universities in the Mpumalanga and Northern Cape provinces of South Africa. A memorandum of agreement (MOA) between Wits and DHET established the New Universities Project Management Team (NUPMT) to direct academic and institutional planning as well as the planning, design, construction and handover of infrastructure for the first phase of both universities.

This close out report of the NUPMT provides a succinct anatomy of the project including the delivery of higher education infrastructure facilities, from the adoption of the business case to the handover and close out of the first delivery phase. The report covers the development of the University of Mpumalanga and the Sol Plaatje University from October 2011, when the NUPMT commenced with identification of suitable sites, to July 2017, when the facilities delivered for the 2016 academic year were closed out and the NUPMT was demobilised.

This report commences with the context and drivers within which these two new universities were delivered. It outlines the progressive expansion of the NUPMT's responsibilities over time and describes:

- project governance arrangements that were put in place to inform and shape delivery;
- the academic and institutional development of the two new institutions;
- the land assembly process;
- the processes for obtaining of the necessary budget and planning approvals; as well as
- the approach taken to enable enrolment of the first cohort of students for the first academic year at the start of 2014.

This report also provides an overview of some of the innovations adopted by the NUPMT in delivering the required facilities, namely

- the use of spatial development frameworks to provide form, content and meaning to the physical requirements for these two institutions;
- implementation of an architectural design competition to procure a high standard of architectural quality in order to create iconic and inspirational architecture;
- a procurement strategy that was adapted to ensure that procurement outcomes are aligned with project and procurement objectives; and
- a design philosophy which translated into design briefs for the professional teams.

The report also describes the facilities that were delivered. It provides a management review of project performance, which links expenditure to phases of development and reviews procurement outcomes in terms of project objectives and value for money. It concludes with the handover of a live project to the institutions that were established through the project and that are responsible for its effective functioning and continued expansion and growth. Footnotes to the report provide a reference to relevant documents that can be accessed through the electronic "*New Universities Project Archive*" maintained by Wits Library Services and also handed over to the DHET, SPU and UMP.

Close out Report

Development of New Universities in Mpumalanga and the Northern Cape November 2011 – July 2017

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Chapter 1

Introduction and overview



1. Introduction and Overview

This report provides an overview of the establishment and first phase development of the first two new universities in post-Apartheid South Africa, namely the University of Mpumalanga (UMP) and the Sol Plaatje University (SPU).

In November 2011, the Department of Higher Education and Training (DHET) appointed the University of the Witwatersrand to establish the New Universities Project Management Team (NUPMT) to assist with the development of two new universities in the Northern Cape and Mpumalanga. By February 2014 both universities commenced their first academic year and by February 2016 the project had delivered 16 new buildings within budget, as well as a range of renovated buildings, all providing academic and residence space for the 2016 enrolment of 1255 students at UMP and 700 students at SPU. Both universities are now completing their fourth academic year and have taken charge of ongoing planning and construction.

These first phase development outcomes are the result of sustained collaboration between the appointed project team and the DHET in an effort focused on the delivery of best value.

1.1. MOA REQUIREMENTS FOR PROJECT MANAGEMENT

The memorandum of agreement (MOA)^[1-1] between the DHET and Wits University established the requirement for Wits to project manage the development of the two new universities. The initial MOA set out the following requirements

“...WITS will collaborate closely with the DHET and identified stakeholders to establish the planning parameters for the new institutions, including the vision, academic architecture, location, costs, phasing and other relevant considerations pertinent to their spatial and physical planning.

WITS, through its Campus Development and Planning unit, shall -

- *constitute the Project Management Team responsible and accountable for delivery of the Implementation Plan;*
- *assemble relevant expertise and commission and manage such capacity as necessary to undertake the Project management, planning and conceptual design of the new institutions in a phased manner as set out in the Phase 1 Implementation Plan and agreed upon from time to time by both Parties;*
- *consult within the Technical Integration Committee established with the DHET to ensure its related planning requirements are accommodated and integrated within the overall Implementation Plan;*
- *record variations to the Phase 1 Implementation Plan (of scope, time and cost) for the endorsement by the DHET at monthly meetings of the Technical Integration Committee, provided these variations are in keeping with the objectives of this Agreement and within the overall Phase 1 Budget and Key Delivery Dates;*

- Obtain prior approval from the DHET to any variation that may extend the overall Phase 1 Budget and/or Key Delivery Dates.”

1.2. THE NEW UNIVERSITIES PROJECT MANAGEMENT TEAM (NUPMT)

From the outset Wits established a core team under the leadership of an appropriately experienced infrastructure client delivery manager reporting to the Wits Director of Campus Planning and Development. Core team members were selected for their expertise, which had been demonstrated in the successful delivery of a large infrastructure programme at Wits between 2008 and 2011. This expertise included project management, procurement and spatial planning. The core team was expanded to include academic, institutional and development expertise, some of whom were identified by the DHET. as indicated in Table 1.1.

Table 1.1: New Universities Project Management Team (NU PMT)

Name	Name
Wits Governance and Oversight: Emmanuel Prinsloo, B.Ing (Civil) (RAU)	Procurement and Delivery Advisor Dr Ron Watermeyer, BSc(Eng) DEng (Wits) PrEng PrCPM PrCM CEng FSAICE FIStructE FICE FSAAE
Client Delivery Manager Spencer Hodgson, MSc Arch (Weimar) PrArch FCIOB	Procurement Advisor Alain Jacquet, BSc.Eng (Civil)(Wits) PrEng PrCM PrCPM CEng FSAICE MICE
Programme and Project Manager Dean Barnes, BSc Hons (Natal) PrCPM Pr Sci Nat	Development and Stakeholder Advisor Mark Burke, B.Proc (Law); BA (Hon); MM (Wits)
Project Administrator Monica Reuben	Institutional Planning Craig Lyall-Watson, Dip O&M, Dip T&D
Spatial Planning Advisor Ludwig Hansen, B.Arch (UP), M.UrbanDesign(KU Leuven) PrArch	Academic Planning Prof Gina Buijs, BA (Hons), MA(Natal), PhD(UCT), HEMC (Wits)
Architectural Services Advisor Christine-Anne Paddon, B.Arch (UCT) PrArch	Engineering Services Advisor Willie Potgieter, BEng (Hons) Pr Eng FSAICE
ICT Services Advisor Martin Grobler	Administrative Support Gill Scott, BSc, HDipEd, MEd (Wits)
Furniture Project Management Nigel Branken, B.Soc.Sc	Management Accountant G M De Kock CA(SA) ACMA, CGMA, RA

1.3. PROJECT CLOSE OUT

While this project has included a significant focus on academic and institutional development, it has been essentially about the delivery of university infrastructure. Like all infrastructure projects it commenced with the development of a business case, has been delivered through a series of project phases, including planning, design, construction and commissioning, and has concluded with the close out of the related contractual arrangements, and where apposite, with their handover to the newly established institutions.

Importantly, no roadmap existed at the start of this project and the Department of Higher Education and Training has requested that the close out report should trace the development of the project through the different phases and should provide a departure point for future projects of this nature. In this report the NU PMT has tried to provide a record of the delivery process, its challenges and outcomes.

REFERENCE DOCUMENT

- 1-1 Memorandum of Agreement between the Department of Higher Education and Training and the University of the Witwatersrand, Johannesburg on the infrastructure planning and delivery proposals for two envisaged universities in the Northern Cape and Mpumalanga.

Chapter 2

Context and drivers



2. Context and Drivers

In the first decade of the new millennium university enrolments grew by more than 300 000, increasing from 603 000 in 2001 to more than 937 000 in 2011. Investment in university infrastructure received a significant boost between 2006/07 and 2009/10 when the Department of Higher Education and Training (DHET) provided R3.6 billion to universities for infrastructure development, followed by an additional R3.2 billion from 2010/11 to 2011/12, and a further R5.5 billion from 2012/13 to 2014/15.[#] Notwithstanding the increase in funding towards infrastructure investment, these enrolment increases placed already overburdened institutional infrastructure under significant pressure. The envisioned increase in participation rates, from 17,3% in 2011 to 25% by 2030 (that is from just over 937 000 students in 2011 to about 1.6 million enrolments in 2030) set out in the National Development Plan, necessitated an expansion of the current system by, among other strategies, building new universities to accommodate the levels of access required to achieve these goals. ^[2-1]

This section traces the background and key drivers to the establishment of the two new universities. It briefly sets out the key milestones achieved in the project establishment phase, with specific reference to the promulgation of the new universities.

2.1. BACKGROUND

Access to higher education matters. Recent research confirms that graduates in South Africa have the best labour market prospects compared to other education cohorts. ^[2-2] Graduates are more likely to be employed in the formal sector with the unemployment rate among graduates at 5,2% and that of persons with other tertiary qualifications (diplomas or certificates) at 12,6%. † The National Development Plan recognises higher education as “a major driver” of economic development and is critically important for good citizenship that enriches the lives of citizens.* Accordingly, the plan sets the goal of increasing enrolments to 1.6 million by 2030 from 1.1 million in 2014. ^[2-3] This will require an increase in participation rates in universities from 17% to 25% by 2030 so as to improve access and success, particularly for those groups previously disadvantaged based on race, gender and disability status. ^[2-4]

The National Development Plan notes that the university system is under considerable strain and remains characterised by historical inequities and slow growth in academic staff, creaking university infrastructure, equipment shortages and inadequate student housing. The establishment of the Sol Plaatje University (SPU) and the University of Mpumalanga (UMP) must be seen in the context of the drive to expand the post-school system to meet the aforementioned policy goals. The two universities are expected to extend and enhance the national network of tertiary education institutions and provide sorely needed additional higher education capacity. Establishment of the new universities represents a long-term investment in the expansion of the higher education system and as such requires significant capital and operational expenditure in the short to medium term.

The process for establishing the new universities was initiated when the Minister of Higher Education and Training (DHET) appointed two task teams in 2010 to investigate the

feasibility and possible models for the establishment of universities in Mpumalanga and the Northern Cape respectively. Following extensive consultation with stakeholders in the provinces, the task teams submitted their reports to the Minister in September 2011, and subsequently to the Council on Higher Education (CHE) for their advice, as is required by the Higher Education Act, 1997 (Act No.101 of 1997). The task teams concluded that there is a clear need for the expansion of the higher education and training system, including the need to build more institutions.^[2-4] The task team investigating the establishment of the university in Mpumalanga concluded that a university medium-term enrolment of at least 15 000 students is viable in the province, whereas the task team for the Northern Cape concluded that it will be a challenge to ensure an adequate number of students to constitute a viable university. The CHE concurred with the analysis of the task team, and concluded that the potential inflow of students from the school system into higher education in the Northern Cape is not sustainable.^[2-5]

The Minister of Higher Education decided to proceed with both universities in the conviction that universities are essentially national institutions and that a university in the Northern Cape would attract students from across the country and not only from the school system in the Northern Cape. In November 2011, through a Memorandum of Agreement with Wits University, the Department of Higher Education and Training (DHET) appointed a New Universities Project Management Team (NUPMT) to take forward the planning process under the guidance of a project steering committee (PSC). The PSC included academics from existing universities as well as representatives of the Premiers and of the National Institutes of Higher Education (NIHE) in the two provinces. Furthermore academic work groups were established to flesh out the potential academic direction of the new universities. Chapter 4 expands on the modalities of the governance and management arrangements put in place to guide the implementation of the project.

2.2. PROJECT ESTABLISHMENT PRIORITIES AND A SHARED VISION

Immediate priorities for the NUPMT comprised the technical work needed to promulgate the new universities in terms of Section 201(1) of the Higher Education Act (101 of 1997, as amended) stipulating for each institution the *type* of university, its *name* and official *address* and the *members of the university's Interim Council*. In addition the NUPMT needed to develop a comprehensive implementation plan for each university covering academic, institutional and infrastructure development and establishing the technical feasibility of each university.

By March 2013, these priorities had been largely addressed. However a key constraint to the promulgation of the two universities and their further development remained sufficient assurance that the land would be committed and transferred for this purpose by the relevant Public Works Departments. This matter would subsequently be resolved in a unique and innovative manner which is described further on under sections 3.2 and 6.4, enabling promulgation of both universities by August 2013.

Also key to the promulgation was the early development of a vision behind which to align the efforts of all stakeholders. This vision was expected to provide important guidance to the design, development and establishment of the new institutions, whilst at the same time

...serving as a framework for communicating the aspirations of the DHET in this regard. Nine months after the submission of the reports by the task teams, the DHET issued a general notice in the Government Gazette calling for comments on the Development Framework for the new universities in August 2012. [2-6]

The Development Framework set forth government’s unfolding vision for the new institutions (see Box 1) and set out the principles to guide the establishment of each. These principles situated the new institutions as fundamental to the expansion of national academic capacity, making a contribution to equity, access and success through quality and academic excellence. The new universities would have to be place-relevant and engaged, while providing the requisite infrastructure, facilities and services that would make each institution “a space of its place”.

Vision for the New Universities
<p>When established, government envisions these new universities</p> <ul style="list-style-type: none">• as <i>sites of learning and culture</i> which give expression to democracy and social justice and increase participation in political, social, cultural and economic life;• as <i>active participants</i> taking centre stage in addressing the challenges confronting society and playing their role in the context of a developmental state;• as <i>African universities</i>, part of a broader network and community of African institutions of higher learning with a long tradition of scholarship, rooted in the African experience, contributing to African knowledge production and generating ideas and insights with global relevance;• as <i>21st century social institutions</i> that must develop innovative modalities of governance, funding, teaching and learning, research and civic engagement in order to respond to ever-changing social, cultural, political, environmental and economic demands;• as <i>relevant leaders of the knowledge economy</i>, actively engaging communities to produce knowledge for social development and delivering innovation-driven research for commercial and economic advancement.

The Development Framework further served as an important means by which government sought to elicit input from stakeholders and consult with stakeholders. The invitation to comment on the Development Framework was sent to 78 individuals at 41 different institutions, in addition to inviting the general public to comment. The DHET had received 22 responses by the end of business on 21 September 2012. Sixty-nine percent of inputs suggested names for the universities and 35% commented on the Development Framework. These submissions were made by respondents from universities (36%), government (23%), and individuals with no institutional affiliations (33%).

Analysis of the stakeholder inputs revealed that more than three-quarters of the submissions provided outright support for the establishment of the new universities; two respondents supported the establishment with suggestions for improving the prospects for success; and one respondent supported the establishment of the universities with some concerns.

Fourteen names were proposed for the university in Mpumalanga and four suggestions were received for the name of the university in the Northern Cape as indicated in Table 2.1.

Table 2.1: Proposed Names for the University

Mpumalanga Province	Northern Cape Province
<ol style="list-style-type: none"> 1. GULA ra vutlharhi 2. Sunrise University 3. University of Mpumalanga 4. The People's University of Mpumalanga 5. The Mpumalanga University of Excellence 6. New Dawn 7. New Horizon 8. Mpumalanga University 9. Dr EJ Mabuza University of Excellence 10. Mbombela University 11. Umcebo Welwati University 12. Mpumalanga University of Technology 13. Inkhululeko University of Mpumalanga 14. The University of Mapulaneng 	<ol style="list-style-type: none"> 1. University of the Northern Cape 2. Robert Sobukwe 3. Sol Plaatje 4. Solomon Plaatjie University 5. The University of Kimberley 6. Pixley Ka Tsaka Seme

The DHET further held a series of meetings and workshops with 16 interested and affected parties focusing primarily on educational institutions, provincial and local government as well as the business community.

2.3. INTERIM COUNCILS

By notice in the Government Gazette No 35956 of 7 December 2012 the Minister invited nominations for people who, by virtue of their knowledge, competencies and experience, could serve as members of the Interim Councils for each university. Parallel to that process the DHET, through the New Universities Project Team, initiated a process to identify appropriate persons to be recommended to the Minister for appointment to serve on the Interim Councils. Fifty nominations were received by the DHET.

Letters inviting the nominees to express their interest and availability to serve on the Interim Councils of the new universities in Mpumalanga and Northern Cape provinces were sent to all 50 nominees. Only 35 complete responses with curriculum vitae were received. A submission was tabled to the Minister for final decision making and appointment of the Interim Councils.

2.4. PRESIDENT ANNOUNCES NAMES & INTERIM COUNCILS OF THE NEW UNIVERSITIES

President Zuma announced the names of the new universities in the Northern Cape and Mpumalanga Provinces and the appointment of Interim Council Members on 25 July 2013. The name Sol Plaatje University (SPU) was selected for the university in the Northern Cape Province, while the University of Mpumalanga was selected for the university in Mpumalanga Province. Dr Nzimande, Minister of Higher Education and Training, appointed the following members to the Interim Councils:

Table 2.2: Interim Council Members

University in the Northern Cape	University in Mpumalanga
Ms Jennifer Glennie (Chairperson)	Dr Madoda Mabunda (Chairperson)
Mr Abel Madonsela	Ms Helen Thrush
Mr Maruping Lekwene	Prof Chris de Beer
Dr Yvonne Muthien	Prof Connie Mokadi
Prof Vishnu Padayachee	Mr Vincent Mlombo

The Interim Councils would play a key role in the further establishment of the universities. In terms of the Act an Interim Council is established for a period of six months, which can be (and was) extended by a further six months. The key task of the Interim Councils was to establish the first full Councils of each University, to appoint staff and an interim Head of each university and to guide the early development of the universities.

From the moment of their appointment, the Interim Councils and staff and subsequently the full Councils, had to be involved in all decision making and this requirement expanded the task of the DHET and NUPMT in the infrastructure planning and implementation work ahead. Collaboration commenced at a joint induction workshop held with both Interim Councils on the 5 and 6 July 2013 ahead of the public announcement by President Zuma. Formal promulgation of both universities in the following month removed the last barrier to full scale construction implementation, and a series of contracts was put in place in both provinces to enable immediate renovation work for the 2014 academic year and an October 2014 construction start on new buildings needed in time for the 2016 academic year.

2.5. DEVELOPMENT TIMELINE SUMMARY

Date	Events
25 March 2010	Minister of Higher Education and Training, Dr Blade Nzimande, announced the establishment of two task teams to explore appropriate models for new universities in Mpumalanga and the Northern Cape.
September 2011	Final Report on the Establishment of the New Universities in the Northern Cape and Mpumalanga Provinces submitted to the Minister
October 2011	NUPMT commences work on identification of sites for UMP & SPU.
23 February 2012	MOA is signed between DHET and Wits formally establishing the New Universities Project Management Team (NUPMT)
June 2012	Recommendations on the Seats for the New Universities published
5 July 2012	President J Zuma announces the seats of the new universities as the inner-city of Kimberley and the Lowveld College of Agriculture in Nelspruit
July 2012	Development Framework for the Establishment of New Universities in the Northern Cape and Mpumalanga Provinces is completed, setting out the unfolding vision for the new universities.
31 August 2012	<p>In Government Gazette No 35645, the Minister calls for:</p> <ul style="list-style-type: none"> • comment on the Development Framework for Establishment of New Universities in the Northern Cape and Mpumalanga Provinces, and • submission of suggested names for the universities
18 September 2012	DHET received 22 responses to call for comments on the development framework and the naming of universities
30 September 2012	Submission to National Treasury of detailed feasibility studies for the new universities
November 2012	National Treasury confirmed an allocation of slightly more than R2billion over the 2012/14 – 2015/16 Medium Term Expenditure Framework (MTEF) for development of the new universities
7 December 2012	By notice in the Government Gazette, the Minister of Higher Education and training, Dr Blade Nzimande invites nominations for appointment of members of the Interim Council for each of the new universities
January 2013	A range of partnerships with universities established to support academic programme development and delivery

Date	Events
19 March 2013	Minister of Higher Education & Training, Dr Blade Nzimande, meets with the Northern Cape Premier's Intergovernmental Forum to share the vision for the new university in the Northern Cape and the progress made. After the meeting, the Minister, Premier of the Northern Cape, Executive Mayors of the Frances Baard District Municipality and the Sol Plaatje Local Municipality and the Minister of Public Works sign the Record of Intention to facilitate the land assembly process.
11 April 2013	Minister of Higher Education & Training, Dr Blade Nzimande, meets with the Mpumalanga Premier's Intergovernmental Forum to share the vision for the new university in Mpumalanga and the progress made. After the meeting, the Minister, Premier of Mpumalanga, Executive Mayor of the Mbombela Local Municipality and the Minister of Public Works sign the Record of Intention to facilitate the land assembly process.
April 2013	Detailed spatial plans for the university are completed
5 – 6 July 2013	Workshop held to brief the Interim Council of both universities on the planning work that has already been undertaken by the DHET and NUPMT
25 July 2013	<p>President Zuma announces the new Interim Council and names of both universities at the Union Buildings in Pretoria.</p> <ul style="list-style-type: none"> • Sol Plaatje University Interim Council Members: Ms Jennie Glennie (Chairperson), Mr A Madonsela, Prof M Padayachee, Dr Y Muthien, Dr M Lekwene • University of Mpumalanga Interim Council Members: Dr M Mabunda, Prof C Mokadi, Ms H Thrush, Prof C de Beer and Mr V Mlombo
22 August 2013	By notice in the Government Gazette 36771: The Minister of Higher Education and Training formally establishes the Sol Plaatje University as a public University in terms of section 20 of the Higher Education Act of 1997, announces the names of the Interim Council and publishes the Record of Intention to Facilitate the Rapid Establishment of the new University on Publicly Owned Land
23 August 2013	By notice in the Government Gazette 36772: The Minister of Higher Education and Training formally establishes the University of Mpumalanga as a public University in terms of section 20 of the Higher Education Act of 1997, announces the names of the Interim Council and publishes the Record of Intention to Facilitate the Rapid Establishment of the new University on Publicly Owned Land.
27 August 2013	First official meeting of the University of Mpumalanga Interim Council
1 September 2013	Prof Y Ballim appointed as Interim Head of SPU

Date	Events
3 September 2013	First official meeting of the Sol Plaatje Interim Council
9 October 2013	Prof R Mogotlane appointed as Interim Head of UMP
18 September 2013	Winners of the Architectural Competition for Sol Plaatje University announced as a build-up to the main launch event
19 September 2013	Formal launch of the Sol Plaatje University (SPU)
30 October 2013	Winners of the Architectural Competition for the University of Mpumalanga announced as a build-up to the main launch event
31 October 2013	Formal launch of the University of Mpumalanga (UMP)
February 2014	Start of first academic year with a student enrolment of 124 students at SPU and 505 students at UMP
April 2014	Appointment of the project managers to manage construction of new infrastructure for SPU and UMP (Aecom and Ariya respectively)
14 August 2014	Appointment of full Council of the University of Mpumalanga
19 August 2014	Appointment of full Council of the Sol Plaatje University
September 2014	Main contractors appointed under framework contacts for construction of new buildings
October 2014	Start of construction of new building and infrastructure
24 October 2014	Joint MOA signed between DHET, UMP, SPU and WITS, confirming UMP and SPU's support for WITS's continued role in planning and delivery of infrastructure up until 31 st March 2016.
1 November 2014	Prof Thoko Mayekiso appointed as first Vice Chancellor and Principal of University of Mpumalanga
February 2015	Start of the second academic year with a student enrolment of 337 students at SPU and 828 students at UMP
1 April 2015	Prof Yunus Ballim appointed as first Vice-Chancellor and Principal of Sol Plaatje University
February 2016	Completion of first new buildings at each university facilitates the enrolment of 700 students at SPU and 1255 students at UMP
1 April 2016	SPU and UMP take over full responsibility for further infrastructure delivery and NUPMT commence close out process
2 April 2016	Deputy President Cyril Ramaphosa inaugurated as Chancellor of UMP
23 April 2016	Judge Steven Arnold Majiedt inaugurated as Chancellor of SPU

REFERENCE DOCUMENTS

- 2-1 Department of Higher Education and Training. (2011) Final Report on the Establishment of new Universities in the Northern Cape and Mpumalanga Provinces. Republic of South Africa.
- 2-2 Van Broekhuizen, H. (2016) Graduate unemployment and Higher Education Institutions in South Africa. Stellenbosch Economic Working Papers: 08/16.
- 2-3 Department of Higher Education and Training. (2016) Statistics on Post-School Education and Training in South Africa: 2014. Republic of South Africa.
- 2-4 Department of Higher Education and Training. (2013) White Paper for Post-School Education and Training: Building an expanded, effective and integrated Post-School System. Republic of South Africa.
- 2-5 Council for Higher Education. (2011) Advice to the Minister of Higher Education and Training on the Establishment of New Universities in Mpumalanga and the Northern Cape.
- 2-6 Department of Higher Education and Training. (2012) Development Framework for New Universities in the Northern Cape and Mpumalanga. Government Gazette. (Notice 705. No. 35645).

Chapter 3

Project inception and evolution



3. Project Inception and Evolution

Following the Minister's decision to proceed with the establishment of both universities, the DHET required a specialised delivery capability to address the planning and implementation challenges ahead. It singled out Wits University (Wits), which between 2007 and 2011 had successfully delivered an infrastructure renewal programme to the value of R1.5b. ^[3-1] This programme had demonstrated innovative delivery approaches based on the use of framework contracts and the collaborative culture of the New Engineering Contract (NEC). Importantly, the Wits projects had been delivered within budget. ^[3-2]

In November 2011, the New Universities Project Management Team (NUPMT) was established through a Memorandum of Agreement (MOA) ^[3-3] between the DHET and Wits University that was signed in February of 2012.

This Chapter describes the evolution of the Memorandum of Agreement to meet the expanding project requirements as the development of the two universities progressed from planning into implementation. The expanding mandate was formalised through five addendums to the MOA which are summarised below together with the highlight achievements that gave impetus to this progression.

3.1. SCOPE OF WITS' RESPONSIBILITIES – THE MEMORANDUM OF AGREEMENT

During November 2011, while the MOA was still in formulation, the NUPMT and members of DHET visited Upington and Kimberley to inspect possible sites identified by the Northern Cape Task Team and early in 2012 similar inspections were undertaken in Mpumalanga at sites identified by the Mpumalanga Task Team.

By the time the MOA was finalised and signed, senior officials of DHET and the core Wits project team had spent significant time together developing a shared understanding of the project goals and challenges and this is reflected in the Memorandum of Agreement that has remained fundamentally unchanged despite several amendments extending the scope, time and budget in relation to unfolding progress and need.

The founding document formulates the fundamental relationship as follows:

“The DHET hereby appoints WITS and WITS accepts the appointment to project manage and resource the spatial and physical planning and development for new institutions of higher learning in the Mpumalanga and the Northern Cape Provinces respectively, in accordance with the approved preliminary Phase 1 Implementation Plan which is attached as Appendix 1 and which may be revised from time to time by agreement.”

The founding MOA, required Wits to constitute the Project Management Team and to manage such capacity as necessary to undertake the planning and conceptual design of the new institutions in a phased manner. The MOA also established a Project Steering Committee to guide the project and a Technical Integration Committee to ensure hands on integration of the progress and thinking of both the DHET, as sponsor and intermediate

Client, and the Project Management Team. The nature and frequency of these consultative and governance meetings is described in Chapter 4.

The preliminary Phase 1 Implementation Plan limited the scope of work to the planning necessary to enable proclamation of the two universities, and to develop an implementation plan for each university. In effect, the original MOA initiated a five-year process of cooperation, and the five subsequent MOA addendums have extended the time, scope and budget as clarity on each new phase has crystallised. The evolving revisions reflect the growing confidence of both DHET and Wits in their joint ability to carry the project into successful implementation.

The MOA addendums are essentially linked to four key development phases:

Phase 1 – Feasibility and Establishment (2012 – 2013)

Phase 2 – Mobilising for Construction (2013 - 2014)

Phase 3 – Delivering Construction (2014 - 2015)

Phase 4 – Handover and Close out (2015 – 17)

3.2. MOA PHASE 1 - INCLUDING THE FIRST ADDENDUM TO THE MOA

This initial appointment provided a budget of R50m and envisaged completion by the 30 November 2012, a period of 13 months, subject to review. Based on the progress made, the first Addendum to the MOA ^[3-4] extended the completion date to the 31 March 2013, without any change to the scope or budget. The scope of this initial phase was summarised as follows:

- a) ***A comprehensive implementation plan for each university covering academic, institutional and infrastructure development;***
- b) ***Sufficient implementation progress to enable proclamation of the universities in terms of the Higher Education Act, stipulating for each institution the type of university, its name and address and the members of the University's Interim Council...***

Highlight Achievements by March 2013

In its annual report of March 2013 the NUPMT was able to highlight the following achievements towards establishment of both universities:

- *An inspirational vision for each university that has garnered broad public support and the committed partnership of several other universities;*
- *Selection of sites in both Nelspruit and Kimberley following a rigorous selection process;*
- *Land assembly and the establishment of spatial planning frameworks for each institution;*
- *Full feasibility studies for each university (infrastructure and operations);*
- *National Treasury endorsement of the feasibility studies, resulting in the allocation of more than R2b over the MTEF period ahead (2013 – 2016) for both capital and operational expenditure;*
- *Establishment of partnerships with several universities ... for academic programme development and implementation;*
- *Draft institutional guidelines for adoption by the Interim Councils;*

- *Stakeholder consultation on the vision, naming and nomination of the Interim Councils – and ongoing consultation with potentially affected parties in terms of the Promotion of Administrative Justice Act;*
- *Developing momentum that can enable a 2014 academic start up in a limited number of academic subjects.*

While public land had been identified as the main sites for the universities, their proclamation had to be put on hold until the land transfer issues could be resolved. It was known that massive delays had been experienced elsewhere because of shared responsibility across different spheres of government. Resolution of this problem was essential to enable the proclamation and any development to take place on the land. At other universities, including Wits, the team was aware that land transfer from government had been known to take ten years or more.

Ultimately this problem was resolved through an innovative strategy developed in discussion with the Wits Legal Department. Following consultation within government, the Minister of Higher Education and Training, the Premiers of the two provinces and the Minister of Public Works signed a Record of Intention to fast track the establishment and development of the Sol Plaatje University ^[3-5] and the University of Mpumalanga ^[3-6] In the Northern Cape, where part of the land is municipally owned, the Record of Intention was also signed by the Mayor of Sol Plaatje Municipality and the Executive Mayor of Francis Baard Municipality.

This solution cleared the way for proclamation of the Sol Plaatje University. Proclamation of the University of Mpumalanga, however, required resolution of a further range of issues linked to the incorporation of the Lowveld Agricultural College and the incorporation of the Siyabuswa Teachers Training College. These issues are dealt with elsewhere in this report.

3.3. MOA PHASE 2 - INCLUDING THE SECOND ADDENDUM TO THE MOA

3.3.1 Second addendum to the MOA

The Second Addendum to the MOA ^[3-7] of March 2013 extended the period to 31 March 2014 and the budget to R131.29m. The scope was extended to enable the project to continue the long term infrastructure planning, to proceed with renovation of existing buildings and the development of the academic programme to enable the first academic year to commence in February 2014.

Thus the second addendum included the following additional provisions:

- a) “identify and implement long lead items that might otherwise cause delay, including: statutory approvals (e.g. environmental, heritage, town planning, etc.) and key bulk services (e.g. traffic, water, sewerage, etc.);
- b) assist the Interim (and first) Councils of the new universities to establish institutional and academic capacity for the 2014 academic start-up programmes, including facilitation of the inputs of other universities; and
- c) assist the DHET and the Interim (and first) Councils to establish infrastructure delivery capacity for each university by facilitating the appointment of project managers, the establishment of rosters of the required design professions, as well as the appointment of framework construction contractors.”

It is noteworthy at this stage that the parties hoped to establish infrastructure delivery capacity within both universities in time for the start of major construction works.

In its annual report of March 2014 the NUPMT was able to highlight the following achievements towards establishment of both universities:

- *Spatial planning frameworks for each institution established through broad consultation;*
- *Promulgation in August 2013 of both Universities and establishment of Interim Councils for the Sol Plaatje University and for the University of Mpumalanga culminating in the launch of both universities at the beginning of the fourth quarter of 2013; ...*
- *Ongoing institutional support to both universities, the purchase of some buildings in the Northern Cape and the upgrading of existing facilities in both provinces to enable student enrolment for the 2014 academic year;*
- *The implementation of two groundbreaking architectural competitions, culminating in the appointment of nine architects, five for Sol Plaatje University and four for the University of Mpumalanga;*
- *Implementation planning which maps out 11-13 year implementation plans for both universities as well as detailed plans for the 2015 and 2016 academic years.*

3.3.2 Academic and Institutional Development

On the recommendation of DHET a senior academic, about to enter retirement, was appointed to the NUPMT to drive key components of the academic development. These included partnerships with other universities, the accreditation of academic programmes with the Council for Higher Education and Training, the recruitment of Interim Heads and key staff members. Several universities had mobilised support to the two institutions and were 'sponsoring' the introduction of academic programmes in the Northern Cape and/or Mpumalanga.

With the promulgation of the Sol Plaatje University and the University of Mpumalanga, the responsibility for academic planning shifted rapidly onto the shoulders of the appointed Interim Councils and the newly appointed academic leadership and staff. Formal handover of this responsibility was finalised by the start of the first academic year in 2014. From that moment on, the NUPMT's infrastructure planning was increasingly shaped by the academic planning of the universities themselves. An early example of this was the University of Mpumalanga's draft *Vision, Mission and Preliminary Planning Scenario* ^[3-8], completed in 2014.

The NUPMT would continue for some time to provide institutional support to the DHET in terms of processes to disestablish the NIHEs and to support the growth of the universities, particularly in terms of staff recruitment and the establishment of the first full University Council.

Critically, with the decision to start the academic programme in 2014, the focus of the NUPMT and TIC shifted significantly to the renovation of existing facilities for the first academic year and, even more urgently, to the development of design and construction capacity for the delivery of new infrastructure to accommodate growing future enrolment.

3.3.3 Renovation work for the 2014 academic year

Following separate tender processes, a civil engineering and a building contractor were appointed at SPU and a building contractor at UMP. These contractors were appointed as Management Contractors under three-year framework agreements. They successfully delivered the necessary infrastructure for the 2014 academic start.

In Mpumalanga the work focused on minor upgrading of the university entrance and the establishment of a memorial garden to commemorate the launch of the University on the 31st October, 2013. In Kimberley, the appointed civil engineering contractor constructed a memorial square at the heart of the Central Campus, around which the first new buildings were subsequently erected.

Building work in Nelspruit focused on the upgrading and refurbishment of existing facilities at the Lowveld College of Agriculture (LCA) and the Mpumalanga Regional Training Trust (MRTT) where the Hospitality Management programme was introduced through a three-year Memorandum of Agreement between UMP and MRTT. Further building work, managed by NIHE, was undertaken at the Siyabuswa Campus.

At SPU, building work focused on the upgrading and refurbishment of existing facilities at the Old Provincial Legislature (North Campus) and the William Pescod School (Central Campus). Also, the NUPMT had assisted SPU to purchase two existing buildings to provide the first student residences. These two buildings were upgraded as follows.

Diamond Lodge: previously a small hotel was equipped with 68 beds for immediate use at the beginning of the 2014 academic year. A suite was set aside for the warden and the existing kitchen was used to feed the Diamond Lodge students and those in Whiteways.

Whiteways: For 2014, this nine-storey apartment block was equipped to accommodate the overflow of 18 residential students. An apartment was equipped to accommodate a staff member and another apartment set aside as a dining room and TV lounge. This building would later be completely refurbished.

The PMT provided temporary internet connectivity at both universities and commenced planning for the permanent core ICT infrastructure platforms required as the foundation for expansion into the future. Furniture and equipment, including audio-visual equipment, computers and laundry equipment was procured.

Completion of renovation work and readiness for the 2014 academic year was “just in time” as it would be again for renovation work in 2015.

3.3.4 Infrastructure Design and Delivery Capacity

In both Kimberley and Nelspruit, the NUPMT engaged in significant consultation on the spatial design development, town planning and infrastructure planning requirements, which is reported on elsewhere in this report.

Following the promulgation in August 2013 and the establishment of Interim Councils for each University, the NUPMT and DHET organised the official launches of Sol Plaatje University (SPU) in September 2013 and of the University of Mpumalanga (UMP) in October of that year. Importantly these launches announced the outcomes of the two-stage national architectural design competitions organised by the NUPMT, as well as the appointment of the winning architects – five at SPU and four at UMP. Briefing of the SPU architects commenced in October 2013 and the UMP architects were briefed from the start of 2014.

Appointment of the architects represented the first long term capacity for the design and development of the new universities.

3.4. MOA PHASE 3 - INCLUDING THE ADDENDUMS 3 AND 4 TO THE MOA

3.4.1 Third and fourth addendum to the MOA

The Third Addendum ^[3-9] signed in November 2013, extended the implementation period to 31 March 2015 to enable the ongoing process to procure the project managers, professional design team and the construction contractors. It also extended the budget to R504.47m. Importantly this Addendum introduced the implementation of a handover plan, which set out a phased handover of responsibilities to the new universities. This was the only change to the envisaged scope of works.

It soon became clear that the handover of responsibilities for infrastructure delivery could not be achieved by the start of major construction in October 2014 and that the MOA would require further amendment, obliging the NUPMT and Wits University to shoulder the risk of major construction.

The Fourth Addendum to the MOA ^[3-10] as signed in September 2014, just nine months after the Third Addendum. It extended the implementation period to 31 March 2016 and further extended the scope of implementation to include major construction work, which commenced on site in October 2014. The budget was increased to an accumulated amount of R1 951 506 053.

Thus, the fourth addendum included the following additional provisions:

- a) *“... manage the design and construction teams established, and implement the initial construction contracts required for the 2015 and 2016 academic years, bringing this responsibility to conclusion by 31 March 2016, whereafter any implementation will be managed by the new universities for themselves;*
- b) *implement the revised handover plan, which includes required capacity building to enable a phased handover of responsibilities to the new universities....”*

In the annual report of March 2015 the NUPMT was able to highlight the following achievements towards establishment of both universities:

- a) *the upgrading of existing facilities to support academic growth and enable the envisaged 2015 student enrolment at both universities;*
- b) *the planning, procurement and mobilisation of full design teams and contractors to start construction in October 2014 so as to enable the completion of major new infrastructure for the start of the 2016 academic year;*
- c) *the consolidation of land assembly to secure future development;*
- d) *institutional consolidation including appointment of full university councils as well as the finalisation of complex incorporation processes and the disestablishment of the National Institute of Higher Education in both Mpumalanga and Northern Cape.*

3.4.2 Managing the Risk of Major Implementation

The Fourth Addendum took Wits University into an area of risk it had hoped to avoid. Wits would now enter into major construction contracts on land which did not belong to it and on behalf of new universities which were still in their infancy. The full Councils of UMP and of SPU were only appointed in August 2014 and the first Vice Chancellor (UMP) would only be appointed on 1 November 2014. The Fourth Addendum therefore made provision to address the identified risk as follows:

- a) *“The Parties recognise that project implementation has progressed into the ambit of major construction and that this poses additional risk to Wits as Implementing Agent and that this risk needs to be appropriately managed as follows:*
- i) *From the amount transferred to Wits by DHET, Wits will take out additional insurance cover sufficient to cover those risks which are insurable;*
- ii) *An amount of R 50 000 000,00 (fifty million Rand) inclusive of VAT will be earmarked as a contingency fund to be accessed by Wits in order to deal with unforeseen circumstances including any litigation.”*
- iii) *.....”*

Importantly, the Fourth Addendum required that DHET ensure full cooperation of the fledgling universities as determined in the following clauses:

- iv) *“DHET undertakes to ensure the documented acceptance by the Councils of the new universities of the terms and obligations of this MOA between Wits and DHET; and*
- v) *DHET undertakes to ensure the documented acceptance by the new universities of the completed construction projects together with ongoing responsibility for them.”*

The requirements set out in sub-clauses iv) and v) above were effectively realised through an additional joint Memorandum of Agreement between DHET, Wits, UMP and SPU ^[3-11] which was signed on the 24 October 2014. In this MOA, the new universities confirmed:

- a) support for the infrastructure planning and development already undertaken;
- b) support and acceptance of the completed projects;
- c) support for the extension of the original MOA as envisaged in the Fourth Amendment; and
- d) the participation by both universities in the procurement processes leading to the appointment of the respective project managers, design teams and main contractors for the construction ahead.

3.4.3 Establishing Design and Construction Capacity

From the start of 2014, the race was on to be on site by September 2014 in order to complete the new buildings at SPU and UMP in time for the 2016 academic year.

The deadline of September 2014 meant that cost consultants and design professionals would first need to be appointed to be able to work with the architects to complete designs and tender documentation. Project Managers would need to be appointed next and finally tender documents would be issued to enable the appointment of contractors at UMP and SPU. At this stage it is sufficient to state that a start on site was achieved in October 2014, placing significant stress on the goal to occupy new buildings by February 2016.

The architects and other design consultants and contractors were appointed on three-year framework contracts. Foreseeing the handover of responsibility to each university, the tenders and consequent NEC contracts included provision for the transfer of the contracts to the new universities.

The 2014-15 Annual Report delivered in March 2015 was able to report the complete mobilisation of design teams and contractors for a construction start in October 2014 that would enable the completion of major new infrastructure for the beginning of the 2016 academic year. It further reported on 48 contract awards following competitive tender processes at both universities (see Chapter 9 – Procurement Strategy).

Across the two universities, thirty-four tenders were invited covering seventeen professional disciplines, including project managers, cost consultants, engineers (civil, electrical, mechanical, structural, geotechnical, acoustic, fire, traffic), landscape architecture, strategic environmental sustainability, wet services, land surveying, health and safety monitoring, environmental compliance monitoring and ICT provision.

A total of 42 different professional appointments were made at each university and the tenders were generally awarded at rates lower than those recommended by the relevant professional councils. Further appointments were made for furniture and audio-visual equipment relating to the 2015 refurbishment work.

Finally, following a three-stage tender process, contracts were signed with three contractors at SPU and two at UMP, just in time to start work in October 2014. Following extensive consultation with stakeholders, the delivery strategy^[3-12] included a strong focus on provincial and local development, which has been monitored in terms of targets for local employment, the use of local subcontractors and suppliers and for skills development. A later chapter is dedicated to this delivery strategy and the results achieved.

The NUPMT and DHET were acutely aware of the risks and sensitivities associated with procurement and ensured the participation of the new universities in all the tender evaluation processes. In addition care was taken to include officials of the local municipalities in the evaluation of tenders for the project management services and for the construction contracts.

3.4.4 Renovation Work for 2015 at Sol Plaatje University

At SPU the upgrading work that was undertaken for the 2014 academic year continued with the following achievements:

- a) Old Provincial Legislature (offices, classrooms, laboratories, kitchen and canteen);
- b) William Pescod Buildings (laboratories and classrooms), including landscaping;
- c) Whiteways Flats and Diamond Lodge Hotel – conversion to student residences for 120 students plus support facilities and two warden's flats plus laundry, kitchen, dining and other facilities.

Significant emphasis was placed on ensuring robust connectivity and a solid, expandable ICT platform to support the future development of the university.

3.4.5 Renovation Work for 2015 at University of Mpumalanga

To ensure student accommodation for the 2014 and 2015 Academic Years, five existing residences with 210 beds on the Mbombela Campus and six residences with 305 beds on the Siyabuswa Campus were renovated, with this delivery managed by the NIHE. On the

MRTT site, a 30-bed residence was also renovated. These renovations provided the university a total of 545 beds at the beginning of 2015.

At the Lowveld College of Agriculture (LCA) site, the upgrading work included the two remaining lecture auditoriums (104 and 64 seats respectively), the Computer Literacy classroom, offices on the ground and first floors of the Administrative building, and the library expansion. Twenty-six temporary offices in park homes were provided.

A further 160 student rooms were upgraded in cycles that enabled the decanting of residents. Common rooms were refurbished and all five laundries of the residence blocks were upgraded and re-equipped.

A range of ablution facilities were upgraded for student and staff. Further upgrading work was undertaken at the MRTT.

For the 2015 start at Siyabuswa, further work was also undertaken by the NIHE, comprising renovation of existing offices, construction of eight new offices and infrastructure upgrading.

As with SPU, significant emphasis was placed on ensuring robust connectivity and a solid, expandable ICT platform to support the future development of the university.

3.4.6 Progress on Land Assembly

The 2014-15 Annual Report noted continued reliance on the signed Records of Intention on the publicly owned land in both Mpumalanga and Kimberly. The report also confirmed that ownership had been confirmed for all of the properties, and that no land claims existed on any of the properties earmarked for the establishment of the universities.

With regard to SPU, the report noted that agreement had been reached with Transnet on the purchase of Erf 2511 at the favourable total cost of R28.7m and transfer to SPU took place early in 2015. The 14.6ha property with various buildings included an existing student residence for approximately 235 students. This landmark acquisition secured the future of the South Campus and the intention of the Spatial Development Framework that this should form an important hub for student residences and sport facilities.

Total student enrolment for the 2015 academic year included 337 students at SPU and 828 students at UMP, the latter spread across campuses.

3.5. MOA PHASE 4 – IMPLEMENTING ADDENDUMS 4 AND 5 TO THE MOA

As mentioned above, the Fourth Addendum was signed as early as September 2014, and provided for

- a) the implementation of major new, multi-storey construction in time for the start of the 2016 academic year;
- b) a handover plan that would ensure handover of responsibility for infrastructure by 31 March 2016.

The Fifth Addendum to the MOA ^[3-13] was signed on 27 April 2016, extending the duration to 31 July 2017 in order to allow for a comprehensive project close-out process. This final addendum also reduced the total budget to R1 768 506 053 (See Table 4.4 – Final Control Budget summary) to take into account the fact that R183 000 000 was transferred by DHET directly to the new universities (R83m to SPU and R100m to UMP) to enable the start of their construction programme as part of the handover process.

Signed in April 2016, the Fifth Addendum confirmed the implementation handover date of 31 March 2016. It also extended the MOA period to 31 July 2017 and the scope of work to allow for a close out process, including settlement of final accounts, final payments to contractors, finalisation of a close out report, archiving of project material and transfer of any residual funds as instructed by DHET.

The 2015-16 Annual Report of May 2016 was able to report positive achievements at both UMP and SPU with regard to both implementation and handover as follows:

a) Implementation

- *“Continued refurbishment of existing buildings and completion of 16 new buildings largely within budget, providing new academic and residence space for the 2016 student enrolment of 1255 at UMP and 700 at SPU;*
- *Implementation of a construction development strategy that successfully delivered empowerment, local contracting and supply capacity, local employment and skills.”*

b) Handover

- *“Establishment of infrastructure capacity at SPU and UMP enabling both universities to start the planning and construction of new buildings under their own management;*
- *Implementation of a contracting approach that has enabled the transfer to each university of over 32 design, supply and construction contracts as part of the hand over;*
- *Construction start of seven new buildings under the direction of SPU and UMP;*
- *Finalisation, in cooperation with SPU and UMP respectively, of a five-year development plan for each university as the basis for continued DHET infrastructure funding.”*

Both the implementation and handover processes are detailed elsewhere in this report.

SUMMARY HISTORY OF MOA AND ADDENDUMS

MOA – signed 23 February 2012 with budget of R50m

ADDENDUM 1 signed - 27 Nov 2012 – extending

Time to 31 March 2013

ADDENDUM 2 signed -15 March 2013, extending

Time to 31 March 2014; Budget to R131 296 633 and Scope as follows:

- a) identify and implement long lead items – planning & bulk services;
- b) assist the Interim Councils of the new universities to establish institutional and academic capacity for the 2014 academic start-up programmes; and
- c) assist Councils to establish infrastructure delivery capacity through appointment of project managers, design professions and framework construction contractors.

ADDENDUM 3 signed - **22 November 2013** extending

Time to 31 March 2015; Budget to R 504,471,053 and Scope as follows:

- d) Implement a handover plan.

ADDENDUM 4 signed - **25 September 2014** extending

Time to 31 March 2016; Budget to R1,951,506,053 and Scope as follows:

- e) manage the design and construction teams established and implement the initial construction contracts required for the 2015 and 2016 academic years;
- f) Implement the revised handover plan;
- g) “*20.10 Management of Additional Risk:*
The Parties recognise that project implementation has progressed into the ambit of major construction and that this poses additional risk to Wits managed as follows:
 - a. *Additional insurance cover sufficient to cover those risks which are insurable;*
 - b. *An amount of R 50 000 000,00 (fifty million Rand) earmarked as a contingency;*
 - c. *DHET undertakes to ensure the documented acceptance by the Councils of the new universities of the terms and obligations of this MOA between Wits and DHET,*
 - d. *DHET undertakes to ensure the documented acceptance by the new universities of the completed construction projects*”
- h) *Residual Finance Wits will transfer any residual finance received from DHET ... to one or both of the new universities as instructed by the DHET.”*

ADDENDUM 5 signed - **27 April 2016** extending

Time to 31 July 2017; reducing Budget to R1 768 506 053 and extending Scope as follows:

- i) Implement a close out plan;
- j) submit annually to DHET a report including a narrative description of progress;
- k) Reduction of meetings of Steering and Technical Integration committees;
- l) Residual Finance
 - 20.11.1 *First transfer (within 3 months of construction) to one or both of the new universities or to another institution ... as instructed by the DHET.*
 - 20.11.2 *Second transfer (on completion of Phase 1 Implementation Plan) of any outstanding residual finance to one or both of the new universities or to another institution of higher education as instructed by the DHET. ”*

REFERENCE DOCUMENTS

- 3-1 Fitzgerald, P and Hodgson, S. Higher education infrastructure expansion: the case of Wits. SARUA Leadership Dialogue Series Volume 2 Number 2, October 2010
- 3-2 Laryea, S and Watermeyer, R. Innovative Construction Procurement at Wits University. Proceedings of the Institution of Civil Engineers. Management, Procurement and Law, Volume 167 5 October 2014 Issue MP5 pp 220 – 231
- 3-3 Memorandum of Agreement between the Department of Higher Education and Training and the University of the Witwatersrand, Johannesburg on the infrastructure planning and delivery proposals for two envisaged universities in the Northern Cape and Mpumalanga (February 2012)
- 3-4 Addendum to the Memorandum of Agreement between DHET and Wits (November 2012)
- 3-5 Record of Intention to Facilitate the Rapid Establishment of the New Universities and the Transfer and Development of Publicly Owned Land in the Northern Cape (March 2013)
- 3-6 Record of Intention to Facilitate the Rapid Establishment of the New Universities and the Transfer and Development of Publicly Owned Land in Mpumalanga (April 2013)
- 3-7 Second Addendum to the Memorandum of Agreement between DHET and Wits (February 2013)
- 3-8 Annexure 3 (Academic planning under consideration) of the 2013-14 Annual Report (October 2014)
- 3-9 Third Addendum to the Memorandum of Agreement between DHET and Wits (November 2013)
- 3-10 Fourth Addendum to the Memorandum of Agreement between DHET and Wits (September 2014)
- 3-11 Memorandum of Agreement between DHET, University of the Witwatersrand-Johannesburg, University of Mpumalanga and Sol Plaatje University (October 2014)
- 3-12 Outline Construction Delivery Strategy
- 3-13 Fifth Addendum to the Memorandum of Agreement between DHET and Wits (April 2016)

Chapter 4

Governance



4. Project Governance

The governance arrangements established by the Memorandum of Agreement (MOA) between the Department of Higher Education and Training (DHET) and the University of the Witwatersrand have provided constant direction to the development of the University of Mpumalanga and the Sol Plaatje University.

The Project Steering Committee was originally established to include representatives from DHET and Wits, representatives from the University of Johannesburg, University of Pretoria, the National Institute for Higher Education (NIHE) and from the Premier's Office in each province. It was subsequently expanded to include representatives of the new universities.

Since the signature in October 2014 of a second Memorandum of Agreement between DHET, Wits, the University of Mpumalanga and the Sol Plaatje University, the Project Steering Committee was formally reconstituted to include representatives from DHET, WITS, UMP and SPU together with a representative from the Premier's Office in each province. The Project Steering Committee (PSC) met 15 times between March 2012 and January 2016, providing oversight and guidance to the development of both universities until its last meeting in January 2016.

The Technical Integration Committee (TIC) that met monthly to integrate the planning work and thinking of the DHET, the Project Management Team and, since their establishment, the new universities, met 50 times between February 2012 and March 2016. The monthly TIC Contracts Committee, dealing with budget and procurement approvals, continued to meet beyond March 2016 in order to finalise outstanding contractual commitments. This committee met a total of 71 times and has been vital to enabling the development of budgets and the unfolding contractual commitments that resulted in peak expenditure levels of approximately R134m per month.

All of the above meetings and resulting decisions are documented, with minutes signed by the DHET Chairperson. As part of the handover, the functions of the PSC and TIC meetings were replaced by the structures of the two universities. Only the TIC Contracts Committee remained active into 2017 in order to support the closing out of contracts and the MOA itself.

Specifically, the NU PMT attended meetings of the university Councils, Council committees on infrastructure and meetings of university senior management. These consultations with the ultimate clients and end users ensured improved planning and design and enabled finalisation of an approved 5-year Infrastructure Plan ^[4-1] ^[4-2] as the basis for continued DHET infrastructure funding to the two universities.

4.1. EXTENSION OF COOPERATION BETWEEN DHET AND WITS

As outlined in the previous chapter, the original MOA, which set out the appointment of Wits to project manage and resource the planning and development of the two new universities on behalf of DHET, has been amended several times to extend the scope, time and budget of the appointment. For ease of reference, these amendments are summarised below:

Amendment 1: In November 2012, the MOA's life was extended to March 2013 with no changes to the scope or to the original budget of R50m.

Amendment 2: This amendment of March 2013 extended the period to 31 March 2014 and extended the scope and concomitant budget to R131.29m.

Amendment 3: This amendment, signed in November 2013, extended the period to 31 March 2015 and extended the infrastructure component of the scope from the planning phase into a limited implementation phase - with a corresponding budget of R504.47m.

Amendment 4: This amendment, signed in September 2014, extended the implementation period to 31 March 2016 and further extended the scope of implementation and the concomitant budget to an amount of R1 951 506 053.

Amendment 5: This amendment, signed in April 2016, confirmed the implementation handover date of 31 March 2016. It extended the scope to include a close out process and accordingly extended the MOA period to 31 July 2017. This amendment further reduced the budget to R1 768 506 053 to take into account the fact that R183 000 000 was transferred by DHET directly to the new universities (R100m to UMP and R83m to SPU) in order to enable the start of their construction programmes.

The outcome of the amendments has resulted in the following summarised scope:

- a) deliver a draft implementation plan for the establishment of the two Universities together with a communication plan enabling promulgation of the seats of the Universities by the DHET (completed in August 2013 with the proclamation of the universities);
- b) identify and implement long lead items that might otherwise cause delay, including: statutory approvals (e.g. environmental, heritage, town planning, etc.) and key bulk services (e.g. traffic, water, sewerage, etc.);
- c) assist the Interim (and first) Councils of the new universities to establish institutional and academic capacity for the 2014 academic start-up programmes;
- d) assist the DHET and the Interim (and first) Councils to establish infrastructure delivery capacity for each university by facilitating the appointment of project managers, the establishment of a panel of the required design professions, as well as the appointment of framework construction contractors; and
- e) implement the handover plan, which sets out a phased handover of responsibilities to the new universities, and provide regular reports on the handover process to the quarterly meetings of the Steering Committee;
- f) implement a thorough close out plan and aftercare process that consolidates handover to the new universities and minimises the potential for failure.

4.2. BUDGET & EXPENDITURE STATUS

Annual agreed upon financial reviews have been undertaken by KPMG in February 2013 ^[4-3] March 2014 ^[4-4], March 2015 ^[4-5], May 2016 ^[4-6] and May 2017. ^[4-7] The final KPMG agreed-upon review ^[4-8] for the period to the end of the project 31 July 2017 was completed in August 2017 and reflects positively in relation to the issues reviewed.

The full, revised budget of R1 768 506 053 was transferred to Wits. Recorded expenditure up to end of the project is R1 624 500 495. A summarised breakdown of project costs and expenditure is provided in Chapter 13.

4.3. MTEF BUDGET ALLOCATION MANAGEMENT

As a result of the feasibility reports submitted by the NUPMT in September 2012, National Treasury confirmed the funding for the new universities over the MTEF period 2013/14 to 2015/16 as set out in Table 4.1

Table 4.1: Medium Term Expenditure Allocation 2013 – 201

	2013/14 Rm	2014/15 Rm	2015/16 Rm	Total Rm
Total MTEF Allocation confirmed by National Treasury (including both Capital and Operational)	R300 000	R 659 000	R1 166 314	R2 125 314

Note: This combined budget is for both universities and the allocation between the universities is decided by DHET on the basis of implementation plans, priorities and related factors.

To date a total of R2.63b has been allocated for the period between 2011/12 and 2015/16, which is the period relevant to this report. This amount includes R50m in 2011/12 and R100m in 2012/13, as well as R320m in the 2015/16 year for additional infrastructure development and risk management. A further increase was made in the 2015/16 operational budget in the amount of R34.7m (R29.7m for UMP and R5m for SPU). Notably, the annual earmarked budgets are constituted in terms of two-line items:

- Establishment of the universities (including operational and capex costs)
- Capital development expenditure only (see 1.1 and 1.2 of the MTEF schedule below).

Against this background the DHET had allocated a portion of the 2013/14 earmarked “Establishment” budget to each University, a portion to the Mpumalanga National Institute of Higher Education (NIHE) for the operation of the Siyabuswa (Education) Campus and a portion to Wits University. For the 2013/14 year, the DHET further allocated a portion of the earmarked “Capital” budget to NIHE for the upgrading of existing facilities at Siyabuswa and to Wits University for infrastructure planning and construction of both universities. After the disestablishment of NIHE, the responsibilities and amounts allocated to it were transferred to the University of Mpumalanga.

The management and monitoring of the MTEF Budget formed part of the focus of the NU PMT and DHET and was constantly monitored at TIC meetings. Table 4.2 sets out the evolving MTEF Budget Allocation for the period between 2011/12 and 2015/16, the period covered by the MOA.

Table 4.2: Medium Term Expenditure Framework - Budget Allocation for the relevant Periods

No.	MTEF Budget Allocations	2011/12	2012/13	2013/14	2014/15	2015/16	Total 2011/12 to 2015/16
1	EARMARKED AMOUNTS	R	R	R	R	R	R
1.1	Establishment/Operation Allocation of new universities in Mpumalanga and Northern Cape: Earmarked Allocation	50,000,000	100,000,000	150,000,000	159,000,000	201,014,000	660,014,000
1.2	Capital Allocation on the new universities in Mpumalanga and Northern Cape: Earmarked Allocation			150,000,000	500,000,000	1,000,000,000	1,650,000,000
1.3	Earmark Totals 1.1 & 1.2	50,000,000	100,000,000	300,000,000	659,000,000	1,201,014,000	2,310,014,000
1.6	Total DHET Additional Budget					320,000,000	320,000,000
1.7	Total Budget Allocations - Earmarks & DHET Additional Budgets	50,000,000	100,000,000	300,000,000	659,000,000	1,521,014,000	2,630,014,000
2	Establishment & Operational Budget	2011/12	2012/13	2013/14	2014/15	2015/16	Total 2013-16
2.1	SPU Establishment Budget						
2.1.1	SPU Operational Budget			28,128,322	46,654,612	58,111,090	132,894,024
2.1.2	SPU-Whiteways & Diamond Lodge purchases			35,000,000			35,000,000
2.1.3	Hoffe Park Purchase				10,000,000		10,000,000
2.1.8	SPU Total Establishment Budget	-	-	63,128,322	56,654,612	58,111,090	177,894,024
2.2	UMP Establishment Budget						
2.2.1	UMP Operational Budget			58,153,262	84,011,420	125,630,734	267,795,416
2.2.2	Additional 2015/16 Year Operational Budget				680,014	17,272,176	17,952,190
2.2.7	UMP Total Establishment Budget	-	-	58,153,262	84,691,434	142,902,910	285,747,606
2.4	Wits from Establishment Budget						
2.4.1	2014 Start Furniture, Fittings & Equipment			7,174,420			7,174,420
2.4.6	Total Wits from Establishment Budget	-	-	7,174,420	-	-	7,174,420
2.5	NIHE MP for Siyabuswa operational budget						
2.5.1	2013/14 year allocation			21,543,996			21,543,996
2.5.2	NIHE MP for Siyabuswa operational budget 2014/15				17,653,954		17,653,954
2.5.5	Total - NIHE MP - Siyabuswa	-	-	21,543,996	17,653,954	-	39,197,950.00
2.6	Total of Allocations from Establishment Earmark	-	-	150,000,000	159,000,000	201,014,000	510,014,000
3	3. Capital Budget Earmark Allocation	2011/12	2012/13	2013/14	2014/15	2015/16	Total 2011/12-2015/16
3.1	NIHE MP for Siyabuswa	0	18,703,367	40,000,000		0	58,703,367
3.2	Wits						
3.2.1	MOA CA03	50,000,000	81,296,633	110,000,000	256,000,000	0	497,296,633
3.2.2	MOA CA04						
3.2.3	Total Wits Capital Allocation	50,000,000	81,296,633	110,000,000	256,000,000	0	497,296,633
3.3	Sol Plaatje University						
3.3.1	Erf 1 Oppenheimer Memorial Park				16,965,000		16,965,000
3.3.3	SPU Reallocation from Wits for 2016/17 infrastructure					83,000,000	83,000,000
3.3.5	Sol Plaatje University Total Capital Allocation	0	0	0	16,965,000	83,000,000	99,965,000
3.4	University of Mpumalanga						
3.4.1	Phase 3 Siyabuswa residences				80,000,000		80,000,000
3.4.2	Purchase of Erf 75				20,000,000		20,000,000
3.4.3	UMP Reallocation from Wits for 2016/17 infrastructure					100,000,000	100,000,000
3.4.5	University of Mpumalanga Total Allocation	0	0	0	100,000,000	100,000,000	200,000,000
3.5	Total Capital Budget Allocated	50,000,000	100,000,000	150,000,000	372,965,000	183,000,000	855,965,000
4	Wits Implementation Budget Allocation	2011/12	2012/13	2013/14	2014/15	2015/16	Total 2011/12 to 2015/16
4.5	Wits Total Budget in Contract Amendment CA05 INCLUDING Additional DHET funds see line 1.6 less allocations to SPU (R83m) & UMP (R100m)	50,000,000	81,296,633	117,174,420	383,035,000	1,137,000,000	1,768,506,053
4.6	Remaining Budget still to be allocated	0	0	0	0	0	0

4.4. MANAGEMENT OF THE OVERALL PLANNING AND CONTROL BUDGET

The overall Control Budget for planning and development of the two universities forms an annexure to the MOA and has been revised with each of the five MOA Addendums. Table 4.3 sets out an abbreviated version of the control budget as defined in the 4th Addendum to the MOA. Importantly, this is the first control budget that makes provision for the construction of infrastructure to enable the 2016 enrolment. These allocations (R857m to SPU and R593m to UMP) were based on careful assessment of the needs at SPU and UMP.

**Table 4.3: Overall Control Budget of the MOA Implementation Plan (Extract)
Contract Amendment CA04 (Fourth Addendum to MOA) –
Revision, approved 05 September 2014**

No	ITEM	BUDGET ITEM	Control Budget for MOA CA04	Notes	
10	B10	Planning, Design & Implementation Budget - 2011/12, 2012/13, 2013/14, 2014/15 and 2015/16 budgets as per DHET-Wits MOA	1 951 506 053	1	
11	C1	Risk Contingency	50 000 000	2	
12	C2	Development Budget	1 901 506 053	3	
17	HETG - General Costs Subtotal - Management Fee, audit, general disbursements		57 037 651		
18	Planning/Design/Implementation Budget excl Risk contingency - less General Costs		1 844 468 402		
19	2012-2015 Budget Commitments from Procurement Plan		360 311 812		
20	Budget Available for 2016 Start Construction and forward planning for 2017-18		% of 2016-17 Start Budget	1 484 156 589	
21	SPU 2016 Start Budget		58%	857 627 138	4
22	UMP 2016 Start Budget		40%	593 093 936	5
23	Reserve		2%	33 435 515	

Notes:

1. Overall allocation increased from R 504,471,053 (MOA Addendum 3) in order to address infrastructure implementation for 2016.
2. Wits Risk Contingency allowance for any unforeseen risks (MOA Addendum 4)
3. Development budget available after deduction of Wits Risk Contingency
4. SPU control budget allowance in MOA Contract Amendment 4 for construction needed for the 2016 enrolment.
5. UMP control budget allowance in MOA Contract Amendment 4 for construction needed for the 2016 enrolment.

Table 4.4 shows the final Control Budget summary after the purging of the final contract and KPMG's final financial review.

**Table 4.4: Overall Control Budget of the MOA Implementation Plan (Extract)
Contract Amendment CA05 (Fifth Addendum to MOA) –
Final Control Budget Summary (05 September 2017) following KPMG Review**

	1	2	3	4	6	
No	ITEM	BUDGET ITEM		Control Budget for MOA CA04	Control Budget for MOA CA05 after direct allocations to SPU & UMP	Notes
10	B10	Planning, Design & Implementation Budget - 2011/12, 2012/13, 2013/14, 2014/15 and 2015/16 budgets as per DHET-Wits MOA		1 951 506 053	1 768 506 053	1
11	C1	Risk Contingency		50 000 000	50 000 000	
12	C2	Development Budget ito MOA CA05 - less the C1 Risk Contingency Amount		1 901 506 053	1 718 506 053	
22	HETG - General Costs Subtotal - Management Fee, audit & Insurances, general disbursements			57 037 651	54 749 025	
23	Planning/Design/Implementation Budget excl Risk contingency - less General Costs - Available for establishment, 2014 start, 2015 start and 2016-18 start			1 844 468 402	1 663 757 028	
24	2012-2015 Budget Commitments from Procurement Plan & close out			335 366 370	335 366 370	
25	Budget Available for 2016 Start Construction Implementation by Wits less allocations directly to SPU & UMP		% of 2016 Start Budget	1 509 102 032	1 328 390 658	
26	SPU 2016 Start Budget - Source SBDS Combines 2016 Start Control Budget v20151102 tbc		61%	857 627 138	804 001 583	2
27	UMP 2016 Start Budget - Source SBDS Combines 2016 Start Control Budget v20151102 tbc		37%	593 093 936	493 093 936	3
28	Indicative Total Planned Procurements Budget				1 582 923 916	
29	Surplus/-Deficit of procurements planned				91 764 039	
30	Interest earned - as at 31 July 2017 (as per KPMG's final review)				96 324 924	
32	Transfer to SPU from Total Amount Reserve ito DHET Instruction				22 800 000	4
33	Transfer to UMP from Total Amount Reserve ito DHET Instruction				21 970 000	4
34	Residual Fund transfer to SPU ito DHET Instructions				37 500 000	5
35	Residual Fund transfer to UMP ito DHET Instructions				37 500 000	5
37	Risk Contingency within CA05 budget				50 000 000	6
38	Recovery of PI Claim against HETC116 Element Consulting				2 684 269	
39	Savings on General Expenses budget				3 527 507	
40	Total Estimated Reserve including Risk Contingency				124 530 739	7

Notes:

1. R100 000 000 and R83 000 000 directly to UMP and SPU respectively in terms of the handover of construction as described in Chapter 15.5.
2. Revised SPU budget allowance in MOA Contract Amendment 5 for construction needed for the 2016 enrolment.
3. Revised UMP budget allowance in MOA Contract Amendment 5 for construction needed for the 2016 enrolment.

4. Transfers made by Wits to SPU and UMP respectively in terms of MOA Addendum 5 (Clause 2011 – Residual Finance) as described in Chapter 15.7.
5. Transfers made by Wits to SPU and UMP respectively in terms of MOA Addendum 5 (Clause 2011 – Residual Finance) as described in Chapter 15.7.
6. Wits Risk Contingency (R50m) released at end of project.
7. Total reserve after confirmation by KPMG's final agreed upon financial review.

4.5. INFRASTRUCTURE CONTROL BUDGETS FOR THE 2016 START

The infrastructure control budgets provided an evolving framework for the planned construction work needed to ensure student enrolment at the start of the 2016 academic year at both SPU and UMP. Administered by the project cost consultants, these budgets were critical to the NU PMT's ability to manage the unfolding array of planned projects. Early examples of these budgets are provided in tables 4.5 and 4.6.

Table 4.5: UMP Infrastructure Control Budget for the 2016 Start (Extract)

UMP 2016-2018 Start Control Budget						Version: 20150415dbv1- PRELIMINARY ESTIMATE FOR FUTURE 2017 onwards				
1	3	4	5	6	8	12	16	17	18	
1	Campus	Building Parcel	Building Number	Usage	Gross Building Area	Total Building Costs Including Professional Fees and VAT	Start of Year Building must be complete for Academic Start	2014/15 MTEF Budget for 2016 Start & future years construction	2015/16 MTEF Budget for 2016 Start & future years construction	
2	Lower	1.1	L001	Residential Facilities and Study Space	5,795	R 121,079,793	2016	R 41,956,331	R 79,123,462	
3	Lower	1.2		Library, Resource Centre, Study Space and Executive Offices	5,109		2017			
4	Lower	1.2a	L002	Executive Offices	1,618	R 39,057,732	2016	R 2,650,000	R 5,620,241	
5	Lower	1.2b	L003	Library, Resource Centre and Study Space	3,491	R 82,600,861	2017	R 3,250,000	R 12,949,869	
6	Lower	2		Offices, Study, Sports Services, General Use, Health Care and Residential Facilities	9,264		2017			
7	Lower	2.1		Clinic and Sport Facility	3,177	R 66,750,568	2017		R 9,204,880	
8	Lower	2.2		Residential Facilities	6,087	R 92,869,180	2017		R 10,000,000	
9	Lower	3.1	L004	Raked Auditorium and Office Facilities	1,635	R 47,246,873	2016	R 6,701,775	R 40,545,098	
11	Lower	3.3	L005	IT Laboratories and IT Campus Support	757	R 20,911,186	2017			
12	Lower	4	L006	Existing Buildings Conversion - Classrooms, Laboratories, Offices, Study and General Use Facilities New Buildings: Dean's Office, Library, Resource Centre, Study Space and Raked Auditorium, External works & sundry buildings	8,094	R 202,436,746	2016	R 66,734,273	R 135,702,473	
21	Lower	4.2		External works & sundry buildings		R 8,994,236	2016		R 8,994,236	
63				Forward planning & Design for future year/s development					R 12,355,556	
64				UMP Total Building Cost	48,353	R 3,394,844,052		R 121,292,379	R 314,495,815	
65				Addition Items						
67	A02			Furniture Fittings and Equipment & AV	8%	R 339,484,405	2016		R 34,863,056	
68	A03			Urban Fabric		R 156,737,861	2016	R 5,458,538	R 14,834,154	
69	A04			Site Infrastructure - lower campus development		R 9,235,322	2016	R 4,926,122	R 4,309,200	
70	A05			Bulk Infrastructure		R 224,566,000	2016/2017/2018/2019	R 13,075,000	R 41,118,500	
71	A06			Future Site Infrastructure - Lower & Hill Campus		R 202,336,620	2016/2017/2018/2019	R -	R 19,044,070	
72	A07			Bulk Services Contribution		R 27,100,000	2016/2017/2018/2019	R -	R -	
73	A08			ICT Core platform & annual expansion including 2015 ICT security platform for access control, CCTV, alarms etc. - confirmed by M Grobler - final budget		R 52,085,000	2016/2017/2018/2019	R -	R 14,555,000	
74	A09			Siyabuswa Phase 3 for 2016 start year to be determined		20,000,000	2016			
81				UMP Total Additional Items		R 1,031,545,208		R 23,459,660	R 128,723,979	
82				UMP Total Building Costs and Infrastructure		R 4,426,389,261		R 144,752,039	R 443,219,794	
83								Total Cashflow 2014/15 & 2015/16	R 587,971,834	
84										
85										
86										

As revised - approved at DHET-Wits Contract Meeting No 33 on 9 Oct 2014 Additional R20m

MOA CA04 UMP Control Budget	R 593,093,936
Surplus/-shortfall	R 5,122,102

Table 4.6: SPU Infrastructure Control Budget for the 2016 Start (Extract)

SPU 2016-2018 Start Control Budget										Version:20150415-dbv1		PRELIMINARY ESTIMATE FOR FUTURE 20	
1	2	3	4	5	6	7	8	14	17	18	19		
1	Sol Plaatje University												
2	Wits Oracle Project No.	Campus	Building Parcel	Building Number	Usage	Total ASM	Gross Building Area	Elemental Estimate including Fees and VAT	Start of Year Building must be complete for Academic Start	2014/15 MTEF Budget for 2016 Start & future years construction	2015/16 MTEF Budget for 2016 Start & future years construction		
3	SPU0006	Central	1	L001	Residential Facilities, Study Space, Campus Support and Services	8,267	12,747	R 235,409,325	2016	R 89,257,721	R 146,151,604		
4	SPU0007	Central	2	L002	Classrooms, Offices, Study, General Use, Residential facilities, Canteen and Exams Hall	8,438	13,532	R 248,472,064	2016	R 53,963,700	R 194,508,364		
5	SPU0008	Central	3	L003	Classrooms, Offices, Study, Special Use, General Use, Health Care Facilities, Raked Auditoriums and Gym Facilities	5,877	9,624	R 187,391,695	2016	R 71,051,372	R 116,340,323		
6	SPU0009	Central	4	L004	Library, Resource Centre, Raked Auditorium, Study Space	5,920	7,287	R 166,643,284	2017		R 46,479,775		
7		Central	5.1		Raked Auditorium, Offices, Study and General Use Facilities	2,255	3,926	R 100,278,550	2017		R 8,022,284		
8		Central	5.2		Residential Facilities and Study Space	4,162	6,311	R 142,329,571	2018		R 7,116,479		
22					Forward planning & Design for future year/s						R 9,869,208		
23			SPU Total Building Cost			34,919	103,995	R 2,332,440,047		R 214,272,793	R 528,488,036		
24			Addition Items										
25		A01	Existing Building Upgrades										
26		A02	Furniture Fittings and Equipment incl AVI					R 186,595,204	2015/2016	Will only be in 2015/16	54,950,691		
27		A03	Bulk and Site infrastructure - roads upgrading, electrical, landscaping, services extensions					R 180,283,237	2015/2016	41,070,611	29,081,057		
28		A04											
29		A05						R -	2015				
30		A06						R -	2014/2015				
31		A07	ICT Core platform & annual expansion including 2015 ICT security platform for access control, CCTV, alarms etc. - confirmed by M Grobler - final budget					R 24,500,000	2015/2016/2017		6,125,000		
39								R 422,378,441		41,070,611	90,156,748		
40								R 2,754,818,487.21		255,343,404	618,644,784		
41								Total Cashflow 2014/15 & 2015/16			873,988,188		
42								DeBeers Funding for Library			40,000,000		
43								Total Cashflow 2014/15 & 2015/16 less De Beers donation			833,988,188		
44								MOA CA04 Control Budget			857,627,138		
45								Surplus/(- Deficit)			23,638,950		
46													

4.6. NEW UNIVERSITIES PROGRAMME MANAGEMENT SYSTEM – BASIS FOR CONTROL

The New Universities Programme Management System (NUPMS) has been critical to sound project administration and to the reporting and approval processes of the various project governance structures. The Excel-based system comprises a series of interactive data tables and reporting tools for managing the budget allocations, procurements, contracting and payment, as well as tracking and reporting budget and expenditure.

In terms of overall governance, the NUPMS, particularly the Procurement Plan, has formed a central focus of the TIC Contract Committee meetings. Each proposed procurement and associated procurement budget were approved prior to implementation.

In total some 143 procurements were planned resulting in the allocation of 219 contracts against which generally two to six orders were issued per framework contract. Approximately 700 work orders were issued and approximately 2734 payment certificates were authorised for a total certified expenditure of R1 624 500 495.

This NUPMS also proved critical in the handover of responsibility to each university. It was developed in order to support the budgeting, procurement, contracting and payment required during the various stages of the programme implementation. The NUPMS was enhanced incrementally, as the programme increased in complexity and reporting of information increased over time. It was further enhanced to meet the needs of the handover and asset capitalisation requirements.

The programme expanded into full scale infrastructure delivery in order to meet the spatial needs for the start of the 2014, then 2015 and finally the 2016 academic years of both universities. In order to effectively manage the allocated budget, yet not be over prescriptive on the systems used, it was decided not to set up a full Portfolio, Programme and Project Management System, since it was intended that the Projects module within the Wits University Oracle Financial Management System could be used as the management system for both the financial controls and project delivery. Therefore the NUPMS was developed using Microsoft Excel, including integrated relational database tables.

The NU Programme Management System was designed to interface with the Wits Oracle Financial Management System with the key control being the issue of a purchase order from the Oracle Financial Management System. In short, no payments could be processed without a purchase order, nor could any payment be processed above the total value of the purchase order. As the project developed, the NUPMS was further enhanced to provide additional functionality, including improved reporting tools in support of management information required for the capitalisation of assets in the handover to the SPU and UMP.

The NUPMS comprises the following main components:

- a) Medium Term Expenditure Framework Budget Allocation:- This comprises the macro budget allocation to the various cost centres and parties by DHET in the Medium Term Expenditure Framework. This module provides the allocations made to various implementing agents including the Wits NUPMT, the erstwhile National Institute for Higher Education (NIHE) and to SPU and UMP after these were established.
- b) Control Budget in terms of the DHET and Wits MOA:- The control budget reflects the budget allocations that were incrementally made to Wits for implementation in terms of contracts and contract amendments as agreed between DHET and Wits. Expenditure against these, together with the updated Procurement Plan, were reported on at each TIC Contracts meeting.
- c) The Procurement Plan:- The Procurement Plan was developed incrementally during the various phases of the project from the site selection stage, feasibility and verification stages, implementation planning and construction stages through to the final close out stage. The Procurement Plan lists every procurement undertaken, as well as governance approvals by DHET in terms of the DHET-Wits MOA. Most of the contracts used are framework contracts based on various NEC forms of contract. The Procurement Plan lists each contract approved, and under each, the procurement plan lists the separate approvals of orders allocated against each contract.

All procurements listed in the procurement plan were approved by the DHET and signed off at Technical Integration Committee Contracts meetings, which took place generally every two weeks throughout the project, to review procurements for approval, expenditure, progress and risks.

- d) Contracts Register:- The Contracts Register module provides the register of all contracts that were entered into through the procurement process. Each contract is allocated a unique contract number which is then recorded in the contracts register.
- e) Purchase Order Register: - The Purchase Order Register lists every purchase order issued, (generated from the Wits Oracle Financial Management System), against each work order and links back to the contract number and purchase order amount.

The Purchase Order Register also provides the control for expenditure, as no expenditure above the purchase order amount can be made. Changes to purchase order amounts could only be made through a due process within the Wits Oracle Financial system and with Wits financial approval authorisation.
- f) Payment Register: - The Payment Register lists every invoice to be paid against the purchase order number, based on the authorised payment certificate, and creates the link between expenditure and the purchase order.
- g) Contracts Payment Report:- The Contracts Payment Report is the control schedule for expenditure against each purchase order and against each task / package / supply order issued under the specific contract. It also incorporates any compensation events which were approved (either negative or positive compensation amounts) in the Procurement Plan and all expenditure against each purchase order for each contract.
- h) Payment Certificate:- All payments against a purchase order were certified for correctness and in terms of deliverables received using the Payment Certificate, which lists the particular order, the purchase order total budget amount, total of the current contract amount, expenditure to date and budget remaining on the contract.
- i) Reporting Pivot Tables:- Reporting included the use of pivot tables in order to extract financial reporting information specific to each contract and specific to each purchase order issued. This component also provides reporting and reconciliation against the Wits financial management system and for allocation of capital expenditure against assets. A summary of expenditure is provided in Chapter 13.

4.7. RISK MANAGEMENT

A detailed Risk Register was instituted, reviewed and updated. Newly identified risks were added as the project unfolded from the initial identification of sites for the universities through to feasibility and verification studies, implementation planning and then risks associated with the actual development and construction of the universities.

Table 4.7 outlines the high level risks at the early project stages prior to construction.

Procurement was recognised as a substantial risk, which was dealt with separately and continuously.

Table 4.7: NUPMT Risk Register - High Level (at the early project stages prior to construction)

Key Risk Area Number	Key Risks		Detailed Risks (<i>Note: These detailed risks are further unpacked in terms of likelihood, impact and mitigation measures, etc.</i>)
1	Failure to inspire/develop sustainable best class institutions in both provinces	1.1	Failure to gain critical stakeholder support for the development and implementation of each university
		1.2	Failure to deliver an inspirational academic vision and appropriate PQM for each University
		1.3	Failure to build effective partnerships
		1.4	Failure to deliver inspiring and iconic university campuses aligned to the academic vision
2	Failure to achieve credibility due to poor conceptualisation, poor planning and ineffective communication.	2.1	Lack of alignment/support within spheres of government
		2.2	Lack of credibility of DHET/professional team/ project steering committee
		2.3	Communication by DHET and Ministry which is inadequate, inaccurate or poorly timed
		2.4	Failure to address stakeholder concerns and issues timeously
3	Delayed delivery in terms of key target dates: a) July 2012 – Announce Seats of Delivery b) Feb 2014 – Start Phase 1 Operation	3.1	Delays in key decisions and in intergovernmental coordination if reliant on other departments for performance (e.g. Public Works for land assembly, Treasury, Provincial and metro government)
		3.2	Failure to assemble land timeously (public and private)
		3.3	Delayed appointment, or performance of service providers
		3.4	Delays in bulk infrastructure (funding, approvals, delivery)
		3.5	Planning approval delays (environment, heritage, town planning)
		3.6	Delayed revision of legislation for announcement of seats and operational set up.
		3.7	Delays in approval of the academic programmes accreditation through CHE/HEQC
4	Failure to effectively mobilise funding for capital development and operational costs	4.1	Funding for infrastructure insufficient or delayed
		4.2	Start up operational funding insufficient or delayed
		4.3	Ongoing operational funding insufficient or delayed
5	Failure to achieve effective institutional design, leadership and operation - including structures and systems that support the early operation, institutional change & continuity.	5.1	Failure to appoint appropriate University leadership (Council and top management)
		5.2	Failure to recruit/appoint appropriate academic and senior management staff
		5.3	Failure to establish ICT and management systems that match staff capabilities from the outset and enable growth
		5.4	Failure to design/implement institutional arrangements that allow for continuity of early DHET supported management and a transition to full institutional autonomy.
6	Failure to effectively manage change with regard to existing academic institutions	6.1	Mpumalanga – NIHE, Lowveld Agricultural College, TUT, Siyabuswa Campus and UJ, Agricultural Research Council
		6.2	Northern Cape – NIHE, FET in Kimberley, Stockdale Nursing College, Teachers Training College

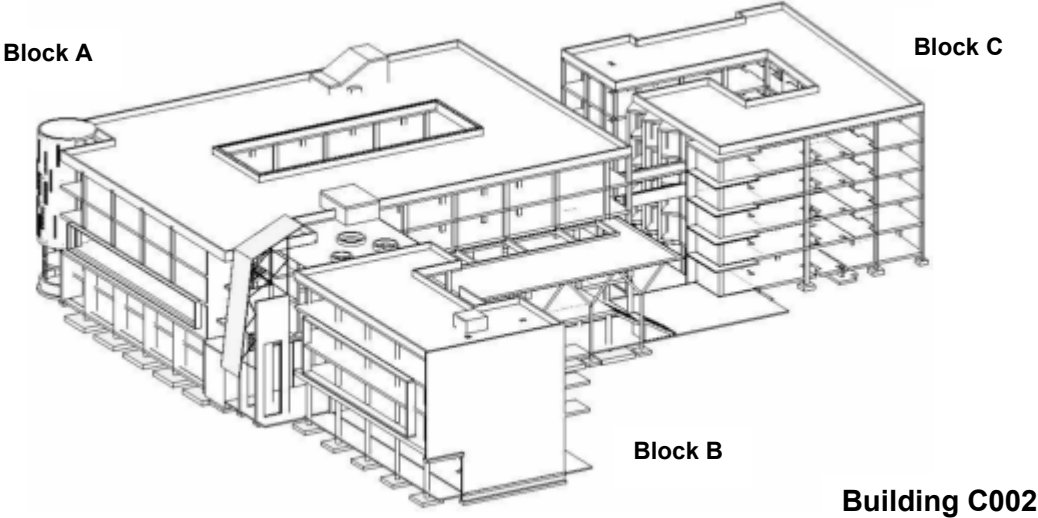
4.8. STRUCTURAL DESIGN DEFECT AND RESOLUTION OF DISPUTE

Early in 2017, an outstanding dispute with Element Consulting was resolved and the relevant costs were settled. It is important to record here the nature of the defect and how the dispute was resolved.

Building C002 on the Sol Plaatje Campus comprises three distinct blocks as indicated in Figure 4.1. Block A comprises retail spaces, the dining room and kitchen, residences and

teaching spaces. Block B comprises only residences. Block C comprises retail spaces and offices.

Figure 4.1 Building C002 showing Blocks A, B and C



Trencon Construction was contracted by Wits to construct Building C002 (access date 13 October 2014 and completion date 15 January 2016) for a price of R195m including VAT. Element Consulting Engineers was appointed to design the structural system for the building. Excessive deflection of a floor slab which incorporates a stairwell was observed on 6 August 2015 following the stripping of shutters of the second floor of a four-storey reinforced concrete frame building in Block C. Cracking was also observed in the corner of a slab in the floor above. The affected slab was propped pending the assessment of the slab and the issuing of instructions for remedial work. Work was subsequently stopped in this building for safety reasons.

Wits appointed a senior structural engineer who had conducted several investigations into structural failures for the Department of Labour and the Engineering Council of South Africa to advise on matters associated with these structural defects and to determine if they were of an isolated or systemic nature. His interaction with Element Consulting Engineers’ staff on site and at their offices in Cape Town indicated that the failure was caused by a gross error / oversight on behalf of the staff of Element Consulting Engineers and that a number of issues required attention apart from those relating to the slab around the stairwell in question.

The University suffered the following direct damages including VAT:

•Amounts paid to the construction contractor for remedial works to the second and third floor (direct impact of the error)	R1 142 149.80
•Additional amounts paid to the construction contractor as a result of the additional 2.5 months required to complete the works.	R3 995 945.91
•Amounts paid to Wits’ core team including engagement of a structural engineering specialist to act as the Employer’s advisor	R 193 352.93
	R 5 331 448.64

Element Consulting Engineers disputed these amounts other than the R1 142 149.80. Wits legal office held “without prejudice” discussions with Element Consulting Engineers which failed to resolve the impasse. Wits notified Element Consulting Engineers of a dispute on 1 December 2016 and referred the matter to adjudication on 22 December 2016 in accordance with the provisions of the contract.

The adjudicator’s decision ^[4-9] was communicated to the parties to the contract on 13 February 2017. In summary, the adjudicator’s decisions were as follows:

- 1) Element Consulting Engineers’ claim that Wits is time barred from making the claim and / or was time barred from referring the dispute to adjudication was rejected.
- 2) Wits’ entitlement to compensation for delay caused / delay damages was supported.
- 3) Wits’ delay of 2.5 months claimed as opposed to that of 5 weeks put forward by Element Consulting Engineers was supported.
- 4) The adjudicator ordered that Element Consulting Engineers pay Wits the following amounts:

Direct cost to construction contractor	R 1 001 885.79
Direct cost as a result of 2,5 months to complete the works	R 959 584.56
Amounts paid to professional team	<u>R 169 607.83</u>
Subtotal	R 2 131 078.18
Interest	<u>R 223 543.33</u>
Subtotal	R 2 354 621.51
VAT	R 329 647.01
Total	R 2 684 268.52

The adjudicator’s reasoning for reducing the direct cost as a result of the 2.5 months delay is based on an interpretation of the distortion in the general costs associated with the acceleration of blocks A and B i.e. costs associated with salaries and wages of management.

A decision was made to pay for acceleration costs to ensure that Block A and B were completed by the end of January to accommodate the new student intake. A quotation for acceleration was received from Trencon Construction for Block C. The cost benefits to this acceleration were carefully considered. The Sol Plaatje University indicated that it could work around the need for office space and only take occupation of Block C during April. As a result, no acceleration in terms of the contract was required for Block C as it was not warranted.

The adjudicator’s argument was that had blocks A and B not been accelerated, the costs would have been shared between the three blocks until completion for the whole of the works was reached at the end of March. As a result, it was not reasonable to attribute all the costs for keeping the site open during February and March 2016 to Block C.

Following a Professional Indemnity Claim, Element Consulting Engineers paid Wits the above amount (R2.68m) and Wits has released payments (with interest) on amounts it had withheld in terms of the contract.

4.9. INTERNAL GOVERNANCE VERIFICATION PROCESS

In order to improve its internal controls, the NUPMT initiated an internal governance review process in early 2015 to ensure that the applicable control systems and procedures were operating as intended and to highlight any areas of weakness. The process was directed at ensuring that the NUPMT was applying competent diligence in its professional management and that this was being done in a climate of internal control. The process was undertaken by a small team of accountants including a Chartered Accountant, a Registered Government Auditor and a Management Accountant. In keeping with the overall objective, the verification team focused its attention on governance, budgetary control processes, internal controls, project management systems, procurement and payment processes and controls, risk and the MOA deliverables within the activities of the NUPMT.

This internal review assisted the NUPMT to improve and tighten its governance processes which led to the appointment by NUPMT in September 2015 of a Management Accountant. During the handover of infrastructure to the new universities in 2016, the appointed Management Accountant also played an indispensable role in helping the universities to finalise capitalisation of the assets delivered by the NU PMT. His continued role has been vital in extracting some of the financial results presented in this report.

REFERENCE DOCUMENTS

- 4-1 SPU Strategic Infrastructure and Implementation 5-year plan - 2016 04 06
- 4-2 UMP Strategic Infrastructure and Implementation 5-year plan - 2016 04 06
- 4-3 KPMG - Agreed upon Procedures Review - February 2013
- 4-4 KPMG - Agreed upon Procedures Review - March 2014
- 4-5 KPMG - Agreed upon Procedures Review - March 2015
- 4-6 KPMG - Agreed upon Procedures Review - May 2016
- 4-7 KPMG - Agreed upon Procedures Review - May 2017
- 4-8 KPMG - Agreed upon Procedures Review - August 2017 (Final)
- 4-9 Adjudicator's Decision: Structural Dispute on Building C002 at Sol Plaatje University (February 2017)

Chapter 5

Academic and institutional development



5. Academic and Institutional Development

It is the academic vision that determines the institutional, spatial and infrastructure planning for the new universities. Pivotal to the academic planning and development was the publication by DHET of a *Development Framework* ^[5-1] setting out government's unfolding vision for the two universities, including the vision that these must become institutions of excellence, able to attract the best academics and students across South Africa and beyond. This goal has had a profound impact on all areas of planning, including academic, spatial and infrastructure planning.

5.1. ACADEMIC VISION

From a national perspective the new institutions are intended to introduce new university level capacity into the country as a whole. Although the two universities are established in Northern Cape and Mpumalanga provinces, it is essential that the universities are seen not only as provincial institutions but as a national competency with a footprint on an international level. The new institutions must become fully fledged universities that are able to attract the best academics in South Africa, the continent and the world and, each aspiring to be a destination of choice for qualifying school leavers. The hallmark of these new universities must be academic excellence underpinned by quality leadership.

The *Development Framework* for the university in Mpumalanga highlighted the following fields of study and qualification types as pertinent:

- Agriculture with areas of specialisation in natural resource management, nature conservation, plant and animal sciences, forestry and wood sciences and technology as well as wild life management;
- Engineering specialising in industrial and manufacturing, agricultural, chemical and computer systems engineering;
- Health Sciences and related clinical sciences with a strong linkage to the Nursing college and other health professions;
- Computer science focusing on programming, information science and data processing and business system analysis;
- Management, economics and finance fields with areas of specialisation in logistics management, local government; and
- Teacher education with an initial focus on foundation phase teaching.

It was further envisioned that the university develop at least two postgraduate centres of excellence, with consideration being given to:

- Applied science – agricultural sciences, specifically linked to sub-tropical fruit, biodiversity and ecosystem management; and
- Human development, family studies and rural and sustainable development.

The preliminary areas of specialisation for the Sol Plaatje University (SPU) identified in the *Development Framework*, included:

- Information technology and computer sciences with possible areas of specialisation on systems administration, networking and LAN/WAN or Web management;
- Engineering and applied sciences with a possible focus on manufacturing, diamond technology, renewable or alternative energy;
- Agriculture with a focus on agro-processing, agricultural business technology and agriculture mechanisation and food science and technology;
- Management studies with a possible focus on business management / hospitality management / tourism management;
- Health sciences with an initial focus on nursing; and
- Humanities with areas of specialisation in teacher education, indigenous languages, heritage studies and art.

Sol Plaatje University is envisioned as a comprehensive institution offering a programme mix of technical, vocational, professional and academic disciplines and qualification types such as Higher Certificates, Advanced Certificates, Diplomas and Bachelor's degrees. In addition, the *Development Framework* anticipated the development of at least two postgraduate centres of excellence, with consideration being given to:

- Physical sciences – astronomy
- Applied sciences – renewable energy, low carbon energy, hydrology, water resource management and climate variability.

5.2. PRELIMINARY PLANNING MODALITIES AND PARTNERSHIPS

The appointment of an Academic Programme manager to the NUMPT provided the impetus to expedite the academic planning processes. A full preliminary Programme Qualification Mix (PQM) for each institution was developed as a planning foundation for space requirements, allowing significant flexibility to accommodate any changes that might be envisaged by the universities, when established.

Academic Champions and Academic Working Groups (AWGs) were formed to consider the PQM and academic support needed for these new institutions in the context of the priorities set forth in the *Development Framework*, including the development of programmes in their CESM categories in partnership with specific sponsoring universities. The AWGs were responsible for identification of institutional arrangements that needed to be put into place for enabling programme offerings in 2014 at the start of the academic year. The AWGs consisted of experienced senior academic staff from established universities willing to assist the new universities to develop their academic offering. The Working Groups addressed the academic administrative requirements, recruitment of students and preparations towards applications in 2013 and admission in 2014. Each academic focus group investigated the role of the sponsoring, or partner institution in terms of curriculum.

Partnerships with existing universities operating within prioritised fields were negotiated to ensure that quality assurance issues were addressed and human resources were recruited and developed to enable the effective small-scale start-up of programmes in 2014, and that the longer-term development trajectory would lead to sustainability. These partnerships enabled the deployment of academics in partner institutions to develop the submissions for

programme accreditation with the Council on Higher Education (CHE). Sponsoring universities also provided teaching staff under Memorandums of Agreement (MoAs) for the start-up of programmes in 2014. Partner universities that contributed to the development of the 2014 programmes were:

- Agriculture (University of Mpumalanga):- University of Pretoria (UP)
- Hospitality (University of Mpumalanga):- University of Johannesburg (UJ)
- Education (University of Mpumalanga):- University of Johannesburg (UJ) at Siyabuswa Campus
- Information Technology (Sol Plaatje University):- Cape Peninsula University of Technology (CPUT)
- Life and Physical Sciences (Sol Plaatje University):- University of the Free State (UFS)

The 2014 start-up programme in Mpumalanga included the provision of the Bachelor in Agriculture (Extension and Rural Development) degree; a Diploma in Hospitality Management; and the Bachelor of Education (Foundation Phase) degree at the Siyabuswa campus. The 2014 start-up programme for the university in the Northern Cape included the provision of Diplomas in Information Communication Technology (Applications Development), Retail Business Management and the Bachelor of Education degree (specialising in Maths, Science and Technology). A key principle that informed the development of the PQM was the need to avoid duplication and to establish a few unique fields of study. The academic footprint provided by the 2014 start-up programmes was linked to the long-term development of unique fields of study that are expected to develop over time. Science, engineering and technology programmes will feature prominently at both institutions.

The promulgation of the new universities and the appointment of Interim Councils in July 2013 enabled an important shift in responsibility for academic planning to the new institutions and their newly appointed academic staff.

5.3. 2014 START-UP

Planning for the 2014 academic start included the need to respond to a first intake of students by 2014 as described in Table 5.1

Table 5.1: 2014 – First-year Student Enrolments

University of Mpumalanga		Sol Plaatje University	
Programme	No of Students	Programme	No of Students
B Ed Foundation Phase Teaching, Siyabuswa Campus	108	B Ed	47
B Agric at the LCA campus	20	Retail Management Diploma	40
Hospitality Management Diploma at the MRTT	23	IT Diploma	40
Total	151	Total	127

With the establishment of both universities in 2013, the Interim Councils and university leadership assumed responsibility for academic development and are engaged in an ongoing process of refining the PQM of both institutions. Intake of students in the 2015 academic year expanded to 828 at the UMP and 337 at SPU. The intake expanded further in the 2016 academic year to 1255 at the UMP and 700 at SPU.

5.4. INSTITUTIONAL DEVELOPMENT

Since late 2015, the two universities have had full and sole responsibility for ongoing institutional development. Both universities have also established core capacity to manage the massive infrastructure development challenges ahead, and the NUPMT has supported this development, which is dealt with in the final chapter of this report, namely *Handover and Close Out*.

This section of the report reviews the institutional establishment and growth of the two universities up to 31 March 2016, when full responsibility for all further development was handed over by the NUPMT to the new universities.

In the six years since 25 March 2010, when the Minister of Higher Education and Training announced the establishment of two task teams to explore appropriate models for the new universities, both universities have been established and achieved some size. The University of Mpumalanga (UMP) has 238 staff and 1255 students covering nine programmes and Sol Plaatje University (SPU) has 112 staff with 700 students, also with nine different programmes. In most instances, these programmes were established in new and refurbished infrastructure for teaching, learning and accommodation.

The Project Time Line at the end of Chapter 2 covers the specific milestones reached during this six-year period, from concept to proclamation and from an interim state of governance and management with only a handful of staff and students, to institutions that have achieved a high degree of stability and now manage their own academic, administrative, research and developmental requirements internally. Reference is also made in the time line to the legislative Acts underpinning the establishment of these two institutions.

5.5. GOVERNANCE OF THE UNIVERSITIES

The Interim Councils of SPU and UMP were established by proclamation on 22 and 23 August 2013 respectively, attending a joint workshop addressed by the Minister of Higher Education and Training. They began their initial deliberations that same night with the first formal Interim Council meetings being held in August and September 2013.

Prior to the establishment of the Interim Councils, the NUPMT had convened a task group to develop a full set of institutional guidelines^[5-2] as an interim measure to enable the immediate functioning and governance of the university. These guidelines covered:

- Institutional governance
- Office of the Registrar
- Student governance
- Academic programmes
- Human resources
- Information and communication technology (ICT)
- Finance
- Library and information sciences Facilities management

While these guidelines provided a springboard enabling the immediate functioning of the fledgling institutions, no actual systems such as payroll, procurement processes, creditors and debtors management were in place. Since the institutions needed to be able to function from the start, a service provider was engaged to fulfil these functions until the universities established their own finance capacity, including the costly hardware and software required and the operational staff needed.

Interim Vice Chancellors were appointed with basic interim management teams to support them. These interim structures were given 12 months in which to establish more permanent governance and management structures.

One of the main challenges during the start-up phase of both new universities was the temporary nature of both the Interim Council as well as the Executive Management – the latter finding that, as the institution was very small, a larger executive team was not deemed to be affordable, and executive team members ended up carrying out a multitude of interdisciplinary functions. Perhaps the permanent appointment of an executive team from the very beginning might have brought greater stability at an earlier stage.

In August 2014, full councils were inaugurated and immediately began the process of recruiting permanent executive management staff, and establishing formal governance protocols to allow for institutional decision making in line with their respective statutes. This process has continued.

By the beginning of 2016, university Chancellors had been appointed, Vice Chancellors had been inaugurated and permanent Committees of Council were operative, including an Executive Committee of Council, with appropriate secretariat support functions.

5.6. EXECUTIVE MANAGEMENT AND STAFF – BY MAY 2016 – POST HANDOVER

From the outset, the NUPMT played a critical role in supporting staff recruitment for both universities. By 2016, when the universities had fully taken over this function, the UMP

Executive consisted of a Deputy Vice Chancellor: Academic, a Deputy Vice Chancellor: Planning and Institutional Support, an Executive Director: Finance, an Executive Director: Human Resources, a Dean of Students and a Registrar. A full-time Campus Director was appointed on the Siyabuswa Campus as well as a Senior Director: New Infrastructure to take over this massive responsibility.

At SPU, the Vice Chancellor was supported by a Chief Operating Officer and a Registrar. A Deputy Vice Chancellor: Academic was still to be appointed.

UMP had a total staff complement of 230, including 66 academic staff (ratio of 3.5 administrative staff to 1 academic staff) covering all of the specific functional requirements within a university. This number included staff on the Siyabuswa campus. SPU had a total staff of 112, of which 50 were academic (approximate ratio of 1.9 administrative staff to 1 academic staff). The main reason for this difference, given that the national higher education sector ratio is 2.1:1, is that UMP has a large contingent of non-academic staff on the farm in support of its agricultural programmes.

In addition to the SPU staff totals, a further nine contract staff were employed on the Galeshewe campus in Kimberley in a programme taken over from the National Institute of Higher Education (NIHE), Northern Cape, finalising the last academic year of BEd students from North West and Free State universities. These are administrative staff as the academic teaching is undertaken by staff from the other two universities. These contracts for SPU staff were scheduled to terminate at the end of December 2016.

Significant energy was invested with some success between September 2015 and March 2016 to expand institutional capacity in the area of infrastructure development and maintenance, although this function still remained an area at risk at the time of handover. Director level appointments had been made at both universities and efforts were still underway to recruit capacity to support these posts. Significant progress has been made since then by the universities themselves.

5.7. STUDENT ENROLMENTS AND ACADEMIC PROGRAMMES AT TIME OF HANDOVER

5.7.1 University of Mpumalanga

Additional courses introduced at UMP in 2016 include an Advanced Diploma in Agriculture, BSc Agriculture, Bachelor of Development Studies, Diploma in Nature Conservation, Diploma in ICT (See Table 5.2).

Table 5.2: UMP 2016 Registration Statistics (1st Entering and Returning Students)

NO.	NAME OF PROGRAMME	2016
1.	Advanced Diploma in Agriculture	0
2.	Bachelor of Agriculture	32
3.	BSc Agriculture	0
4.	Bachelor of Development Studies	0
5.	Diploma in Agriculture in Plant Production	134
6.	Diploma in Nature Conservation	0
7.	Diploma in Information Communication Technology	0
8.	Diploma in Hospitality Management	15
9.	Bachelor Education Foundation Phase	106
NEW ENROLMENTS 2016		287
RETURNING STUDENTS		968
TOTAL STUDENTS 2016		1255

5.7.2 Sol Plaatje University

The University introduced three new programmes in 2016 in the form of generic BA, BSc and BCom courses (see Table 5.2).

Table 5.2: SPU 2016 Registration Statistics (1st Entering and Returning Students)

NO.	NAME OF PROGRAMME	2016
1.	Generic BA	54
2.	Higher Cert. Heritage Studies	21
3.	BSc Data Science	24
4.	Diploma ICT	50
5.	BSc	32
6.	BCom	14
7.	Diploma Retail Management	30
8.	BEd Senior Phase and FET	113
9.	BEd Intermediate Phase	66
NEW ENROLMENTS 2016		296
RETURNING STUDENTS		404
TOTAL STUDENTS 2016		700

5.8. PERIPHERAL INSTITUTIONAL IMPACT AND CHANGES

5.8.1 Required actions

The NUPMT provided senior management support to the administrative processes necessary to:

- disestablish the National Institutes for Higher Education (NIHE) in both provinces;
- incorporate the Lowveld College of Agriculture into the University of Mpumalanga;
- transfer the Siyabuswa Campus to the University of Mpumalanga.

5.8.2 National Institutes for Higher Education (NIHE) in both Provinces

A natural consequence of the establishment of the two new universities in Mpumalanga and the Northern Cape respectively was that the function and purpose of the National Institutes for Higher Education in each of these provinces became redundant. The provisions of the Higher Education Act No 101 do not allow for the incorporation of an institute that is not a

public higher education institute. After going through all of the required processes in terms of this Act, the Minister determined that these two institutes should be disestablished.

Both NIHEs achieved operational closure on 31 December 2014 in full compliance with related legislation. After extensive consultation with staff of the two NIHEs and the two new universities, 19 of the 27 staff in the Mpumalanga NIHE were offered posts with the UMP and one with a cleaning company contracted to the UMP. From the Northern Cape NIHE 32 of the 36 staff were offered posts with SPU.

The Northern Cape NIHE had accepted an administrative role in providing facilities in Kimberley (at the Galeshewe Campus) while the teaching duties were carried out by academic staff from the universities which had registered the students. This administrative role was taken over by SPU and was due to come to a close at the end of 2016 with the final students being “taught-out”. It was envisaged that any continuing responsibilities such as supplementary exams would be undertaken by the respective universities whose students they are.

While there were no legal challenges of a labour relations nature arising from the Mpumalanga NIHE disestablishment, one member of the NIHE staff in Kimberley chose to challenge not being offered a post with Sol Plaatje University. This matter was referred by the local CCMA to the Labour Court in Cape Town. Nothing further was heard of it after March 2015 and it is believed that the matter was dropped. A provision was included in the transfer of reserves from the NIHE NC to SPU should the matter be pursued further.

In both institutions, challenges were received from external contractors relating to the non-continuation of their contracts and/or the non-payment of agreed fees. Both matters were subsequently dropped.

An issue that existed between the NIHE Mpumalanga and the Public Protector was fully resolved and the matter closed without any further financial exposure.

The legal closures of the two institutions took place on 31 March 2015. All assets were transferred to the two receiving universities, all accounts closed, all financial matters fully audited and the final Annual Reports signed off and submitted to the DHET. All files that were required to be kept have been archived with UMP and SPU respectively. No further matters require attention as far as these two institutions are concerned.

5.8.2 The Lowveld College of Agriculture

In terms of the agreement reached between the Ministers of Higher Education and Training and of Public Works, as well as the Premier of Mpumalanga Province as published in Government Gazette No 36772 of 22 August 2013, the Lowveld College of Agriculture (LCA) was to be incorporated into the newly established UMP with effect from 1 January 2015. This was later confirmed specifically under Government Gazette No 38085 of 10 October 2014. In keeping with the requirements of the legislation, the incorporation was finalised and all assets and staff (without loss of benefits) were transferred to the new university on the effective date.

The Marapyane campus of the LCA was not part of this incorporation and, while members of staff at this campus, being employees of the LCA, were transferred to the UMP, the Marapyane campus itself remained the property and the responsibility of the Mpumalanga Province.

5.8.3 Siyabuswa campus

Originally developed through the University of Johannesburg (UJ) to teach BEd programmes, and administered as part of the responsibilities of the NIHE Mpumalanga, agreement was reached that the Siyabuswa Campus would be transferred to the UMP through a transitional process that would see the end of UJ involvement at the end of the 2016 academic year. By March 2016 this campus was still a joint venture between the UMP and UJ but was due to become the sole responsibility of the UMP post 2016.

Significant infrastructural development (both renovations and new builds) were undertaken on this campus, initially under the NIHE mandate and after closure of NIHE, under the direction of the University itself.

5.9. INFRASTRUCTURE RESPONSIBILITY AND OUTSTANDING INSTITUTIONAL CHALLENGES

On 31 March 2016, the responsibility for infrastructure was formally transferred to each university in accordance with the MOA between DHET and Wits, supported by the joint MOA between DHET, UMP, SPU and Wits, which was signed on 24 October 2014. With effect from 1 April, technical competencies previously reporting to the Project Management Team were successfully contracted by the new universities themselves and have since reported to the respective Infrastructure Directors of each university, ensuring continuity in the ongoing planning and delivery of infrastructure. The final section of this report describes the process of infrastructure handover and the project close-out process planned for the year ahead.

Both UMP and SPU are still funded through DHET grants which are largely determined by the budgetary requirements each year. The time will come however, when both new universities must start receiving government subsidies calculated on the same basis as every other university in the system.

A further challenge confronting each university for some time to come is reaching a point of stability in terms of academic programmes and student numbers, that allows for economic deployment of teaching and administrative staff. At the time of the PMT project close out in July 2017, some staff were still having to carry out several functions in order to meet the institutional and teaching demands which, in an established university, would probably be carried out by significantly more staff.

REFERENCE DOCUMENTS

5-1 Department of Higher Education and Training. (2012) Development Framework for New Universities in the Northern Cape and Mpumalanga. Government Gazette. (Notice 705. No. 35645).

5-2 New Universities. Governance, Academic and Administrative Guidelines for the establishment of a New University, December 2012

Chapter 6

Land assembly, feasibility and early implementation



6. Land Assembly, Feasibility and Early Implementation

6.1. SELECTION OF THE SEATS OF THE NEW UNIVERSITIES

6.1.1 Introduction

In 2010 the Minister of Higher Education and Training had appointed two task teams to investigate the potential to establish universities in the Northern Cape and Mpumalanga provinces. The task teams engaged stakeholders in the provinces and made recommendations on the type and size of the two new institutions, including consideration of possible sites, which had been pointed out by stakeholders. The task team reports were submitted to the Minister in September 2011. Shortly thereafter, the NUPMT was established and commenced work in November 2011 on a range of issues, including:

- understanding the nature, scale and possible academic content of the two institutions;
- establishing a framework of selection criteria that defines the essential qualities of the host town and of the optimum site, a framework that supports objective decision making [6-1];
- visiting and assessing the 18 sites put forward by a range of stakeholders in the two provinces [6-2]

6.1.2 High-level Criteria and Recommendations

Together with the DHET, the NUPMT established some high level criteria for the selection of the "seat of delivery" of each of the new universities. It was understood that at a countrywide level, the new institutions must advance the national goals for higher education, including enrolment growth and growth in teaching and academic capacity. As the first new universities post democracy, they should be inspirational and reflect the aspirations of South Africans. It was further understood that at a regional and local level the new institutions should create a strong academic hub in each province, characterised by strong main campuses that:

- elevate the regional focus on higher education;
- enable maximum access within the country, the province and, indeed, internationally;
- contribute to the economic growth and cultural development of the respective provinces;
- draw on the context, individuality and strengths of each province to develop a unique academic focus.

The selection of "the seat of academic delivery" had to ensure that the selected town was able to support the success of the new university, now and into the future. In this context, the town had to provide an appropriate supporting fabric and environment for the university. The selected town had to be accessible to the largest possible population, provincially and nationally. Attractive social, cultural and recreational amenities were required, and the ability to attract and retain top academics. Furthermore, the selected town had to be economically and commercially vibrant, able to facilitate some student employment and internship experience. It was understood that the prestige and viability of the new institution would be enhanced by a town that is host to important government institutions, research institutes and other public entities.

Within the preferred town, the selected site had to be well located. It had to provide an iconic setting for the university with strong visibility and a prominent presence. It needed to be of suitable size and shape for current plans as well as future expansion over many decades. It had to be able to be quickly and cost effectively serviced and, given the pressure to deliver the universities, the sites had to be unencumbered by complex environmental, land, legal or geotechnical constraints.

The recommendations of the NUPMT for the seats for the new universities were finalised in the report of 18 July 2012 ^[6-3]

6.1.3 Recommendations on the New University - Mpumalanga

It was decided that Nelspruit was the best placed city in the province to accommodate and support a new university with an estimated student population of fifteen thousand.

The recommendations pointed out that

“In summary, the city of Nelspruit:

- *is a prominent growth point, located at the junction of two major development corridors – the R40 and N4 corridors;*
- *provides maximum access opportunities to high density populations along both these corridors;*
- *is further linked by rail and air;*
- *boasts an International Airport, providing ease of access for visiting academics and dignitaries;*
- *offers environmental quality – with excellent amenities for staff and students*
- *is a pre-eminent centre for tourism and recreation;*
- *is the Seat of Provincial Government;*
- *offers the most integrated urban system, particularly movement, infrastructure, civic amenities and green structure;*
- *boasts an established and growing commercial, manufacturing and business sector;*
- *offers student job and internship opportunities; and*
- *offers a broad spectrum of housing opportunities for students and staff.”*

It was further pointed out that:

“In summary, the site (Lowveld College of Agriculture):

- *is sufficiently large to accommodate the new University, as well as the existing College and will allow for future growth over a 50-year period and beyond;*
- *is well located adjacent to both the R40 and N4 corridors;*
- *is spatially linked to, and associated with, the Provincial Legislature and is also close to retail facilities;*
- *is government-owned land, supporting reduced development time and costs;*
- *has established bulk infrastructure, supporting reduced development time and costs (though the adequacy of the existing supply will need to be verified);*
- *has presence and prominence, overlooking the city and offering opportunity for an iconic development;*
- *provides sufficient land to create a new identity and expand the academic*

programme;

- *provides opportunity for student and staff accommodation and sport and recreation amenities;*
- *offers quick operational establishment and conversion into a university campus...."*

6.1.4 Recommendations on the New University - Northern Cape

It was decided that in this sparsely populated and arid province, Kimberley, with a population of some 300 000 people (one third of the population of the Northern Cape), offered the best conditions to support the establishment of a world class university with a student population of five thousand.

The recommendations pointed out that the city has the capacity to absorb many university activities into the existing town fabric and

"In summary, the city of Kimberley:

- *provides maximum integration with national infrastructure – on the Cape Town to Gauteng route – by both road and rail infrastructure;*
- *has an airport and is in close proximity to other regional centres and higher education institutions – Bloemfontein (170km), Potchefstroom (350km);*
- *has the greatest concentration of population, namely 30% of the total province;*
- *has a well developed civic bulk infrastructure;*
- *has a broad educational base, namely well respected primary and secondary education, which is important for staff retention;*
- *offers environmental quality – with good amenities for staff and students, and good potential to attract and retain staff;*
- *is the Seat of Provincial Government and is an established commercial centre with a variety of retail and community facilities; ...*
- *offers student job and internship opportunities;*
- *has the best offering of housing and student accommodation in the province..."*

In terms of the selected site, the NUPMT noted that development of a new Higher Education institution on the identified site in the heart of the city, would strengthen the civic character of the city, make use of and enhance the existing infrastructure, make use of predominantly government owned land (national, provincial and municipal), activate urban regeneration within the city, and ultimately result in reduced delivery costs and time.

The NUPMT's recommendations further pointed out that

"In summary, the consolidated inner city site:

- *is in a central and highly visible location, with potential to establish an iconic identity with a focus on the central city park;*
- *is well located and integrated within the inner city;*
- *has surrounding support amenities and facilities (retail and recreation);*
- *has established education facilities in the immediate vicinity (schools, higher education and Further Education and Training facilities);*
- *provides potential for quick academic establishment, using existing buildings;*
- *supports the adaptive re-use of existing inner city buildings (NIHE);*

- *would strengthen the civic character of the city;*
- *is based primarily on government owned land (national, provincial and municipal), supporting reduced delivery cost and time."*

6.2. SPATIAL PLANNING, FEASIBILITY AND IMPLEMENTATION PLANNING

Announcement of the selected sites by the President on 05 July 2012, enabled rapid progress on the spatial and physical planning of both universities. Workshops were held with local authorities impacted by the establishment of the new universities in Kimberley and Nelspruit, with two key objectives in mind:

- to ensure that these authorities would include the development of the universities in their future plans; and
- to assess the available infrastructure and services to support the development of these institutions.

The first of the spatial planning workshops was held in Sol Plaatje Municipality over four days during 2012. As the site is centrally located adjacent to the central business district (CBD), detailed planning meetings were held with the Municipal Manager and his technical department executive directors. Thus, the development of the spatial framework was concluded in direct consultation with a variety of city stakeholders, which included the Sol Plaatje Municipality, the Provincial Government, public institutions, private landowners and effected citizens. This meant that the spatial development framework was viewed as a collaborative effort, and not as an imported project of the DHET.

Similar technical consultations were held with planning officials in Mbombela though these were less intensive as the site lies on the periphery of the city. In both cities, presentations on the preliminary planning frameworks were made to the respective Mayoral Committees. By early 2013 the preliminary *Spatial Development Frameworks* were already well formed, creating the starting point for all further physical planning, architectural and engineering design. Elaboration of the Spatial Development Frameworks is described in Chapter 7.

The spatial development frameworks also formed the basis for the multi-year Infrastructure Implementation Plans for each university. Initially approved by the Interim Council of each university, these implementation plans have evolved and continue to evolve with the developing needs of the growing universities.

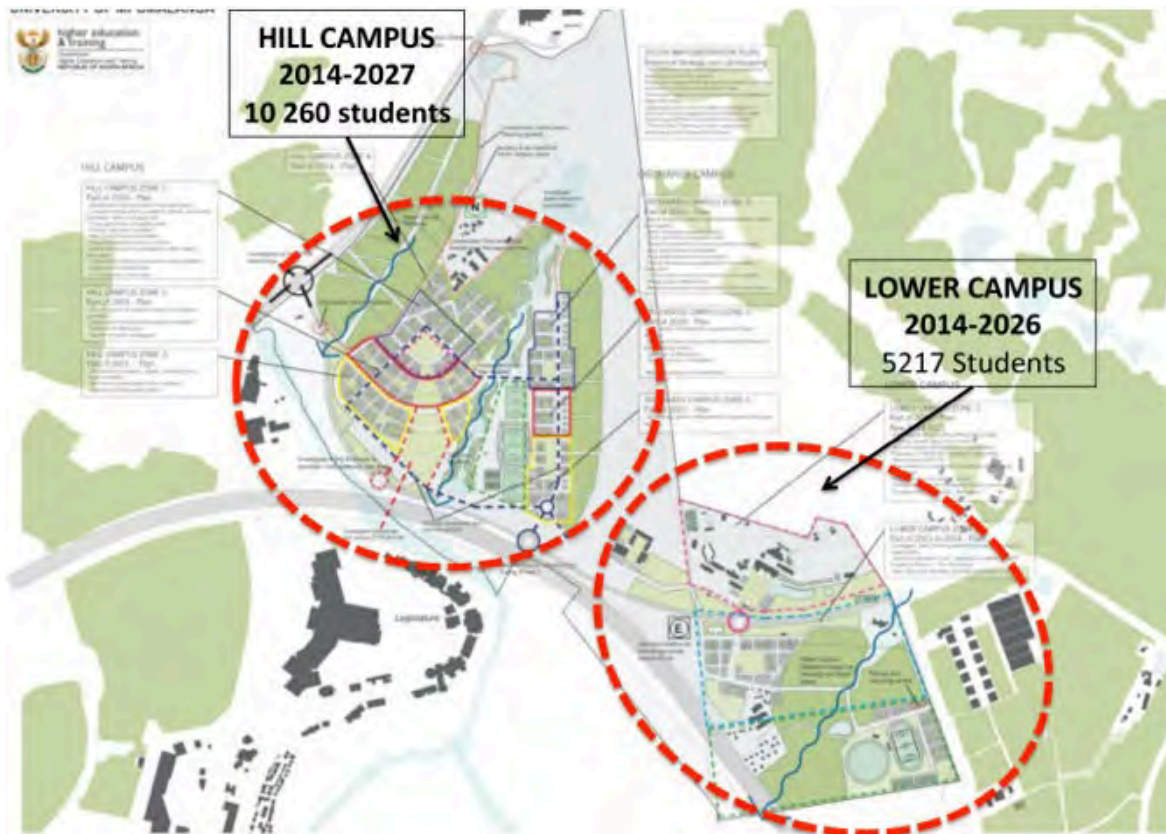


Fig 6.3: UMP Mbombela Phasing Plan for the Hill and Orchards Campus



Fig 6.4: UMP Mbombela Phasing Plan for the Hill Campus



Fig 6.5: UMP Mbombela Phasing Plan for the Orchards Campus.



Fig 6.6: UMP Siyabuswa Campus – Implementation Plans for 2015, 2016 and 2017.

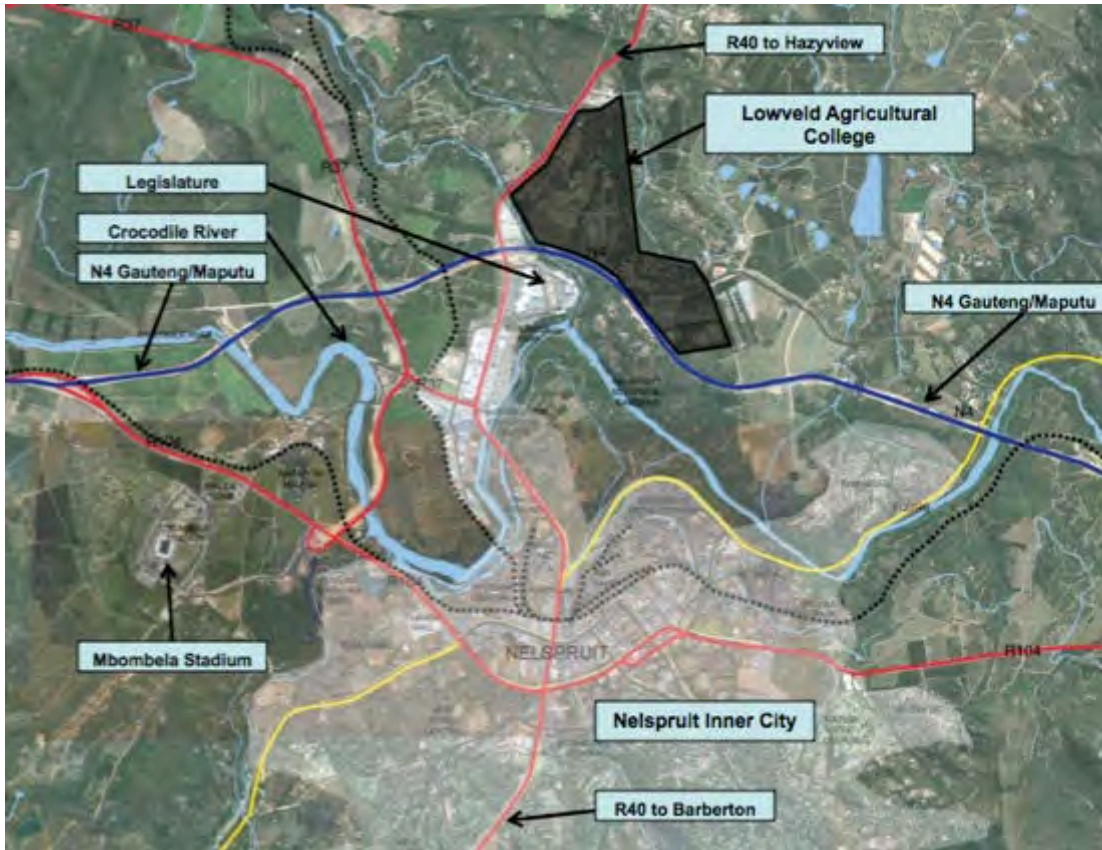


Fig 6.7: Site Recommended for the University of Mpumalanga within the greater Mbombela context.

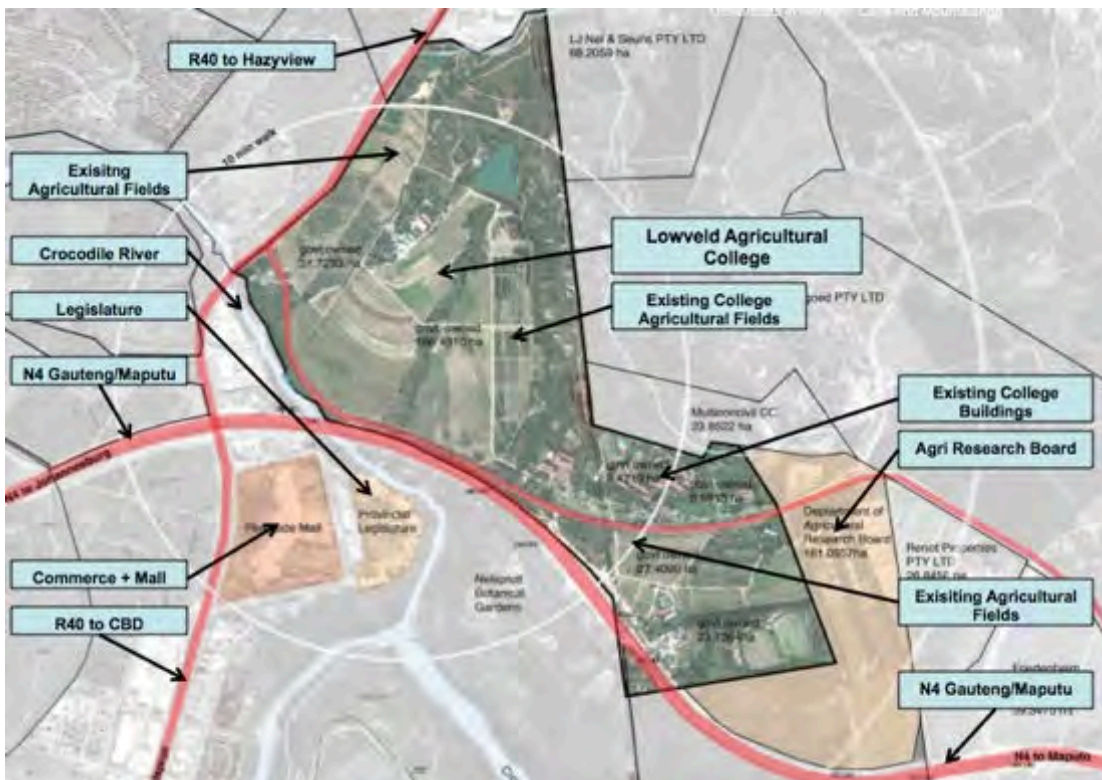


Fig 6.8: Site Recommended for the University of Mpumalanga. The former Lowveld College of Agriculture Campus.

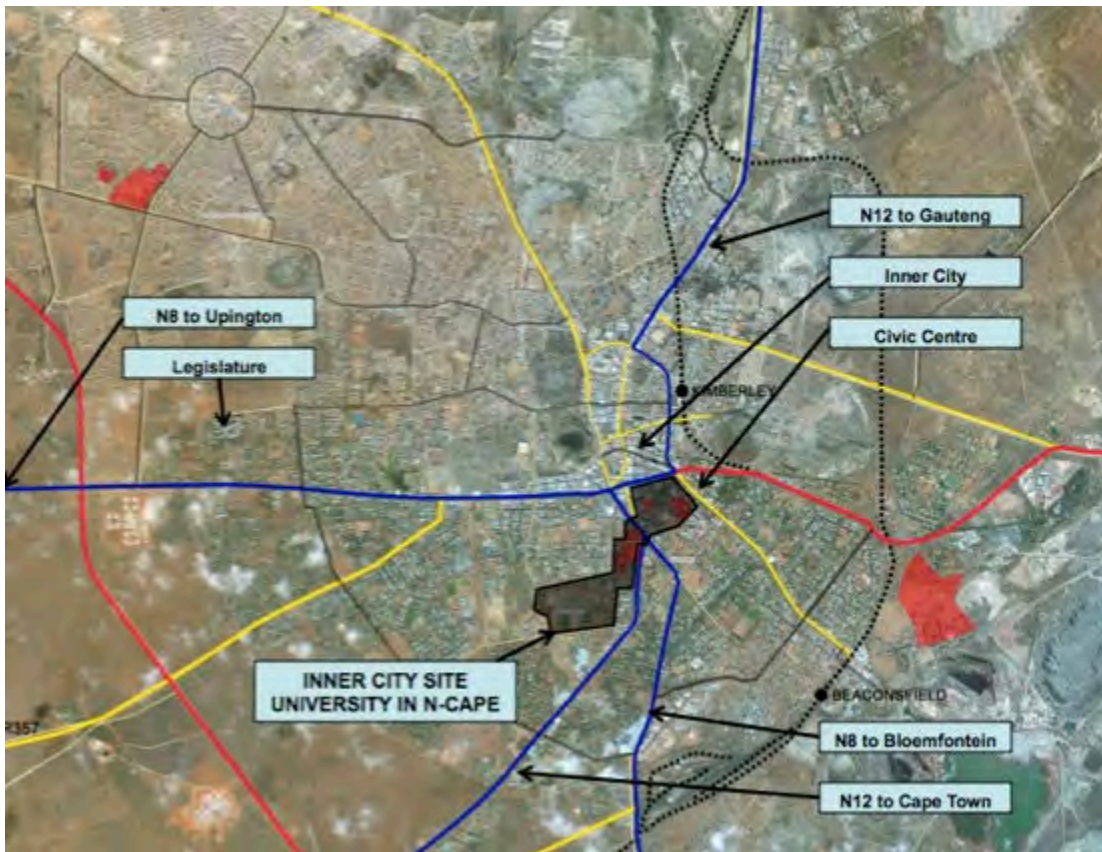


Fig 6.9: Recommended for the Sol Plaatje University in the greater Sol Plaatje Municipality context.

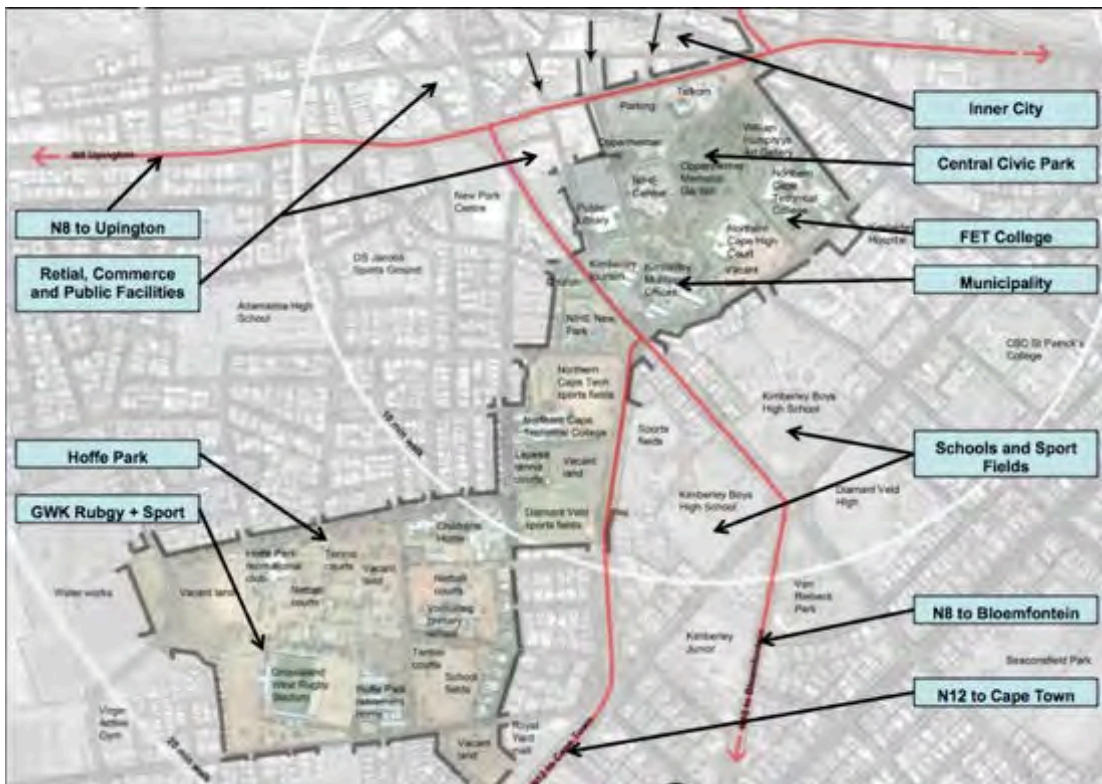


Fig 6.10: Site Recommended for the Sol Plaatje University in the inner city of Kimberley.

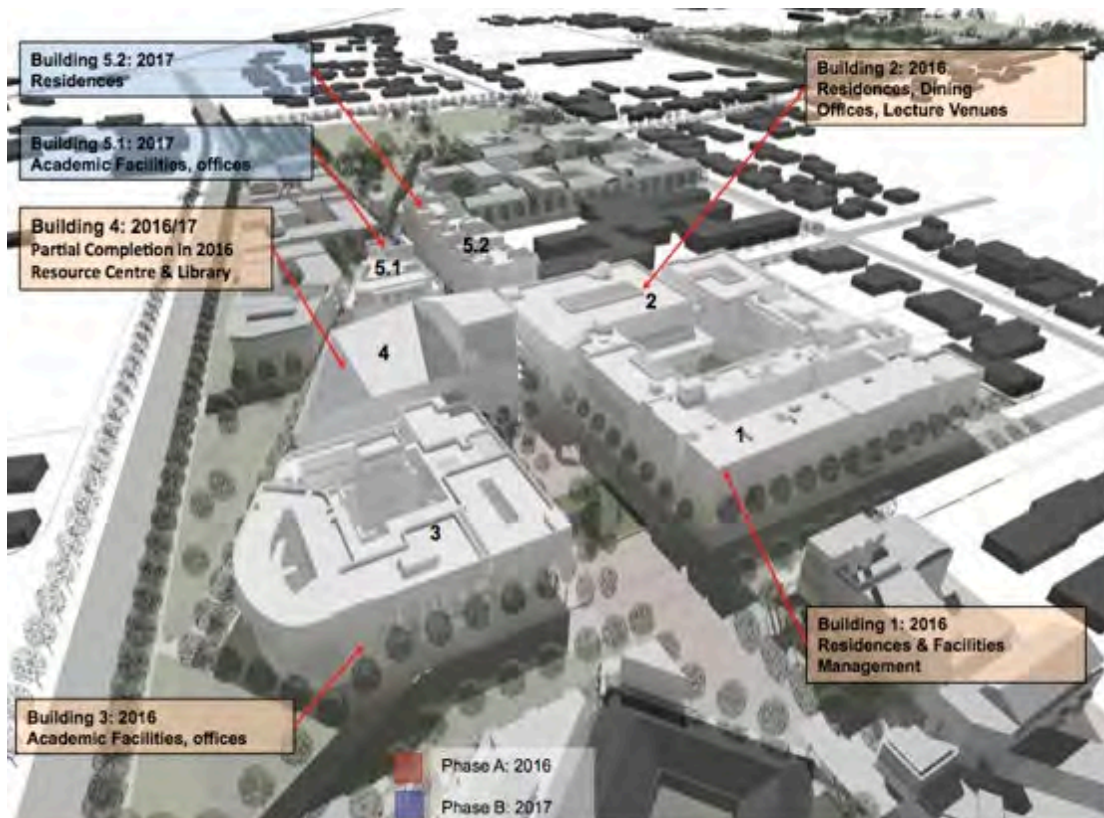


Fig 6.11: Central Campus Implementation Strategy at the Sol Plaatje University.

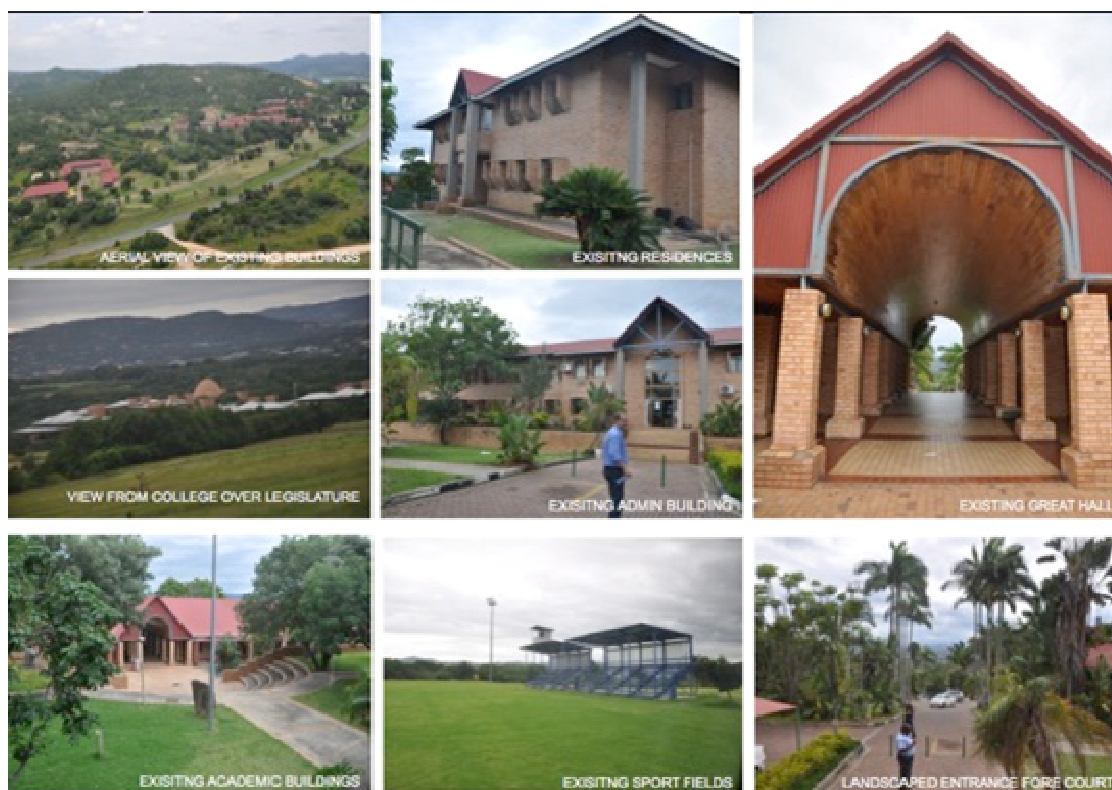


Fig 6.12: Images of the existing buildings and properties of the University of Mpumalanga.



Fig 6.13: Images of the existing buildings, properties and surrounding landmark structures in and around the Sol Plaatje University.

6.2.1 Feasibility Studies

In the latter part of 2012, comprehensive feasibility studies ^{[6-4], [6-5]} were undertaken for each university, projecting the phased infrastructure development and operation of the two institutions. These studies were submitted to National Treasury indicating the funding requirements for each university over the period of the Medium Term Expenditure Framework (MTEF) ahead.

As a result of the feasibility reports submitted, National Treasury confirmed the following funding for the new universities.

Table 6.1: Medium Term Expenditure Allocation – 2013 – 2016

	2013/14	2014/15	2015/16	Total
Total MTEF Allocation Confirmed by National Treasury (including both Capital and operational)	R300 000	R 659 000	R1 166 314	R2 125 314

Note: This combined budget is for both universities and the allocation between universities is decided by DHET on the basis of implementation plans, priorities and related factors.

The funding allocations for the 2014/15 and 2015/16 years was lower than the amounts projected in the feasibility studies, requiring the NUPMT to adjust the pace of the planned implementation phasing.

6.2.2 Infrastructure Verification Studies and Challenges

By early 2013 work had been concluded on a range of studies to verify the physical planning requirements of both universities. Following the award of tenders for each university, these studies involved over 16 specialists in town planning, heritage, environmental impact assessments, engineering (civil, electrical, traffic, geotechnical), landscape architecture, energy efficiency and cost consulting. Additional specialists in land survey and data base management and ICT were appointed shortly thereafter. The verification studies confirmed the key assumptions of the feasibility studies and also a number of challenges.

6.2.3 Infrastructure Challenges - University in Mpumalanga

As a result of the verification studies the following issues emerged:

- R40 Intersection upgrading – a major upgrading of the intersection between the road to the university (D725) and the arterial R40 would be required to ensure road safety. Major cost implications were identified, with initial estimates at R60m and no way to phase the project. At the same time it was clear that a safety problem already exists and the university should not be burdened with the full costs of the required upgrade. The NUPMT would need to engage with Mbombela to clarify and quantify an appropriate contribution in terms of the university's impact on the traffic volumes.
- Bulk electricity, water and sewer infrastructure within Mbombela was stressed and would require upgrading to accommodate the new university and other private sector developments within the area. Excess capacity in the Nels River Substation would be sufficient to supply the demand for electricity until 2017. The NUPMT would need to engage with the Mbombela water concessionaire (Sembcorp Silulumanzi) to quantify the implementation programme, required financial contributions and phasing of the water services.
- Environmental approval would be required involving a Basic Assessment Report, which was anticipated to take between nine and 12 months, for water, sewage, electricity and storm water from external roads.
- Town planning approvals would be contingent upon the Environmental Impact Assessment (EIA) approvals and approval of bulk services. Bulk Services reports would need to be compiled and submitted to the different authorities in support of the town planning applications.

6.2.4 Infrastructure Challenges - University in Northern Cape

The verification studies identified the following issues for further attention:

- Traffic calming measures would be required for the pedestrian crossing between the Northern and central campuses involving traffic lights and in the long term a grade separation in the form of a pedestrian underpass. This work would need to be scheduled by the NUPMT as part of the implementation plan.
- Water: It was confirmed that Sol Plaatje Local Municipality experiences water shortages from time to time and that additional water storage would be required on each building site.

6.3. ACADEMIC PLANNING AND SPACE REQUIREMENTS

The phasing of construction implementation over a 10-12 year development period was informed by several factors. The key informant was the academic planning including the Programme Qualification Mix (PQM) and the enrolment planning and phasing, which together determined the space requirements. Implementation also had to take account of the status of each campus in terms of town planning, zoning and environmental impact as well as the availability and augmentation of bulk services.

In the absence of academic leadership the initial spatial planning and costing relied on analysis done by Dr Lucas Stoop, who is renowned for his work on academic space development modelling.

In terms of the Higher Education Management Information System (HEMIS) space norms, the annual space requirement of each University over the entire growth period (2014 to 2025 Sol Plaatje and 2014 to 2027 Mpumalanga) was based on the planned annual enrolment growth in each of the different academic programmes. This growth defined the Assignable Square Metres (ASMs) for academic and administrative space and the ASMs for the residential space required by each university. Planning took account of the fact that the actual building space required was equivalent to an average factor of 1.43 times the ASM. Based on the initial academic planning, the total estimated space requirement (ASM) for each completed university (including residence space for 60% of total students at UMP and 80% at SPU) was estimated to be as follows:

- University of Mpumalanga – 316 906 m²;
- Sol Plaatje University – 129 124 m²

From the second half of 2013 onwards, planning for the phased implementation of the required infrastructure was refined in close collaboration with the newly appointed Interim Councils and subsequently with the leadership of each university.

It was noted that the high requirement established by DHET for on-site student accommodation would substantially raise the overall delivery costs. For example, to accommodate 60% of the student population in residence at UMP required as much as 182 250 ASMs, compared with 134 656 ASMs for the total academic component.

6.4. LAND ASSEMBLY

6.4.1 The fundamental challenge

Land owned by the public sector constitutes the bulk of the land identified for the development of both universities. As yet, none of this land has been transferred to either of the universities and the ongoing development relies on two official documents published in the Government Gazette in March 2013 (Northern Cape) and April 2013 (Mpumalanga). These were: the *Record of Intention to Facilitate the Rapid Establishment of the New Universities and the Transfer and Development of Publicly Owned Land* signed by the Minister of Higher Education and Training, the Premiers of the two provinces and the Minister of Public Works. In the Northern Cape, where part of the land is municipally owned, the document was also signed by the Mayor of Sol Plaatje Municipality and the Executive Mayor of Frances Baard Municipality. Both universities continue to work with the Department of Public Works (DPW) towards transfer the various land parcels.

6.4.2 Sol Plaatje University

The chosen Seat for the new Sol Plaatje University is situated in a central location in the city, enjoying high visibility as an institution of national importance with the ability to establish an iconic identity. The location of the academic and administrative component of the university is situated around the established central Oppenheimer Memorial Park, with maximum accessibility to the city and surrounds. Two further distinguishable landholdings stretch south from the Memorial Park and include the FET Sport Fields and Hoffe Park.

The selected campus sites are separated by national and municipal roads, which result in an urban-type campus that is well integrated within the urban fabric. The site is at the junction of the national routes leading to Bloemfontein, Cape Town, and Gauteng which maximises accessibility but also creates fragmentation of the campus. The central location within Kimberley offers various existing amenities, which have the capacity to support the new university.

The properties earmarked for development of the university are described below. All properties that had to be purchased were evaluated and the recommendations were submitted for Ministerial approval.

a) Oppenheimer Memorial Park Northern Campus

The most distinct portion of the new university is the Oppenheimer Memorial Park, which is referred to as the Northern Campus. The park is the focus of a number of important civic buildings. These include the Sol Plaatje Municipality, the Northern Cape High Court, the Northern Cape Urban FET College, the William Humphrey Art Museum, the De Beers Building and the National Institute for Higher Education (NIHE) in the former Legislature building. The approximately 50-hectare park is well maintained and has established trees and landscape features, and features a variety of memorials and statues. It also commemorates the former Malay Camp, which used to be located in this area. Following a decision by the Sol Plaatje Municipality, the Minister of Higher Education and Training approved the purchase of the site in the amount of R14.5m

b) Central Landholdings: Central Campus

The central land-holdings, now referred to as the Central Campus, consist of a number of properties held by national, provincial and local institutions, as well as private land owners. The northernmost land parcel is home to the historic William Pescod School, formerly used by NIHE. The property is accessed via Scanlan Street and faces on to Bultfontein Road (N8 and N12 routes).

The central portion of this landholding is Erf 2503, formerly part of the Northern Cape Urban TVET College sport fields. The site is a 30 500 sq.m property located at the junction of the N8 to Cape Town (Dalham Road) and the N12 to Bloemfontein (Bishops Avenue). Residential properties and the TVET College residence form the western border to the site. To the south of the TVET sport fields is a vacant land parcel and hockey fields currently used by the Diamantveld High School. The transfer of the Diamantveld properties to the university is still an ongoing process.

The last parcel forming the Central Campus is a privately owned tennis academy with six courts. Property valuations were conducted by the NUPMT but the owner demanded a sales prices well in excess of the valuation. The property has since been excluded from the Design and Development Framework and its Implementation Plan.

c) Hoffe Park: Southern Campus

Erf 2511 (South Campus), was formerly owned by Transnet and deemed essential for the residential and sport requirements of the university. Two valuations were commissioned, one by the Project Management Team and one by DPW to facilitate the Transnet disposal of this property. Following negotiations with Transnet, the Minister approved payment in the amount of R25m and transfer of the property was concluded in 2015. The 14.6ha land with buildings includes a student residence for approximately 250 students. In the long term the property will form an important hub for student sport facilities and residences.

On the southern boundary of the Southern Campus is the Hoffe Park Stadium with a capacity of 18,000 spectators. The relationship between the stadium and the university will be formalised by a shared user agreement currently being negotiated.

d) Commercial Residential Properties

To enable residential accommodation for the 2014 start, the NU Project Management Team (NUPMT) commissioned valuations and due diligence reports for the purchase of two commercial residential buildings in close proximity to the university. The two-storey Diamond Lodge Hotel (R15m) and the nine-storey Whiteways Flats (R15m) were renovated to accommodate a total of 178 students with a range of support services. Their purchase enabled student occupation in time for the 2014 academic year. Both properties were registered in the name of the Sol Plaatje University in March 2014. The Valuation and due diligence reports form part of the Annexures to this report ^{[6-6], [6-7]}

6.4.3 University of Mpumalanga – Mbombela Campus

Administered by Mpumalanga Department of Rural Development and Land Administration (DARDLA), the Lowveld College of Agricultural in Mbombela was identified as the seat for the University of Mpumalanga and constitutes its Mbombela Campus. The site is located 5km north of the Nelspruit CBD on the R40 to White River and offers good regional accessibility. It is a highly visible site enjoying grand views of the Mpumalanga Provincial Legislature complex and the inner city of Nelspruit. The site is a large land holding of 280 hectare, sufficient to accommodate a university expanding well beyond 15 000 students. The site was deemed ideal as it was government owned land with existing educational facilities and sports amenities. It is within close proximity to retail, commercial and recreational amenities, and will further strengthen the R40 Development Corridor.

The N4 and D725 shape the southern border of the site, whilst the R40 defines the western edge of the property. The land slopes gently from south to north. A stream running north to south splits the Boschrand property into two distinct parcels.

The site is made up of 6 land portions:

- Portions 31 and 32 of the Farm Boschrand JT 283

The Boschrand Farm portion of the new university is the largest and covers approximately 210 hectares. The farm is triangular, and was used as an experimental orchard and crop farm in support of the former Lowveld College of Agricultural.

- Portion 17, 19, 28 and 36 of the Farm Friedenheim Nr. 282.

The Friedenheim farm (fig. 11) consists of four cadastral land portions, with two on either side of the D725 district road. The farm portion covers approximately 68 hectares. The two northern portions slope steeply from the D725 to the northern rock outcrops and accommodate the former Lowveld College of Agricultural buildings. Existing buildings that have been incorporated into the new university include a small number of administrative and academic facilities, a great hall, dining facilities and student residences for 240 students.

The remaining portion of erf 75, Friedenheim 282, about 13,5 ha, located north of the Lower Campus was considered of particular strategic importance to UMP's future development. The motivation for the purchase of this property was prepared by the NUPMT [6-8] in February 2016. The purchase was approved by the Minister and the property was subsequently purchased by UMP.

The farm portion on the southern side of the D725 is used as an experimental orchard, and accommodates sport and recreation amenities. These include an athletic track, soccer and cricket field, with some recreational club facilities. The property is relatively flat with surface water visible in places. The Agricultural Research Council (ARC) is located on the farm on the eastern border of the identified university property.

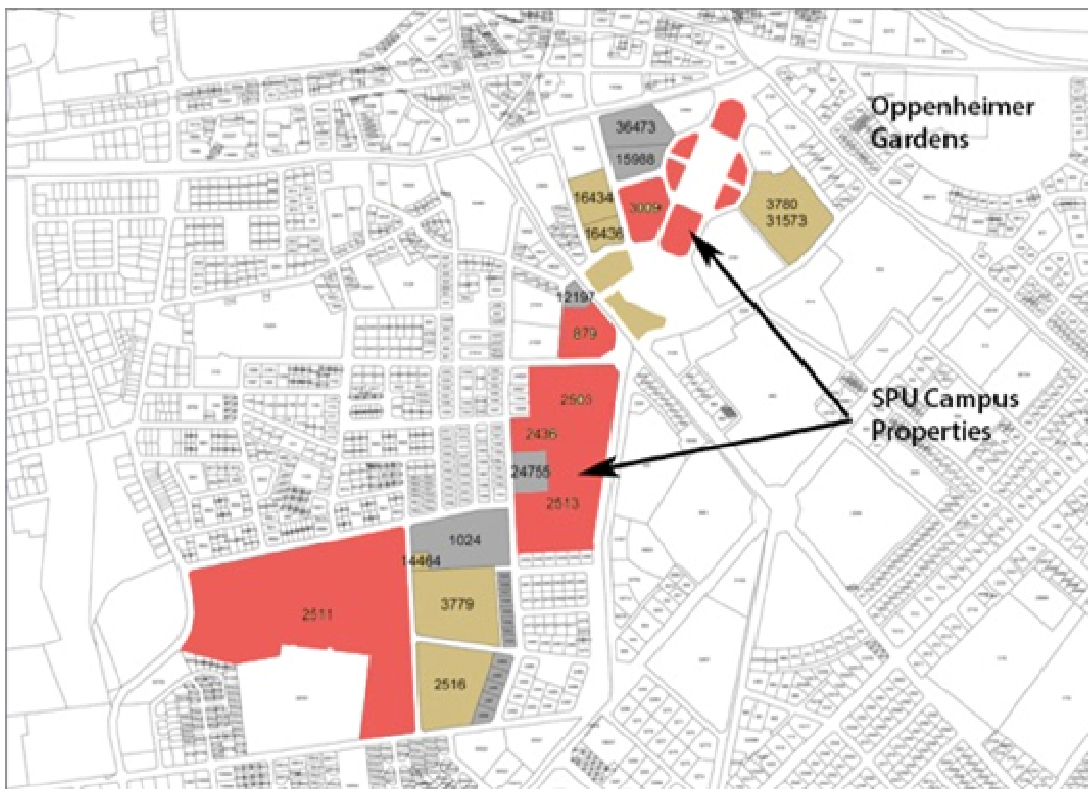


Fig 6.14: Sol Plaatje University land assembly investigation. The following Sites have been incorporated into the campus: 2511, 2513, 879 and 3009. The Oppenheimer Gardens was also incorporated after an agreement with the Sol Plaatje Municipality.

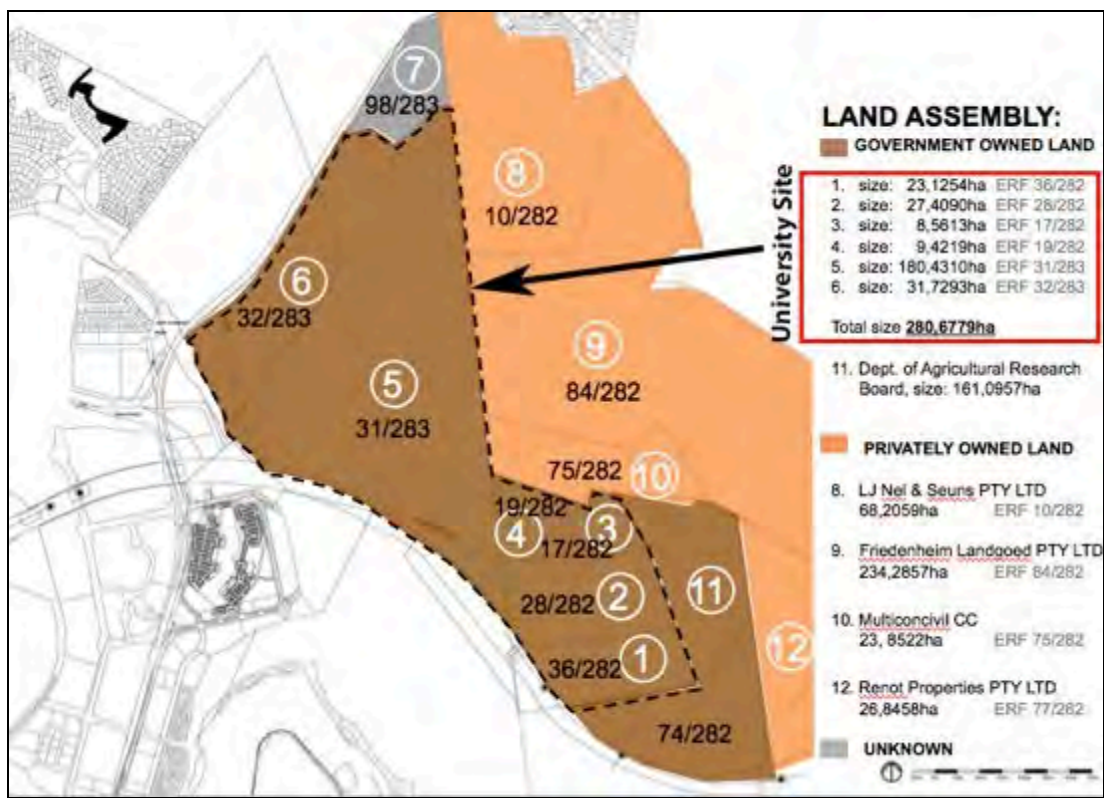


Fig 6.15: University of Mpumalanga land assembly investigation with Land Portions 1-6 the selected campus property. Land Portion 10 (75/282) was added to the campus in 2015.

6.4.4 University of Mpumalanga – Siyabuswa Campus

Plans for the incorporation of the Siyabuswa Campus were initiated in the second half of 2014 and the land assembly and transfer issues constitute a challenge that is yet to be fully addressed. The former Ndebele Teacher Training College is a relatively small campus of 6.5 hectares and would require additional land if the Siyabuswa campus is to increase its student enrolment numbers to achieve a more viable student population. This might be partially achieved through a shared usage agreement with the neighbouring school and the CN Mahlangu TVET college, and it is envisaged that this option will be explored in the future.

6.4.5 Additional Land Feasibility Studies

The NUPMT was also requested to undertake due diligence or feasibility investigations on a few other properties for the two universities which were never acquired or incorporated into the university campuses. These were;

- i) University of Mpumalanga
 - The Bundu Lodge, a conference, leisure and hotel facility came onto the market in 2015 and acquisition was considered by the university with the aim of expanding UMP’s hospitality programme, providing accommodation and utilising the hotel’s substantial conference facilities. The NUPMT report recommended against the purchase of Bundu Lodge and this was accepted by the University Council. ^[6-9]
 - Marapyane - Due diligence assessments for the incorporation of the Marapyane campus to the UMP were done in 2014 by the NUPMT. A report to this effect was prepared. ^[6-10]

ii) Sol Plaatje University

- Sol Plaatje University requested the NUPMT to perform an indicative valuation and feasibility study in 2015 on an unused property owned by De Beers in Kimberley, which was offered to the University as a donation. The property comprised an abandoned hostel and hospital, a clinic and an occupational health facility and conference facility that appeared to have been in use until just before the assessment. The study concluded that extensive capital expenditure would be required to redevelop and refurbish the facilities. The university accepted the recommendations to focus its capital investment on the available SPU properties.

[6-11]



Fig 6.16: Aerial Image of the existing Siyabuswa Campus indicating the existing Buildings, which were renovated during from 2012-2015.



Fig 6.17: Spatial Design and Development Framework for the Siyabuswa Campus of the University of Mpumalanga. It shows the expansion of the expansion north and south to enable an expansion to approximately 3000 students.

6.5. PLANNING APPROVALS

6.5.1 Spatial Planning, Town Planning and Environmental Approvals

The Spatial Development Framework has formed the basis for engagement with all stakeholders. With the establishment of the Interim Councils at the respective universities in 2013, these Spatial Development Frameworks were submitted for formal approval.

The spatial development frameworks created the crucial starting point for all further physical planning, including Town Planning and Environment Impact approvals. The Town Planning and Environmental Impact Assessment processes also had a significant impact on the construction start for some portions of the two universities.

This was particularly relevant in the case of the Hill Campus of the University of Mpumalanga. The need for town planning and environmental approvals on the Hill Campus meant that it was necessary to start development with the first phase of construction focused on the Lower Campus around the former Lowveld College of Agricultural buildings. However, with no environmental approval, even this development was restricted to “compromised land”, which explains the development of the first buildings on former parking lots.

The Central Campus of the Sol Plaatje University offered fewer obstacles and was therefore targeted for the first phase construction.

Most of the Town Planning and Environmental Authorisations were completed during the course of 2014 and ensured that construction of new buildings and infrastructure for the two universities could commence that year.

6.5.2 Planning and Environmental Approvals for the University of Mpumalanga

The New Universities Project Management Team worked closely with Mbombela Municipality regarding zoning for the university development, in particular for the development of the iconic Hill Campus of the university. The town planning application was submitted for approval in March 2013 and the Mbombela Town Planning Department approved the Site Establishment Conditions on 23 March 2015.

The Site Development Plan (SDP) was submitted to the Mbombela Municipal Development Control Team in July 2014. Approval of the SDP was dependent on the approval of the Environmental Authorisation of bulk electrical service, bulk storm water, the planned traffic circles on the R40 and D725 and the finalisation of the service level agreements (with details of the Bulk Service Contributions) before final sign-off of the SDP.

The Building Control Submission was submitted to the Mbombela Municipal Development Control Team in July 2014. Final approval was also dependent on the approval of the SDP. A Section 7/6 application was approved, allowing commencement of building work on site prior to the SDP and Building Control approvals.

An environmental impact assessment (Basic Assessment Report – BAR) was commissioned in March 2013 for the development at the University as envisaged in the Spatial Development Framework. After a detailed and lengthy process, including public consultation, the Department of Environmental Affairs (DEA) issued the authorisation for the BAR, on 26 March 2014 (Record of Decision).^[6-12] During the stakeholder engagement process, there was general support for the university and no objections were raised.

The Department of Environmental Affairs (DEA) had approved the amended Environmental Management Programme and the approval letter was received in July 2014.^[6-13] The Environmental Authorisation (Basic Assessment Reports) for the bulk supply of water, sewage and upgrading of the external roads D725 and R40 including storm water management services were submitted to DEA during 2014 and approval was received in May 2015^[6-14] and in January 2016^[6-15] respectively. The BAR for the bulk electrical services were prepared and submitted by the end of 2015 with approval expected during 2016. Environmental Authorisation was received in November 2016.

6.5.3 Planning and Environmental Approvals for the Sol Plaatje University

Planning approval for the Central Campus, which was the focus of major development for the 2016 academic year, was granted by the Sol Plaatje Municipality in December 2013. The balance of the rezoning applications, in particular for Erf 2511: Hoffe Park and Erf 1: Oppenheimer Gardens were conducted during the course of 2014. These areas were targeted for a construction start only in 2018.

The Department of Environmental Affairs (DEA) approved the amended Environmental Management Programme (EMPr) for Erf 2503 issued an approval letter to the Sol Plaatje University^{[6-16], [6-17]}

a) Planning approval for Erf 2503

The Central Campus, which was the focus of major development for the 2016 academic year, was granted Town Planning Approval by the Sol Plaatje Municipality in December 2013. The Northern Cape Department of Co-operative Governance, Human Settlement and Traditional Affairs (COGHSTA) approved this application in August 2014 and the approval was published in the Northern Cape Government Gazette in September 2014.

The Sol Plaatje Municipality and COGHSTA approval for both Erf 2503 and Erf 879 required that the Northern Cape Heritage Resource Authority (BOSWA) provide a letter confirming that they have no socio-cultural and/or heritage issues in respect of this site. A presentation to BOSWA was arranged in April 2015 and an in-principle approval was received for the entire campus.

The SDP for Erf 2503 was submitted to the Sol Plaatje Municipality with an amendment to increase the “University” Zoning to 12 storeys in order to accommodate the one-off design of the iconic seven-storey Library and Student Resource building. All other buildings were planned not to exceed four storeys.

The Building Control Submission was also delivered to the Sol Plaatje Municipality in July 2014 and the plans for Erf 2503 were subsequently approved a month later in August 2014.

b) William Pescod Education Campus (Erf 879)

In preparation for further development, the Removal of Restriction application for the William Pescod Campus was submitted in October 2014. The matter was put forward to the Spatial Planning, Environment and Land Use Management Committee (SPELUM) and approved for submission to the Sol Plaatje Council on 15 April 2015. A written approval letter from BOSWA in respect of Erf 879 was received in June 2016.

c) Oppenheimer Memorial Gardens (Erf 1)

Applications for the closure of public open space, rezoning and subdivision were required for this site, which was still zoned “Public Open Space” and will constitute the North Campus. The appointed town planners have been provided with a Site Development Plan in order to accelerate the town planning approvals of three separate applications required for this site, namely: Alienation of Public Open Space, Closure of Public Roads and Rezoning. This application has yet to be approved.

d) South Campus - Hoffe Park (Erf 2511)

This site will become the South Campus and is currently zoned “Public Open Space”. The preparation for the closure of public space and rezoning applications submission to Council is underway.

6.6. BULK INFRASTRUCTURE AND ICT

6.6.1 General

The NUPMT took the proposed bulk infrastructure through all the stages of basic planning, verification, development of an Implementation Plan and agreement with the municipalities that these would require for implementation. It was understood and subsequently agreed that the following bulk infrastructure would form part of the implementation of the two

universities and that the investment made by the universities would be off-set against the bulk services contribution payable for each service.

6.6.2 Sol Plaatje University

a) Traffic and Transport

A Traffic Impact and Mobility study was undertaken for the campus. Traffic calming measures were required for pedestrian crossings and walkways between the different campuses. The pedestrian crossing across the busy Bultfontein Road has been completed as part of the link between the North and Central campuses. This entails an elevated pedestrian crossing, bollards and traffic lights. A further crossing has been planned at Scanlan Road between William Pescod campus and the square on erf 2503.

[6-18], [6-19]

A concept design for the traffic circle at the intersection of Scanlan, Bultfontein, Lyndhurst, Dalham and Bishops roads has been completed. The first phase will entail the relocation of services away from the intersection and should be started during 2017 while implementation of the roundabout is planned for completion during 2018/19. [6-20]

Parking: - A land parcel owned by the municipality located between the Municipal offices and the Luka Jantjie House has been identified as potential shared parking area. The municipality is being consulted on the development of plans for street parking, pedestrian and cycle routes and a public transport system. Proposals were developed for a centralised, shared parking facility at the High Court premises (erf 3781). [6-21]

b) Bulk Water

At the first stakeholder meetings, the Sol Plaatje Municipality gave assurances that the existing water supply is sufficient and that the water quality is up to standard. Despite these assurances Kimberley and the university experienced frequent water shortages. Problems experienced with water were mostly related to old infrastructure, leakages and more recently due to poor quality water from the Municipality. To ensure a continuous water supply, the emergency supply was increased to provide water for a minimum of two days in all the university buildings. These measures cover new developments on the campus as well as existing buildings, namely Luka Jantjie House, Ra-Thaga House and the William Pescod building site. Due to the poor quality water received from the municipal system, filter and dosing installations are also planned for all developments.

A report on the potential use of non-potable water from either the Kamfer Dam or from De Beers Big Hole has been completed. Further actions are being planned by the SPU to further this initiative as a potential source of non-potable water for irrigation of sport facilities on and around the campus to the benefit of stake holders with large sport fields.

[6-22]

c) Electricity

Despite assurances from the Sol Plaatje Municipality that the electricity supply is sufficient to accommodate the university, electricity supply in the central business district has been under stress. The installation of a dedicated SPU bulk electrical 11 KV cable

from Hall Street substation to the Central Campus (erf 2503 and the William Pescod building) has been completed. The remainder of the electrical back-bone supply through the campus to the South Campus will be implemented during 2017 and the last stretch from South Campus to the Hadison Park substation in 2020. A future electrical demand report was prepared for the SPU outlining the implementation strategy of the 11 KV back-bone cable and proposed upgrade of the Hadison Park substation by the municipality. All buildings will be equipped with standby generation.^[6-23]

6.6.3 University of Mpumalanga

a) Traffic and Transport

R40 / D725 Interchange upgrading: – From the outset the need was identified for a major upgrading of the intersection between the road to the university (D725) and the R40 arterial. The NUPMT commissioned the preliminary design solution. Because of the hazardous nature of the intersection, the project was prioritised by all stakeholders for implementation by the end of 2018. It was subsequently also agreed that the Mbombela Local Municipality will implement the project and that the university will contribute to this cost by paying their bulk services contribution to the Mbombela Local Municipality (MLM). Following an agreement between Province and the MLM, sections of the D725 and R40 roads were de-proclaimed by Province for about 2200m and 700m respectively to facilitate the municipal upgrade. The de-proclamation was gazetted in the Provincial Gazette in October 2015.^[6-24]

A detailed design was completed and requests for co-funding were made to the municipality and to the PICC. Due to site limitations, the interchange position was moved about 60m towards White River with a re-alignment of the D725 road onto the UMP property.

A Traffic Impact Study (TIS)^[6-25] and Mobility Study^[6-26] were compiled for the campus and external roads. The existing access road from the D725 to the existing lower campus has been improved with temporary road markings, road signs and traffic calming rumble strips. Improved future campus access roads were conceptually designed and involve two future traffic lights and a traffic circle access to the campus. A temporary access on the eastern boundary of the campus was applied for and will be used for construction access to the lower campus until 2018.

Proposals were also made for upgrading of university entrances to allow for additional taxi parking areas, a drop-and-go zone and bus stops for the Mbombela BRT system.

b) Bulk Water and Sewer Infrastructure

Bulk water and sewer infrastructure for the Mbombela Campus were a priority, as the current supply lacked capacity. New bulk water and sewer infrastructure was designed in collaboration with the municipality's concessionaire, Silulumanzi Sembcorp. The NUPMT assisted the UMP with a tender process to appoint a contractor for completion of the construction of these facilities by February 2017.

Due to shortage of water during 2016, an additional emergency bulk water supply pipeline was installed from Regional water supply mains at the Archives building to supplement water supply to the university-owned 900 Kl reservoir.

c) Bulk Electrical Infrastructure

Mbombela Local Municipality (MLM) has confirmed that it will act as the future bulk electrical authority. Excess capacity in the Nels River Substation enabled the MLM to supply the demand for electricity to the Mbombela Campus. It is planned to implement the 20 MVA substation by 2020/21.

The NUPMT assisted the UMP to prepare a Services Agreement in collaboration with the Mbombela Local Municipality, highlighting all details with respect to bulk services, on-site services and implementation arrangements. The agreement was signed by all parties in January 2016. ^[6-27]

6.6.4 ICT and Connector Services to both Universities

a) Establishment of the ICT Core for the New Universities

The ICT core platform is the medium through which ICT services for the Universities are delivered to the user community. The ICT core platform architecture was defined in consultation with various other universities and the CSIR, in line with the envisaged enrolment and development plans for the SPU and UMP.

The underlying design aim of this platform was to provide immediate services that were capable of expanding into highly available and redundant solutions with as little effort as possible. The ICT platform consists of many components, and a comprehensive procurement process was developed to appoint a dedicated service provider for each University to deliver the following:

- Server clusters for hosting hybrid on premise and in-cloud services;
- Storage and backup systems;
- Network core, distribution and access equipment;
- Network security and identity management;
- Wifi - Eduroam;
- Unified communication system;
- Software and licensing.

The first phase bulk ICT infrastructure implementation budget was R24.2m for the University of Mpumalanga and R24.9m for the Sol Plaatje University. This first phase installation was required from the outset to ensure service provision for future development phases. The expansion of the ICT systems during the following development phases was designed and implemented as part of the infrastructure and building projects in each financial year.

After completing a comprehensive open procurement process, described in Chapter 9, contracts for the deployment of the ICT Platform projects were signed with the service provider in July 2014 for both Universities. Detailed design and laboratory testing processes were undertaken between August and October 2014, and the systems were implemented on site during November and December of 2014.

Both Universities started the 2015 academic year making use of the services deployed in the ICT Platform projects. The remote campuses, namely MRTT, Siyabuswa and Marapyane for University of Mpumalanga, and Galashewe for Sol Plaatje University were also incorporated and are still making use of the services offered by the ICT platform.

b) ICT Implementation 2016

The new building infrastructure handed over to both universities in 2016 marked the first real test for the ICT Platform that was commissioned at a cost of R 24.1m and R24.9m at SPU and UMP respectively in January 2015. Some of the key performance indicators noted that:

- The ICT Platform had to be modular;
- The ICT Platform had to be scalable;
- The ICT Platform had to scale without performance degradation.

These three goals amongst others were realised for the 2016 student intake at SPU in buildings L001 – Student Residence, L004 – Auditorium and Offices and L006 – Teaching, Labs and Offices; and at UMP at Land Parcel 01 – Student Residences, Land Parcel 04 – Teaching Admin and Land Parcel 06 – Science Block.

In addition to the user base and data network growth, the ICT Platform temporarily hosts both the Access Control and CCTV surveillance security system until a dedicated security services platform can be installed.

Since March 2016, when the two new universities took over management of the ICT Platform, a dedicated security platform has been implemented as described below.

c) Security Platform

As with the ICT Platform, the need was identified for the development of a Security Platform at each university in order to support electronic security systems, namely access control, CCTV surveillance and burglar alarm systems.

While these systems are still running on the ICT platform, the plan is to have a dedicated server and storage infrastructure. Apart from providing dedicated hardware the main objective of the security platform is to integrate these individual systems and enable them to be operated and monitored through a single user interface, otherwise known as a single pane of glass which will greatly improve the Universities' ability to respond to security incidents, investigations and reports.

A budget of R8.4m and R9.2m was earmarked for implementation of the security platforms at UMP and SPU respectively during 2015. This could not be implemented by the NUPMT at this time, mainly because the infrastructure to accommodate the security platform was only completed in 2016. The funds were reallocated to SPU and UMP for implementation under their management.

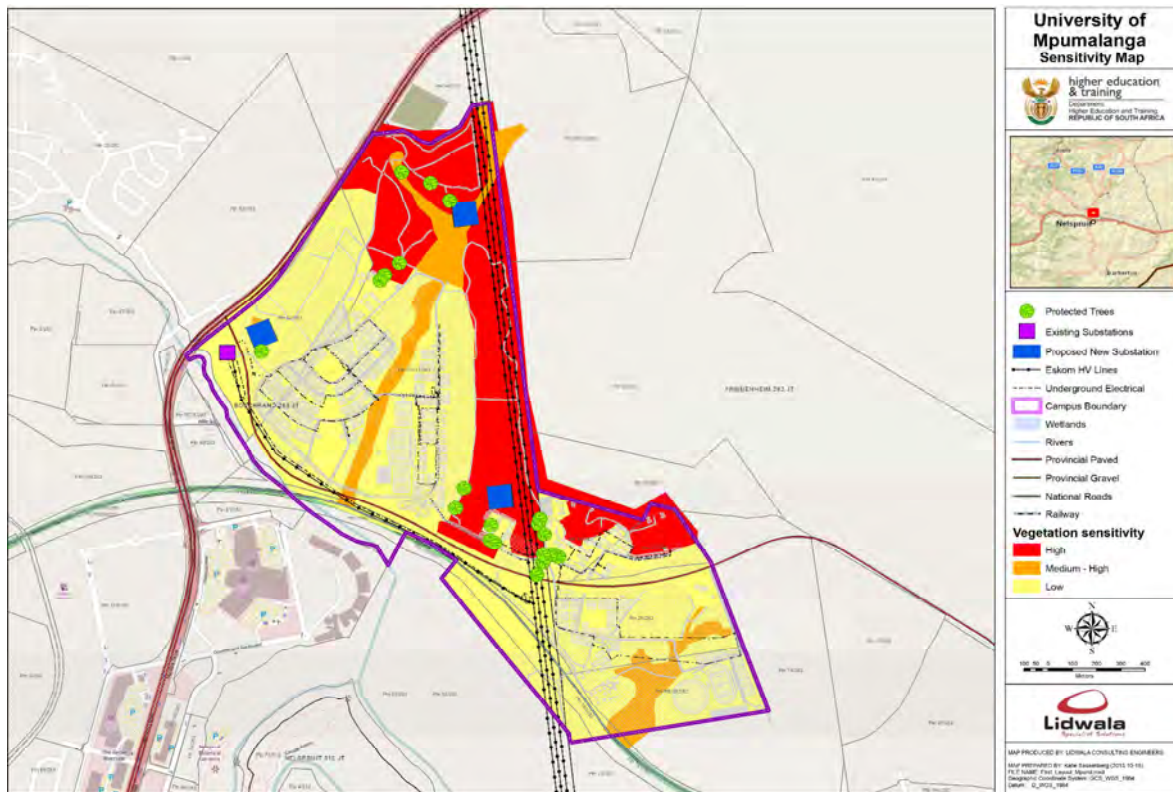


Fig 6.18: Environmental Assessment and sensitivity map as part of the Town Planning submission for the UMP Mbombela Campus.

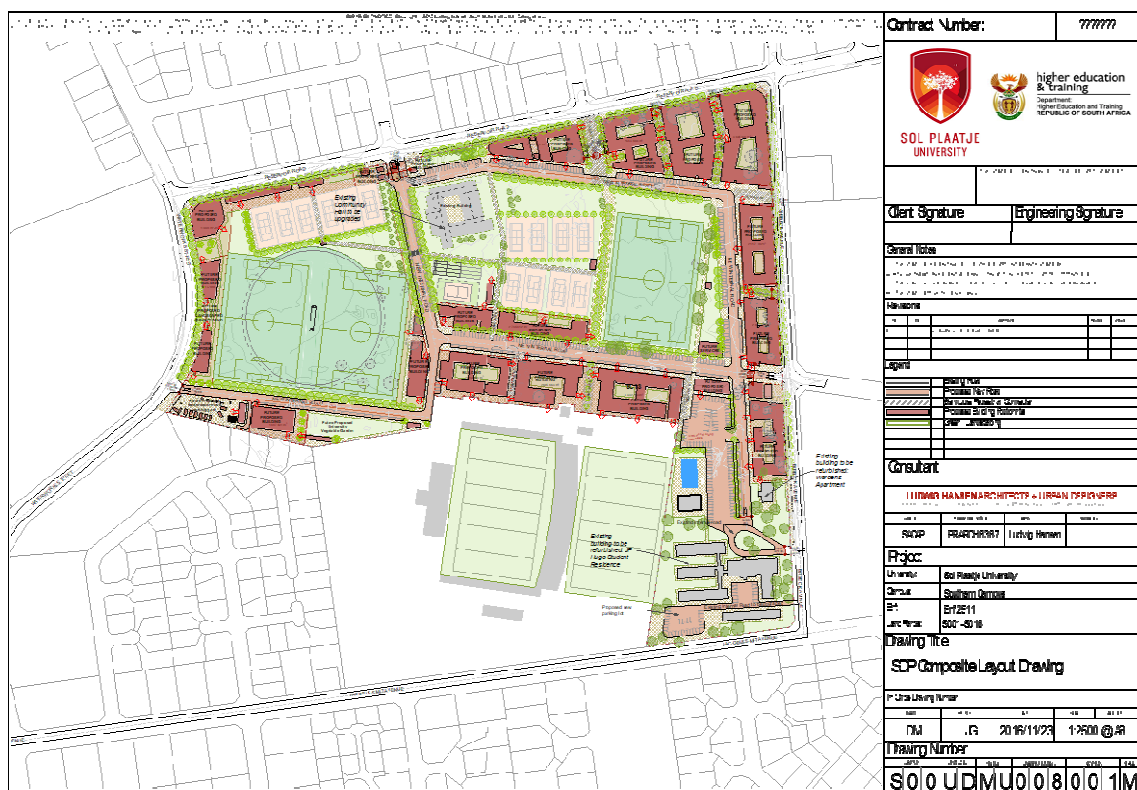


Fig 6.19: Town Planning submission of the South Campus (Hoffe Park) as part of the overall town planning approval process for the Sol Plaatje University.

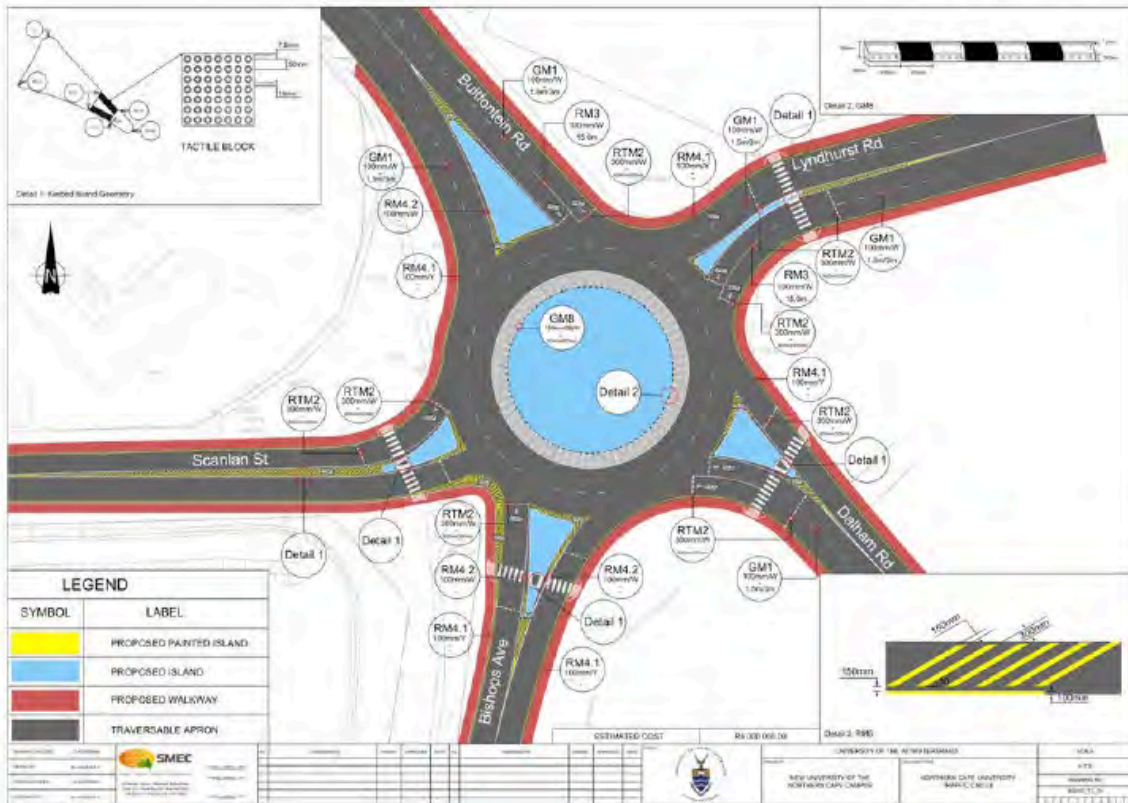


Fig 6.20: The bulk infrastructure upgrades in Kimberley includes the improvement of existing roads. The design proposal is for the Bultfontein and Bishop Road intersection.

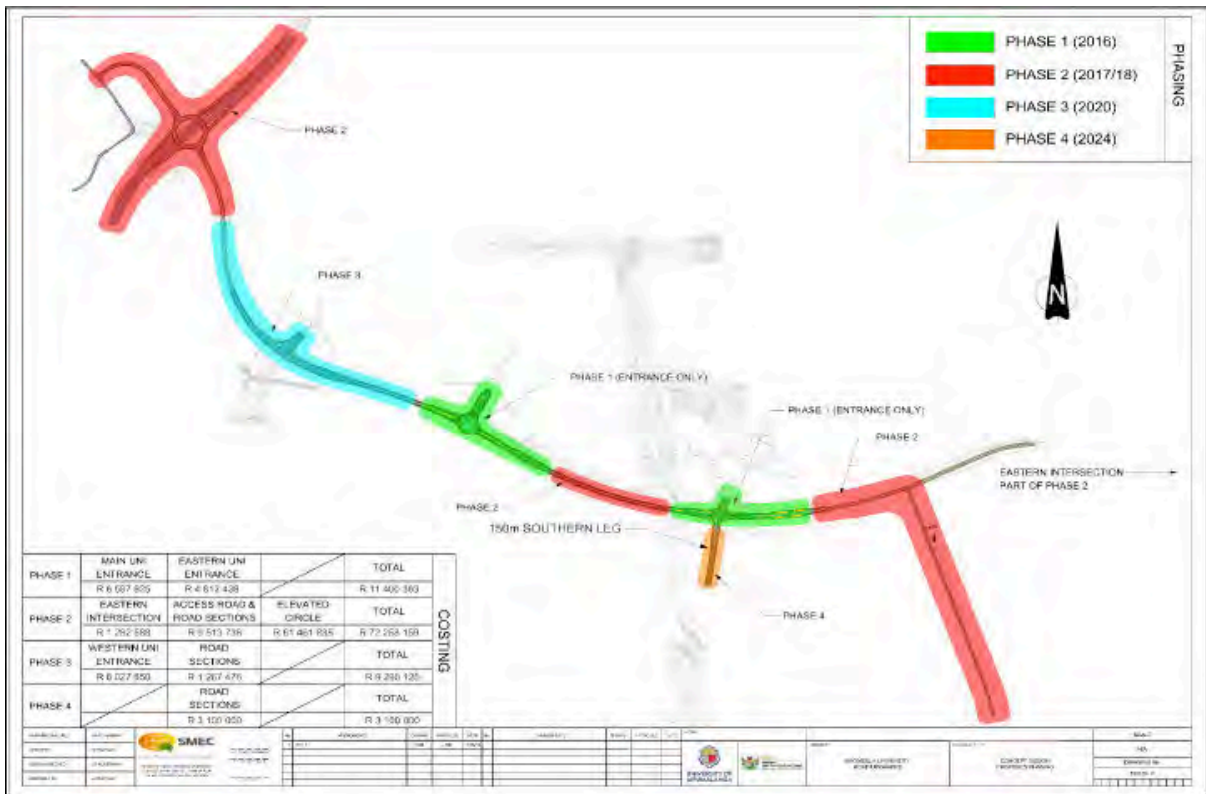


Fig 6.21: D725 and R40 road upgrades at UMP

6.7. UPGRADING AND CONSTRUCTION RENOVATION WORK AT SPU

Upgrading and conversion work on a variety of existing buildings and associated services commenced in 2013 and has continued over the period of the NU PMT involvement.

Infrastructure delivered for the 2014 academic year provided for the inaugural enrolment of 125 university students in 2014 and for over 300 students in 2015. Between late 2013 and the start of 2016, renovation of existing buildings included the William Pescod School, the former Legislature Building (now the Luka Jantjie House), Mhudi House (Diamond Lodge Hotel) and Ra-Thaga House (Whiteways Apartments).

The cost of upgradings, renovations and conversion work undertaken by framework contractors is indicated in Tables 6.2 and 6.3 at Sol Plaatje University.

Table 6.2: Roburn Construction Trust 2 - framework contract for upgrading of infrastructure

Package order	Description	Final value excluding compensation events (including VAT)	Total
1	Construction of the square	R 7 534 295	
2	Development of UMP memorial gardens	R 2 244 266	
3	William Pescod and Bultfontein crossing	R 4 138 429	
4	Bulk Electrical (equipment and cabling)	R 1522 686	
5	Erf 2503 bulk infrastructure services	R 698 927	
Total construction cost (including VAT)			R16 130 603
Compensation events (including VAT)			R 346 869
Final account			R 16 485 472

Table 6.3: HSH Construction Pty (Ltd) - Framework contract for the services of a management contractor for the refurbishment, extension or alteration of existing buildings

Package order	Site and outline scope	Forecast value of order at start (including VAT)	Value of order at completion (including VAT)	Percentage of works subcontracted
1	NIHE and William Prescod Buildings (SPU 2014 start-up: executive offices, waterproofing and classrooms south west corner of old legislature building)	R 4 457 745	R 4 425 869	75.6%
2	NIHE and William Prescod Buildings (SPU 2014 start-up: classrooms 1 and 2 (northern classrooms), staff offices and IT room, student foyer area and removal of asbestos ceilings to old legislature building and removal of asbestos ceilings and mechanical installations to William Prescod)	R 4 975 418	R 4 886 879	85.8%
3	NIHE and William Prescod Buildings (SPU 2014 start-up: mechanical installations and wireless internet connections)	R 4 120 643	R 4 092 649	94.4%
4	NIHE and William Prescod Buildings (SPU 2014 start-up: biological laboratory, academic staff offices and TUT rooms, entrance foyer, ablutions, geography laboratory and IT laboratory)	R 4 917 683	R 4 837 712	83.6%
5	NIHE Building	R 4 812 177	R 4 812 177	62.6%
6	William Prescod and Whiteways Building	R 4 699 472	R 4 699 472	45.6%
7	VCs House and Whiteways Building	R 4 087 969	R 4 087 969	49.8%
8	NIHE and William Prescod Buildings	R 3 892 133	R 3 892 133	100%
9	NIHE and William Prescod Buildings	R 4 734 854	R 4 734 854	98.5%
10	Whiteways Building	R 4 846 214	R 4 846 214	97.3%
11	Whiteways Building	R 4 848 535	R 4 848 535	92.7%
12	Whiteways Building	R 4 959 000	R 4 959 000	82.6%
13	William Prescod and Diamond Lodge Buildings	R 4 879 735	R 4 879 735	39.9%
14	Whiteways and NIHE Buildings	R 3 345 900	R 3 345 900	100%
15	NIHE Building	R 4 765 000	R 4 765 000	48.6%
16	William Prescod, Diamond Lodge, Whiteways and NIHE Buildings	R 4 960 000	R 4 960 000	100%
17	William Prescod, Diamond Lodge, Whiteways and NIHE Buildings	R 13 558 531	R 13 092 299	92.2%
Total			R 86 060 455	

a) Mhudi House (former Diamond Lodge Hotel)

The three-storey hotel was renovated during 2015 and 2016 to include:

- 31 two-bed student rooms (62 students);
- Games / TV room, study, kitchen and dining room, plus laundry on ground floor;
- Two-bedroom warden flat on the first floor, including office;
- Security room for security guards, store rooms, staff rest room, bicycle cage and ablutions, and enclosed refuse area.

Work included the complete revamp of all the student bedrooms with en-suite bathrooms. The entire ground floor was redesigned to include the amenities listed above. The entire building was equipped with wi-fi connections. The air-conditioning in the student rooms was connected to a separate electrical supply and can be used when required.

A construction amount of R10.4 million was spent on these upgrades.

b) Ra-Thaga House (former Whiteways apartment block)

The nine-storey apartment building was renovated between 2014 and 2016 to include:

- 30 self-contained, two-bedroom units with two students per bedroom plus bathroom, toilet, and common room with kitchenette, accommodating a total of 120 students;
- Laundry, new kitchen and dining room with TV facility and games room;
- One warden's two-bedroom flat and separate office;
- Fully equipped staff flat on the 9th floor;
- Store rooms and staff rest room;
- Bicycle cage and ablutions, enclosed refuse area, guard house;
- New, separate fire-escape steel staircase.

Work included the complete revamp of all the flats with kitchenettes and the provision of wi-fi connections. The entire ground floor was redesigned to include the amenities listed above. The lift was upgraded with a new KONE lift. An on-site standby generator and 20 KI potable water storage tanks were installed. The hot-water supply for the entire building was upgraded with a more energy efficient heat pump system on the roof. Unutilised carports were closed with steel frames creating additional storage area for the University's attic stock.

All handrails on the balconies and passages were upgraded to comply with Municipal Regulations. The garden was landscaped with an atomised irrigation system.

An amount of R23.0 million was spent on these upgrades (construction value).

c) William Pescod Building (former William Pescod School)

The one-storey, S-shaped building was upgraded for the BEd academic programme during the period 2013 to 2015, and includes the following:

- Biology, Computer, Consumer Science, and Physical Science laboratories with store rooms and offices for lab technicians;
- Geography Practical Classroom;
- Technology classroom and fully equipped demonstration workshop with store rooms;
- 21 staff offices, toilets and kitchenettes; and
- Security room for security guards and ICT patch room.

Work included the installation of audio visual equipment, furniture and improvements to the security in the building. The area around the building was landscaped with new lights, trees and a pedestrian walkway towards the Bultfontein Road. An irrigation system and 5kl water storage unit was installed. The two large classroom, former "magasyn", building was demolished to make way for the new C008 building.

An amount of R14.0 million was spent on these upgrades.

d) Luka Jantjie House (former Provincial Legislature Building)

The three-storey building was partially renovated during the period 2013 to 2016 and includes the following:

Second floor:

- 13 staff offices, five smaller (24 to 30 seat) and two larger (54 seat) classrooms;
- Print room and SPU server room;
- Two committee rooms, student lounge area;
- Toilets for students and staff, and kitchenettes.

First floor:

- Three CUT offices, two large (60 seat) classrooms;
- End user computing room (with IT technician office and store room), Electronics and Hardware/ Computing laboratories with store room;
- 13 staff offices with meeting room on western wing;
- Nine staff offices on the eastern wing;
- Four study rooms on the northern wing;
- Toilets for students and staff, and kitchenettes; and
- AC plant rooms and refuge rooms for fire protection.

Ground floor:

- 13 staff offices, a board room and student waiting / reception are in the western wing;
- Eight staff offices on the eastern wing;
- Student admissions and temporary bookstore for Van Schaik;
- Catering kitchen to provide 500 meals in the student canteen plus a staff coffee shop;
- Toilets and kitchenettes, and fire escape routes.

Basement:

- Secured storage area and stand-by generator for the SPU Server.

Work included the installation of air-conditioning facilities, audio visual equipment and furniture in classrooms, and improvements to the security in the building. Three new lifts were installed. The dilapidated and inefficient water supply system (both potable and fire water) was upgraded with two 15Kl on-site storage tanks and a pump system to provide water to the building. A stand-by generator was installed and the main electrical distribution board was replaced. The premises have been landscaped with new exterior lights, a new walkway canopy in the courtyard and irrigation systems.

An amount of R38.5million was spent on these upgrades which accounts for about 60% of the building upgrades. The remainder of upgrades will be done by the SPU during 2017 and 2018.

e) Other smaller upgrades

VC House (Carrington 22)

The VC's house was purchased in 2014. The following work was done on the house:

- a. Waterproofing and painting of the entire roof;
- b. Replacing of gutters, fascias and clearing overgrowth around the building;
- c. Painting of interior, maintenance of the wooden floors and purchasing of basic furniture;
- d. An amount of about R 275 000 was spent on these upgrades.

Hoffe Park house – to accommodate the Project Managers

- a. The house on the premises was upgraded during 2015 to function as office for the Project Managers (Aecom). Work entailed painting, upgrade of plumbing, electrical installations, air-conditioning, security and water proofing of the roof.

6.8. CONSTRUCTION RENOVATION WORK AT UMP

Infrastructure delivered for the 2014 academic year provided for the inaugural enrolment of 160 university students in 2014 and for over 540 students in 2015. Construction during 2015 has enabled the 2016 enrolment of over 1255 students, with expansion to over 1600 planned in 2017.

For the first two years of enrolment (2014 and 2015), the existing buildings including the residences, administration buildings and teaching venues were renovated.

In addition to the work at the UMP Mbombela Campus, the University of Mpumalanga with the assistance of the NUPMT focused on development of several new buildings, infrastructure projects and renovations at the UMP Siyabuswa Campus.

Between late 2013 and the start of 2016, a number of existing buildings were upgraded and/or converted. With the exception of the MRTT buildings, all renovated buildings are located on the former Lowveld College of Agriculture (LCA).

The cost of renovations and conversion work as set out in Table 6.4

Table 6.4: Norse Projects (Pty)Ltd - Framework contract for the services of a management contractor for the refurbishment, extension or alteration of existing buildings

Package order	outline scope	Forecast value of order at start (including VAT)	Value of order at completion (including VAT)	Percentage of works subcontracted
1	MRTT staff offices, hostel demolition, external works	3 094 958	3 037 477	40%
2	MRTT kitchens, classrooms and resource centres, hostel refurbishment	4 378 634	4 143 372	51%
3	LCA executive offices and external works	3 004 338	3 002 011	38%
4	LCA computer laboratory, LCA lecture halls	4 054 654	4 053 575	42%
5	Refurbishment of the balance of student residence rooms	4 587 132	4 308 849	10%
6	LCA auditoriums	2 425 230	1 504 690	50%
7	Refurbishment of the balance of student residence rooms	2 902 326	2 546 677	10%
8	Refurbishment of administration block, PM offices and external works	4 265 504	4 137 266	20%
Total			26 733 919.39	

a) Office Building north of Library

The single storey building behind the Library was renovated during 2013 and 2014, mainly to provide offices for the newly established UMP campus and included:

- Six offices plus open plan waiting area and secretarial/admin office;
- Ten-seat meeting room; and
- Kitchenette.

Work included the installation of air-conditioning facilities, audio visual equipment and wi-fi, data points in all offices and an external pause area with landscaping.

The construction costs for this upgrade amount to R3.217 million.

b) Existing Library, Auditoria and Computer Lab Building

The two-storey building was renovated during 2013 and 2014 for the 2014 and 2015 student intake, to serve as the main lecture space. The following upgrades were completed:

- The library and study centre, including foyer area with seating and toilets;
- 2 x 64 and 2 x 104 seat raked auditoria (teaching venues);
- Computer laboratory;
- Server room with stand-by generator.

A classroom and IT laboratory were created in the adjacent PC laboratory, fitted out with

tables and chairs, mapping tables, PC workstations and audio-visual teaching equipment and wireless connectivity.

The room behind the Main Hall was upgraded to a computer classroom with 45 stations, complete with air-conditioning, security and data connections. Work included the installation of air-conditioning facilities, audio visual equipment and wireless coverage in and around the buildings. The ramp on the south-eastern passage was covered with an overhang roof.

The construction costs for these upgrades amounts to R4.251 million.

c) Administration building

The two-storey building was renovated during 2014 to prepare office space for UMP staff.

Although the executive offices were originally prepared to accommodate senior staff, the first floor offices next to the foyer area were subsequently upgraded for this purpose. The following upgrades were done in the administration building:

- Ground floor east wing: Eight offices were tiled and painted;
- Five senior staff offices plus store room on the first floor with the stair case;
- Split air-conditioning units were serviced and replaced where required;
- A new patch room was developed and equipped;
- All offices were equipped with data cables and connections;
- Executive board room was painted with new data connections installed.

The construction cost for this upgrade amounts to about R2.970 million.

d) Student residence

The four two-storey buildings and the two storey third-year residence were renovated during 2014 and 2015. During this period small groups of students from the residences were relocated in batches to park-homes while their rooms were renovated. The renovation entailed:

- Upgrade of all 200 rooms in the four main residences;
- Upgrade of all 12 rooms, a TV room and ablutions in the third-year residence;
- Painting of passages and replacing of broken vinyl tiles;
- Upgrade of laundries with installation of new equipment;
- Painting of common rooms, and basic maintenance of all ablution facilities.

Work included the installation of wireless connectivity in all residences, repair work on access doors and gates, new furniture and installation of data cables between the server room and these five buildings.

The construction costs for these upgrade amounts to about R2.860 million.

e) Mpumalanga Regional Training Trust (MRTT) upgrades

Based on an MOA between UMP and the MRTT, the decision was taken to renovate portions of the MRTT in return for free usage for a period of three years from the start of 2014. The single and two-storey buildings at the MRTT were renovated for UMP hospitality students as follows:

- A derelict building was converted into an office for the UMP lecturers, including a

- boardroom, five individual offices, kitchenette and bathroom;
- The west wing of this building was converted into a two-bedroom warden's apartment with furniture;
- Student residence building: 15 x 2-bedrooms were upgraded and equipped with new furniture, ablutions were overhauled and a steel fire escape staircase was fitted;
- Classrooms: two classrooms were upgraded and fitted out with audio-visual teaching equipment;
- Teaching block of the existing MRTT Hotel Academy: two teaching kitchens, three classrooms and a set of student toilets were upgraded;
- Landscaping and storm water control was provided around these buildings with a new staircase to the warden's apartment.

In addition, external services, storm water and landscaping was upgraded on the MRTT campus.

The construction costs for these upgrades amounts to about R8.0 million.

f) Other smaller upgrades

A range of smaller upgrades were undertaken relating to landscaping, provision of offices for the project managers, external roads as well as internal water and sewers.

Landscaping on the Mbombela Campus

The following landscaping work was done (with irrigation) on the Mbombela Campus:

- The entrance gate to the UMP with walkways, a small culvert bridge, street lighting and trees;
- The area around the executive offices with an outside under-cover entertainment area and garden furniture.

Project Managers' Offices:

The former clubhouse for the mini-golf course was upgraded with a large meeting room, plus six workstations and ablution facilities.

External roads, internal water and sewer networks

Work on external roads included:

- Installation of directional signage on external roads leading towards the Mbombela campus with reference to the "University of Mpumalanga";
- Temporary road marking and road signage at the entrance to the Mbombela campus.

The existing internal water and sewer systems on the existing campus were upgraded by:

- Replacing all aged valves and pipes to improve management of the water supply to the buildings and different zones on the campus;
- Unblocking of choked drains on the old septic tank system at the sport complex, and
- Upgrading the level control of the existing sewer pump station.

In addition to upgrades on buildings described above, the following work was also undertaken on existing facilities of the former Lowveld College of Agriculture premises:

- Installation of seven containers, initially as temporary residences during upgrading of the residences in 2014 and 2015 and used since then as temporary offices for UMP

- staff;
- Upgrading of the sport fields ablution facilities;
 - Replacing and upgrading of existing stairs, paving, kerbing, storm water infrastructure, servicing of existing mini-substations on the campus and removing of trees in preparation for new buildings and infrastructure;
 - Installation of new sign boards on the campus;
 - Upgrading of the irrigation laboratory with a new kitchen and ablutions to be shared by the park-home offices;
 - Waterproofing of existing houses on the lower campus;
 - Upgrading and conversion of a storage area on the Boschrand farm into a welding lecture room; and
 - Upgrading of student and staff toilets at the entrance to the Great Hall.

The construction costs for these upgrades amounts to about R5.435 million.

6.9. UMP SIYABUSWA CAMPUS

6.9.1 Background

The former Ndebele College of Education located in Siyabuswa in Mpumalanga is an education campus that was established in 1980. It was used to deliver pre-service teacher education and a limited number of in-service programmes.

Coordinated by the National Institute for Higher Education (NIHE) and supported by partnerships with the University of the Witwatersrand and with the University of Pretoria the campus continued to be used as a site of delivery for initial teacher education programmes until the end of 2010. It has since been used by the Mpumalanga Department of Education (MDE) to deliver continuing professional teacher development programmes and to provide accommodation and facilities during Grade 12 examination marking sessions. It has also been used as a teaching site by a number of universities for continuing professional development programmes such as the Advanced Certificate in Education (ACE).

In 2013 a BEd (Foundation Phase Teaching) programme was started on this campus through a partnership between the DHET, MDE, NIHE Mpumalanga and the University of Johannesburg (UJ). This partnership initiated the process of redeveloping the old teacher training college in Siyabuswa with the specific aim of increasing teacher education and development capacity in the country.

One hundred students were successfully enrolled for the BEd programme delivered on the campus by UJ in 2013. The redevelopment of the campus was spearheaded by the DHET through funding to NIHE, with a view to establishing Siyabuswa as a part of the New University in Mpumalanga. A series of transitional arrangements were agreed by the partners in this venture in order to facilitate the academic, administrative and physical transition of the Siyabuswa Campus to the UMP. The 2014 intake of students at Siyabuswa were enrolled as students of the new university.

6.9.2 Role of NIHE and the NUPMT

Plans for the incorporation of the Siyabuswa Campus were initiated only in the second half of 2013 and the land assembly and transfer issues constitute a major challenge that is yet to be resolved. The NUPMT has played an advisory role, assisting first NIHE and then the

University of Mpumalanga to procure and implement infrastructural and building improvements. The NUPMT also assisted UMP and the DHET with the establishment of an Integrated Spatial Development Framework for the Siyabuswa Campus, which was used to guide the implementation of building and infrastructure spend over the period 2013-2015, the period during which the transfer of responsibility from NIHE to UMP took place.

6.9.3 Siyabuswa Development

Planning for this campus is based on the understanding that the existing academic and administrative buildings can accommodate 1 500 students with 300 beds. The phased redevelopment of the Siyabuswa Campus commenced in 2012 to prepare for the re-opening of the Campus and the enrolment of the 2013 UJ student intake. This Phase I redevelopment included the refurbishment of three residential units to accommodate 150 beds; the upgrade of the kitchen and dining hall; conversion of space into lecturer offices; library and resource centre upgrade; and the upgrading of the upper and lower floors of the administration building for management offices and staff rooms.

The Phase II redevelopment programme commenced in mid-2013 and focussed on refurbishing the existing remaining residences to increase the bed capacity to 300. It also included the upgrade of two more classrooms, one lecture hall and two dining halls.

The Phase III redevelopment programme commenced in 2015 and focused on additional residential capacity to accommodate 664 FTE students until 2019. Phase III commenced in 2014 and a total of R80m was allocated by DHET to the improvement of the Siyabuswa Campus. It also included expanding the kitchen facilities and student amenities. Work further included the upgrading of three auditoria, four classrooms, existing student residences and sport facilities. The bulk of the budget was for the development of a new 102 bed Student Residence, which increased the total number of students on campus to 412. To address the lack of staff accommodation, eight staff apartments were built. The construction of both the staff and student accommodation was completed by November 2015.

Phase IV: R18 million was allocated to infrastructure improvements in 2015. The bulk of the budget was for water and electricity infrastructure, and improvement of the sport amenities. The budget and implementation oversight for these projects was managed by the University of Mpumalanga directly.

Administering, and reporting against, the budget allocations for the above development phases was first the responsibility of NIHE and, after closure of NIHE, became the responsibility of the university. The operational closure of NIHE in 2014 resulted in the transfer of a number of capable project facilitation staff members from NIHE to the UMP. The experience and in-depth knowledge attained by these staff members at Siyabuswa was thus not lost, and has added greatly to the UMP staff capacity in terms of infrastructure development and maintenance.



Fig 6.22: Mhudi House (former Diamond Lodge Hotel) converted to accommodate 62 students. Renovated during 2015.



Fig 6.23: Ra-Thaga House (Former Whiteways Apartment Block).



Fig 6.24: William Pescod Building (former William Pescod School) Former school buildings renovated and converted to accommodate B.Education Academic programmes.



Fig.6.25 Luka Jantjie House (former Provincial Legislature Building) Building renovated and converted to accommodate SPU administration, staff offices, student support and lecture venues.

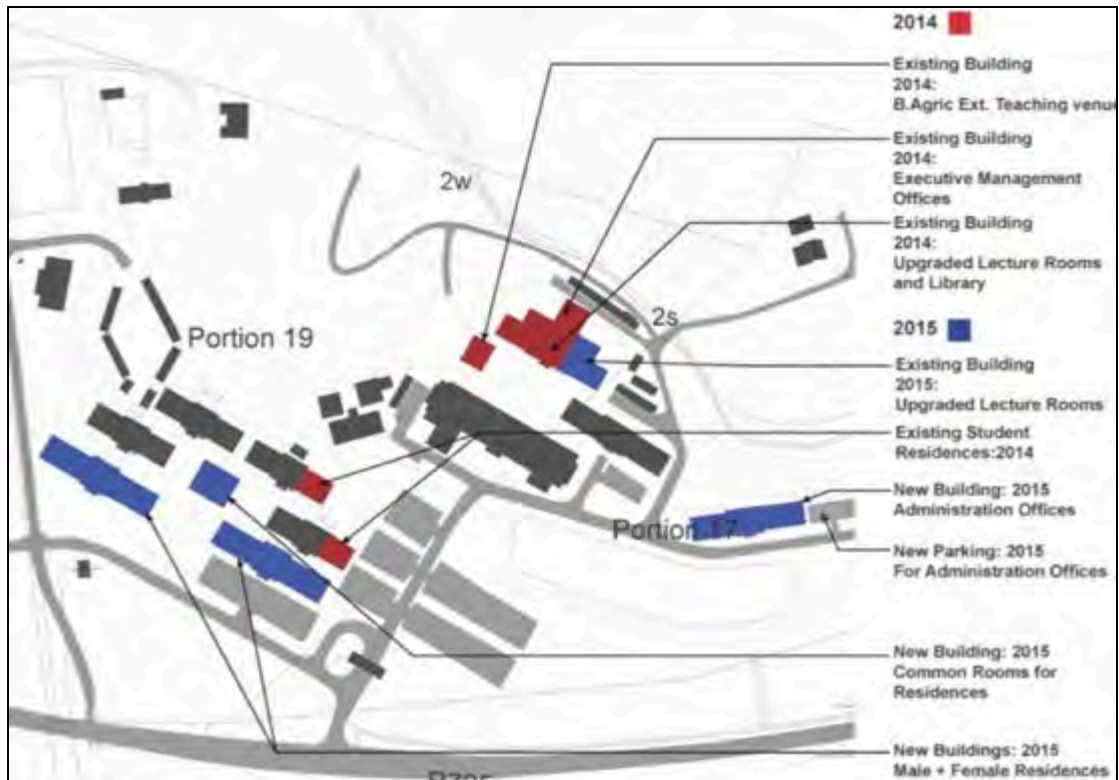


Fig 6.26: University of Mpumalanga Renovation Plan for the existing former Lowveld Agricultural College structures. These included the residences, administration block, lecture venues and library.



Fig 6.27: University of Mpumalanga renovation of the existing five residence buildings.



Fig 6.28: University of Mpumalanga Siyabuswa Campus renovation of the existing offices, library and lecture venues.



Fig 6.29: University of Mpumalanga Siyabuswa Campus renovation and upgrade of the existing dining amenities.

REFERENCE DOCUMENTS

6-1 Selection Criteria for Towns and Sites

6-2 Summary overview of sites visited

6-3 Selection Criteria and Recommendations on the Seats for the New Universities – 18 July 2012

6-4 Feasibility Study for the New University in Mpumalanga Province (September 2012)

Annexure 1 Space and Cost Norms for Buildings and Other Land Improvements at Higher Education Institutions April 2009 – (cover only for reference)

Annexure 2 Calculation of Building and Other Costs - 20 Sept 2012 v3a

Annexure 3 Land Assembly Feasibility Report - 21 Sept 2012

Annexure 4 Preliminary Spatial Plan and Building Potential

Annexure 5 Implementation Programme

Annexure 6 Phase 1 2013-17 Years Control Budget

Annexure 7 Final Report on the Establishment of new universities in the Northern Cape and Mpumalanga Provinces

Annexure 8 Case for Kimberley and Nelspruit

Annexure 9 Recommendations on the Seats of the new universities

Annexure 10 Risk Register

Annexure 11 Bulk Services Report

Annexure 12 Bulk ICT Report

Annexure 13 Project Stakeholders

Annexure 14 Project Implementation Plan template

Annexure 15 Procurement Framework

Annexure 16 Wits Infrastructure Delivery Management System (IDMS)

6-5 Feasibility Study for the New University in the Northern Cape (September 2012)

Annexure 1 Space and Cost Norms for Buildings and Other Land Improvements at Higher Education Institutions April 2009 – (cover only for reference)

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Annexure 12 Bulk ICT Report

- Annexure 13 Project Stakeholders
- Annexure 14 Project Implementation Plan template
- Annexure 15 Procurement Framework
- Annexure 16 Wits Infrastructure Delivery Management System (IDMS)
- 6-6 Whiteways Sept 2013, Valuations and Due Diligence Review by Courtwell
- 6-7 Diamond Lodge Aug 2013, Valuations and Due Diligence Review by Courtwell
- 6-8 Motivation March 2016, NUPMT to UMP to purchase remainder of portion 75
- 6-9 Bundu Lodge Oct 2015, Feasibility Report
- 6-10 Marapyane June 2014, Feasibility Report
- 6-11 De Beers Oct 2015, Donated Land Feasibility Report
- 6-12 Environmental Authorization March 2014, EA (ROD) for construction of the new UMP
- 6-13 EMPr July 2014, Environmental Management Programme for construction of the new UMP
- 6-14 Environmental Authorization May 2015, EA (ROD) for bulk water and sewer
- 6-15 Environmental Authorization January 2016, EA (ROD) for upgrade of external roads
- 6-16 Environmental Authorization March 2014, EA (ROD) for construction of the new SPU
- 6-17 EMPr July 2014, Environmental Management Programme for construction of the new UMP
- 6-18 TIA SPU 2014, Traffic Impact Assessment for SPU
- 6-19 Mobility Study for SPU August 2013
- 6-20 Round-About Plan 2014 for intersection on SPU
- 6-21 SPU parking 2015, parking area on erf 1 and bus stop
- 6-22 Non-potable water SPU 2014, report to assess feasibility to use non-potable water for irrigation
- 6-23 Bulk Electrical Report SPU 2016,
- 6-24 Provincial Gazette Oct'2015, De-proclamation of the D725 and R40 to MLM
- 6-25 TIA UMP August 2013, Traffic Impact Assessment
- 6-26 Mobility study UMP September 2013
- 6-27 Services agreement for the provision and installation of engineering services for the development of the University of Mpumalanga Township

Chapter 7

Spatial Development Framework



7. Spatial Development Framework

7.1. INTRODUCTION AND PURPOSE

This section describes the historical development, methodology and processes followed towards the establishment of the Spatial Design Framework of both the Sol Plaatje University and the University of Mpumalanga.

The campus design and the development of a Spatial Framework for the new universities can be described as the putting together of the processes and methods that give form, content and meaning to the physical requirements of the two new institutions. The Spatial Development Frameworks of the campuses aimed to establish universities with a sense of place, communicating each institution's purpose, presence and distinctive identity.

The Design and Development Framework for each university established the spatial and infrastructural framework within which the government's evolving vision and thinking on the establishment of the new institutions could take place. The framework has provided a strategic tool within which the diverse elements and activities required for the establishment of the new universities could be conceptualised, planned, structured, and prioritised, creating a context and strategy for implementation by:

- a) providing the DHET and the leadership of the two new universities with a coherent, holistic vision, with easily understood guidelines and principles for implementation;
- b) establishing a clear understanding of what the future campuses of the new universities would look like and how that translates into a unique sense of identity;
- c) establishing appropriate linkages to the host city and communities around the new university campuses;
- d) creating a campus environment that promotes ease of movement and access for both vehicular and pedestrian traffic;
- e) creating an environment that is safe for students, lecturers and visitors alike;
- f) exploring development flexibility that ensures a spatial framework structure that can respond to changing requirements;
- g) providing spatial principles that ensure a clear and understandable framework within which the university management structures can expand their own vision;
- h) establishing a framework that identifies lead projects and phasing methods to ensure a holistic approach through the lifespan of the universities;
- i) providing an implementation strategy to assist the university management in the development of the universities; and
- j) providing a practical and easily understood document that can act as spatial guideline and development framework to steer the New University.

Development of the spatial plans recognised that the two universities vary in purpose, prospects, institutional structure, mission, location, environs and contextual community. Each institution deserved to be shaped by a plan that acknowledges its own contextual realities, guiding the university's own mission and vision in a workable and attractive manner. From the beginning the influences and informants determining their form were multi-faceted and complex, and understanding these determinants was essential in generating a useful and sustainable campus design.

Apart from the complexity facing both universities in terms of local conditions, influences and principles, the conceptualisation of the new campuses also followed universal and normative spatial applications. These universal design principles have been applied in varying forms, again dependent on the specifics of context.

7.2. THE APPROACH AND METHODOLOGY

The approach to establishing a Spatial Design Framework for the two new universities was based on two pillars. The first was the adoption of a '*package of plans*' approach. This approach promotes consistent thinking across scales. It does not seek to be comprehensive but is minimalist: At each scale the minimum necessary framework actions were identified and these provided the fixes for successively more detailed scales. Working from a regional, city and town scale to the smallest design aspects, for example those effecting the student as pedestrian.

The second pillar was to transform the nature of the plan from opinion to a widely-agreed argument about the direction which the university campuses should be taking. The starting point for the argument was an interrogation of the spatial implications of the academic mission statement. At all times it was emphasised that the spatial planning and academic planning cannot be separated.

An '*Inquiry by Design*' process was followed from the outset. This design methodology was cyclical in nature, allowing changes to take place without the need to start the process again. No data work was disregarded, and information was fed into the process resulting in an integrated design solution to both larger and smaller scale issues. The report of the original Task Team titled "*Final Report on the Establishment of new Universities in the Northern Cape and Mpumalanga Provinces*" ^[7-1] produced in August 2011, was viewed as the point of departure around which the work towards the establishment of a Spatial Development Framework was generated. Ongoing refinement and definition incorporated both regional and local issues and has continued into the latter implementation phases of the project.

7.3. SPATIAL INFORMANTS AND DRIVERS

A central issue was the concerns that should drive the new universities' spatial frameworks. The academic/DHET vision and the spatial directions of the universities were considered to be complementary and synergistic, but equally, spatial issues in their own right had to be taken into account.

Direction was derived from three major directives:

- Interrogating the DHET mission statement for the establishment of the two new universities, in order to explore the spatial implication of the academic mission. The academic mission provided the highest order of direction.
- Identifying the desirable *performance qualities* which universities in South Africa in the 21st Century should be seeking to achieve. Again, these performance qualities had spatial implications which were overtly identified.
- Establishing a comprehensive understanding of the contextual informants. The contextual informants embodied very different properties in accordance with the unique cultural and environmental conditions of the place within which the two

universities were to be established. The *place* was not simply a reflection of the locality but also considered aspects of material substance, shape, topography, environmental character, climate, texture, as well as socio- economic features.

Directive 1: Unfolding vision & mission of the university within the S African context

The visions, missions and values of the two universities were mostly aligned to creating an enabling, vibrant, learning environment, fostering teaching, innovation and research – all in the context of South Africa’s transition to democracy and the need for expanded student access. These goals were tempered and moulded around university specific academic aims, which supported local, national or international goals.

As South Africa’s first new institutions of higher learning since 1994, the planned universities were envisaged as symbols of a new order, of democracy and inclusiveness. A crucial aspiration was that these institutions should be an enduring source of pride, both nationally and provincially and should be able to attract the best academics.

It was envisaged that these new universities would expand the higher education system and provide qualifications in a range of fields for young people wishing to develop high level skills for the economy and for their personal advancement. Both universities had to establish a strong academic hub, drawing on the individuality of each province to develop a unique academic focus and strong main campuses that would support multi campus expansion over time. It was further envisaged that both institutions would be comprehensive universities, each aspiring to be a destination of choice for qualifying school leavers from across South Africa and the continent.

In the 2012 *Development Framework for New Universities in the Northern Cape and Mpumalanga Provinces* ^[7-2] Government highlighted its vision for the new universities:

- a) as *sites of learning and culture* which give expression to democracy and social justice and increase participation in political, social, cultural and economic life;
- b) as *active participants* taking centre stage in addressing the challenges confronting society and playing their role in the context of a *Developmental State*;
- c) as *African universities*, part of a broader network and community of African institutions of higher learning with a long tradition of scholarship, rooted in the African experience, contributing to African knowledge production and generating ideas and insights with global relevance;
- d) as *21st century social institutions* that must develop innovative modalities of governance, funding, teaching and learning, research and civic engagement in order to respond to ever-changing social, cultural, political, environmental and economic demands;
- e) as *relevant leaders of the knowledge economy*, actively engaging communities to produce knowledge for social development and delivering innovation-driven research for commercial and economic advancement.

Directive 2: Spatial Performance Qualities

A great number of stakeholders were approached regarding the desired performance qualities that these two new institutions should embody. Apart from DHET, these included members of the New University Project Steering Committee (PSC), academics at various universities including University of the Witwatersrand, University of Pretoria, University of the

Free State, the Vaal University of Technology and the University of Kwazulu-Natal, municipal officials in Mbombela, Nelspruit and Sol Plaatje, Kimberley. ^[7-3] It was agreed that for the campuses to be sustainable a number of performance qualities should be integrated into the spatial frameworks as set out below.

a) Equity of Access

A concern with equity does not imply that everything should be the same. Rather, equity of access means that all people should be able to access a broadly equivalent set of opportunities. Spatially, equity of access implies commitment to a movement system anchored by the lowest common denominator: people on foot. Spatially, it requires:

- The promotion of principles of universal access;
- A commitment to the promotion of pedestrian, non-motorised transport and public transport over private vehicular movement;
- The promotion of pedestrian priority;
- Developing a non-obtrusive parking strategy.

b) Integration

A number of kinds of integration were considered important.

Integration with the City

Place-based attributes at the urban scale, their role in 'place making' and in the local community, emerged as critical components influencing the development trajectories of both universities. It was soon realised that university and the city could both benefit from spatial integration.

The plan was for the universities to expand within the city context, while attempting to reduce any negative impact on the life of the host city. The spatial design of universities was viewed as an opportunity to create meeting points between the city and university. It was further believed that integration could stimulate economic development, regeneration and growth of the city.

Social Integration

Social integration requires informal gathering and meeting places, which are pleasant public spaces and which celebrate South Africa's cultural diversity, while at the same time promoting a recognisable identity based on tolerance.

Campus Integration

A characteristic of most university campuses is the poor spatial integration of the different campuses making up the university as a whole. The central spatial debate was whether to seek to integrate sub-campus more closely, or to pursue a model of smaller, more self-sufficient, satellite campuses.

Integration and Sport

Sport is a dimension of university life with considerable potential to contribute to social integration, which takes place within the full range of facilities provided, such as a regional competitive sports complex; club facilities and kick-about spaces; that encourage informal and residence-based sport.

c) Dignity

It was highlighted by stakeholders that it should be a basic right of all students to meet in dignified public spaces which are 'owned' by all, regardless of personal circumstances.

d) Safety and Security

There is a wealth of experience to show that spatial design can assist in reducing the incidence of crime and this is discussed further on in this chapter under the sections dealing with each university.

e) Heritage

Most universities have a number of buildings and places of heritage value and these need to be respected. Spatial responses to heritage, which have found relevance at both universities, include:

- The use of new development to frame and celebrate buildings and objects of value;
- Respect for the visual settings of buildings, places and objects of value;

f) Sustainability

Spatial planning was grounded in the conviction that the new universities should play a leadership role in demonstrating sustainable practices. One dimension of this was efficiency of land utilisation. Most existing campuses in South Africa follow a suburban model of individual free-standing objects on large land parcels. It was deemed important to create a much more urban model.

Sustainable practices applied at both universities relate to the following:

- Energy: reduce private vehicular movement and improve energy usage;
- Waste: promote re-cycling of solid waste;
- Water: accommodate storm-water run-off on the surface; use water as a place-making element; practise local water capture and recycle grey water for irrigation;
- Land: Ensure there is no residual or 'left over' space. Where appropriate, ensure strategic, selective infill projects to create a more urban model;
- Architecture: practise principles of green architecture.

g) Place-Making

An important part of creating a sense of spatial uniqueness and identity required an appropriate response to the site, including working with the land; working with water; use of landmarks; and the appropriate use of indigenous vegetation.

h) Flexibility

The challenge was to create campus plans which are strong enough to give clear direction but also flexible enough to accommodate growth and change.

i) Identity and Legibility

The term 'identity' was used to evoke two meanings: the one relates to the physical presence of the university; the second relates to academic identity (the need for relatively clear disciplinary gatherings or clusterings involving cognate disciplines).

Directive 3: Contextual Informants

Both universities enjoy distinct environments, providing specific contextual informants that directly influence the spatial plan of each campus. The distinct environments are also related to the sites selected for each of the universities, with SPU located within the inner city of Kimberley, and UMP on the fringes of Nelspruit in an open agricultural environment.

Both university sites and their contextual informants, are elaborated in the following sections of this chapter.



Fig 7.1: Sol Plaatje University Spatial Framework Study Area.

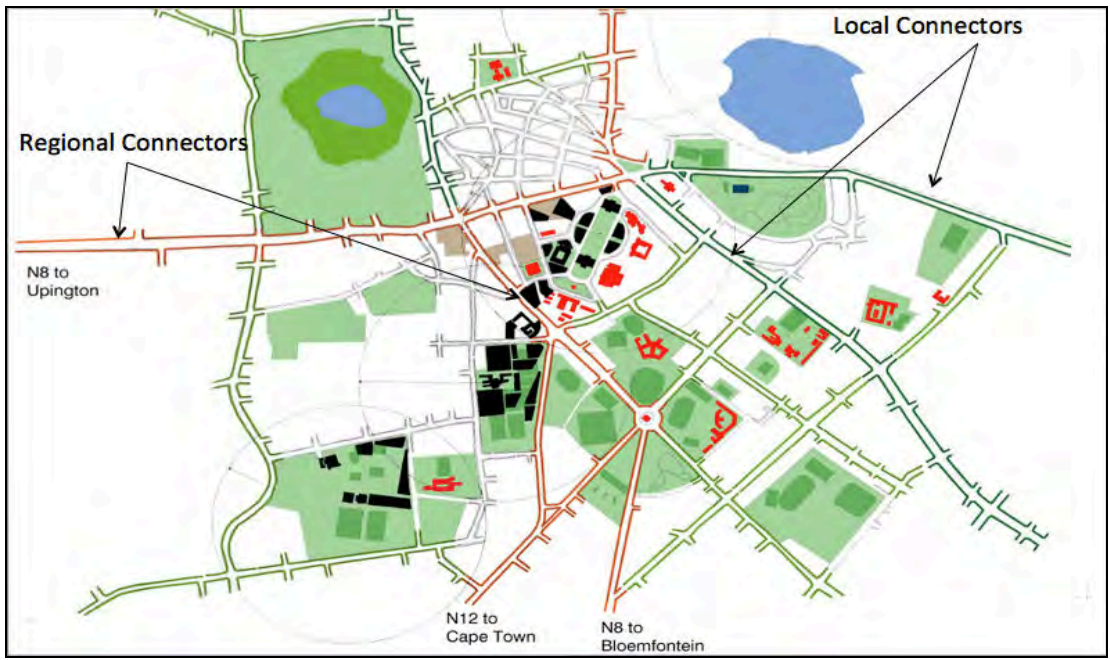


Fig 7.2: SPU Integration with existing movement network, ensuring integration with the local street network.

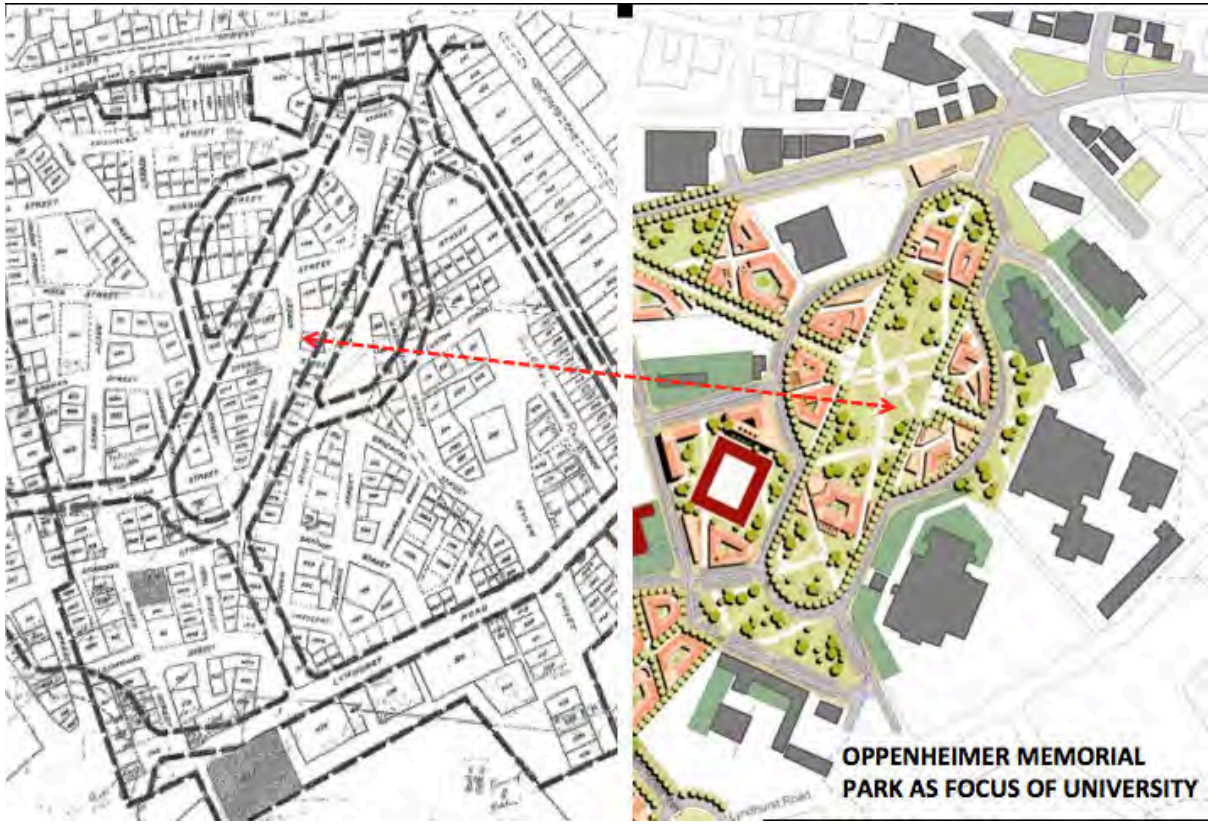


Fig 7.3: SPU Heritage impact and assessment. Oppenheimer Memorial Park setting of the former Malay Camp.



Fig 7.4: SPU changes to the historical William Pescod School. Entrance changed to allow access through to the Central Campus.

7.4. SOL PLAATJE UNIVERSITY - DESIGN AND DEVELOPMENT FRAMEWORK

Several primary elements of structure and place have informed the design and development framework for the Sol Plaatje University (SPU). These are described below,

a) Location within the City (Fig 7.1)

Sol Plaatje University is situated in the inner city of Kimberley. Two points emerge from this. The first is that the campus is centrally located, but its sub-parts are not integrated to the same degree. The iconic section around the Oppenheimer Memorial Park and the Central Campus are effectively part of the inner city and the historic core of Kimberley. The southern portion of the campus at Hoffe Park, now defined as the South Campus, is located within a residential neighbourhood, surrounded by sport amenities and schools. The second notable aspect is that the three campus land holdings are only weakly and indirectly linked to one another.

b) Regional Movement Network

In terms of movement, the highest order routes are mainly vehicular-orientated, and cross through the inner city. These routes cause the campus to split, which makes internal integration a challenge. The partial closure of Bultfontein Road, due to sagging caused by the Big Hole, has increased the traffic along Lennox and Du Toitspan Road, both important campus feeder routes.

The train station is within walking distance of the university campus, but the pedestrian link is

poor, requiring students to cross extremely busy vehicular roads. Minibus taxi operators gather at the Market Street Taxi Rank, behind the historical City Hall. The rank is less than 400 metres from the Oppenheimer Memorial Park. The Kimberley Airport is less than 10km away on the N8 to Bloemfontein. No public transport service links the city to the airport. Few non-motorised initiatives have been implemented by the Sol Plaatje Municipality.

c) Local Network (Fig 7.2)

All modes of transport, and movement routes cross and meet to the north east of the university campus. The city is dominated by vehicular movement routes, and very little has been done to accommodate non-vehicular movement and pedestrians.

Heavy vehicular traffic is experienced along Bultfontein and Lennox Streets, which requires detailed traffic assessment. In terms of pedestrian movement, too, the structure is not particularly legible. The link from the Oppenheimer Memorial Park to the historical city centre is across Lennox Street, a heavily used vehicular route. A potentially dangerous conflict between pedestrians and vehicles exists at the crossing with Bultfontein Road, to link the Oppenheimer Memorial Park and the Central Campus.

Public transport routes currently follow the national routes and do not enter into the finer grained neighbourhoods. The planned cycle routes also follow the same pattern.

d) Topography

The city is extremely flat with no natural features to orientate the visitor. The most striking topographical feature of the city are the man-made indentations in search of diamonds and the waste material mounds that surround them.

The uniform topography has had negative implications for water run-off and bulk service provision. Together with the shallow rock formations, this has had significant cost implications during construction. The shallow rock found across the site also precluded the provision of basements for both services and parking.

e) Green Structure

The university campus includes much green and open space, in the form of sport fields and public parks. A variety of green spaces also occur on the edges of the campus, particularly to the south, west and east. The highest order natural feature is the Oppenheimer Memorial Park, which will mark the iconic seat of the new university campus. The park is well established, has a variety of significant landscape features and is historically important.

The Central Campus and South Campus (Hoffe Park) consist of a significant number of sport and recreation venues. Large parts of the former Transnet Hoffe Park were underutilised. The surrounding streets are lined with fully-grown trees contributing to a leafy pleasant atmosphere.

f) Heritage

Issues of heritage constitute an important layer of informants on the Inner City campus complex. Expert interpretation of heritage resources and their spatial implications was undertaken by GXY Architects.

The Oppenheimer Memorial Park was identified as the element within the campus with the greatest heritage significance. The park also contains memorials of Sol Plaatje and Ernest Oppenheimer, and the former Malay Camp. The park and the surrounding buildings have

been constructed on the former Malay Camp. All references to the former camp were consciously erased in the redevelopment of the Oppenheimer Memorial Park in the 1960s. The university, with agreement from the Sol Plaatje Municipality, will commemorate the former Malay Camp in the design of the Northern Campus. (Fig 7.3)

The second element of heritage significance was the former William Pescod School, which was the school serving the former Malay Camp. Its adaptation to university usage involved the submission of a heritage report to the Northern Cape Heritage Association. Only a few minor changes were proposed to this heritage building. The most significant change was the opening of the Gable on the east façade facing onto Bultfontein Road. The opening of the façade allowed the free flow of student and visitors walking from the North Campus to the Central Campus. (Fig 7.4)

Significant buildings not specifically covered by the National Heritage Resources Act included the former Provincial Government Building, now renamed Luka Jantjie House, and the Community Hall on the South Campus. Care is being taken not to destroy their original character.

7.5. SPU: SPATIAL CONCEPT AND MAIN IDEAS

A number of main ideas underpin the concept for the Sol Plaatje University Campus.

PRINCIPLE 1: Promote Integration

The framework promotes the principle that the most successful urban environments are those that have the best global integration and strong interaction with surrounding communities.

a) Integration with the City

If the university is to be of its place, integration with the city is deemed to be of great significance. From the beginning of the discussions with stakeholders and the municipality, it was emphasised that the plan for the Sol Plaatje University should be the plan of the city, and the plan for the city should be the plan of the university. This implied that the new campus footprint ingrains itself into the city fabric. A number of spatial ideas were introduced to contribute to this:

- Share university activities with the public, on a controlled basis;
- Insert and extend the city grid into the campus;
- Encourage programmes which engage with the city (outreach, research, public displays and broader-scale interventions, such as sport and recreation programmes);
- Establish places of public display; and
- Create places and squares for social exchange, where the city and the university can meet.

b) Integration with City Movement Structure

The campus is located at the junction of two national roads, the N8 linking Upington and Bloemfontein and the N12 Gauteng Cape Town Route. These major roads allow maximum accessibility, but also fracture the campus, creating barriers for pedestrians to cross over. The speed and volume of traffic at crossing points has demanded special attention to ensure safe movement for all campus users.

The Sol Plaatje University Campus was planned as an addition to the current urban grain of Kimberley. The plan does not block movement through the city nor create an island within the city fabric. The existing city structure is merely extended, and the plan for the university aims to enhance flow through it by adding an additional patina of routes and streets.

c) Integration of Modes of Movement

The integration of all modes of movement was deemed essential for efficient public transport and non-motorised transport. Ideas that were tested included:

- Extending the current public bus system which only operates on the National roads traversing the city. The plan and discussion with the municipality aimed to extend the public transport routes to include the South Campus (Hoffe Park);
- A shared Public Transport Hub was originally planned in Lyndhurst Road on the property behind the Northern Cape High Court. The plan was to provide a space location that will serve the needs of both city bus and taxi operators. The facility would offer students places to embark and wait within a secure environment. This plan was altered after the Northern Cape High Court indicated that it would use the property for future expansion. A new site to the west of the Sol Plaatje Municipality was earmarked to fulfil the same role. A second smaller public transport hub is proposed along Reservoir Road;
- Joint city-university non-motorised transport projects were also discussed with the municipality. A proposal was put forward for the extension of a citywide cycle network incorporating the campus;
- A comprehensive parking strategy was proposed to minimise the on-campus parking.

d) Social Integration

Encouraging informal gathering and meeting is central to the spatial plan of the university. Opportunities for meeting and exchange were promoted by planning the campus around a variety of common and shared spaces. These include the 'University Walk', the Central Campus Square, parks, spaces gardens and recreation spaces.

e) Integration of Sport and Recreation Amenities

The plan realised that sport and recreation is a dimension of university life with considerable potential to contribute to social integration. The central spatial issue was the range of facilities to be provided.

The city of Kimberley was already blessed with a variety of quality sport and recreation amenities. Instead of providing for its own use only, the university plan aimed to share and enhance the current sport and recreation offerings of the city. The university plan aimed to contribute significantly to the upkeep and maintenance of existing facilities over and above providing for additional sport amenities.

Investigations undertaken together with the city focused on which sport and recreation amenities were lacking and identified the additional need for a regional competitive sports complex; competitive club facilities, astro-turf hockey fields and kick-about spaces; particularly in close association with residences, to encourage informal and residence-based sport. These were mostly planned, and are being implemented, on the South Campus.

PRINCIPLE 2: Equity of Access

The plan for the university emphasised equity as a high spatial priority. It implies that all students, staff and visitors should have the opportunity to access a broadly equivalent set of opportunities. Spatially, equity of access implies commitment to a movement system anchored by the lowest common denominator: people on foot.

Therefore, the plan required:

- The promotion of principles of universal access, supporting people with disabilities;
- A commitment to the promotion of pedestrian, non-motorised transport and public transport over private vehicular movement;
- The promotion of pedestrian priority; and the
- Development of a non-obtrusive parking strategy.

a) Permeability

Central to the principle of equity of access, was spatial permeability, particularly pedestrian permeability. Since most internal university movement was planned to be on foot, the ability to move easily in all directions fundamentally affected the convenience of campus users.

Of note was the fact that the university campus was not planned to be closed off to the general public, and entry points to the campus were established via extensions of the existing street pattern.

b) Balanced Movement Network and Pedestrian Dominance (Fig 7.5)

Clear hierarchies of movement were important dimensions of legibility for the spatial framework. The Kimberley Inner City is well served by regional and local connectors, which provide ample connections for vehicular traffic. This focus on vehicular traffic has resulted in a fractured urban area, with poor pedestrian links between various sub-campuses. Non-vehicular traffic was also poorly represented in the city-planning scheme.

The spatial plan envisages improved links between the various campus portions by catering for a broader spectrum of urban users. A new network of streets, that promotes predominantly pedestrian and public transport, was placed over the existing city grid, thus creating a more complete street pattern. The plan for the new university improved the movement network by:

- Extending the existing street pattern into the campus;
- Differentiating between pedestrian, non-motorised and vehicular routes;
- Establishing a new student walk that is planned around pedestrians and cyclists;
- Vehicular traffic was to be pushed to the edges, in order to promote pedestrian dominance.

To encourage pedestrian traffic, streets were provided with:

- Safe street crossing points at Bultfontein Road and Scanlan Street;
- Crossing points which are visually prominent;
- Elements that reduce vehicle speeds; and
- Pavement apparatus that supports handicapped pedestrians.

PRINCIPLE 3: Promote Identity

The term 'identity' was used to evoke two meanings: the one related to the physical presence of the university within the inner city of Kimberley; the second related to academic identity of the Sol Plaatje University. Whilst the integration of the university with its city and surrounding community was a primary objective, it has also been important to ensure the visual identity and presence of the university within the city.

a) University Walk (Fig 7.6)

To ensure identity, orientation and legibility of the university, a prominent route was introduced that links the various campuses via a series of parks, common spaces and squares. This route is planned to be immediately recognisable and distinct as the 'University Walk' by way of its landscaping, urban furniture, signage and lighting. It is anticipated that over time, this walk become the most active campus space.

Visitors crossing, or using, the University Walk' will immediately be aware that they have entered into the domain of the new university. The route is planned to become a place of attraction where people meet and exchange - a junction between the city and the university.

b) Place Making

A primary focus of the plan for the university was the principle of place-making: the creation of a sense of spatial uniqueness and identity. The spatial implication of this included working with the land; working with water; the use of landmarks and the appropriate use of indigenous vegetation.

Equally important for the plan was to ensure that the campus is identifiable as a distinctly African university and this has required the involvement of the community in respect to issues such as:

- Locally based craftsmanship and technology;
- Materials with different textures and colours that are found in the local environment and which enhance diversity in the buildings;
- Climatic controls and responses that ensure maximum environmental performance and bring associative, cultural and historic reference to the architecture;
- Arts and crafts involving as broad a spectrum of people as possible;
- The choice of vegetation, landscape structuring elements, storm-water channels, lighting and signage, which all contribute to achieving a greater sense of place.

These requirements formed an important part of the architectural competition as well as the basis for broader discussion with stakeholders and specialist groups.

c) Gateways Spaces, Landmarks and Legibility (Fig 7.7)

The plan of the university has aimed to establish awareness of physical patterns of use by emphasising the method and route a visitor to the campus would follow. The plan introduced a hierarchical order via gateways, public space and landmarks to identify the university and to orientate the visitor. The spatial framework realigned the urban fabric to those elements, which deserve celebration and which can act as features to identify the campus including:

- A new traffic circle with a memorial structure at the intersection of Bultfontein, Bishops and Lyndhurst Roads;
- Landmark structures to act as gateways along the 'University Walk';

- The Library as focal point of the Central Campus – A ‘Lantern of Knowledge’;
- Public open spaces, squares and parks along dominant movement routes;
- The introduction of landmark structures on building corners to strengthen important vistas and axes;
- A distinct language for campus urban furniture, lighting, benches and signage, which further enhances legibility and a sense of orientation;
- A distinct surface treatment of the pavements within the university campus;
- An increased quality and quantity of night light within the university campus.

PRINCIPLE 4: Dignity: Creating a Network of Shared Spaces (Fig 7.8 and 7.9)

a) Linking with the City Green Structure

The university plan aimed to strengthen and integrate with the substantial green areas within the inner city of Kimberley. These include the Botanical Gardens, the sport and recreation areas of Kimberley Boys and Diamantveld High Schools, the Karin Muir Swimming Pool, the McGregor Museum and the Memorial Park. Greater integration of these city spaces with the university required the municipality to upgrade a number of streets that lead to these amenities.

b) Landscape of Possibilities

A fundamental principle of the university plan was to create common spaces for students, staff and residents to gather, places that ensure a sense of place. A variety of shared spaces were proposed, which spatially emphasised the creation of dignified places for informal meeting. The new buildings for the university were used to define the various gathering spaces. The plan also emphasised landscaping of different types to create shade and shelter in these spaces.

A variety of shared spaces were proposed, which are positioned at various intervals along the ‘University Walk’ and include the following:

- Focal squares, for example the Central Campus Square;
- Public parks;
- Intimate and protected gardens at the heart of the William Pescod building;
- Sport fields at the Central Campus and the South Campus.

c) Oppenheimer Memorial Park

One of the highest order public spaces was identified in the Oppenheimer Memorial Park, which forms the iconic heart of the new university. The space is of historical significance and has been planned with care. Six new land parcels have been demarcated in the park, which will house both academic and administrative buildings. Four of the land parcels are placed on the outer wings of the park, and two at the northern and southern end facing the Miner’s Memorial.

The plan, in consultation with the Sol Plaatje Municipality, will close part of the Jan Smuts Boulevard ring road around the park, thereby increasing the size of the park. Importantly, the park will remain fully accessible to the public.

The university plan also proposes that the park be redesigned to commemorate the former

Malay Camp, which used to be located there. It is envisaged that the street pattern of the former Malay settlement will be reflected in the park layout and new university buildings. This will be done without materially affecting the existing memorials and landscaping.

d) Public Space Edge Consolidation

The quality of common space is influenced as much by the activities surrounding and facing onto it, as by the quality of the amenities it offers within. The plan recognised that an important underlying characteristic of good public space is that it must have definition, boundaries (usually buildings) that clearly communicate the edges. Further, the plan aimed to distinguish clearly between common and private environments. It required the development of building typologies that define the degree of enclosure, privacy and definition of the open spaces within the campus.

The spatial framework introduced the perimeter block typology as building block for the university buildings. Perimeter blocks have various advantages over the more typical pavilion type buildings found in our cities – in particular they ensure an active street edge and ‘eyes on the street’, therefore contributing to a safer urban environment.

e) Active Public Space Edges

The plan understood that successful public open space is not dependent on definition alone. The activity along the public face was deemed as equally important. The plan defined building edges that house activities which benefit from interaction with the public and contribute to the life in the campus street or square. The most publicly accessible activities are placed along the squares and the ‘University Walk’ and include coffee shops and student amenities as well as publicly accessible university buildings.

f) Safety and Security

Spatial design factors aimed at reducing the propensity for crime include: creating a clear hierarchy of pedestrian and bicycle networks; good lighting associated with this hierarchy; the promotion of surveillance or ‘eyes over space’; the removal of dead-edges; the removal of cluttering vegetation; and the use of security devices such as cameras along major pedestrian passages.

Management of the various security thresholds on campus remains a challenge.

PRINCIPLE 5: Variety of Use and Form (Fig 7.10)

Development of the plan was based on the understanding that a diverse experience requires a place with varied forms, uses and meaning. The introduction of a greater mixture of uses unlocked additional levels of variety.

a) Campus Functional Layout

The plan of the university identified three sub-campuses with varying functions attached:

- The North Campus was planned as the iconic heart of the university and will house predominantly administrative functions, academic lecture venues, academic offices and shared facilities such as a library.
- The Central Campus accommodates the greatest variety of uses, and accommodates the broadest spectrum of university functions. In addition to

academic and administrative uses, it also incorporates residences, sport and recreation amenities.

- The South Campus will predominantly be used for residential accommodation and sport related activities. Limited academic facilities are envisaged.

b) Adopting a Hierarchy of relative Privacy

The university campus is an integral part of the city and the plan has had to address the requirements for privacy and security differently from traditional universities, which have defined borders and edges. All university activities can be characterised by the extent to which they are private or open to the public. The more publicly open activities have been positioned along the University Walk and around public/common squares.

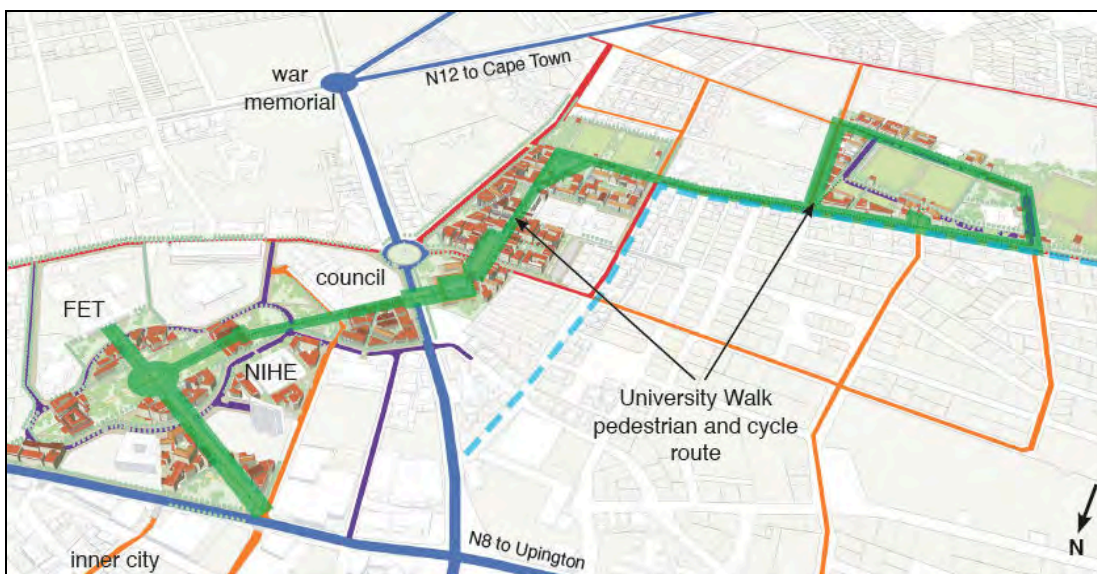


Fig 7.5: SPU Ensuring a Balanced Movement Pattern integrated with the city movement structure.

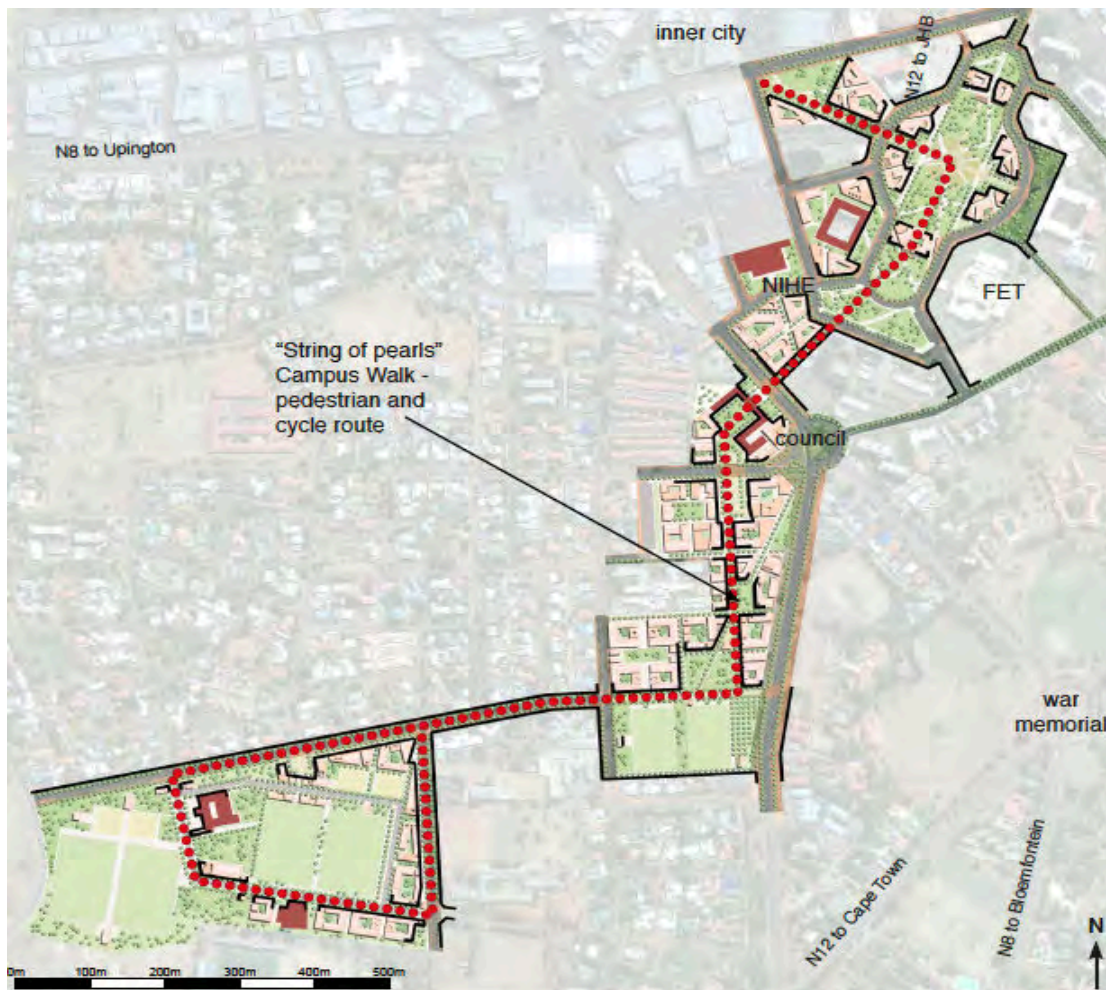


Fig 7.6: SPU Establishing a University Walk, along which pedestrian and non-motorised movement links the three sub-campuses. Along it all the important common spaces are located.

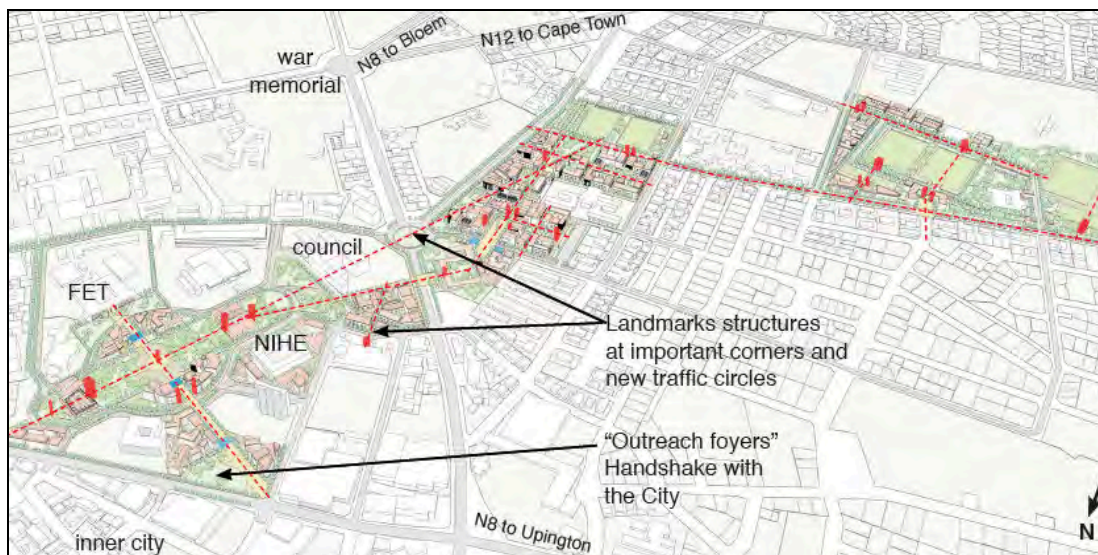


Fig 7.7: SPU Establishing Landmark structures along axis and vistas to increase legibility and orientation.



Fig 7.8: SPU The focus on the quality of open common spaces

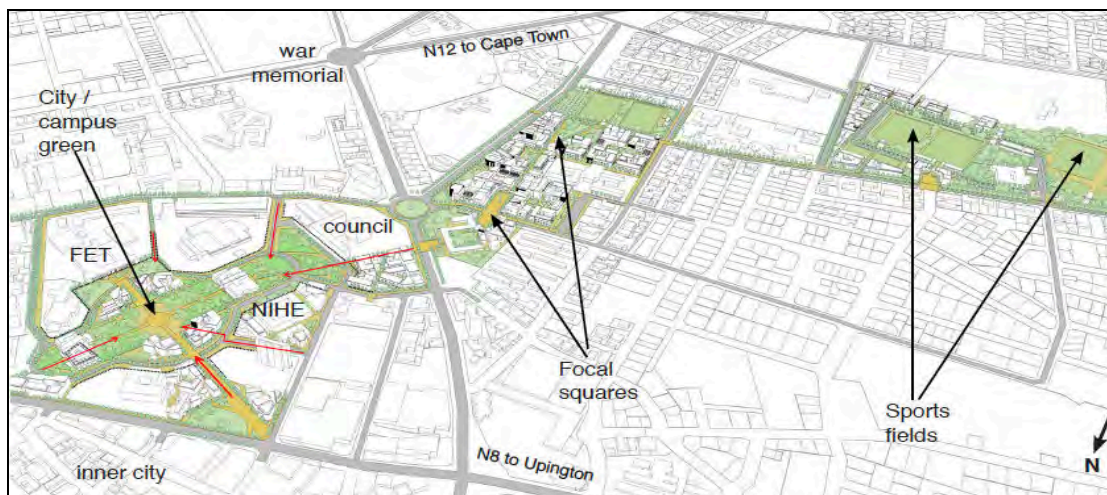


Fig 7.9: SPU A network of Common open spaces

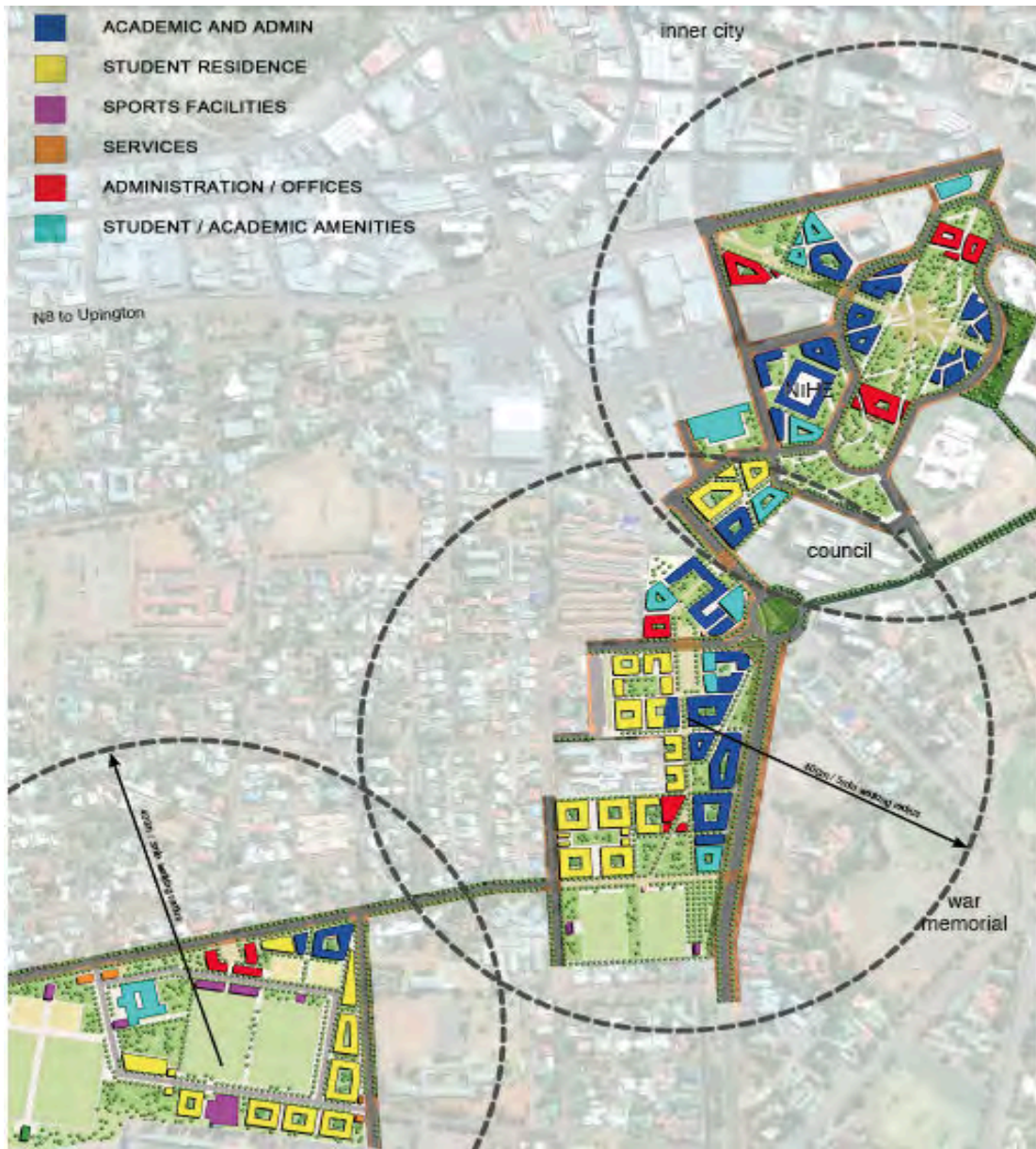


Fig 7.10: SPU Integrated land-uses mixed across the extend of the campus.



Fig 7.11: SPU Overall Spatial Vision



Fig 7.12: 3-Dimensional visualisation of the SPU Spatial Vision



Fig.7.13: Physical Model of the Spatial Framework displayed in the William Humphrey Gallery, Kimberley.

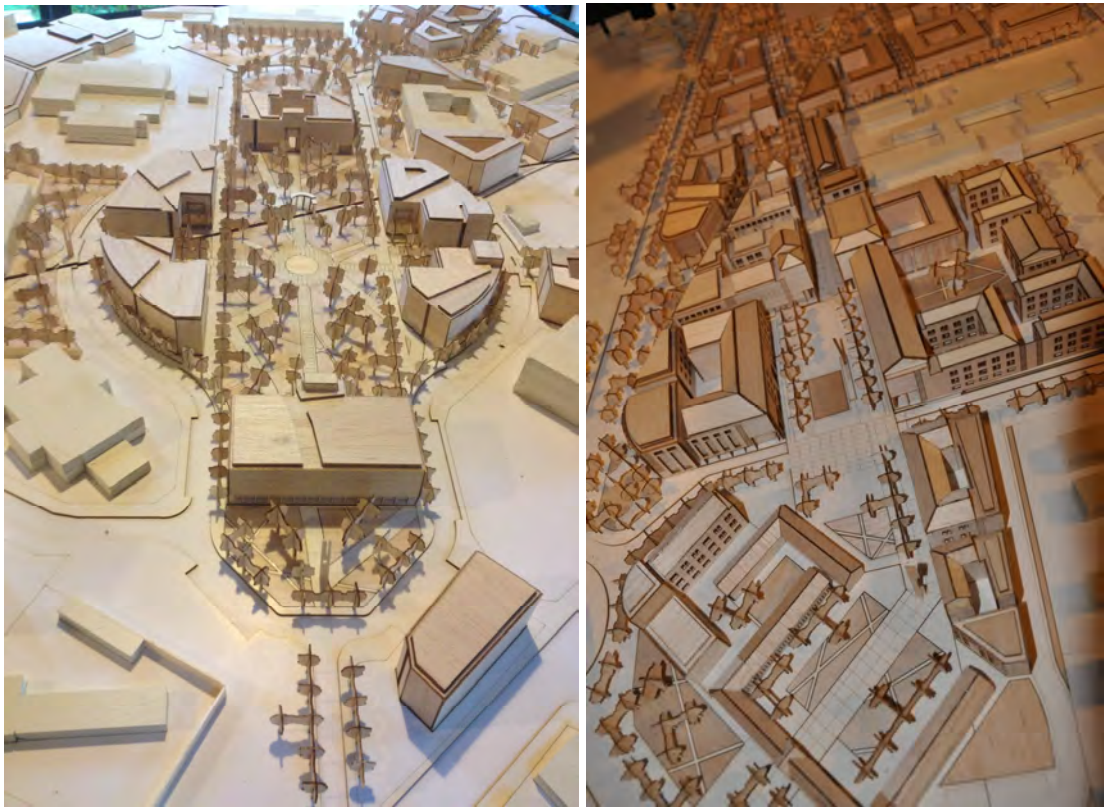


Fig 7.14: Detail of the Northern Campus of the SPU Model.

PRINCIPLE 6: Efficiency and Sustainability

Development of the spatial framework for the university needed to demonstrate leadership in sustainable practices. One dimension of this was the efficiency of land utilisation. Existing campuses in South Africa tend to follow a suburban model of individual freestanding objects on large land parcels. Planning for the Sol Plaatje University aimed to create a denser, more urban model.

The framework also aimed to demonstrate best practice in terms of a broad spectrum of environmental and sustainability aspects including:

- Regarding land as a scarce resource not to be wasted;
- Designing spaces to ensure thermal comfort by maximising passive heating and cooling;
- Providing water management strategies;
- Providing integrated recycling and waste management strategies;
- Maximising opportunity for rainwater harvesting and grey water applications;
- Understanding and designing for the different energy use requirements of buildings;
- Investigating energy saving options and potential for renewable energy resources;
- Engaging with the city to maximise opportunities for long-term sustainability.

PRINCIPLE 7: Flexibility in Phasing and Implementation Strategies

An underlying principle of the implementation strategy was to create a completed portion of the campus and a corresponding sense of identity from the start. Most large-scale developments have an ad hoc approach, with the final vision only apparent when the whole project is complete. The intention at SPU was to establish a microcosm of the completed New University Campus from day one. In this context the first phase aimed to create a complete piece of the campus around the Central Campus Square, the William Pescod Courtyard and the beginnings of the 'University Walk'.

It is envisaged that further phases will take the same course and extend the completed campus fabric over time.

7.6. UNIVERSITY OF MPUMALANGA - DESIGN AND DEVELOPMENT FRAMEWORK

Several primary elements of structure and place have informed the design and development framework for the University of Mpumalanga. These are described below.

a) Location within its context (Fig 7.15)

A number of regional aspects have influenced the UMP spatial framework. These include the following:

- The campus is located on the edge of the current urban development area of Nelspruit and is still within the agricultural hinterland;
- The campus is strategically positioned at the crossing of two major development corridors. These are the R40, which links Nelspruit with White River, Hazyview and Bushbuckridge, and the N4 Development Corridor which connects Gauteng with Mozambique. The strategic location of the site implies that development will in future envelop the new university site;

- The location of the campus on the urban edge would place significant strain on the provision of bulk infrastructure and services to the site;
- The location is of iconic importance, sharing the stage with the Mpumalanga Legislature.

b) Regional Network (Fig 7.16)

Nelspruit is well served with a regional and local movement network, with both national and provincial roads leading past the site to the city and surrounding towns.

The city is also well served by a rail network, and has an international airport, which is 25km north-east of the city. The R40 and D725 serve as connection to the airport past the new university site. The regional BRT Network is planned to pass the university campus on the D725.

c) Local Network

The chosen university site, although well connected regionally, suffers from poor local connectivity. Only the D725, a district road, offers access to the university campus. The greatest challenge from the beginning of the planning process, was with the connection of the D725 and the R40 route. The intersection is currently not controlled and, given the high traffic volumes on the R40, this makes it a dangerous intersection.

Apart from some roads around the former Lowveld College of Agriculture, all internal streets were farm tracks. Access to the site was at the main entrance to the former Lowveld College of Agriculture, now referred to as the Mbombela Lower Campus. A further service entrance, on the southwestern corner of the Boschrand Farm off the D725, provides access to the Hill Campus and was used as construction access during the first phases of implementation.

d) Topography (Fig 7.17)

The bulk of the 240Ha university site has a slightly undulating topography with a distinct rock outcrop and steeper hills on its northern border. The landfall is a relatively gentle slope from north to south. A stream through the centre of the Boschrand Farm portion of the site folds the contours inwards, turning the orientation slightly in an east-west direction

The gentle slope has had three major implications for the plan of the university: it opened the possibility of terracing and the creation of building platforms which allow different levels of access; it suggested the possibility of an easy east-west movement pattern along the contour; and it ensured that the university enjoys superb long views south towards Nelspruit.

e) Green Structure

The campus forms part of an extensive range of green spaces with a number of important natural features. Three natural features were deemed of considerable significance ecologically:

- The first is the extensive riverine corridor of the Nels River, which joins the Crocodile River downstream in the Botanical Gardens;
- The second consists of the prominent rock outcrops and ridges that shape the northern and western edges of the site;
- The third feature is a stream creating a wide wetland running north to south and splitting the Boschrand Farm property into two distinct pieces, with an agricultural dam as its source.

The university is custodian to very sensitive and environmentally valuable land. Most of the natural features occur on the steeper slopes, rocky outcrops and around the watercourses. Not all of the green fabric surveyed was natural, as a large proportion of the site was used for orchards and annual crops. The orchards have an average lifespan of 30 years and had to be considered in the overall layout of the campus.

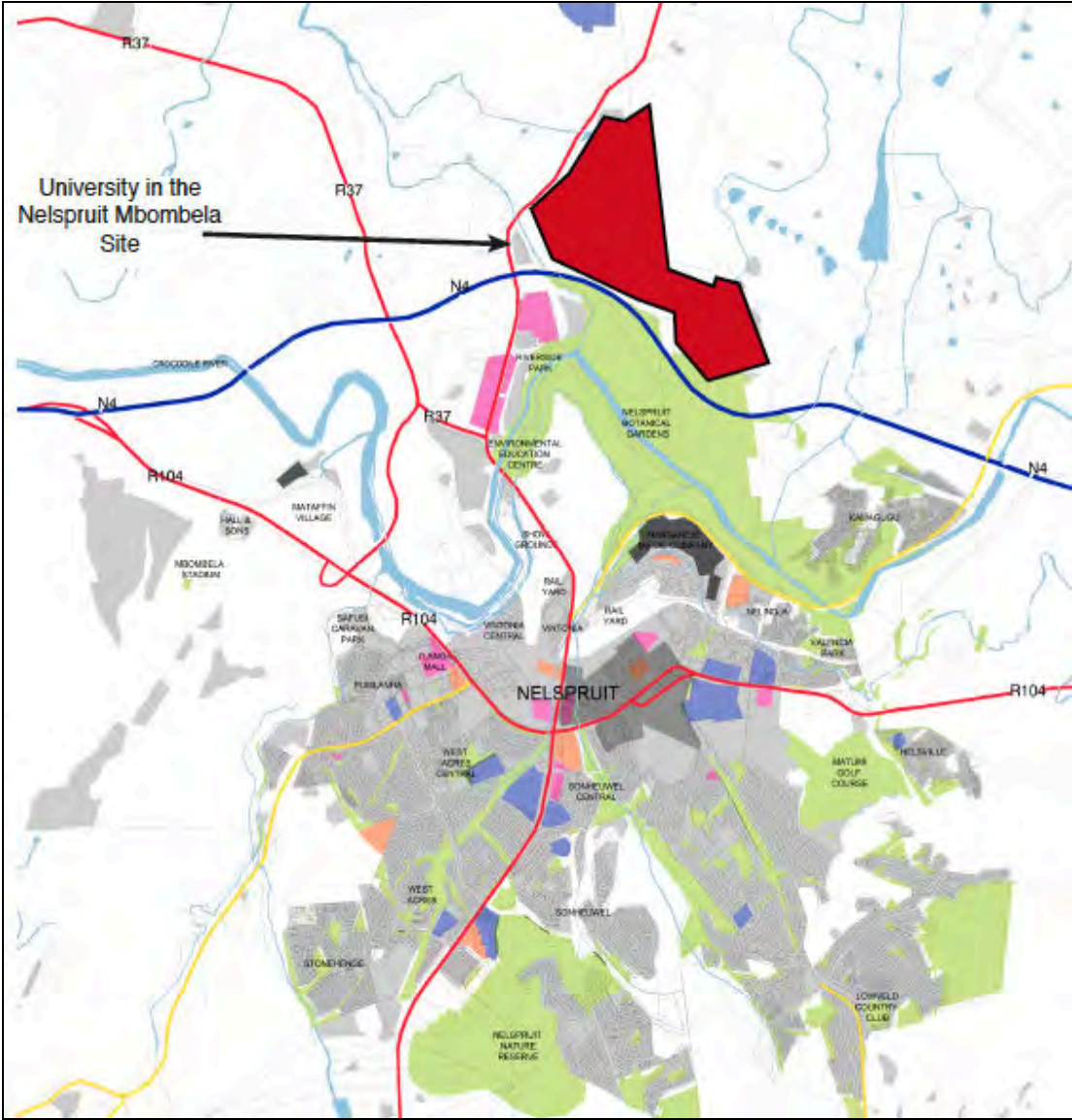


Fig 7.15: University of Mpumalanga Context and Regional connections.

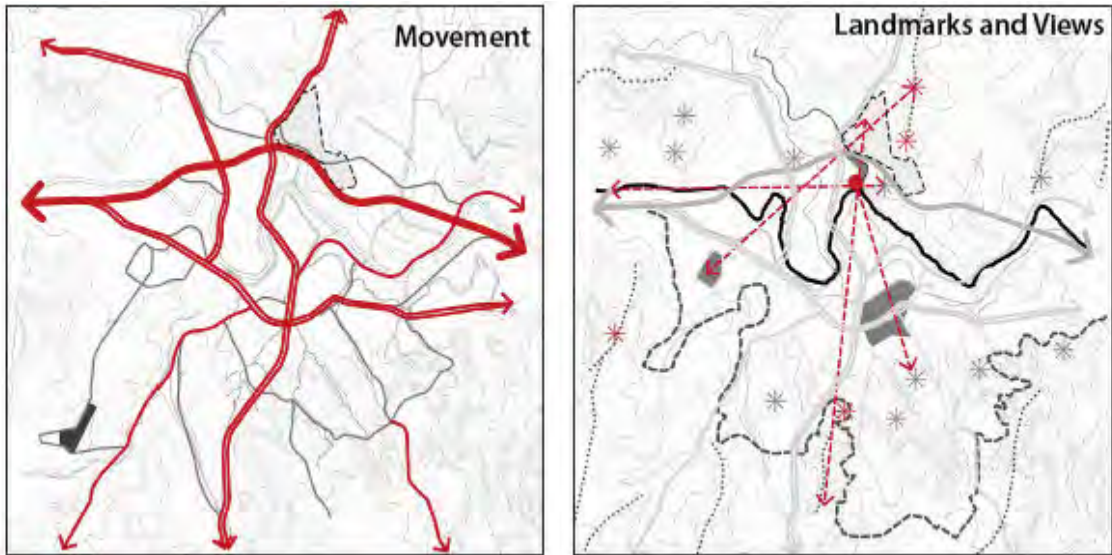


Fig 7.16: UMP Site Informants: Movement, Landmarks and Views.

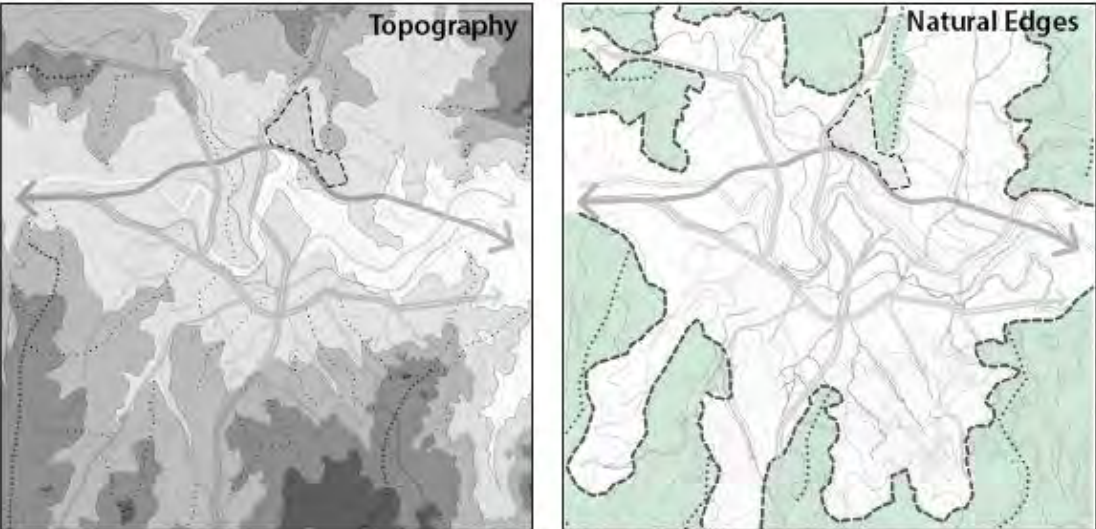


Fig 7.17: UMP Site Informants: Topography and Natural Edges.

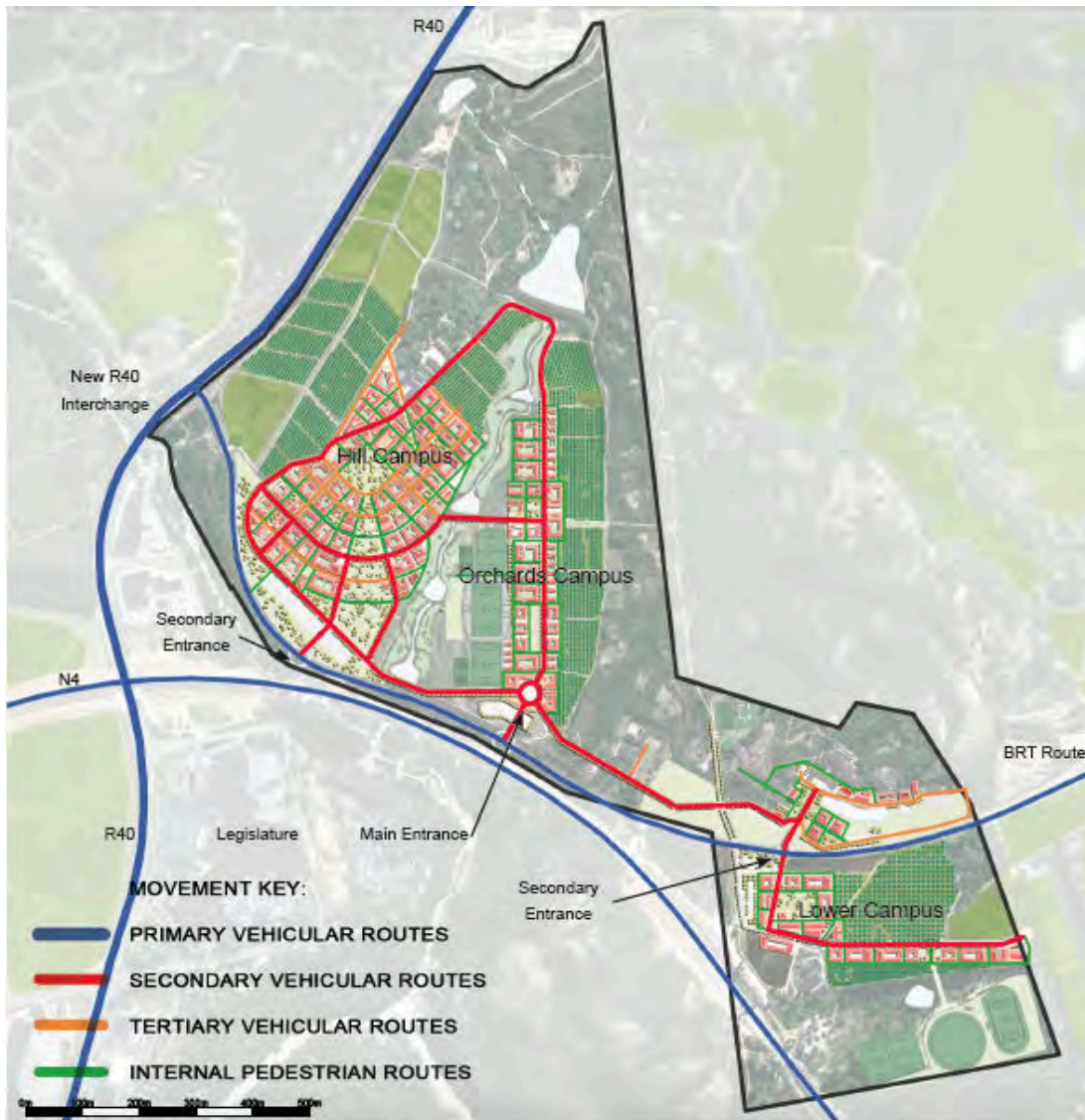


Fig.7.18: UMP Internal Campus Street Network based on the existing farm roads and contours .

f) Land use

The surrounding development patterns are influenced by the R40 Development Corridor. Campus planning took cognisance of the fact that development pressure on properties facing the R40 will gather momentum and will impact the future development of the university. The Infrastructure Development Plan (IDP) of Mbombela Municipality has been adjusted to change the zoning of the site for the new university from agriculture to educational. The land east of the campus is intensively cultivated agricultural land, and according to the District Municipality will remain agricultural.

Planning of the Development Framework foresaw that Nelspruit will continue growing at a rapid pace and that eventually the university site will be absorbed into the urban fabric.

7.7. UMP: SPATIAL CONCEPT AND MAIN IDEAS

The nature of the site for the University of Mpumalanga is distinct and critically informs the spatial concept for the campus. The natural landscape, agricultural fields, undulating topography, waterways and vistas demanded a place specific approach to the Design and Development Framework.

A number of main ideas underpin the concept for the UMP Mbombela Campus.

PRINCIPLE 1: Making Connections

a) Connections with the surrounding context and the City

The plan for the university campus placed great emphasis on integration and strong interaction with surrounding communities. The long-term sustainability of the university depends on physical accessibility, appropriate connections and links to various locations. The connections that required specific attention include:

- Connections with Regional and Local movement corridors by providing ease of access onto the R40;
- Integration with public transport routes and initiatives by introducing a number of public transport stops along the D725;
- Provision of safe waiting areas for students and visitors at the entrance to the university campus;
- Pedestrian links to surrounding amenities; and
- Integration and promotion of a non-motorised system on and off the campus.

b) Regional and local movement network (Fig 7.18)

The university campus enjoys very good regional vehicular connections as it is located at the intersection of the R40 and N4 routes. The transfer of movement from the regional movement system to the local streets is extremely poor. A number of issues to improve regional and local connectivity have been proposed:

- The junction of the D725 district road with the R40 required substantial upgrading to ensure that it can accommodate the expected increase of future traffic and address traffic safety concerns. After various meetings and continuous pressure on the

Provincial and Local Authorities by the DHET, NUPMT and the university, an implementation strategy and programme was agreed. The construction of a raised intersection commenced in June 2017;

- No public transport stops were provided for along the D725. For the campus to be properly integrated with its surrounds, the public transport routes had to be extended to include the D725, with sufficient drop-off zones;
- The upgrade of the D725 needed to include pedestrian walkways and cycle lanes;
- A pedestrian link is required between the university and the Riverside Mall across the N4 and Nels River;
- Three substantial traffic circles are planned on the D725 to allow proper access to the university site. These circles become important entrance markers, and provide opportunity to celebrate the university.

c) Campus Access

Three points of access were proposed for the university campus. A central new traffic circle would lead to the main entrance gate of the university. This entrance provides sufficient space for student drop-off, public transport stops and ranking for visitors accessing the university.

Two further points of access were planned, one close to the R40 interchange and the second at the existing entrance to the former Lowveld College of Agriculture, now the UMP Lower Campus. At the existing Lower Campus entrance gate, upgrades have already been implemented. These include widening of the roadway, creation of bus stops and waiting shelters and the introduction of traffic calming measures.

PRINCIPLE 2: Establishing a Balanced Movement Network

The plan for the university campus aims to create a balanced movement network addressing the needs of all university users, visitors and residents in terms of both vehicular and non-vehicular movement.

a) An Integrated Network of Streets

An integrated network or grid of streets provides the most flexible use, facilitates ease of movement, provides for a variety of routes and increases legibility. The integrated street plan avoids cul-de-sacs and dead corners on campus. The planned grid of streets enables the following:

- It is legible and easily understood;
- It becomes part of the a network of common and shared open spaces;
- It allows for a variety of land parcels, therefore flexibility of building sizes and academic uses;
- It allows for a structured hierarchy of streets.

b) Hierarchy of Streets

As a working farm, the site displayed a distinct land use pattern that responds with a clear underlying logic to the topography, water runoffs and orientation. The original location of farm roads, fields and buildings was carefully considered. The new campus plan was viewed as an extension and formalisation of the former farm tracks, fields and routes. Thus farm tracks became primary movement routes, the weir crossing the stream became a bridge, and agricultural land parcel sites were converted to development parcels for buildings.

The movement pattern and hierarchy of roads followed three informants:

- The existing farm tracks were formalised to become the primary movement routes to link the different sub-campus areas. These roads are mostly located on the periphery of the built-up area, and serve as primary access routes;
- The topography of the land informed the secondary layer of movement. These streets follow the natural flow of the contours and they serve mostly low levels of traffic, pedestrians and cyclists. They are mostly internal streets, of smaller scale, lined with street trees, with distinct urban furniture and lighting;
- The last layer of movement was focused on the pedestrian. A network of intimate walkways is placed over the campus, which link together functions, spaces and places.

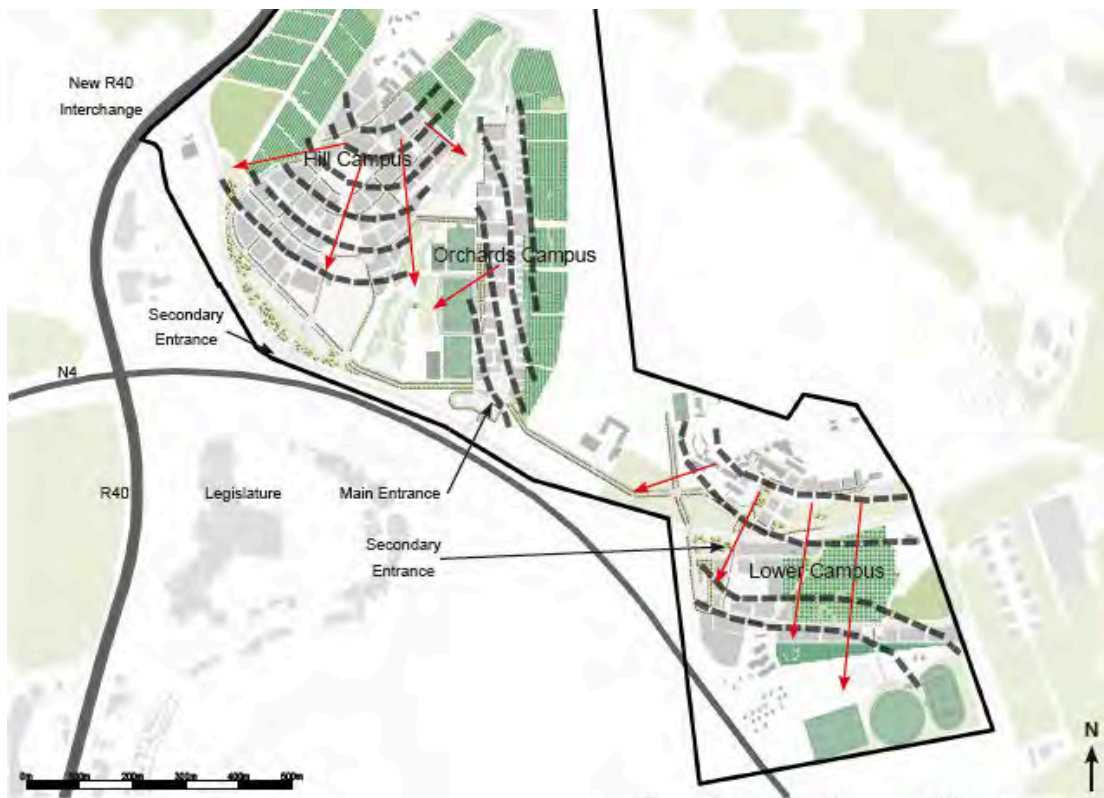


Fig 7.19: UMP Internal Campus Street follow contours. Buildings orientated along contours to ensure minimum cut-and-fill.



Fig 7.20: UMP Designing a variety of common spaces: squares, parks and sport fields



Fig 7.21: UMP Containing and limiting the development of the university campus to avoid destroying arable land and natural bush, veld and rock outcrops.

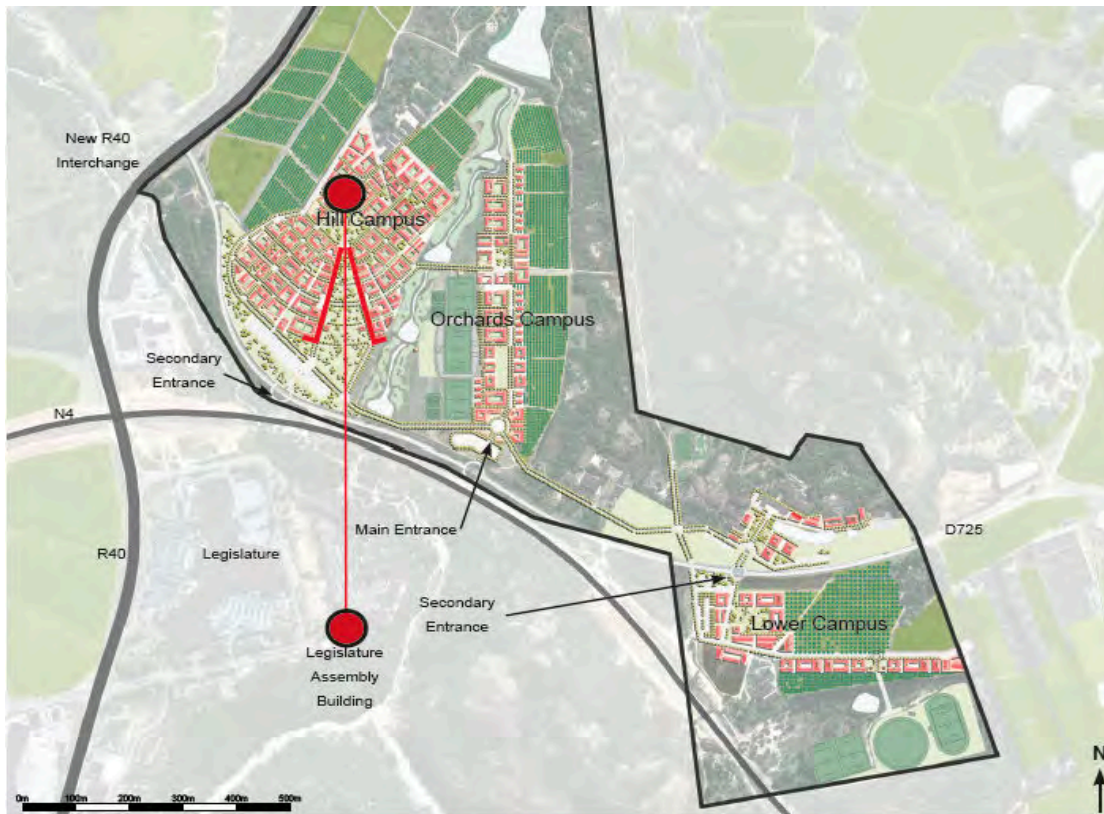


Fig.7.22: Acknowledging Mpumalanga Legislature Building by aligning it with the major open space and central administration buildings of the Hill Campus.

PRINCIPLE 3: Place Bound University to strengthen Identity

The Spatial Framework of the university placed great emphasis on place-making: the creation of a sense of spatial uniqueness and identity. This has required working with the land; working with water; the use of landmarks and the appropriate use of indigenous vegetation. For the university to be 'of its place' has had a number of spatial implications, specifically:

- The plan had to strengthen the visual identity and presence of the university by utilising the topography, vistas and views of the site;
- The architecture has to reflect the environmental challenges;
- Spaces and places have to reflect the climate in its scale and landscaping;
- The architecture has to use appropriate materials and technology;
- The plan had to strengthen and integrate the substantial green areas found on and around the site.

For the Campus to be of its place, a distinctly African University, required its people to participate in its making in terms of the following:

- Locally based craftsmanship and technology had to be applied;
- Use of materials with textures and colours found in the local environment;
- Use of climatic controls and responses that promote environmental performance and bring associative, cultural and historic reference to the architecture;
- A choice of vegetation, landscape structuring elements, storm-water channels lighting and signage that contribute to achieving a greater sense of place.

a) Topography to shape Campus Plan

The most striking feature of the site was the slope from north to south with the distinct outcrops and ridgeline. The contours were used to shape the movement network, which in turn defined the campus footprint and the open spaces.

Contours specifically shape the spatial layout of the Hill Campus whereby:

- The highest order functions were placed on the highest point of the Hill Campus; These include the university Great Hall, senior management offices, student centres and the main library;
- The second level terraces were planned to accommodate academic functions, teaching spaces and student amenities;
- The third level terraces were planned to accommodate student residences, which overlook the green spaces and sport fields.

b) A defined Campus area (Fig 7.21)

The plan for the university aimed to utilise the land in a meaningful manner, avoiding being wasteful and sprawling over what is a very large tract of land. The development footprint was specifically defined and no-go areas are clearly demarcated. A clear line was drawn beyond which the university campus could not impinge. These include:

- Areas where the slope becomes too steep;

- Rocky outcrops and ridge lines;
- The edge defining the start of the natural vegetation;
- The water course that runs north-south between the Hill and Orchard Campuses.

The Spatial Framework distinguished also between annual agricultural fields and orchards. The lifespan of the orchards is approximately 30 years and will not be affected within the first part of the university development. The orchards are considered areas for future expansion beyond the 15 000 student population as currently planned.

It was also important for the plan to consolidate the edges of the campus in order to promote the ideas of the defined campus and to discourage future sprawl. The edges were made in two major ways:

- By strict application of 'build-to' lines at all edges of the campus;
- By wrapping built-up edges with sports fields and recreation areas which create a spatial buffer.

c) Gateway Spaces, Landmarks and Legibility (Fig 7.22)

The plan of the campus aimed to create an immediate understanding of access, movement pattern, the location of public amenities and the overall structure of the campus. The plan aimed to achieve a highly legible university campus.

Legibility and a sense of orientation was enhanced by placing landmarks and landmark buildings around traffic circles, at entrances and in the most important common gathering spaces. Legibility and a sense of identity was also strengthened by aligning the most important open space on the Hill Campus with the Provincial Legislature Assembly Building.

PRINCIPLE 4: Network of Shared Spaces

a) Linking with the City Green Structure

The University Plan aimed to strengthen and integrate with the substantial green areas surrounding the new university site. These included the Botanical Gardens, the Nels and Crocodile River Green Corridor, and the outcrops and ridges to the north and east of the campus. Routes and paths of access to these destinations were planned in consultation with the local authorities and affected stakeholders.

b) Landscape Plan

A fundamental part of the university plan was the creation of common spaces for students and staff to gather, places that ensure a sense of place. A variety of shared spaces were proposed, which represent the primary informal gathering or meeting spaces for students, staff and residents alike. The emphasis was on creating dignified places for informal meeting: using all new buildings and objects to define and make space; using selective, landscaping in different ways to define place, and to create shade and shelter. A variety of spaces are positioned at various intervals throughout the campus and include:

- Focal squares;
- University lawns;
- Parks;

- Kick-around spaces;
- Intimate and protected gardens;
- Sport fields;
- Nature trails and parks.

c) Public Space Edge Consolidation: Perimeter Blocks

The quality of common spaces was influenced as much by the activities surrounding and facing onto them, as by the quality of the amenities offered within. The plan proposed that good public spaces have one important underlying characteristic, they have clear boundaries, usually buildings of some sort that define the edges and set the public space apart from the private space. The spatial framework proposed the perimeter block typology as building block for the university buildings.

d) Safety and Security

Design factors that were incorporated to support a safer campus included: creating a clear hierarchy of pedestrian and bicycle networks; good lighting associated with this hierarchy; the promotion of surveillance or 'eyes over space'; the removal of dead-edges; removing cluttering vegetation; and the use of security devices such as cameras along major pedestrian passages.

PRINCIPLE 5: Variety of Use and Form

a) Campus Functional layout (Fig 7.23)

The size of the university properties dictated that a series of sub-campuses be established, each with their own identity, character, form and predominant use. In this context the following distinction has been proposed:

- The Hill Campus was planned as the iconic heart of the new university and will house predominantly administrative functions, academic lecturing venues, academic offices and shared amenities e.g. library. Student residences were placed on the lower terrace of this campus and overlook the sport and recreation areas;
- The Orchard Campus was planned predominantly to focus on residential, sport and recreation. Some academic and shared amenities were located around the focal square;
- The Lower Campus had to be seen together with the former Lowveld College of Agriculture structures. This sub-campus was planned with the greatest variety of uses, and accommodates all university functions. The Lower Campus also became the focus of the first phases of development.

The proposed clustering of uses into three distinct sub-campuses becomes a useful tool for phasing the university development. It is important that each of the sub-campuses is experienced as a microcosm of the whole university.

PRINCIPLE 6: Flexibility and Phasing

The underlying principle for a project of this scale was that the campus had to create its own urbanity and sense of identity right from the start. The aim of the framework was to establish a microcosm of the completed New University Campus from day one. The phasing plan aimed not only to focus on buildings and infrastructure, but on establishing complete public spaces. The aim was to create a complete piece of urbanity, preferably around the central squares, parks and common spaces.

The first phases of implementation focused on the Lower Campus around the former Lowveld College of Agriculture buildings. The plan originally aimed to construct on both the Hill and Lower Campus, but this strategy was changed in 2016 to completion of all infrastructure and building on the Lower Campus by 2019, before moving onto the Hill Campus.

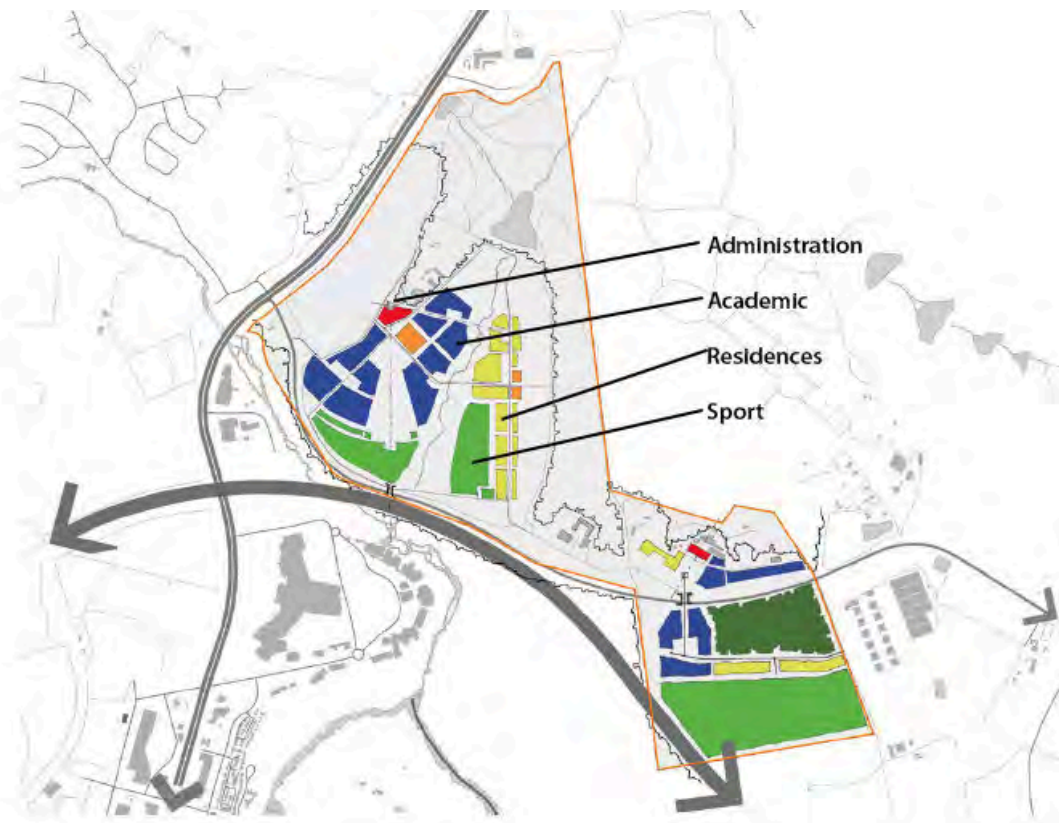


Fig 7.23: Clustering of a mix university functions around the two primary sub-campuses – The Hill Campus and the Lower Campus.



Fig 7.24: Physical Model of the Mbombela Campus displayed at various locations



Fig. 7.25: Physical Model of the Hill Campus

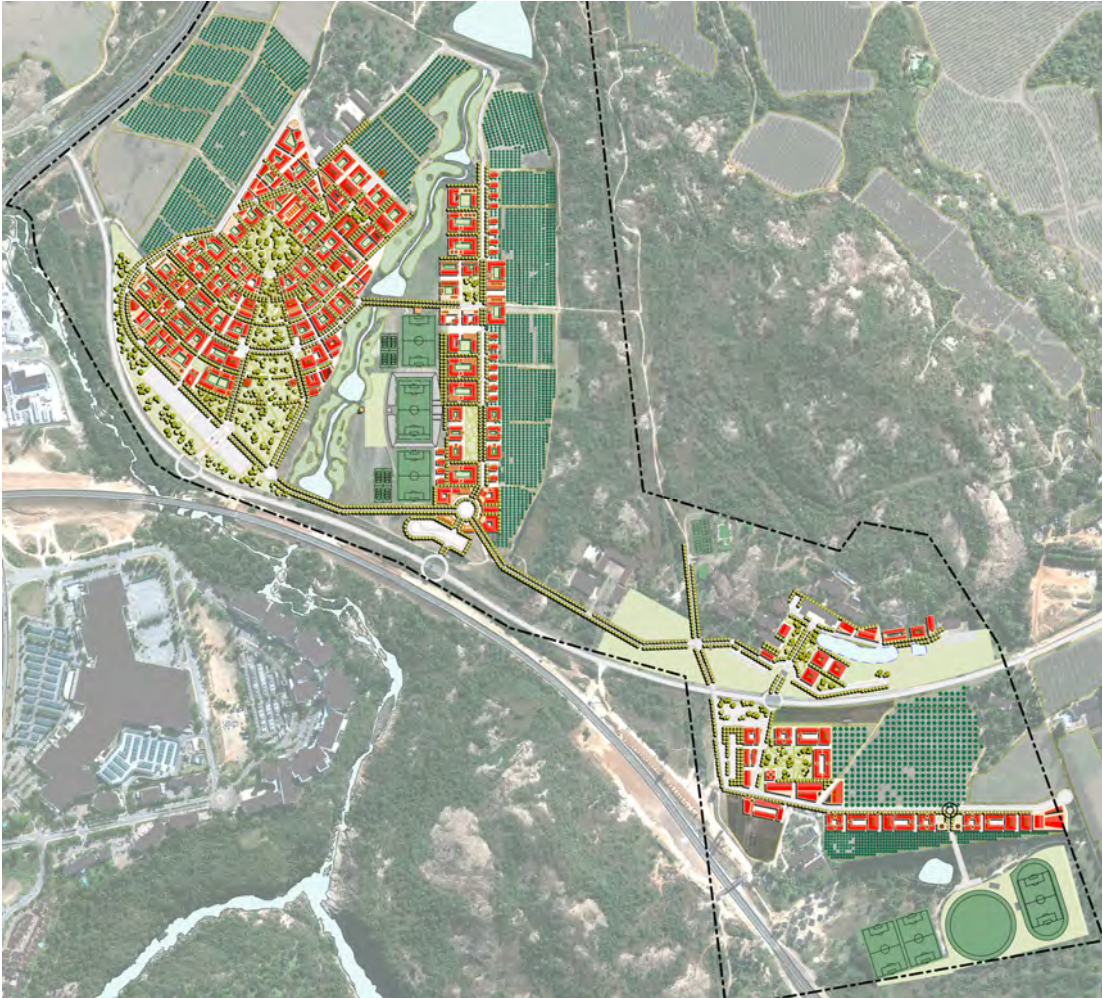


Fig 7.26: Spatial Urban Design and Development Vision of the Mbombela Campus.

REFERENCE DOCUMENTS

- 7-1 Final Report on the Establishment of new Universities in the Northern Cape and Mpumalanga Provinces, 24 August 2011
- 7-2 Development Framework for New universities in the Northern Cape and Mpumalanga Provinces July 2012
- 7-3 List of stakeholder meetings and presentations

Chapter 8

Architectural design competition



8. Architectural Design Competition

8.1. THE CASE FOR AN ARCHITECTURAL COMPETITION

At the start of 2013 the New Universities project had reached the stage at which the appointment of the design teams was extremely urgent. These were the first universities to be designed and built in a post-apartheid South Africa, and the vision for the two universities aimed to create iconic and inspirational architecture, embodying the aspirations of the South African public. Two major South African Universities, namely UCT (150 years old) and Wits (95 years old) are both the result of Architectural Competitions; and the general principles of those initial designs for their campuses are still the central formal feature of each campus, despite the incremental growth over time.

Because of these successful campus examples and the need to ensure a high standard of architectural quality, the NUPMT and DHET decided to implement a two-stage architectural design competition for each university.

The architectural design competition was envisaged as a means to generate new and exciting ideas and best practice concepts, as well as to identify a panel of talented designers to participate in the design of the university campuses, precincts in each campus, land parcels and/or individual buildings.

Great attention was focused on the outcome and the means to achieve this outcome. It was believed that architectural design competitions would ensure the participation of a wide section of the architectural community.

Despite the costs and the time required, a competition for each university was considered to be a fundamental investment to secure the right team for the job, and to bring the highest quality of design thinking to the fore. Both the NUPMT and the DHET

were aware that architectural design competitions are known to give clients the best range of design options and cost a fraction of total construction cost.

South African Institute of Architects (SAIA)

In its introduction to Architectural Competition Guidelines, the SAIA says:

Architectural competition promotes interest in a project from inception to completion, and the promoter stands to gain a sense of achievement and enhanced pride of ownership in a project. The South African Institute of Architects considers that it is in the best interests of the promoter, the profession and the nation that important public buildings should be the subject of architectural competitions. It is also ideal for the design of projects in the private sector.

Architectural design competitions offer a number of benefits to the promoter of a competition, such as:

- Attaining an outstanding and often unique design by stimulating a range of concepts....;
- Sound and experienced judgment and advice from the jury;
- Opportunity to comprehensively test the project brief;
- Promotion of the promoter and the project through publicity and exhibitions;
- Opportunities to discover talent and skill which, but for a competition, would remain unknown.

Design competitions also benefit the competitor entering ... since they afford opportunities:

- To undertake work which might not otherwise have been possible;
- For young unknown talent to come to the fore;
- For a fair and transparent way of selecting expertise.

The decision to hold architectural design competitions was taken in April 2013. At this time the 10-year implementation plans, including the Spatial Development Frameworks had been completed and the budgets had been approved by National Treasury.

8.2. METHODOLOGY AND APPROACH

In order to ensure that the correct procedure was followed in terms of architectural competitions, a number of local and international precedents were researched. Ideas on competition type; their scope and briefing, programme, admission requirements and the composition of the selection jury were assessed. ^[8-1]

The South African Institute for Architects (SAIA) was also approached to ensure its endorsement of both competitions. An important function of the SAIA is to recognise and promote excellence in architecture and to create public awareness and debate on the built environment. The SAIA represents the majority of Professional Architects in South Africa, and members of the Institute are encouraged to enter competitions that are approved and endorsed by SAIA.

Following discussions held, the SAIA endorsed both design competitions based on the NUPMT's proposed approach. An endorsement from the SAIA was received on 6 May 2013.

In early 2013 Associate Professor Paul Kotze agreed to become the Competition Administrator with the assistance of Michael Scholes Architects who provided logistical support. Prof Kotze was chosen for his previous experience in convening and administering competitions.

Prof Kotze was approved by SAIA as the Administrator for the competitions

he sites and environments for the two universities are decidedly different, making two different competitions necessary. By running two competitions it was hoped that local architects in Kimberley/Northern Cape and Nelspruit/Mpumalanga would be encouraged to enter as they had the benefit of local knowledge, context, climate and ease of access to the site.

The two competitions started approximately one month apart and comprised two different stages. This allowed for participants to decide whether they enter one or both of the competitions, but also allowed the NUPMT and competition administrators more time to prepare the documentation. The first competition stage allowed for architects to put forward their ideas in text and images for assessment by the jurors. As each submission was limited to ten pages responding to five questions it was not an overly time consuming submission.

It was decided that at the end of the first stage, no more than ten competitors would be selected to compete in the second stage. The second stage of the competition required substantially more from the selected first stage winners, for which they received an honorarium. It was envisaged from the outset that more than one architect would be appointed at each university.

8.3. TWO-STAGE COMPETITION PROCESS

The competition process was designed to ensure total anonymity of the competitors and was managed through a specially designed website. A two-stage "Design Ideas" competition was pursued, with both competition stages evaluated by the appointed Jury.

8.3.1 First Stage Competition

Contestants in the first stage of the competition were required to submit text and concept drawings illustrating their thoughts on the 'nature of university' and conceptual ideas on educational architecture. In order to limit expense and unproductive time for those who participated in the first stage competitions, the required outcome was to be "*high in ideas and concepts but light on product*". The submission was limited to ten A4 pages, requiring participants to creatively transmit their ideas, succinctly and to the point.

8.3.2 Second Stage Competition

After completion of the first phase competition, the jury was requested to select up to ten competitors for a second and final round of submissions. All second round competitors, whose submissions were considered acceptable by the jury, were reimbursed for the second round submission. The second stage of the competition called for the design of a building on each of the new campuses. A complex brief and accommodation schedule for a mixed use academic building was issued to test the skills of the participants, their creativity and their ability to explore and apply the ideas submitted in the first stage of the competition.

Part of the second stage of the competition was a tender submission that required a financial (fee) and preference (BBBEE) offer. This submission was made separately, and evaluated independently by a tender evaluation committee. The result of this submission was not shared with the competition administrator and jury, to ensure no undue influence on the architectural design evaluation. The inclusion of the tender during the competition process allowed for a competitive pricing structure and ensured that participants recognised the importance of the BBBEE points and the requirement for transformation.^[8-2] (See the Chapter on Procurement for an elaboration of how the competition results were linked to the procurement process).

8.4. RUNNING OF THE COMPETITION

8.4.1 Expression of Interest:

A request for an Expression of Interest for the two architectural competitions was uploaded onto the New Universities Website, which was accessible to the public. Separate notices were sent out by the South African Council of Architectural Professions (SACAP) and SAIA, advertising the competitions to all their members. Adverts were also placed in national and local newspapers in Kimberley and Nelspruit.

Expression of Interest were received and evaluated. Applications were checked for compliance to ensure that the person Expressing Interest was a Professional Architect registered with SACAP. Any application whose name or registration number did not appear on the SACAP website was checked directly with their offices or in person. A detailed list of all submissions was established, including those submissions excluded from participating. Once the Expression of interest was verified, an email link was sent to every successful applicant. Successful applicants were then requested to register as a participant of the Architectural Competition in which they confirmed their email address which would be the only method of contact with each competitor.

8.4.2 The Competition Website

The competition website was used as the tool for correspondence with the competitors. All framework documents, briefs, clarifications, etc. were uploaded onto the website. With every new document upload, an email notification was sent to all registered participants.

The only correspondence permitted during the two stages of both competitions was via the competition website to ensure anonymity of the participants. Competitors used the “submit your question tab” to submit queries for clarification, which automatically forwarded to the Competition Administrator. Queries were collated on a weekly basis and answered within three days. All queries and clarifications were accessible to all admitted participants of each individual competition. While the Administrator had the prerogative not to answer a question, generally only repeat questions were not answered.

8.4.3 Competition Juries

The juries consisted of seven people appointed to adjudicate both stages of the competitions. Four of the jurors had to be directly involved in the architectural profession, either as Architects or Urban Designers. The other three jury members represented the DHET, the Interim Council of the respective University, and the respective local Municipality (Sol Plaatje in N Cape and Mbombela in Mpumalanga).

8.5. SOL PLAATJE UNIVERSITY COMPETITION

8.5.1 Expression of Interest

An ‘Expression of Interest’ for the competition in Kimberley was uploaded onto the New Universities Website. Separate notices of the Expression of Interest were also sent out by SACAP and SAIA, informing their members of the competition. Adverts were also placed nationally and in local newspapers in Kimberley and the Northern Cape.

For the Sol Plaatje University Competition 179 queries for the Expression of Interest were logged, and 153 people successfully registered on the Website. Briefing documents were made available on the Competition Website for download and competitors were given from 30 May 2013 to 11 July 2013 to prepare their Stage 1 submission.

8.5.2 Stage 1 Criteria and Questions

The First Stage competition required participants to describe methodology and approach to five different questions on principles considered important to the SPU.^[8-3] The principles included the following issues:

Issue 1: Integration with the Spatial Design and Development Framework

The entry submitted had to demonstrate how the university buildings (residences, academic and shared facilities) could relate to the public spaces and improve the civic character of the university, without compromising the integrity or functionality of the university buildings.

Issue 2: Architectural Typologies that accommodate a Mixture of Uses

The design proposal had to demonstrate how a variety of university functions and city spaces, with public and private interfaces, can be assembled and designed in an integrated manner.

Issue 3: Understanding of Environmental Responsiveness

The architects had to demonstrate an awareness of, and propose possible architectural solutions to the environmental constraints and challenges found in Kimberley. These considerations should also take into account the various functions required of the University's buildings – housing, academic venues and shared amenities – and explain how these can be aligned with due diligence in environmental conservation.

Issue 4: Efficient Design and Construction Methodology

The entries had to outline how improved value and quality can be achieved by a carefully considered approach to construction methods, the selection and availability of materials, and the quality of workmanship with specific reference to financial and time constraints, and the heavy demands on residential accommodation.

Issue 5: Buildings that are Memorable Landmarks and an Integral Part of Kimberley

The design proposal should contain an outline describing the way in which a newly-founded university in post-apartheid South Africa can express its uniqueness in spatial terms, and how the architecture can exhibit a sense of place, of being distinctly African, and of belonging to the South Africa of here and now.

8.5.3 Jury

The jury consisted of seven people appointed to adjudicate both stages of the competitions. Four of the jurors had to be directly involved in the architectural profession, either as Architects or Urban Designers. Three of the jury members had to represent the DHET, the Sol Plaatje Municipality, and the Interim Council of SPU. For the four architectural positions, the competition administrator assembled a list of jury candidates with input from the NUPMT, the SAIA and SACAP. From the list, the following agreed to act as jury members in the Sol Plaatje University Competition:

- Sithabile Mathe (an architect based in Gaborone, Botswana);
- Prof. Rodney Harber (Architect and professor at the Univ. of KZN);
- Dr. Luyanda Mphalwa (Architect);
- Mr Cedric Daniels (nominated by UDISA -Urban Design institute of South Africa).

The following representatives were nominated by the respective client and government organizations:

- Dr Diane Parker, (Deputy DG DHET);
- Godfrey Mashope (Sol Plaatje Municipality);
- Dr Marcelle Olivier (Interim Council Representative).

8.5.4 Stage 1: Adjudication

The submission date for the First Stage competition was 11 July 2013, and 59 submissions were received. The adjudication process took place at the William Humphrey's Art Gallery in Kimberley from Monday 14 July to Wednesday 17 July 2013. The jury members were taken on a site visit followed by a presentation of the full set of documents that each competitor had access to on the website. These documents consisted of the following:

- Development Framework for New Universities in the Northern Cape and Mpumalanga Provinces;

- Recommendations on the Seats for the New Universities;
- Implementation Plan for the University in the Northern Cape;
- Call for Expression of Interest: Architectural Competition for the development of a new University in the Northern Cape;
- Stage 1 Competition Data, Briefing and Evaluation Criteria: Northern Cape;

Adjudicators were also issued with a full set of Q&A (5 sets) which comprised of all queries asked by competitors and the answers provided by the Project Management Team and Administrator.

8.5.5 Stage 2: Architectural Exploration Competition

The Stage 2 Brief called for a design on a specific site next to the Central Campus Square, which forms part of Phase 1 of the Universities Implementation Plan. Erf 2503, which constitutes the Central Campus, including the competition site, formerly belonged to the Northern Cape FET College. ^[8-4] The property was selected as an appropriate competition site as the site has the correct zoning and rights attached to it to allow for early construction. The Central Campus is also home to the greatest mixture of university functions and uses, including housing, academic facilities, and public amenities.

The focus of the campus is the central campus square, which is surrounded by buildings that should employ various design strategies to activate the space. The Spatial Framework allows for the central square to extend across Scanlan Street to link with the existing William Pescod School. The square is also the meeting point connecting the northern and southern portions of the University. This meeting point is celebrated by means of a commemorative beacon which was constructed as part of the launch of the Sol Plaatje University.

The assembled accommodation schedule^[8-5] was complex, large and multi-functional, to test the design and planning skills of the competitors and their innovation. The competition required an exploration of possible ideas for future implementation. Guidelines were set out as to the extent of the building, heights, overhangs, potential landmarks, and the competitors were all provided with CAAD drawings of the site, the design of the square, contours, extent of site and photographs.



Fig 8.1: Sol Plaatje University Architectural Competition Adjudicators at the construction site of the Launch Square.

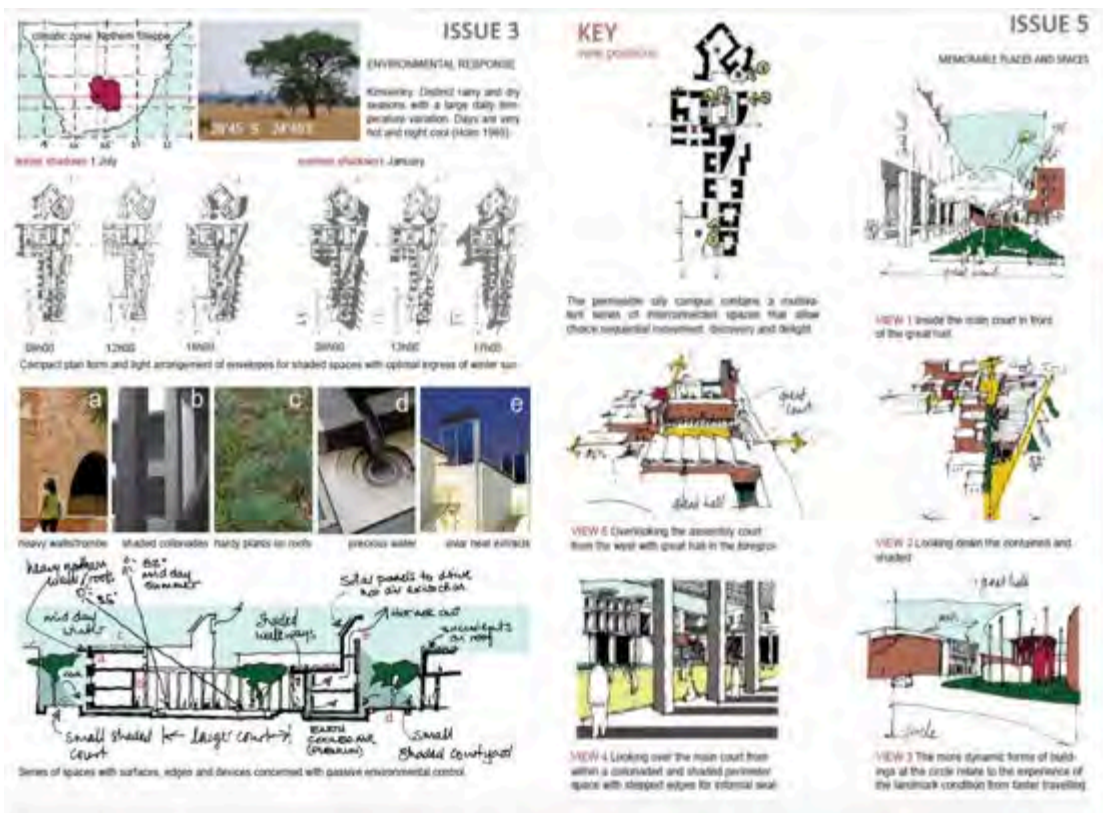


Fig 8.2: SPU Architectural Competition: 1st Phase Competition entries on 5 Key Spatial issues



Fig 8.3: SPU Architectural Competition: 1st Phase Competition entries on 5 Key Spatial issues – Entry No. NC779764

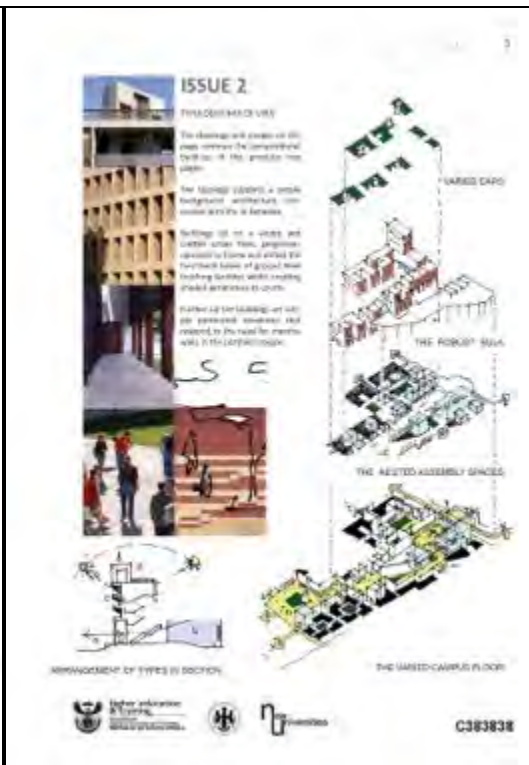
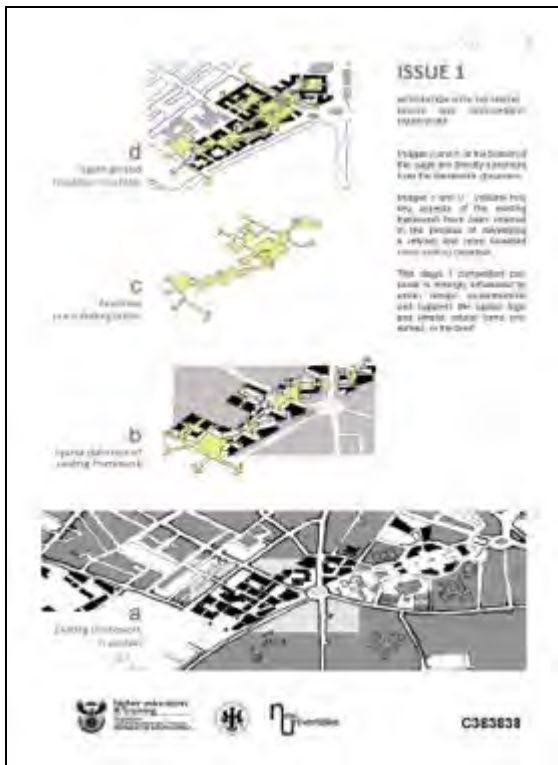


Fig 8.4: SPU Architectural Competition: 1st Phase Competition entries on 5 Key Spatial issues - Entry No. NC383838

8.5.6 Stage 2 Criteria and Questions

Apart from a complex architectural accommodation schedule with detailed requirements for a specific site, the brief included seven principles that were to be addressed in the competitors' submissions. Included was a list of criteria that the submissions would be judged on. These principles and criteria formed the basis of the jurors' mark sheets.

- **Principle 1: Promote Integration.** Includes the integration with the city, its movement structure, social and cultural integration and the integration with sport and recreation amenities.
- **Principle 2: Equity of Access.** A concern with equity does not imply that everything should be the same. Rather, it refers to the fact that all people should have the opportunity to access a broadly equivalent set of opportunities. Spatially, equity of access implies commitment to a movement system anchored by the lowest common denominator: people on foot. Spatially, it requires the promotion of principles of universal access, permeability and ease of access in the architecture for students and visitors alike.
- **Principle 3: Promote Identity.** The term 'identity' is used here to evoke two meanings: the one relates to the physical presence of the University within the inner city of Kimberley; the second relates to academic identity. Whilst the integration of the new University with its city and surrounding community is a primary objective, it is equally important to ensure the visual identity and presence of the University.
- **Principle 4: Dignity: A Network of Shared Spaces.** The University Plan should aim to strengthen and integrate with the substantial green areas within the inner city. There are extensive open and green spaces which are located immediately around the new University campus. These include the Botanical Gardens; the sport and recreation areas of Kimberley Boys and Diamantveld High Schools; the Karin Muir Swimming Pool, the McGregor Museum and the Oppenheimer Memorial Park.
- **Principle 5: Variety of Use and Form.** Variety of experience implies a place with varied forms, uses and meaning. The University aims to be fully integrated with the city, and through developing a greater mixture it would attract a variety of people, at different times for multiple reasons. Variety ensures a rich perceptual mix of different activities, forms and people endemic to a well-functioning university.
- **Principle 6: Efficiency and Sustainability.** The University should play a leadership role in demonstrating sustainable practices in its own development. One dimension of this is the efficiency of land utilisation. The New University has to demonstrate 'best practice' in terms of a spectrum of environmental and sustainability aspects.
- **Principle 7: Flexibility and Phasing.** Complete elements of the University Campus: the underlying principle when addressing phasing for a project of this scale is that it has to create its own urbanity and sense of identity from the outset. Most large-scale developments or projects have an ad-hoc approach, with the final vision sometimes

only apparent with the completion of the whole project. The aim of the spatial framework is to establish a microcosm of the eventual completed New University Campus from its inception. The phasing pattern focuses not on buildings and infrastructure alone, but on establishing complete public spaces.

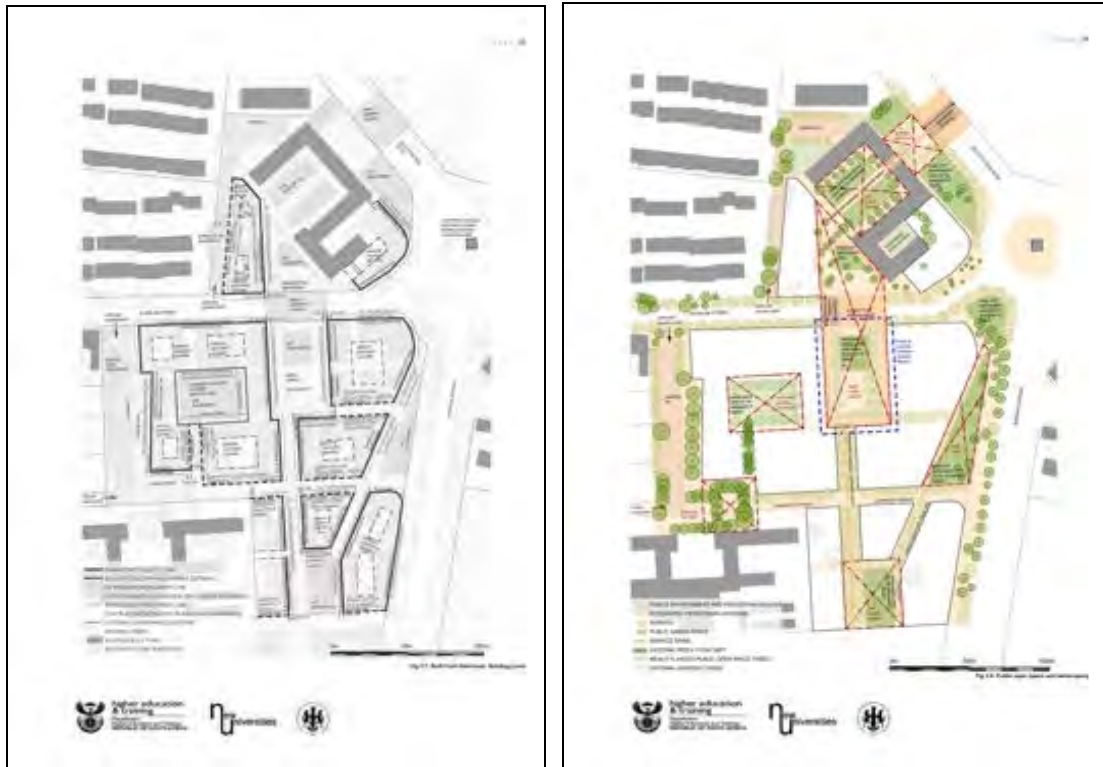


Fig 8.5: SPU Architectural Competition: 2nd Phase Competition Brief Outlining Central Campus as focus area.



Fig 8.6: SPU Architectural Competition: 2nd Phase Competition Submission by URBA Architects and Urban Designers.



Fig 8.7: SPU Architectural Competition: 2nd Phase Competition Submission by Chris Wilkinson, Lambrechts and GXY Architects.



Fig 8.8: SPU Architectural Competition: 2nd Phase Competition Announcement of Winners in the William Humphreys Art Gallery.



Fig 8.9: SPU Architectural Competition adjudication venue.



Fig 8.10: Launch of the Sol Plaatje University 27 September 2013, by the Minister of DHET, Dr. Nzimande and the Premier of the Northern Cape.



Fig 8.11: Launch of the Sol Plaatje University 27 September 2013 on the Central Square with the University Beacon, surrounded by the SPU posters.

8.5.7 Stage 2 Adjudication

The submission date for the Stage 2 of the Architectural Design Competition for the New University in Kimberley, Northern Cape was 10 September 2013 at the National Institute for Higher Education in Kimberley. In total nine competitors submitted entries for the second stage. The adjudication process took place at the William Humphrey's Art Gallery in Kimberley from Friday 13 September to Saturday 14 September 2013. The same seven jury members who adjudicated the first stage participated in the second stage.

All adjudicators were issued with the Stage 2 Briefing document, and prior to the start of adjudication were taken onto site, where the extent of the competition site and its relationship to the Central Campus Square was explained. A 1:500 model was constructed of the completed university campus, providing jurors an additional point of reference during adjudication. Competitors also had to submit a 1:500 model, which could be placed within the overall campus model for evaluation.

A list of 12 marking criteria was proposed, all taken directly from the brief. The score for each one was ten marks, giving a total maximum score of 120 marks. The jury was requested to discuss the criteria and ensure that they all could put forward their understanding of what was being asked of them. Jurors were also asked to assess if the submissions fulfilled the honorarium payable to all participants. Mark sheets and scoring were added to arrive at a ranking of participants, which was then debated and discussed by the jurors. Of the nine submissions received in the second stage of the competition, five were recommended for appointment to undertake architectural design work on the Sol Plaatje University. The winners were (in no particular order):

- Activate Architecture – represented by Michael Magner;
- Savage and Dodd Architects – represented by Heather Dodd;
- Designworkshop: SA – represented by Paul Wygers;
- URBA (previously Comrie Wilkinson Cape and Urban Studio JV) – represented by Henri Pierre Comrie;
- Wilkinson Architects in Joint Venture with Mashilo Lampbrechts Architects and GXY Architects – represented by Chris Wilkinson

The Sol Plaatje University Jury compiled an Assessment Report highlighting impressions, challenges and recommendations regarding the two-stage architectural competition. ^[8-6]

8.6. UNIVERSITY OF MPUMALANGA COMPETITION

8.6.1 Expression of Interest

An 'Expression of Interest' for the Competition in Mpumalanga was uploaded onto the New Universities Website, which was publicly accessible from 27 May 2013. Separate notices of the Expression of Interest were again sent out by SACAP and SAIA, informing their members of the competition. Adverts were also placed nationally and in local newspapers in Mpumalanga. There were 147 successful Expressions of Interest, of which 111 people successfully registered on the Website following invitations being sent to them. The brief was posted on the competition website on 24 June 2013. Competitors were given until 1 August 2013 to prepare their Stage 1 submission.

8.6.2 Stage 1 Criteria and Questions

The First Stage competition required participants to describe methodology and approach to five different questions on principles considered important to the UMP. An equal weighting was applied to each of the five principal spatial issues important for the University of Mpumalanga (UMP). The five principle issues required position statements from architects and included: ^[8-7]

- **Principle 1: Establishing a sense of place.** Establishing a sense of place could be described as determining the quality of the way people relate to a place. It is therefore an important contributor to maintaining the sensitive environment of the locale chosen for the campus. Any plan for the new university must take 'place-making' into account, and also the need to create a sense of spatial uniqueness. An appropriate architectural response to the spatial implications of the site would include ways to use the land, the water, the topography, the landmarks, vistas and indigenous vegetation to positive effect.

The chosen university site immediately evokes a sense of responsibility and a need for sensitivity in the approach taken towards building a new campus. The architecture will be expected to embody a strong link between the university and its environment. The architects who enter proposals had to demonstrate and explain how their design approaches meet this requirement and also create a distinctive sense of place.

- **Principle 2: Establishing an overarching architectural language.** Universities endure and transcend the passing of many generations of students through their portals. In many cases they are manifestations of permanence, offering a timeless response to the constant changes occurring in their precincts and in the surrounding context. The architecture of the new university had to be viewed as a language. Therefore the designer has every right to ask what is being said, and who is being addressed. Architects were asked to represent an outline explaining how the new university in Mpumalanga can express a place-relevant uniqueness in an architecture that pushes the discourse around local identity beyond its current levels.
- **Principle 3: Creating a Landscape of Possibilities.** The Development Framework emphasises the fact that the new university should be a place representing hope, and the opportunity to exchange ideas, information, knowledge, insights and skills with others. It also aims to create a socially supportive atmosphere where friendship, cultural exchanges and emotional and psychological support can be shared.

To foster exchange, learning and growth, the architecture is required to respond to, and engage with, the open spaces on the new campus. The buildings are the essential ingredient that makes a campus successful, because they define through their forms the transition between the public and private domains, and encourage interaction between students and staff. The architects submitting entries had to demonstrate:

- i. how architecture can enhance the quality of the shared spaces on campus; and
- ii. whether the proposed perimeter building form is the appropriate architectural typology.

- **Principle 4: Conceiving an Architecture of Celebration.** The Framework for the new university views architecture as more than a representation of function or as meeting the need for shelter. In the broadest sense the university is seen as a manifestation of the aspirations of the academic staff and the students, the community, and the population of the province. It is a spatial representation of the self-image we are striving to earn for ourselves, and to be remembered by. In that sense the vision of the university is inherently utopian. The new university in Mpumalanga offered the architects who participated in the competition the opportunity to express that quality of aspiration while presenting leading-edge, fresh, imaginative, and possibly alternative designs.

Contestants were asked to use sketches to demonstrate how they would develop an iconic and memorable series of buildings for the new university, which also represents its high ideals.

- **Principle 5: Ensuring Sustainability, Environmental responsiveness and Efficiency.** Another objective of the brief for the new university in Mpumalanga was for the selected architect to play a leading role in demonstrating sustainable practices in terms of the location, design and management of the proposed buildings. These qualities should be demonstrated in both the development design and the final product. The architect had to demonstrate an awareness of, and possible architectural solutions to the environmental constraints and challenges found in Nelspruit. These considerations were also required to take into account the various functions required of the University's buildings – housing, academic venues and shared amenities – and explain how these could be aligned with the exercise of due diligence in environmental conservation, and with ensuring building efficiency.

The jury had to reflect on how the submissions engaged with the stated principles. The five position statements are interrelated, and had to be viewed as a matrix reflecting some of the core spatial principles that should be addressed in the design of the new university. The architects were required to submit their ideas, concepts and methodologies in response to the position statements by way of sketches, diagrams and precedents in architectural design and words.

8.6.3 Jury

The same jury composition was proposed for the University of Mpumalanga as for the SPU Competition. The jury consisted again of seven people appointed to adjudicate both two stages of the competitions.

The four appointed jurors directly involved in the architectural profession were:

- Sithabile Mathe (an architect based in Gaborone Botswana);
- Prof Walter Peters (Architect);
- Dr. Luyanda Mphalwa (Architect);
- Mr Cedric Daniels (nominated by UDISA -Urban Design institute of South Africa).

Three of the jury member represented the DHET, the Mbombela Municipality, and Interim Council of UMP. The following representatives were nominated by the respective client and government organisations:

- Prof Chris De Beer (Representative for the New Universities Interim Council);

- Ms Linda Carol Zulu (Representative for the Mbombela Municipality);
- Dr Engela van Staden (Representative for the Department of Higher Education and Training).

8.6.4 Stage 1: Adjudication

The submission date for the first stage of the Architectural Design Competition for the New University in Nelspruit, Mpumalanga was 1 August 2013 at the National Institute for Higher Education in Nelspruit. The tender box was opened and checked by a representative of the Competition Adjudicator.

A total of 47 Stage 1 Competition submissions were received. The competition administrators listed all the submissions, together with their User Codes. Three late entries were received and were disqualified. Two of these were received at the submission venue and both Submitters were requested to sign; the third was later couriered to the offices of Michael Scholes & Associate Architects. The jurors were notified of the late entries.

The adjudication process took place at the Casterbridge Hollow Hotel in White River from Monday 5 August to Tuesday 6 August 2013. All adjudicators were issued with a full set of documents that each competitor had access to on the website. These documents consisted of the following:

- Development Framework for New Universities in the Northern Cape and Mpumalanga Provinces;
- Recommendations on the Seats for the New Universities;
- Stage 1 Competition Data, Briefing and Evaluation Criteria: Mpumalanga;
- Implementation Plan for the University in Mpumalanga;
- Call for Expression of Interest: Architectural Competition for the development of a new University in Mpumalanga;
- Stage 1 Competition Data, Briefing and Evaluation Criteria: Mpumalanga;

Adjudicators were also issued with a full set of Q&A (four sets) which comprised all queries asked by competitors and the answers provided by the Project Management Team and Administrator.

The adjudication process was preceded by a presentation explaining the competition and the Spatial Development Framework. The jurors were also taken on a tour of the site to understand the relation of the competition site with the rest of the campus and its orientation with the city and surrounding context.

The process was overseen by Prof Paul Kotze, who as the Competition Administrator assisted with any queries that the adjudicators had. Adjudicators were issued with evaluation sheets consisting of the five spatial principles (refer section 8.6.2), each with equal weightings. Each juror was issued with a bound document of each submission which they kept for the whole duration of the adjudication. No submission document was allowed to leave the venue. As was the case for the Northern Cape competition, all submissions and adjudications were done anonymously, as each submission was marked only with the competitors User Code.

At the end of each day, marks were collated by the competition administrators. All 47 submissions were scored and jurors were given until 11h00 on 6 August 2013 to complete their scoring. Final marks were entered and compiled by the competition administrator. During the final afternoon the 16 top scoring the projects were highlighted to the jurors. Following extensive discussion ten entrants were finally selected as winners.

All the ten best competitors were notified on 8 August 2013 of their selection by the jury. Those not selected were notified between 8th and 14th July (spread over a few days due to errors and missing declarations).

8.6.5 Stage 2: Architectural Exploration Competition

The Second Stage competitors were issued with a comprehensive brief outlining the spatial aims and objectives of the university. ^[8-8] The brief called for the design of a complex multi-purpose academic building on the Hill Campus overlooking the city. This site was selected for the competition as it opens the opportunity to design a memorable building, situated at a high point of the Campus, in response to its surrounding context.

The Hill Campus is also home to a large mixture of different functions and uses. The emphasis of the competition site was on creating a focal point for the University which includes various functions, such as general assembly facilities, university administrative functions, student support services, academic facilities and a large central library. In addition, the brief required the design of the central public square and lawns, and had to consider the relationship between the buildings and this important public space.

The core principles underpinning the concept for the overall campus have been described in the previous section. These have been translated into built form guidelines for the competition precinct. The architectural competition focused on Land Parcels 1 and 2, sub-portions to the Hill Campus Precinct Guidelines, and the adjacent public space.

The site comprises an approximate bulk of 15 800 sq.m, with a building height of three to four floors envisaged.

The accommodation schedule ^[8-9] put together was complex, large and multi-functional to test the design and planning skills of the competitors and their innovation. The competition sought to ensure that the design submission would constitute an exploration of possible ideas for future implementation. Guidelines were set out as to the extent of the building, heights, overhangs, potential landmarks, and competitors were provided with CAAD drawings of the site, contours, extent of the site and photographs.

8.6.6 Stage 2 Criteria and Questions

The brief included a complex architectural accommodation schedule and seven principles that were to be addressed in the competitors' submissions. Included was a list of criteria that the submissions would be judged on. These principles and criteria formed the basis of the juror's mark sheets and in summary are:

- **Principle 1: Promote Integration.** Includes the integration with the city, its movement structure, social and cultural integration and the integration with sport and recreation amenities.

- **Principle 2: Equity of Access.** The proposals had to foresee and design for a balanced movement network addressing the needs of all University users, visitors and residents, of both vehicular and non-vehicular movement.
- **Principle 3: Ensuring a place-bound University Campus.** The design proposals had to carefully consider the principle of place-making - the creation of a sense of spatial uniqueness and identity. The spatial implication of this involved development of an appropriate response to the site and includes working with the land; working with water; using landmarks; and the appropriate use of indigenous vegetation.

To be of its place, a distinctly African University, the tectonic qualities of the Campus had to reflect:

- i. Locally based craftsmanship and technology;
- ii. The utilisation of materials with different textures and colours found within the local environment to enhance diversity in the buildings;
- iii. The inclusion of climatic controls and responses to ensure environmental performance and to bring associative, cultural and historic references to the architecture;
- iv. The inclusion of arts and crafts involving as broad a spectrum of people as possible;
- v. The choice of vegetation, landscape structuring elements, storm-water channels lighting and signage which all contribute to achieving a greater sense of place.

The most striking feature of the site is the slope descending from north to south and the distinct outcrops and ridgeline. The contours are used to shape the movement network. These in turn define the campus footprint, the open spaces and functional spread and in turn had to be reflected in the architectural competition proposal.

- **Principle 4: Quality Open Space Network**

A fundamental part of the University's spatial plan was to create common spaces for students and residents to gather. A variety of shared spaces were required, which represent the primary informal gathering or meeting spaces for students, staff and residents alike. The common spaces had to be places of surprise and wonder, places of exchange – places which spark the imagination. Spatially, the emphasis had to be on creating dignified places for informal meeting by: using all new buildings and objects to define and make space; using selective and powerful landscaping in different ways to define space and to create shade and shelter.

- **Principle 5: Variety of function and form**

The 'Hill Campus' as focus for the architectural competition, is the iconic heart of the University and was planned to accommodate predominantly administrative functions, academic teaching venues, academic offices and shared amenities e.g. library, all surrounding the focal open 'University Lawn' which establishes a link with the surrounding context.

Contestants had to display how form and function result in:

- i. Diverse meanings as a result of a variety of University functions;
- ii. Different building typologies which accommodate a broader mix of functions;
- iii. A rich perceptual mix of different activities, forms and people;
- iv. A mixture of use which occurs both horizontally and vertically. Building typologies need to be introduced which provide, for example, ground floor student amenities in the form of coffee shops, libraries or student centres and academic amenities and/or residential units on upper floors.

- **Principle 6: Efficiency and Sustainability**

The University should play a leadership role in demonstrating sustainable practices in its own development. The competitors had to demonstrate 'best practice' in terms of a broad spectrum of environmental and sustainability aspects including:

- i. Understanding the hierarchies of human comfort for different types of buildings on campus;
- ii. Designing of spaces and places ensuring thermal comfort by maximising passive heating and cooling;
- iii. Providing water management strategies;
- iv. Providing integrated recycling and waste management strategies;
- v. Maximising opportunities for rainwater harvesting and grey water applications;
- vi. Designing for the different energy use requirements of buildings;
- vii. Investigating capabilities for energy generation and the use of renewable energy resources.

8.6.7 Stage 2 Criteria and Questions

In addition to a complex architectural accommodation schedule with detailed requirements for a specific site on the Hill Campus overlooking the central common space, the Stage 2 brief also included criteria that were to be addressed in the submission and were also used by the jury to assess the competition entries. These included the demonstration of:

- The appropriate integration of the buildings with the context and the existing environment;
- The ways in which the variety of land use and functions have been dealt with in an integrated manner;
- The use of a celebratory architecture that is appropriate for a new university;
- The use of landmarks and features that identify the University of Mpumalanga;
- The use of environmental and sustainable architectural practices;
- The response to the specific environmental constraints found in Mbombela;
- An appropriate hierarchy of spaces between the various public and private facilities;
- The legibility and orientation of the spaces;
- The flexibility of uses within the design;
- The relation of the buildings to the public open spaces and movement routes;
- Efficiency in design;
- A sense of place.

8.6.8 UMP 2nd Stage Competition Adjudication and Results

The submission date for Stage 2 of the Architectural Design Competition for the University of Mpumalanga was 11 October 2013 at the National Institute for Higher Education in Nelspruit at 25 Rood Street. The tender box was opened and checked by a representative of the Competition Administrator. A Total of seven submissions were received. The Competition Administrator listed all the submissions, together with their User Codes No late entries were received. One of the selected Stage 2 competitors did not submit.

The adjudication process took place at the Casterbridge Hollow Hotel in White River from Monday 28 October to Tuesday 29 October 2013. The announcement of the winners of the competition for the University of Mpumalanga was made on 30 October 2013 at the Lowveld College of Agriculture in Nelspruit.

The winners in no particular order were as follows:

- Cohen and Garson – represented by Fiona Garson;
- Conco Bryan Architects – represented by Llewellyn Bryan;
- TC Design Group (Pty) Ltd – represented by Mark Pencharz;
- Gapp Architects and Urban Designers (Pty) Ltd – represented by Caron Schnaid.

8.7. ANNOUNCEMENT OF WINNERS AT THE LAUNCH OF EACH UNIVERSITY

During 2013 the DHET and Project Management Team initiated several processes leading to the launch of both institutions and creating a platform for the recruitment of staff and the enrolment of students. These included:

- Tendering and appointment of branding and communication consultants for both universities;
- Development of the individual identity, brand image and launch brochure for each university in consultation with the Interim Councils;
- Establishment of a Launch Committee in each province leading ultimately to successful public launches on 24 September 2013 in Northern Cape and 31 October 2013 in Mpumalanga;
- Development of a website for each university to facilitate staff recruitment and enrolment.

Key to the successful launch of the universities, was the procurement of a company responsible for event management, branding, marketing and communication management services. In August 2013 HKLM – Harwood Kirsten Leigh McCoy (Pty) Ltd. was selected through a public tender process to oversee the marketing and branding of the two new universities.

Comprehensive workshops and presentations were held with a number of stakeholders to establish the new identity of the two new universities. Final presentations were given to the interim councils of both universities, an example of which is the presentation to the SPU Interim Council after which the new identity, colour spectrum and logo was finalised.

The successful conclusion of each architectural competition and its respective procurement process resulted in the announcement of the competition winners and the holding of a public exhibition of the work submitted by the winners. The launches, exhibitions and announcement of the competition winners were held on 24 September 2013 at SPU and on 31 October 2013 at UMP.

Extract from Speech by Juror: Ms Sithabile Mathe

“The members of the Jury would like to start by acknowledging the preparatory work that has been carried out by the DHET and Ludwig Hansen Architects and Urban Designers. We would like to applaud the process that was selected of a Stage One submission of ideas and a methodology and a Stage Two submission developing those ideas on a specific site and with a defined programme. The strategy documents which formed the basis for the two stages of the competition were also well conceived. The documents were a cohesive basis for the Jury to assess the submissions and should be a robust informant of the onward process.

We would also like to acknowledge the efficiency, professionalism and notable high ethics of the administrators selected for the competition. It is their tireless effort which has made our work as Jury members seamless. They have maintained the anonymity of submissions and provided clerical and procedural guidance to the Jury which has been of great assistance. They have enabled the Jury to be independent and maintained our integrity at all times.”

29 October 2013

Ms Mathe is from Botswana where she is an Architect in private practice. She has wide experience on a variety of architectural projects in Botswana, Sudan, Tanzania and Norway, and her work has been included in exhibitions in Europe. She serves in several capacities including as a Council member of the Commonwealth Association of Architects and Vice President of the CAA for the Africa region.

TOPIC 2: ESTABLISHING AN OVERARCHING ARCHITECTURAL LANGUAGE

Architectural language is to be a function of location, climate, culture and purpose. The intention in establishing an overarching language is to make the composition legible, coherent and structured in a manner that communicates an overall distinct identity comprising many interrelated and varied parts.

The first task of any 'language' is to respond to what is already being said – namely qualities inherent in the existing landscape.

The link between complexes which is already strongly suggested by the proposed spatial framework should be reinforced means of a processional route across the bridge (dark wall).

The existing main campus landscape of a pair of parallel cultivated spurs and separating valley with its stepped dawns and natural river banks calls for a place of significance atop each and a bridge across the gorge to connect the two.

The scale of these decisions, and the route connecting them should be sufficient to be read from afar.

The Language of Form can be considered in terms of **Roofs, Structure, Envelop and Materials**. Scale being used hierarchically in each case to modulate appropriately between the 'ovic' (campus) moment and the individual.

Roofs present a significant form statement. In a rolling topography roofs are unifying large scale elements which communicate and define hierarchy. Pitched and sloping roof forms either physically linked or read in conjunction with one another can be used to create a 'cascade of roofs' (Christopher Alexander) to break down large spaces to the scale of the individual.

These smaller scaled forms are appropriate for University Residences and related amenities.



The insulated pitched roofs are 'active' elements responding to orientation, weather, functions and level changes beneath, capturing light in a controlled manner and creating shade and allowing ventilation. Roof forms break down to create covered links between buildings.

Alternatively a large canopy, reminiscent of the pavilion form canopy can house even differentiated spaces below communicating at the civic scale and suitable for the Great Hall and other larger scale buildings.

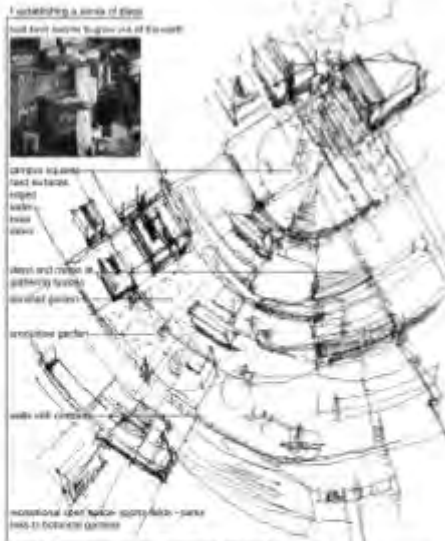


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University of Johannesburg
University of Pretoria

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Establishing a sense of place

South East African Topography of the West



CRUCIAL ELEMENTS:
pitched
sloping
roofs
canopy


Align and define an existing form, overall pattern

architectural pattern

walk with canopy

occasional open space - sports fields - parks
link to existing pattern

scale of building envelope the representative anti-topical picturesque



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A424143

CREATING A VARIED BASE BELOW THE PERIMETER BLOCKS

The rising site offers dynamic opportunities for building built form into a varied, three dimensional whole.

The definition level topography represents the most important dimension of the design problem.

The suggested perspective view on this page indicates our attempt to recognize the solid background quality of the perimeter block topography overhead while creating a porous ground level that affords the greatest amount of choice to the greatest variety of users.

The approach is illustrated in more detail on pages 5 and 7.

Below perimeter blocks: a varied and permeable campus floor.




The sloping site offers opportunities for building built form into a dynamic, three dimensional whole.

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architectural design competition for the new university in west coast, south africa

a landscape of possibilities



Opportunities: Like across with the village in Plan context. Building an interconnected landscape system with porous filtering movement from street to street, from open spaces & green public space.

These blocks: blocks in traditional context & culture. Traditional spaces & urban forms, modern buildings.

Community spaces: spaces defined by new building. Ground level defined by activities with buildings – walk, bicycle, motor, swimming, etc. West coast's Common Park, Forest & Mountain to create a social life.

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Fig 8.12: UMP 1st Phase Architectural Competition Submissions.

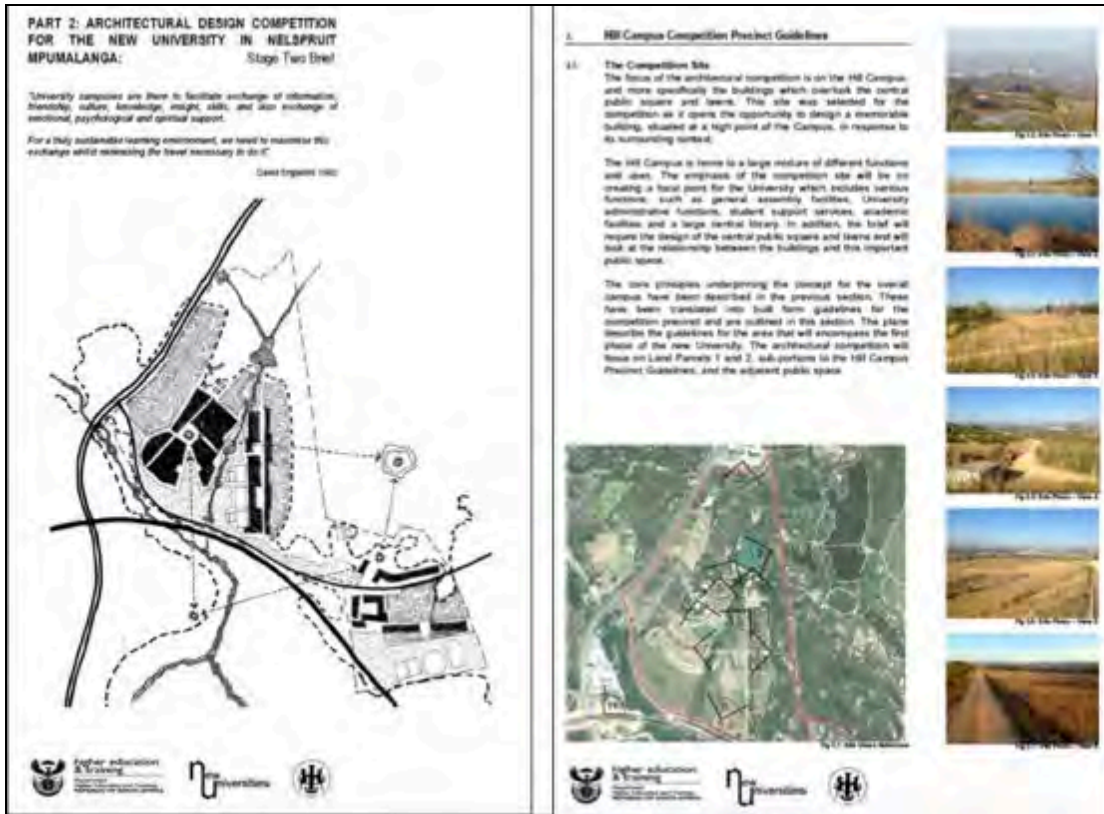


Fig 8.13: UMP: 2nd Phase Competition Briefing Document with its focus on the Hill Campus.

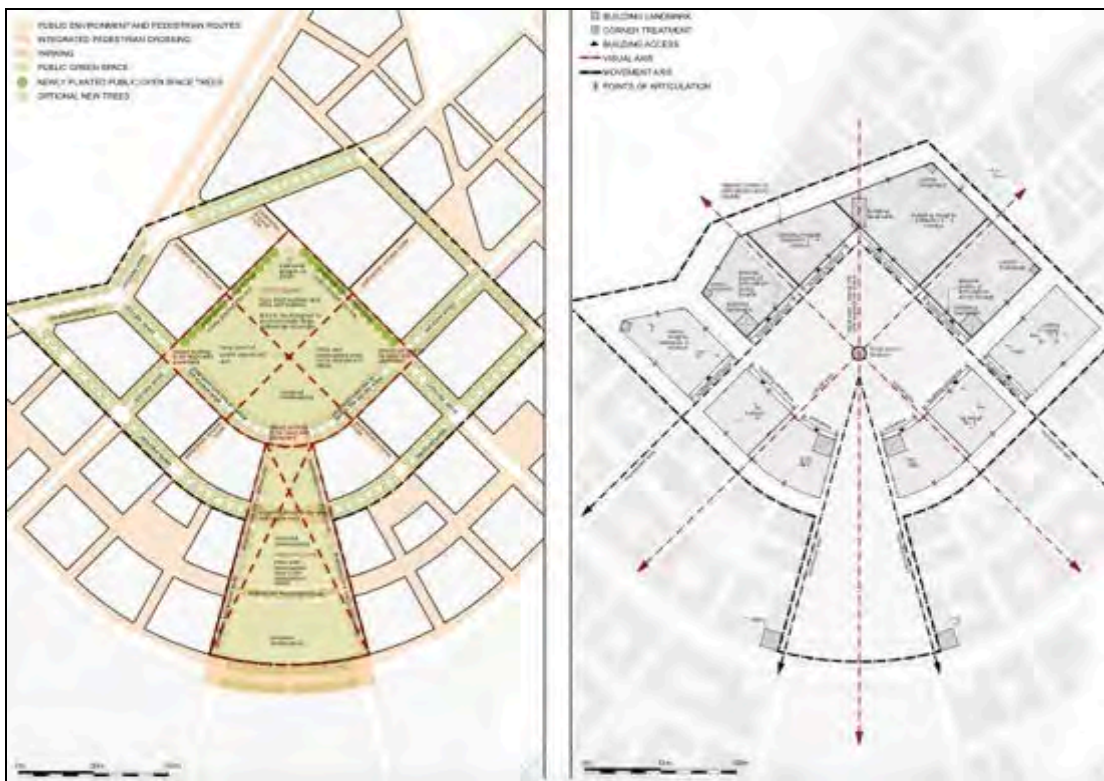


Fig 8.14: UMP: 2nd Phase Competition Briefing Document with its focus on the Hill Campus central university square surrounded with the main university buildings. The brief asked for the design of a Library and Executive office building.



Fig 8.15: UMP: 2nd Phase Competition Submission. Participants were allowed 6 A1 Posters – TC Design Group.

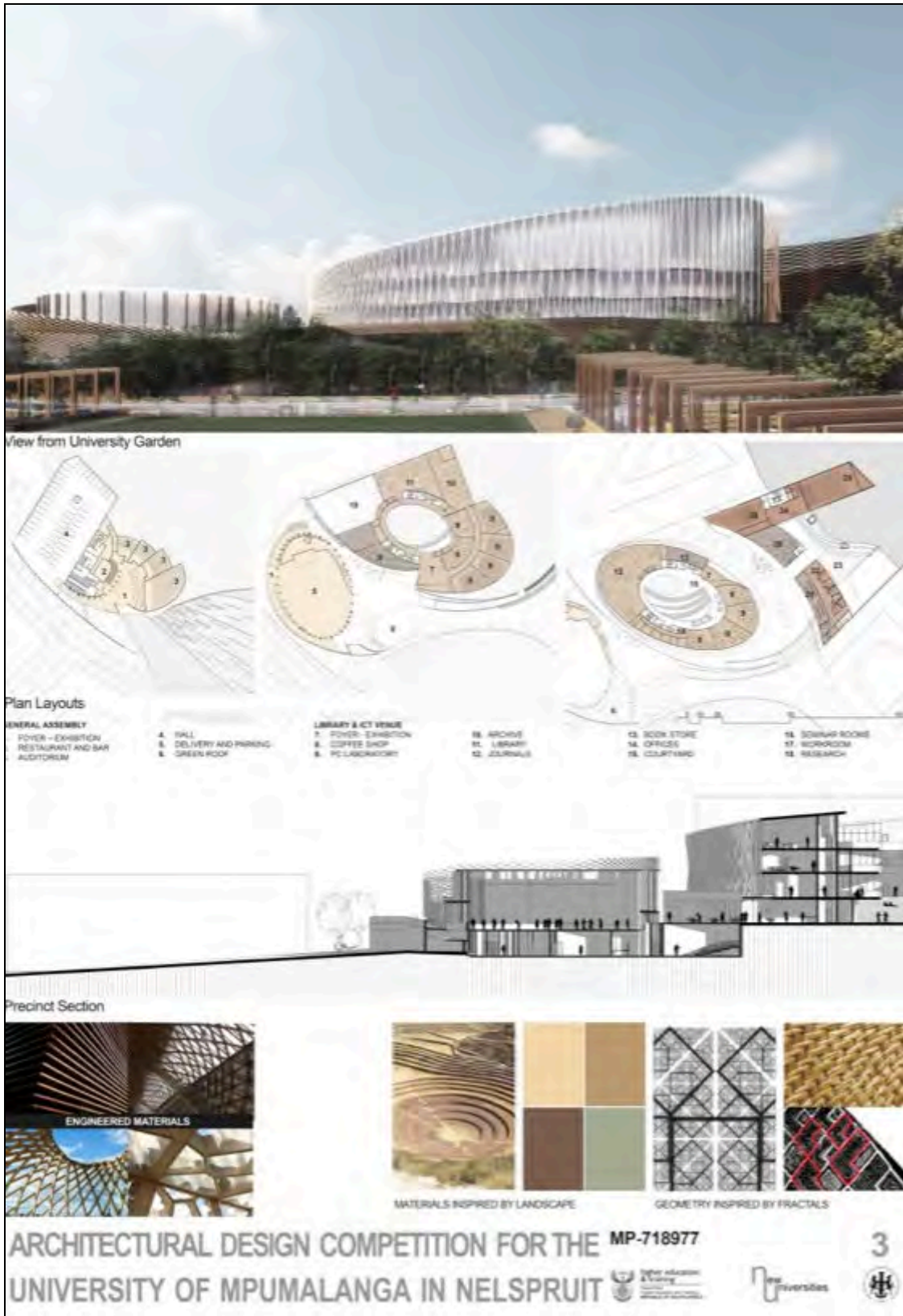


Fig 8.16: UMP: 2nd Phase Competition Submission – GAPP Architects and Urban Designers.

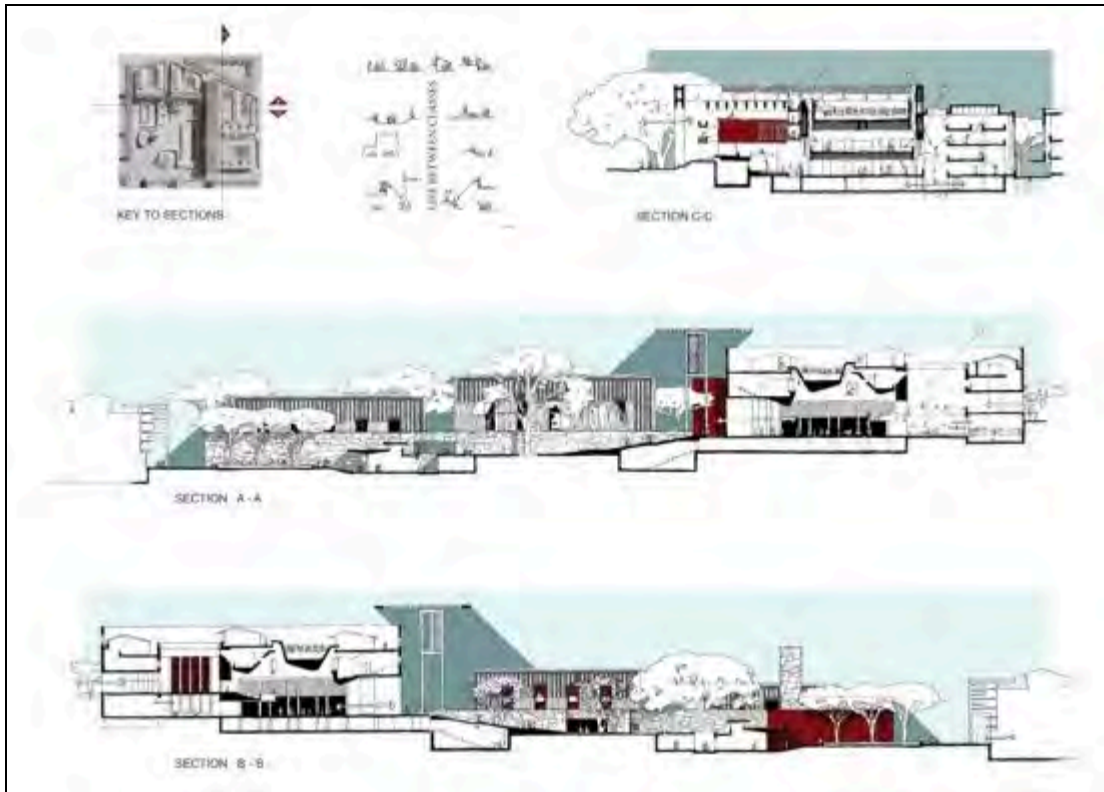


Fig 8.17: UMP: 2nd Phase Competition Submission – URBA Architects and Urban Designers.



Fig 8.18: UMP: 2nd Phase Architectural Competition Winners Announcement at function addressed by the DHET Minister, Dr. Nzimande.



Fig 8.19: Launch of the University of Mpumalanga 31 October 2013. Opening of the Memorial Garden.



Fig 8.20: Launch of the University of Mpumalanga 31 October 2013. Planting of tree, and the viewing of the architectural competition entries.

REFERENCE DOCUMENTS

8-1 NUPMT Standard Conditions for a Design Competition

8-2 An overview of the proposed process for the appointment of consultants to provide architectural services (April 2013)

8-3 Sol Plaatje University - Stage 1: Competition Data, Briefing and Evaluation Criteria

8-4 Sol Plaatje University - Stage 2: Competition Data, Briefing and Evaluation Criteria

8-5 Sol Plaatje Accommodation Schedule

8-6 Competition Administrators Report for both universities

8-7 University of Mpumalanga - Stage 1: Competition Data, Briefing and Evaluation Criteria

8-8 University of Mpumalanga -Stage 2: Competition Data, Briefing and Evaluation Criteria

8-9 University of Mpumalanga - Accommodation schedule

Chapter 9

Procurement strategy



9. Procurement Arrangements

The development of the two new universities required that an entire campus be built within a prescribed period. This involved the provision of bulk services to the university precincts, the provision of services including roads and parking areas within these precincts, the construction of residences, administrative offices, places of assembly, teaching spaces, landscaped areas and sports fields. The scope of work for the physical infrastructure required at both the universities at any point in time was driven by the unfolding academic programme, incremental student intakes and funding constraints.

This chapter outlines the approach taken in procuring the goods, services and works required to launch these two new universities and to provide the necessary facilities for the first student intakes up to the start of the 2016 academic year. It also describes the strategy that was adopted, the strategic actions taken, the procurement options employed and the outcomes of the procurement processes leading to the award of contracts up to December 2014.

The Department of Higher Education and Training (DHET) entered into an agreement with the University of the Witwatersrand, Johannesburg (Wits), during November 2011 to project manage and resource the spatial and physical planning and development for two new institutions. Wits appointed the DHET New Universities Project Management Team to do so on its behalf i.e. a core team under the Wits Director Campus Planning and Development and including contracted resources in the form of a delivery manager, a programme / project manager, a spatial and architectural design specialist and a procurement specialist, all of whom had worked together in delivering Wits' capital programme since 2008. This core team was subsequently extended to include higher education and development expertise.

Importantly, Wits' procurement practice on the new universities project has informed the development of the recently published National Treasury procurement standards. All procurement for the new universities was based on Wits University's *Construction Procurement Policy, Processes, Procedures, Methods and Delegations*.^[9-1] This university document is almost a carbon copy of the draft National Treasury's *Standard for a Construction Procurement System* which was published in November 2012 for public comment. The Wits professional services contracts were structured around the draft *Standard for an Infrastructure Delivery Management System* which was also released by Treasury for public comment during November 2012.^[9-2]

The two draft Treasury Standards highlighted above were subsequently combined into one document, namely the *Standard for Infrastructure Procurement and Delivery Management*. The published version of this standard draws upon the experience gained by the New Universities Project Management Team in applying these draft Treasury Standards in practice.

9.1. WITS PROCUREMENT POLICY AND PROCEDURES

The Wits *Construction Procurement Policy, Processes, Procedures, Methods and Delegations* describes the permissible procurement procedures, establishes under what conditions such procedures may be used and provides a control framework to manage procurement processes. In terms of this policy, the Director Campus Planning and Development appoints ad hoc documentation review teams and evaluation panels to review

the procurement documents and to evaluate submissions received, respectively. He also takes decisions on interim processes. A standing university tender committee (governance committee), which deals with all Wits tenders, considers the tender report and recommendations of the evaluation panel and either refers the report back to the evaluation panel or makes a recommendation to the delegated authority to award the contract (or not), with or without conditions. The relevant delegated authority awards the contract if its monetary value is within his or her delegation.

To support efficient and effective procurement and collaborative contractual relationships, the Wits policy permits framework agreements to be entered into on an as and when required basis over a three-year term without any guarantee of any quantum of work. The process for putting in place a framework agreement is no different to any other contract.

Contract managers are empowered to increase the total of the prices excluding contingencies and price adjustment for inflation and the time for completion by not more than 2%. The Director Campus Planning and Development may increase such total of prices by up to 10% and the time for completion by up to 20%. The delegated authority is empowered to further increase these values should the need arise.

9.2. INITIAL PROCUREMENTS TO DEVELOP THE IMPLEMENTATION PLAN

The NUPMT established a website to facilitate the issuing of procurement documents and management of the issuing of clarifications and addenda. This website permitted calls for expressions of interest and tender documents to be downloaded by prospective tenderers should they register their contact particulars for a particular procurement. It was also possible to issue clarifications and addenda to all those registered for a particular procurement.

Wits commenced work on the project during November 2011. The first key deliverable was a Phase 1 Implementation Plan, comprising an implementation plan for the establishment of the two Universities together with a communication plan enabling promulgation of the seats of the respective Universities by the DHET. During July 2012 competitive tenders were invited in the press for a range of professional services, following the President's announcement on 5 July 2012 that the new universities for Mpumalanga and Northern Cape provinces would be located in Nelspruit and Kimberley respectively.

Tenders were invited on a term services basis (NEC3 Professional Service Contract (PSC) – Option G: Term contract) with a ceiling price of R 1.0 m (i.e. the threshold for quotations) for services relating to landscape architecture, data base information management systems, social impact assessments, cost consulting, town planning, civil engineering, electrical engineering, environmental impact assessment, geotechnical engineering, land surveying, traffic engineering and heritage assessments. These tenders were awarded in terms of a quotation procedure.

A number of contracts with specialists such as those relating to university space norms and building cost analysis, university policy and procedures, change management and communications and property transaction advisor, were negotiated using the negotiated procedure with identified specialists. Contracts were entered into using the NEC3 Professional Service Contract (PSC) under Option E (Time based contract) or Option G (Term contract.)

9.3. STRATEGIC APPROACH TO PROCUREMENT

The NUPMT based its procurement approach on the experience gained by Wits University in delivering its substantial capital works programme over the period (2007 – 2012) preceding the new universities project. ^[9-4] Key learning from this experience was that the project objectives can best be achieved when:

- a) The design of the buildings and associated site works are managed by the employer and his agents, and the main contractor has limited responsibilities for the design;
- b) Discipline-specific design specialists are appointed by the employer to provide the required design inputs;
- c) Fragmentation in design is addressed by involving the contractor wherever possible in the development and finalisation of the design;
- d) A conscious decision is taken to move away from the pre-planned traditional contracting approach (“them-and-us”) towards an integrated project team which works together over a number of years, taking learnings from one project to another, and supporting a collaborative team culture;
- e) A flexible construction service (three-year contracts are established with the capacity to respond rapidly to changing demands and constraints as the projects unfold);
- f) The client leadership and procurement strategy promotes an industry culture shift (see Table 9.1).

Table: 9. 1 Culture shift promoted through the client’s procurement strategy

From	To
Master-servant relationship of adversity	Collaboration towards shared goals
Fragmentation of design and construction	Integration of design and construction
Allow risks to take their course	Active risk management and mitigation
Meetings focused on past - what has been done, who is responsible, claims, etc.	Meetings focused on “How can we finish project on time and within budget?”
Develop the project in response to a stakeholder wish list	Deliver the optimal project within the budget available
“Pay as you go” delivery culture	Discipline of continuous budget control
Constructability and cost model determined by design team and quantity surveyor <u>only</u>	Constructability and cost model developed with contractor’s insights
Short-term “hit-and-run” relationships focused on one-sided gain	Long-term relationships focused on maximising efficiency and shared value

From the outset the NUPMT recognised that the living and working conditions created by a superior design for a university makes a positive contribution to a sense of academic identity and collegiality on campus, and that some of this benefit extends to the local community as well. As universities outlive any one generation of teachers and students, an excellent design must be true to its time and place, while leaving options open for the contributions of future generations. A university should stand as a proud embodiment of the highest values that a society can achieve both in the present and in the future.

These fundamentals underpinned the specifics of the NUPMT procurement strategy.

9.4. KEY SPECIFICS OF THE NUPMT PROCUREMENT STRATEGY

Based on Wits' experience and the specific objectives developed by the NUPMT and the integrating and governance structures described elsewhere in this report, the primary procurement objectives for the New Universities project were to:

- a) Deliver the universities within a control budget;
- b) Ensure that lifecycle costs and sustainability are considered;
- c) Ensure that expenditure is within the annual allocations of the MTEF;
- d) Ensure that teaching spaces can be occupied at the start of the academic year;
- e) Provide works that are capable of being readily maintained;
- f) Ensure that the design of teaching spaces is aligned with current and future best practice;
- g) Ensure a non-negotiable commitment to health and safety;

The secondary procurement objectives for the New Universities project were to:

- a) Promote broad based black economic empowerment (B-BBEE);
- b) Promote and support local participation (province wide) throughout the supply chain and local employment through the delivery of the works; and
- c) Support skills development by increasing the number of people who have part qualifications, national qualifications and professional designations awarded by statutory councils.

South Africa's Broad Based Black Economic Empowerment Act (Act 53 of 2003) establishes a legislative framework for the promotion of black economic empowerment. Codes of Good Practice on Black Economic Empowerment issued in terms of the Act measure the overall contribution of entities to broad based black economic empowerment using a score card. Entities are rated in terms of their level of contribution from 1 to 8. Preference points are awarded in accordance with their status as indicated in Table 9.2.

Table 9.2: Preference points for Broad-based Black Economic Empowerment contributors

Empowerment status determined in accordance with the preference schedule for Broad-Based Black Economic Empowerment	% max points for preference
Form not completed or non-compliant contributor	0
Level 8 contributor	10
Level 7 contributor	20
Level 6 contributor	30
Level 5 contributor	40
Level 4 contributor	50
Level 3 contributor	80
Level 2 or contributor	90
Level 1 contributor	100

From the outset, the NUPMT recognised the importance of local participation (province wide) in the construction process and established a set of key performance indicators and

participation goals for local business participation, local employment and skills development (see Table 9.3). These are set out in the table below. Standard specifications were developed to enable these goals to be implemented through contracts. The outcomes of this targeting strategy are described in Chapter 11.

Table 9.3: Key performance indicators and targets

KPI	DHET New Universities PMT Specification	Definition of KPI
contract local participation goal (CLCG)	Specification for local participation in engineering and construction contracts	The percentage of the Defined Cost excluding amounts for specialist subcontractors included in the amount due following Completion of the whole of the works, which represents: a) the wages, salaries and amounts paid by the Contractor to local people according to the time worked while they are within the Working Areas; b) payments made to local enterprises for Equipment, Plant and Materials; and c) payments to Subcontractors who are local enterprises
broad-based black economic empowerment spend goal (B-BBEE SG)	Specification for B-BBEE spend in engineering and construction contracts	The Contractor's total B-BBEE procurement spend to Provide the Works, expressed as a percentage of the Contractor's total procurement spend
contract local direct employment goal (CLDEG)	Specification for direct employment generated in engineering and construction contracts	The percentage of the total number of equivalent person days worked by people employed by the Contractor or a Subcontractor within the Working Area who are local people
contract skills development goal (CSDG)	Specification for developing skills that result in nationally accredited outcomes through infrastructure contracts	The number of hours of skills development opportunities that a contractor contracts to provide in relation to work directly related to the contract or order, up to: a) completion in the case of a professional service contract; b) the end of the service period in the case of a service contract; c) practical completion in the case of an engineering and construction works contract; and d) the delivery date for all the work required in terms of a supply contract.

9.5. PROFESSIONAL SERVICE CONTRACTS

The appointment of a large number of discipline specific consultants on a framework agreement basis required documented and co-ordinated scopes of services within a defined project life cycle and a competitive and auditable procedure for the determination, after the award of a framework agreement, of an appropriate fee for standard architectural, cost consulting and engineering services. Standard documents were developed based on government's Infrastructure Delivery Management System (IDMS), namely the *Standard Scope of Professional Services associated with the Delivery of a Package*, ^[9-3] the *Framework for the Determination of Professional Fees for Consulting Services* ^[9-5] and an *Occupational Health and Safety Specification for Construction Works Contracts*. ^[9-6]

The total professional fee for a construction project can be estimated either on the basis of the staff rates and the estimated number of hours or days to perform the tasks associated with a work plan, or a methodology which is based on a percentage of the construction cost as is commonly the case in South Africa. Fixed (lump sum) fees, based on either of these two methods, can only be established at the outset of a project if the scope of the project, the construction schedule and other variables can be determined with reasonable accuracy. Such information was not available at the outset of the project, or for that matter over the term of the framework agreement. Therefore, the NUPMT opted for fee based on a percentage of the cost of construction for architectural, landscape architectural and engineering services relating to design and construction monitoring as well as cost consulting services.

A fee based on a percentage of the cost of construction, which reduces as the cost of construction increases, allows a price to be established in the absence of the detailed information required to prepare a comprehensive estimate of the hours involved in a project to arrive at a fixed fee. Such a fee needs to take into account a number of variables such as the level of effort required in providing the service, the consultant's profit and overheads and the consultant risks and unrecoverable expenses.

The fee percentage applicable to the various projects can be calculated in terms of the following formula:

$$\text{Fee percentage applicable to a project} = \text{BPF} \times F_{LE} \times F_{PO} \times F_{CON}$$

where:

- BPF is the basic percentage fee derived from a curve, tabulation or a mathematical expression of a curve e.g. those published by South African statutory councils as guideline fees;
- F_{LE} is an adjustment factor that reflects the level of effort that is required which is made up by applying standard adjustments for different demands upon the required services and project specific factors that are finalised with the employer when the full scope of work is understood;
- F_{PO} is an adjustment factor which takes into account the difference between the consultant's overheads and profit structure and the standardised value for overheads and profit upon which the basic fee percentage curve is based e.g. the tendered professional and technical staff rate expressed in cents / R 100 or part thereof of total cost of employment / 16; and
- F_{CON} is an adjustment factor made by the consultant to reflect factors such as risk, productivity, efficiency, locality, local knowledge, particular methods or systems for delivering services, level of expenses that are not recoverable, etc.

The *Framework for the Determination of Professional Fees for Consulting Services* ^[9-5] provides a methodology based on the above formula for the determination of fees on a percentage of construction cost for architectural services, cost consulting services for building works and engineering services. Tenderers were invited to tender the cents per R100 or part thereof of the total cost of employment, which enables the hourly staff rate to be calculated, and the adjustment factor (F_{CON}). The adjustment factor for the consultant's overheads can be calculated and the final fee can be established when the precise scope of work is known after the award of a contract, based on the level of effort that is required, commercial risk and efficiency considerations. This is the method that was adopted by the

NUPMT and which achieved effective service and efficient cost outcomes as outlined in Chapter 14.

The NUPMT opted for the NEC3 Professional Service Contract (PSC) and specifically for Option G (Term contract), which provides for the issuing of task orders, either on a time charge basis or on a lump sum basis where the lump sum is based on the forecasted times required for the services, multiplied by the staff rates. Using a Z clause (additional clause) provision in the contract, the NUPMT permitted as an alternative for a lump sum to be established on the basis of a percentage of the cost of construction derived from the aforementioned framework.

Competitive tenders were invited for consulting services. In all cases, tenderers had to include their maximum hourly rate and the cents per R100 or part thereof of the total cost of employment, and where the framework for the determination of a percentage fee applied, their adjustment factor (F_{CON}). In some instances (e.g. project management services), tenderers were required also to tender a maximum monthly fee and a parameter to enable a monthly fee to be derived from the total annual cost of employment. Tenderers were required to include the cost of travel and accommodation associated with providing the service in Kimberley or Nelspruit, as relevant, in their tendered parameters. The tendered parameters were reduced to a common basis in terms of a tender assessment schedule which weighted and combined each parameter and was included in the procurement documents issued to tenderers.

9.6. DESIGN COMPETITION FOR ARCHITECTURAL SERVICES

Separate architectural design competitions were held for the Sol Plaatje University and for the University of Mpumalanga (see Chapter 8). A two-stage design competition was developed for each to extract innovative designs, ideas and practices and to identify talented designers for development of the new universities. The competition sought to discover talent and skill which, but for a competition, would remain unknown, and to promote the project through publicity and exhibitions. The announcement of the winners and the exhibiting of the entries of the finalists was linked to the launch of the new universities in the latter part of 2013. It was envisaged that the second stage at each of the universities would include no more than ten competitors and an honorarium of R40 000 was offered to all participants in the second stage who submitted submissions of a quality acceptable to the jury.

Each design competition was endorsed by the South African Institute of Architects and was linked to the qualified procurement procedure to enable framework agreements to be entered into with up to five architectural practices per university. Admission to the design competition was initiated through an expression of interest. Those respondents who expressed interest had to be registered as a professional architect in terms of the Architectural Profession Act of 2000 and had to complete the competition Application Form.

Each design competition was conducted strictly in accordance with the provisions of a set of *Standard Conditions for a Design Competition* ^[9-7] prepared for the competition, based on international practices. These conditions bound the competition administrator, participants, the jury, the promoter and technical consultants to conduct themselves in a particular manner. They established what each participant was required to do in order to make a compliant submission, and also established the actions and functions of the competition administrator, the jury and the promoter. These conditions were designed to ensure that the

identity of any particular participant during the process was not known to the jury until after competition winners were announced. The competitions' administrator was only made aware of the identity of participants at the conclusion of each stage.

Participants in the first stage were provided with a brief which included a Spatial Development Framework and were required to provide a brief outline of their understanding of the five issues listed (see Chapter 8) using sketches, diagrams, images and text, and their proposed methodology and approach, in not more than ten A4 pages. The jury was tasked to select no more than ten participants to progress to the next stage (see table below).

Participants in the second stage were required to submit ideas based on a full brief, including detailed precinct plans. The focus during this stage was on the design of buildings and the detailed elaboration of a portion of the campus. Participants were required to outline by way of drawings (plans, sections, elevations and perspectives) and a monotone block model their approach and understanding to a university building in the context of the prescribed Development Framework for the University. Participants during this stage were required to provide up to six single sided A1 posters in a prescribed format and four large scale and high resolution electronic images which would form part of the announcement of winners. The jury was tasked to rank the submissions and to decide whether or not to award an honorarium.

In the final phase of the award process, those participants who were admitted to the second stage of the competition were invited to associate with architectural practices and to submit tender offers. Tenders were evaluated on the basis of their financial offer, preference and quality. The score for quality was based solely on the ranking of the competition jury. The financial offer was adjusted for preferences using the 90:10 preference points system in accordance with the provisions of the Preferential Procurement Policy Framework Act with all the points for preference being allocated to B-BBEE. Points for quality (maximum 100) were combined with the preference points system as other objective criteria in terms of the Preferential Procurement Policy Framework Act. A weighting of financial offer adjusted for a preference to quality of 0.3:0.7 was selected to ensure that the architectural practices with the highest ranked participants would be awarded a contract provided that they tendered reasonable financial parameters and obtained some points for preference. Tenderers who failed to be ranked by the jury were eliminated from contention. Framework agreements were concluded with the highest ranking tenderers based on the NEC3 PSC Option G.

Tables 9.4 and 9.5 provide a summary of the procurement process and the outcomes of such processes. By way of comparison, the South African Council for the Architectural Profession's recommended time-based rates (effective from 1 January 2012), exclusive of VAT, are R 2 400 per hour for specialists and R 1 875 per hour for a partner or equity holder with more than 10 years of experience and between 16,5 to 22,5 cents for salaried staff, depending upon the level of responsibility they carry. The SACAP recommended fees exclude travelling costs.

Table 9.4: Summary of procurement process for architectural services

Milestone	Sol Plaatje University	University of Mpumalanga
Expressions of interest		
Documents available from	6 May 2013	27 May 2013
Number respondents who expressed interest	179	147
Closing date for submissions	27 May 2013	
First stage of design competition		
Documents available from	30 May 2013	24 June 2013
Number downloaded documents	153	111
Closing date for submissions	11 July 2013	1 August 2013
Number of submissions received	59	47
Jury composition	7 members. 4 architects (3 from South African and one from Botswana) plus a representative of the University Interim Council, Sol Plaatje / Mbombela Municipality and DHET)	
Number admitted to the next stage	9	7
Second stage of design competition		
Documents available from	19 July 2013	8 August 2013
Closing date for submissions	10 September 2103	11 October 2013
Number of submissions received	9	7
Number of submissions ranked	6	4
Announcement of the competition "winners"	18 September 2013	30 October 2013
Tenders		
Documents available from	19 July 2013	26 August 2013
Closing date for tenders	10 September 2013	11 October 2013
Tenders received	9	7
Responsive tenders	6	4
Evaluation panel report finalised	17 September 2013	29 October 2013
Announcement of recommended tenderers	18 September 2013	30 October 2013

Table 9.5 Procurement outcomes for architectural services

	Sol Plaatje University	University of Mpumalanga
Maximum hourly rate excluding VAT but including travel costs		
Maximum	R 1 750	R 2 300
Minimum	R 1 050	R 1 100
Average	R 1 410	R 1 531
Cents per hour / R100 of total annual cost of employment excluding VAT but including travel costs		
Maximum	19 cents	17,5 cents
Minimum	13 cents	12 cents
Average	15,6 cents	14,9 cents
Effective adjustment factor to SACAP December 2011 fee scale*		
Maximum	1,13	1,14
Minimum	0,7	0,68
Average	0,93	0,92
Socio-economic		
Average B-BBEE score (max = 10)	5.4	4.8

* The effective adjustment factor = tendered F_{CON} x tendered cents per hour per R100 of total cost of employment / 16

9.7. PROCURING THE SERVICES OF THE PROFESSIONAL TEAMS

9.7.1 Urgent start up services

With the exception of interior design and space planning expertise, the NUPMT had the necessary capabilities and capacity to scope and oversee the work associated with the 2014 start-up of the universities which required the refurbishment, extension or alteration of existing buildings. Open tenders were called for during September 2013 for interior design and space planning services with all the preference points allocated to B-BBEE. Tenders were evaluated on the basis of financial offer, preference and quality. The financial offer was adjusted for preference using the 90:10 preference points system with all the points for preference being allocated to B-BBEE. Points for quality (maximum 100) were combined with the preference points system as other objective criteria. Tenderers scoring less than 60 points were eliminated from further consideration. A weighting of financial offer adjusted for a preference to quality of 0.7:0.3 was used. Contracts based on the NEC3 PSC (Option G: Term contract) were entered into with the successful tenderers for a three-year term.

Short term appointments were made to provide one of the architects in each of the universities with engineering design capacity in order to fast track selected buildings for tender purposes. Similarly, short term appointments were made for cost consultants to provide immediate assistance to the NUPMT with the financial administration of the management contractors, who had been appointed to undertake the urgent refurbishment work for the start of the 2014 academic year. These appointments were made in terms of the Wits Policy which permits contracts for professional services having a value not exceeding R250 000 including VAT to be entered into using the negotiated procedure with a suitably qualified consultant on a time and cost basis. Contracts based on the NEC3 PSC (Option E: time based contract) were entered into.

9.7.2 Professional services for design and supervision

Following the appointment of the architects, tenders were invited to secure the services of the remainder of the professional design team using the open procurement procedure with all the preference points allocated to B-BBEE.

Eligibility criteria: Stringent eligibility criteria were set for each procurement. These were typically designed to ensure that the appointed consultants:

- Provide independent advice;
- Are not unincorporated joint ventures;
- Are companies registered in terms of the Companies Act or the Closed Corporation Act or a partnership with an agreement that enables the partnership to continue to function in the event of a death or withdrawal of one of the partners;
- Have in their full time employ a suitably qualified person who will either provide the service or who will direct the services (i.e. a key person);
- Are able to produce annual financial statements;
- Have contactable references for the provision of similar services;
- Have in place a minimum level of professional indemnity cover; and
- Have a turnover in excess of a specified threshold.

Unincorporated joint ventures were excluded because of the uncertainties relating to *who* is being evaluated in the tender process, *who* will provide the service, whether or not the

“marriage” will remain intact over the term of the contract, how the liabilities are to be finally apportioned within the joint venture, *who* will be responsible for rectifying defects and how professional indemnity insurance cover will be dealt with after the term of the contract. Sole proprietors who were not practising within registered companies were excluded due to risks relating to accessibility of outputs and work in progress in the event of death during the term of the contract.

In the case of the tenders for Cost Consultants the tender required prior experience of university and higher education cost norms as part of the eligibility criteria. The NUPMT was challenged by the Association of South African Quantity Surveyors (ASAQS) of the Northern Cape Chapter who lodged a formal complaint with the Competition Commission. The NUPMT justified this eligibility criterion on the basis that the project required proactive cost control to ensure that each project is designed and delivered within an established control budget. This approach contrasts with the commonly encountered method based on the measurement and costing of what others have designed. The NUPMT also pointed out to the Commission that the eligibility criteria did not unduly limit competition and resulted in fees which were substantially lower than those recommended by the South African Council for the Quantity Surveying Profession. The Commission concluded its investigation and decided, on the basis of the information available, not to refer the matter to the Competition Tribunal for determination.

Evaluation criteria: Tenders were evaluated on the basis of their financial offer, preference and quality as previously described. A weighting of financial offer adjusted for a preference to quality of 0.6:0.4 was applied to all tenders save for those relating to project management, strategic environmental, health and safety and environmental compliance services where a weighting of 0.5:0.5 was applied. Two standard quality criteria were evaluated in all tenders, namely the experience of the principal consultant (key person) in terms of professional profile and experience in relation to the required service and the value added by the tenderer (i.e. the answer to the question as to why the employer will derive better value for money by contracting with the tenderer rather than with any other tenderer).

An approach paper was required and evaluated in terms of the tenders for wet services, project management, cost consulting and fire, civil and mechanical engineering services. An interview with the four highest scoring tenderers took place in the tenders for project management services whereby the evaluation panel had the opportunity to moderate the quality score for the approach paper and the value added by the tenderer following an oral presentation by the key person.

Tender responses and evaluation: Tenders were invited for professional services for both Universities in a national newspaper and in local newspapers and on the New University website during 2014 (see Table 9.6). No tenders were received for land surveying services at the Sol Plaatje University or for fire engineering services at the University of Mpumalanga. No responsive tenders were received for the health and safety services required at both universities and for land surveying services at the University of Mpumalanga.

The lack of responsive tenders received for health and safety services was perceived to be related to the lack of registered persons complying with the Construction Regulations 2014 issued in terms of the Occupational Health and Safety Act of 1993. The health and safety tenders were accordingly re-advertised with the assistance of the South African Council for Project and Construction Managers. The other tenders were not re-advertised as the

aforementioned negotiation procedure for services having a value of less than R 250 000 and quotation procedure for tenders under R 1,0 m were used to satisfy requirements.

Compulsory clarification meetings were held for the project management, cost consulting and civil, electrical, mechanical and structural engineering services and wet services. A technical evaluation panel comprising at least three suitably qualified built environment professionals performed the technical evaluations. A tender evaluation panel with representatives from the interim university councils and other stakeholders finalised the tender evaluation report. The tender reports were submitted to the scheduled monthly meeting of Wits' tender committee for their consideration and recommendations.

Statistics: Statistics relating to the tenders advertised between March and August 2014 are provided in Table 9.6. A number of tenderers were not scored either due to their failure to score above the quality threshold score of 60 or to tender the specified financial parameters. The average number of calendar days between the closing of tenders and the tender committee meeting recommending the award of the contracts excluding the tenders for project management services was 34 days.

The average tendered parameters for the successful tenderers in the different disciplines is indicated in Table 9.7. The fees recommended by the South African Council for the Quantity Surveying Profession (SACQSP – effective 1 January 2013), the Engineering Council of South Africa (ECSA – effective 1 January 2014), the South African Council for Landscape Architects (SACLAP – effective 1 January 2013) and the South African Council for the Project and Construction Management Professions (SACPCMP – effective 1 January 2012), are shown in brackets in Table 9.7 – all excluding travel costs. All the tendered financial parameters are significantly lower than the fees recommended by the statutory councils before reductions for travelling expenses to enable proper comparison.

None of the appointed consultants who provided project management, landscape architectural, environmental, health and safety or specialist engineering services were based in Kimberley or Nelspruit. 50% of the cost consultants (quantity surveyors) and 70% of the electrical, mechanical, civil and structural engineering consultants appointed for the Sol Plaatje University were either based in Kimberley or had a branch office in Kimberley. 50% of the cost consultant and 63 % of the electrical, mechanical, civil and structural engineering consultants appointed for the University of Mpumalanga were either based in Nelspruit or had a branch office in Nelspruit.

Table 9.6: Tenders received for professional services (March to August 2014)

Service	Tenders			Averages of scored tenderers					Highest quality	Dates (Closing of Tender/ Tender committee)	No of awards
	Received	Responsive	Scored	Max hourly (Rand)	Salaried staff (Cents)	Effective adjustment factor*	B-BBEE (score)	Quality score			
Sol Plaatje University											
Electrical engineering	17	12	9	1183	13.2	0.89	7.8	78.0	88.3	11-03 /20-03	2
Civil engineering	19	14	14	1134	13.4	0,88	6.9	75.0	84.3	11-03/ 20-03	1
Fire engineering	2	2	2	1050	13.8	na	9.0	72.2	78.3	11-03 /20-03	1
Mechanical engineering	13	8	7	1265	14.4	0,91	8.7	71.2	80.2	11-03 /20-03	2
Structural engineering	18	16	16	1165	13.9	0.88	7.8	77.3	90	11-03 /20-03	2
Wet services	5	3	1	1050	12.5	0,7	9.0	77	77	27-03 /17-04	1
Project management	13	6	4	1663	12.3	na	7.8	75.6	92.5	27-03 /27-06	2
Cost consulting	14	9	7	1079	14.9	0.82	7.6	73.8	89.5	27-03 /17-04	2
Geotechnical	4	3	2	2284	16.5	na	6,5	72.9	83.3	08-04 /15-05	1
Traffic engineering.	8	3	3	1183	13,6	na	8.3	79.7	86.0	08-04 /15-05	1
Acoustic engineering	2	1	1	1940	18.0	na	8	91.7	91.7	08-04 /15-05	1
Landscape architectural	11	5	3	946	10,8	0,68	5,5	79.8	88.5	08-04 /15-05	1
Strategic environmental	5	2	2	1225	15,8	na	7.0	92.5	100	28-05 /27-06	1
Health and safety	9	2	2	925	14.5	na	7.0	71.7	72,5	20-08 /08-10	1
Environmental compliance	11	3	3	823	12.3	na	7.7	84.6	88.1	20-08 /08-10	1
University of Mpumalanga											
Electrical engineering	16	13	10	1223	13.5	0.93	7.3	77.8	89.2	18-03 /17-03	2
Civil engineering	16	13	12	1098	13.6	0.74	7.4	75.1	91.8	18-04 /17-04	2
Mechanical engineering	12	9	8	1287	14.4	0.94	7.8	72.9	84.8	18-03 /17-04	2
Structural engineering	20	18	18	1200	14.1	1.1	7.6	72.6	88.3	18-03 /17-04	2
Wet services	4	2	1	900	16.5	3.0	0	68.5	68.5	02-04 /17-04	1
Project management	15	9	7	1562	13.6	na	7.2	71.9	92.5	02-04 /27-06	1
Cost consulting	15	10	6	1032	13.8	0.89	8.5	78.4	88.5	02-04 /17-04	2
Geotechnical	8	5	4	1014	14.0	na	4.5	81.7	86.7	08-04 /12-06	1
Traffic engineering	6	4	3	867	13.3	na	7.0	79.5	81.7	08-04 /12-06	1
Acoustic engineering	2	1	1	1940	18.0	na	8	91.7	91.7	08-04 /12-06	1
Landscape architectural	10	3	3	1033	11.3	0,77	9	83.1	88.8	08-04 /12-06	1
Strategic environmental	4	2	2	1225	15,8	na	7.0	93.7	99.4	28-05/ 27-06	1
Health and safety	14	1	1	1100	15.0	na	9	72.0	72.0	20-08 /08-10	1
Environmental compliance	14	5	5	873	13.5	na	8.0	80.3	88	20-08 / 8-10	1

* The effective adjustment factor = Tendered F_{CON} x tendered cents per hour per R100 of total cost of employment / 16

Table 9.7: Average parameters of successfully tendered professional services

Average tendered parameters inclusive of travel expenses	Cost consulting	Engineering (electrical, mechanical, civil and structural)	Landscape architecture	Project managers
Maximum hourly rate excluding VAT but including travel costs	R 933 (SACQSP = R 1669 if public sector 2014 director salary applied)	R 921 (ECSA = R1958 if 2014 public sector director salary applied)	R 895 (SACLAP = R 1140 – 2013 rate)	R 1291 (SACPCMP = R 1469 – R 1780 if 2014 public sector director salary applied)
Cents per hour / R100 of total annual cost of employment excluding VAT but including travel costs	12.3 (SACQSP = 16.5 – 17.5)	12.3 (ECSA = 16,5 to 17.5)	11 (SACLAP = 12.5 to 17,5)	11.8 (SACPCMP = 14.7 – 16.5)
Effective adjustment to guideline fee scales published by a statutory body	0.72 x basic SAQSP 2013 fee	0.73 x basic average ECSA 2014 fee	0.69 x basic SACLAP 2013 fee	Na
Average preference score	8.8	8.8	8.0	6.5

Framework agreements were concluded with the highest ranked tenderers based on the NEC3 PSC Option G over a three-year term. In the case of cost consulting and project management services, it was considered essential (from a commercial risk perspective) that the appointed service providers should only provide services to one of the two universities. Contract skills development goals were linked to all task orders issued during the term of the contract having a value and duration in excess of R2.0 million and 12 months, respectively.

9.8. PROCURING CONSTRUCTION SERVICES

9.8.1 Civil engineering works:

For the September 2013 launch of the Sol Plaatje University, construction services were required to prepare a paved area of the Central Campus square. Open tenders were called for during July 2013 for a civil engineering framework contract having a three-year term for the construction and upgrading of infrastructure, including roads, paved areas, pedestrian crossings, parking areas, landscaping and electrical installations within the new university campus. In addition to the CIDB contractor grading criteria (grade 6CE and higher), eligibility criteria were set, which included previous experience during the past three years, ability to generate financial statements and minimum turnover during the previous financial year. Quality (experience and value add) was evaluated with a weighting of financial offer adjusted for a preference for B-BBEE to quality of 0.8:0.2. A contract was entered into with a Kimberley based contractor having a CIDB contractor grading designation of 6, based on the NEC3 Engineering and Construction Short Contract, which contained a price list of the typical activities which were likely to be encountered in package orders issued during the term of the contract.

9.8.2 Refurbishment

Construction services were required to refurbish, extend or alter existing buildings on both campuses ahead of the 2014 academic start and subsequently for the 2015 and the 2016

academic start. Open tenders were called for during July 2013 for a framework contract having a three-year term, based on the NEC3 ECC (Option F: Management contract). In terms of this type of contract, the contractors are paid their expenses (market related prices or competitively tendered amounts) plus their tendered fee to cover items such as profit, company overheads, finance changes, insurances, performance bonds, management costs etc.

In addition to the CIDB contractor grading criteria (grade 6 GB or higher), eligibility criteria were set, which included previous experience during the last three years, ability to generate financial statements and a minimum turnover during the previous financial year). Quality (experience of tenderer and key person and value add) were evaluated with a weighting of financial offer adjusted for a preference to quality of 0.75:0.25. Statistics relating to the management contract tenders are provided in Table 9.8 below. Contracts were entered into with a Kimberley based CIDB grade 7 contractor for the Sol Plaatje University and a Nelspruit based CIDB grade 8 contractor for the University of Mpumalanga.

Table 9.8: Tenders received for a management contract (September 2013)

Service	Tenders			Averages of scored tenderers				Highest quality	Dates (Closing of Tender/ Tender committee)	No of awards
	Received	Responsive	Scored	Direct Fee %	Subcontract Fee %	B-BBEE (score)	Quality score			
Sol Plaatje University	6	1	1	12	8	10	92.3	92.3	03-09-13 / 24 -10-13	1
University of Mpumalanga	11	3	2	16.25	13.8	6.3	84.5	85.7	26-09-13 24-10-13	1

9.8.3 Construction of new buildings:

During 2014, tenders were invited for the construction of buildings within the university precincts of both universities in terms of a restricted competitive negotiations procedure for a framework contract having a three-year term, based on the NEC3 ECC (Option C: Target Contract).^[9-3] In terms of this type of contract, a target price, based on activity schedules, is agreed between the employer and the contractor to stimulate productivity. Throughout the contract, the initial target price is adjusted for compensation events (e.g. scope changes and events which are at the employer's risk), to arrive at a final 'cost' to keep the target equitable. The contractor is paid his costs (people, materials, plant, equipment, site overheads, subcontractors etc.) at market related or competitively tendered rates plus a tendered fee percentage to cover items such as profit, company overheads, finance changes, insurances and performance bonds on a monthly basis as the work proceeds.

The difference between the 'final target price' and the amount paid to the contractor when the work is completed (cost plus the fee) is shared between the employer and contractor in agreed proportions.

The restricted competitive negotiations procedure was conducted in three stages (see Table 9.9 below). During the first stage a call for expressions of interest was issued to prequalify tenderers to enter into competitive negotiations and to limit the number of participants in the competitive negotiations process to a manageable number. Respondents were

screened in terms of eligibility criteria relating to their CIDB contractor grading designations (grade 7GB or higher), company status, tax status, ability to provide financial statements, experience in providing multi-storey concrete frame buildings and turnover during the previous financial year. Thereafter they were scored in terms of their experience in undertaking work of a similar nature, their B-BBEE status, their proposals for promoting local content, job creation and skills development, their health and safety plans, quality management policies and systems to track costs.

Table 9.9: New Buildings: Tenders received for target cost contract (June to August 2014)

Service	Tenders		Averages of scored tenderers				Highest quality	Dates (2014) (Closing of Tender/ Evaluation panel or Tender committee)	No of awards
	Received	Responsive	Scored	Financial offer	B-BBEE (score)	Quality score			
Sol Plaatje University									
Expression of interest	15	10	7	Na	8.6	78.6	90.8	11-06 / 17-06	-
First round	7 invited 4 received	4	4	89.0	6.7	76.3	91.3	09-07 / 18-07	-
Final round	4 invited	4	4	88.1	8.8	78.7	85.4	13-08 / 27-08	3
University of Mpumalanga									
Expression of interest	12	10	7	Na	7.3	81.2	92.2	11-06 / 17-06	-
First round	7 invited 6 received	6	4	81.6	4.5	85.5	92.5	09-07/ 18-07	-
Final round	4 invited	4	4	83.1	6.6	86.8	94.3	13-08 / 27-08	2

In the first round of the competitive negotiation procedure tenderers were required to submit pricing parameters (fee percentages, site overhead percentages, percentage adjustment to published plant hire rates, key staff annual salaries etc.) and a target price based on a bill of quantities for the first package order (see Table 9.10). At the outset of the process, a non-compulsory clarification meeting was held, at which tenderers were provided with a comprehensive interactive briefing on the proposed contractual arrangements.

In order to compare financial offers, the tendered pricing parameters were combined with the target price in a tender assessment schedule provided in the tender documents. The assessment of quality was based on an approach paper addressing delivery, local content, job creation and skills development, together with the experience of the project director, contract manager and cost controller. The submissions were evaluated with a weighting of financial offer adjusted for a preference to quality of 0.7:0.3.

Tenderers who were admitted to the final round of the competitive negotiation process were provided with the documentation associated with the first package order complete with construction drawings, and were invited to attend a round of competitive negotiations with representatives of the client and the project team including designers, to afford them an opportunity to fine tune their submission. Thereafter, they were requested to make their final submissions, including improvements in their pricing parameters (see Table 9.10 below),

preferences and quality scores as well as a target price based on an activity schedule for the first package order and a programme for the works. In this final stage, quality was evaluated with a weighting of financial offer adjusted for a preference to quality of 0.8:0.2.

Outcomes for Sol Plaatje University: Three contracts were entered into with non-Kimberley based contractors having CIDB contractor grading designations of 7, 8 and 9, respectively.

Outcomes for University of Mpumalanga: Two contracts were entered into with contractors for the construction of buildings at the University of Mpumalanga having CIDB contractor grading designations of 8 and 9 respectively, one of which is based in Nelspruit.

All of these contracts made provision for the KPIs and targets described in Table 9.3 above and established low performance damages should these KPIs not be achieved.

9.8.4 Provision for early contractor involvement

Each of the three distinctly different types of framework contracts referred to above, facilitate the early involvement of contractors, as the contractor is appointed before the design has been completed.^[9-8] The opportunity to address fragmentation in design therefore exists as well as to obtain contractor insights into value engineering before any package order is finalised. The target cost contract option facilitated a “fast track” delivery process for each package order. This was made possible because the contractor:

- was provided with a general description for the whole of the works which he would ultimately price, schedule and deliver;
- was provided with complete production information for that portion of the works which he had immediately to price and deliver.

This enabled the contractors to make assumptions on what allowance should be made for the balance of the works for which production information was not yet available. These assumptions were revisited when new production information became available and adjustments to the target price and completion dates could be made through the compensation event mechanisms provided in the contract. Thus, while production continued on the first portion of the work, the design team was required to complete the outstanding production information with the inputs of the contractor in an effort to value engineer the final design in order to remain within the control budget.

Table 9.10: Average tendered parameters for target contract at different stages in the procurement process

Tendered parameter	Average values for University of Mpumalanga			Average values for Sol Plaatje University		
	At start of stage 2	At end of stage 2	Successful tenderers	At start of stage 2	At end of stage 2	Successful tenderers
Tendered total of the Prices	R48 307 483 (3% below cost consultant)	R 49 125 514	R 47 286 658	R 86 294 668 (4% above cost consultant)	86 011 996	R 85 517 054
Percentage for Working Area overheads	10.1%	6.03%	6.6%	9.5%	5.9%	5.7%
Percentage for people overheads	10.6%	6.88%	5.3%	17.5%	7.4%	5.7%
Percentage for adjustment for Equipment in the published lists	-4.1%	-1.63%	1.8%	0%	2.5%	3.3%
Subcontracted fee percentage	8.1%	7.13 %	6.0%	8.5%	7.5%	7.0%
Direct fee percentage	7.9%	7.13 %	6.0%	7.25%	7.5%	7.0%
Project director	R 1 699 870	R 1447 370	R 1 392 500	1 933 620	1 580 370	1 607 160
Contract manager	R 1 046 443	R 1 046 443	R 919 000	1 045 194	1 269 443	1 292 591
Cost controller	R 790 900	R 790 900	R 900 925	819 651	753 588	1 045 534

9.9. IT NETWORK, FURNITURE, FITTINGS AND EQUIPMENT

9.9.1 Procuring the IT network and the core IT infrastructure

Both universities required IT networks and core IT infrastructure. Tenders for the supply of goods comprising the IT network and core IT infrastructure and services relating to their deployment planning, installation, configuration and maintenance were invited through the national and local press during December 2013 with a compulsory clarification meeting in January 2014. Use was made of the competitive negotiations procedure (see Table 9.11). Stringent eligibility criteria tenderers were set. Such criteria related to the minimum requirements for competencies for locally based key staff, contactable references for similar services, compliance with at least 80% of the items in the technical requirements compliance list, requirements for a national footprint and an ability to supply goods and equipment from strategic industry leaders.

In the first round, tenderers were required to submit lump sums broken down in a specified manner, to identify and price items purchased in foreign currency and using the relevant exchange rate at an applicable date. They were also required to tender a percentage for overheads and profit which would be applied in the assessment of compensation events and the provision of post commissioning support over a three-year term. A tender assessment schedule in the tender documents provided the tendered pricing parameters to be combined with the target price in order to properly compare financial offers. Quality, including key staff,

previous experience, value add, approach paper and proposed programme, was evaluated with a weighting of financial offer adjusted for a preference for B-BBEE to quality of 0.7:0.3.

Tenderers who were admitted to the final round of the competitive negotiations process were afforded an opportunity to clarify the acceptability of their non-compliant offerings and to fine tune their proposals with the client and his technical experts. Tenderers were thereafter requested to tender their best and final offer. Their tenders were evaluated in the same manner as the first round, except that the weightings for quality were different with a zero weighting for previous experience and value add.

The averaged tendered parameters for the two stages of the competitive negotiations process is as set out in Table 9.11 below. An NEC3 Supply Contract was entered into with the successful tenderers, which happened to be the same company for each of the universities.

Table 9.11: Average tendered parameters for IT network and the core IT infrastructure

Service	Tenders		Averages of scored tenderers				Highest quality	Tendered total of Prices (Rand)	Percentage overheads and profit	Dates (2013/14) (Closing of Tender/ Evaluation panel or Tender committee)
	Received	Responsive	Scored	Financial offer	B-BBEE (score)	Quality score				
Sol Plaatje University										
First round	5	3	3	62.5	6	78.3	90	R48.21 m	14	03/12 / 11/12
Final round	3	3	2	87.6	9	81.1	82.9	R 25.32m	14	30-01 / 15-05
University of Mpumalanga										
First round	6	2	2	59.3	9	77.5	90.0	R49.52 m	14	03/12 / 11/12
Final round	2 invited	2	2	86.8	9	81.3	82.9	R24.12 m	14	30-01 15-05

9.9.2 Procuring furniture for the 2015 academic year - for renovated buildings

During September 2014 tenders were invited through the local press for the supply and installation of chairs and furniture for teaching, offices and residences ahead of the 2015 academic year at both of the Universities. Local content requirements as required by the Preferential Procurement Regulations were included in the tenders. Tenders were evaluated on the basis of their financial offer adjusted for a preference linked to B-BBEE. The tender evaluation process included the evaluation of samples of products offered and, where appropriate, a visit to the tenderer's manufacturing premises. Four contracts, based on the NEC3 Supply Short Contract, were entered into with the successful tenderers for each of the universities.

9.9.3 Procuring furniture, fittings and equipment for the 2016 academic year

The procurement of furniture, fittings and equipment (FFE) has included furniture, audio visual equipment and equipment for access control and security cameras.

Initial estimates for FFE at SPU were based on an estimated 8% of the initial target costs for new buildings C001, C002 and C003 providing a total FFE control budget of R51.35m.

Table 9.12: Actual Costs Sol Plaatje University Costs for Furniture, Fittings & Equipment	
Access control & security installation	R6 110 926
Audio visual installation	R10 115 741
Allowance for Fees (10% of FFE estimate)	R5 135 369
Furniture	R18 085 351
Total final cost	R39 447 387

Initial estimates for FFE at UMP were based on an estimated 8% of the initial target costs for new buildings L001, L004 and L006 providing a total FFE control budget of R27.38m.

Table 9.13: Actual Costs University of Mpumalanga Costs for Furniture, Fittings & Equipment	
Access control & security installation	R3 490 499
Audio visual installation	R9 213 658
Allowance for Fees (10% of FFE estimate)	R2 738 092
Furniture	R10 726 002
Total final cost	R26 168 251

At SPU significant savings were achieved against the original allowance - with a total cost of R39.44 compared to the original estimate of R51.35m. At UMP, the saving was much lower with a total cost of R26.16 compared to the original estimate of R27.38m. The significantly different level of saving compared to SPU has a lot to do with the significantly higher value of the four-storey SPU buildings.

The two-year framework contracts established, allowed both universities to draw down on the contracts for the following year's requirements.

9.9.4 The 2016 Furniture Component

Three broad types of furniture were identified:

- Residence furnishings
- Classroom and office furniture
- Soft seating and chairs

Each university undertook a needs analysis and selected typical furniture types from various catalogues available from furniture suppliers. This was rationalised as far as possible to maintain the aesthetics and interior décor of the universities, as well as the functionality and durability of the furniture selected.

For each category of furnishings, there was a selection identified, enabling specifications for open tender processes. The procurement strategy used was to set up framework contracts

for the supply of furniture over a period of two years. (When testing the period for the framework contracts, it was determined that since there is a high level of imported content for many items, the suppliers would not be prepared to be contracted for a period of longer than two years.) Local Content (South African) requirements established by the DTI were incorporated to ensure compliance with local development objectives.

A phased approach was undertaken in the open tender processes used:

- Certain common types of furniture within each category were bundled together in order to rationalise the potential suppliers, and avoid having to contract with different suppliers for a single item each. Tenderers had the choice to make offers for specific bundles of furniture that were then evaluated;
- Phase 1 enabled a desktop assessment of images offered by tenderers to determine the suitability of the furniture, along with the minimum eligibility criteria required within a price range. The highest scoring tenderers then proceeded to the next phase;
- Phase 2 required shortlisted tenderers to provide samples of certain common furniture items for inspection during a factory visit. Arrangements were made for university representatives to visit the factories where the furniture was to be produced in order to evaluate the quality of workmanship. This site visit and assessment of samples resulted in acceptance or rejection of the products. For the chairs category, samples were to be delivered to a central location, where these could be readily compared against each other for quality, durability and aesthetics. The samples were then returned to the suppliers after evaluation.

The procurement process resulted in the following awards being made:

Table 9.14: Furniture Awards of Tender

	Classroom & Office	Residence	Chairs and soft seating
Sol Plaatje University	Exact Stationers CC t/a Office World	Office Furniture Direct National	Office Furniture Direct National KIKA Furniture C T/A Furniture Fair
University of Mpumalanga	Office Furniture Direct National	Office Furniture Direct National	Office Furniture Direct National Ditulo Office (Pty) Ltd

Once they had progressed to Phase 2, all tenderers were ranked first or second in the evaluations of price and preference. In addition, they were all either Level 1 or Level 2 BBBEE Status. With one exception at each university, they all came from the Gauteng region (one had its factory in George, and another operated from Kimberley).

Appliances were identified and sourced through Purco, as were the mattresses for the residence beds.

At SPU approximately 19 000 furniture items were procured from 200 unique items. At UMP approximately 7 000 furniture items were procured from 250 unique items.

At both universities, each of these items had to be delivered and placed in the correct location, which proved testing, particularly at SPU where construction on two buildings completed late. Furniture suppliers had to comply with construction health and safety requirements and additional security personnel were put in place to ensure that furniture was not stolen. In certain places, packaging was kept in place to ensure that furniture was not damaged while construction was completed.

9.10. CONCLUSIONS

The Wits procurement process, which is fully aligned with public sector requirements, enabled a range of procurement strategies and tactics to be implemented. This resulted in the creation of a competent construction service capacity to fast track the design and delivery of the physical infrastructure for the two universities at open market rates for a three-year period. The process was aligned with the NUPMT's primary and secondary procurement objectives. The procurement process resulted in most contracts being awarded to tenderers who were B-BBEE Level 2 or higher contributors. In fact records indicate that 70% of all tenders at SPU and 67% of all tenders at UMP were awarded to B-BBEE Levels 1 and 2.

None of the appointed consultants who provided architectural, project management, landscape architectural, environmental, health and safety or specialist engineering services were based in Kimberley or Nelspruit. 50% of the cost consultants and between 63% and 70% of the appointed electrical, mechanical, civil and structural engineering consultants were either locally based or had a local branch office. All of the management contractors were local contractors while the Sol Plaatje University civil engineering contractor and one of the two University of Mpumalanga contractors were local contractors.

The contracts that were entered into were sufficiently flexible to allow a hand over from Wits to the new universities to occur during the term of the contract and this process is dealt with in the Chapter dealing with Handover and Close out.

The efficiency and efficacy of the procurement process can be attributed to the following:

- 1) There being in place a comprehensive construction procurement policy, processes, procedures, methods and delegations and a website which enabled documents to be issued to tenderers and clarifications and addenda to be distributed;
- 2) The range of standard procurement options provided for in the SANS ISO 10845 standards for construction procurement and the NEC3 family of documents;
- 3) The quality and clarity of the tender documents, particular with respect to the clarity of scope, what tenderers were required to submit and how their tenders were to be evaluated, and the completeness and comprehensiveness of the tender evaluation reports which demonstrated how the stated evaluation criteria were applied; and
- 4) The tender committee's understanding of its governance function.

REFERENCE DOCUMENTS

- 9-1 University of the Witwatersrand. Construction procurement policy, processes, procedures, methods and delegations (December 2013)
- 9-2 Standard for infrastructure Delivery Management System
- 9-3 NUPMT Standard scope of professional services associated with the delivery of a package (March 2014)
- 9-4 Watermeyer, Jacquet and Prinsloo. CASE STUDY. The procurement arrangements for delivering two new universities: July 2012 to December 2014
- 9-5 NUPMT Framework for the determination of professional fees for consulting services
- 9-6 NUPMT Occupational health and safety specification for construction works contracts (March 2014)
- 9-7 NUPMT Standard Conditions for a Design Competition
- 9-8 Layea, S and Watermeyer, R. Early contractor involvement in framework contracts. Proceedings of the Institution of Civil Engineers - Management, Procurement and Law. Volume 169 Issue 1, February 2016

Chapter 10

Design development and Project Delivery Goals



10. Design Development and Project Delivery Goals

10.1 ESTABLISHING DESIGN TEAMS AND BRIEFS

10.1.1 Assembling the team

Renovation of existing buildings for the 2014 academic year provided accommodation for the first small cohort of students and staff at both universities. From then onwards, the NUPMT implementation strategy focused on the construction of new buildings, continued renovation of existing buildings for both 2015 and 2016 and on bulk infrastructure.

The successful conclusion of the two-stage architectural design competition towards the end of 2013 and the related procurement processes culminated in the appointment of architects for the two universities and allowed for the development of the designs of the first phase of new buildings and infrastructure required for the start of the 2016 academic year. Architectural design work commenced towards the end of 2013 at SPU and the beginning of 2014 at UMP. This design work was based on the spatial development and implementation plans previously established.

In February 2014, in accordance with the approved integrated project implementation plan, the Project Management Team (PMT) embarked on the procurement process to appoint a team of design consultants to work with the appointed architects on the detailed design of the new buildings.

Tenders were advertised to appoint as many as 15 additional service providers for each university, including project managers, cost consultants, engineers (civil, electrical, mechanical, structural, geotechnical, acoustic, fire, traffic) landscape architecture, strategic environmental sustainability, wet services, land surveying, health and safety monitoring and environmental compliance monitoring. (see Chapter on Procurement for full details).^[10-1] After their appointment in September 2014, the three contractors at SPU and two at UMP would take their place in the respective design teams, bringing their implementation expertise to the design development. At SPU the selected contractors were Qualicon, Trencon and Murray and Dickson, and at UMP they were Norse and Trencon.

The NUPMT had expedited the detailed design of one building for each university to enable a tendering process for the appointment of the building contractors by August 2014 in order to be on site by September 2014, which was believed to be the latest start date for completion by January 2016. This programme was eventually delayed by one month but readiness for occupation was achieved by the target date.

While the overarching spatial design and development frameworks and the planned 10 to 12 year development period have remained largely unchanged, intensive consultation with the academic leadership continuously shaped and aligned the priorities, forward planning and the design of new buildings. This consultation resulted in an evolving 5-year plan, the first of which formed part of the handover of infrastructure responsibility and is described in the final chapter dealing with handover and close out.

At both universities architects were allocated buildings according to their level of complexity and the relevant experience of the various architects. So, for example at UMP, student residences were assigned to Cohen and Garson Architects, whilst multi-purpose academic and teaching buildings were allocated to TC Design and URBA Architects due to their past

experience with raked auditoria and educational buildings. After their appointment, different quantity surveyors and engineering disciplines were assigned to the architects as the design team leaders, responsible for design integration

The principle of allocating buildings in accordance with capacity would also be applied when assigning work to the appointed contractors.

From the outset it was made clear that the budget derives from the DHET cost norms for university buildings and that an overriding challenge was to design to a control budget. As the budget derived from the Assignable Square Metres (ASMs) in the building, it was critical to ensure the efficiency of the buildings designed.

10.1.2 Design Work Sessions

At the beginning, two extensive briefings were given to the selected architects ^[10-2] firstly highlighting the mission development frameworks of the universities, the process followed towards their establishment as well as the architectural guidelines and spatial qualities expected. The management of the divergent architects required a considered methodology to allow the architects to explore new approaches to higher education architecture but also to provide controls and guidelines in order to achieve synergy and a holistic campus visualisation.

To realise these dual objectives, general campus architectural guidelines were completed for the buildings and campus areas to be constructed during the first phase of the implementation programme. The Spatial and Architectural Guidelines Document ^[10-3] described performance qualities around building form, the functional programming, parking, loading and service accesses, orientation, building heights, entrance locations, building façade and roof treatment, edge conditions and landscaping.

The Architectural Guidelines facilitated an open discourse with the various architects, who contributed critique and added to guidelines specification. The NUPMT endeavoured to avoid being seen as arbiter of all decisions, and in discussion required the five architects at SPU and the four at UMP to monitor and critique each other. Most discussions or changes to the Architectural Guidelines were made through consensus between the architects and the NUPMT. One example of this was the selection of the standard face-brick. The guidelines required that face-brick be the dominant material used at both UMP and SPU, but the architects had the freedom to choose and agree upon the common product for each university. This involved the establishment of performance criteria for the brick, including its manufacturing within close proximity to the universities, its quality and price.

The same discussions and eventual consensus was reached on the final height of the buildings, number of floors, student bedroom configurations, universal access standards, environmental performance standards or goals, and auditorium plan types.

10.1.3 Architectural Briefs

The joint work sessions allowed for improved synergy of the various buildings, and also informed the comprehensive architectural briefs of the individual projects. The functional programmes for the individual buildings were formulated in conjunction with the academic leaders of the university. The first projects were also aligned with the student enrolment numbers of each university.

The first projects prioritised the general teaching, administrative and residential requirements of the universities, with the initial focus on providing all-purpose teaching and lecturing spaces to be shared by various academic programmes. A mixture of smaller and larger teaching venues was provided in central locations at both universities. Specialised teaching venues, for example laboratories or language laboratories, were assigned to subsequent construction phases.

Each project brief to the design teams included specifications and regulation on the general aim and intentions of the building, its location and relationship to the campus and surrounding buildings, access, built form directives, build-to lines, height and edge treatment. [10-4] Together with the design guideline, each project team was issued with a comprehensive accommodation schedule. Architects had to test the accommodation requirements on the selected site, interrogate the requirements against the design guidelines, and confirm the viability of the accommodation schedule. [10-5]

During 2014 the Treasury budget allocation to the New Universities Project was substantially reduced from the amount envisaged in the feasibility study submitted compelling a reassessment of the Implementation Plan. Originally five building projects would have been completed during the first phase of SPU, and six buildings at UMP. The adjustment in budget allowed for only three projects at each university to be implemented within the first phase, meaning that some of the design teams had to defer their input to the following year. At SPU the following projects were prioritised:

- i. Building Project C001 – Student residence, seminar spaces and ICT (Activate Architects);
- ii. Building Project C002 – Student residence, lecture venues, 600 seater dining hall, exam hall, seminar spaces and offices (Savage and Dodd Architects);
- iii. Building Project C003 – Multi-purpose academic building with offices and seminar rooms. (Wilkinson, Lambrechts and GXY Architects).

At UMP the following projects were selected:

- i. Building Project LP01 – Student residence (Cohen and Garson Architects);
- ii. Building Project LP04 – Academic offices, public lecture venue and seater seminar spaces (TC Design Architects);
- iii. Building Project LP06 – Multi-purpose academic building with laboratories, offices a variety of lecture venues, auditorium and seminar rooms. (Conco Bryan Architects).

10.1.4 Campus Design and Architecture

By 2016 R1.5 billion had been invested in the infrastructure development of the two universities enabling both to start their academic programmes in a variety of renovated and new buildings on fledging campuses. The investment included further building projects in the planning pipeline.

South Africa's aspirations for its first universities in the democratic era were, and remain, immense. From the perspective of spatial design, the vision for the new universities as symbols of democracy, inclusiveness and growth requires that both institutions be relevant to, and engaged within their settings - and able to create a growing knowledge environment of the highest standard. A number of spatial principles continue to drive the campus design and architecture of both universities, namely:

- The campus integration with its host city;
- Shared space as driver for the campus plan;
- Accommodating students;
- Student and staff mobility;
- Collaboration and exchange of ideas;
- Environmental sustainability.

10.2 INTEGRATION WITH THE HOST CITY

In order to support the academic mission of each university all solutions to physical planning needed to be comprehensive, with nothing considered in isolation. Issues of building placement, traffic and parking, engineering systems and aesthetics were all woven together to form a tapestry of buildings and spaces that foster a successful academic community.

In the case of the Sol Plaatje University, designing the campus into the fabric of the city requires it to act in a civic manner, participating in all the functions of the host city. To further enhance the principle of full integration and inclusiveness no distinction is drawn between the plan for the university campus and the plan for the City of Kimberley. The reduced impact of the mining industry on Kimberley requires the university to fill a greater role in regeneration of the urban fabric, a responsibility only achieved if the campus is cohesively integrated within the city. Universities are increasingly expected not only to conduct education and research, but also to contribute actively to the economic, social and cultural development of their regions and host cities. The civic nature of the campus plan uses its location to help form the identity of the university and provides opportunities for the growth of learners, businesses and public institutions. (Fig. 10.1 & 10.2)

An example of this involves the integration of the Oppenheimer Memorial Park into the Sol Plaatje University campus. The park was formerly the setting of the Malay Camp, home to thousands of migrant workers in the mining industry, evicted in the 1950s to make way for the expansion of the Kimberley Civic Centre and the creation of a new park. The City of Kimberley and the Sol Plaatje University have made the Oppenheimer Park a shared responsibility, addressing social injustice, commemorating the heritage associated with the land, but also creating a generous, active and eminent urban gathering space for the whole city to enjoy.



Fig 10.1: Sol Plaatje University Campus plan integrated into existing Kimberley urban fabric

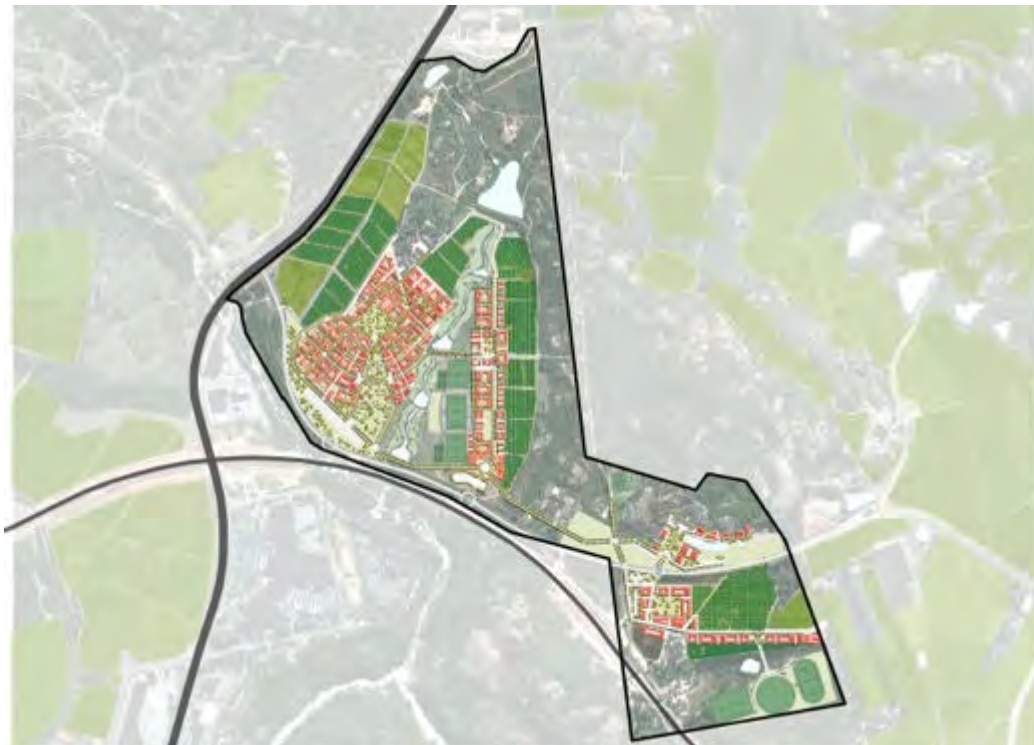


Fig 10.2: Overall development plan of the Mbombela Campus of the University of Mpumalanga

10.3 SHARED AND COMMON SPACE AS DRIVER FOR THE CAMPUS PLAN

The university campuses were designed with the understanding that students come to shared spaces with simple needs: rest, relaxation, recreation and respite, but the spaces

also enable chance meetings, foster exchange, stimulating ideas, giving hope and a sense of possibilities. The idea of sharing, which is a particularly positive African notion, is reinforced by the provision of multiple common spaces on the campus ranging from focal squares, to parks and tranquil courtyards. These common spaces are designed to inspire, foster appreciation of what is good among us, and broaden the student community capacity to imagine and create a better future. They are places with no copyright, students share them and benefit from them. They are the interface of university exchange and a platform for learning with the broader community. (Fig. 10.3)

For too long our university campuses have focused primarily on the individual faculty buildings, with little regard for the surrounding open space, or the greater campus setting. To maximise learning and exchange, both new universities have used shared and common spaces as the drivers and backbone for the campus plan.

Open spaces of varying size, form and function have been planned to link via pedestrian and non-motorised routes, forming the stage onto which all the new university buildings face. Campus buildings have been planned to engage with and focus onto the common spaces, allowing a variety of activities such as restaurants, shops, coffee shops, book stores, banks and laundries to spill out onto these public spaces.

At the University of Mpumalanga, where the setting is more rural, the academic buildings were designed to maximise spaces for chance encounters and exchange amongst students and staff. All buildings have attractive courtyards, designed to provide quiet landscaped contemplative spaces, or for gatherings to discuss and deliberate, or for people to simply enjoy sharing. (Fig. 10.4)



Fig 10.3: Central Campus Square Sol Plaatje University as focus for surrounding academic and residential buildings.



Fig 10.4: Courtyard in the Science Block at the University of Mpumalanga.

10.4 ACCOMMODATING STUDENTS

Until recently, universities tended to emphasise their role as places for teaching and research, with a minority of students in residences and the rest left to arrange their own accommodation. The two new universities underline the positive aspects of students living on or close to campus in 'living-learning communities'. These communities are seen as enhancing integration and orientation, promoting students' intellectual, cultural and social development, and improving retention and academic success.

The Department of Higher Education and Training committed both new universities to large proportions of campus based student residences. Campus residences will accommodate up to 80% of Sol Plaatje University students, and 60% of the students of the University of Mpumalanga. Providing student housing for high numbers constitutes a large portion of the infrastructure spend and is an important component of the overall campus. Creating a sense of community and belonging, a home away from home and an environment that uplifts the human spirit is integral for providing an environment conducive to cross collaboration with other students and researchers from different sciences and levels of study. With this in mind, student residences were designed to be more than dormitories, becoming places of mixed use by including seminar and teaching spaces, study areas and even entertainment zones. (Fig. 10.5)

The residences are arranged as several smaller buildings clustered around varying central courtyards and gardens, which is an ideal configuration to encourage their residents to informal gathering and meeting. The courtyards are quiet and partly shaded outdoor spaces that serve as a transition between individual apartment units and the broader campus. Moving away from traditionally planned faceless corridor dormitories, students are instead clustered into smaller groups around shared amenities to ensure their greater sense of cohesion. (Fig. 10.6)



Fig 10.5: Residences at the University of Mpumalanga.

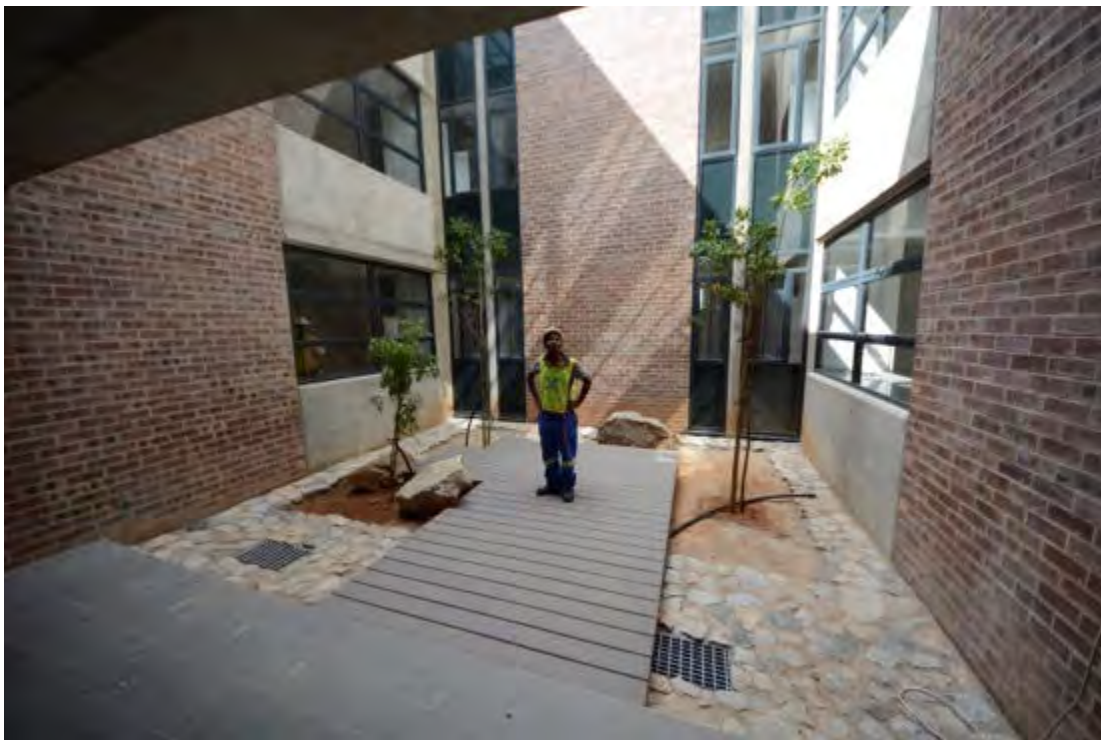


Fig 10.6: Residences are arranged as several smaller buildings clustered around varying central courtyards and gardens at the University of Mpumalanga.

10.5 STUDENT AND STAFF MOBILITY

Most South African university campuses are dominated by private vehicular movement and parking zones. Not only does this detract negatively from the quality of the campus environment, but it also drains valuable resources from the academic programme. Planning for a more balanced movement network entails a fundamental shift of focus onto non-motorised transport and the pedestrian. In the case of Sol Plaatje University, cars are pushed to the periphery, allowing the campus to be car free, and to make way for pedestrians and cyclists. In mandating a non-motorised campus, the university has introduced a very successful cycling programme, and students and staff receive a university branded bicycle to commute to and from campus. (Fig. 10.7)

Universal access is a further component of the inclusive university design, and aims to produce buildings and environments that are inherently accessible to people with disabilities.

Equity of access demands that all have equal access to all facilities and amenities on campuses. The principles of Universal Access have been used from the onset of the planning and design process to promote human equity and dignity. This includes ensuring that all renovated and newly constructed buildings are free of potential environmental barriers and consistently follow accessibility standards throughout the campuses. By ensuring ease of access to the university campus, the shared spaces and facilities support independent living and full participation in all aspects of university life, ultimately reinforcing the inclusion and integration of diverse members of society.



Fig 10.7: Students and staff receive a university branded bicycle to commute to and from campus at the Sol Plaatje University.

10.6 COLLABORATION AND EXCHANGE OF IDEAS

In the past architects designed campus buildings to meet the needs of specific faculty programmes. It was assumed that the programmes would never change and buildings were constructed accordingly; solid and often inflexible. But no more. At both universities, flexible and resilient building design is the point of departure.

The new universities are imagined as campuses populated with spaces that create a culture of 24/7 learning. The rise of the generation that embraces social media and connectivity means that learning spaces must no longer operate as mono-functional spaces with limited usage after lecture hours. All the spaces and buildings from residences to resource centres function as environments that support collaboration, with flexibility for restructuring depending on academic needs. Where in the past pedagogy has normally been constrained

by the physical structure of space, this flexible approach allows new teaching models that are varied and encourage sharing of resources and the uniting of disciplines in vibrant cross-fertilising venues. Academic spaces are planned as robust places able to accommodate change over time. (Fig. 10.8)

Over the course of eight years the Department of Higher Education and Training has supported the development of infrastructure expansion at South African universities. A large variety of buildings have been developed, all showcasing best practice in accommodating greater numbers of students, lecture venues, laboratories and support amenities. These examples were hugely beneficial to the design and planning of the new universities and were used as precedents in guiding the development of the new buildings and facilities. In addition, some of the research done by the architects was incorporated into a book on South African university buildings, project managed by the NUPMT and titled “*Woza Sizokwakha – Building Higher Education*”.

The best practice identified, together with the aim to create resilient structures that can accommodate a greater mix of academic spaces has supported the development of new architectural typologies, which stand in contradiction to traditional single use academic buildings. In the first phase, multi-purpose buildings were constructed to accommodate the developmental nature of the two universities’ respective academic programmes. These included libraries, residences, multi-purpose teaching venues, offices and student support, all of which were completed in time for the 2016 academic year.

Subsequently, the improved understanding of the academic programmes that both universities are pursuing, and their increased confidence and sense of respective identity now requires the development of more specialised academic buildings. These buildings constitute the next phase of construction, and include research laboratories, teaching kitchens for new hospitality and tourism programmes, specialised teacher education amenities and computer science laboratories, much of which was scheduled for completion in 2017. (Fig. 10.9)



Fig 10.8: Academic Teaching and office building as part of the first phase of completed buildings at the University of Mpumalanga



Fig 10.9: Academic Building as part of the first phase of completed buildings at the Soli Plaatje University

10.7 ENVIRONMENTAL SUSTAINABILITY

The development of the new universities offers an opportunity to showcase best practice in environmentally sustainable architecture and infrastructure development. In order to realise healthy and comfortable buildings, strategies founded in a response to local conditions are a necessity. Information on local climate, wind, sun exposure and temperatures for the two

respective areas were fundamental to the design of buildings, infrastructure and outdoor environments.

The universities have been developed on the basis of a comprehensive environmental strategy encompassing transport, health, energy, water, and waste to bolster their ambitious socio-economic target. This design philosophy is captured in a Sustainability Charter,^[10-6] establishing the university's stance on environmental performance by mandating the ideals of the Sustainability Master Plan.^{[10-7]. [10-8]} The development of both the overall campuses, and their buildings eliminates negative environmental impact by adopting a sensitive design approach. A focus on rainwater harvesting, grey water application, renewable energy, air purification, energy conservation, eGain forecasting and the integration of proven building and infrastructure design are all principles employed to improve the habitable and natural environment.

Deliberate placement, form and orientation of buildings with respect to local conditions provides for favourable micro-climates in all spaces. The latest research in bio-climatology was applied to the architecture, greatly reducing the need for heating and cooling in the buildings. Passive strategies, utilising locally attuned responses to the distinct environmental conditions found in Kimberley and Nelspruit were key in creating self-sufficient and low energy solutions. The same sensitivity was fundamental during the design of the landscaping and public spaces. Here the focus was on designs where only indigenous trees are planted, water runoffs are contained and reused, and local materials applied to attractive public spaces.

10.8 ICONIC NATURE AND IDENTITY

As the first new universities to be developed since 1994, the architectural language strives to be representative of our democracy, expressing an understanding of its sense of place. Whilst both universities are designed to be of their place and of a distinct African appeal, the architecture is further underpinned by "dignified utility", that is both essential and economical. This sees the emergence of an architecture that is being of, and recognisable as part of South Africa. (Fig.10.10 below)

To ensure that both campuses have meaning, the architecture is bound in the human experience of the environment, and not a mere manifestation as artefact. The quality of space created by holistic campus design is instead focused on atmosphere, joy, surprise and wonder. The campus environment expresses the interplay of textures and colour, the shifting mood of light through the day, of smell and sound. It is about designing sensual space that invokes interactive emotion. These facets are all closely related to and chosen from their respective direct contexts. It follows that a distinct African appeal emerges - simple, straightforward and honest use of materials; bold articulation of forms, subservient to and respectful of the natural environment; a gentle composition of colour, texture and patterns woven into fabrics and bricks that allow the passage of light, direct the breeze, create silence and finally, protect. Out of this emerges an architecture which makes the University of Mpumalanga and Sol Plaatje University unique and distinct.

Design has been developed with optimism, an injunction to be effective but with planned expansion predicated on budgets provided by a developing economy. Bearing in mind that universities are built for the ages, they also seek to celebrate the achievements and critically assess the impact of the multiple and diverse projects which have been transforming and

augmenting the higher education landscape. Inside all these new university buildings, sitting in the lecture theatres, working in the laboratories, populating the residences, utilising the libraries, IT and recreational facilities, are South Africa's next generation of professionals, artisans, managers, technicians, academics and researchers. Both universities are forging ahead with their expansion and physical capacity, continuing to target their aim to be centres of academic excellence, innovation and relevance - engaged within their settings.



Fig 10.10: Auditorium and Library building within the Science Block at the University of Mpumalanga

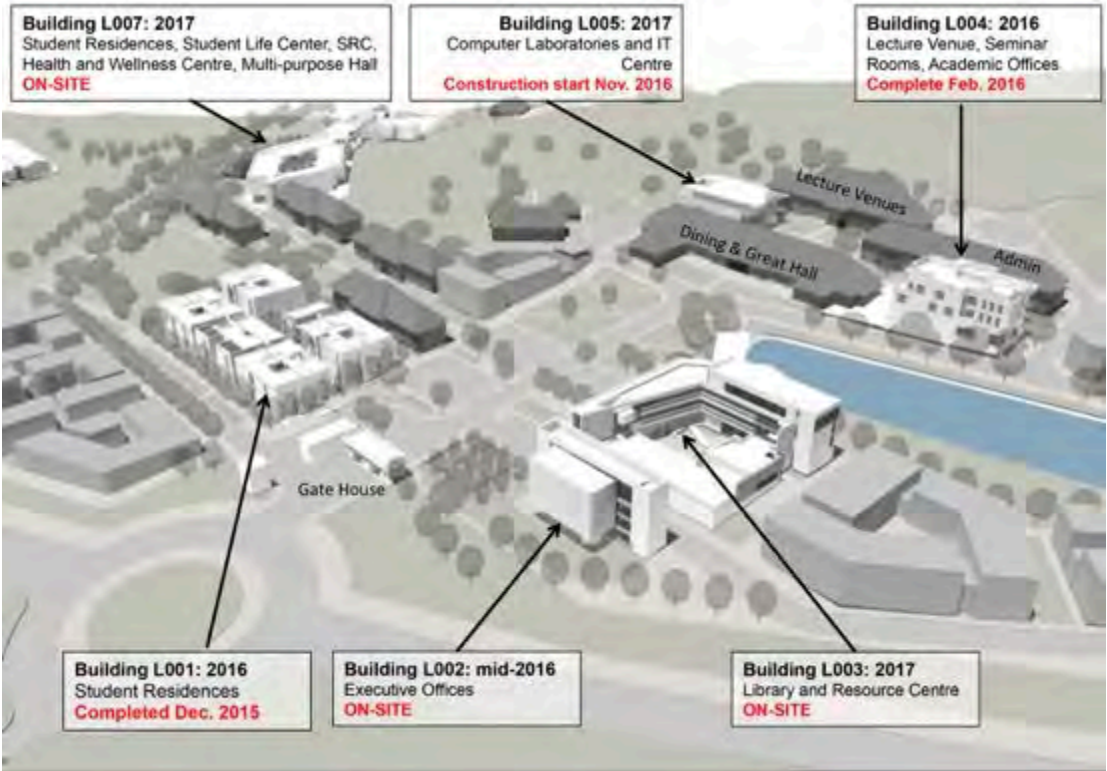


Fig 10.11: Impression of the first two phases of buildings to be completed at the University of Mpumalanga

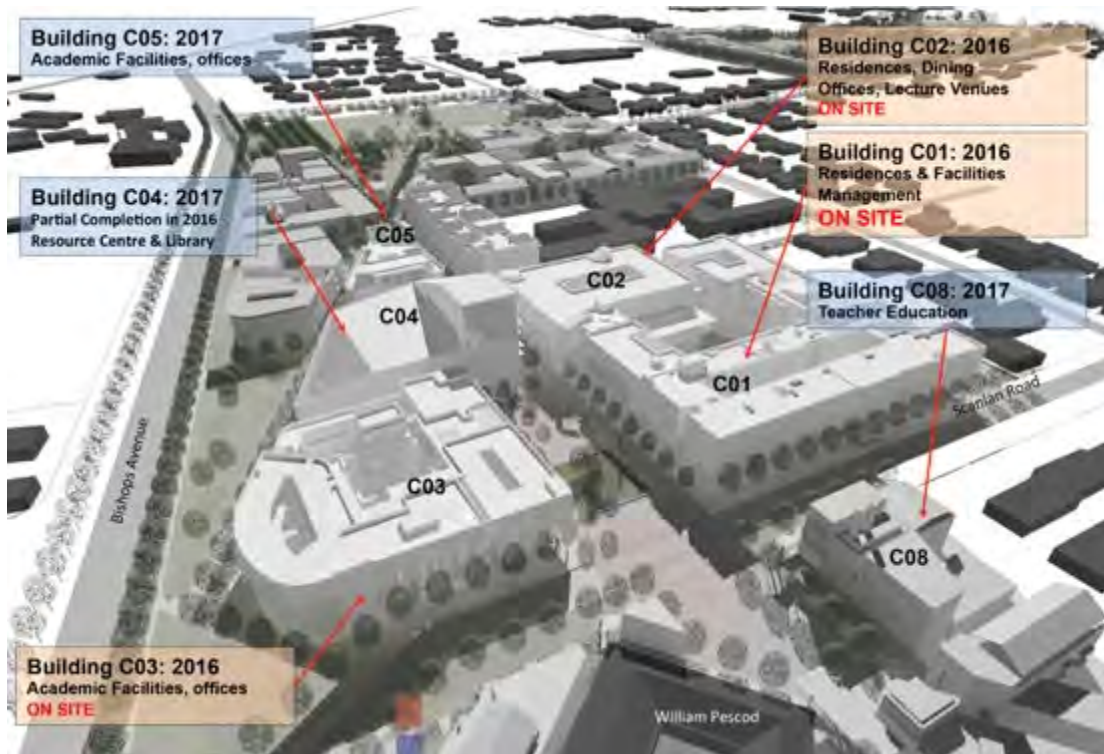


Fig.10.12 Impression of the first two phases of buildings to be completed at the Sol Plaatje University

Reference Documents

- 10-1 List of service providers
- 10-2 Architectural briefing session presentations to both UMP and SPU architects
- 10-3 Architectural Guidelines Document for SPU and UMP
- 10-4 Example of a Building Specific Briefs for SPU and UMP
- 10-5 Example of an Accommodation Schedule attached to each project brief
- 10-6 Sustainability charter for SPU and UMP
- 10-7 SPU Sustainability master plan
- 10-8 UMP Sustainability master plan

Chapter 11

Client focus on development



11. Client Focus on Development

Delivering projects on time, on budget and to the highest standard is the concern of clients and project teams around the world. However, DHET and the NUPMT recognised that the delivery of the first two universities in post-apartheid South Africa placed a special onus on them as joint client, to ensure that best practice was put into operation in the way these projects were delivered. The temporary nature of their role as “caretaker” client amplified this responsibility as did the fact that although the development of the two universities was a national responsibility, project delivery took place in two provinces with their own high expectations not only of the end product but also for their role in the construction process.

11.1 TOWARDS A CONSTRUCTION DELIVERY STRATEGY

DHET considered the investment in higher education infrastructure as an important instrument to drive national development objectives such as economic transformation and employment creation. It further recognised that the nature of construction projects resulting from such investments involves the management of a supply chain comprising a diverse range of goods and services with the potential for stimulating local development and employment opportunities. These considerations underpinned the delivery and contracting strategies adopted.

A brief set of proposals was put forward by the NUPMT for approval within the Technical Integration Committee and for engagement with various stakeholders - on a construction contracting strategy^[11-1] that must:

- a) Ensure *competent, cost effective and timely completion* of campus buildings and infrastructure;
- b) Promote *empowerment*;
- c) Promote *local content, job creation and skills development*;
- d) Be supported by stakeholders.

The proposals suggested that tenders for the main contractors would need to target contractors, preferably with a CIDB grading designation of Grade 8 and above. However, it was subsequently realised that there were no Grade 8 contractors in the Northern Cape and so the requirement was reduced to Grade 7 in order to try to target the available provincial contractors. It was agreed that at least two main contractors would be appointed in each province on 3-year framework contracts that would enable a medium term period within which to address the agreed development objectives.

The *primary procurement objectives* for the New Universities project were:

- a) Cost: Deliver the university within a control budget;
- b) Cost: Ensure that expenditure is within the amounts allocated in each financial year of the MTEF period and is capable of being accelerated should additional funding become available;
- c) Time: Ensure that teaching spaces are capable of being occupied at the start of the required academic year, which meant that time would be of the essence.
- d) Quality: Provide works that are capable of being readily maintained;

- e) Quality: Make use of expertise within universities to ensure that the designs of the teaching spaces are aligned with current and future best practice;
- f) Quality is such that maintenance costs are minimised.

It was agreed that the appointment of the main contractors would be assessed on the basis of quality, price, and empowerment preference in accordance with government's Preferential Procurement Policy Framework Act. In addition, in terms of the Outline Construction Delivery Strategy, it was agreed that in order to strengthen provincial participation, the main contractors would be *“required to achieve targets for the following development objectives:*

- a) *Empowerment and Local Content: The main contractors will be required to put forward, targets for employing and developing local sub-contractors (bricklaying electrical, plumbing, etc.);*
- a) *Local employment: Appointed main contractors will be required to employ a minimum of 30% of the workforce from the local community;*
- b) *Skill Training: The main contractors will be required to provide practical training opportunities to students (TVET or University) in the built environment professions (e.g. Construction/ Project Management, various engineering disciplines and artisans, etc.) based on requirements specified in the tender documents;*
- c) *Community and Other: The main contractor will be required to put forward proposals on community development (e.g. numeracy, adult education) and other areas of social investment (e.g. bursaries);*
- d) *Maximum use of local materials will be essential.”*

Neither DHET nor the Wits NUPMT had had direct experience with local development challenges and much was learned from the NIHE experience at Siyabuswa. It was understood from the outset that effective implementation of the development objectives would require engagement with key stakeholders such as the respective Provincial Government, Local Authorities, local Chambers of Commerce, etc. In this context it was further understood that it would be important to establish appropriate communication and a liaison committee in each centre.

Already at this early conceptual stage the client anticipated the possible *“need to establish and manage ... a database of potential subcontractors and local suppliers”* and that management of these aspects would require staffing, monitoring and reporting. However, the intensity of effort involved in this development focus would only become apparent later. Nevertheless, it proved to be the correct focus in terms of the project's legacy, and in terms of the risk entailed had an inadequate local development strategy been adopted.

11.2 PROCUREMENT OF MAIN CONTRACTORS

The procurement of main contractors for the start of major new construction work was informed by the objectives set out in the outline construction delivery strategy, including the deliberate strategy to promote provincial and local capability. The scope of the first phase of work planned for the 2016 and 2017 academic years was substantial, requiring the construction of large, multi-storey buildings to accommodate 700 students at SPU and 1255 students at UMP by 2016.



Fig 11.1: Buildings 1,2 and 3 on the Sol Plaatje Central Campus - Completion date January 2016. (Photo taken approximately March 2015)

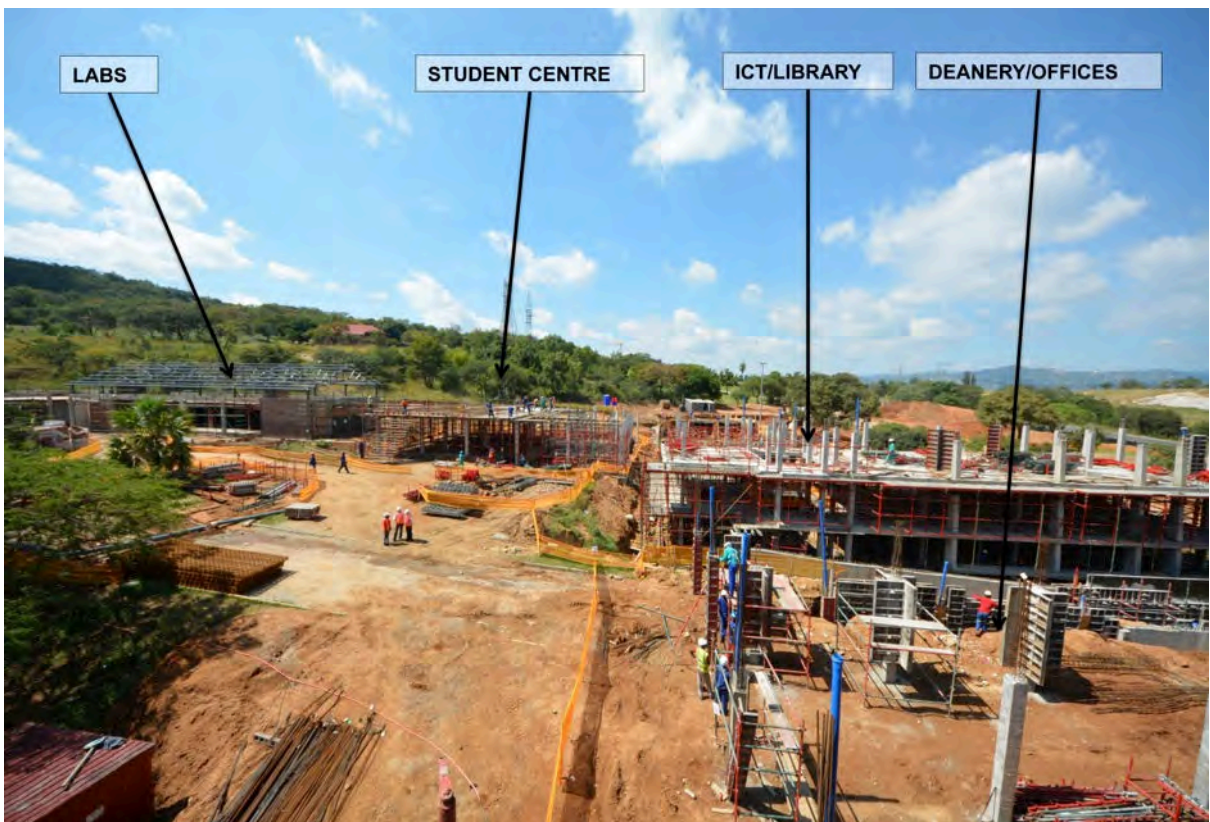


Fig 11.2: Building 06 – assembly of buildings at University of Mpumalanga - Completion date January 2016. (Photo taken approximately March 2015)

This phase of construction would establish core campuses at each university with some 16 new multi-storey buildings at a total estimated construction cost of R1.2b. The buildings included laboratories, lecture auditoria and teaching facilities, academic offices, libraries, residences and student facilities. In total, the construction of more than 80 000m² of new buildings was envisaged to accommodate the planned 2017 student numbers.

From the outset, it was understood that the size and nature of the work together with the envisaged delivery time frames, would require the appointment of large and competent general building contractors at a CIDB grading Level 8GB or 9GB. While the CIDB Register of Contractors listed seven contractors in these categories in Mpumalanga, this was not the case in the Northern Cape. Unfortunately, the CIDB Register of Contractors only listed one potential Grade 8 contractor in the Northern Cape. For this reason, a conscious decision was taken to lower the requirement to a CIDB grading Level 7GB or higher, increasing the eligible provincial contractors to four in the Northern Cape and to 27 in Mpumalanga.

A rigorous three-stage competitive negotiation procurement process was adopted to ensure that qualifying contractors were sourced. This process is described in the Chapter dealing with procurement. The Tender Evaluation Committee included representatives from DHET, Wits, each of the respective universities (UMP and SPU) and each of the respective local municipalities (Mbombela and Sol Plaatje).

Calls for Expressions of Interest were advertised from 25 May 2014 on the New Universities Website and in newspapers, nationally and provincially as follows:

- Northern Cape: Sunday Times, Diamond Fields, Die Volksblad and Noordkaap;
- Mpumalanga: Sunday Times, Lowvelder, Nelspruit Post and Mpumalanga News.

At SPU, three framework contracts were awarded, to Trencon Construction, to Qualicon Construction and to Murray and Dickson Construction. Based in Gauteng, Trencon (CIDB GB9) was the largest 100% black-owned construction company in South Africa, with a B-BBEE Level 2 rating. It also boasted a black women ownership of 30%. Qualicon (CIDB GB7) had a B-BBEE Level 2 rating and was based in the Free State. Murray and Dickson (CIDB GB8) had a B-BBEE Level 3 rating and is based in Gauteng.

For the construction of UMP, two framework contracts were awarded to Trencon Construction and to Norse Projects. Norse Projects (CIDB GB8) is Mpumalanga-based and had a B-BBEE Level 7 rating.

On the positive side it was felt that contracts had been awarded to companies that:

- Have the proven capability to deliver the planned buildings on time, on budget and to the envisaged quality;
- By and large reflect a commitment to empowerment and positive transformation, with room to improve in the case of Norse Construction.

However, the outcome of the procurement process did not deliver the hoped for participation of provincially-based, Black-owned companies.

Table 11.1: Northern Cape - CIDB registered contractors in General Building (GB) category

Town	Active CIDB registered contractors							
	Grade 6		Grade 7		Grade 8		Grade 9	
	Tender value range							
	Up to R13m		Up to R40		Up to R130 m		> R 130 m	
	Total	% PE*	Total	% PE*	Total	% PE*	Total	% PE*
Barkley West	-	-	1	100%	-	-	-	-
Calvinia	1	100%	-	-	-	-	-	-
Danselruil (142km from Kimberley)	1	100%	-	-	-	-	-	-
Kimberley	5	100%	1	100%	-	-	-	-
Kuruman	-	-	1	0%	-	-	-	-
Springbok	-	-	-	-	1	0%	-	-
Upington	3	100%	-	-	-	-	-	-
Total	10	100%	3	67%	1	0%	-	-

Table 11.2: Mpumalanga - CIDB registered contractors in General Building (GB) category

Town	Active CIDB registered contractors							
	Grade 6		Grade 7		Grade 8		Grade 9	
	Tender value range							
	Up to R13m		Up to R40		Up to R130 m		> R 130 m	
	Total	% PE*	Total	% PE*	Total	% PE*	Total	% PE*
Nelspruit	35	94%	6	100%	2	0%	1	100%
Outside of Nelspruit but within 150 km from Nelspruit	11	82%	6	83%	2	50%	1	100%
Greater than 150 km from Nelspruit	34	94%	8	100%	1	100%	-	-
Total for Mpumalanga Province	80	93%	20	95%	5	40%	2	100%

*Potentially emerging enterprise, owned, managed and controlled by black people

In the Northern Cape only one of the four eligible contractors in the province registered in Grades 7 and 8 submitted an Expression of Interest (EI), and this was eliminated due to the poor quality of the submission.

In Mpumalanga the response was less acceptable, with only two submissions, received from 27 potentially eligible contractors in the province (Grades 7 – 9) of which 21 were black owned companies. One of the submissions was from a grade GB9 Black-owned company and was of poor quality. The other was from a grade GB8 company that went on to be awarded one of the contracts but had a low empowerment rating.

11.3 BOLSTERING PROVINCIAL PARTICIPATION

In alignment with the outline construction delivery strategy, specific development objectives were firmly integrated into the procurement strategy over and above the requirement to ensure competent, cost-effective and timely completion of campus buildings and infrastructure. Through the procurement strategy, the development objectives were translated into specific key performance indicators (KPIs) with required targets as follows:

- Local participation goal relating to the employment of local people, local subcontractors and local suppliers of between 30% and 50%, and in Nelspruit as high as 95%;^[11-2]
- Broad-based black economic empowerment spend of 60% calculated in accordance with the scorecard for preferential procurement;^[11-3]
- Direct employment goal (percentage of the total number of equivalent days worked by people employed on the site who are local) of between 30% and 95% with sub-targets for youth and women;^[11-4] and
- Skills development goal (skills development opportunities which result in nationally accredited outcomes) of 250 hours per million rand expenditure.^[11-5]

Low performance damages were included in the contracts to encourage contractors to achieve the targets.

As reported later, these targets were ultimately met on all except one contract at SPU, where the client was forced to invoke low performance damages of over R700 000. It was also anticipated that the minimum requirements set out above would be increased as contractors became increasingly familiar with the environment and the potential of the local construction capacity. This expectation materialised in mid-2016 when both universities took over the next stages of the projects.

The client invested R 1 233 222 in the development of a provincial supplier database to facilitate access by local subcontractors and suppliers, who were encouraged to register their interest in participating in the construction programme by

completing an application form available from the Construction Website specifically set up for this purpose. Links to the Construction Website were available from the respective university websites and NUPMT website. Applicants were required to submit their applications either by hand or by post to a central point where they could be validated and captured on the database. The aim was to use the database to link the demand for goods and services generated by the construction projects to the supply within the respective provinces. Such a

SPU Supplier Database

By May 2017, the SPU supplier database carried a total of 312 provincial vendors, reflecting their BBBEE status, locality and reference. Most were from Kimberly.

Types of trade listed include general, masonry work, heating, ventilation and air conditioning, electrical works, audio-visual installations, fencing and hoarding, in site concrete, metal works, furniture and kitchen equipment, landscaping, painting, carpentry, demolitions and site clearances, data network cabling, laboratory services, building management systems, earthworks, CCTV, burglar alarms and access control, ceilings, partitions and access floors,

list had to provide verified information to enable the contractors to make informed commercial decisions regarding the potential capability and capacity of such enterprises.

11.4 ACHIEVEMENT OF CONSTRUCTION DEVELOPMENT TARGETS

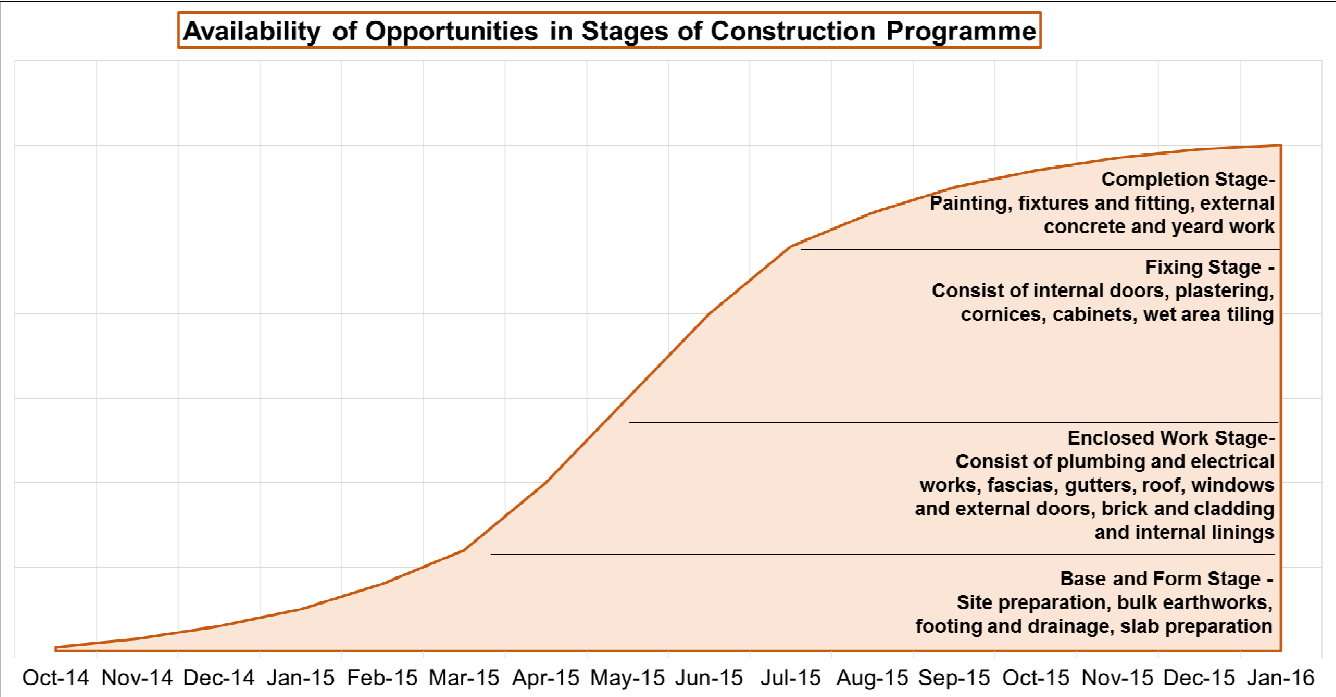
Following the refinement of the construction costs, the project managers at both universities worked with the Contractors to establish the targets based on the KPIs. The construction development targets are set out in the Table 11.3.

Table 11.3: Construction Development Targets

Key Performance Indicators	SPU Targets	UMP Targets
1. Expenditure on the employment of local sub-contractors and suppliers as well as labour	R179 million	R200 million
2. Direct employment of local labour in terms of the number of person days worked by local people	Employment of 266 persons on average for the full contract period	Employment of 327 persons on average for the full contract period
3. Broad-based Black Economic Empowerment spend aligned with the scorecard for preferential procurement	R245 million	R186 million
4. Skills development towards nationally accredited outcomes		
Method 1: structured work experience learning opportunities towards a part or a full occupational qualification	21 220 Hours (2 625 Days)	30 796 Hours (3 422 Days)
Method 2: structured work experience learning opportunities for apprentices or other artisan learners	29 130 Hours (3 641 Days)	47 972 Hours (5 325 Days)
Method 3: work integrated learning opportunities for University of Technology or Comprehensive University national diploma students	25 707 Hours (3 213 Days)	31 944 Hours (3 549 Days)
Method 4: structured work experience opportunities for candidates towards registration in a professional category of registration	13 443 Hours (1 680 Days)	12 834 Hours (1 426 Days)

It is worth noting that the scale and the scope of opportunities for the provision of goods, services and labour are dependent on the stages of the construction programme. During the base and form stage there is limited opportunity for sub-contractors and suppliers. An increasing range of opportunities become available during the next stages, as indicated in Figure 11.3. During the early stages (site preparation, bulk earthworks, footings and concrete slabs) there is limited opportunity for sub-contractors and suppliers. An increasing range of opportunities becomes available during the subsequent stages.

Figure 11.3: Availability of opportunities in stages of construction programme



Achievement of the targets set is described briefly below.

a) Target:- Employment

At the start of the construction programme in October 2014 a total number of 194 people was employed at the construction sites at SPU and UMP. This has since escalated rapidly to a total number of 1 353 for the month of March 2016. The number of local people employed was 878.

On average, 1 031 people have been employed on a monthly basis over this period of which 654 (63%) have been local. At the start of the construction programme, only seven women were employed on site. This number has since increased to 186 in March 2016. On average, the number of women represents 10% of workers employed on site. Nearly three-quarters (75%) of all workers employed on site are young people.

b) Target:- Skills development

The construction of South Africa's two new universities has enabled 545 people to access opportunity for structured workplace learning experience towards a qualification. The skills development goal is aimed at providing opportunities for structured work learning experience towards the achievement of a part or full occupational, artisanal or professional qualification. Contractors were required to provide four methods of structured work learning opportunities towards the attainment of:

- A part-, or full occupational qualification registered on the National Qualification Framework (Method 1);
- A trade qualification leading to a listed trade (Method 2);
- A national diploma registered on the National Qualification Framework (Method 3); or
- Registration in a professional category by a recognised professional body or statutory council (Method 4).

The focus on structured workplace learning responds directly to the difficulties experienced by many learners who struggle to find workplaces where they can complete the practical component of their qualifications. Since construction started in October 2014, a total of 545 learners were provided with 41 537 days of workplace learning experience by the end of March 2016, as shown in the Table 11.4.

Table 11.4: Skills Development

	SPU		UMP		Examples of Qualifications
	Days	Learners	Days	Learners	
Method 1	8 774	176	10 194	99	Scaffolding Inspector & Erector; Working at Heights; Shot fixing; Safety, Health and Environment; Banksman; First Aider; Crane Operator; Dumper Operator; and Telehandler.
Method 2	5 585	57	7 473	160	Plumber; Carpenter; Plasterer; Welder; Bricklayer; Power Floating Supervisor; Tiler; and Scaffolding/Formwork.
Method 3	3 329	16	2 636	18	National Diploma: Civil Engineering; and National Diploma: Building Science.
Method 4	2 165	5	1 381	14	Quantity Surveyor; Engineer; Construction Manager.
TOTAL	19 853	254	21 684	291	

Furthermore, at SPU links were established with Sector Education and Training Authorities to support work-place based learning opportunities for their learners. Fifty bricklayers were able to complete their qualifications as a result of a partnership with the Construction Education and Training Authority (CETA). Five female learners were also provided with an opportunity to complete their N6 Diplomas in Marketing Management, Management Assistant, Public Management, and Human Resources Management, as a result of collaboration with the provincial office of the Education and Training Development SETA (ETDP SETA).

c) Target:- Local Expenditure

Contractors at the UMP were able to exceed their target on local expenditure as early as March 2015. Contractors had jointly committed to achieving 44% of construction spend on local expenditure. At the end of March 2016, Contractors had spent 73% of total construction spend locally on local labour, sub-contractors and suppliers amounting to R174 million as shown in the Table 11.5.

LEARNING BY DOING

Twenty-four year old Tsietsie Maropane hails from Bushbuckridge but now resides in Msholozzi Village outside Nelspruit where he has found work at the UMP construction site. He has received Method 1 workplace learning opportunities to apply what he had learnt in the Scaffolding and Baseline Risk Assessment for Rigging course. Tsietsie sees this opportunity as a stepping-stone towards becoming an Excavator Operator. His colleague on site, Xolile Nyundu (21), is studying a Diploma in Carpentry at the Mpumalanga Regional Training Trust (MRTT). She has gained valuable experience and hopes to start her own carpentry business in the near future.

There are many learners on site undertaking their studies at TVET colleges such as the MRTT. Dimakatso April from Kimberley has a National Diploma: Building and has registered part-time for a B.Tech: Quantity Surveying. She was recruited by one of the community liaison officers (CLOs) of the SPU construction site as a junior quantity surveyor while completing her studies. She says she can now better relate the theory to the practical work on site and has learnt that teamwork on a construction site is probably the most important factor for success. Her colleague, Keelan van Gensen, says he is very fortunate to have been able to access this workplace learning opportunity in order to complete his Civil Engineering Diploma at Central University of Technology (CUT). He will be able to graduate in 2016 since he finished his practical training of 240 days in December 2015.

Contractors at the SPU made a slower start and were only able to achieve the targeted level of local expenditure of 36% by September 2015. By the end of March 2016, Contractors achieved local expenditure of 38% of construction spend, amounting to R188 million.

Table 11.5: Local Expenditure

	Total Actual Spend to Date	% Target of Local Expenditure	Actual Local Expenditure Spend	Actual %
SPU	R 502 312 001.95	36%	R 188 254 116.65	38%
UMP	R 237 820 000.00	44%	R 174 130 000.00	73%

In total, the first phase of the project (October 2014 to March 2016) has contributed R362 million directly into the local economies of Nelspruit and Kimberley through spending on local labour, sub-contractors and suppliers. Local expenditure represents a direct investment into the provincial economy and does not take into account the multiplier effects resulting from salaries, wages and profits.

d) Target:- Broad-based Black Economic Empowerment

Contractors were required to spend 60% of procurement on Broad-based Black Economic Empowerment (B-BBEE). The calculated B-BBEE procurements amounted to R195 million (88%) and R327 million (78%) by contractors at UMP and SPU respectively as shown in the Table 11.6:

Table 11.6: Broad-based Black Economic Empowerment

	Total Actual Procurement Spend	B-BBEE Target as a % of Procurement Spend	Calculated B-BBEE Procurement Spend	Actual %
SPU	R 423 061 711.32	60%	R 327 919 489.66	78%
UMP	R 218 910 000.00	60%	R 195 830 000.00	89%

Main contractors have continued to identify and work with capable local sub-contractors and suppliers. Contractors have also identified sub-contractors with potential for development, and provide mentoring and skills development support to optimise their growth potential. Joint ventures are increasingly considered as a meaningful way to build capacity as smaller construction companies are exposed to the technical requirements of large projects.

At SPU, a Sub-contractor Incubation Project (SCIP) has been initiated to deliver targeted business development and technical support to sub-contractors. The construction of the Sol Plaatje University is a ten-year programme. This provides opportunity to take a long-term view on the development of sub-contractors and suppliers that are able to increase their workload and quality of delivery over time.

The SPU construction programme provides a platform for the identification of local, black-owned companies that can be developed. This involves the identification of sub-contracting

LEARNING BY DOING

Nhlanhla Mathebula is the owner of Baphi Investments. The construction company entered into a joint venture with one of the main Contractors at UMP, Norse Projects. Baphi Investments was established in 2006 as a company specialising in building, carpentry and joinery with a 5GB PE CIDB grading. Baphi Investments has built a good reputation as a local building construction company, which led to their appointment on this project

Nhlanhla stated that the opportunity to be a part of this large development has provided a platform for Baphi Investments to gain more exposure in the construction industry and access future work opportunities through working with a local large-scale contracting company as well as with experienced consultants. Future plans for Baphi Investments include investing in additional plant and equipment and gaining more experience to build capacity to construct mega structures. Partnering with Norse has given the company the confidence to take on larger projects.

and supplier opportunities, identifying participant SMEs, linking these enterprises into the main contractors and working with the enterprises to develop their capacity over time.

This initiative is a collaboration between Small Enterprise Development Agency (Seda), Small Enterprise Funding Agency (SEFA) and Anglo American Zimele (Community Fund) and the Sol Plaatje Municipality. The initiative is starting to bear fruit. For example, when Shebang Construction started on site, this female and black-owned sub-contractor had 10 employees and had a Construction Industry Development Board (CIDB) grading of 1. This sub-contracting company now employs 40 people and has increased its CIDB grading designation to 4.

11.5 COMMUNICATION

Extensive and relevant communication has been critical to successful construction implementation. For construction delivery at the University of Mpumalanga, the NUPMT consulted extensively with members of the former NIHE: Mpumalanga on the development of an apposite communication strategy^[11-6]. The strategy aimed to ensure that the construction work at the UMP would both take on board the relevant stakeholders in the province, and address local economic development.

The primary aim of the strategy was to ensure the continued support for the project by the people of the province. The experiences learnt from the challenges, community interest, and the continuous interaction shown by the local communities during the renovation work undertaken at the Siyabuswa Campus provided a valuable point of reference.

It was agreed that the NUPMT would create a platform solely for information sharing, advice seeking, reporting back and medium level consultation with the identified stakeholders. Scheduled meetings with the stakeholders would have to be held regularly, and appropriate and adequate information shared with the members. Table 11.7 presents the suggested stakeholder representatives, though in practice the final representation was probably not as rigorously implemented. A similar approach was adopted at SPU, with the major focus on the relevant municipal representatives

It was agreed that the emphasis should be on communication and that the more that people were aware of what is going on in and around their communities, the better. To kick-start the process in October 2014, the NUPMT developed comprehensive communication packs outlining the construction procurement outcomes, the focus on mobilising provincial participation, the monitoring of development targets and the regular communication of progress. The packs included a “frequently asked questions” section and a description of the first buildings to go on site, complete with Architects’ renderings. ^{[11-7], [11-8]}

Table 11.7: Suggested Stakeholder Representation at UMP

Stakeholder Group	No. of reps	Notes/comment
Provincial Government	1	The representative should come from the Premier's Office, nominated by the Premier
Ehlanzeni District Municipality	1	<ul style="list-style-type: none"> • The representative to come from the Office of the Executive Mayor. • Each District Municipality also represents its local municipalities and it is thus assumed that information will be communicated through to the local municipalities.
Nkangala District Municipality	1	
Gert Sibande District Municipality	1	
Mbombela Local Municipality	1	<ul style="list-style-type: none"> • The representative to come from the Office of the Executive Mayor. • This Local Municipality is to be represented as it the resident municipality of the University.
House of Traditional Leaders	1	The representative to come from the House.
Lowveld Chamber of Business	1	<ul style="list-style-type: none"> • One representative to come from each chamber. • If the chambers are not representative enough, other chambers would be invited to submit a representative.
Highveld Chamber of Business	1	
Mpumalanga Council of Churches	1	The representative to come from the Council.

Most important was the regular feedback on project development commitments to the municipal representatives whose communities were active stakeholders in the delivery process. At SPU, the project established a six-page monthly journal^[11-9] that dealt specifically with progress towards these commitments. Its first modest edition came out in June 2015 and since then it has reflected the increasing success of local participation in terms of real people.

Fig 11.3: SPU On-Site Newsletter & extract



VOLUME 1 ISSUE 1

Local expenditure

The local expenditure target, measured in terms of money spent on local labour and provincial/ local sub-contractors and suppliers is R156 million.

As at the end of April 2015, the actual expenditure for the construction programme totaled an amount of R117 919 974.56. Of this amount, the Contractors have spent R33 085 996.27 directly on the provincial/ local economy. This represents 28.1% of total ex-

penditure and is getting closer to the target of 35%.

Furthermore, it is expected that the local expenditure will increase significantly as Contractors have already entered into commitments with provincial/ local sub-contractors and suppliers to the value of R88 338 114.82.

The project managers are working closely with local business formations such as

A local sub-contractor perspective

Ms. Elizabeth Masilo, the owner and founder of S&D Remmogo, has recently started as a sub-contractor for Murray and Dickson. Her business is the first female and youth-owned enterprise on site. She has been appointed to do brick laying. The main Contractor, Murray and Dickson,

is pleased with the work done by S&D Remmogo.

Ms Masilo says that she has worked hard and is very proud of her Development Board (CIDB) GB2 grading. She currently employs 11 local workers. "I appreciate the opportunity to be part of this historic construction programme,"



Ms Elizabeth Tshepisho Masilo, S&D Remmogo

11.6 KEY INSIGHTS ON ACHIEVING CONSTRUCTION DEVELOPMENT GOALS

The achievement of construction development goals requires the special commitment of key role players – project managers, contractors and local stakeholders such as municipal authorities. The approach and attitude of project managers to the development agenda plays an important role. Project managers signal to the contractors and the rest of the stakeholder community how seriously the client regards the achievement of the development goals.

Tight time frames pose the risk of undermining efforts to promote construction development since contractors tend to fall back on their established relationships with suppliers and sub-contractors under such conditions. Developing new relationships with local Black suppliers and sub-contractors takes time and this must be factored into the roll-out of the project.

The following are some insights gleaned that can improve and strengthen the achievement of development objectives:

- **Client-driven** – The client is the custodian of development outcomes and must ensure that contractual arrangements and performance monitoring and evaluation drive their attainment. The client has the responsibility to balance competing interests so that both the primary objectives of time, cost and quality are achieved together with the desired development outcomes. This balancing responsibility must take account of the fact that the development goals are part of the project's risk management strategy. If the client's commitment is not 100% behind the development goals, they are not likely to be realised.
- **Buy-in by stakeholders** – Project manager and contractor buy-in and commitment to construction development is critical to the achievement of the desired outcomes. Unless these critical stakeholders are committed to attainment of development objectives (not as a matter of compliance, but as an important outcome and contribution of the project) there is also little chance of success in this regard. Their commitment is assisted by a longer term (e.g. three year) framework contract rather than a one-off project.
- **Contractually enforceable targets** – The procurement documents need to unambiguously specify KPIs in a contractually enforceable manner. The consequences of failing to attain KPIs also need to be established in the contracts i.e. the quantum of low performance damages
- **Monitoring systems** – The establishment of sound monitoring systems to track progress is critically important for providing the necessary information to evaluate performance. There needs to be continuous review of performance data between project managers and contractors. This enables early identification of challenges and introduction of corrective measures where contractors lag behind the targets.
- **Supporting measures** – It is necessary to experiment with a range of measures to support the development of suppliers and sub-contractors. Involvement by local stakeholders that have a role in small business or small contractor development should be encouraged in order to access the necessary technical and financial resources to support the participation of such stakeholders.

- **Community liaison** - Effective community liaison plays a key role in mobilising stakeholders, including potential suppliers and sub-contractors. The function is also a key interface between the project and the wider community and can provide early warning of challenges that may arise as a result of the perceived or real exclusion from the project of potentially legitimate suppliers and sub-contractors.





Fig 11.4: Promoting and achieving Construction Development Goals

REFERENCE DOCUMENTS

11-1 Client's Outline Construction Delivery Strategy

11-2 NUPMT Specification for local participation in engineering and construction contracts

11-3 NUPMT Specification for B-BBEE spend in engineering and construction contracts

11-4 NUPMT Specification for direct employment generated in engineering and construction contracts

11-5 NUPMT Specification for developing skills that result in nationally accredited outcomes through infrastructure contracts

11-6 Stakeholder Engagement and Local Economic Development

11-7 Construction moves up a gear – SPU

11-8 Construction moves up a gear – UMP

11-9 On Site – construction programme update

Chapter 12

Architecture and buildings at Sol Plaatje



12. Architecture and Buildings at Sol Plaatje University

At SPU three large buildings were completed, and Building C004, the library, was designed to Stage 6, with the design and construction completed under SPU's client supervision.

12.1. CAMPUS BUILDING C001

The building on the corner of Scanlan Road and Bishops Avenue in Kimberley is predominantly a student residence for students attending the Sol Plaatje University. All residential rooms are located on the first four floors, accommodating a total of 290 beds, with mixed-use facilities on the ground floor.

The Urban Design Framework set the urban spatial parameters for the project, with the objective of creating a well-defined, lively urban environment. The large communal spaces of the residence are located on the ground floor, facing the semi-public square. Small retail shops, a laundromat and offices are located on the ground floor, facing onto the main public square and Scanlan Road.

These facilities were positioned to activate the building edges and public spaces in order to establish a connection between the city and university as an urban campus.

The residence provides a comfortable and safe home for students on campus, in a setting that stimulates learning and development, both individually and collectively. All spaces are considered to be learning spaces: learning and thinking can happen anywhere – in a tranquil garden, during a heated information discussion, at a study desk or in a lecture hall. The layout of the residence is designed to promote formal and informal interaction between the residents. These spaces do not prescribe how they are to be used, but rather invite people to personalise the occupation of communal space, contributing to a sense of belonging.

Two types of residential accommodation are provided: shared apartments with six to eight individual bedrooms, sharing ablutions, a kitchenette and a living area, and dormitory type rooms with communal ablutions, kitchenettes and social spaces.

An effort was made to give the building contextual relevance by including a unique narrative depicting the landscape of the Northern Cape. Images and markings of human endeavour particular to the region's rich heritage have been laser-cut into 375 m of balustrades and a sunscreen of 74 m running along the length of the public square.

The optimised response of the building to its environment is integral to all aspects of the design. One of the primary objectives was to minimise the need for electrical and mechanical heating and cooling to keep the spaces thermally comfortable. This was best achieved by rooms that are exposed to direct sunlight in winter and shaded from the sun in summer, for which a north orientation is ideal. Optimising the number of north-facing rooms had an overriding impact on the layout and image of the building.

Architects:	Activate Architecture
Project Team:	Siviwe Mvumbi, Leane Fernandes, Mamisa Sokhela, Brian McKechnie, Binayka Rama, Michael Magner, Reon van der Wiel
Structural Engineers:	Element Consulting
Mechanical Engineers:	Royal Haskoning DHV
Electrical Engineers:	Civil Sense Consulting
Landscape Architects:	Insite Landscape Architects
Quantity Surveyor:	Limco Quantity Surveyors
Urban Design:	Ludwig Hansen
Sustainability:	PJCarew Consulting
Acoustics:	Linspace
Contractor:	Qualicon Construction
Photographer:	Tristan McLaren
Text:	Michael Magner

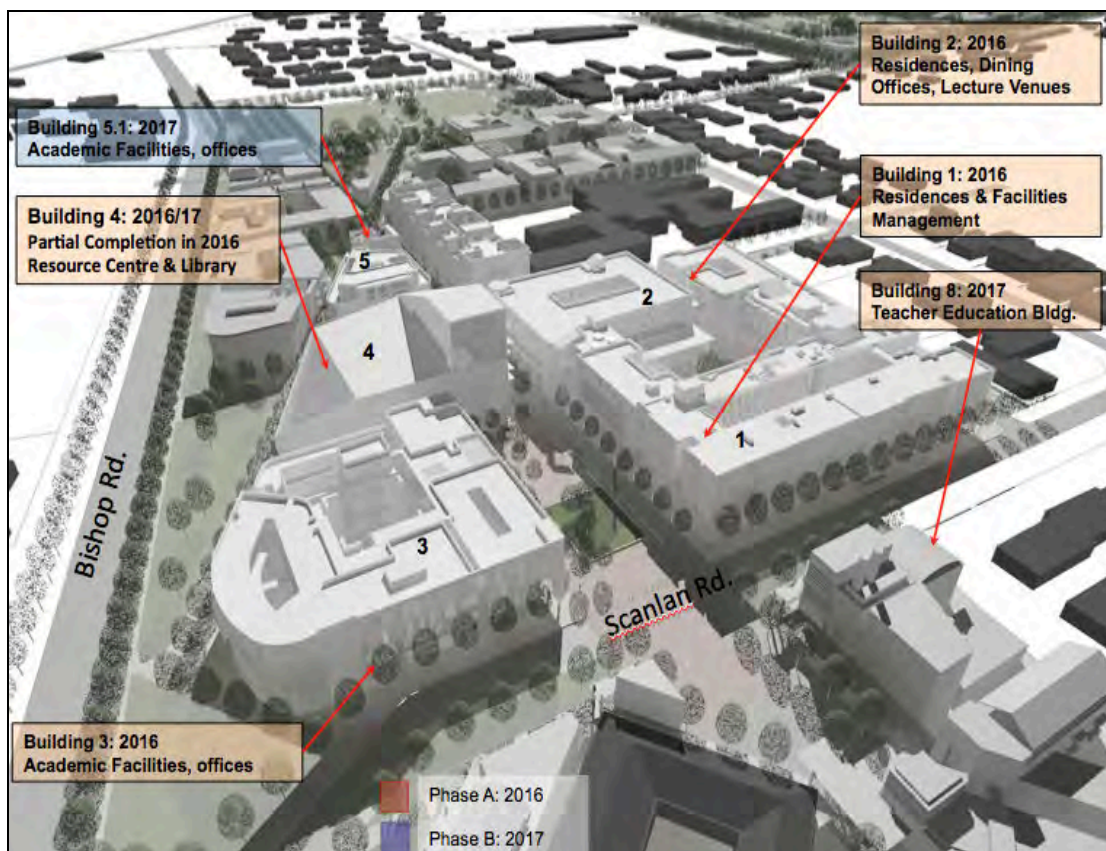
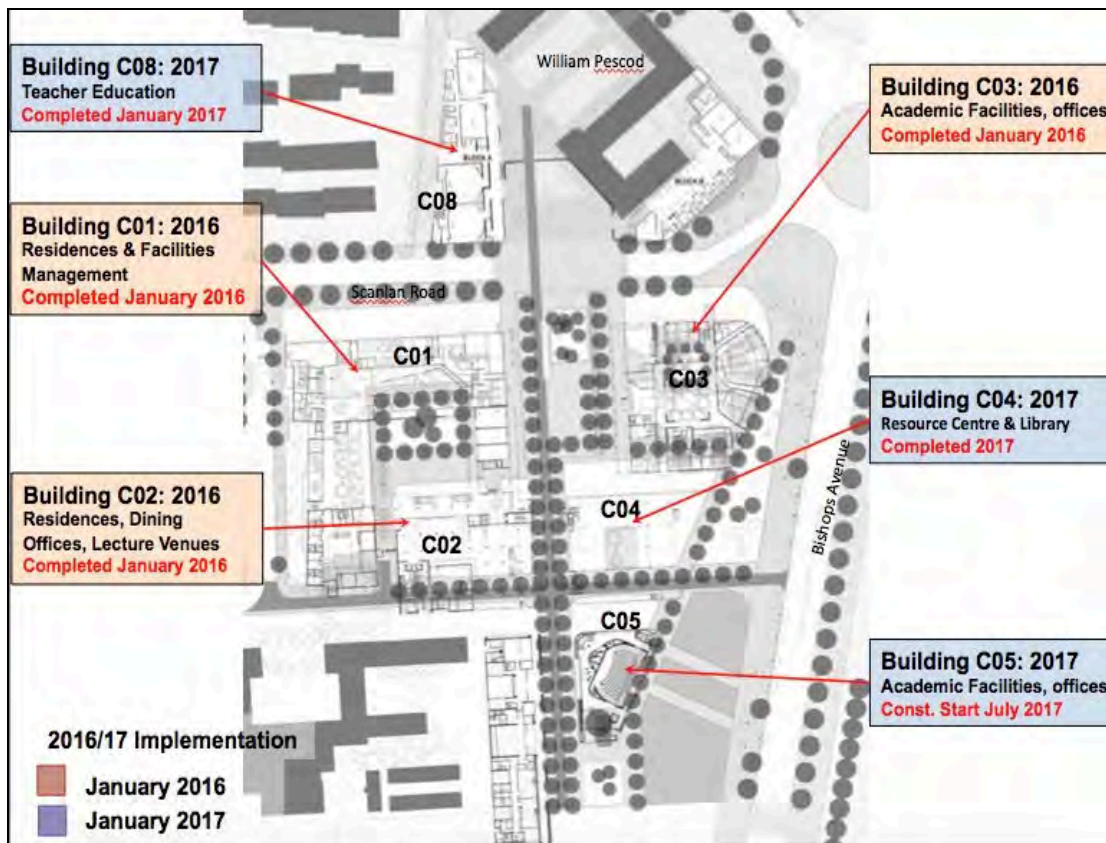


Fig 12.1 and 12.2: Sol Plaatje University 1st two phases of implementation. Phase completed during the 1st Quarter of 2016. The Wits PMT oversaw the development of the designs for structures completed in 2017.

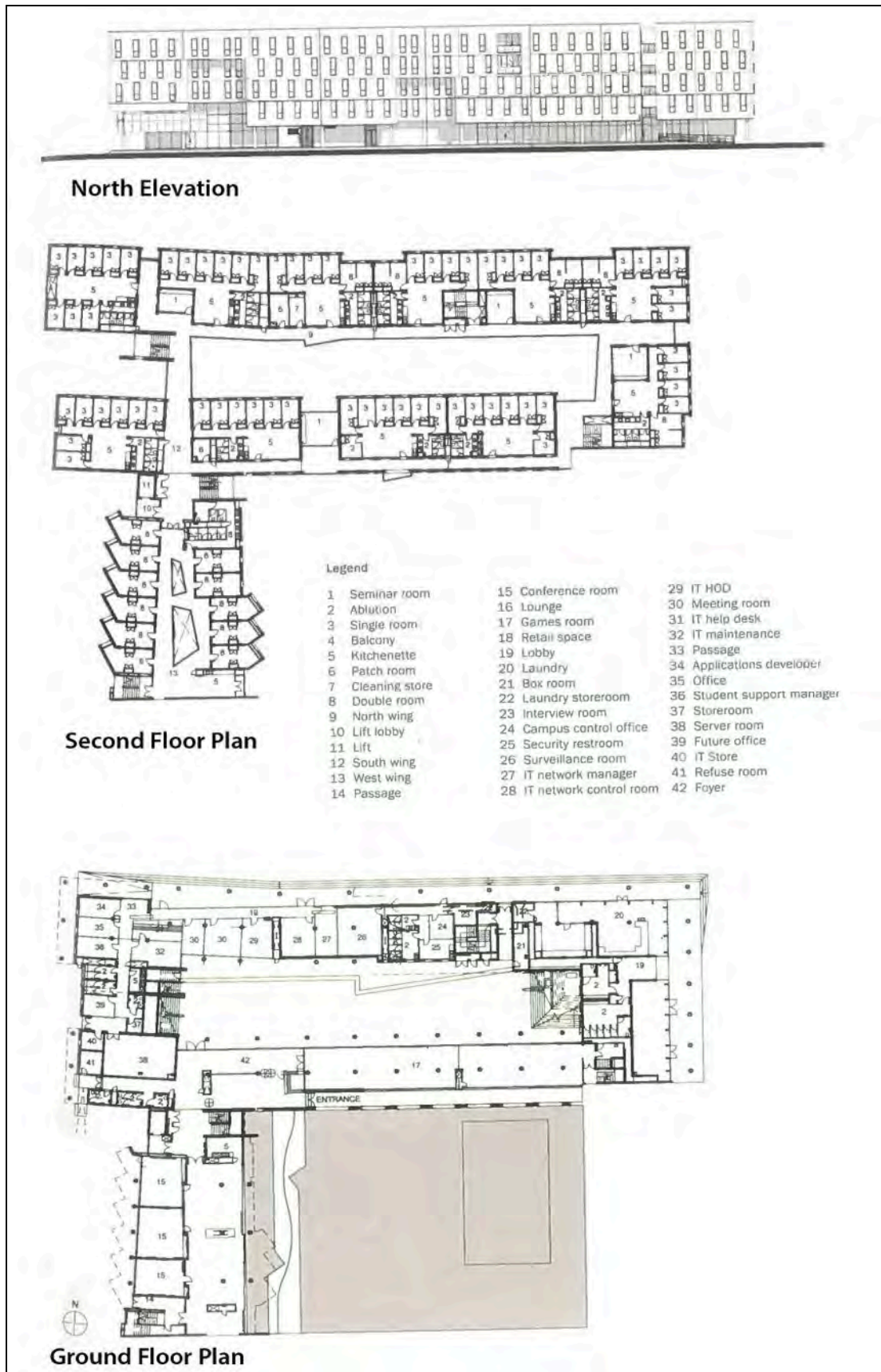


Fig 12.3: Sol Plaatje University Campus Building L001 Floor Plans and Elevation (Activate Architects).



Fig 12.4: Sol Plaatje University Campus Building 01 on the corner of Scanlan Road and facing the Central Square. Residence for 290 students with retail, game rooms, seminar space, a laundry and the universities ICT facility.



Fig. 12.5: Sol Plaatje University Campus Building 01. View of the Internal Courtyard (T. McLaren)

12.2. CAMPUS BUILDING C002

The design of the new Sol Plaatje University in the Northern Cape was undertaken as a two-stage design competition. The campus is located in the heart of Kimberley and the development of an urban campus integrated into the urban fabric of the city was seen as key to the urban regeneration of Kimberley.

The first phases of the university consisted of three land parcels, catering for a variety of building types and uses designed by different architectural practices. Building 2 is a multi-purpose building that faces onto the urban square and, together with the adjoining Building 1, wraps around the central internal courtyard.

Building 2, yet to be formally named, consists of three parts that articulate different uses and relate to the placement

of the building on the site. The building comprises a 174-room student residence, dining hall and kitchen, teaching venues, academic offices, and ground-floor retail space.

The competition phase explored these questions: what it is that makes architecture specific to its place; the nature of the urban fabric of Kimberley and its influence on the nature of the proposed university; and what typologies would encourage the connectivity and social learning which drive new modalities of teaching and learning.

The architects chose to explore these ideas through a narrative that attached voices and people to the kinds of spaces they imagined. They thought the architectural language of the new university should be driven by a contemporary response to an environmentally appropriate architecture that places the buildings in the landscape of the city. It had to be low-key and modest with certain iconic high points that identify the university as a special place. This is the concept of balancing 'background' and 'foreground' buildings, highlighting these high points against the background of an urban field. Iconic moments are those that become ingrained in the memory of the city and give its users a sense of belonging and ownership. The public spaces of the university may become a meeting point for friends, a place to skateboard, focal points where iconic buildings are used as backdrops for wedding photos and where graduation photos are taken.

New university building types – multi-purpose buildings that encourage sharing of resources and unite disciplines – are the heart of the student experience. These typologies, which contain a mix of uses and integrate both formal and informal social spaces, are integral to the concept of multi-functional precincts.

Architects:	Savage and Dodd Architects
Project Team:	Colin Savage, Heather Dodd, Dale Scott, Robin Theobald, Melissa de Billot, Thabiso Leeuw
Structural Engineers:	Element Consulting Engineers
Mechanical Engineers:	Royal Haskoning DHV
Electrical Engineers:	Civil Sense Consulting
Landscape Architects:	Insite Landscape Architects
Quantity Surveyor:	Limco Quantity Surveyors
Acoustics:	Linspace
Wet Services:	Aurecon
Fire Consultant:	Aurecon
Environmental:	PJCarew Consulting
Contractor:	Trencon Construction
Photographer:	Tristan McLaren
Text:	Heather Dodd



Fig 12.6: Sol Plaatje University Campus Building 02. The Building accommodates residences, a multi-purpose hall, seminar and lecture venues, offices and retail spaces. View of the Internal Courtyard.



Fig. 12.7: Sol Plaatje University Campus Building 02. West facing residential façade, with sun screening elements.

12.3. CAMPUS BUILDING C003

The framework of this building at the Sol Plaatje University in Kimberley was very specific in terms of the urban codes, prescribed height restrictions, 'build to' lines, a 'perimeter-block' typology, predetermined courtyards of various scales and a street interface on ground-floor level.

The accommodation requirements comprised retail space on the ground floor, flat-floor classrooms, four raked auditoriums, a health and wellness centre, academic and open-plan offices, Student Representative Council offices, a gymnasium and flexible multi-purpose classrooms.

The building was to be an infill rather than a landmark building, hence the adoption of an understated perimeter-block design consisting of a simple form with recessive features. Subtle landmarks at specific points were 'carved out' of this neutral form, such as the main entrance and recessed balconies.

The west façade has a second brick skin punctured by narrow slivers, spanning from the first to the third floor to block out the western sun and provide an activity generator that affords surveillance of the square. Apertures on the east façade were treated in a more sculptural and playful manner by using deep, recessed openings with varied angled reveals and sills. The language of the narrow slivers was continued on the north façade, while the building opens up with larger glazed surfaces on the south side.

The planning diagram consists of a central landscaped courtyard surrounded by a covered walkway, connecting all spaces. One is guided into the auditoriums by the use of soft curves, which simultaneously express the function of the internal layouts. Brise-soleil walls around the central walkway provide sun protection and soften the glare while allowing the light summer breeze to cool the building.

Materials are limited to a light-coloured mottled face-brick, exposed off-shutter concrete, slate floors and painted steel. This palette reflects the Northern Cape landscape. Mosaic tiles emphasise important elements.

The building adopts strategies of passive design by making use of small openings, brick screens, insulated cavity walls, brise-soleil walls, cross-ventilation, covered walkways and courtyards. Raked auditoriums are cooled by means of an energy-efficient pressurised displacement system in which cool air enters from a plenum space below the seating, forcing the hot air out at a higher level via chimneys. Offices are cooled by means of energy-efficient evaporative cooling that only operates at limited times of the day. Hot-water generation is limited to the gymnasium showers and tea kitchens, and is provided by heat pumps and a storage tank, and under-counter mini hot-water cylinders.

Architects:	Wilkinson Architects, Mashilo Lambrechts Architects, GXY Architects
Project Team:	Chris Wilkinson, Storm Stolle, Manie Lambrechts, Eugene Bagley
Structural Engineers:	Aurecon
Mechanical Engineers:	Element Consulting Engineers
Electrical Engineers:	Aurecon
Landscape Architects:	Insite Landscape Architects
Quantity Surveyor:	Koor Dindar Mothei QS
Urban Design:	Ludwig Hansen
Project Managers:	AECOM
Environmental:	PJCarew Consulting
Fire Consultant:	Aurecon
Contractor:	Murray & Dickson
Photographers:	Chris Wilkinson, Tinus van der Merwe, Tristan McLaren
Text:	Chris Wilkinson

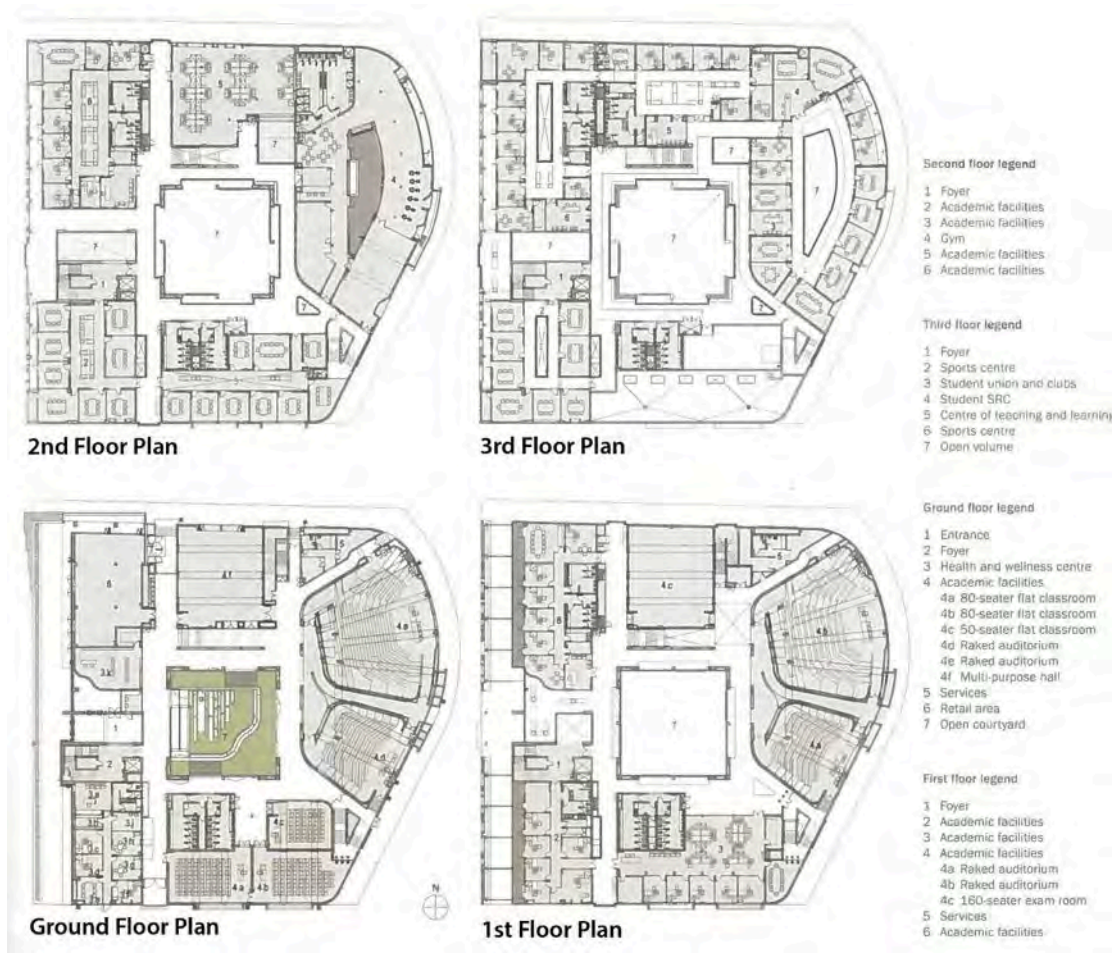


Fig 12.8: SPU Campus Building L003: Multi-purpose Academic Building.



Fig 12.9: Sol Plaatje University Campus Building 03. The first new academic building with multiple seminar and lecture venues, four raked auditoriums, staff offices, student support and campus retail on the ground floor facing the central campus square.



Fig 12.10: Sol Plaatje University Campus Building 03. The north-eastern façade facing Bishops Avenue (T. McLean)



Fig 12.11: Sol Plaatje University Campus Building 03. Academic Building

12.4. CAMPUS BUILDING C004 - LIBRARY

Building C004 is the University Library and Resource Centre which has been singled out by the Urban Design Framework as a landmark building at the heart of the Central Campus. The building comprises a total of seven floors. The lower four floors comprise large floor plates, planned and equipped for flexible library and resource use. The three upper and smaller floor plates provide opportunity for uses of a more restricted nature such as archiving.

The library was envisaged as a flagship centre for knowledge generation and human empowerment. Incorporating the traditional functions of a main university library, the building envisages a much wider range of learning opportunities, circumstances and interactions that increasingly define the engagement with knowledge.

The uses of this building are arranged from the most public on the ground floor, with the more private and quiet toward the top levels. The building provides deep, highly serviced flat floors that maximise flexibility and optimise floor plate efficiency. All vertical movement and services are located in a continuous 2.7m wide perimeter void between the external envelope and the floor plates. This results in an integrated 'wall and roof' envelope that is functionally, structurally and technically independent of the 'building' within it.

Key library features include a ground floor exhibition space with help desk, coffee counter, generous book stack, library loan, reference desks and processing spaces on the ground, first and second floor. On the ground floor a 240-seat, public lecture auditorium was introduced, establishing an ideal forum between the university and the city. The upper three floors form the landmark tower and house post graduate research spaces and archives.

The eastern portion of the building has a triangular courtyard space open to the elements as a quiet gathering and reading space to the internal functions of the library. The courtyard is filled with trees and benches offering a quite contemplative space for students, researchers and visitors alike. A statue of Sol Plaatje is also placed in the courtyard space.

In response to the sometimes severe Northern Cape climate, the Library is viewed as an oasis. In summer it provides a cool respite from the searing heat, and in winter a warm cocoon. This is achieved by limiting the proportion of external glazing, with particular consideration to orientation and shading, and ensuring that the external envelope is well insulated. The mechanical cooling and heating system is planned to include water-based thermal mass strategies augmented by 100% preheated or cooled fresh air.

Materials are limited to concrete as predominant finish. This was consciously done to emphasise the importance of the Library and its landmark status within the overall campus.

Architects:	Design Workshop SA
Project Team:	Andrew Maiken, Mark Horner, Janine Beaucamp
Structural Engineers:	Aurecon
Mechanical Engineers:	Element Consulting Engineers
Electrical Engineers:	Aurecon
Landscape Architects:	Insite Landscape Architects
Quantity Surveyor:	Koor Dindar Mothei QS
Urban Design:	Ludwig Hansen
Project Managers:	AECOM
Environmental:	PJCarew Consulting
Fire Consultant:	Aurecon
Contractor:	Murray & Dickson
Text:	Mark Homer



Fig 12.12: Sol Plaatje University Campus Building 04. Library and Student Resource Centre. Landmark building facing the Central Campus Square.



Fig 12.13: Sol Plaatje University Campus Building 04. The Internal Courtyard



Fig 12.14: Sol Plaatje University Campus Central Services Building. Most bulk services, waste management, water supply and electrical back-up for the 1st two phases of construction located in the Central Services Building.



Fig 12.15: Sol Plaatje University Campus Central Square. Official opening of the 1st phase buildings in April 2016.

Chapter 13

Architecture and buildings at University of Mpumalanga



13. Architecture and Buildings at University of Mpumalanga

13.1. CAMPUS BUILDING L001 – STUDENT RESIDENCE

The University of Mpumalanga in Mbombela (Nelspruit) opened towards the end of 2013. The design presented a unique set of challenges to consider tertiary education in post-apartheid South Africa.

The proposal for the residential buildings aimed to reflect the aspirations of this new university. Providing context-sensitive, high quality facilities was of primary concern. The predominant design objective was to create a secure living space for students that would be conducive to learning and enable positive social interaction.

The main east-west street formalises the axis on which the two residential blocks, the main university square and the library facility lie. The main entrance to the residential complex is on this street. The existing residential block north of the new building is incorporated into the new complex.

Architects:	Cohen and Garson Architects
Project Team:	Fiona Garson, Nina Cohen, Deborah Kirkman, Lwandile Maki, Yvonne Brecher, Valerie Lehabe, Similo Ndimma, Nqobile Lombo, Claudia Bozzonetti
Structural Engineers:	SKC Masakhizwe
Mechanical Engineers:	Aurecon
Electrical Engineers:	PLP Consulting
Landscape Architects:	Insite Landscape Architects
Quantity Surveyor:	Siyakha
Civil Engineer:	Delta Built Environmental
Wet Services:	Delca Systems
Fire Engineer:	Aurecon
Environmental :	PJCarew Consulting
Audio-Visual:	Digital Fabric
Contractor:	Norse Projects
Photographer:	Richard Wilson
Text:	Fiona Garson, Jonathan Melamdowitz

Structured as a series of 'apartment blocks' with internal courtyards, the modular block is repeated and modified according to programmatic requirements. These blocks are arranged along an internal street, creating intimate public and social spaces.

There is a sense of permeability on the street level, encouraging interaction and encounters. The street widens to form a gathering space from which there is access to seminar rooms, parent meeting space and the student centre.

Each room has natural cross-ventilation and the façade pulls in and out to create deep inhabitable reveals that provide the needed shading. Each apartment consists of a common room from which one single and four double bedrooms are accessed. Entrance to four separate ablution facilities is via a discreet passage from the common room.

The courtyard typology was appropriate for the residential blocks in that it creates common public and private outdoor spaces. It is also climatically appropriate. The courtyards facilitate moments of calm in the university environment while providing social gathering spaces.

The intention was that the residences would create village-like social spaces, both inside the buildings and within the external spaces held by the modular blocks.

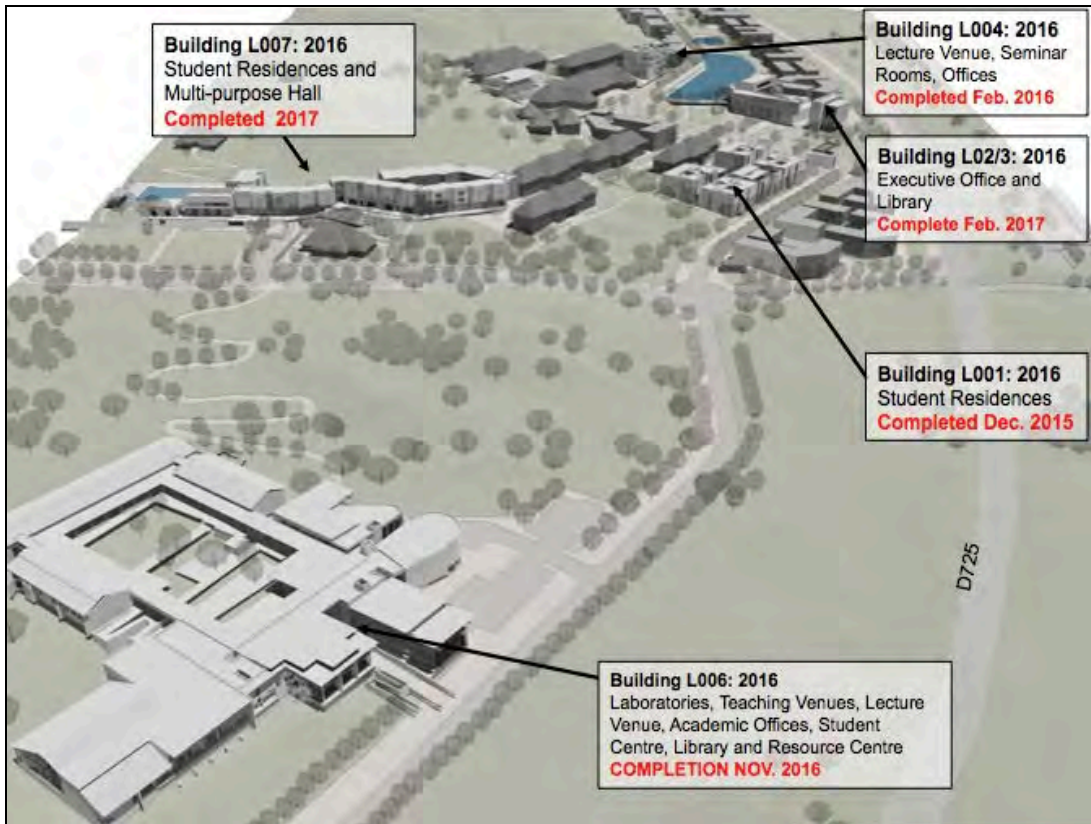
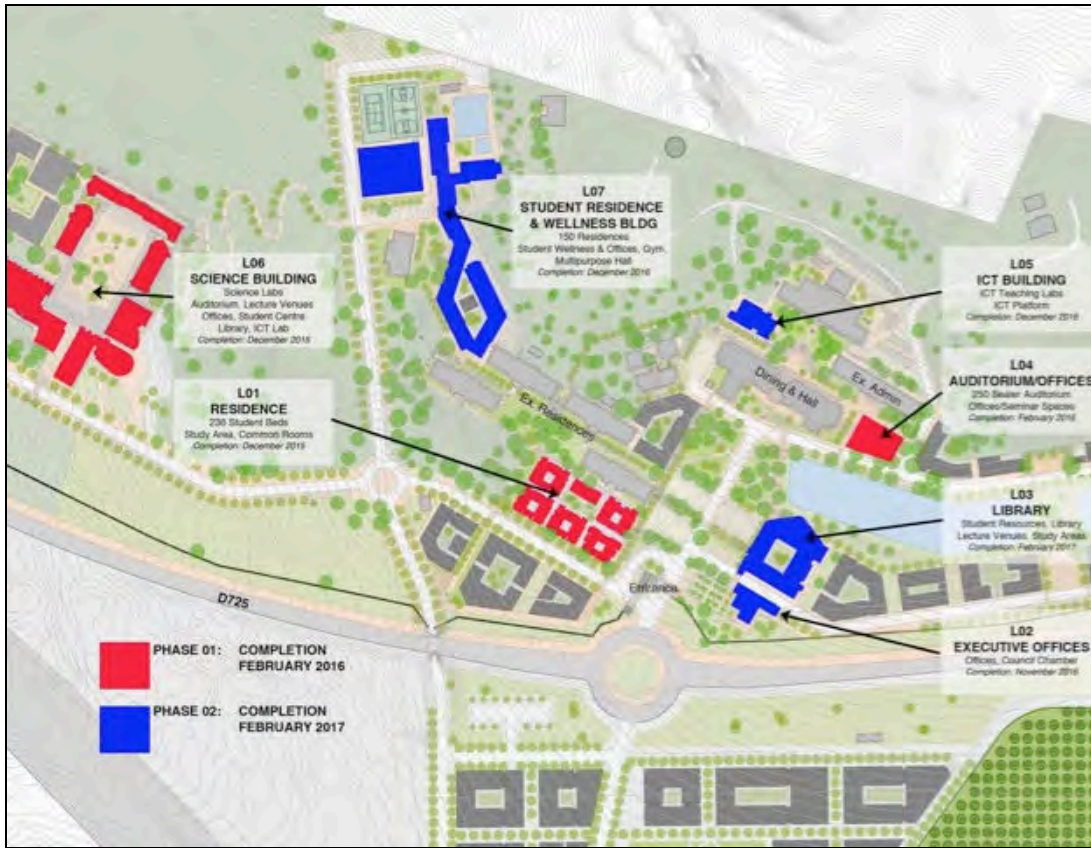


Fig 13.1 & 13.2: University of Mpumalanga 1st two phases of implementation. Phase completed during the 1st Quarter of 2016. The Wits PMT oversaw the development of the designs for structures completed in 2017.

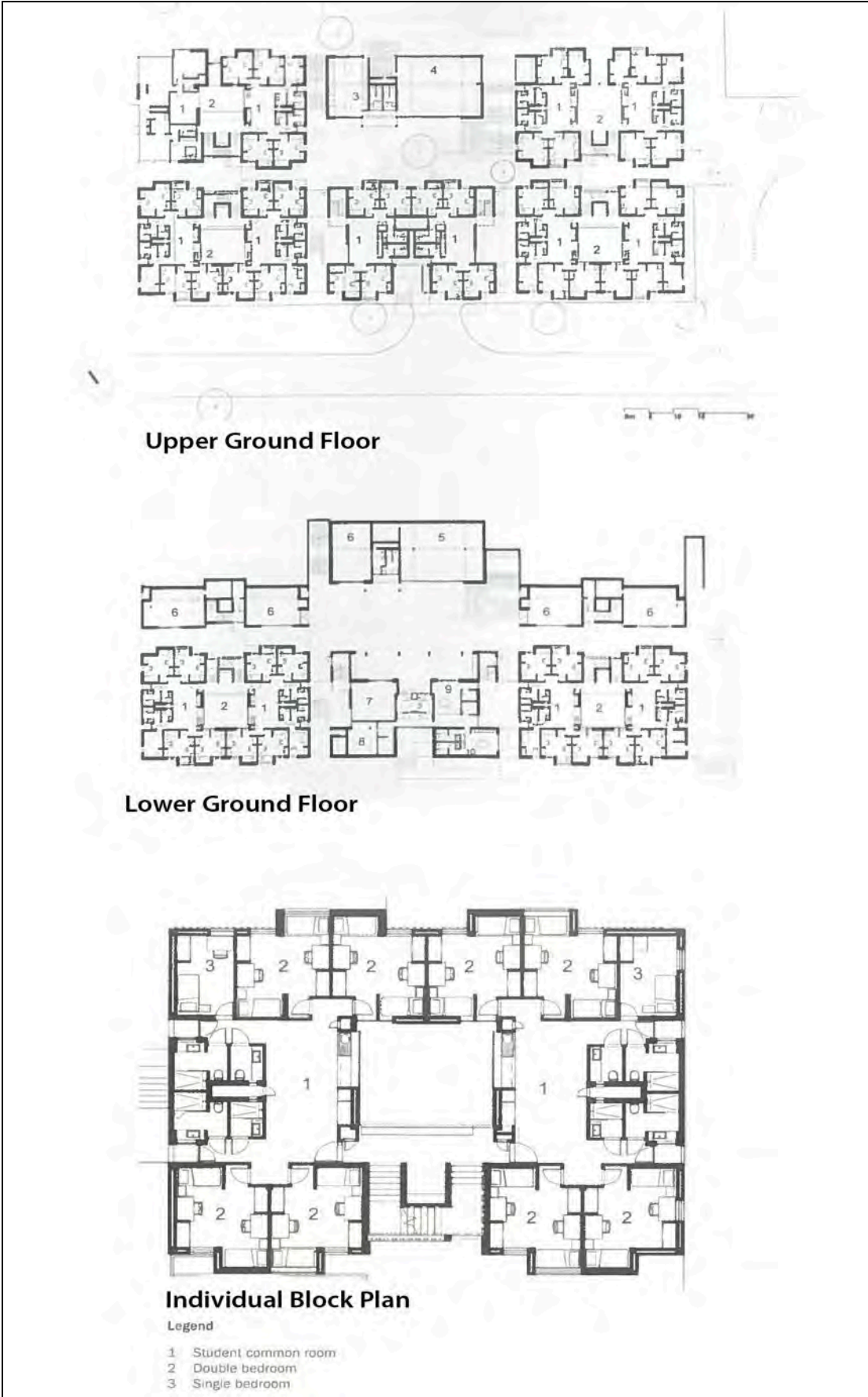


Fig 13.3: University of Mpumalanga Campus Building L001 – Student Residence.



Fig 13.4: University of Mpumalanga Campus Building L001 – Student Residence. Building accommodates 238 students, Game Rooms, Laundry, study spaces and seminar rooms. View of Residence Courtyards



Fig 13.5: University of Mpumalanga Campus Building L001 – Southern façade facing the campus entrance gate.

13.2. CAMPUS BUILDING L006 – SCIENCE LABORATORIES & FACULTY LIBRARY

This project consists of the conversion, renovation and new additions to the existing ‘workshop’ buildings on the University of Mpumalanga Campus in Mbombela (Nelspruit).

The site occupies a semi-isolated position on the western edge of the Lower Campus boundary and was intended to serve as a connector between the Lower Campus and the Orchards Campus. The existing buildings were previously used as workshops, agricultural sheds, academic facilities and for support services. In the

north were warehouses and workshops overlooking a central courtyard; in the west, buildings that had been used for agricultural training purposes; and in the east, buildings that had been used as small teaching spaces, with ablution facilities.

The site sits within a rock formation pocket with sensitive vegetation. As a result, the footprints of the existing buildings predetermined a ‘build to’ line. The existing buildings were generally located on three distinct platforms at varied levels.

The general key directives were as follows:

- Universal access for students with disabilities;
- Circulation to be viewed as an extension to academic/student space;
- Connection of all buildings into a cohesive whole;
- Retention of existing established trees;
- Variation of built format strategic intervals;
- Axis and landmark through the centre of the existing courtyard;
- Service and delivery access away from the active public edges;
- Provision of 15-20 parking bays.

The existing hard-surface courtyard space was to be reinvented and energised as an intermingling device associated with the vibrancy of campus life and a buffer space during interludes.

The general design approach was one of rejuvenation, reclamation, environmental cueing, soft intervention and visual connection, and re-establishing roots within the landscape. The new building components were inserted as a ‘plug’ into the southernmost end of the existing courtyard to bring cohesion to the existing and new building masses and to create conducive conditions for zones of hierarchy and buffer space, as well as landmarks for orientation and connection.

Architects:	Conco Bryan Architects
Structural Engineers:	Aurecon
Mechanical Engineers:	Aurecon
Electrical Engineers:	Delta Built Environmental
Landscape Architects:	Insite Landscape Architects
Quantity Surveyor:	SBDS Quantity Surveyors
Contractor:	Trencon Construction
Photographer:	Llewellyn Bryan
Text:	Conco Bryan Architects



Fig 13.8: University of Mpumalanga Campus Building L006 – Science Laboratory Building. 250 seat raked Auditorium



Fig 13.9: University of Mpumalanga Campus Building L006 – Science Laboratory Building.

13.3. CAMPUS BUILDING L004 – MAIN AUDITORIUM AND ACADEMIC OFFICE BLOCK

Building LP004 on the Lower Campus of the Mbombela Campus contains the Main Auditorium for purpose of public lectures, a number of teaching spaces, academic offices and meeting rooms. It is located adjacent the existing university hall and administration building. The building is located along the University Walk which links all the existing residences, the new Student Wellness Centre and Multi-purpose Hall, the dining hall. The ground floor comprises the most accessed spaces, being a 250-seat raked lecture theatre and seminar rooms. A conceptual open circulation system has been implemented, cutting through the building in a north south direction. The main lecture theatre will open onto a new landscaped pedestrian “walk” to the west.

Architects:	TC Design Architects
Structural Engineers:	Aurecon
Mechanical Engineers:	Aurecon
Electrical Engineers:	Delta Built Environmental
Fire Engineer:	Aurecon
Environmental :	PJCarew Consulting
Landscape Architects:	Insite Landscape Architects
Quantity Surveyor:	SBDS Quantity Surveyors
Contractor:	Trencon Construction

First and second floors comprise a combination of smaller interactive teaching spaces and offices. The configuration allows for outward facing rooms that can be naturally ventilated by simple opening window sections, in addition to air conditioning. The design proposes using open bonded honeycomb. An internal courtyard provides for circulation, balanced lighting and cross ventilation. Courtyards have proven to be problematic as driving rain enters, causing flooding of passages and some of the offices. Courtyards have since been closed with lightweight translucent roof to shield from rain.

Building L004 is also part of an attempt to create an identity for the university, so transforming a small rural facility into an expansive educational campus. The building is by far the smallest of the new campus buildings, and conforms to a material palette agreed upon for all of the new campus additions. The challenge was to create a sense of belonging for its permanent occupants while also accommodating the daily thoroughfare of students occupying the auditorium and seminar spaces

A sculpted brick façade wraps the structure and filters light ingress, provides security and access control and encloses the compact footprint and form. While the vertical spatial hierarchy seemingly reserves the upper levels for academics and support staff and creates access control points in its vertical circulation, the interspersing of various informal lecture facilities and unprogrammed social spaces throughout the upper levels underpins the multi-functional, non-hierarchical nature of the project.

As an environmentally sensitive response to the local climate, the masonry and concrete structure provides considerable thermal mass while the façade is selectively opened to enable natural ventilation. In consultation with the mechanical engineers and environmental consultants the architects developed a holistic ventilation strategy by shading the structure to limit heat gain, using the central courtyard as exhaust, allowing large openings for natural ventilation and limiting air-conditioning to the offices and seminar spaces.

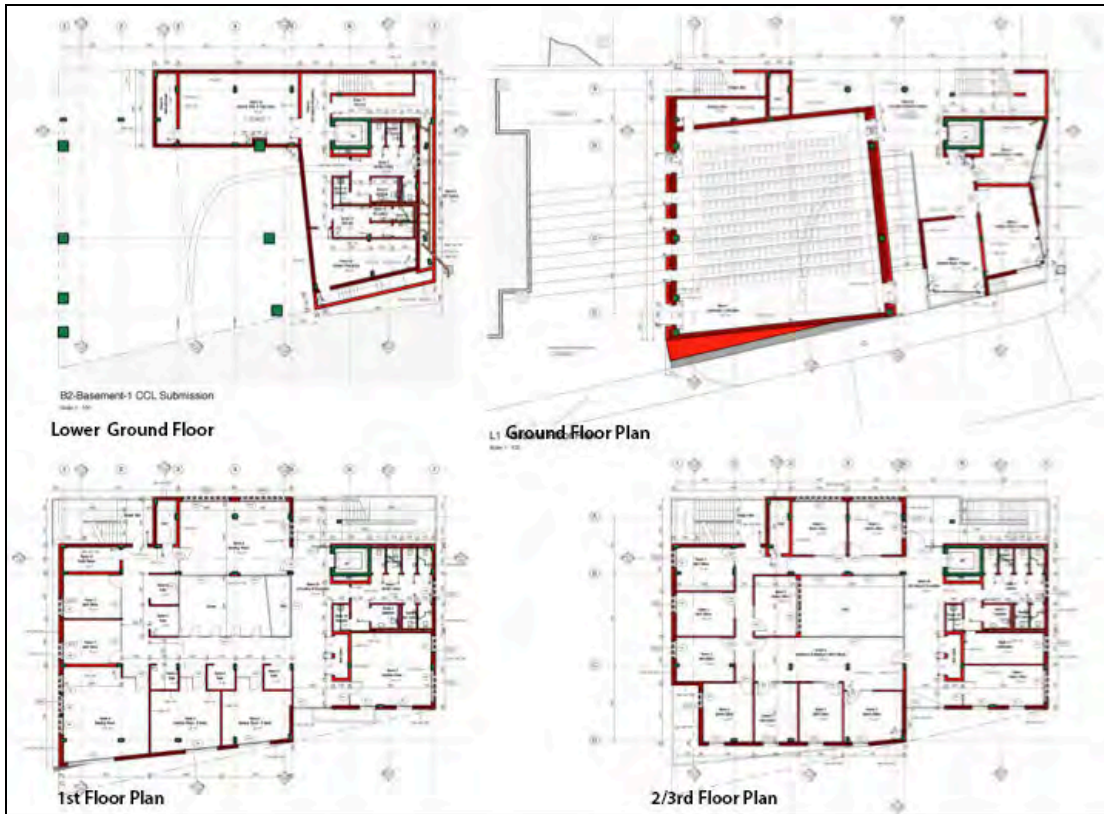


Fig 13.10: University of Mpumalanga Campus Building L04 – Administration Building Plans

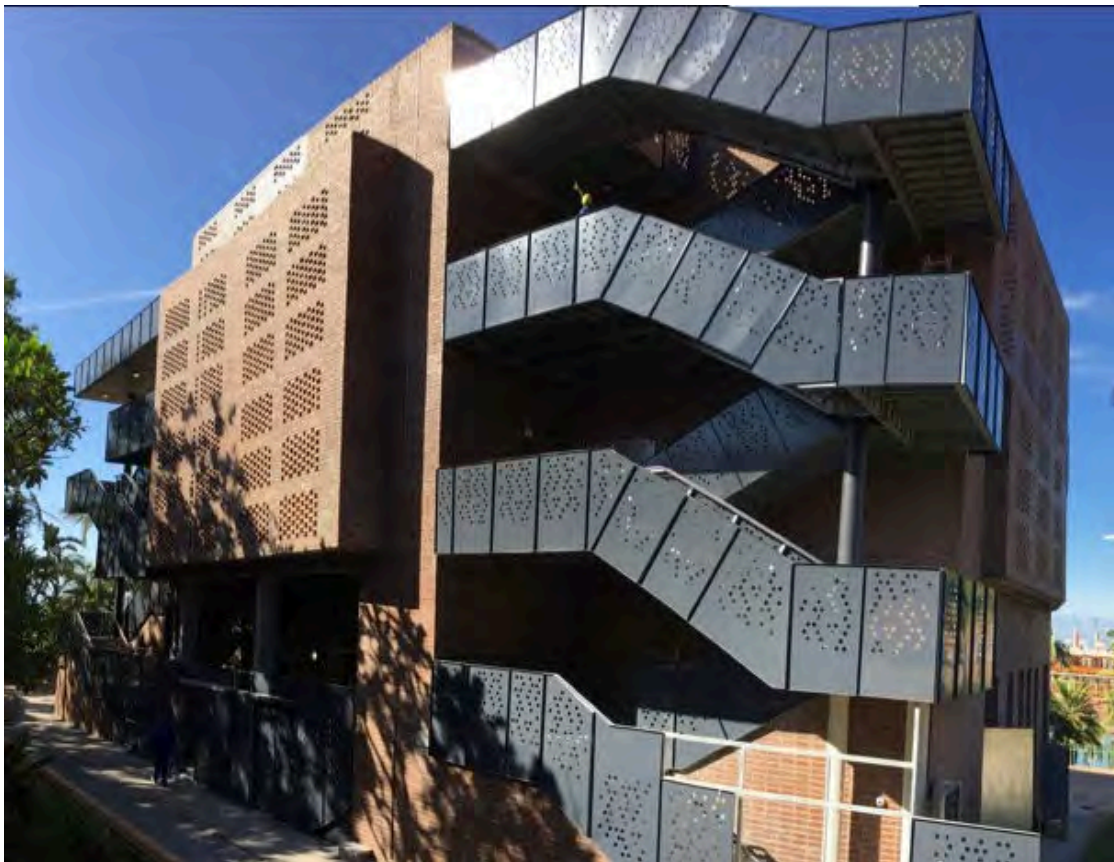


Fig 13.11: University of Mpumalanga Campus Building L04 – Administration Building with Public Lecture Venue, seminar spaces and offices.



Fig 13.12: University of Mpumalanga Campus Building L04 – Administration Building 300 seat public lecture auditorium.



Fig 13.13: University of Mpumalanga Campus Building L04 – Administration Building.

13.4. CAMPUS BUILDING L002 – EXECUTIVE OFFICE BUILDING

(Designed under NUPMT to Stage 6 and taken forward by UMP)

Originally Building LP002 was conceptualised as a Faculty Office building linked to the Lower Campus. Discussion with the newly appointed executive team and Vice Chancellor of the university, highlighted the need to change the building into an Executive Office. The accommodation of the building was extended to include offices for the Senior Executive management team including the Chancellor, Vice Chancellor, four Deputy Vice Chancellors all with individual PAs, and additional executive offices, a Council Chamber for 34 people, and Council meeting room. Three boardrooms and three seminar rooms are also provided. An entrance foyer, exhibition area and necessary ablutions and kitchenettes were designed on ground floor to host visitors and guests to the university.

The Executive Office building is accessed through the memorial garden, established at the launch of the university in 2013. An interactive connecting reception foyer space, shaded and screened, connects to the upper floor office wings.

The plan of the building is derived from efficient office planning, a central passage with spaces on either side. The form consists of a long rectangular brick strip with brick breezeblock screens at each of the short ends and deep slot windows on the north façade, which allow and control the entry of north light into the building. On both the north and south sides, rectangular screens project from this central brick strip. These projections are faced with a combination of Winblock, terracotta tiles and brickwork panels creating interesting patterning. The south projecting element is entirely glazed on the south side affording the occupant soft south light and beautiful views over Mbombela. This glazing opens onto narrow balconies, accessed from the offices. The Council Chamber, located on the top floor is articulated with sheer frameless glass panels overlooking the city.

Architects:	Cohen and Garson Architects
Project Team:	Fiona Garson, Nina Cohen, Deborah Kirkman, Lwandile Maki, Yvonne Brecher, Valerie Lehabe, Similo Ndima, Nqobile Lombo, Claudia Bozzonetti
Structural Engineers:	SKC Masakhizwe
Mechanical Engineers:	Aurecon
Electrical Engineers:	PLP Consulting
Landscape Architects:	Insite Landscape Architects
Quantity Surveyor:	Siyakha
Civil Engineer:	Delta Built Environmental
Wet Services:	Delca Systems
Fire Engineer:	Aurecon
Environmental :	PJCarew Consulting
Audio-Visual:	Digital Fabric
Contractor:	Norse Projects



Fig 13.14: University of Mpumalanga Campus Building L02 – Executive Office Building. Building accommodates the university executive, boardrooms, dining amenities and council chamber. The NU PMT oversaw the design of the building, and UMP its construction.



Fig 13.15: University of Mpumalanga Campus Building L02 – Executive Office Building. University Council Chamber.

13.5. CAMPUS BUILDING L003 - LIBRARY

(Designed under NUPMT to Stage 6 and taken forward by UMP)

Building LP003 is the Library and IT Student Resource Centre of the Lower Campus of the Mbombela Campus. The Library includes a foyer and exhibition area, helpdesk, open loan area, reference area, on-line reference and research area, archive gantry, research commons, general study areas, supporting offices including book storage and processing, and necessary ablutions. A 90-seater cinema style teaching lecture venue and IT teaching facilities and seminar rooms are located adjacent to the library. The building accommodation is positioned around a secure courtyard with rich planting and outside study areas.

The brief evolved through engagement with the client and university library experts. The mixed-use nature of this building is an interesting model for a resource centre.

Although its main function is a library, it also includes an auditorium with associated breakaway, seminar/learning rooms and an IT learning centre. All accommodation is accessed through the secure internal courtyard, which acts as outdoor foyer.

Although books have been catered for, the Library and IT Student Resource Centre are integral elements of this digitised library for a 21st Century university.

The design intent was to create a strong edge to the square and give iconic presence to the Library, the 'knowledge centre' for the university. The library is a two-storey double volume 'container' that appears suspended over the colonnade that edges the square. Environmental comfort and long-term sustainability underpinned many of the design decisions. The heavily massed wall of the library responds to both climate and functional needs. The shaped brickwork screen wall, with texture reminiscent of African basket weaving, provides a protective climatic skin externally, shielding the building from the harsh west sun and allowing for the play of light on the surface.

Internally, the wall is recessed to accommodate bookshelves, with a 'screen of books' running one metre from the external wall following its profile. At roof level the wall is raised to allow diffused east light into the building. The ribbon of double volume bookshelves is integrated with a 'displacement ventilation' cooling system. Windows can be opened to provide natural cross ventilation when weather permits. During hot weather, occupants can choose to switch on individual air-conditioning units, activating the library displacement ventilation system, which delivers cost efficient cool air directly to the occupant at low level via the library shelving system and, at mezzanine level, via the balustrade. The cost of imported ventilation outlets has been saved and life-cycle costs have been reduced.

Architects:	Cohen and Garson Architects
Project Team:	Fiona Garson, Nina Cohen, Deborah Kirkman, Lwandile Maki, Yvonne Brecher, Valerie Lehabe, Similo Ndimba, Nqobile Lombo, Claudia Bozzonetti
Structural Engineers:	SKC Masakhizwe
Mechanical Engineers:	Aurecon
Electrical Engineers:	PLP Consulting
Landscape Architects:	Insite Landscape Architects
Quantity Surveyor:	Siyakha
Civil Engineer:	Delta Built Environmental
Wet Services:	Delca Systems
Fire Engineer:	Aurecon
Environmental :	PJCarew Consulting
Contractor:	Norse Projects



Fig 13.16: University of Mpumalanga Campus Building L03 – Library and Student Resource Centre. Building sits behind the Executive Office. The NU PMT oversaw the design of the building, and UMP its construction.

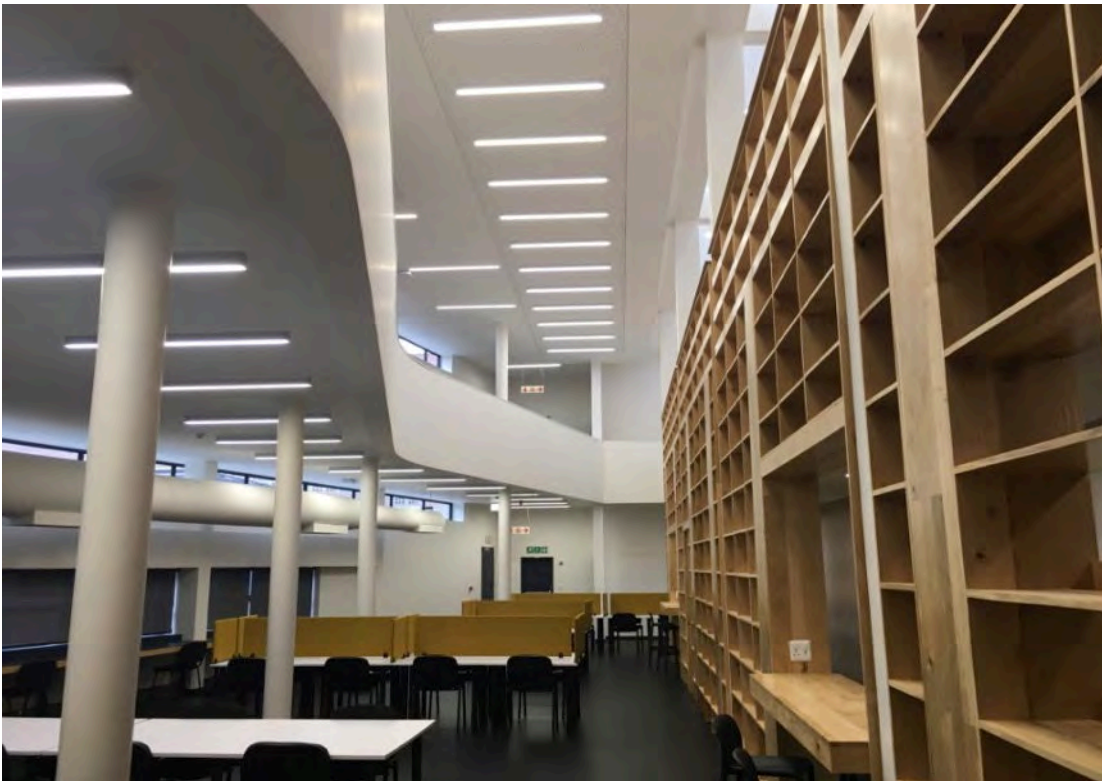


Fig 13.17: University of Mpumalanga Campus Building L03 – Library and Student Resource Centre. 1st floor library area with shelving and study areas.

13.6. CAMPUS BUILDING L005 – ICT ACADEMIC BUILDING

(Designed under NUPMT to Stage 6 and taken forward by UMP)

Building LP005 on the Lower Campus of the Mbombela Campus contains the ICT Academic Teaching Block. It is located within the courtyard of the existing dining hall and administration office building and defines its western edge. The main function of the building will be to house the ICT teaching spaces required by the university. In addition, the building will contain a number of academic staff offices and associated functions.

Architects:	TC Design Architects
Structural Engineers:	Aurecon
Mechanical Engineers:	Aurecon
Electrical Engineers:	Delta Built Environmental
Fire Engineer:	Aurecon
Environmental :	PJCarew Consulting
Landscape Architects:	Insite Landscape Architects
Quantity Surveyor:	SBDS Quantity Surveyors
Contractor:	Trencon Construction

The brief originally called for the inclusion of the central server room and campus BMI office. Additional support spaces such as a backup generator and ICT workshop space were also proposed for inclusion. Following consultation with the university the server room, BMI, backup generator and workshop spaces were omitted from the brief in favour of additional academic staff office space. These facilities will be accommodated elsewhere.

The main accommodation of the building consists of two large teaching venues on the ground and first floors. Each venue can accommodate 120 students and is designed to be as flexible as possible. The ground floor teaching space is a permanently dedicated space for 120 students whilst the first floor teaching space is designed with a stacking acoustic wall providing for the potential division of the space into two venues.

The second floor contains 13 offices, a meeting room and associated staff kitchenette and WC facilities. The plant room, housing the environmental control equipment serving the building, is also situated on this level. Ancillary spaces attached to the building include the building refuse store, incorporating the both recyclable and non-recyclable bin storage; and a fire water tank enclosure, to serve this section of the campus.

A sculpted brick façade wraps the northern and western side of the structure and filters light ingress, provides security and access control and encloses the compact footprint and form, while the southern and eastern facades, which overlook the central courtyard and dining facilities, open up by way of a generous verandah on the upper levels.

Vertical spatial hierarchy reserves the upper levels for academics and support staff and creates access control points in its vertical circulation. Access control and securing of the expensive equipment were an important design driver, and were resolved through a combination of control gates and vertical separation.

In consultation with the mechanical engineers and environmental consultants, the architects developed a holistic ventilation strategy by shading the internal facades to limit heat gain. The large overhang also prevents direct sunlight onto the wall and glass surfaces of the building.



Fig 13.18: University of Mpumalanga Campus Building L005 – ICT Academic Building. The building accommodates ICT Workstation for 240 students, with offices on the upper floor. The NU PMT oversaw the design of the building, and UMP its construction.



Fig. 13.19: University of Mpumalanga Campus Building L005 – ICT Academic Building. View of construction June 2017.

13.7. CAMPUS BUILDING L007 – RESIDENCE, MULTI-PURPOSE & WELLNESS CENTRE

(Designed under NUPMT to Stage 6 and taken forward by UMP)

Building LP007 is a complex, multifaceted and multi-use building designed to be phased over three stages. It comprises a new Student Life Centre, Student Union and Clubs, Student Recreational and Sports Facilities, Student Health and Wellness Centre and a 150 bed Student Residence.

A student promenade and terraced connection zone has been introduced to link the new and existing facilities, extending and reinforcing the pedestrian route that connects the new library

facilities, existing student residences and existing sports facilities. The design responds to the levels of the site, and the placement of buildings maximises the views over the city. The design proposal also allows for the provision of a sports hall facility, which is currently being planned.

Student accommodation is grouped into apartments of eight bedrooms sharing a central living space and kitchenette that are structured around a courtyard. The material palette for the new development reflects the natural colours found in the Mpumalanga landscape. The core material for the buildings is face brick. The residential component conveys a solid external appearance with punched windows. At lower level is an internal courtyard framed by steelwork balustrades, planting and splashes of colour. The public areas that slip below the student apartments have a lighter quality, with screened glazing ensuring a visual connection to the promenade.

The second part of the building complex is the Student Wellness Centre, which is placed behind the residence component and faces onto the existing swimming pools. It accommodates a gym, medical facilities, ablution and shower amenities linked to the swimming pool and student union offices and seminar spaces.

A multi-purpose Hall was always planned as a later extension to the project, as the university has no large venue to host graduations, or large festivities. The multi-purpose Hall has a capacity of 1000 people. The hall can also be used for indoor sport events, cultural festivities, movies, as well as a large exam hall. The hall is also served by a catering kitchen, ablution and a number of seminar and office spaces.

Environmental Comfort: Shutters over the residential windows shield the building from the east-west sun, controlling glare and heat gain. Patterned brickwork screens wrap around the public spaces. The screens allow for cross ventilation whilst maintaining privacy and security and are an expressive means of exploring texture and the filtering of light. The east west orientation of the building plus other adverse site conditions, have added substantial costs to this building.

Architects:	GAPP Architects and Urban Designers
Structural Engineers:	Aurecon
Mechanical Engineers:	Aurecon
Electrical Engineers:	Delta Built Environmental
Fire Engineer:	Aurecon
Environmental :	PJCarew Consulting
Landscape Architects:	Insite Landscape Architects
Quantity Surveyor:	SBDS Quantity Surveyors
Contractor:	Trencon Construction



Fig 13.20: University of Mpumalanga Campus Building L007 – Residence, Student Wellness and Multi-purpose Hall Project. The building planned over two phases accommodates 140 student beds, a student wellness centre, gym and student union offices as well as a multi-purpose hall for 1000 people.



Fig 13.21: University of Mpumalanga Campus Building L007. The NU PMT oversaw the design of the building, and UMP its construction.

Chapter 14

Review of expenditure and value for money



14. Review of Expenditure and Value for Money

This chapter provides a management review of project performance based on project records and the Programme Management Information System (PMIS) maintained by the New Universities Project Management Team (NUPMT). All PMIS values were extracted from the PMIS on 31 July 2017.

This management review spotlights expenditure recorded against the various programmes and endeavours to link expenditure to four identified phases of the development:

Phase 1 – Feasibility and Establishment (2012 – 2013)

Phase 2 – Mobilising for Construction (2014)

Phase 3 – Delivering Construction (2015)

Phase 4 – Handover and Close out (2016 – 17)

The **first phase** (2012 – 2013) focused on the establishment of the two universities. The records indicate expenditure for these two calendar years in the amount of R57.1m. This phase focused on preparation for the proclamation of both universities, which required that each university have an address, a name, an interim governing council, an academic vision and a set of institutional guidelines. The land had to be secured and the development feasibility established. All of this involved academic and spatial planning, feasibility studies and stakeholder consultation. This phase culminated in the launch of both universities in the last quarter of 2013, coinciding with the announcement of the architectural competition outcomes. Renovation work on existing buildings and the appointment of an interim head of each university enabled a start of the first academic year in 2014.

The **second phase** (2014) adopted a firm focus on mobilising for the construction of new buildings to start on site by October 2014 in order to complete in time for the third academic year in 2016. With this construction start, NUPMT records indicate expenditure of R271.6m during 2014. Architects commenced design work. Several rounds of procurement focused on the appointment of all the design professions, the project managers and, following a three-phase procurement process, the main building contractors (three contractors at Sol Plaatje University and two at University of Mpumalanga). All appointments were three-year framework contracts designed to enable handover of the contracts to the new universities.

The **third phase** (October 2014 – March 2016) focused on construction delivery and the completion of some 16 new buildings and associated infrastructure at both universities in time for the 2016 academic year. During this year of intensive construction delivery, NUPMT records indicate a total expenditure of R925m.

The **fourth phase** (March 2016 – July 2017) has focused on the handover of infrastructure responsibility to each university and a process to close out the project as defined in the Memorandum of Agreement (MOA) between Wits and the DHET, including back up support, settlement of final accounts and final reconciliation, archiving of records and this close out report.

14.1. OVERVIEW OF PROJECT DEVELOPMENT PHASES & EXPENDITURE

Table 14.1: Approximate development phases and expenditure per phase

Phase 1: FEASIBILITY AND ESTABLISHMENT			
<p>2012 – 13 GETTING STARTED</p> <ul style="list-style-type: none"> - Site selection & land assembly - Record of intention securing the land - Academic & institutional planning - Spatial Planning - Establishment of universities - Architectural Competitions - Implementation Plan - Procurement for renovation work - Renovations for 1st academic year Procurement of Furniture, Fittings and Equipment (FFE) for 2nd academic year 	Phase 2: MOBILISING FOR CONSTRUCTION		
<p>2014 1ST ACADEMIC YEAR</p> <ul style="list-style-type: none"> - Procurement of professional team - Procurement of project managers - Procurement of main contractors - Design development - Construction start in October to complete for 3rd academic year - Renovations for 2nd academic year Procurement of FFE for 2nd academic year 	Phase 3: DELIVERING CONSTRUCTION		<p>2015 2ND ACADEMIC YEAR</p> <ul style="list-style-type: none"> - Continue first phase build for start of 3rd academic year - Procurement of FFE for new buildings for 3rd academic year - Establish delivery management capacity at each university - Complete and furnish new buildings for start of 3rd academic year
Phase 4: HANDOVER AND CLOSE OUT			
<p>2016 -2017 3RD & 4TH ACADEMIC YEARS</p> <ul style="list-style-type: none"> - Finalise furnishing and handover of new buildings - Start of 3rd academic year in February 2016 - Start 2nd phase build for 4th academic year (2017) managed by each university - Handover capacity and infrastructure responsibility - Finalise close out process - July 2017 	<p>No of Students</p> <p>UMP 169 SPU 127</p> <p>Expenditure R 57 171 599</p>		
<p>No of Students</p> <p>UMP 169 SPU 127</p> <p>Expenditure R 57 171 599</p>		<p>2016 -2017 3RD & 4TH ACADEMIC YEARS</p> <p>UMP 828 SPU 337</p> <p>R 925 341 707</p>	
<p>No of Students</p> <p>UMP 1255 (3rd academic yr) SPU 700 (3rd academic yr)</p> <p>Expenditure R370 365 758</p>		<p>Total Expenditure: R 1 624 500 495</p>	

Table 14.1 provides an approximate representation of the main project phases, though these overlap in places and do not align exactly with the academic years as shown.

14.2. EXPENDITURE AGAINST MAIN COST CENTRES

Since inception of the project in 2012 until closeout in 2017, a total of R1,624 billion has been spent on the establishment of two new universities. All expenditure has taken place within the three main cost centres, namely

- a) HET P001 – Overall Programme Costs linked to both universities including the cost of the New Universities Project Management Team (NUPMT) responsible for overseeing the development of both universities
- b) HET M001 – Direct project costs linked to the establishment of the University of Mpumalanga (UMP)
- c) HET N001 – Direct project costs linked to the establishment of the Sol Plaatje University (SPU)

Table 14.2: Expenditure against the three main cost centres (Source PMIS)

Expenditure against three main cost centres	2012 Rand	2013 Rand	2014 Rand	2015 Rand	2016 Rand	2017 Rand	Total Rand
HETP001 - Overall Programme Costs	9 887 694	24 224 750	29 631 051	42 801 503	28 951 808	6 350 571	141 847 377
HETM001 - University of Mpumalanga	566 001	9 197 651	97 601 019	307 041 480	115 602 557	9 816 464	539 825 172
HETN001 - Sol Plaatje University	681 778	12 613 725	144 389 361	575 498 724	189 737 510	19 906 847	942 827 946
Total	11 135 473	46 036 127	271 621 431	925 341 707	334 291 876	36 073 882	1 624 500 495

Note: All Rand values are VAT inclusive and are recorded per calendar/ academic year

As evident from the calendar years referenced above, a modest expenditure of R 11,1 million was incurred on planning and feasibility work during 2012, rising to a maximum annual spend of R925 million (over R2,5m per day) during 2015 when detailed design and construction activities peaked at both universities.

In 2012 the Overall Programme Costs, which included start-up, client management and oversight costs of R9,88m, represented 88% of total cost and decreased to 4.6% of total cost in 2015 as construction reached highest intensity at both universities.

14.2.1 HETP001 – Overall Programme Costs

The main distinction in the classification of expenditure between the project codes of HETP001 Overall Programme Costs and the direct costs linked to either HETM001 University of Mpumalanga (UMP) or HETN001 Sol Plaatje University (SPU) is that the expenditure against HETP001 has been incurred on behalf of both the universities from a planning, co-ordination and delivery management perspective. This category of expenditure was the first to be initiated at the outset of the project and covered a range of general costs, particularly the delivery management team, formally established as the New Universities

Project Management Team (NUPMT) in the Memorandum of Agreement (MOA) between the Department of Higher Education and Training (DHET) and the University of the Witwatersrand (Wits).

14.3. OVERVIEW OF EXPENDITURE AGAINST HETP001 - PROGRAMME COSTS

The overall expenditure against programme costs is indicated in Table 14.3

Table 14.3 Expenditure against overall programme costs (Source PMIS)

	2012 Rand	2013 Rand	2014 Rand	2015 Rand	2016 Rand	2017 Rand	Total Rand
Academic planning	704 204	1 932 363	369 727		11 550		3 017 845
Feasibility	293 152	824 126	206 116		2 784		1 326 178
General Office & Management Fee	195 584	959 071	6 543 214	20 753 181	18 090 410	2 642 104	49 183 564
Infrastructure planning	160 307	3 338 694	4 309 071	1 348 460	378 317		9 534 850
Institutional planning	1 796 130	1 665 607	2 325 554	2 870 930	746 009	128 403	9 532 634
Delivery Management	6 738 317	15 504 888	15 877 368	17 828 932	9 722 737	3 580 065	69 252 307
Total	9 887 694	24 224 750	29 631 051	42 801 503	28 951 808	6 350 571	141 847 377

Note: All Rand values are VAT inclusive and are recorded per calendar/ academic year

14.3.1 Delivery Management

The biggest cost item in this category has been the cost of the delivery management team whose role was to initiate, plan and oversee the development of the two new universities, which included the resources comprising the client delivery manager and client team consisting of a project manager, project assistant and administrative staff, professional team of architect/ urban planner, architect, civil engineer, procurement specialist, information and communication technology (ICT) and furniture, fitment and equipment (FF&E) professionals, management accountant, development professional as well as all travel related costs to the delivery team. This outsourced team, established by Wits University, has constituted the client's planning and delivery management arm and, during the peak infrastructure delivery period of 2014, 2015 and 2016, has cost approximately 4.5 – 5% of total expenditure (see Table 14.4). This 'delivery management' cost excludes the Wits University management and support functions.

14.3.2 Academic Planning and Institutional Planning: The NUPMT initially comprised a range of planning and delivery management skills from the built environment disciplines. However, the team was soon expanded to include specialist service providers to address the academic and institutional planning necessary to establish the two new universities.

14.3.3 Feasibility studies included socio economic assessments, environmental assessments, spatial planning, costing and database information systems.

14.3.4 The General Office & Management Fee: The General Office portion consisted of all General office expenditure including cleaning, catering, stationery, venue hire, document storage, auditing activities, printing, telephone costs and insurance. The Management Fee portion of this expenditure has amounted to R39,6 million (2.5% of total expenditure, VAT inclusive) paid to the University of the Witwatersrand as per the MOA to cover the cost of the university's internal resources and facilities to support the project, risk, etc.

14.3.5 Infrastructure planning: This category is mainly linked to the early spatial planning, in particular the architectural competition, ICT consulting, cost consulting and town planning.

14.3.6 Delivery Management Costs as a percentage of total spend

Table 14.4 provides a breakdown of delivery management costs.

Table 14.4 Delivery management costs as a percentage of spend (Source PMIS)

	2012 Rand	2013 Rand	2014 Rand	2015 Rand	2016 Rand	2017 Rand
Total expenditure	11 135 473	46 036 127	271 621 431	925 341 707	334 291 876	36 073 882
* Total Delivery management expenditure	6 738 317	15 504 888	24 516 679	28 171 172	18 108 684	3 580 065
Total expenditure less Delivery management expenditure	4 397 156	29 627 081	247 104 752	897 170 535	316 183 192	32 493 817
Delivery management expenditure as % of project spend	153.00%	52.33%	9.92%	3.14%	5.72%	11.01%
Average delivery management % for main infrastructure years			4.84%	4.84%	4.84%	

Note: All Rand values are VAT inclusive and are recorded per calendar/ academic year

Analysis of annual expenditure shows that during the three active years of construction (mobilisation and commencement in 2014, delivery in 2015 and completion in 2016) the Overall Programme Cost, namely the client's delivery management costs, average out at just 4.84% per annum. This percentage excludes project management and design team fees, which form part of the construction costs described in section 14.9. The total delivery management expenditure for 2014 - 2016 was increased with a portion of the SPU and UMP project manager's fees incurred for future phases of each university not under the control of Wits but necessary for forward planning.

14.4. EXPENDITURE AGAINST UNIVERSITY OF MPUMALANGA

Table 14.5 provides a breakdown of expenditure incurred for the University of Mpumalanga

Table 14.5: Expenditure against HET M001 – University of Mpumalanga (Source PMIS)

	2012 Rand	2013 Rand	2014 Rand	2015 Rand	2016 Rand	2017 Rand	Total Rand
Academic planning		617 812	299 045				916 856
DHET infrastructure book			284 887				284 887
Feasibility	566 001	1 296 875	232 414				2 095 289
General office & Management Fee		37 400	458 820	90 141	92 441		678 802
Infrastructure provision		4 436 291	65 359 317	283 260 779	97 851 886	8 882 767	459 791 040
Institutional planning		2 744 235	1 203 105		3 197		3 950 536
Movable (FF&E)		65 040	23 414 606	12 961 381	16 348 296	758 642	53 547 965
Project management services			6 348 826	10 729 178	1 306 737	175 056	18 559 797
Total	566 001	9 197 651	97 601 019	307 041 480	115 602 557	9 816 464	539 825 172

Note: All Rand values are VAT inclusive and are recorded per calendar/ academic year

Classifications of the direct costs linked to project HETM001 - University of Mpumalanga (UMP) in Table 14.5 indicate a total spend of R539,8 million over the project lifespan. The classifications are similar to those for Overall Programme Costs, except for the addition of two new categories, namely “Movable”, which includes, furniture, fittings and equipment, and “DHET infrastructure book”.

The University of Mpumalanga had a modest start in 2012 with limited expenditure on feasibility and the major infrastructure spend of R283 million during 2015 resulting in the annual peak expenditure of R307 million during the 2015 academic year. Expenditure on the Academic and Institutional categories was largely concluded in 2014 when these responsibilities were handed over to the newly established university. The category of “DHET infrastructure book” comprises expenditure to assist the Department of Higher Education and Training to publish a book titled “Woza sizokwakha” based on research done by the project architects on university buildings constructed in post-apartheid South Africa. The category, “General Office and Management Fee”, consisted mainly of insurance fees related to the infrastructure activities as well as the endorsement of the architectural competition.

The “Infrastructure provision” category consisted of renovations as well as new buildings, and includes the costs of consultant fees (town planning, geotechnical engineering, architects, traffic engineering, civil engineering, quantity surveyors, mechanical engineering, electrical engineering, security, acoustic engineering, environmental investigations and monitoring, landscaping, interior design, wet services, structural engineering, fire engineering, health and safety and land surveying) as well as the actual construction costs.

The “Movables” category consisted of Furniture Fittings and Equipment, ICT, Laundry, Audio Visual Equipment. The category for project management services included project and

contract management services incorporating project integration, project reporting and documentation control activities as well as travel expenses. This also includes project management services relating to the forward planning and design processes for new projects.

14.5. EXPENDITURE AGAINST SOL PLAATJE UNIVERSITY

Table 14.6 provides a breakdown of expenditure incurred for the Sol Plaatje University.

Table 14.6: Expenditure against HETN001 – Sol Plaatje University (Source PMIS)

	2012 Rand	2013 Rand	2014 Rand	2015 Rand	2016 Rand	2017 Rand	Total Rand
Academic planning		446 160	682 493		641		1 129 295
DHET infrastructure book			546 055		38 853		584 909
Feasibility	681 778	1 857 319	436 637	196 622	85 500		3 257 855
General office & Management Fee		34 200	881 414	108 249	329 177		1 353 040
Infrastructure provision		7 688 463	110 881 088	543 833 709	155 421 045	19 303 165	837 127 471
Institutional planning		2 544 155	270 751				2 814 906
Movable (FF&E)		43 429	27 127 168	13 882 981	31 244 318	527 330	72 825 226
Project management services			3 563 754	17 477 164	2 617 976	76 352	23 735 245
Total	681 778	12 613 725	144 389 361	575 498 724	189 737 510	19 906 847	942 827 946

Note: All Rand values are VAT inclusive and are recorded per calendar/ academic year

Classifications of the direct costs linked to project HETN001 – Sol Plaatje University (SPU) in Table 14.6 indicate a total spend of R942,83 million over the project lifespan. The classifications are similar to those for HETP001 - Overall Programme Costs, except for the addition of two new categories, namely “Movable”, which includes, furniture, fittings and equipment, and the “DHET infrastructure book” researched by the project architects and titled “Woza sizokwakhe” as described under 14.4 Expenditure against University of Mpumalanga.

Sol Plaatje University had a modest start in 2012 with limited expenditure on feasibility and the major infrastructure spend of R543 million during 2015 resulting in the annual peak expenditure of R575.4 million during the 2015 academic year. Expenditure on the Academic and Institutional categories was largely concluded in 2014 when these responsibilities were handed over to the newly established university.

The category “General Office and Management fee” consisted mainly of insurance fees related to the infrastructure activities as well as the endorsement of the architectural competition. The Infrastructure expenditure category consisted of renovations as well as new buildings and includes the costs of consultant fees (town planning, geotechnical engineering,

architects, traffic engineering, civil engineering, quantity surveyors, mechanical engineering, electrical engineering, security, acoustic engineering, environmental investigations and monitoring, landscaping, interior design, wet services, structural engineering, fire engineering, health and safety and land surveying) as well as the actual construction costs.

The “Movables” category consisted of Furniture Fittings and Equipment, ICT, Laundry, Audio Visual Equipment. The category for “Project management services” included project and contract management services incorporating project integration, project reporting and documentation control activities as well as travel expenses. This also includes project management services relating to the forward planning and design processes for new projects.

14.6. THE CLIENT’S QUEST FOR PROJECT VALUE

There are several definitions of project value. For the purpose of this review the following definition is both brief and apposite: *Project value is the outcome of client decision making to achieve an optimised balance of the project benefits, risks and costs.*

Underpinning the proposal to build new South African universities was the business case for expansion of university enrolments from 937 000 student in 2011 to about 1.6 billion by 2030 as set out in South Africa’s National Development Plan (see Chapter 2). Two of South Africa’s nine provinces, did not have a university and this determined their selection as hosts for the first new universities in South Africa’s democratic era.

In the fast track planning and delivery of the two new universities, the client’s value proposition was shaped through a process of progressive elaboration from the outset in 2012 through to final handover of responsibility on 31 March 2016. The client value proposition was continuously explored at Technical Integration Committee meetings that brought together the client (DHET) and the client delivery management team (NUPMT). The value equation was further tested at quarterly Project Steering Committee meetings, which included significant stakeholders.

After the proclamation of the two universities in August 2013, the “client” role was expanded by including representatives of both universities on the governance structures of the project. This expanded understanding of the “client” was formalised in the 4th Addendum to the MOA between DHET and Wits that was signed in September 2014, and in a new MOA between DHET, Wits, UMP and SPU that was signed a month later (See Chapter 3 – Project Inception and Evolution).

One of the early manifestations of the client decision making process to achieve project value was the search for the best site for each university as described in Chapter 6. To avoid any challenge of bias, the recommended sites were carefully motivated in a report that set out key criteria for the hosting city and for the site itself. This report^[14-1] enabled announcement of the selected sites by the President of South Africa in July 2012. Whilst not necessarily the decisive factor, the selected sites in both Mpumalanga and the Northern Cape were primarily on publicly owned land, significantly reducing the cost of the required land.

Coinciding with the President’s announcement of the selected sites was the publication of a vision^[14-2] for both universities, also published in July 2012 and inviting public comment. This

vision was formulated in the Project Steering Committee and has inspired the unfolding conceptualisation of project value.

Aspects of the client value proposition and their realisation are set out in the sections that follow, and cover the competing priorities of time, cost and quality, together with the important secondary goals of broad-based black economic empowerment (B-BBEE), local (provincial) participation in the construction process and skills development.

14.7. VALUE AND THE PRESSURE OF TIME

14.7.1 The challenge

The required pace of enrolment and infrastructure delivery was a driving factor in the project's development (see Table 14.7). Following the proclamation of both universities in August 2013, the pressure was on to enrol the first cohort of students in February 2014 (see Table 14.8). In terms of the required infrastructure, this pressure necessitated an urgent programme of renovation together with expansion plans calling for the construction of new buildings by 2016.

14.7.2 Urgent renovations and infrastructure upgrading for February 2014

At the University of Mpumalanga, the renovation focused on existing buildings of the former Lowveld College of Agriculture and some facilities at the Mpumalanga Regional Training Trust to enable a diploma in hospitality management.

At Sol Plaatje University, the challenge was greater. With regard to the required academic and administrative facilities, the renovation focused on existing government buildings, namely the former Provincial Legislature Building for academic and administrative purposes, plus the former William Pescod School for classrooms and laboratories. However there were no existing residence buildings and it was necessary to purchase a hotel (Diamond Lodge) and a nine-storey block of flats (Whiteways) after appropriate due diligence assessments to confirm that the prices were market related. These purchases enabled a programme of renovation for student residence accommodation.

Table 14.7: Delivery Timeframes

Delivery timeframes – a driving priority	
Nov 2011	DHET appointed Wits to establish New Universities Project Management Team
Aug 2013	Minister proclaimed the two universities in terms of the Higher Education Act
Feb 2014	Both Universities commenced their first academic year in renovated buildings
Feb 2016	16 new buildings delivered within budget, together with a range of renovated buildings , providing academic and residence space for the 2016 enrolment of 1255 students at UMP and 700 at SPU

Table 14.8: Annual student enrolment

University	Total student population per academic year		
	2014	2015	2016
SPU	127	337	700
UMP	169	828	1255

Between July and October 2013 at both SPU and UMP, the NUPMT invited tenders and contracted for the refurbishment, extension and alteration of existing buildings based on three-year framework contracts and using the NEC3 Engineering and Construction (F Management Contract). This cost-plus contract, enabled the immediate mobilisation of the successful contractor under the supervision of the NUPMT with costs monitored by the appointed cost consultant (QS). The same contract and management team was used to complete the required renovations for the 2015 and the 2016 academic year.

At SPU there was also an urgent need for the upgrading of infrastructure, including roads in Kimberley. The first priority was completion of the Central Campus square that was used for the launch of the university on 19 September 2013. Tendering took place between June and August culminating in a three-year framework contract using the NEC3 Engineering and Construction Short Contract (ECSC) based on a tendered price list.

These procurement methods enabled rapid gearing in order to complete the urgently required renovations and infrastructure works for the 2014 academic start and enabled the same contractors to be used over a three-year period.

14.7.3 Construction services and new buildings for February 2016

The 2016 enrolment required a range of new academic facilities including residences, large lecture venues, laboratories, offices, large-scale kitchens and dining rooms – all accommodated in a total of six projects (three at SPU and three at UMP) comprising over 16 new buildings. The imperative was to commence construction by September 2015 in order to complete buildings for occupation by late January 2016.

Following the commission of architects at the start of 2014 (four at UMP and five at SPU), the pressure was on to procure professional services in order to establish several design teams for each university, comprising project management, cost consulting, various engineering services, health and safety and environmental services and others.

The next critical priority was the procurement of construction services, two contractors at UMP and three at SPU. At UMP this involved rapid design development of a portion of Building L006, used to develop the necessary tender documentation. At SPU, the architects assigned to the three prioritised buildings were not in a position to fast track the design for tender purposes and one of the other architects produced fast-track, detailed designs of a fourth building that was used for tendering and the award of contracts – but would only be built at a much later stage in 2017. The procurement of construction services was undertaken between June and September of 2014 resulting in the appointment of two contractors at UMP and three at SPU. However, construction commenced only in October, a

month later than planned. This placed significant pressure on the planned completion dates (see Tables 14.12 and 14.13).

At UMP, the planned residence complex of L001 (six times four-storey buildings) and the laboratories and library complex of L006 - (six multi-storey buildings comprising laboratories, library and academic buildings) were completed just in time to enable the planned enrolment. Building L004 – a four storey office building started much later, and completion was not a critical factor as the building was not required at the start of the 2016 academic year.

At SPU, because of the delayed start and difficulties during construction, buildings C001 and C002 were accelerated to enable the planned enrolment. Only C001 - residence building was completed on time. Completion of building C002 – mixed use facility, was delayed by three months due to the structural design defect reported in Chapter 4, and full completion of C003 - academic building was marginally delayed. However, with the cooperation of the University leadership, it was possible to accommodate the enrolling students on time in partially completed buildings with great care taken to ensure their safety while outstanding facilities were finalised.

Table 14.12: SPU planned and actual completion

Work package	Starting date for order	Completion Date		Planned calendar days	Actual calendar days	Percent variance
		Planned	Actual			
C001- Residential Offices / Retail / Laundry	13 October 2014	15 January 2016	2 March 2016	460	508	+10.4%
C002 – Residential / Offices / Academic	13 October 2014	15 January 2016	5 July 2016	460	602	+30.9%
C003 – Classrooms / Study / Health Care / Auditoriums	13 October 2014	15 January 2016	8 April 2016	460	544	+18.3%
CX01 – Site infrastructure for C001, C002 and C003	27 April 2015	15 January 2016	20 May 2016	264	390	+47.8%

Notes:

- In order to enable the academic programme to commence at the beginning of 2016, work had to start before the designs and production information was complete. Assumptions had to be made regarding the amount of work not priced at the time that the Package Orders were issued. There was accordingly an uncertainty in the pricing of the three buildings of between 69 and 74% of the target price included in the Package Orders issued to contractors.
- The schedule for completion was always optimistic given that there were in several instances two December / January industry shut downs and a late start to construction following the procurement processes. Acceleration was paid for on building C002 to advance the Completion Date on the academic facilities. All academic teaching spaces were nevertheless capable of being used at the start of the term despite the Package Orders not achieving the original Completion Dates.
- The office spaces on Building C002 were completed late due to a design error arising from the failure to connect a beam in a stairwell to a column. This resulted in excessive deflection of a floor slab and damage to the staircases in the stairwell. Remedial works were required to jack up the floor slab, connect the beam to the column, demolish and rebuild a portion of the stairs and to install hangers to tie the floor slab that sagged to the floor above to reduce deflections – a delay of 2,5 months.
- No delay damages for late completion were applied as the Completion Dates were revised in accordance with the contracts and these revised dates were achieved.

An additional delay factor at SPU was the intense activity of three contractors on four concentrated projects including the site infrastructure (project CX01) servicing the three buildings. At peak intensity, this involved five cranes in close proximity so that none could complete a 360° rotation without encroaching on the other.

Table 14.13: UMP planned and actual completion

Work package	Starting date for order	Completion Date		Planned calendar days	Actual calendar days	Percent variance
		Planned	Actual			
L001 - Residential	1 November 2014	15 December 2015	5 February 2016	410	462	+13%
L004 - Auditorium	27 June 2014	18 February 2016	24 March 2016	237	272	+15%
L006 – Laboratories	27 October 2014	17 November 2015	2 February 2016	387	464	+20%
Notes:						
<ul style="list-style-type: none"> • In order to enable the academic programme to commence at the beginning of 2016, work had to start before the designs and production information was complete. Assumptions had to be made regarding the amount of work not priced at the time that the Package Orders were issued. There was accordingly uncertainty in the pricing of the three buildings of between 23 and 44% of the target price included in the Package Orders issued to contractors. • The schedule for Completion was always optimistic given that there were in several instances two December / January industry shut downs and a late start to construction following the procurement processes. All academic teaching spaces were nevertheless capable of being used at the start of the term despite the Package Orders not achieving the original Completion Dates. • No delay damages for late completion were applied as the Completion Dates were revised in accordance with the contracts and these revised dates were achieved. 						

14.8. VALUE AND QUALITY

14.8.1 General considerations

ISO 8402 – 1986 standard defines **quality** as “*the total of features and characteristics of a product or service that bears its ability to satisfy stated or implied needs*”.

In construction as in other areas of production, the term **quality** has a pragmatic interpretation captured in the term: “fitness for purpose”, which embraces a balance of features such as the architectural aesthetics and functionality, material and functional robustness, maintainability, user comfort, environmental sustainability and lifecycle costs, all of which are generally benchmarked against the cost of the built product.

14.8.2 Quality and the Architectural Design Competition

Despite the pressure to meet the tight construction timeframes described above, the client opted from the outset to hold a two-stage architectural design competition for each university (see Chapter 8). The competitions were geared at identification of the best architectural design capacity that South Africa had to offer – and to generate fresh design thinking on the concept of iconic, 21st century, African universities that enhance the democratic project. The DHET committed to the two architectural competitions in full appreciation of government’s role in promoting high calibre design of prominent public buildings.

The design competitions successfully attracted the attention of 111 and 179 architects for the University of Mpumalanga and the Sol Plaatje University respectively, from across the country, and key aspects of design quality were highlighted in the competition criteria for both competition stages (Chapter 8) including, inter alia, environmental responsiveness, design and construction methodology, memorable landmarks, sense of place, identity, dignity, architectural language, variety of use and form, efficiency and sustainability. These and other key principles of design quality, including the use of local materials where possible, were pursued and elaborated throughout the subsequent design development process (see Chapter 10).

The combined cost of the two competitions is set out in Table 14.14.

Table 14.14: Combined cost of the architectural design competition for the two new universities

Approximate Cost of the Two-stage Architectural Competitions at SPU & UMP	RANDS
Competition Administration, including organisation	1 484 757
Endorsement of both competitions by the South African Institution of Architects	68 400
Costs including Honorariums for the two Jury panels (6 per jury)	389 549
Honorariums allocated to 10 finalists in each completion (R400 000 per competition) with 7 qualifying in Mpumalanga (R57000 each) and 8 qualifying in Northern Cape (R50 000 each)	799 000
Total combined cost of both universities	2 741 706
Approximate competition cost per university	1 370 852

The competition benefits far outweighed the cost. Because of the intensity of focus demanded of them during the three month competition period, the nine appointed architects, four at UMP and five at SPU, were able to move swiftly into the design process.

Led by prominent independent architects, the competition juries enabled participation of the client, including a representative from the DHET and one from the Interim Council of each university. The competition juries^{[14-3], [14-4]} further included a representative appointed respectively by the Sol Plaatje and Mbombela municipalities. The value of this shared participation cannot be underestimated in terms of its role in forging a joint appreciation of the design priorities. The competition results were put on public display, further enabling the communities of the two provinces to appreciate the scale and potential of the impending developments.

14.8.3 Designing to a budget

From the outset of the design process, the NUPMT advised the architects and the other design professionals that fundamental to the client's concept of "*superior quality*" was the principle of "*design efficiency*" in relation to construction cost. Several workshops were held to brief the design teams and contractors on the DHET space and cost norms for universities, against which the designs would be continuously benchmarked. The concept of design efficiency required continuous team reflection on the choices made in terms of space, structure, materials and environmental comfort, sustainability and a sensitive attention to artwork in the context of the local environment and history. The cost outcomes are elaborated in the next section.

14.8.4 Quality, Time and the Design Process

The shaping of quality design was supported by joint briefing and work sessions with the architects to discuss the visioning frameworks, architectural guidelines and expected spatial qualities for each university. These sessions explored new approaches to higher education architecture, a joint visualisation of campus development and architectural integration as well as the collective selection of key materials supporting a university identity. Importantly, this collective approach subjected unfolding architectural design decisions to the appraisal of a collective of some of South Africa's best architects.

The acute time pressures highlighted in the previous section, placed unusual demands on the design process at both universities. For example, at UMP the award of framework contracts to two contractors for L001 Student Residence (six separate buildings) and L006 Science Laboratory Building (six separate buildings) was based on a tender detailing only one building of the L006 complex. At SPU the situation was even more severe and the award of framework contracts to three contractors for C001 Student Residence Building, C002 Mixed-use Building (residence, dining and offices) and C003 Academic Teaching Building was based on the fast tracked design and tender documents for a completely different building.

Such were the demands of time that the first Package Orders for these initial buildings were based on detailed designs for the concrete structure of the buildings and an elemental estimate for the completion of the buildings. This strategy allowed time for the designs to be completed before issuing a second package order detailing the rest of the work. While far from ideal, these delivery tactics enabled the design teams to keep pace with the programme and to ensure that quality was not compromised. The evolution of costs resulting from this approach is described in the next section.

14.8.5 Quality Design for Environmental Sustainability and Lifecycle Value

At both universities, designing for environmental sustainability and lifecycle value has been integral to the design process aimed at attaining optimum investment benefit. The involvement of an environmental sustainability consultant has informed campus wide initiatives such as "green specifications" and extensive "metering and monitoring" of energy and water. Moreover, the design development of each building has been shaped by rigorous interaction between the consultant and the relevant architect and design team.

Sustainability approaches to building design are described in the summary reports for UMP^[14-5] and SPU^[14-6] and include a range of strategies appropriate in different circumstances. Inter alia, such design strategies include shading control, natural ventilation, mechanical ventilation systems, daylight and solar control, grey water harvesting, evaporative cooling and thermally activated building systems (TABS) for heating and cooling.

Environmentally sustainable design advice has yielded superior outcomes in relation to both quality and cost. However, Green Star accreditation was considered to be unnecessary and following discussions with the design team, the NUPMT advised against seeking accreditation in terms of the Green Star rating system managed by the Green Building Council of South Africa. After due deliberation the DHET concurred with the NUPMT's advice, which was based on the cost of the accreditation process, estimated by the design team at an additional 2.5% of construction cost, and the effort required of the project team that would almost certainly diminish its focus on the promotion of local participation and attainment of the challenging construction development targets that had been set.

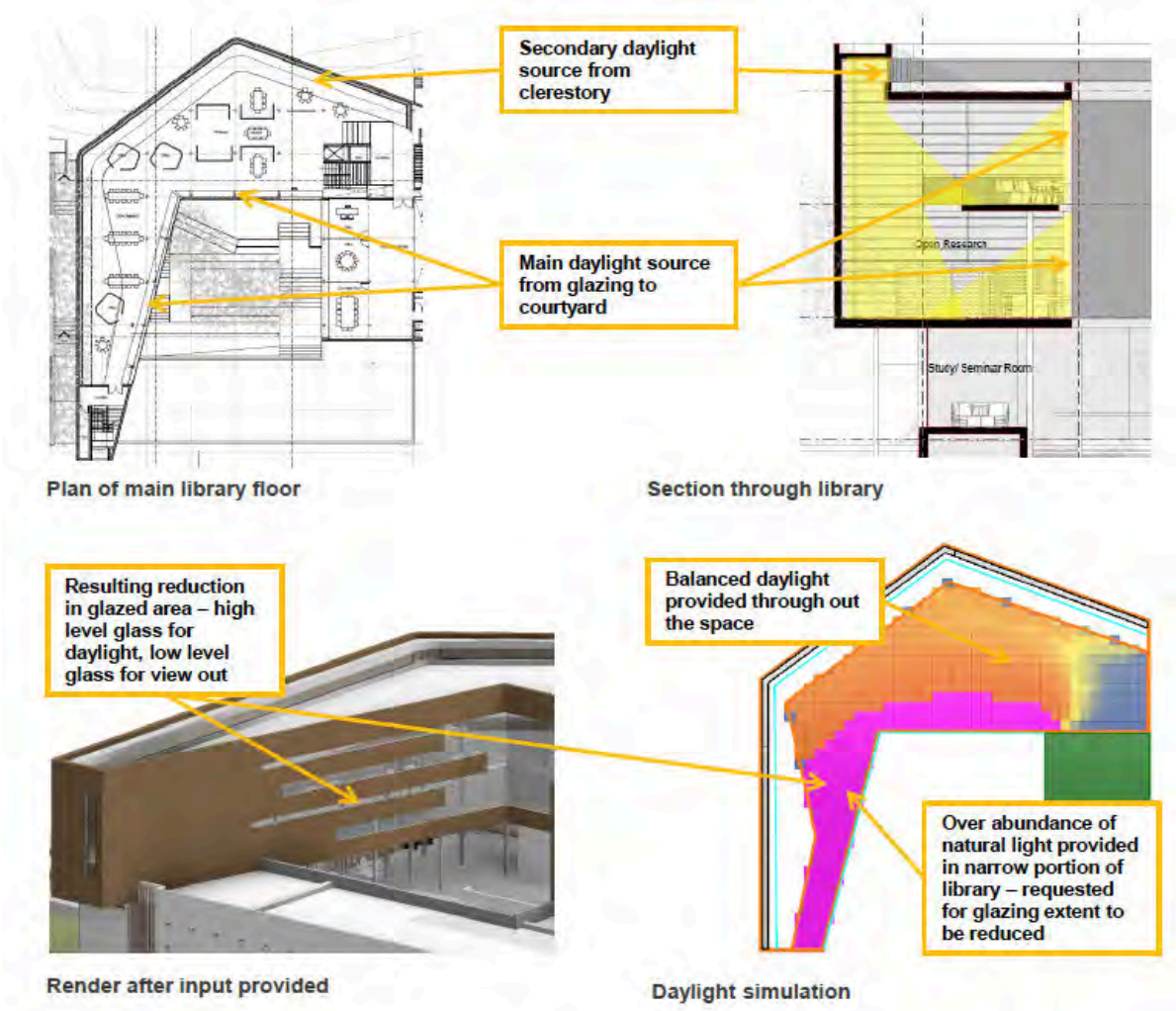


Fig 14.1: UMP Library, Building L003:- Daylight and Solar Control Input to the Design – Extract from UMP Environmental Design Performance Review by PJ Carew Consulting.

14.8.4 Commitment to essential quality

At no time was the focus on quality diminished and two examples indicate how the client responded to different challenges during construction. Both examples occurred at SPU. The first challenge arose well into the construction process when the NUPMT realised that its general statement to the effect that all furniture would be purchased, had been interpreted by the architects to include student bedroom cupboards. Off-the-shelf bedroom cupboards would undoubtedly have provided inferior quality in terms of both functionality and durability. However, it was already late into the completion of the internal brickwork and there was concern for the cost and time impacts of a late decision to provide built-in cupboards.

The two affected contractors submitted quotations for appropriately designed cupboards and the client accepted the additional construction costs for 290 built-in cupboards in building C001 and 174 in building C002. The contractor for C002 was unable to guarantee completion on time if cupboard side walls were built in brickwork and the client accepted an alternative design using solid plywood, which enabled rapid erection after completion of the masonry work.

The second set of quality-related challenges at SPU resulted from the fast-track nature of the project. Although the buildings were constructed in accordance with the specifications of the design team, the time pressures described in the previous section led to the overlooking of some details. Many of these shortcomings were identified during construction but due to the potential time and cost impact of change, it was decided to complete the construction on time and to review the potential for subsequent enhancements after completion. The subsequent review led to the commissioning of a Building Enhancement Project that included improvements to projects C001, C002, C003 and CX01 that were undertaken by two of the three original contractors under the supervision of the architect for building C001.

The Enhancement Project included:

- Courtyard roof screens to provide shade protection and to keep out driving rain;
- Rooftop access way and waterproofing repairs; etc.
- Roof safety balustrades;
- Supply & installation of water filtration system to address quality of municipal water;
- Furnishings to the student laundry and direct access from Residence Building C001;
- Office sunscreen blinds;
- Installation of audible sirens linked to the security system and alarms to prevent abuse of the fire escape doors;
- Various landscaping improvements including planters, hand railings, stormwater gulley and tree rings.

The original scope and budget was submitted for approval to the TIC Contracts Meeting of 21 October 2016. The scope changed somewhat during implementation with savings made and additional priorities identified and added during implementation. However, the project finished within budget. Importantly, the budget of R10,36 million was funded from savings made on the original contracts. Enhancement works were completed by April 2017 within the control budget, which was derived from client savings on completion of the four contracts involved.

14.8.6 Quality Recognition

Digest 21 of South African Architecture (January 2017) carried a seventeen-page spread on the new universities development including the first buildings completed in 2016 (C001, C002 and C003 at SPU, and L001 and L006 at UMP). Other feature articles have appeared in *Detail Magazine*, Germany, *Earthworks Magazine* and *SA Architect*, South Africa.

The following awards have been attained:

SPU C004 (Architects: Design Workshop SA)

- Fulton Concrete Award for 'Architectural Concrete'

SPU C002 Awards (Architects: Savage and Dodd)

- SAIA Northern Cape Regional Award of Merit 2017
- World Architecture Festival, Berlin 2017 shortlisted in Higher Education & Research category and Best Use of Colour Category
- World Architecture Festival, Berlin 2017 - Highly Commended in Higher Education & Research Category

In addition Building C002 was a Finalist in the Southern African Institute of Steel Construction (Commercial Architectural Category) – wind driven louvres and bespoke multi-coloured vertical louvres

14.9. VALUE IN TERMS OF COST CONTROL AND COST OUTCOMES

14.9.1 Control Budgets

Total construction control budget allowances were established with the signing of the 4th Addendum to the MOA (see Chapter 3, section 3.5) and were adjusted with the signing of the 5th Addendum (see Table 4.4 - Final Control Budget summary) as follows:

- R804m - Sol Plaatje University
- R493,1m - University of Mpumalanga.

Building costs have been firmly benchmarked against the DHET's recognised cost norms for universities^[14-7]. From the start of construction mobilisation at the beginning of 2014 and during subsequent construction, which commenced in October 2014, budget management became critical and was underpinned by overarching "*control budgets*" for SPU and UMP respectively. Simplified, rolled up examples of the overarching control budgets are illustrated in the next chapter (Chapter 15) as part of the five-year plans that were handed over to UMP and SPU in 2016 (see Fig 15.3 and Fig 15.4). These budgets incorporated the combined "*control budgets*" for every planned infrastructure-related project over several annual budget periods.

The New Engineering and Construction Contract (Option C: target contract with activity schedule) has supported early contractor involvement in the design process and a team ethos of completion within the control budget.

14.9.2 New Buildings – Cost Development

This section covers all costs associated with the new buildings and infrastructure required at the start of the 2016 academic year. The budgeted amounts (control budgets) included for

DHET *Space and Cost Norms for buildings and other land improvements at Higher Education Institutions (2009)* establishes the need norm, the area norm and the cost norm which are necessary for DHET to establish a budget allocation for higher education facilities. This publication describes and enables the following parameters to be evaluated:

- Full time equivalent student numbers (FTE) for a facility to be established. The FTE is a weighted number derived from student enrolments with the weightings based on the nature of curriculum programmes and qualifications. A FTE value is calculated by assigning to each course a fraction representing the weighting it has in the curriculum of a qualification, and by multiplying the headcount enrolment of that course by this fraction.
- The spaces for which assignable square metre (ASM) values are provided relate to:
 - classroom facilities, class / open laboratory facilities and office facilities associated with the Classification of Educational Subject Matter (CESM) categories;
 - research and academic support facilities;
 - student services;
 - institutional support;
 - operation and maintenance of plant; and
 - auxiliary enterprises.
- Building cost units (BCU) are representative of the all-inclusive estimate of building costs to provide one ASM building facilities space within a particular space use category. These costs include VAT, professional fees and all other costs directly attributable to the building project. Building costs units exclude roads, bridges, landscaping, open air parking areas, open-air recreational areas and utility distribution systems. However, a 13% allowance for the total cost units for new buildings is provided for the associated land improvement other than buildings
- The ASM multiplied by the FTE represents the area within the gross building area required for higher education purposes. It does not include all the spaces required to provide functional facilities. For example it does not include toilets, corridors, stairwells and the like.

new buildings, bulk and site infrastructure, ICT infrastructure, professional fees, and furniture, fittings and equipment.

All services, including professional services, were tendered to ensure best value.

All new buildings were completed within the control budget, which included a 5% contingency, an estimated escalation cost and the cost of professional fees. All buildings were completed within the DHET cost norms, except for one (at UMP), which derived unfortunate plan inefficiencies and founding costs from the nature of the site.^[14-8] Rational tender processes yielded competitive pricing for professional fees, which on average were 14.41% at SPU and 15.81% at UMP (see Table 14.17).

The linking of the BCU to ASM rather than to the gross building area encourages efficient design, whereby the ASM multiplied by the FTE and divided by the gross building area represents the building's design efficiency. An efficiency of 70% is considered to be achievable and efficiencies of 70 to 75% were targeted in design.

The BCU was established in 1995 to be R3 065 on June 1995. This amount is adjusted from time to time using data provided by the Bureau for Economic Research and Medium Term Forecasting Associates to take into account inflation and to forecast future values.

Based on the estimated ASM costs and the estimated BCU, a control budget was established for each project and the design teams were required to design to that budget. Once the Target Cost was established for each construction project (in terms of the NEC ECC (Option C)), this amount together with associated professional fees, estimated escalation costs plus a 5% contingency, became the de facto control budget for each construction project.

At the outset, the cost of furniture, fittings and equipment was estimated at 8% of construction cost and formed part of the overall control budget.

The shifts in control budget at various stages in the delivery process are indicated in Table 14.15. All the buildings at Sol Plaatje University fell within the DHET cost norms while the construction of bulk on site infrastructure for the new buildings fell within the allowed 13% of the sum of the costs based on the DHET ASMs for the buildings. One of the buildings at the University of Mpumalanga which had an awkward footprint exceeded the cost norm.

Table 14.15: Changes in control budgets as the work packages were developed

Work package	Control budget (including VAT)		Final account (including VAT and professional fees) ³	Cost based on DHET ASM of completed building including professional fees and VAT ⁴
	Based on elemental cost analysis prior to contractor pricing the order ¹	Based on agreed target price at the time that the order was issued ²		
Sol Plaatje University (SPU)				
C001	235 409 325	217 870 833	209 650 271	227 542 314
C002	248 472 064	243 958 078	232 145 660	245 227 872
C003	187 391 695	174 421 800	172 072 166	177 137 214
CX01	83 480 485	89 773 571	81 895 017	84 487 962 ⁶
Total			695 763 114	734 395 362
University of Mpumalanga (UMP)⁷				
L001	121 079 793	100 117 037	91 605 442	114 361 048
L004 ⁵	47 224 073	47 621 235	47 070 781	31 797 058
L006	202 436 746	184 023 243	180 106 624	185 734 436
Total			320 468 897	331 892 542
Notes				
1 Includes estimate of construction based on limited information, a provision for price adjustment for inflation, a contingency of 5% and professional fees at 17% (UMP) and 19% (SPU).				
2 Includes construction cost, a provision for price adjustment for inflation, a contingency amount of 5%, and a professional fee estimate based on the tendered fees.				
3 Based on actual costs.				
4 Based on a BCU of R21 975.00 including VAT (2016) and ASM calculated from record drawings.				
5 Estimated costs exceeded the ASM value due to the awkward nature of the site, expensive foundations and the small footprint of the building with high wall to floor ratio.				
6 Value derived from 13% of the sum of the DHET ASM values for buildings C001, C002 and C003.				
7 The electrical, civil and bulk infrastructure control budget amounted to R87 482 995. The final account amounted to R76 692 025. This equates to 24% of the ASM costs for L001, L004 and L006. However, this infrastructure is able to service the next phase of buildings and will reduce as a percentage when all the buildings which are serviced are taken into account.				

Table 14:16 indicates the shifts in the costs from the initial agreed target price to the final cost to client. An allowance for price adjustment for inflation had to be made in the initial target price so that the increase in target price arising from compensation events (events for which the contractor is not at risk) can be compared to the final cost plus the Fee and the target price at Completion. Despite assumptions having been made regarding work not capable of being priced at the outset and despite significant changes in the Completion Dates, the small variance between the target price at the start and the final account reflects the tight control exercised in completing the outstanding design within the budget. It also reflects the collaborative culture achieved in the delivery process.

Table 14:16: Shifts in the total of the prices in only the construction works contract

Work package	Target price at the start	Target price at the start with allowance for inflation ¹	Final target price ²	Price for Work Done to Date at Completion ⁴	Client gain (+) / pain (-)	Cost to client
Sol Plaatje University (SPU)						
C001	178 336 429	184 703 040	184 543 260	181 652 357	+ 1 445 452	183 097 809
C002	191 776 818	198 623 250	208 263 636 ³	198 036 334	+ 5 208 489	203 055 148
C003	140 366 859	145 377 956	149 129 474	154 303 411	-2 586 969	151 716 443
CX01	76 109 401	77 920 805	78 443 843	73 980 895	+ 2 297 733	75 405 110 ⁵
Totals		606 625 051	620 380 213	607 972 998	+ 6 364 705	613 274 510
University of Mpumalanga (UMP)						
L001	79 392 515	82 171 599	79 802 745	78 685 387	+ 558 679	79 244 067
L004	38 749 003	40 234 912	38 945 512	42 768 205	-1 529 076	40 474 589
L006	152 222 456	158 570 132	156 082 984	155 720 087	+ 181 448	155 901 536
Totals		280 976 643	274 831 241	277 173 679	-788 949	275 620 192
Notes						
¹ The escalation allowances (estimates) were calculated using the MFA/BER indices.						
² Includes compensation events and price adjustment for inflation calculated in accordance with the provisions of the contract.						
³ Includes R5,1m for compensation event associated with the failure by a structural engineer to connect a beam to a column in a stairwell and an acceleration cost of R2,1m.						
⁴ Audited value for Defined Cost plus the Fee less Disallowed Costs						
⁵ Includes a low performance damage deduction of R741 000 for failure to attain development targets						

Table 14.16 provides a breakdown of the direct costs associated with a construction works package. A breakdown of professional fees for the six buildings is shown in Table 14.17. These fees are significantly lower than the recommended tariffs published by the various built environment councils. This is due to the competitive tender process that was followed in procuring consulting services. A comparison of the professional fees for the three buildings for the Sol Plaatje University to that which would have been paid had the recommended tariff been used indicated a saving of just over 20%.

Table 14:17: Direct costs professional fees and construction costs associated with each package

Work package	Final account for the package (Rand)	Final construction cost to client	Final professional fees	Percentage of construction cost (%)
Sol Plaatje University				
C001	209 650 271	183 097 809	26 552 462	14.50
C002	232 145 660	203 055 148	29 090 512	14.31
C003	172 072 166	151 716 443	20 355 723	14.42
CX01	81 895 017	75 405 110	6 489 907	8.61
University of Mpumalanga				
L001	91 605 442	79 244 067	12 361 375	15.60
L004	47 070 781	40 474 589	6 596 192	16.30
L006	180 106 624	155 901 536	24 205 088	15.53

14.9.3 New Buildings Costs per Square Metre

Table 14.18 provides a breakdown of the rates per square metre based on gross building areas.

Table 14.18: Rate per square metre based on gross building areas

Work package	Final construction cost to client (including VAT)	Final construction cost to client (excluding VAT)	Gross building area	Rate per square metre (excluding VAT)
Sol Plaatje University (SPU)				
C001 (Student residence)	183 097 809	160 612 113	12 747	12 600
C002 (Multi-use - student residence: dining hall and kitchen, teaching venues, academic offices, and ground-floor retail space.)	203 055 148	178 118 546	13 532	13 163
C003 (Mixed-use: retail area, lecture halls, class rooms, academic meeting rooms, offices and gymnasium, sports centre, student SRC, Union and clubs)	151 716 443	133 084 599	9 624	13 828
University of Mpumalanga (UMP)				
L001 (Student residence)	79 244 067	69 512 339	6 153	11 297
L004 (Main auditorium and office block)	40 474 589	35 504 025	2 123	16 724
L006 (Science laboratory and faculty library)	155 901 536	136 759 909	7 536	18 147

AECOM's Africa Property & Construction Cost Guide 2016 contains a list of approximate inclusive building cost rates for various building types in South Africa, which represent the average expected building cost rates for 2016. These rates include the cost of appropriate building services, e.g. air-conditioning, electrical, etc., but exclude costs of site infrastructure development, parking, any future escalation, loss of interest, professional fees and Value Added Tax (VAT). Rates are provided for a number of building types including offices. There are, however, no rates for higher education facilities. The rate for an office block (high rise tower block with standard specification) is between R 10,000 - R 13,400.

In determining the assignable square metre costs, DHET Space and Cost Norms take due account of space categories. For example, a value of 1,0 is assigned to offices while a value of 1,5 is assigned to classrooms. Converting the buildings into "equivalent" office buildings enables costs to be benchmarked against AECOM values on an indicative basis.

Table 14.19 indicates that 5 of the 6 equivalent buildings costs fell within the AECOM benchmark range.

Table 14.19: Equivalent office rates per metre squared

Work package	Rate per square metre (excluding professional fees and VAT)	Conversion factor to reduce ASM to that for offices	"Equivalent" office rate per square metre
Sol Plaatje University (SPU)			
C001 (Student residence)	12 600	1.081	11 656
C002 (Multi-use - student residence: dining hall and kitchen, teaching venues, academic offices, and ground-floor retail space.)	13 163	1.069	12 313
C003 (Mixed-use: retail area, lecture halls, class rooms, academic meeting rooms, offices and gymnasium, sports centre, student SRC, Union and clubs)	13 828	1,081	12 791
University of Mpumalanga (UMP)			
L001 (Student residence)	11 297	1,0495	10 764
L004 (Main auditorium and office block)	16 724	1,335	12 528
L006 (Science laboratory and faculty library)	18 147	1,278	14 200

14.9.4 Renovation of Existing Buildings

Based on the DHET Space and Cost Norms for new buildings at Higher Education Institutions (2009), the renovations undertaken at the Sol Plaatje University ranged from 35.5 to 54.5% of the replacement cost of the buildings as indicated in Table 4.20. If the purchase price of Whiteways Apartment Block (R15.0 million excluding VAT) and Diamond Lodge Hotel (R 15,0 million excluding VAT) are included as well as the allowance of 13% for site

services in the replacement costs, these percentages increase to 63.5% and 90.1%, respectively. Therefore, the strategy to purchase and refurbish existing buildings to meet the student enrolment imperatives for 2014 and 2015 at Sol Plaatje University yielded a cost effective solution. In the time available, the enrolment could not have been achieved had new build solution been attempted.

Table 14.20: Cost of refurbishments at Sol Plaatje University expressed as a percentage of their replacement cost

Building	Cost of renovations including VAT and excluding professional fees (R million)	ASM for building	Replacement cost based on a 2015 BCU of R 20 328 (including professional fees and VAT)(R m)	Refurbishment cost as a percentage of replacement cost including 7.8% percent professional fees
William Prescod Building	R 13,976	2201,1	R 44,743	33.7%
Old Provincial legislature	R 38,479	3726,41	R 81,887	50.7%
Whiteways Apartment Block	R 22,984	2 728,70	R 55,468	44.7%
Diamond Lodge Hotel	R 10,423	1 172,92	R 25,774	43.6%
Total			R 207,87	45.0%

Table 14.21: Cost of refurbishments of MRTT buildings at the University of Mpumalanga expressed as a percentage of the replacement cost of the building

Mpumalanga Regional Training Trust (MRTT) buildings	Cost of renovations including VAT and excluding professional fees (R)	ASM for building	Replacement cost based on a 2015 BCU of R 20 328 (including professional fees and VAT)(R)	Refurbishment cost as a percentage of replacement cost including 4.57% percent professional fees
Hostels	R 2 544 067	685.38	R 13 932 404.64	19.1%
Cottage	R 689 403	91.95	R 1 869 159.60	38.6%
Office	R 1 430 488	100.38	R 2 040 524.64	73.3%
Teaching Venues	R 2 945 712	271.45	R 5 518 035.60	55.8%
Total			R 23 360 124.48	34.1%

Table 14.22: Cost of refurbishments of the LCA buildings at the University of Mpumalanga expressed as a percentage of the replacement cost of the building

Lowveld College of Agriculture Buildings (LCA)	Cost of renovations including VAT and excluding professional fees (R)	ASM for building	Replacement cost based on a 2016 BCU of R 21 975 (including professional fees and VAT) (R)	Refurbishment cost as a percentage of replacement cost including 4.57% percent professional fees
Executive Offices	R 2 774 420	159.12	R 3 496 662.00	83.0%
Computer Laboratory, Library and Server Room	R 3 113 750	419.70	R 9 222 907.50	35.3%
Irrigation Laboratory	R 178 735	144.78	R 3 181 540.5	5.9%
Student Residences	R 2 860 897	1432.00	R 31 468 200.00	9.5%
Auditoriums	R 1 137 430	400.97	R8 811 315.75	13.5%
Portion of Administration	R 3 523 163	267.21	R 5 871 939.75	62.7%
Sports Change Rooms	R 81 493	131.84	R 2 897 184.00	2.9%
Welding Room	R 56 356	48.56	R 1 067 106.00	5.5%
House France	R 327 618	790.68	R 17 375 193.00	2.0%
Ariya Offices	R 292 940	132.46	R 2 910 808.50	10.5%
Total			R 86 302 857.00	17.0%

The renovations undertaken at the University of Mpumalanga ranged from 2 to 83% of the replacement cost of the buildings as indicated in Table 14.21 and 14.22 above.

The differences in costs between the various types of buildings that were refurbished at the two new universities can be attributed to factors such as the work required to:

- change the usage of the building from what was originally intended;
- upgrade the buildings to satisfy contemporary requirements;
- bring the building's fabric and finishes to an acceptable condition; and
- upgrade the building services (plumbing, electrical and mechanical) to satisfy current requirements.

14.10. PROCUREMENT VALUE FOR MONEY

Whilst procurement cannot be considered a client delivery priority in the same sense as time, cost and quality, it is an important means to the attainment of delivery priorities and project value. Importantly in the public sector, procurement practice is an indicator of the client's commitment to the principles set out in Section 195 of the South African Constitution, including the efficient, economic and effective use of resources, accountability, transparency and delivery management processes that are fair, equitable and development oriented. For this reason, the procurement strategies used are covered in great detail in Chapter 9. However, it is relevant in this chapter to single out some high level indicators relating to procurement practice and outcomes.

Wits University's infrastructure procurement policy has been refined over time and has provided a departure point in the development and finalisation of the latest infrastructure procurement regulations issued by National Treasury in 2016. The Wits Infrastructure Procurement Policy has underpinned all procurement for development of the two new universities^[14-9]. Value for money has been achieved through rational, competitive procurement processes, including public tenders (90.4%), Wits Procurement (3.2%), quotations (0.43%) and negotiated contracts (5.96%).

Table 14.23: Expenditure against procurement type

Expenditure against procurement type (Source: PMIS.)	Quotes	Negotiated Contracts	Tendered	Wits Procurement	Grand Total
Academic planning		4 130 244		933 751	5 063 996
DHET infrastructure book			869 795		869 795
Feasibility		938 293	5 741 029		6 679 322
General office and Management fee		158 685		51 056 721	51 215 406
Infrastructure provision		10 791 918	1 295 661 442		1 306 453 360
Institutional planning		9 818 999	6 479 077		16 298 076
Movable (FF&E)	6 995 224	1 718 430	117 659 536		126 373 190
Delivery management and project management services		69 328 659	42 218 691		111 547 349
Total	6 995 224	96 885 228	1 468 629 570	51 990 472	1 624 500 495
Percentage of Total	0.43%	5.96%	90.40%	3.20%	

Within the eight expenditure categories listed in Table 14.23 above, over 143 procurements were undertaken, resulting in 219 appointments^[14-10]. Of the R1,62 billion total expenditure, R1,46 billion (90.4%) was procured through public tenders issued by the NUPMT, and all tenders were adjudicated by the Wits Tender Committee. Tenders were generally awarded to the highest points for price, preference and quality. Tenders for professional services were most often awarded at rates lower than those recommended by the relevant professional bodies.

R6,99m (0.43%) was procured through quotations called for by NUPMT. Some services relied on Wits' general procurement, (e.g. travel and catering) and the expenditure of R51,99 million (3.2%) includes Wits University's management fee of R39,62 million, which is 2.5% of total expenditure, as per the MOA between DHET and Wits and as confirmed by the final KPMG review. Procurements made through a negotiated procurement process as provided for by the Wits procurement policy, amounted to R96,8m, or 5.96%, of total expenditure. The negotiated contracts included the Wits project management team (NUPMT), specialist academics and specialists in the field of higher education.

At the stage of handover of infrastructure responsibility to the new universities, inestimable value was generated through the use of three-year framework contracts, which enabled the seamless transfer of contractors and professional service providers from the original contractual Employer (Wits) to the new contractual Employer (UMP and SPU respectively).

14.11. VALUE AND THE GOAL OF BROAD-BASED BLACK ECONOMIC EMPOWERMENT

As evidenced in Table 14.23 above, the largest expenditure category is the amount of R1,30b spent on new infrastructure delivered for the start of the 2016 academic year, including the design professions, project managers, contractors and suppliers of furniture, fittings and equipment.

Our records show that the bulk of the procurement for this new infrastructure was undertaken during the 2014/15 and 2015/16 financial years in the total amount of R1 176 739 446 representing 90.0% of the total (R1,3b) infrastructure spend. The empowerment outcomes for this amount of R1 176 739 446 consist of 32 procurements at SPU and 36 procurements at UMP, resulting in the expenditure amounts of R741 037 924 at SPU and R435 701 522 at UMP. These exclude the architects who were procured through the architectural design competitions in 2013.

The empowerment outcomes as set out below (Table 14.24 and Table 14.25) show that 73% of expenditure went to B-BBEE levels 1 and 2 at SPU and 67% of expenditure went to B-BBEE levels 1 and 2 at UMP.

In addition to these empowerment outcomes (linked to direct awards of contract), further empowerment outcomes were achieved through the construction development targets described in Chapter 11 and highlighted in Table 14.28 below. These indicate a further calculated B-BBEE spend on empowerment in excess of R327m at SPU (78% of total) and R195m at UMP (89% of total).

Table 14.24: SPU Empowerment Outcomes for Procurements 2014 to 2016 (Source PMIS)

BBBEE Level	No.	BBBEE %	Expenditure	Expenditure %
Level 1	4	13%	18 163 351	2%
Level 2	21	66%	524 755 662	71%
Level 3	6	19%	195 283 923	26%
Level 4	1	3%	2 834 988	0.38%
TOTAL	32	100%	741 037 924	100%

Fig 14.2 Empowerment 2014 - 2016 by number of awards to B-BBEE level companies

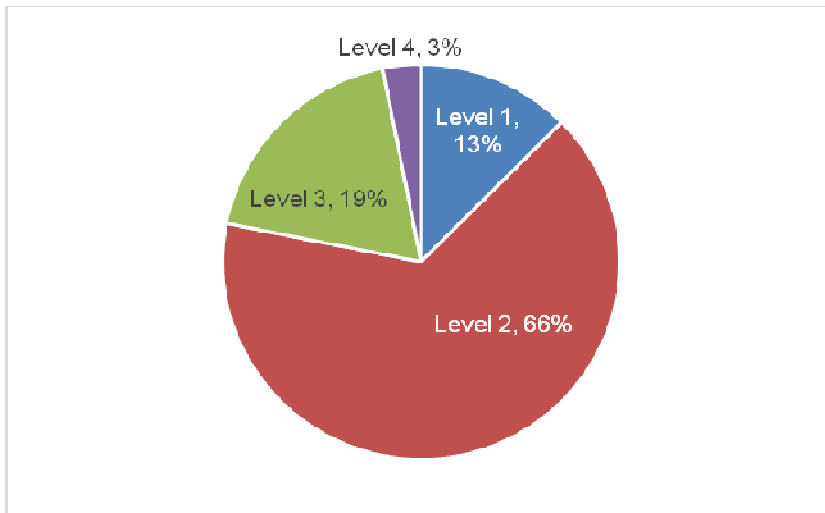


Fig 14.3 SPU Expenditure Percentage per BBBEE level 2014 – 2016

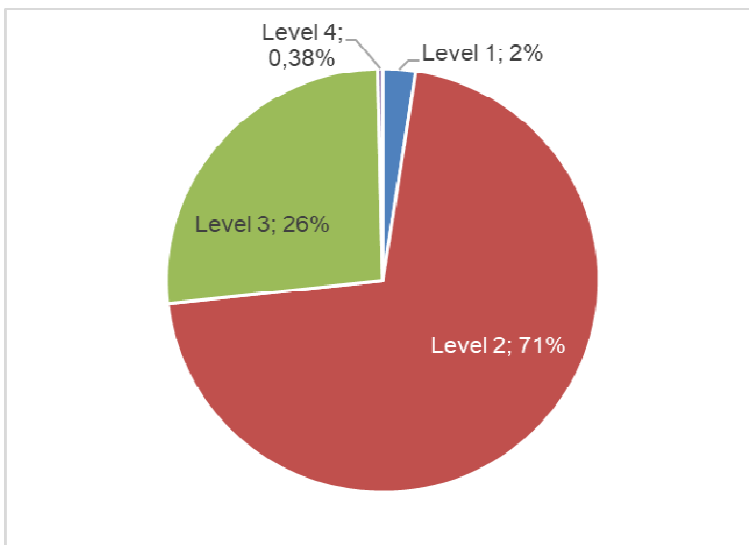


Table 14.25 UMP Empowerment Outcomes for Procurements 2014 to 2016 (Source PMIS)

BBBEE Level	No.	BBBEE %	Expenditure	Expenditure %
Level 1	6	17%	8 616 263	2%
Level 2	20	56%	282 344 344	65%
Level 3	4	11%	16 310 514	4%
Level 4	4	11%	25 172 318	6%
Level 6	1	3%	16 840 430	4%
Level 7	1	3%	86 417 654	20%
TOTAL	36	100%	435 701 522	100%

Fig 14.4 UMP Empowerment 2014 – 2016 by number of awards to B-BBEE level companies

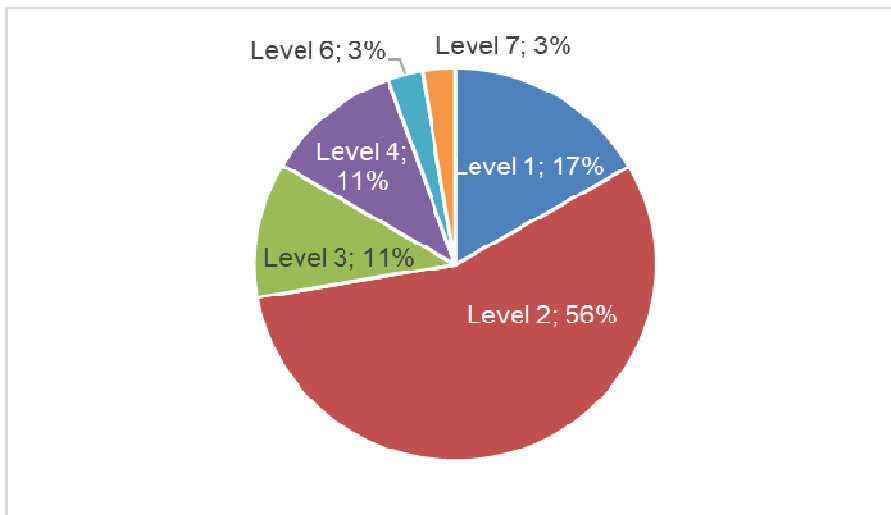
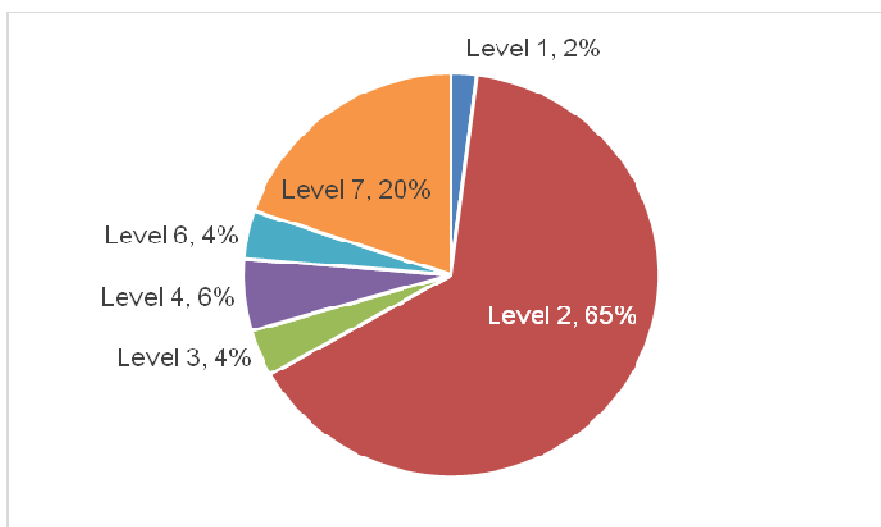


Fig 14.5 UMP Expenditure Percentage per B-BBEE Level 2014 – 2016



14.12. VALUE AND THE CLIENT'S LOCAL DEVELOPMENT GOALS

Over and above the delivery imperatives of time, quality and cost and the secondary objectives of broad-based black economic empowerment, the client recognised the critical need to address local expectation for the people of each hosting town and province to participate in the construction delivery process. Moreover, the client understood that failure to address these expectations carried significant risk, as was highlighted in Project Steering Committee meetings where examples were cited of major projects in the Northern Cape that had been brought to a standstill for several years.

On the positive side, it was evident that a number of key delivery factors would support a genuinely developmental process. These included, in particular, the large-scale, three-year construction framework contracts that offered continuity of construction work and the potential to focus on local participation goals and skills development. In regard to the latter, the DHET had been searching for options to address the challenges facing young people needing on-the-job experience in order to complete their vocational and professional qualifications. Together, NUPMT and DHET decided on a bold strategy that would require innovative procurement and the client's constant attention in implementation.

As described in some detail in Chapter 11, the project contracting strategy established a set of local participation targets that the contractors tendered against on each contract for buildings and infrastructure. For ease of reference, these are repeated below and included:

- direct employment of local people ranging from 30 to 95% of total employment, with sub-targets for youth and women;
- local participation goals targeting local subcontractors and local suppliers, ranging from 30 to 50% of total procurement;
- broad-based black economic empowerment spend of 60% calculated in accordance with the scorecard for preferential procurement; and
- skills development goals (skills development opportunities which result in nationally accredited outcomes) of 250 hours per million rand expenditure.

Chapter 11 describes the outcomes achieved in some detail. A critically important outcome of the strategy was the eventual acceptance by local communities of each university as a project of the hosting town and province rather than a project imposed from afar. Importantly, not only were the above "*construction development targets*" achieved, but their establishment through the procurement process meant that they attracted no additional cost. To support implementation, the client invested a total of R1 233 222 in the development and management of a supplier database for each province. These databases continue to support implementation of the development targets, which have since been extended under the management of the two universities.^[14-11]

Another important outcome worth highlighting in this appraisal of value, has been the emergence of genuine local construction capacity that can contribute to further development and to the maintenance and upkeep of the universities.

It is worth noting that while the project delivery team can generally be counted on to manage time, quality and cost, the attainment of genuine development outcomes of this nature requires a determined client delivery management focus. For ease of reference, some of the specific development outcomes summarised in Chapter 11 are reiterated in the tables below.

Table 14.26: Skills Development

	SPU		UMP		Examples of Qualifications
	Days	Learners	Days	Learners	
Method 1	8 774	176	10 194	99	Scaffolding Inspector & Erector; Working at Heights; Shot fixing; Safety, Health and Environment; Banksman; First Aider; Crane Operator; Dumper Operator; and Telehandler.
Method 2	5 585	57	7 473	160	Plumber; Carpenter; Plasterer; Welder; Bricklayer; Power Floating Supervisor; Tiler; and Scaffolding/Formwork.
Method 3	3 329	16	2 636	18	National Diploma: Civil Engineering; and National Diploma: Building Science.
Method 4	2 165	5	1 381	14	Quantity Surveyor; Engineer; Construction Manager.
TOTAL	19 853	254	21 684	291	

Table 14.27: Local Expenditure

	Total Actual Spend to Date	% Target of Local Expenditure	Actual Local Expenditure Spend	Actual %
SPU	R 502 312 001.95	36%	R 188 254 116.65	38%
UMP	R 237 820 000.00	44%	R 174 130 000.00	73%

Table 14.28: Broad-based Black Economic Empowerment

	Total Actual Procurement Spend	B-BBEE Target as a % of Procurement Spend	Calculated B-BBEE Procurement Spend	Actual %
SPU	R423 061 711.32	60%	R327 919 489.66	78%
UMP	R218 910 000.00	60%	R195 830 000.00	89%

14.13. SAFETY ON SITE – A NON-NEGOTIABLE COMMITMENT

Safety on site is a legal responsibility of the client in terms of the Occupational Health and Safety Act (Act 85 of 1993) as amended. The NUPMT, with DHET backing, has endeavoured to ensure that the appointed OHS agents at SPU and UMP were fully supported to take any necessary action when faced with contraventions endangering project staff, construction workers, students and staff. Despite the pressures of time, this unwavering client support for site safety was made clear to the project team and contractors from the outset.

Great value is therefore attached to the fact that reported lost time injuries were well below the industry benchmark at both SPU and UMP and that none of the reported lost time injuries were as a result of a fatality or a permanent disablement^[14-12]. This is particularly significant at SPU where buildings C001, C002, C003 and site services CX01 were in jam-packed proximity to each other and none of the five cranes deployed at peak operation could rotate a full 360°.

14.14. SOME CONCLUSIONS ON VALUE

Completion time for the new buildings was fixed as academic facilities were required at the start of the 2016 academic year. This necessitated that the works commence before the designs were complete and assumptions had to be made on the value of the work (25 to 74%) not capable of being accurately priced when work was instructed. These kinds of limitations associated with time pressure invariably impact on cost and quality.

The priority project outcomes in terms of time, cost and quality can be summarised as follows:

- **time:** Construction Work Packages at UMP were completed substantially on time. At SPU, although the priority buildings and infrastructure were not completed within the projected time frames (which straddled in some instances two industry shutdown periods) and the actual time for completion exceeded the planned completion time by between 10 and 48%, all the essential academic facilities were opened at the start of the 2016 academic year
- **cost:** Despite extensions of time being granted and the designs being incomplete when the works commenced, buildings and infrastructure were delivered within the set control budgets and slightly below the DHET cost norms for university facilities while the construction Work Packages were delivered within 1% of the target price (with an agreed allowance for price adjustment for inflation)
- **quality:** The works were in accordance with the specifications and the buildings have achieved architectural recognition.

Important secondary project outcomes were substantial and exceeded the specified construction development targets in terms of empowerment (B-BBEE) and local participation and skills development.

Accordingly, it is believed that the adopted procurement and delivery management strategy, which promoted collaborative long-term relationships and included stringent eligibility criteria and the evaluation of quality at the tender evaluation stage, ensured that capable service

providers were appointed, and mitigated the risks associated with the required fast track construction.

The World Bank Procurement Regulations for IFP Borrowers (2016) suggest that value for money is the “*effective, efficient, and economic use of resources*”. The National Treasury Standard for Infrastructure Procurement and Delivery Management (2015) defines value for money as “*the optimum use of resources to achieve intended outcomes*”. Given that the gap between what was planned and what was achieved is very narrow, it may be concluded that value for money was achieved in delivering the 2016 facilities for the two new universities. Critical to this achievement was the persistent focus of the client body (DHET and the NUPMT) on its core value proposition – and on ensuring that the project team were similarly focused on the priority goals of this proposition.

Some observations for improvement

Some unexpected and unsatisfactory aspects of the delivery process are worth noting for future improvement. These include the following:

1. There was a high turnover in senior staff in some of the large consulting firms and large contractors, which had a disruptive impact at both university projects making it difficult to build the optimal culture of collaboration over time. In this regard, the continuity of senior personnel is most critical within the project management and main contracting firms.
2. With regard to professional service providers it was a condition of contract that the key person specified in the tender (or a person with equivalent or better relevant qualifications and experience) provides the services or directs the services provided. A procedure was included in the professional service contracts for changing a key person. Failure to ensure this condition of contract resulted in the structural failure described in chapter 4 and led to substandard designs in some of the mechanical work.
3. NUPMT’s framework for professional fees is very different in several key aspects to the guideline fees published by the various statutory councils. In particular, it excluded travelling time and expenses because the service was deemed to be provided in either Nelspruit or Kimberley. To ensure this understanding, compulsory tender clarification meetings were conducted with professional service providers whose contracts made provision for fees to be paid on a percentage basis. The tender document stipulated that a full time employee, who would be involved in the preparation of tenders, must sign the attendance list in the name of the tendering entity.

Unfortunately, the communication between those that attended the clarification meeting and those that compiled the tenders did not always take place. This was very much the case with the larger consultancies who were awarded contracts in Kimberley. The unintended consequence was that there was a reluctance to attend meetings or to visit the site. Consultants with multiple engineering service appointments tended to send one person to represent all disciplines while others tended to take short cuts in the reviewing of work done on site or were slow in their response to attend to site issues as they arose.

4. It was generally easier for the project managers and cost consultants to work with the grade 7 and 8 contractors in addressing cost issues, as invariably one of the owners was intimately involved in agreeing the target price, any changes to the price, as well as the monthly assessment of cost as defined in the contract. This was not the case with the grade 9 contractor, where these matters were centralised at head office and the Contractor's site quantity surveyor had little authority to make decisions. While this is not a reflection on the quality of work delivered, at times it was a source of frustration in relation to quick and effective decision making.
5. The target cost contractors were incentivised to reduce costs through the pain / gain arrangements in the contract. The same opportunity was not afforded to the professional team, due to the fast track nature of the project which did not allow this option to be properly explored. However, end of stage deliverables were delayed by one or two non-performing consultants. Time allowing in future, consideration should be given to incentivising the professional team members to perform.

REFERENCE DOCUMENTS

- 14-1 Selection Criteria and Recommendations on the Seats for the New Universities – 18 July 2012
- 14-2 Department of Higher Education and Training. (2012). Development Framework for New Universities in the Northern Cape and Mpumalanga. *Government Gazette*. (Notice 705. No. 35645).
- 14-3 Northern Cape Architectural Competition Brochure
- 14-4 Mpumalanga Architectural Competition Brochure
- 14-5 UMP Environmental Design Performance Summary
- 14-6 SPU Environmental Design Performance Summary
- 14-7 Department of Higher Education and Training's Space and Cost Norms for buildings and other land improvements at Higher Education Institutions (2009)
- 14-8 Watermeyer, R. CASE STUDY: Fast track approach to delivery 2016 facilities for the two new universities (October 2017)
- 14-9 University of the Witwatersrand. Construction procurement policy, processes, procedures, methods and delegations (December 2013)
- 14-10 List of service providers
- 14-11 SPU Powerpoint presentation on market analysis
- 14-12 Final Health and Safety Performance Report for Sol Plaatje University by NCC, April 2016

Chapter 15

Hand over and close out



15. Handover and Close-out

The first “Handover Plan” was developed as an annexure to the MOA’s 3rd Addendum that was signed in November 2013 shortly after establishment of the Interim Councils and just before the start of the first academic year in February 2014. This plan, and its inclusion in the formal extension of the MOA between DHET and Wits University, was an acknowledgement by both parties that the fledgling universities would soon have to take over full responsibility for their own development.

Establishment of the two universities had focused on three major components: the academic, institutional and infrastructure development and these are summarized below.

15.1. ACADEMIC AND INSTITUTIONAL DEVELOPMENT

Responsibility for the academic development was handed over when Interim Heads of both universities had been appointed and the first academic year got under way. After the start of the 2014 academic year, the NUPMT ceased to make any further input to the academic project.

Responsibility for the institutional development of the universities would continue to be supported by the NUPMT until as late as the end of 2014 and this included:

- Support to the interim councils to establish the first full councils, which were inaugurated on the 14th and 19th August 2014 (UMP and SPU respectively). These councils have operated effectively since then with all the necessary committees of Council in place.
- Appointment of the Vice Chancellors (UMP in November 2014 and SPU in April 2015) and the core executive management.
- Incorporation of the Lowveld College of Education into the University of Mpumalanga
- Disestablishment of the National Institutes of Higher Education in both Northern Cape and Mpumalanga.

In its Annual Report of March 2015, the NUPMT was able to report completion of the above processes and an effective handover of responsibility for institutional development (see Chapter 5 Academic and Institutional Development).

The handover of responsibility for infrastructure development would prove more complex.

15.2. INFRASTRUCTURE HANDOVER PLANNING

When the first handover plan was prepared in November 2013 it was believed that during 2014 the NUPMT would procure the design and construction capacity for major infrastructure and that by the start of construction towards the end of 2014, the new universities would take over responsibility for implementation.

It was recognised, however, that the handover plan would be dependent on several critical factors, including:

- a) Appointment of executive management of the University, including a senior Finance Manager, which only happened at the end of 2014;

- b) Establishment of a bank account and a university financial management system that would effectively track infrastructure expenditure
- c) Appointment of capable in-house delivery management capacity to replace the functions performed by the NU PMT.

Work had started on the recruitment of a Chief Financial Officer at each university with adverts planned for late September 2013. Preparations were also underway to commence tendering for a Project and Programme Management Service for each university. It was therefore believed that the fundamental building blocks would be in place by February or March 2014 to begin a process to hand over the infrastructure delivery management. The plan envisaged the handover of infrastructure projects together with the appointed service providers (project managers, design professions and contractors) by December 2014. The plan optimistically envisaged a three-month period of back-up support to the universities' project teams with financial close out by NUPMT on 31 March 2015.

Much of what was planned was achieved by mid-2014. This included the appointment of project managers and the appointment of full design teams for each university. By October 2014, contractors had been appointed (three at SPU and two at UMP) and construction had started in order to complete major new buildings by January 2016 in time for the 2016 academic year, a critical objective in terms of expanding student enrolment.

15.3. TOWARDS A REALISTIC HANDOVER PLAN

In the build up to the October construction start, it became obvious that the new universities did not yet have in place the capacity or the systems necessary to take over the infrastructure responsibility. DHET was concerned that premature handover would have severe repercussions in terms of construction delays and delayed enrolment growth.

The Interim Councils of both universities had reached the same conclusion and had formally requested DHET to extend the MOA with Wits in order to enable an effective first phase of construction as well as an extended period of capacity building to develop the capability of an appointed Infrastructure Director and staff. With this consensus reached, the DHET and Wits signed the 4th Addendum to the MOA^[15-1] in September 2014, undertaking to complete the first phase of major new construction by 31 March 2016 and to ensure that any infrastructure that would be completed after that date would be the responsibility of the two universities. This was ultimately achieved, except for the R10,3m Enhancement Project at SPU, which continued under NUPMT as described in Section 14.8 of the previous chapter.

The decision to embark on major construction work on remote campuses took Wits University into an area of risk it had hoped to avoid. The question was asked: *What if the new universities refuse to accept handover of the completed buildings?* This challenge was resolved by a joint Memorandum of Agreement between DHET, Wits, SPU and UMP^[15-2], which was signed in October 2014 and which formalised agreement on the implementation process, including the commitment by both universities to take over infrastructure responsibility from 31 March 2016.

In the joint MOA, UMP and SPU confirmed that:

- *“the spatial development and implementation plans developed by WITS and the DHET.... have been developed in consultation with their (UMP’s and SPU’s) authorised representatives and ... have been approved by their respective governance structures....*
- *UMP and SPU have participated in procurement processes leading to the appointment by WITS of the respective project managers, design teams and main contractors for the construction work as agreed, and that UMP and SPU herewith wish to confirm and ratify the appointment of the said managers, design teams and contractors.*
- *UMP and SPU confirm that the design and configuration of the construction projects in accordance with the spatial development and implementation plans have been developed in consultation with the Management of the UMP and SPU and approved by the respective Interim Councils.”*

These were critically important commitments because the handover would include not only finished buildings but also partially designed buildings that would have to be built by the new universities themselves. Furthermore, the commitments were important because the Wits NUPMT would be handing over the existing framework contracts for the appointed project managers, the design teams and the main contractors, who would then have to work under the leadership of the SPU and UMP infrastructure delivery managers, who were yet to be appointed.

Importantly, the joint MOA amended the original MOA between Wits and DHET, formalising representation from UMP and SPU on the Steering Committee and on the Technical Integration Committee and thus ensuring collective responsibility for oversight and monitoring of progress of the planned projects.

The handover plan was successfully implemented. A further MOA amendment (Addendum 5) extended the period of the MOA to 31 July 2017 to allow for a comprehensive close out period, including settlement of final accounts, final reconciliation, the transfer of residual funds and the completion of this close out report. But essentially, the handover of responsibility for further infrastructure development was achieved by 31 March 2016.

15.4. HANDOVER OF WITS FRAMEWORK CONTRACTS TO NEW UNIVERSITIES

A pre-requisite for the handover of the infrastructure portfolio was the appointment at each university of a competent and experienced infrastructure delivery manager. The position of Executive Director: Infrastructure was advertised and appointments were made at SPU and UMP in the second half of 2015. The NUPMT assisted with the drafting of job descriptions [15-3], newspaper adverts and with the interview processes.

It soon became apparent that the handover would require the continued input of certain key members of the existing Wits NUPMT to ensure continuity of the development. The new infrastructure directors of both universities were invited to appoint these members as specialist advisors in spatial planning, procurement, infrastructure services and ICT installation on the same terms as their existing appointments. The NUPMT’s Client Delivery Manager, Project Manager, Project Administrator and Management Accountant would

remain wholly focused on the first phase completion, the handover of infrastructure responsibility and the close out of the MOA.

The 31st March 2016 signified the formal handover of responsibility for infrastructure delivery from the DHET to the new universities. With effect from 1 April 2016, technical competencies previously reporting to the New Universities Project Management Team were successfully contracted by the new universities themselves ensuring continuity in the ongoing delivery of infrastructure.

These arrangements paved the way for the full handover of

- new buildings,
- partially designed buildings that would be constructed by SPU and UMP, and
- existing framework contracts with project managers, design professions and contractors – that would reinforce the continuity of the infrastructure delivery processes.

In its annual report of May 2016, the NUPMT was able to report completion and handover of the first phase of construction at both universities in time for the start of the 2016 academic year, all except for one building at SPU that would only be fully completed by May 2016. This delayed completion was due to a structural design failure, which is discussed in Chapter 4, Section 4.8.

The handover of framework contracts had been planned from the start of the tender processes undertaken during 2014 and 2015, during which over 32 framework contracts were entered into by Wits ^[15-4] for UMP and SPU respectively. These contracts were awarded to contractors, professional service providers and suppliers servicing each university. Each of the two universities participated in these procurement processes and the framework contracts concluded allowed Wits to hand over contractual responsibility to UMP and SPU, enabling them to place orders against the relevant contracts.

This handover of contracts was formalised by a two page addendum^[15-5] to each contract, which was signed by Wits, the university taking handover as the Employer, and the relevant service provider, in which the parties agreed on an “effective date” for the change of Employer to take place. The addendum provides for Wits to continue to hold responsibility for orders issued before the “effective date” and for the new university to issue orders after the effective date. This simple mechanism enabled the baton of contractual responsibility to pass to the fledgling universities.

15.5. NEW UNIVERSITIES START OWN CONSTRUCTION FOR 2017 ACADEMIC YEAR

In 2015, using the contractual handover mechanism described above, both Sol Plaatje University and the University of Mpumalanga commenced the construction of new buildings that needed to be completed for the start of the 2017 academic year. This work proceeded under the supervision of professional project managers appointed for each university as part of the process referred to above.

In support of the handover process and to enable each university to take over responsibility as the contractual “Employer” for the design and construction of new buildings initiated by Wits, the DHET transferred R100m to University of Mpumalanga and R83m to Sol Plaatje

University. Letters from the Director General to UMP^[15-6] and SPU^[15-7] provided detail on the projects as set out in the tables below. Thus in 2015 these funds were transferred by DHET to SPU and UMP instead of to Wits, in order to enable both universities to conclude contracts and package orders for the projects which would commence in 2015 and early in 2016.

Tables 15.1 and 15.2 below show the estimated 2015/16 expenditure by Wits on fees, the estimated 2015/16 expenditure by SPU and UMP respectively, the estimated expenditure in 2016/17 by SPU and UMP respectively and the total estimated project costs. This mechanism enabled the transfer of responsibility for projects in which the design was initiated by Wits (up to stage 6) and further design and implementation was taken over by the relevant university.

Table 15.1: SPU projects to start in 2015 and finish after 31 March 2016

	2015/16 Wits Fees (R m)	2015/16 SPU (R m)	2016/17 SPU (R m)	Total (R m)
Library (4)**	R15.0	R45.0	R97.3	R157.3
Academic Building (5)	R8.8	R17.5	R73.9	R100.2
Teacher Education (8)	R8.7	R17.5	R73.8	R100.0
Forward Planning	R0.0	R3.0	R0.0	R3.0
Total	R32.5	R83.0	R245.0	R360.5

** Library total cost = R172.3 leaving a balance of R15m to be spent in 2017/18

Table 15.2: UMP projects to start in 2015/16 & finish after 31 March 2016

	2015/16 Wits Fees (R m)	2015/16 UMP (R m)	2016/17 UMP (R m)	Total (R m)
Executive Offices	R4.0	R23.0	R10.7	R37.7
Library	R7.6	R16.4	R62.3	R86.3
IT Laboratories	R1.8	R5.6	R13.2	R20.6
Clinic and Wellness Centre	R6.2	R18.6	R46.7	R71.5
New Residence	R7.9	R19.1	R64.2	R91.2
Infrastructure Construction	R7.2	R11.8	R36.8	R55.8
Forward Planning	R0.0	R5.5	R0.0	R5.5
Total	R34.7	R100.0	R233.9	R368.6

The DHET made it clear in the above correspondence that the total 2015/16 infrastructure allocation of R83m (SPU) and R100m (UMP) would be augmented in the 2016/17 financial year with the outstanding estimated project amounts, totalling approximately R245 million (SPU) and R233,9 million (UMP) as indicated in the above tables.

The DHET allocation of R183m to both universities reduced the total allocation to Wits by the same amount and reduced the overall control budgets from R857 627 138 to R804 001 583 at SPU, and from R593 093 936 to R493 093 936 at UMP.

15.6. FIVE YEAR DEVELOPMENT PLANS – THE WAY FORWARD

An important part of the handover process included the crafting of five-year development plans [15-8], [15-9] and budgets to ensure continuity and to enable the continued funding support of the DHET. During the 2015/16 financial year, approximately two thirds of the available MTEF capex budget was allocated to the Sol Plaatje University. Because of the growth requirements at UMP, it was decided that the allocation of the MTEF capex budget for the next few years (2016/17 onwards) would be split approximately 36% to SPU and 64% to UMP. Following submissions by each university, the DHET approved their five-year plans and the corresponding 2016/17 DHET funding allocations to SPU[15-10] and to UMP[15-11], effectively confirming the handover of responsibility for infrastructure delivery.

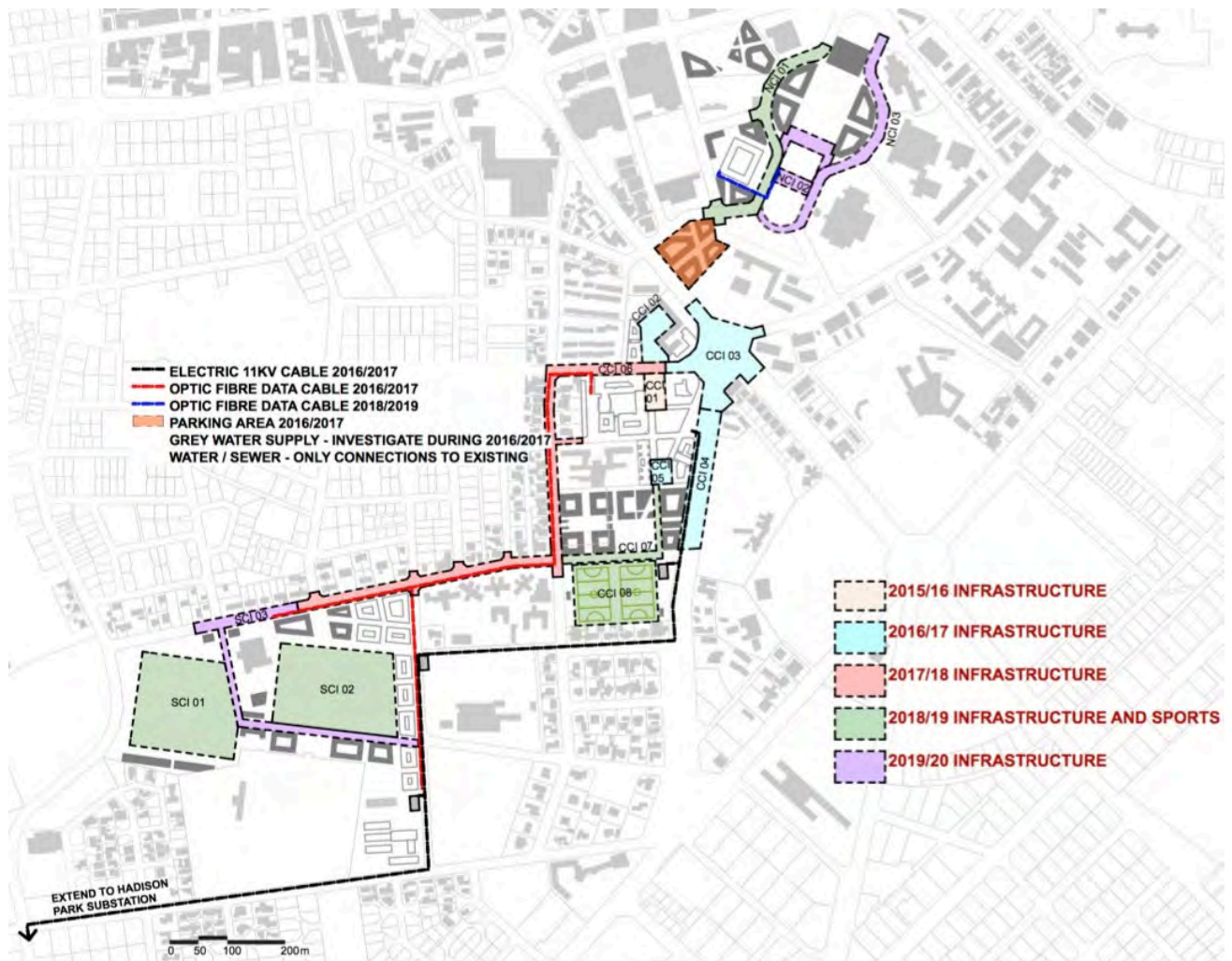


Fig 15.1 : Sol Plaatje University, Infrastructure, 2015 - 2020

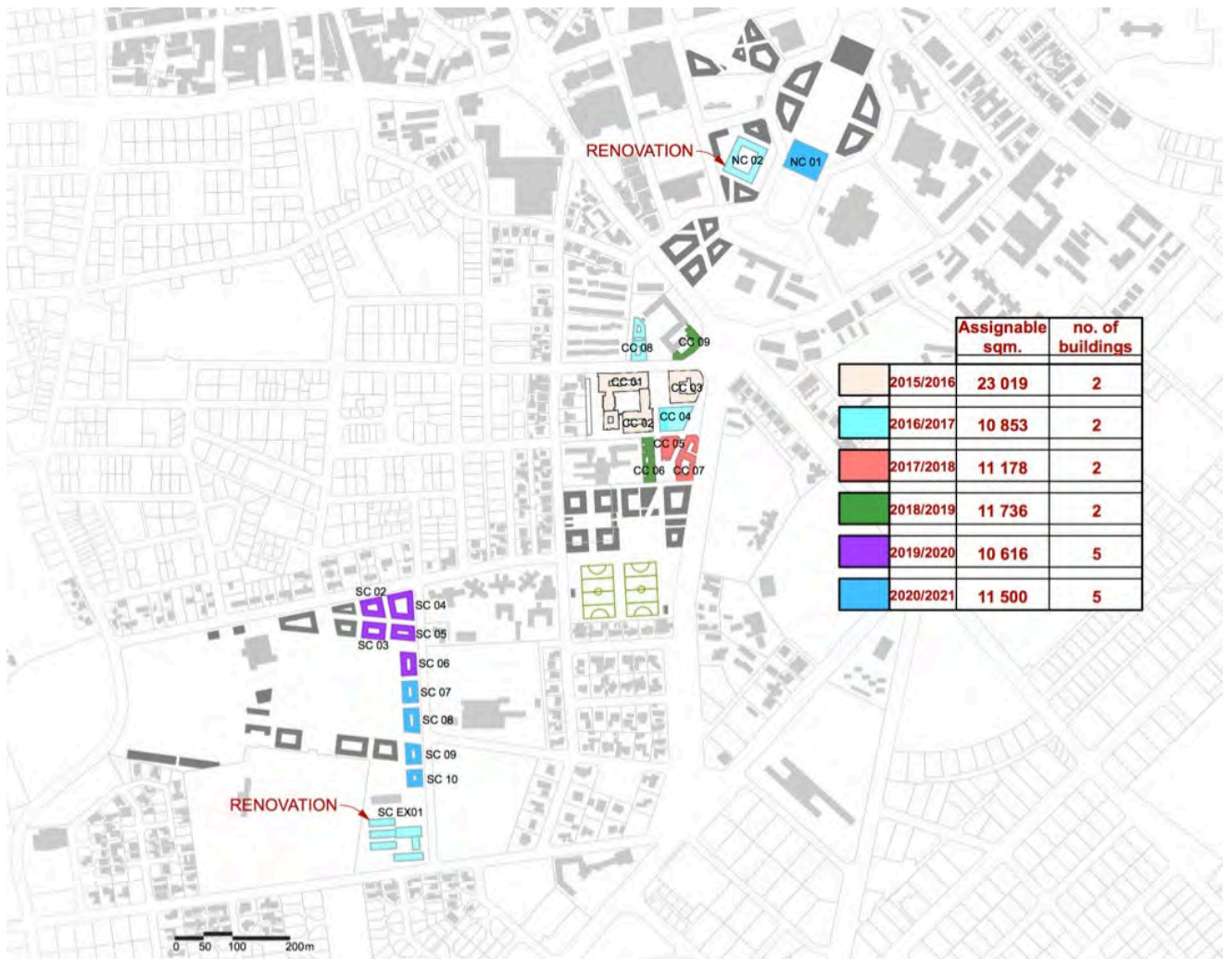


Fig 15.2: Sol Plaatje University, Buildings, 2015 – 2020

Table 15.3 Sol Plaatje University, 2015 – 2020 Infrastructure Development Budget

SOL PLAATJE UNIVERSITY	Total Budget 2015/2016	Total Budget 2016/2017	Total Budget 2017/2018	Total Budget 2018/2019	Total Budget 2019/2020
CAPITAL EXPENDITURE					
General Information					
Planned Bulk sqm	33 772	17 466	15 963	16 980	14 952
Assignable sqm	23 019	10 853	11 178	11 736	10 616
Enrolment No	797	1 200	1 600	2 100	2 700
No Beds (80% requirement)	638	960	1 280	1 680	2 160
No Beds (60% planned)	383	576	768	1 008	1 296
Current and Planned Number of Beds	708		893	1 053	
			(JP HUGO)	(New Residence)	
INFRASTRUCTURE CAPITAL					
DHET BUDGET ALLOCATION R1Billion x 5,3% annual Increase	0	1 053 000 000	1 108 809 000	1 167 575 877	1 229 457 398
Less Combined NU OPEX Shortfall	0	0	138 068 000	180 796 000	0
Capital Available NU Combined	0	1 053 000 000	970 741 000	986 779 877	1 229 457 398
SPU Control Budget (36/64% split)	887 001 583	379 080 000	349 466 760	355 240 756	442 604 663
Academic Infrastructure					
Buildings	749 787 062	251 589 604	268 014 615	280 657 738	330 866 678
Alterations and Additions	0	45 000 000	0	0	12 500 000
FF&E	42 353 685	21 699 985	25 727 554	19 447 244	24 401 355
Bulk Infrastructure & Services					
Bulk Infrastructure (External)	5 893 800	17 027 480	19 000 000	19 955 700	30 000 000
ICT Platform + Fee	250 000	10 041 967	10 575 324	11 421 350	12 335 058
Erf 1	1 000 000	4 000 000	6 000 000	7 500 000	7 500 000
Site Infrastructure (On-site)	89 773 571	22 100 000	11 500 000	5 000 000	5 800 000
General Budget Allowances					
Planning and Programming	2 508 000	6 250 000	6 581 250	6 930 056	7 297 349
Insurance	874 431	373 708	344 514	350 206	436 332
Total Planned Expenditure	892 440 549	378 082 743	347 743 258	351 262 295	431 136 773
Surplus/(Deficit)	-5 438 966	997 257	1 723 502	3 978 461	11 467 890

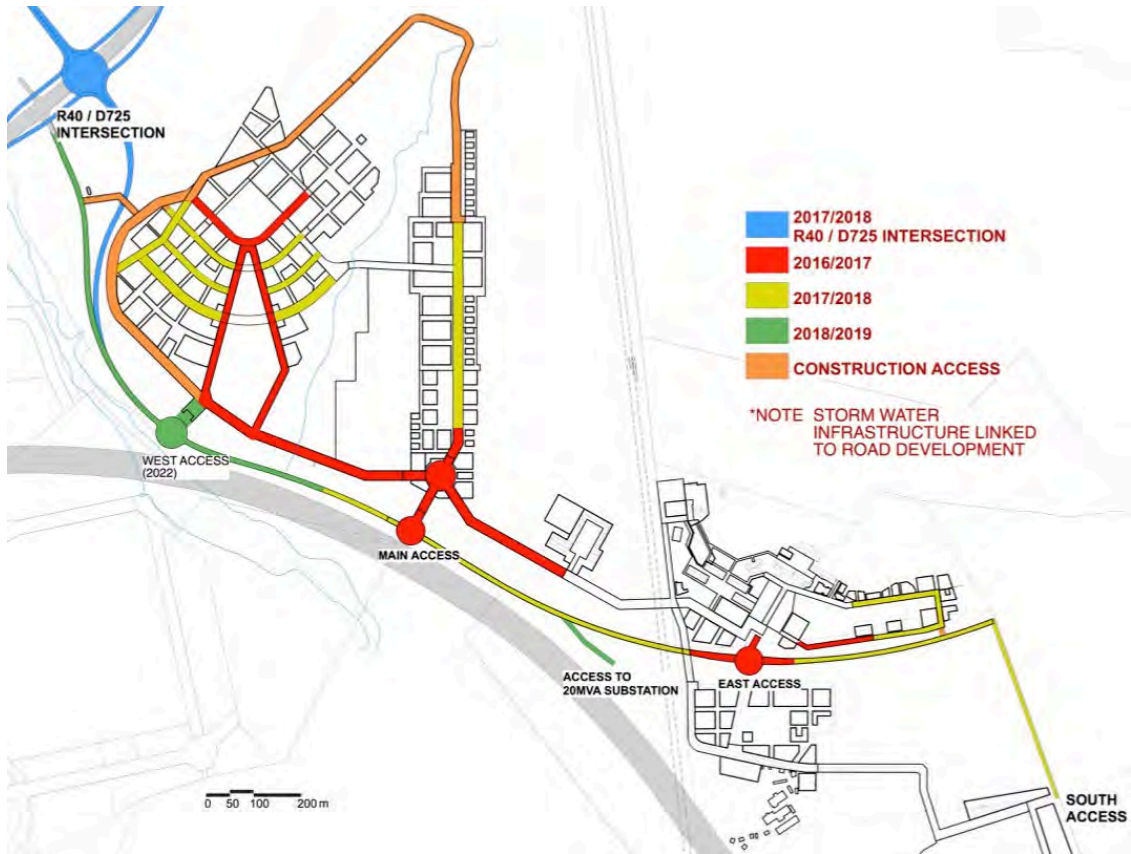


Fig 15.3: University of Mpumalanga, Infrastructure Roads, 2015 – 2020

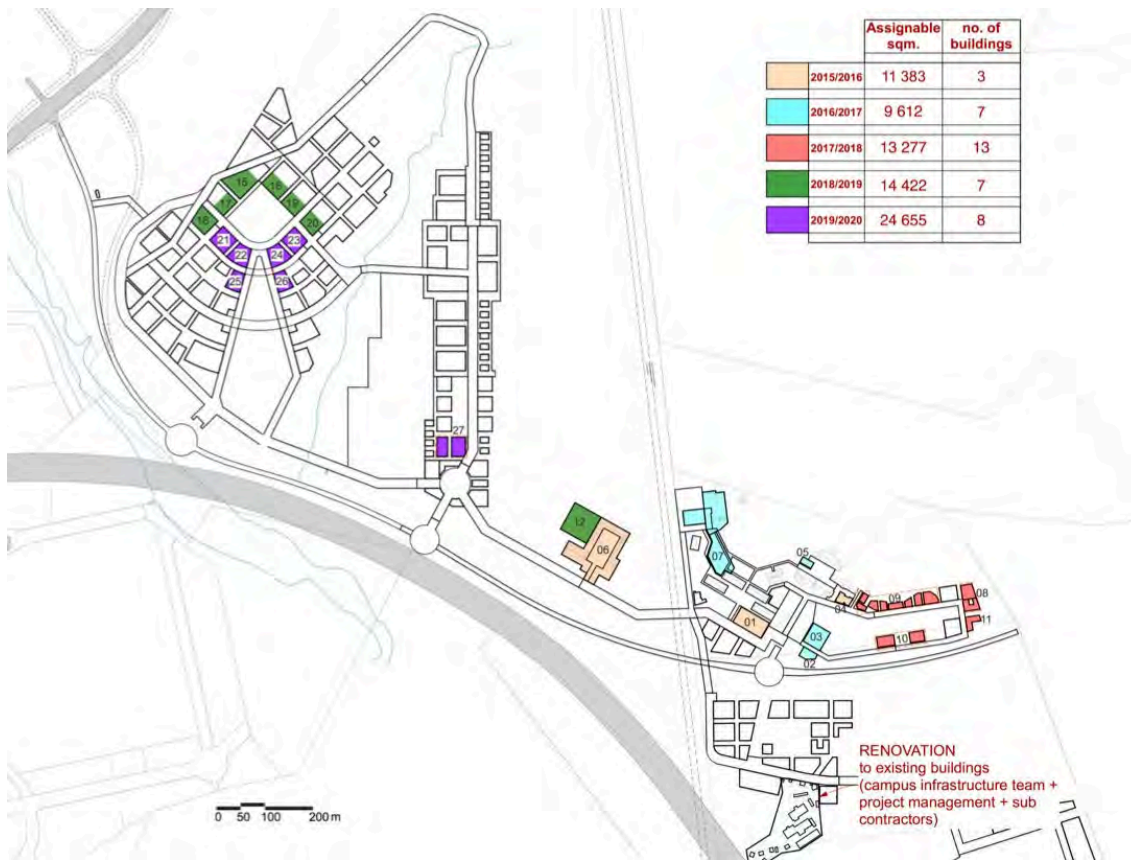


Fig 15.4: University of Mpumalanga, Buildings, 2015 – 2020

Table 15.4 University of Mpumalanga, 2015 – 2020 Infrastructure Development Budget

UNIVERSITY OF MPUMALANGA	Total Budget 2015/2016	Total Budget 2016/2017	Total Budget 2017/2018	Total Budget 2018/2019	Total Budget 2019/2020
CAPITAL EXPENDITURE					
General and Development Targets					
Planned Bulk sqm	15 026	15 566	15 237	31 188	31 336
Assignable sqm	11 383	9 612	13 277	14 422	24 655
Enrolment No (Mbombela Campus)	940	1 399	1 975	2 500	3 750
No Beds (60% requirement)	564	839	1 185	1 500	2 250
No Beds (40% planned)	376	560	790	1 000	1 500
DHET BUDGET ALLOCATION R1Billion x 5,3% annual Increase	586 037 386	1 053 000 000	1 108 809 000	1 167 575 877	1 229 457 398
Less Combined NU OPEX Shortfall		0	138 068 000	180 796 000	0
Capital Available NU Combined		1 053 000 000	970 741 000	986 779 877	1 229 457 398
UMP Control Budget (64/34% Split)	593 093 936	673 920 000	621 274 240	631 539 121	786 852 735
Academic Infrastructure					
Residential	100 117 037	0	0	0	0
Executive Offices	26 510 247	13 754 354	0	0	0
Library	23 855 617	61 664 699	0	0	0
Auditorium	47 621 235	0	0	0	0
IT Laboratories	8 004 613	28 090 960	10 000 000	0	0
Laboratories	184 023 243	0	0	0	0
Clinic	23 976 291	37 692 932	0	0	0
Residential	26 567 412	59 088 198	0	0	0
Sports/Multi Purpose Hall		32 738 492	0	0	0
Hospitality Building		27 304 022	46 490 632	0	0
Multi-purpose Academic Block		33 354 197	56 792 281	0	0
Administration Block		34 921 129	63 448 249	0	0
Staff Support and Recreation		10 377 300	19 272 128	0	0
Renovation of DARDLA Buildings		6 989 465	12 980 435	0	0
BSc Building - Research Laboratories		0	17 785 746	46 889 694	0
Academic Facilities		0	36 226 394	95 505 947	0
Student Residence		0	27 039 598	73 107 062	0
Academic Admin		0	17 540 205	47 423 517	0
Academic		0	0	66 592 130	222 938 870
Residential		0	0	67 182 076	224 913 906

Shared Facilities		0	0	15 482 549	51 832 882
2020/2021 Building Start Allocation		0	0	0	86 448 536
	3 780 000	5 000 000	0	0	0
Buildings Total	444 455 696	350 975 748	307 575 668	412 182 974	586 134 194
FF&E	27 380 921	26 395 786	23 394 738	27 113 862	48 670 681
Site Infrastructure: Lower Campus					
Civil Infrastructure	41 395 190	7 677 387	2 692 586	0	1 300 000
Urban Fabric & Landscaping	7 914 815	14 778 776	0	0	0
Electrical Site Infrastructure	27 052 369	11 396 393	7 651 901	695 627	0
Site Infrastructure: Hill Campus					
Civil Infrastructure		64 653 407	80 534 144	4 623 635	0
Urban Fabric & Landscaping		11 000 000	15 000 000	12 500 000	16 000 000
Electrical Site Infrastructure		15 000 000	75 000 000	77 801 799	35 000 000
Site Infrastructure: Services					
Bulk Infrastructure - EI, Roads & Water	30 655 434	109 497 705	67 329 042	34 429 636	35 986 327
Sport Infrastructure		10 000 000	5 000 000	5 265 000	7 500 000
ICT Platform	250 000	8 607 866	9 026 495	9 748 615	10 528 504
General Budget Allowances					
Planning and Programming	6 384 000	6 722 352	7 078 637	7 453 804	7 848 856
Insurance	548 961	623 772	575 044	584 545	728 302
Siyabuswa		26 000 000	20 000 000	38 000 000	37 000 000
Renovations		10 000 000	0	0	0
Total Planned Expenditure	586 037 386	673 329 192	620 858 255	630 399 498	786 696 863
Current Surplus/Deficit	7 056 550	590 808	415 985	1 139 623	155 872

15.7. CLOSE OUT

Contractually, construction completion is achieved when the final accounts have been settled, all defects have been dealt with and the defects liability period (12 months after construction completion) has expired, enabling release of the outstanding retention fund in a final payment by the Employer to the Contractor. At UMP, the release of all retention funds was authorised by NUPMT in April 2017. At SPU, the making good of defects took somewhat longer and the final release of retention funds was authorised as late as early July 2017.

During the Close-out Phase between April 2016 and July 2017, the NUPMT undertook the following close out actions

- a construction enhancement project at SPU in an amount of R10,36 million and as described above
- administrative back-up and support to both universities so that outstanding queries could be dealt with, documents could be accessed, etc.

- support to both universities with accounting for the capitalisation of the new infrastructure on their accounting systems in accordance with International Financial Reporting Standards (IFRS)
- finalisation of outstanding contractual obligations such as payments to contractors and service providers
- handover of outstanding planning and construction-related documentation including as-built drawings, product guarantees and maintenance directions
- conclusion of defects, settlement of final accounts and release of retention funds
- financial reconciliation
- phased transfer of residual funds in accordance with the MOA
- close out report on all aspects of the MOA (this report)
- filing and archiving of all project material.

15.7.1 Building Enhancement Project at SPU

In the latter half of 2016, the PMT initiated a building enhancement project at SPU to address some shortcomings in the design and delivery of buildings C001, C002 and C003 and in the infrastructure project CX01. In October 2016, the NUPMT appointed two contractors (of the original three) to work under one of the architects to implement the Enhancement Project in a total value of R10,36 m as described in the previous chapter.

15.7.2 Revision of Norms and Standards for University Infrastructure

Recent experience, including the development of the new universities, has indicated that the latest published values of the DHET Space and Cost Norms for higher education buildings may no longer reflect the accurate Rand value of the cost unit for two reasons:

- 1) the current values represent the compounded escalated value of the 1995 base cost
- 2) changes in use, technology, teaching methods and building standards are not reflected in the Rand value of basic cost unit; in particular, information technology, security and access control and audio-visual technology are new developments that may have contributed to an increased the basic Rand value of the cost unit.

Accordingly, DHET requested the NUPMT to commission a study to recalculate/ revalidate the Rand value of the cost unit, based on an elemental analysis of proposed and existing university buildings. Task orders were issued to three of the four Quantity Surveyors appointed at SPU and UMP and additional specialists were identified to support the process.

Elemental cost analyses of the following buildings were prepared by the project team, based on the latest final, or projected, costs and quantities available:

Office buildings:

- Administration Block at the University of Mpumalanga
- Mathematical Sciences Building at the University of the Witwatersrand.

Teaching block:

- Multi-Purpose Teaching Building with offices (C003) at Sol Plaatje University.

Laboratory

- Undergraduate Science Building (C007) at Sol Plaatje University.

A basket of common rates applicable to Gauteng projects was compiled and agreed upon by the project cost consultants and these rates were utilised to price the four elemental analyses on a common basis. A location factor for each university site was developed as part of the review to enable university specific adjustments to be made on an equitable basis.

The project commenced in December 2016 and was completed in July 2017 with the delivery of a report and recommendations, which have been submitted to National Treasury for endorsement.

15.7.3 Filing and Archiving

All contract documentation has been filed and will be stored with Metrofile for a period of five years as required by law.

The NU PMT has also prepared an electronic archive of project documentation that will be handed over to DHET, SPU and UMP. It is envisaged that a copy of this record will be maintained by Wits Historical Papers Research Archive in Wits Library and will be accessible to researchers and the public on request. This report provides a guide to the project's key documents.

15.7.4 Transfer of Residual Funds

Following a consultative process with each university and DHET, the NUPMT recommended to DHET a first transfer of the residual funds from Wits to SPU and UMP in accordance with Clause 20.11 (Residual Finance) of the MOA. Accordingly, in August 2016 the DHET instructed Wits to transfer R22,8m to SPU, and R21,97m to UMP for urgent projects including just under R10m each for an ICT security platform which could not be delivered by the Wits NUPMT as originally planned.^[15-12]

In July 2017, following a similar consultation with both universities and also in accordance with Clause 20.11 of the MOA, DHET instructed Wits to transfer R37,5m each to SPU and UMP for identified priority projects. Following these transfers and the close out of all outstanding contracts, the final KPMG financial review^[15-13] confirmed the total expenditure of R1 624 500 495. The final control budget (see Chapter 4, Table 4.4) reflects the residual transfers and the total expenditure.

15.8. SOME CONCLUSIONS ON THE HANDOVER OF CLIENT RESPONSIBILITY

It is a very unusual requirement that a construction client should hand over contractual responsibility for delivery midway through a major infrastructure project. In this regard the DHET, NUPMT and the new universities had no experience or precedent to fall back on. Some aspects of the handover were planned from the outset, such as the choice of three-year framework contracts for all service providers and a contractual provision (already at tender stage) allowing for the respective new university to take over the contractual role of Employer.

It was understood that this unusual kind of contractual handover was fraught with risk, and required the full understanding and acceptance of all parties. To this end the joint Memorandum of Agreement (MOA) between DHET, Wits, UMP and SPU focused all parties on the risks involved and on a set deadline for conclusion of the handover, namely 31 March 2016. The mitigation of risk was further provided for in the MOA by a clause setting aside a substantial risk contingency fund to be utilised by Wits in the event of any unforeseen challenges. As it happened, this contingency was not required.

Planning for the handover continued to unfold throughout the first phase delivery. Most of the envisaged handover requirements were met. As the deadline approached, it became clear that it would also be necessary for some members of the NUPMT to continue their roles under management of the new universities in order to ensure continuity.

In summary, some key factors that enabled the midstream handover of client contractual responsibility were:

- Three-year framework contracts for all contractors and professional service providers, which made provision for the handover of client contractual responsibility right from the start of the tendering process;
- The appointment of a project manager responsible for each university, who would also be handed over to the respective university;
- The appointment of a financial manager and the establishment of adequate financial systems for the management of infrastructure projects at each university;
- The appointment of a competent client infrastructure delivery manager at each university;
- Careful planning for the handover of projects still in design so that these could be taken over at a specific design stage (Stage 6);
- Handover of a five-year infrastructure plan, accepted by the new universities;
- A realistic, but very definite, handover deadline that obligated the efforts of all parties;
- A documented audit trail, which ensured there was no ambiguity of responsibility;
- Support to both universities in relation to the capitalisation of the infrastructure delivered by NU PMT onto the accounting records of the new universities.

The 15 month close out period from project handover on 31 March 2017 to 31 July 2017 was important. This provided time to deal with all outstanding queries and issues which confronted the new universities as they successfully shouldered the enormous task of managing their own infrastructure delivery.

REFERENCE DOCUMENTS

- 15-1 Fourth Addendum to the Memorandum of Agreement between DHET and Wits
- 15-2 Memorandum of Agreement between DHET, University of the Witwatersrand, Johannesburg, University of Mpumalanga and Sol Plaatje University
- 15-3 Executive Director: Planning, Development and Management of Campus Infrastructure and Facilities – Draft Post Profile (SPU 2014)
- 15-4 List of Framework Contracts handed over by Wits to SPU & UMP
- 15-5 Signed example of Addendum giving effect to the Change of Employer in the Contract
- 15-6 Letter to UMP from the Director General, DHET, dated 5 October 2015
- 15-7 Letter to SPU from the Director General, DHET, dated 5 October 2015
- 15-8 SPU Strategic Infrastructure and Implementation 5-year plan - 2016 04 06
- 15-9 UMP Strategic Infrastructure and Implementation 5-year plan - 2016 04 06
- 15-10 DHET Letter to SPU approving 5-year plan and budget allocation – 2016 06 07
- 15-11 DHET Letter to UMP approving 5-year plan and budget allocation – 2016 06 07
- 15-12 Letter to Wits from the Director General, 10 August 2016
- 15-13 KPMG - Agreed upon Procedures Review - August 2017 (Final)