KWAZULU-NATAL PROVINCE

HEALTH

REPUBLIC OF SOUTH AFRICA

KZN DEPARTMENT OF HEALTH

PREFEASIBILITY REPORT

Northern KwaZulu-Natal Tertiary Hospital – Construction of a New Hospital

Vers.01

February 2024

TABLE OF CONTENT

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS

AD	Assistant Director
CHC	Community Health Centre
CT	Computerized Tomography
DD	Deputy Director
ED	Emergency Department
ECG	Electrocardiogram
ECT	Electroconvulsive therapy
EEG	Electroencephalogram
EMS	Emergency Medical Services
ENT	Otorhinolaryngology
GOPD	Gynaecology Outpatient Department
HCD	Head of Clinical Department
HCU	Head of Clinical Unit
HIS	Hospital Information System
HVAC	Heating, Ventilation and Air Conditioning
IALCH	Inkosi Albert Luthuli Central Hospital
ICT	Information and Communications Technology
ICU	Intensive Care Unit
IUSS	Infrastructure Unit Support Systems
KCD	King Cetshwayo District
KMC	Kangaroo Mother Care
KZN	KwaZulu-Natal
LV	Low Voltage
MDT	Multidisciplinary team
MO	Medical Officer
MV	Medium Voltage
NHI	National Health Insurance
OPD	Outpatient Department
OT	Occupational Therapy
P1	Polytrauma 1
P2	Polytrauma 2
PABX	Private automatic branch exchange
PACS	Picture Archiving and Communication Systems

PAMS	Professions Aligned to Medical Services
PET-CT scan	Positron emission tomography - computerised tomography scan
PHOC	Provincial Health Operations Centre
PSMA	Prostate Specific Membrane Antigen
PTC	Pharmaceuticals and Therapeutic Committee
PPT	Planned Patient Transport
RIS	Radiology Information System
SCM	Supply Chain Management
SAPC	South African Pharmacy Council
SAT	Site Acceptance Test
T1	Tertiary Services
T2	Central Referral Services
T3	National Referral Services
TMS	Transcranial Magnetic Stimulator
UKZN	University of KwaZulu-Natal

1. EXECUTIVE SUMMARY

The document presents the prefeasibility report as required by the Framework for Infrastructure Delivery and Procurement Management (FIDPM 2019) and the Infrastructure Planning and Appraisal Guideline (2022). The document is supported by several Annexures that must be read together with this document.

The document provides the description of the project and the team responsible for the management of the project. The report is the first stage of the predictive lifecycle of a 550-bed provincial tertiary hospital (T1) in an Empangeni, north of KwaZulu-Natal. The detailed investigation reports are included The Business Case and the Clinical Brief which is incorporated into the Requirements Document were approved by the National Department of Health and these are included as attachments. The Department intends to fund the planning and design stages of the project from the Health Facility Revitalisation Grant for infrastructure. There are plans to apply for external funding for the construction and equipping phase of the hospital. The Department may still co-fund the construction phase depending on the outcome of the funding application.

The document contains baseline project plan which provides scope, cost and schedule. The baseline of the three triple constraints of the project forms a performance measurement baseline which will be used to measure the performance of the project team as it continues to implement the project. The performance measurement is also supported by the milestone schedule which will also serve to monitor performance.

The project cost used in this document includes contingency but excludes escalation. During the measurement of actual performance against the baseline cost, the escalation should also be excluded. The rolling wave planning and estimation will continue to improve the accuracy of the project estimate as the project progresses from one stage to the other.

Project integration requires that a common data environment is created to ensure effective document control, sharing and updating of files. The common data environment will also help mitigate unnecessary clashes during the design stage as well as during design changes at any time of the project lifecycle.

The project governance framework provides guidance on the roles of different departmental players in the management of the project as well as the approval process of changes in the project. The subsidiary plans have been integrated into this report and provide the approach of managing various knowledge areas during the planning, design, construction and commissioning of this facility.

2. PURPOSE OF THE DOCUMENT

The purpose of the Prefeasibility Report is to provide prefeasibility information that supports the initiation of the project for the “Northern KwaZulu-Natal Tertiary Hospital – Construction of a new

hospital". Various investigation reports are attached to this main report and should be read together with the main report. The document also present baseline information for the proposed project and various subsidiary plans established for the successful management of the project.

According to the FIDPM, *"a Prefeasibility Report, is required on mega capital projects to determine whether or not to proceed to the Feasibility Stage, where sufficient information is presented to enable a final decision to be made regarding the implementation of the project"*.

3. PROJECT DESCRIPTION

The project involves planning, design and construction of a new hospital offering a full provincial tertiary (T1) service in the north of KwaZulu-Natal. Currently, the catchment area has access to a limited provincial tertiary service offered in Empangeni by Queen Nandi Hospital and Ngwelezana Hospital. The proposed new hospital will be built at Empangeni. The details of the project are as follows:

a) **Project Name:** Northern KwaZulu-Natal Tertiary Hospital - Construction of a new hospital
b) **Facility Name:** New Northern KwaZulu-Natal Tertiary Hospital
c) **Facility Number:** To be Confirmed
d) **Facility Type:** Tertiary Hospital
e) **Name of Province:** KwaZulu-Natal
f) **Name of District Municipality:** King Cetshwayo
g) **Name of Local Municipality:** uMhlathuze
h) **Name of Town:** Empangeni
i) **Name of Township:** Empangeni IRDP Phase 2 (Waterstone Development)
j) **Facility Ownership:** KwaZulu-Natal Department of Health
k) **Coordinates of the Proposed Site:** -28º 42' 48", 31º 53' 35.06"
l) **Estimated Project Cost:** R7 710 369 259
m) **Estimated Project Duration (all project phases):** 12 years
n) **Estimated Construction Period:** 4 years
o) **Project Type:** Greenfield project
p) **Impact:** Increased life expectancy
q) **Outcomes:** Universal Health Coverage, Improved client experience of care, Reduced morbidity and mortality
r) **Outputs:** 550-bed Tertiary Hospital, with residential accommodation, lodging facilities and parking facilities

The details of the sponsoring entity are as follows:

a) **Name of Organisation:** KwaZulu-Natal Department of Health
b) **Legal Mandate:** Provision of health services to citizens of KwaZulu-Natal

c) **Name of Project Officer:** Mr Bongi Gcaba, Townhill Office Park, 35 Hyslop Road, 033 940 2500, 083 628 1419, bongi.gcaba@KwaZulu-Natalhealth.gov.za

d) **Contact at National Department of Health:** Mr Ndinannyi Mphaphuli, Dr Xuma Building, C3-9A, Pretoria, 012 395 8267/8, 082 373 0199 ndinannyi.mphaphuli@health.gov.za

The details recorded on the Project Information Management System (PMIS) are as follows:

a)	**Project Name:**	Northern KZN Tertiary Hospital Construction of a new hospital (Phase 1)
b)	**KZN-DOH Project Number:**	0143951
c)	**Project Code:**	0143951
d)	**Project Details / Scope:**	Construction of a new T1 hospital services
e)	**Project Type:**	Infrastructure Development - Projects
f)	**Budget Programme Number:**	Programme 8
g)	**Budget Programme Name:**	8. Health Facilities Management
h)	**Sub-programme:**	8.4. 4.Provinical Hospital Services
i)	**Infrastructure Programme Name:**	National Tertiary Services Grant (NTSG)
j)	**Nature of Investment:**	New or Replaced Infrastructure
k)	**Nature of Investment Sub- status:**	New Facility
l)	**Is this an EPWP (LI) Project?**	No
m)	**Economic Classification:**	Buildings and other fixed structures
n)	**Proposed Funding Source:**	Budget for Infrastructure (BFI) & Health Facility Revitalisation Grant (HFRG)

4. PROBLEM STATEMENT

The Province of KwaZulu-Natal is supported by three tertiary hospitals based in Durban, Pietermaritzburg and Empangeni. However, the tertiary hospital in Empangeni which services the most rural and poor communities of King Cetshwayo, uMkhanyakude and Zululand Districts does not offer the full package of provincial tertiary services. Patients are transported to Durban and Pietermaritzburg on a 3-day journey away from their families to access outpatient services. Those admitted in Durban and Pietermaritzburg do not receive a benefit of frequent visits from their loved ones due to high travel costs. The project seeks to resolve the following main challenges:

i. Long travel distances for patients and their loved ones;
ii. Current hospitals in Empangeni are not dedicated Tertiary Hospitals resulting in poor patient care;
iii. Burden on Planned Patient Transport (PPT);
iv. Backlog of patients needing tertiary services; and
v. Delayed access to medical care for emergency cases.

5. INTRODUCTION

The approved business case for proposed new tertiary hospital identified three options of solving the current problem. The approved option is to construct a new 550-bed tertiary hospital an a newly identified site that was found most appropriate for this development.

The Department's central goal of "Increased Life Expectancy" is expressed through three broad outcomes, 'Universal Health Coverage', 'Improved Client Experience of Care' and 'Reduced Morbidity and Mortality'. The new tertiary hospital will contribute to the realisation of these outcomes in the short, medium and long term. The intervention logic for the project which presents a visual demonstration of the relationship between the project objective, the associated outcomes/ intended results and the outputs required to achieve the results is presented below.

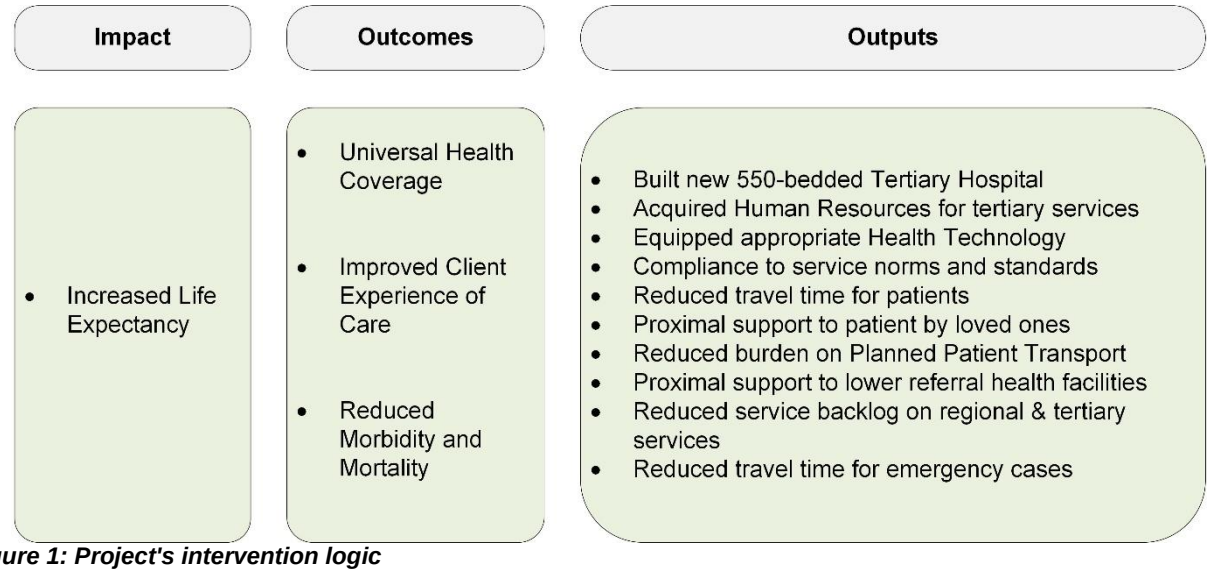


Figure 1: Project's intervention logic

The associated project outputs are expressed in SMART indicators which provide a measure of progress towards the delivery of the defined outcomes.

Outcome 1: Universal Health Coverage

The main objective of the proposed new tertiary hospital is to improve universal health coverage by improving access to quality tertiary level healthcare services to citizens in northern KwaZulu-Natal who currently travel extensive distances to access this level of healthcare. The proposed new tertiary hospital bridges the healthcare access gap for patients in the periphery thus promoting universal health coverage. The high-level outputs/ output indicators linked to this outcome are as follows:

i. Built Health Infrastructure - New 550 bedded Tertiary Hospital
ii. Acquired Human resources (specialised services)
iii. Appropriate Health Technology

The built new tertiary hospital infrastructure provides the physical platform through which the tertiary healthcare services can be rendered. This is to be accompanied by health technology which is appropriate for the service and skilled personnel. The built hospital infrastructure will make provision for staff accommodation as part of the strategy for attraction and retention of staff.

Outcome 2: Improved Client Experience of Care

By bringing tertiary healthcare services closer to patients and the public, access to the service is improved. Travel time to access these services is also significantly reduced where in some cases patients have to travel over 3 days to access these services in eThekwini. The reduced travel distance also alleviates the pressures on planned patient transport services and emergency medical services. The new hospital will comply to the latest norms and standards, thus contributing to improved patient experience. The associated output indicators are listed as follows:

i. Compliance to service norms and standards
ii. Reduced travel time for patients
iii. Reduced burden on PPT

Outcome 3: Reduced Morbidity and Mortality

The new hospital will shorten travel and therefore contribute to reduced morbidity and mortality as the travel time for emergency cases is immediately shortened. The associated output indicators are listed as follows:

i. Reduced travel time for emergency cases
ii. Reduced service backlog for tertiary services

6. SCOPE BASELINE

The scope baseline of this project comprises of the project Scope Statement, Work Breakdown Structure (WBS) and WBS Dictionary. The Scope Baseline is based on the attached Project Charter, Requirements Document, Business Case and the Clinical Brief. All these documents were approved by the Project Sponsor (Accounting Officer).

7. PROJECT SCOPE STATEMENT

7.1. PROJECT OBJECTIVES

Project objectives are classified into three categories namely, business/clinical objectives, social and economic objectives, and project management objectives. Business/clinical objectives were provided by the project sponsor through the approved project charter. Social and economic objectives are a product of the project charter and the stakeholder engagement. Project management objectives were identified by the PMO as critical for project success. The projects objectives are listed hereunder.

Business / Clinical Objectives

i. Improve access to T1 level of healthcare;
ii. Reduce burden on Planned Patient Transport (PPT);
iii. Reduce burden and backlog of patients at tertiary hospitals in uMgungundlovu and eThekwini districts;
iv. Improve quality of care of patients by treating patients closer to their place of residence;
v. Early access to tertiary services;
i. Allow Inkosi Albert Luthuli Central Hospital (IALCH) to develop T2 (Central Referral Services) and T3 services (National Referral Services);
vi. Compliance to applicable norms, standards, specifications, processes and procedures throughout the project life cycle; and
vii. Promotion of best practice in project implementation and public healthcare by showcasing the project and providing education to community and other interested parties.

Social and Economic Objectives

ii. Consideration of social and cultural identity of the local community;
iii. Job creation, training opportunities, development and opportunities to local businesses;
iv. Empowerment of departmental staff; and
v. Empowerment of women, youth and persons with disabilities.

Project Management Objectives

i. Development of a quality project proposal for acceptance and approval by funding authorities;
ii. Acquisition of a suitable site for the development;
iii. Appointment of experienced and competent internal project team personnel;
iv. Ensure due diligence in the appointment of consultants, contractors and subcontractors;
v. Development of a cohesive team to successfully lead the project from project initiation to close-out;
vi. Effective and efficient project governance and its support systems (i.e. efficient project approval processes e.g. design, payment and variation order approvals);
vi. Development of an innovative design that gives pride and unique identity to the people of northern KwaZulu-Natal; and
vii. Effective communication and management of stakeholders in terms of Batho Pele principles and consideration of cultural context.

7.2. REQUIREMENTS

The requirements for the planning, design and construction of a 550-bed tertiary hospital in northern KwaZulu-Natal are documented in detail in the Requirements Document (version 1), which is attached as Annexure B. The Requirements Document documents the needs, expected outcomes and expectations of the project customer, sponsor and stakeholders. Such needs include the agreed-upon conditions or capabilities of a service that the project is designed to satisfy. The requirements are documented from user stories elicited from individual units or departments responsible for specific clinical tertiary services (T1) and associated support services. The Requirements Document will continue to be updated to accommodate and document changes that may be necessary in the implementation of the project. This document has been widely workshopped with various internal and external stakeholders. The document was approved by the Project Steering Committee on 10 September 2022.

Package of Care

The new hospital will have 550 T1 beds with 12 operating theatres. The bed breakdown is detailed in Table 1 below.

Table 1: Proposed bed breakdown

Discipline	Bed Number	Percentage of total	Beds not counted
Anaesthetics			
Critical Care	**32**	**5,82%**	
Intensive Care	16	**2,91%**	
High Care	16	**2,91%**	

Discipline	Bed Number	Percentage of total	Beds not counted
Emergency Medicine/Trauma			
Minors			
Resuscitation			4
Majors / Trauma			12
Minors / Non Trauma			
Radiology			
Obstetrics & Gynaecology	**53**	**9,64%**	
Labour Ward			7
Antenatal	14		
Postnatal	21		
Maternal & Fetal Medicine	2		
Gynaecology	10		
Reproductive Medicine	3		
Urogynaecology	3		
Paediatric Services	**68**	**12,36%**	
Paediatrics General	10		
Paediatrics Critical Care			
ICU	4		
High Care	6		
Neonatology			
ICU	4		
High Care	6		
Kangaroo Mother Care			
Paediatrics Cardiology	3		
Paediatrics Haematology	5		
Paediatrics Neurology	5		
Paediatric Nephrology	5		
Paediatric Infectious Diseases	5		
Paediatric Other (Endocrine, Allergology, Genetics, Rheumatology, GIT, Palliative)	10		
Adolescent Ward	5		
Paediatric Surgery	**15**	**2,73%**	
Internal Medicine	**105**	**19,09%**	
Dermatology	5		
Infectious diseases	5		
Nephrology	20		
Peritoneal Dialysis			5
Haemodialysis			7
Neurology	8		
Haematology	15		16
General Medicine beds	10		
Cardiology	8		
Endocrinology	5		
Hepatology & Gastroenterology	8		
Pulmonology	8		
Rheumatology	8		
Geriatrics	5		
Oncology	**32**	**5,82%**	30
Nuclear Medicine	**0**		

Discipline	Bed Number	Percentage of total	Beds not counted
Surgery	**45**	**8,18%**	16
Burns Service	**15**	**2,73%**	
Neurosurgery	**10**	**1,82%**	
Maxillofacial Surgery	**10**	**1,82%**	
Ophthalmology	**14**	**2,55%**	
Otorhinolaryngology (ENT)	**15**	**2,73%**	
Plastic and Reconstructive Surgery	**10**	**1,82%**	
Urology	**16**	**2,91%**	
Vascular Surgery	**10**	**1,82%**	
Cardiothoracic Surgery	**10**	**2,36%**	
Orthopaedic Surgery	**45**	**8,18%**	
Psychiatry	**45**	**8,18%**	
Acute ward	20		2
Adolescent unit	10		2
Therapeutic/psychogeriatric and neuropsychiatry unit	15		2
Dual Diagnosis Unit	0		
TOTAL	**550**		**87**

Table 2 explains the type and use of the 12 proposed theatres.

Table 2: Breakdown of theatres per type

No.	Type	Size (m^2)	Use
	Theatre Block		
1	Alpha 1 Hybrid	60	Digital theatre with Hugo RAS Systems Medtronic, Fluoroscopy machine mobile or ceiling fixed microscope for use by multi disciplines teams as per need or schedules
2	Cath Lab & Cardiothoracic	60	Intervention Cardiology Unit & Cardiothoracic Units. 2 winged within one theatre with adjoining door
3	MDT (Multidisciplinary Team) Specialised	60	Ceiling fixed or mobile microscope, fluoroscopy machine.
4	MDT: Large Equipment	60	C Arm machine. For any Unit that requires C Arm machine. Storage room should be able to accommodate large equipment
5	MDT: General Endoscopies	40	Multi-Discipline General endoscopies
6	MDT: General Purposes	40	Multi-Discipline Use
7	MDT: General Purposes	40	Multi-Discipline Use
8	MDT: General Purposes	40	Multi-Discipline Use
9	MDT: General Purposes	40	Multi-Discipline Use
10	Burns	40	Designed for burns cases. Other Multi-Disciplinary Team may still use it all things considered.
	Decentralised Theatres		
11	General	40	Obstetric theatre
12	Trauma	50	Trauma/Day/Minor Theatre Located within the Emergency department. For use in acute immediate trauma where moving patient beyond is not indicated, day cases and minor cases

Site Information

i. Strategic Location of the Site

The site is located on the outskirts of Empangeni and is part of the Empangeni Integrated Residential Development Plan Phase 2 Waterstone Development (EIRDP Ph 2). It is accessible from the P425 (Western Bypass). Within a 5km radius the P425 intersects the R34 leading to Melmoth and Zululand district to the west, Richards Bay to the east and the R102 leading through Gingindlovu to Durban in the south. The R34 provides access to the N2, 10km away from the site, providing connectivity to Durban in the south and Pongola and Umkhanyakude district to the north.

The site is 5km away from Empangeni central business district and is 23km from Richards Bay. There are two high load public transport facilities within a 5km radius of the site providing public transportation to major cities in the region i.e. Durban.

Considering that the tertiary hospital is a referral based facility, the location is centrally placed to be accessed by the regional hospitals within the catchment area.

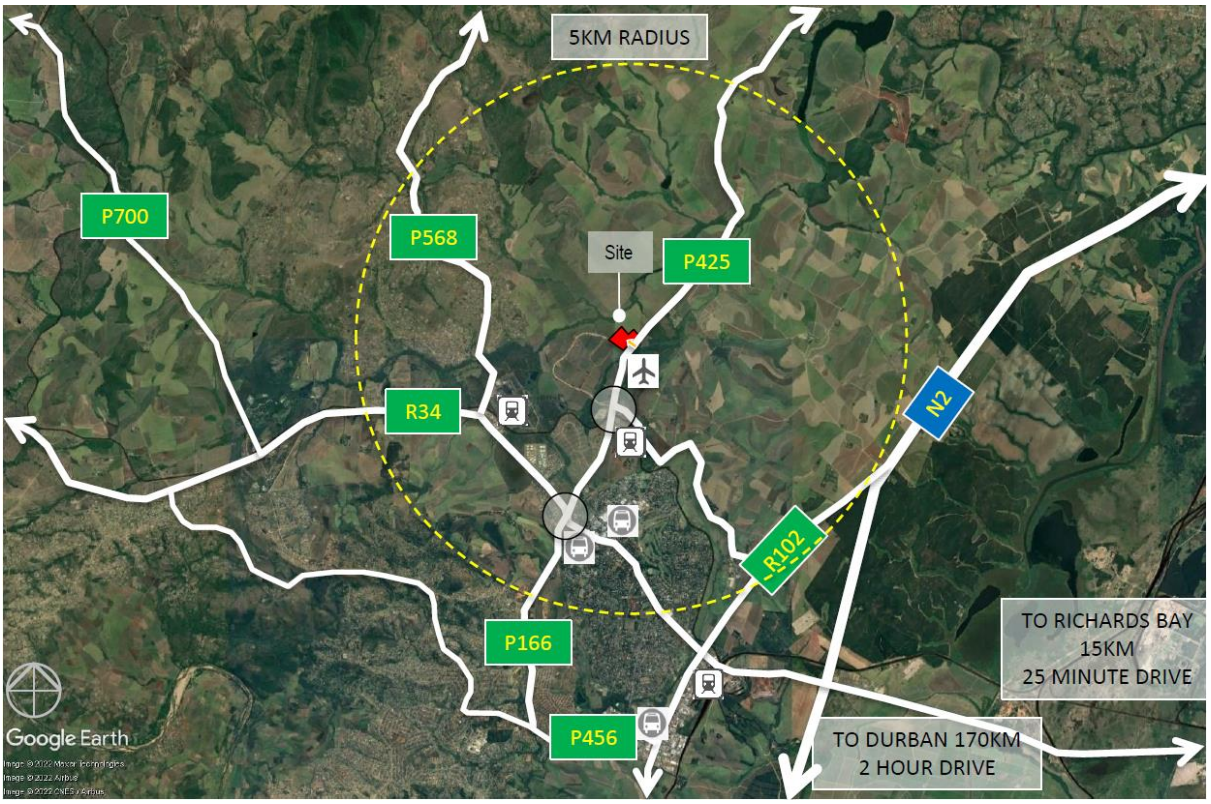


Figure 2: Empangeni IRDP Phase 2 (Waterstone Development)

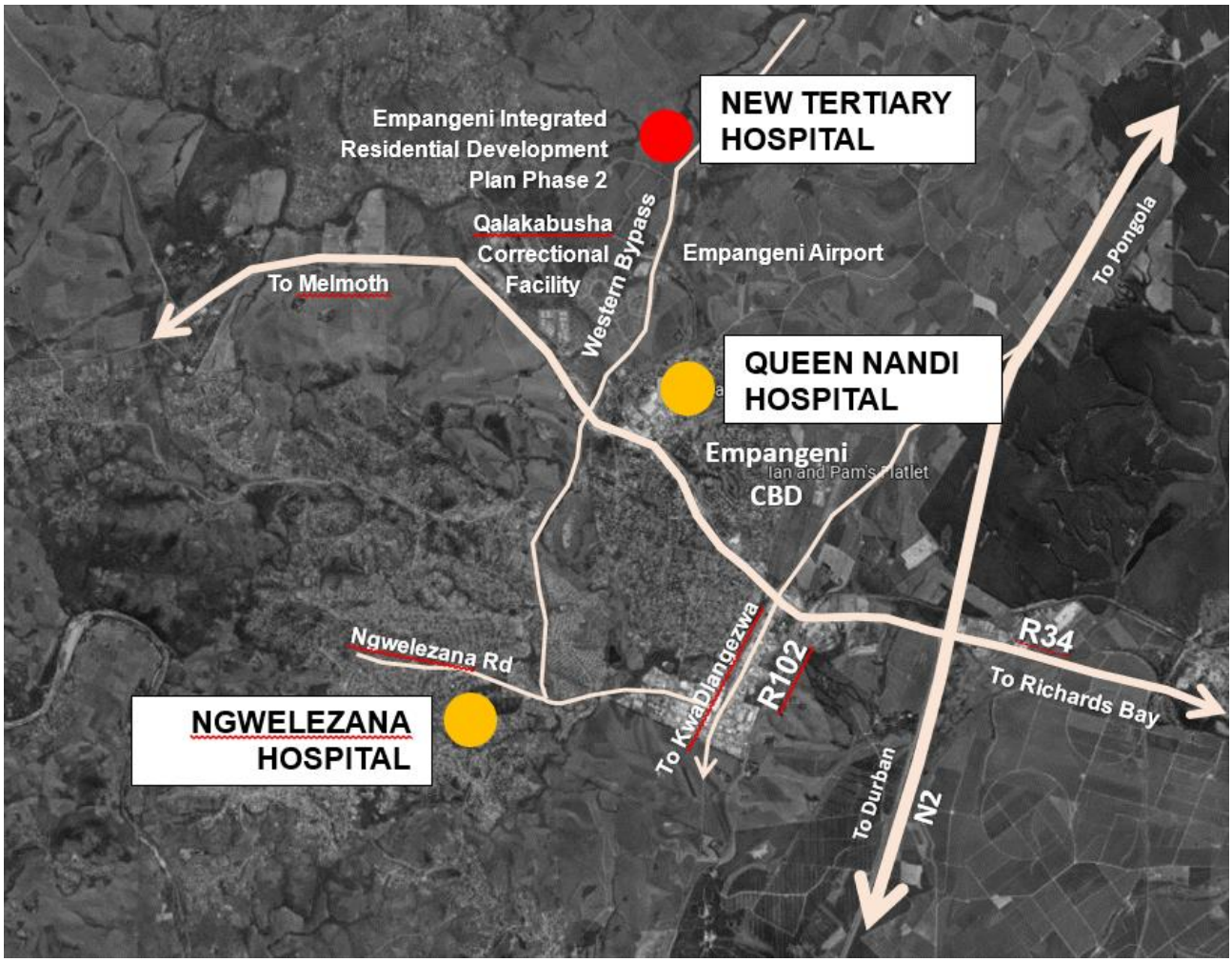


Figure 3: Location of site options within uMhlathuze Municipality

The site is located in the northern half of the EIRDP Ph 2, on the corner of the P425 and the ring road within the development. This location is very prominent and allows quick access from the provincial road, without experiencing hindrances that would occur within the centre of an urban environment.

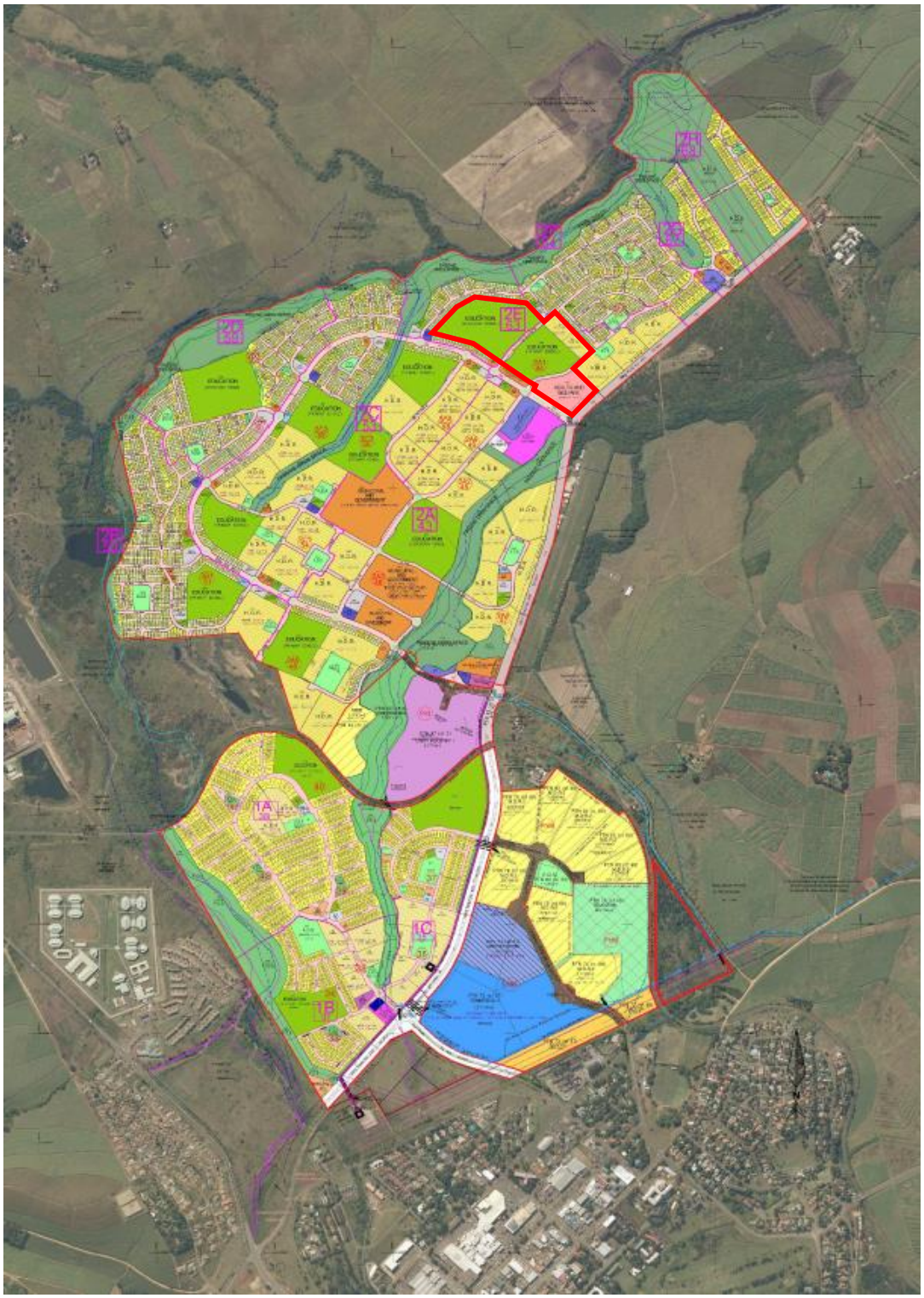


Figure 4: Location of the hospital site within the EIRDP Ph 2

The coordinates of the proposed site is -28º 42’ 48”, 31º 53’ 35.06”

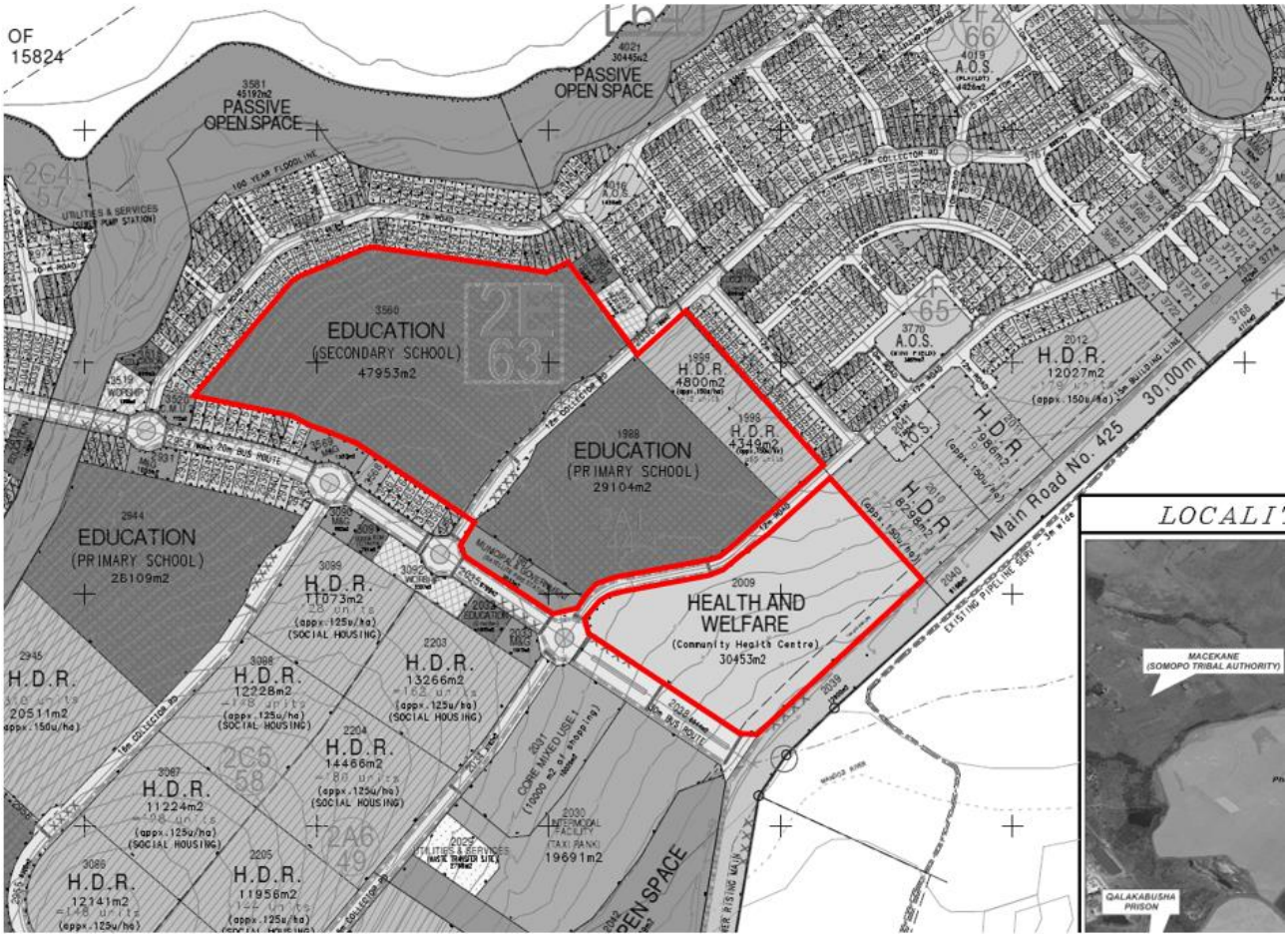


Figure 5: Town planning diagram of EIRDP Ph 2, site identified for the Department

ii. Land Ownership

The identified sites are currently allocated to a variety of use. They are in the process of being acquired by the Provincial Government of Kwa-Zulu Natal.

Table 3: Land Ownership

Ownership	Property Description	Title deed number
provincial government	Erf 2009 (to consolidate as one site)	TBC
provincial government	Erf 1988 (to consolidate as one site)	TBC
provincial government	Erf 3560 (to consolidate as one site)	TBC
municipal services	Erf 1987 (to consolidate as one site)	TBC
municipal services	Erf 1989 (to consolidate as one site)	TBC
municipal services	Erf 1998 (to consolidate as one site)	TBC
municipal services	Road (to consolidate as one site)	TBC

iii. Site Orientation

The site is orientated diagonally to the cardinal points and the design will need to consider orientation in order to ensure the most efficient environmental solution. Orientation is focused on the provincial

and internal ring road. The road frontage should be taken advantage of and can assist navigation to the facility and promote prominence. This will need to be considered in parallel to the disadvantages, such as noise coming from the road edges.

iv. Land Extent

Property Description	Extent (m2)
Erf 2009 (to consolidate as one site)	30 453
Erf 1988 (to consolidate as one site)	29 104
Erf 3560 (to consolidate as one site)	47 953
Erf 1987 (to consolidate as one site)	3 033
Erf 1989 (to consolidate as one site)	4 800
Erf 1998 (to consolidate as one site)	4 349
Road (to consolidate as one site)	12m wide

v. Planning Restrictions

The site will be zoned “Health and Welfare” with the following planning restrictions:

Floor Area Ratio	Coverage	Height
3.0	75%	Unrestricted

The street building line is 7.5m, the side is 4.5m or 1.5m per storey.

vi. The Conditions of the Site

The site is a greenfield site and has been farmed under sugarcane. It is relatively flat and has no other visible features.

vii. EIA Study – Environmental Impact Study

An Environmental Authorisation exists for the entire development, however this may have expired or may need amendments. An environmental screening assessment has been completed as part of the Business Case engineering studies and all applicable activities have been listed. Should any of these activities be triggered, then it is assumed that an EIA will be required. From the screening, there are no specific watercourse, heritage, conservation etc. concerns on the site.

viii. Geo-Technical Information

A geotechnical study has been prepared by Drennan Maud (Pty) LTD for the Proposed Empangeni Integrated Residential Housing Project Phase 2, the following is highlighted:

- **Fills:** *“Any fill embankments constructed on this site should assume an outer slope batter of 1:2 (26°) to ensure the long-term stability thereof”.*
- **Fills:** *“All new fills should be constructed using a suitable material (G10 or better)”.*

- **Site Drainage**: *"Soak pits should not be used for stormwater or effluent disposal as the clayey subsoils are insufficiently permeable for this purpose".*
- **Site Drainage:** *"stormwater from all roofed and paved areas will need to be collected in gutters and surface drains to be discharged into the stormwater system ultimately approved for the proposed development. There would be a very merit in providing a structural apron around the new dwellings".*
- **Earthworks:** *"due to poor on-site materials it should be sought to level platforms by cutting and spoiling the prevailing clay soils".*
- *"Heavy loaded structures or structures that cannot be articulated to accommodate some differential movement may require piled foundations".*

ix. SPLUMA Application

The EIRDP Phase 2 development will be registered by the uMhlathuze Municipality. This process will include SPLUMA authorisation.

x. Bulk Services

Bulk services will be implemented by uMhlathuze Municipality. The Department intends to be involved in the EIRDP steering committee meetings chaired by Department of Human Settlements in order to have the opportunity to inform the capacity determination and design of the bulk services. The tertiary hospital requirements have been calculated and are documented in the Business Case engineering studies.

xi. Traffic Impact Study

A desktop rapid traffic assessment has been completed as part of the Business Case engineering studies. The following are conclusions and recommendations from this traffic study.

- Existing traffic conditions:
    - The link capacity of the P425 (western bypass) is acceptable. Traffic travels at slower speeds than expected. Traffic calming is provided (speed humps) which reduces the speed and hence the capacity of the road.
    - The P425 is within close proximity to the site and will be affected with the increased traffic from the proposed expansion. Comment will be required form the KZN DoT for as part of the development application.
    - The P230 (R34) is also a provincial road, further away from the site, but will also be affected by the increased traffic from the development proposal. P230 (R34) caters for very high traffic volumes. Some congestion and delays were recorded during the peak hour. Queue lengths were long and delays were noted. Indications are that this intersection may need to be

upgraded. A TIA will have to be conducted to confirm if the traffic generated by the proposed hospital can be accommodated on this road.

- The proposed Hospital will generate 825 two way trips in the AM peak hour and 798 two way trips in the PM peak hour. The calculated traffic generated in the peak hour is substantial and a full TIA will be required to be conducted to determine the impacts of this additional traffic. Indications are that in its current state the P425 (western bypass) will be able to handle this traffic, however there will not be much additional capacity for adjacent planned EIRDP developments. Hence a cost contribution will definitely be required towards the planned future upgrade of the western bypass.
- Total parking bays required = (550 beds x 2) = 1100 bays
- Access control to be via boom. Two entry lanes will be required. One for staff and other for visitors.
- Adequate visitor parking must be provided outside the access to undergo security control before entering so as to not backup onto the main road.
- Pedestrians and Public Transport
    - Sidewalks be provided in the vicinity of the intersections of P425. These sidewalks are to extend up till the Hospital Access.
    - During the site visit public transport activity was observed along the western bypass. The volume of PT vehicles that were observed were very low. However, the development of the proposed Hospital will lead to an increase of PT vehicles.
    - Therefore it is recommended that a Public Transport facility be provided at the access to the site.
    - It must be noted that there is a site adjacent to the proposed Hospital precinct which is ear marked as an intermodal facility. However the implementation of this is dependent on the uptake of the EIRDP precinct. At this stage the uptake is very slow. Therefore the PT facility must be provided within the Hospital.

The following key items are to be noted:

1. P425 (Western Bypass): A 30m expropriated road reserve will apply to this road plus an additional 15m building line from the cadastral boundary. This must be applied to development Site Development Plan.
2. Ingress and egress to the proposed development cannot be directly from P425 (Western bypass) as this is a high order road. Access will therefore be from side road.

As part of the stakeholder engagement, King Cetshwayo District Municipality has been consulted and have indicated their support of the project and their commitment to work together on the disaster management and any other relevant aspects.

xii. Climatic Conditions

Empangeni is classified as having a warm, temperate climate. It can be very hot and humid in summer, with high volumes of precipitation throughout the year. The design of the building will need to be designed appropriately in order that it performs adequately in both environmental control and energy efficiency.

xiii. Aviation, Radio Towers & Other Significant Structures

The site is located opposite the Empangeni Airport, however the airport is no longer in use and uMhlathuze municipality has plans to relocate the service. An elevated helistop is included in the scope of the new hospital that is compliant with the client's detail requirements.
There are no other structures of significance.

Design Considerations

The Northern KZN Tertiary hospital has a specific identity; that of a tertiary hospital, public building, within a specific development in Empangeni, planned within a specific time. The design should be inclusive of both the hard and soft issues that this encompasses. The following are not exclusive items to consider.

The high environmental impact of construction and operation of buildings should be mitigated through the design of the facility. The Department strives towards an energy efficient, carbon neutral building. Certification by the Green Building Council of South Africa is desirable. The design decisions need to be made in consideration of operations, so that the most effective outcome is achieved.

The building is within a specific context. The design must give pride and unique identity to people of northern KwaZulu-Natal. It is also within a specific community and although it is a provincial resource, it needs to take cognisance of the community and development in which it is located.

This is a public building and needs to be read as such. Although security and access control is necessary, the building should be inviting and accommodating to those who require the services. An important part of this is navigation. It must be user friendly and easy to navigate both through the legibility of the design and through signage.

Hospitals should promote healing and well-being, through salutogenic design. A large component of this is the inclusion of the natural environment within the building and grounds, but most importantly allowing access to the natural environment by patients. Natural light and views out must be maximised in all patient and clinical areas.

Patient orientated design is essential. This follows from the importance of easy navigation and flow of patients and salutogenisis to the consideration of the range of people using the facility. Patients are often children, elderly, disabled or have impaired mobility or sight. Design needs to consider all types of people entering and using facilities, in waiting areas, ablutions etc. All workflow and hospital processes need to be understood and accommodated. This is both for clinical and support processes, for staff, patients and visitors.

The design needs to be robust. Spaces need to be flexible to maximise the suitability of the hospital. It needs to be durable to handle the continuous, large volumes of people and equipment that move through the space daily. Materials, components and systems need to be user friendly and maintenance friendly. This also entails choosing items that are locally sourced, locally installed and locally maintained as far as possible. Design decisions must be made based on operability.

The design of the hospital must allow for a phased approach, should a decision be made by the Department to implement a phased construction. This is required, with the view of the current economic outlook and constraints.
The packaging of works should also be explored during the planning of the building. This will allow for various models of procurement and implementation to be available, should the Department find it beneficial.

The planning for the new hospital must accommodate the following temporary functions during construction and commissioning. These may be located in structures such as staff accommodation, lodging or support facilities that are independent from the main hospital building:

i. On-site offices for Department project staff;
ii. Facilities to present project related material for promotional, training and educational reasons; and
iii. Related support functions.

Flexibility and adaptability must be considered and the hospital should be planned to be as “future-proof” as possible. Future trends in healthcare must be researched and the design will build in future expansion and adaptability.

The design must at all times be developed in compliance with applicable norms, standards, specifications, processes and procedures.

7.3. PROJECT EXCLUSIONS

i. This project does not provide on-site residential accommodation on behalf of its partners i.e., UKZN, SANBS, NHLS, etc.

ii. This project does not provide for “fit out” of NHLS and SANBS facilities.
iii. All bulk services such as water and sanitation, electricity, stormwater and access roads are to be provided by responsible authorities and therefore not budgeted for under this project. However backup supply and alternative solution form part of this project.
iv. This project excludes Operations and Maintenance activities. They have not been budgeted for under this project.

7.4. ASSUMPTIONS

The following high-level assumptions were identified with stakeholders:

i. Empangeni is the appropriate location for the provision of new tertiary services as there is an existing T1 service (limited) with clinical specialists.
ii. By the time the hospital opens, a pool of specialist skills will be available in the market;
iii. The Department will strengthen its attraction and retention strategy to ensure sustainable staffing of the new hospital;
iv. Migration of staff to the new hospital will not disrupt services at Ngwelezana and Queen Nandi hospitals;
v. A transitioning plan will be timeously developed for Ngwelezana and Queen Nandi hospitals to transfer existing T1 services and build capacity for efficient district and regional services;
vi. Operational budget will be made available to fully operationalise the new hospital without disrupting funding in Ngwelezana and Queen Nandi hospitals;
vii. Detailed demand modelling exercise will be done to allow a forecast to be made for future health care requirements;
viii. Natural disasters will not derail the project;
ix. Change in political leadership will not have a negative effect on the project;
x. Bulk services will be developed in alignment with implementation plan of the project;
xi. Budget and Cash flow allocation will align with the project schedule; and
xii. The Department will dedicate human resources to drive the project.

7.5. CONSTRAINTS AND DEPENDENCIES

The following high-level dependencies were identified with the stakeholders:

i. Development and funding of the business case;
ii. Acquisition of land for the development;
iii. Ability to attract suitable staff at commissioning of the services;
iv. Efficient procurement of services for planning and construction;
v. Commitment and availability of stakeholders to provide required input in the development and updating of the project documents; and

i. Ability of the Department to develop ICT to support the business needs.

7.6. MILESTONES & DELIVERABLES

Figure 6 below provides a schedule of milestones and deliverables for the project in line with the Performance Measurement Baseline.

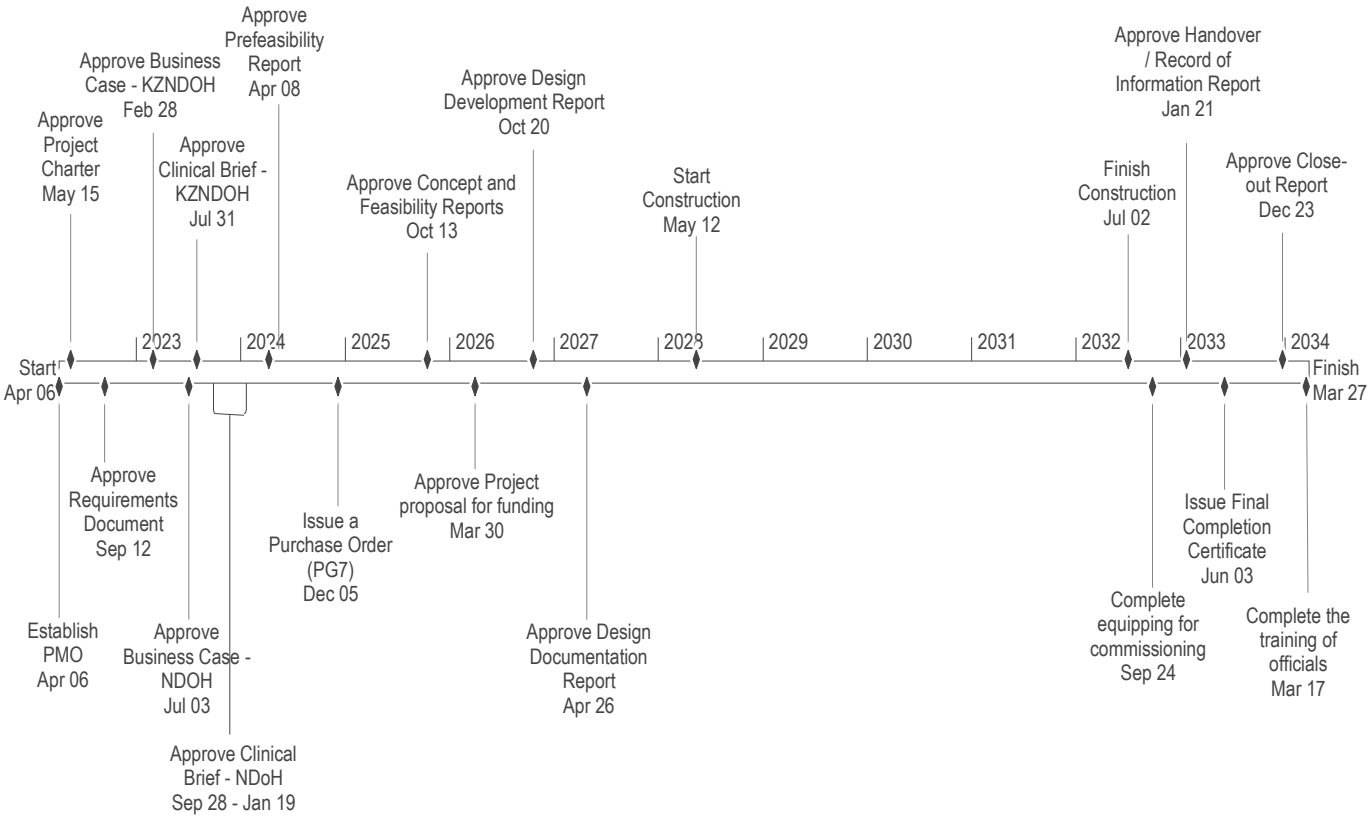


Figure 6: Project milestone timeline

The project deliverables are guided by the Infrastructure Delivery Management System (IDMS) which includes seven (7) stages, as detailed in the Framework for Infrastructure Delivery and Procurement Management (FIDPM) below. A deliverable is reached when the requirements for the stage is satisfied and approval is granted.

Table 4: IDMS Stages

Stage	Name	End of Stage Deliverables
1	Initiation	Prefeasibility Report
		A Prefeasibility Report, is required on mega capital projects to determine whether or not to proceed to the Feasibility Stage, where sufficient information is presented to enable a final decision to be made regarding the implementation of the project.
		Stage 1 for this project is complete when the prefeasibility report has been approved.
2	Concept	Feasibility Report

Stage	Name	End of Stage Deliverables
		A Feasibility Report shall, as a minimum, provide the following information:
		a) Details regarding the preparatory work covering:
		• A needs and demand analysis with output specifications.
		• An options analysis.
		b) A viability evaluation covering:
		• A financial analysis.
		• An economic analysis, if necessary.
		c) A risk assessment and sensitivity analysis;
		d) A professional analysis covering:
		• A technology options assessment.
		• An environmental impact assessment.
		• A regulatory due diligence.
		e) An implementation readiness assessment covering:
		• Institutional capacity.
		• A procurement plan.
		Stage 2 for this project is complete when the Feasibility Report is complete and approved.
3	Design Development	Design Development Report
		The Design Development Report shall as necessary:
		a) Develop in detail the approved concept to finalise the design and definition criteria.
		b) Establish the detailed form, character, function and costings.
		c) Define all components in terms of overall size, typical detail, performance and outline specification.
		d) Describe how infrastructure or elements or components thereof are to function, how they are to be safely constructed, how they are to be maintained and how they are to be commissioned.
		e) Confirm that the project scope can be completed within the budget or propose a revision to the budget.
		Stage 3 for this project is complete when the Design Development Report is approved.
4	Design Documentation	Design Documentation
		Design documentation provides the:
		a) production information that details, performance definition, specification, sizing and positioning of all systems and components that would enable construction;
		b) manufacture, fabrication and construction information for specific components of the work informed by the production information.
		Stage 4 for this project, is complete when the Design Documentation Report is approved.
5	Works	Completed Works capable of being used or occupied
		The following is required for completion of the Works Stage:
		a) Completion of the works is certified in accordance with the provisions of the contract; or
		b) The goods and associated services are certified as being delivered in accordance with the provisions of the contract.
		Stage 5 is complete when the Works Completion Report is approved.
6	Handover	Works which have been taken over by user or owner; completed training; Record Information
		The following activities shall be undertaken during the handover stage:

Stage	Name	End of Stage Deliverables
		a) Finalise and assemble record information which accurately reflects the infrastructure that is acquired, rehabilitated, refurbished or maintained;
		b) Hand over the works and record information to the user organisation and if necessary, train end user staff in the operation of the works.
		Stage 6 is complete when the Handover/Record Information Report (utilising the prescribed HIAC Stage 6 report) is approved.
7	Close-Out	Defects Certificate or Certificate of Final Completion; Final Account; Close-Out Report
		The Close-Out Stage commences when the end user accepts liability for the works. It is complete when:
		a) Record information is archived;
		b) Defects certificates and certificates of final completion are issued in terms of the contract;
		c) Final amount due to the contractor is certified, in terms of the contract;
		d) Close-Out Report is prepared by the Implementer and approved by the Client Department.
		Stage 7 is complete when the Close-out Report is approved.

7.7. PROJECT GOVERNANCE

The Project Governance framework was approved by the Programme Steering Committee on 29 September 2022. This framework is attached as Annexure F. The framework provides roles and responsibilities associated with project governance. Below is a diagram showing the project governance structure.

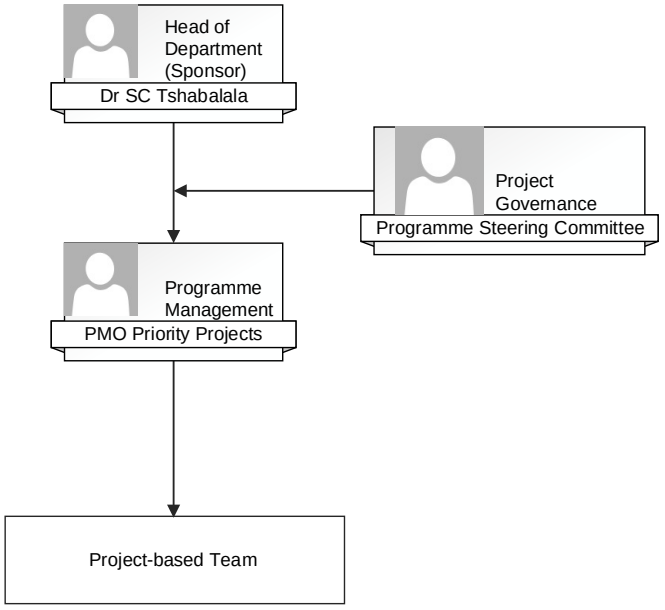


Figure 7: Project governance structure

Furthermore, the attached subsidiary plans provide responsibilities associated with each subsidiary plan.

7.8. RESOURCE REQUIREMENTS

At this stage of the project the resources are provided through the Project Management Office who will be the proxy project management team. Upon implementation of the design, resource capacity will be reassessed according to the funding and implementation model of the project and a project management team will be appointed in line with this model. Below describes the resource structure.

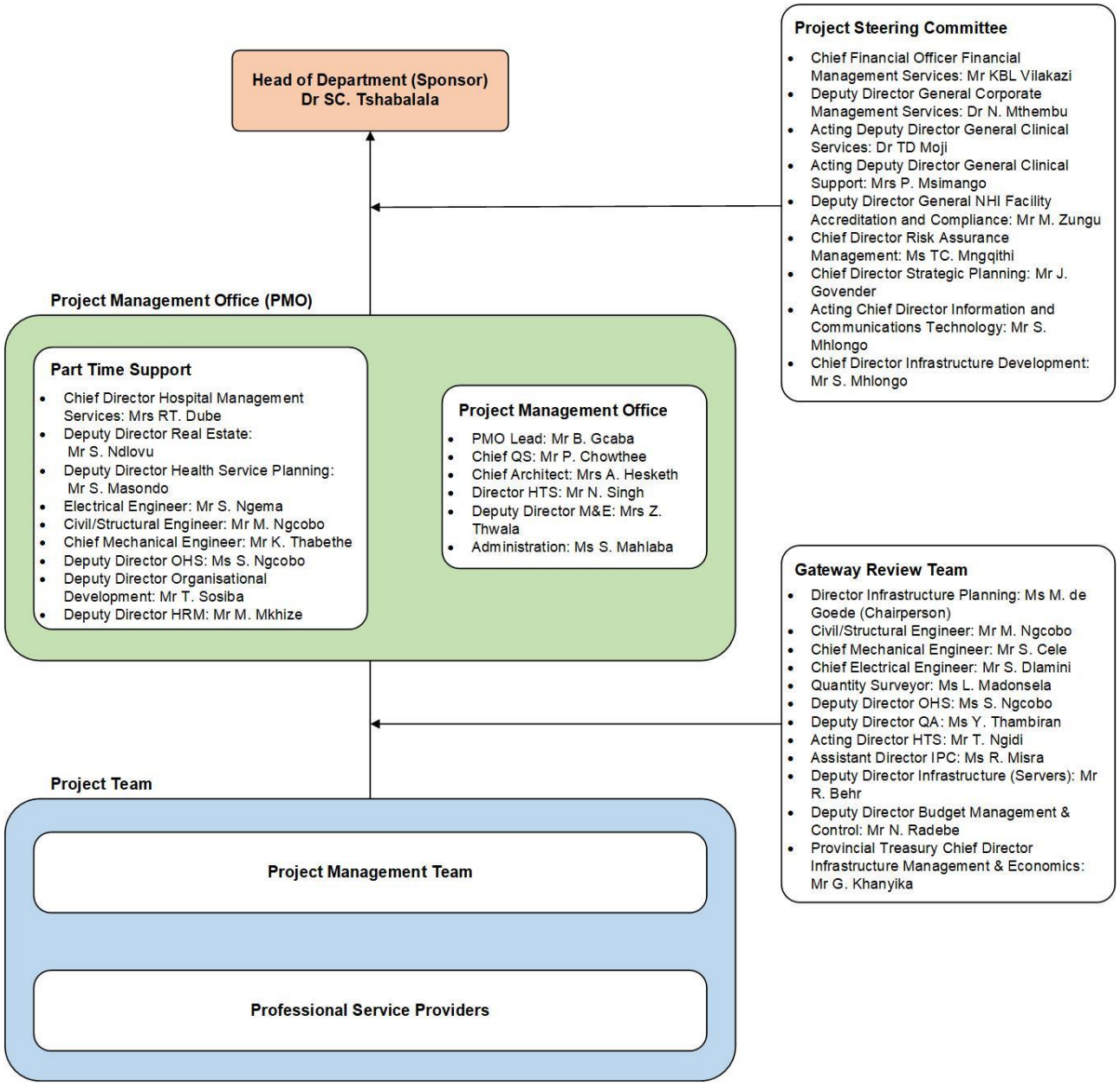


Figure 8: Current project human resource structure

8. WORK BREAKDOWN STRUCTURE (WBS)

The three levels of the WBS are shown in the figure below. Only the main deliverables which are easily assigned to a cost structure are provided at this time of the project development stage. The baseline cost shown in the WBS represents the estimated nominal expenditure of the project. The estimated cost includes project contingency, but does not provide for the Cost Price Adjustment (CPA). This is mainly to comply with the budgeting guidelines where nominal cost is used instead of real cost.

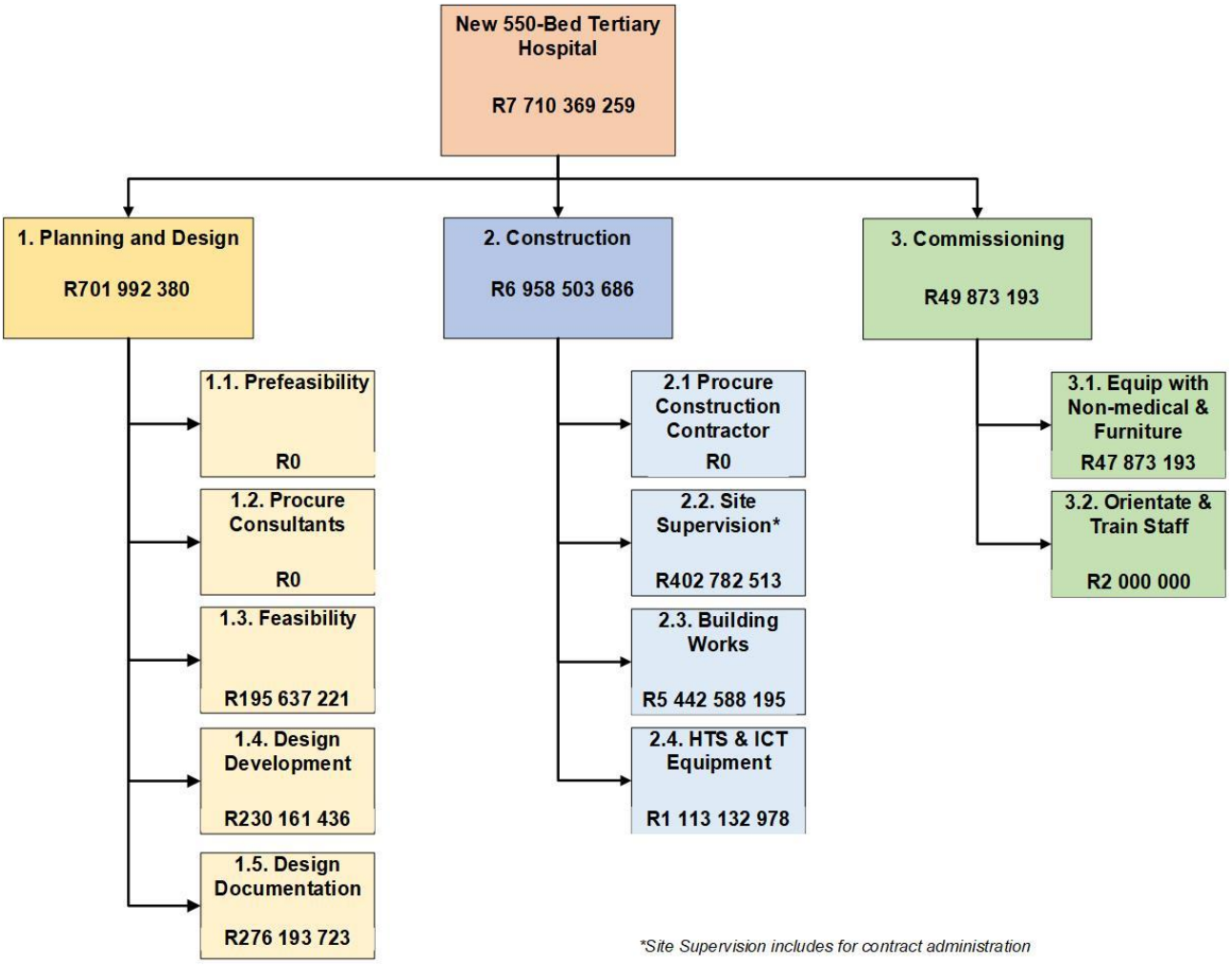
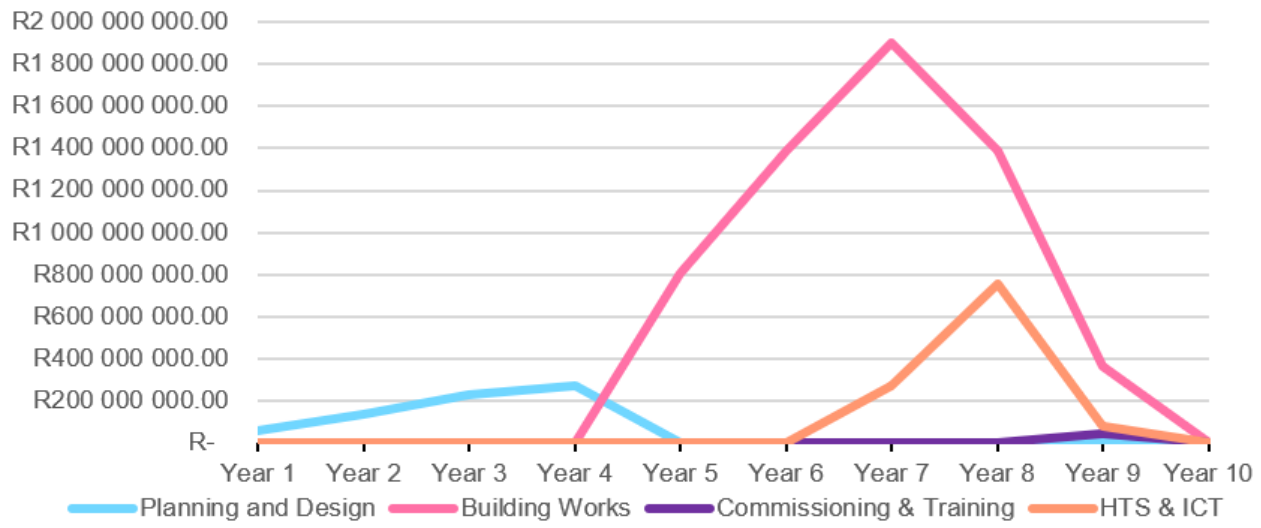
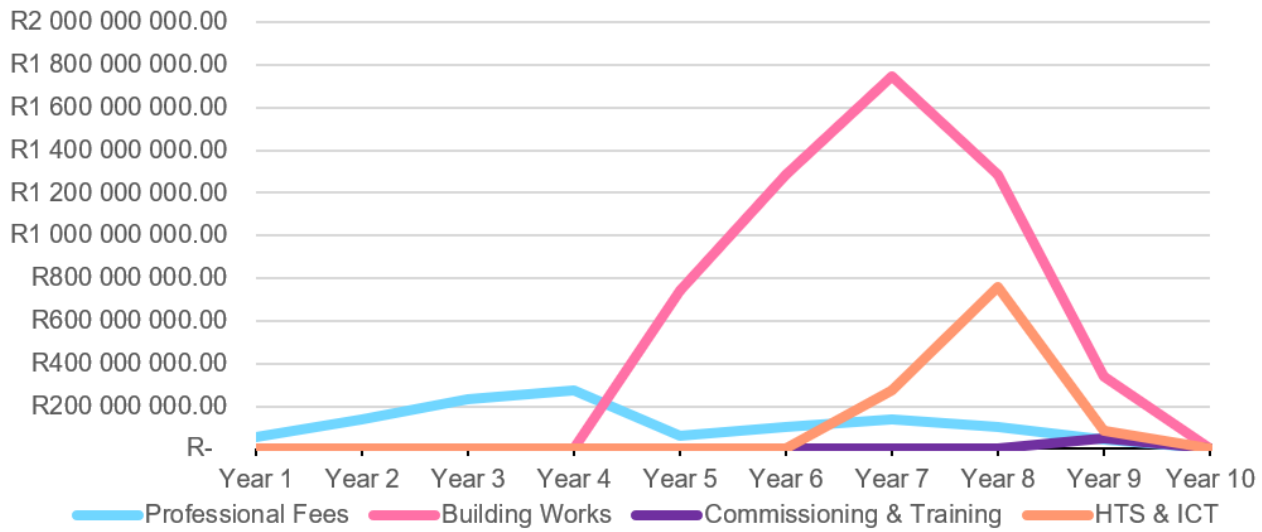


Figure 9: Project Work Breakdown Structure



	Planning and Design	Building Works	Commissioning & Training	HTS & ICT	TOTAL
Year 1 (FY24/25)	R 57 540 359.00	R -	R -	R -	R 57 540 359.00
Year 2 (FY25/26)	R 138 096 862.00	R -	R -	R -	R 138 096 862.00
Year 3 (FY26/27)	R 230 161 436.00	R -	R -	R -	R 230 161 436.00
Year 4 (FY27/28)	R 276 193 723.00	R -	R -	R -	R 276 193 723.00
Year 5 (FY28/29)	R -	R 808 248 790.00	R -	R -	R 808 248 790.00
Year 6 (FY29/30)	R -	R 1 385 569 350.00	R -	R -	R 1 385 569 350.00
Year 7 (FY30/31)	R -	R 1 897 941 360.00	R -	R 272 099 170.00	R 2 170 040 530.00
Year 8 (FY31/32)	R -	R 1 385 569 350.00	R -	R 759 288 100.00	R 2 144 857 450.00
Year 9 (FY32/33)	R -	R 368 041 860.00	R 48 373 193.00	R 81 745 708.00	R 498 160 761.00
Year 10 (FY33/34)	R -	R -	R 1 500 000.00	R -	R 1 500 000.00
TOTAL	R 701 992 380.00	R 5 845 370 710.00	R 49 873 193.00	R 1 113 132 978.00	R 7 710 369 261.00

Figure 10: Projected project cashflow in line with the WBS



	Professional Fees	Building Works	Commissioning & Training	HTS & ICT	TOTAL
Year 1 (FY24/25)	R 57 540 359	R -	R -	R -	R 57 540 359
Year 2 (FY25/26)	R 138 096 862	R -	R -	R -	R 138 096 862
Year 3 (FY26/27)	R 230 161 436	R -	R -	R -	R 230 161 436
Year 4 (FY27/28)	R 276 193 723	R -	R -	R -	R 276 193 723
Year 5 (FY28/29)	R 59 435 629	R 743 302 660	R -	R -	R 802 738 289
Year 6 (FY29/30)	R 101 889 647	R 1 284 675 580	R -	R -	R 1 386 565 227
Year 7 (FY30/31)	R 139 567 590	R 1 745 433 910	R -	R 272 099 170	R 2 157 100 670
Year 8 (FY31/32)	R 101 889 647	R 1 284 675 580	R -	R 759 288 100	R 2 145 853 327
Year 9 (FY32/33)	R 46 032 287	R 338 468 178	R 48 373 193	R 81 745 708	R 514 619 366
Year 10 (FY33/34)	R -	R -	R 1 500 000	R -	R 1 500 000
TOTAL	R 1 150 807 180	R 5 396 555 908	R 49 873 193	R 1 113 132 978	R 7 710 369 259

Figure 11: Projected project cashflow showing professional fees separated from building works

9. WBS DICTIONARY

The Project WBS Dictionary is integrated into the detailed project schedule attached as Annexure J2.

10. SCHEDULE BASELINE

A Schedule Baseline providing a timeline for this project was prepared and is attached as Annexure H. The attached Schedule Baseline provides detailed activities during the planning and procurement stages. However detailed activities under other deliverables, will be developed by the appointed Professional Service Providers, contractors and suppliers after their appointment. Below is a rolled-up summary of the Schedule Baseline.

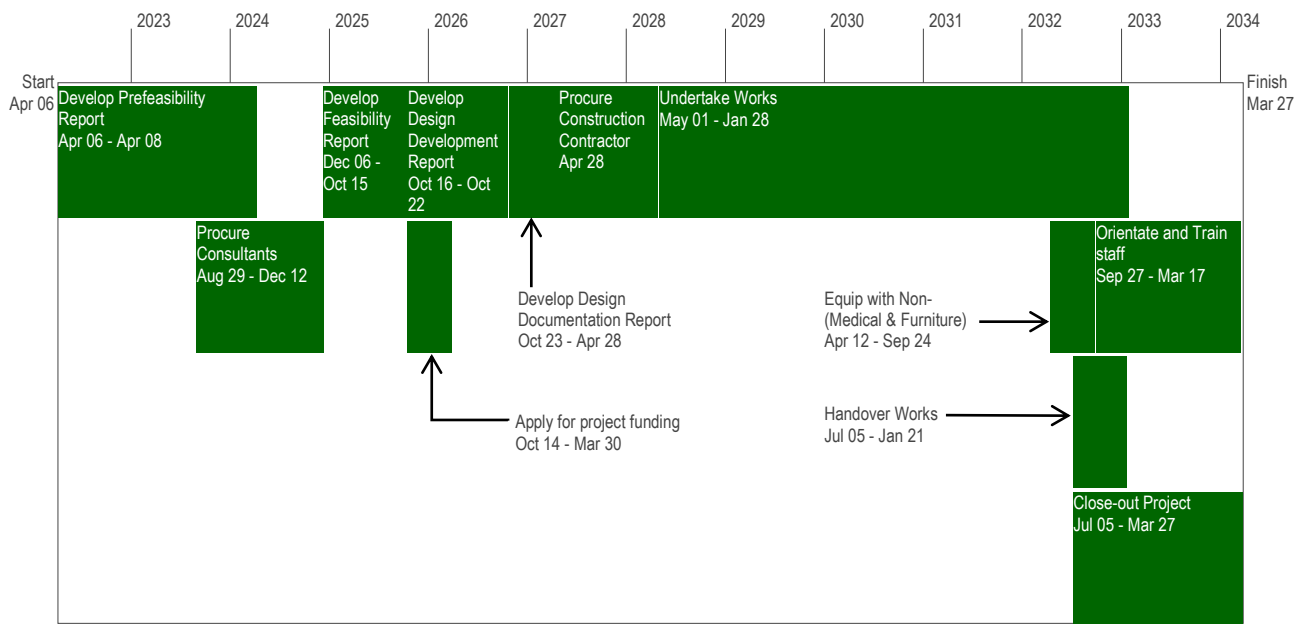


Figure 12: Project schedule baseline

11. PERFORMANCE MEASUREMENT BASELINE (PMB)

Performance Measurement Baseline information is provided and mapped on the S-Curve below. The PMB provides a combined baseline information on three project constraints, i.e., Project Scope, Project Cost and Project Schedule. The baseline dates are provided on the detailed Project Schedule.

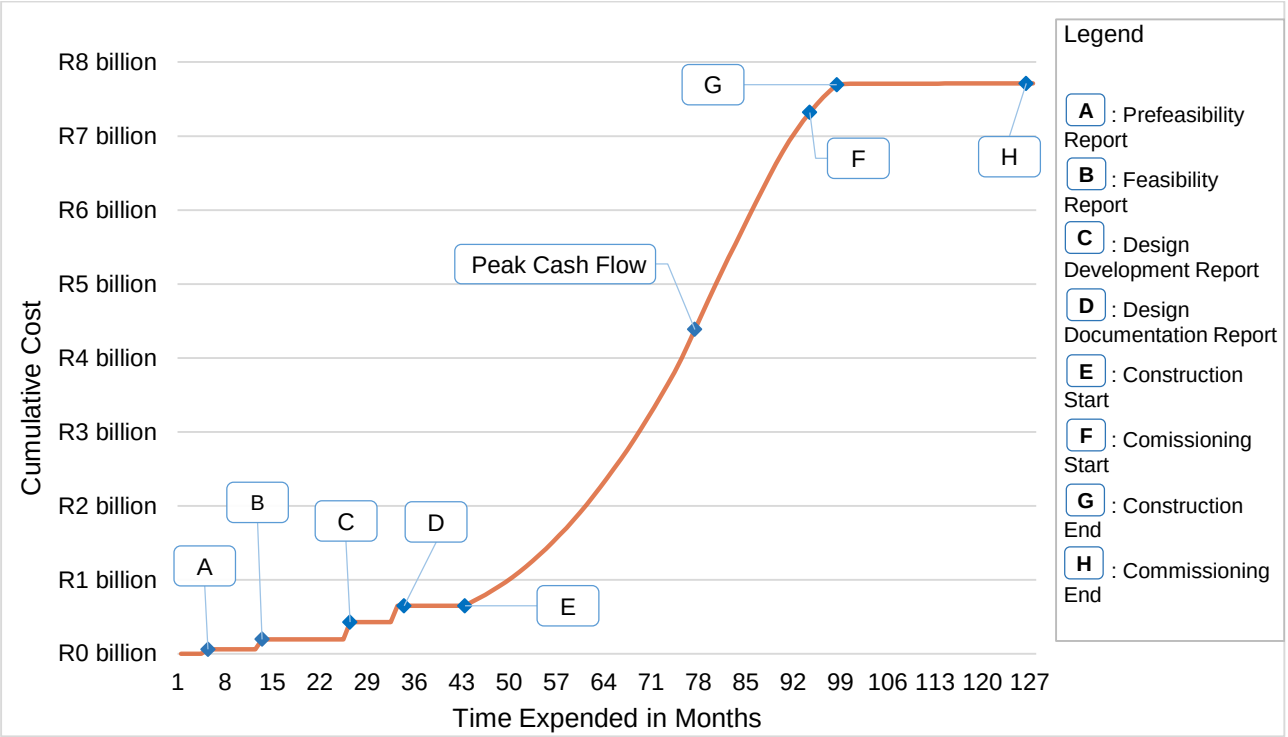


Table 5: Performance Measurement Baseline

The Earned Value Management (EVM) model sometimes known as Earned Value Analysis (EVA) will be used to analyse the project performance against the PMB on an ongoing basis. The type of analysis to be performed against the PMB is shown on Figure 13: Earned Value Analysis (PMI. 2017) below.

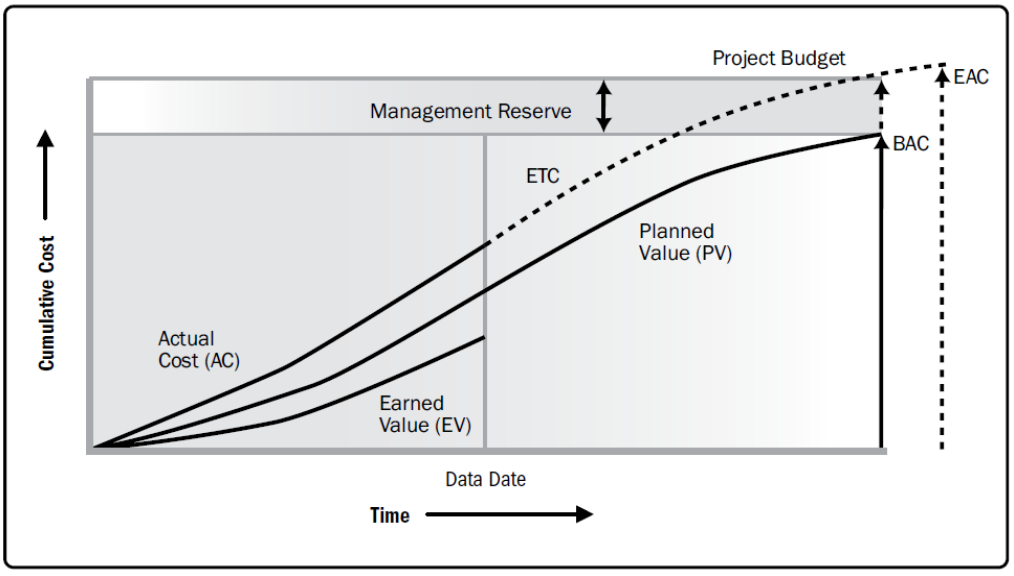


Figure 13: Earned Value Analysis (PMI. 2017)

As alluded earlier on, the Budget at Completion (BAC) will include CPAP and contingency over and above the estimated project cost of R7.7 billion at nominal cost. The Management Reserve will make provision for Estimate at Completion (EAT).

12. PROJECT LIFECYCLE DESCRIPTION

The lifecycle of the proposed infrastructure asset with its corresponding lifecycle cost is outlined in the attached business case. In that scenario, most funding goes to the Maintenance and Operations activities. However, the lifecycle of this project in terms of the IDMS and the Infrastructure Planning and Appraisal Guideline (2022) only involves planning, design and construction and excludes Maintenance and Operations activities. The lifecycle for this megaproject comprises the following seven stages.

i. **Stage 1 Initiation Stage:** End of stage deliverable is a Prefeasibility Report.
ii. **Stage 2 Concept Stage:** End of stage deliverable is a Prefeasibility Report.
iii. **Stage 3 Design Development Stage:** End of stage deliverable is a Design Development Report.
iv. **Stage 4 Design Documentation Stage:** End of stage deliverable is a Design Documentation Report.
v. **Stage 5 Works:** End of stage deliverable is Completed Works capable of being used or occupied.
vi. **Stage 6 Handover:** End of stage deliverable is Works taken over by user/owner: Record Information.
vii. **Stage 7 Close-out:** End of stage deliverable is Close-out Report.

This project is implemented using a Design by Employer procurement strategy. For this reason, the tender process for the Professional Service Providers (Consultants) will be carried out after the approval of Stage 1. From Stage 2 onwards, the professional consultants will be involved with the process for delivering end of stage deliverables.

The Tender process for the construction contractor will take place after approval of Stage 4. The contractor will then be involved with Stages 5, 6 and 7. Operations and maintenance will be undertaken by the End-user after completion of Stage 6. It must be noted that should the Department choose to implement the project in phases, the contactor will handover Works in phases and the End-user will operate and maintain the facility in phases as well.

13. DEVELOPMENT APPROACH

This project is classified as a megaproject. According to the National Treasury's Infrastructure Planning and Appraisal Guideline (2022), a megaproject is a project that involves "*a unique set of processes consisting of coordinated and controlled activities aimed towards the construction or*

acquiring of new immovable or movable assets, or an upgrade of existing infrastructure". Such projects have special requirements for planning which are outlined in the Guideline and the FIDPM. The project is made up of the following components:

i. **Buildings and Fixed Structures** will be implemented using a Predictive/Waterfall Lifecycle Approach
ii. **Machinery and Equipment** will be implemented using an Agile Lifecyle Approach mainly due to the high rate of technological change that is anticipated between the planning and construction and installation stages. Machinery and equipment include mainly medical equipment, ICT and furniture.
iii. **Commissioning** will follow an incremental lifecycle approach.

This report presents an FIDPM Stage 1 deliverable, Prefeasibility Report. This first stage is involved several desktop and site investigations that informed a recommendation for a project to proceed to FIDPM Stage 2: Prefeasibility Stage. The project has three distinct development areas going forward. These are:

i. **Feasibility Stage:** The end of Feasibility Stage will confirm whether or not, the project proceeds to design and construction stages. Should the project be found not feasible, further work on this project will be discontinued. The project will only proceed forward on approval of the Feasibility Report.
ii. **Design Documentation Stage**: Approval of the Feasibility Report will allow the project to proceed to Design Development and Design Documentation stages. Once these two stages are complete and approved, the project will be regarded as "*shovel ready*". During the financial year in which Design Documentation will be complete, the Department will apply for an external funding from the Budget Facility for Infrastructure (BFI) as per the Guideline on Budget Submissions for Large Strategic Infrastructure Proposals.
iii. **Tender and Construction Stages.** These stages will only commence in line with the funding approval, the approved amount and the approved cashflow aligned with the scope and timeframe of the delivery of the project.
iv. **Commissioning Stage.** Commissioning refers to the process of handing over the completed works to be used by the end user. Due to the size of the hospital, is assumed to begin a year before the end of construction.

Budget associated with the current report and the next deliverables are funded according to sources of funding below:

i. **Prefeasibility Report:** All work performed in-house through the Project Management Office except the Engineering Analysis funded by the KZN Provincial Treasury.
ii. **Feasibility Report:** To be funded through the Health Facility Revitalisation Grant (HFRG).
iii. **Design Development and Documentation Reports:** To be funded through HFRG.

iv. **Construction:** Budget Facility for Infrastructure (BFI) or any other approved external funding. Co-funding with HFRG may be required.

v. **Commissioning:** Budget Facility for Infrastructure (BFI) or any other approved external funding. Co-funding with HFRG may be required.

14. PROJECT PROCUREMENT

Construction procurement in the public sector is governed by the Construction Industry Development Board (CIDB) prescripts whilst the National Treasury Regulations apply to all other procuring environments. The CIDB prescripts are aligned with the South African Constitution, PFMA, National Treasury Regulations and other legislative and regulatory frameworks for procurement in the public sector.

In selecting a procurement strategy for the project the following options were considered as allowed for by the CIDB Standard for Uniformity:

- Design by Employer
- Design and Build
- Develop and Construct
- Management Contractor / Construction Management

It was established that the Department's key requirements were to establish a quality product that adequately met the needs of its users whilst providing value for money with a moderate risk appetite level. Given the aforementioned requirements a Design by Employer procurement strategy has been selected with a fixed price Bill of Quantities pricing strategy for the project. This procurement strategy allows for a detailed design, that incorporates extensive stakeholder engagement, to be compiled thereby meeting the expectations of its end users. Furthermore this approach allows for the project to obtain value for money through a competitive open tender process based on a complete design. The adopted procurement strategy has been widely utilised within the Department and therefore negates the need for additional extensive training for Departmental personnel.

The design, costing and implementation of this complex mega project requires the appointment of external professional consultants as the Department does not possess the required and suitably skilled resources to perform the task in-house. The procurement strategy options for the appointment of consultants that were considered are:

- Consortium appointment – all professional disciplines form a consortium and tender as a single team
- Individual appointments – all professional disciplines are tendered separately by the Department
- Hybrid approach – this entails grouping identified disciplines together and then tendering them as smaller teams

From research conducted and lessons learned by the Department through this implementation of projects utilising both the consortium and individual approaches, various advantages and disadvantages were identified. A consortium approach was favoured due to the less onerous procurement processes however lessons learned have revealed that this approach poses a significant risk to performance and members of the consortium often lack accountability. The individual approach was favoured for allowing the Department to select the best resources for each discipline and being able to hold each individual firm accountable, however the procurement processes appear too onerous and pose significant risk to achieving project milestones. For these reasons the hybrid approach was selected as this approach mitigates some of the major risks aligned with each otf the other approaches while still allowing the Department to benefit from some of the advantages of each. The grouping of professional disciplines in the hybrid approach shall be as follows:

- Project Manager, Quantity Surveyor and Health and Safety
- Architect, Civil Engineer and Structural Engineer
- Electrical Engineer and Mechanical Engineer

The contract utilised for the appointment of consultants shall be the CIDB Professional Services Contract. This contract has been extensively utilised successfully by both the Department and the public sector and is therefore both familiar to the Department and the construction industry.

The Design by Employer procurement strategy with a fixed price BOQ pricing strategy enabled the following construction contracts to be considered as endorsed by the CIDB:

- GCC
- JBCC
- NEC
- FIDIC

The GCC and JBCC are local construction contracts produced by South African organisations while the NEC and FIDIC contracts are produced by foreign organisations. The GCC is an engineering focused contract and is therefore recommended for engineering works projects whilst the other mentioned contracts are suited to building works projects (the NEC and FIDIC contracts are also recommended on engineering projects). The JBCC was identified as the most suitable choice given its wide use in the local construction industry, it is well supported by the organisation that produces it and it is well understood by Departmental officials and was successfully utilised by the Department on a previous mega project. Although the Department has used the NEC, it was utilised on emergency projects that were not as complex as this project. Due to the lack of familiarity internally within the Department and externally within external service providers with both the NEC and FIDIC contracts, the Department is exposed to potential and protracted legal disputes.

The Department recognises the need to promote Historically Disadvantaged Groups in the construction industry and is therefore aiming for the project to incorporate the inclusion of these individuals. This shall be achieved through the awarding of points in the functionality criteria in line with the Departmental policy. Similarly, to promote the incorporation of youth on the project, points shall be awarded against the stated criteria.

Regarding the employment of local labour, the construction documentation will contain provisions and targets for the Expanded Public Works Programme (EPWP).

15. COMMISSIONING

The purpose of commissioning a health facility is to ensure that construction work is completed according to the approved drawings and specifications, that equipment is in place and all departments are operationally ready such that the buildings can function fully upon occupation by the end user.

According to the IUSS Commissioning document, a commissioned building is one that is deemed ready for service, i.e. the building may become fully operational for its intended purpose.

Project commissioning is the process of assuring that all systems and components of a building are:

i. Designed
ii. Installed
iii. Tested
iv. Operated, and
v. Maintained, according to the operational requirements of the owner.

This process must involve all disciplines and must include systems validation and verification through inspecting and testing every operational component of the building project from the individual functions, such as instruments and equipment – including complex, systems and sub-systems. Training will be provided to target operational management of the facility as well as change management. The process oversees:

This process is to prepare the facility management and assist them to develop systems to operate the facility once construction is complete. Commissioning systems include:

i. Fixed Equipment
ii. Loose Equipment and Furniture
iii. Human Resource / Staffing

iv. Consumables
v. Facilities Management, which includes:
vi. Hospital Governance and the delegation of Authority
vii. Legal requirements and licensing
viii. Hospital Financial Management
ix. Organisational Development Strategy
x. Hospital Information Management
xi. Hospital Information Technology
xii. Patient Administration
xiii. Communication Strategy
xiv. Maintenance, guarantees and contracts

The items allowed for in the commissioning budget are as follows:

i. Linen and curtains or other window dressing,
ii. Cleaning utensils such as brooms, brushes and mops, and
iii. Catering utensils like cutlery and crockery.

Items not allowed for in the commissioning budget are:

i. Consumables or stock that would be required to open the hospital e.g. accessories, clinical stock, stationary and other consumables that are not of a clinical nature, and
ii. Other consumables like medical gas and diesel for standby generator etc.

16. OCCUPATIONAL HEALTH, SAFETY & ENVIRONMENTAL

According to construction regulations, this project will require the Department to apply for a construction work permit from the Department of Employment and Labour. The Department will also appoint a Health & Safety Agent to act as its representative to carry out duties imposed to the Department as a client under the Occupational Health and Safety Act 85 of 1993. The Appointed Agent must meet the following minimum requirements and be registered and in good standing with SACPCMP, be in possession of professional indemnity insurance and have 3 years' experience as a Health & Safety Agent.

Occupational health and safety risks will be identified at various stages of the project. Once the contractor has taken over the site, occupational and health risks including incidents will be managed in accordance with the Occupational Health and Safety Act 85 of 1993 and its regulations.

It is necessary to comply with the National Department of Health Environmental Management Plan (forth addition 2020-2025) as well as uMhlathuze Local Municipality and King Cetshwayo District Municpality requirements as guided by the Department of Economic Development, Tourism and

Environmental Affairs (EDTEA), this will form the baseline. A project specific environmental management plan will need to be developed.

17. SUBSIDIARY PLANS

Twelve subsidiary plans have been developed and attached as Annexures. These subsidiary plans provide detailed information on how various knowledge areas of the project will be managed. The management plans that support the project management plan which starts at the Initiation Stage right to the Close-out Stage are as follows:

iii. **Scope** Management Plan
iv. **Schedule** Management Plan
v. **Cost** Management Plan
vi. **Requirements** Management Plan
vii. **Quality** Management Plan
viii. **Stakeholder** Engagement Plan
ix. **Communications** Management Plan
x. **Risk** Management Plan
xi. **Change** Management Plan
xii. **Procurement** Management Plan
xiii. **Configuration** Management Plan
xiv. **Resource** Management Plan

These plans will be reviewed individually without necessarily reviewing the whole project management plan. Each of the plans has its independent version control.

18. PROJECT INTEGRATION MANAGEMENT

Project integration in such a complex project with complex processes is critical for the success of the project. Stakeholder engagement and effective communication throughout the project processes is crucial for the success of the project. Although the Project Manager is appointed by the Department at Client level and Professional Service Provider level, high impact leadership is required at each team level. It will be critical that all teams are energised, understand the vision and strategic objectives of the project and stay focussed at all times.

The digital platforms are proposed to strengthen the project integration by creating line of sight across stakeholders or project teams that require to work together to deliver a specific output or deliverable. The following platforms shall be used in this project.

Building Information Modelling (BIM): The Client and all Professional Service Providers (design consultants, site supervision consultants, main contractor and major services subcontractors) must have access to this software to fully participate in the planning, design and construction of the facility.

The client will also utilise BIM after project completion to manage the facility and future projects and maintenance actions. The latest model or version of BIM (Autodesk platform) must be adopted at the start of the Stage 2 process.

Project scheduling software: The use of MS Project Professional is a requirement for this project. Like BIM above, project team members must provide all their work schedules and construction programmes in an MS Project Professional format. This will make it easier for affected parties to analyse data and manipulate it for their own requirements. Version control will be implemented and managed to ensure that all parties are always working from same set of drawings.

Project Information Management System (PMIS): All project team members who belong to the client must have access to the PMIS of the Department. The PMIS allows every team member to upload and update information and allow other members to see information uploaded or updated. Task assignment will be done and tracked on the PMIS. The system will provide for interested Steering Committee Members to access project information or reports digitally as well. The PMIS will continue to integrate with the Treasury's Infrastructure Reporting Model (IRM) to allow for Provincial and National Treasury to access monthly progress information.

Autodesk Revit Software: All project documentation must be produced and managed using Autodesk Revit that will be integrated into the BIM. The client (rvt, dwg etc.) are provided as well as pdf copies of the drawings for the purposes of review, presentation to stakeholders and planning purposes.

WinQS Software: Quantity Surveyors and Cost engineers must manage the project costing within the WinQS software. The client requires all original files, in all requested formats, are provided for cost management purposes throughout the project lifecycle.

Any Professional Service Provider, contractor or subcontractor who may be unwilling to share digital files due to intellectual property rights, e.g., methodology, philosophy, etc, must indicate such requirement at the time of tendering and provide an alternative but acceptable form of sharing digital information and integrating with the rest of the project team including the client.
Regular progress meetings and participation of appropriate stakeholder groups will assist in ensuring that information is disseminated, stakeholders provide their input and are updated of the outcome of each process. This will prevent unnecessary disputes and unnecessary design clashes.

Collaboration Platforms: A collaboration platform appropriate to the needs of the project must be adopted and used throughout the project in order to facilitate communication and collaboration. The

Department currently utilises MS Teams, however other platforms such as Zoom etc. may be considered. The Department is open to use of any platforms that prove to be beneficial at any stage of the project.

19. ANNEXURES

Several documents that form part of this Prefeasibility Report are attached as annexures. The documents and the purpose of each are listed hereunder.

Annexure A: Project Charter

i. Initiates the planning of a new tertiary hospital in Northern KwaZulu-Natal;
ii. Provides for a formal appointment of the project manager;
iii. Provides authority for the project manager to engage with various stakeholders and facilitate the establishment of the relevant project governance committees; and
iv. Provides authority for the project manager to deploy public resources on the activities of this project.

Annexure B: Requirements Document

The purpose of this Requirements Document is to determine and document the needs, expected outcomes and expectations of the project customer, sponsor and stakeholders. Such needs include the agreed-upon conditions or capabilities of a service that the project is designed to satisfy. The requirements are documented from user stories elicited from individual units or departments responsible for specific clinical tertiary services (T1) and associated support services. The identified requirements in this document will be incorporated in the project scope and reviewed in line with the project governance framework throughout the project lifecycle.

Annexure C: Business Case

The purpose of the document is to present a business case for the development of a new tertiary hospital in northern KwaZulu-Natal. This document presents the justification for a new 550-bed tertiary hospital, various analysis and the proposed implementation model for the project.

Annexure D: Engineering Analysis Report

The purpose of the Engineering Analysis Report is to supplement the Business Case by providing a technical engineering analysis of the various development options in order that recommended solution is informed from a technical point of view.

Annexure E: Socio-Economic Analysis Report

The purpose of the Socio-Economic Analysis Report is to present the analysis conducted to identify the most cost-effective as well as economically viable option to provide tertiary services for the population residing in the north of KwaZulu-Natal.

Annexure F: Project Governance Framework

The purpose of this Project Governance Framework is to outline the governance applicable to this project. Project governance refers to a framework, functions, and processes that guide project management activities to create a unique product, service, or result to meet organisational, strategic, and operational goals (PMI, 2021). As part of the governance structure, the Project Management Office (PMO) will use project governance to manage the project and increase the success of the project.

The components of the project governance are listed hereunder.

i. Acceptance criteria for the project
ii. Acceptance criteria for deliverables
iii. Relationship between the project team, internal and external stakeholders
iv. Project organisational chart and roles
v. Project communication processes and procedures
vi. Project decision-making processes
vii. Guidelines for aligning project governance and organisational strategy
viii. Project life cycle approach
ix. Project stage/phase review processes
x. Project change approval processes
xi. Alignment of stakeholders with project process requirements

The above project governance components are discussed individually in this document.

Annexure G: Clinical Brief

The purpose of the Clinical Brief is to provide a detailed documentation of needs, expected outcomes and expectations of the project customer, sponsor and stakeholders. Such needs include the agreed-upon conditions or capabilities of a service that the project is designed to satisfy. They are detailed from the Requirements Documents where the needs and expectations of stakeholders were initially determined. The requirements are documented from user stories elicited from individual units or departments responsible for specific clinical tertiary services (T1) and associated support services. After requirements were determined, they were used to inform the Business Case.

After the approval of the Clinical Brief, the requirements will be used to formulate the technical needs. The identified requirements in this document will be incorporated in the project scope and reviewed in line with the project governance framework throughout the project lifecycle.

Annexure H: Project Schedule Baseline

The purpose of the Project Schedule Baseline is to show the breakdown of the work breakdown structure, the timelines and resource responsibilities. This creates a baseline for performance management purposes.

Annexure I: Scope Management Plan

The purpose of the Scope Management Plan is to describe how the scope of this project will be defined, monitored, controlled and validated.

Annexure J: Schedule Management Plan

The purpose of the Schedule Management Plan is to establish the criteria and activities to develop, monitor and control the project schedule. It identifies the scheduling tool and format of the schedule.

Annexure K: Cost Management Plan

The purpose of the Cost Management Plan is to describe how the Department's internal and appointed external resources, will estimate, report and manage costs relating to the project. It specifies the types of estimates and reports to be produced including the frequency at which they are required. It further specifies how fee and contractor payment claims will be dealt with to ensure payments are made within the specified period and adequate time is allowed for the assessment and verification of claims. The tools and powers assigned to the Departmental Project Manager to assist him/her in completing the project within budget (barring changes of scope and exceptional items) is detailed within this plan. A Work Breakdown Structure and a further expanded Cost Management Plan shall be developed once the external team of consultants is appointed and therefore does not currently form part of this plan.

Annexure L: Requirements Management Plan

The purpose of the Requirements Management Plan is to describe how project requirements will be elicited, analysed, documented and managed. The management of the requirements will inform the project scope, clarify compliance, show testing and acceptance of requirements, adhere to the approved change management process and ensure progress reporting to keys stakeholders.

Annexure M: Quality Management Plan

The purpose of the Quality Management Plan is to guide the project process to ensure the project achieves its objectives and therefore fulfils the service objectives. This is done through the preparation of processes of reviewing, revising, checking and improvement to ensure quality through compliance and integration.

Annexure N: Stakeholder Engagement Plan

The Project Stakeholder Management Plan outlines how the needs and expectations of the project stakeholders will be managed. The engagement process includes identification of stakeholders, planning, managing and monitoring stakeholder engagements to ensure effective participation throughout the project life cycle.

Annexure O: Communications Management Plan

The purpose of the Communications Management Plan is to outline the communications framework for the project which describes how, when, and by whom project information will be packaged and communicated. It serves as a guide for communications throughout the project lifecycle. The plan will be updated as communications needs change.

Project communications must promote awareness of and buy-in for the project, ensure adoption of the responsibilities and actions assigned to each stakeholder and encourage two-way communication between the project team and other project stakeholders.

Annexure P: Risk Management Plan

The purpose of the Risk Management Plan is to outline how risk management activities will be structured and managed. The areas outlined in this document provide structure for the management of risk in this project and aligns with the organisational processes for risk management.

Annexure Q: Change Management Plan

The purpose of the Change Management Plan is to outline the process for requesting a change or changes to the project and the approval process for these changes. The plan also outlines how organizational change will be managed to ensure the successful execution of the project and achievement of strategic objectives.

Annexure R: Procurement Management Plan

The purpose of the Procurement Management Plan is to describe the process by which the Department will procure goods and services from outside the Department in accordance with Infrastructure Procurement prescripts and guidelines due to the infrastructure nature of the project. It specifies types of contracts that will be used. It describes the process of obtaining and evaluating bids. It mandates the standardised procurement documents that must be used and describes how multiple contractors or service provides will be managed.

Annexure S: Configuration Management Plan

The purpose of the Configuration Management Plan is to define the project artifacts which are configurable and are subject to a formal change control process. The plan outlines how to identify and account for such project artifacts which includes the recording and reporting of changes to them.

20. CONCLUSION

The new tertiary hospital project in King Cetshwayo District is a major project initiated by the Department of Health KwaZulu-Natal towards making universal health coverage a reality. The project pre-feasibility report was prepared by the Department in consultation with stakeholders, as a continuation of the Requirements Document, Business Case and Clinical Brief. Upon approval of this pre-feasibility report, the provincial Department will have been deemed to satisfy the deliverables for Stage 1 of the FIDPM. Thereafter the design process of the hospital will be initiated.

Submitted

Name: Mr. M.G Gcaba – Project Manager

_____ _____

Signature: Project Manager Date

Supported

Gateway Review Committee:

_____ _____

Signature: Chairperson: Gateway Review Committee Date

Supported

Hospital Management Services: Mrs R.T Dube

_____ _____

Signature: Chief Director: Hospital Management Services Date

Supported

Clinical Services: Dr T.J Moji

_____ _____

Signature: Acting DDG: Clinical Services Date

Approval

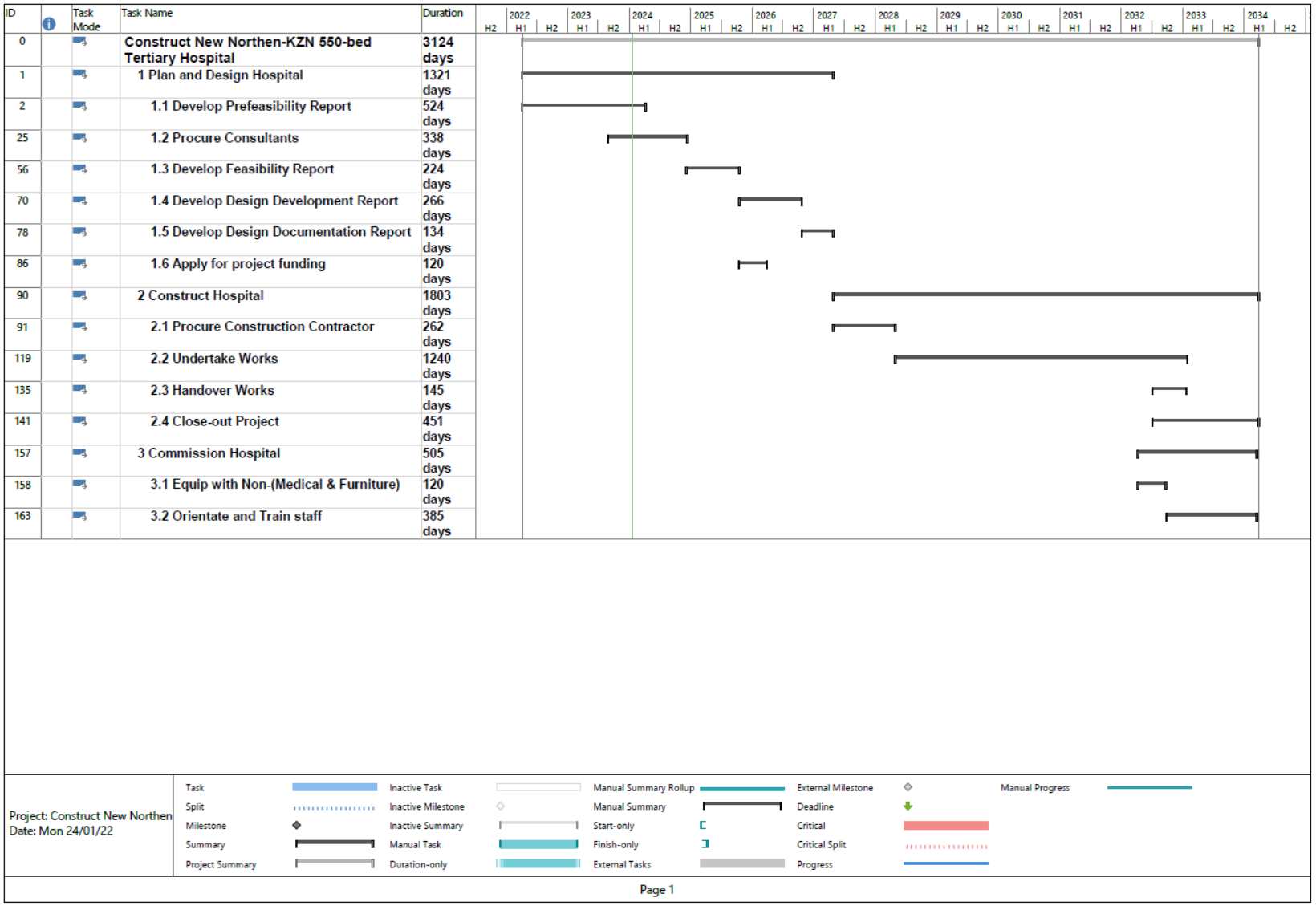
Sponsor & Steering Committee: Dr S.C Tshabalala

_____ _____

Signature: Project Sponsor & Chairperson Steering Committee Date

21. ANNEXURES

H PROJECT SCHEDULE BASELINE



ID	Task Mode	Task Name	Duration
0		**Construct New Northen-KZN 550-bed Tertiary Hospital**	3124 days
1		1 Plan and Design Hospital	1321 days
2		1.1 Develop Prefeasibility Report	524 days
25		1.2 Procure Consultants	338 days
56		1.3 Develop Feasibility Report	224 days
70		1.4 Develop Design Development Report	266 days
78		1.5 Develop Design Documentation Report	134 days
86		1.6 Apply for project funding	120 days
90		2 Construct Hospital	1803 days
91		2.1 Procure Construction Contractor	262 days
119		2.2 Undertake Works	1240 days
135		2.3 Handover Works	145 days
141		2.4 Close-out Project	451 days
157		3 Commission Hospital	505 days
158		3.1 Equip with Non-(Medical & Furniture)	120 days
163		3.2 Orientate and Train staff	385 days