

# The Lutheran University of Papua New Guinea Master Planning - Introduction

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# Lutheran University of Papua New Guinea

## Master Planning - Introduction

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### Executive Summary

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The Lutheran University of Papua New Guinea (LUPNG) is preparing to initiate a master plan to use as a guide for establishment and future development. Such a plan will provide a comprehensive and detailed strategy to guide the long-term physical development of the university. The master plan is an essential and an active document that will work together with the strategic plan, budgets, recruitment plans, strategic marketing plans, and capital funding plans for the Lutheran University of Papua New Guinea. This plan will identify limitations and opportunities for accommodating growth and renewal<sup>1</sup>. The master plan provides a description and map of existing facilities and diagrams future possibilities and plans for physical development. Such a plan needs to pay attention to practical details of the physical surroundings but at the same time the plan must be imaginative and expansive.

The process involved with master planning will generate enthusiasm and commitment to the development of LUPNG by most of its stakeholders. The planning process needs to be consultative, participatory and collegial but is best facilitated by the guidance of experienced professionals from outside the current stakeholders. A physical representation of the dreams and visions behind this new Lutheran university will aid to focus the support of all those who have interest and investment in this project.

Ultimately the master plan will help to establish a distinctive and unified campus that stakeholder can envision by written reports, drawings, 3-D models, and electronic media. These drawings and models will direct the development of LUPNG and guide future improvements, renovations, and building. The master plan will help to secure and support the LUPNG's mission to promote teaching, researching and serving others well into the future.

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<sup>1</sup> [http://www.emich.edu/masterplan/goals\\_outcomes.html](http://www.emich.edu/masterplan/goals_outcomes.html)

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## Principle Goals of LUPNG Master Planning:<sup>2</sup>

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1. **Development and Promotion:** to establish academic integrity, unity, and quality, the Master Plan will, facilitate and encourage the academic and social life of the institution through the urban and built form framework. The outcomes of the master plan promote LUPNG by attracting and retaining students, faculty, and staff.
2. **Locality and Image:** a solution which makes a distinctive contribution to the life, image, and character of the region.
3. **Climate and Environment:** A solution which responds to the special topographical and climatic constraints and opportunities of the site and the tropical climate.
4. **Identity and Address:** Facilitate a distinctive identity and sense of address for each faculty, allowing the journey from one space to the next to integrate all aspects of the social and educational fabric through efficient, clear and uncomplicated access.
5. **New and Old:** The plan will recommend the best uses of the physical resources of the campus(es) as they exist today. The existing facilities will form the basis for the new campus. The master plan is to draw maximum benefit from existing facilities with the introduction of new facilities to develop a legible order from which the campus can grow.
6. **Quality and Performance:** A solution which as both a physical and economic model reflects a sound and responsible balance between maximizing the existing infrastructure and the desire to produce an institution of high quality and public amenity.
7. **Pedestrian and Vehicular Circulation:** A solution which a safe and quiet working environment from vehicles and service traffic.
8. **Flexibility and Technological Response:** A solution which uses advanced and proven technology and anticipates future expansion.
9. **Incrementing and Implementation:** A solution which can be defined accurately and costed to include all these objectives and allows for facilities to be completed which are consistent with course demand while presenting a coherent image at each stage.

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## Reasons for LUPNG to Engage in Master Planning<sup>3</sup>

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<sup>2</sup> Adapted from Woodhead International Objectives and Goals

**Master planning will encourage and assist LUPNG together with ELC-PNG, GLC-PNG, Church Partners, and Martin Luther Seminary in union with Balob Teachers College to:**

1. assemble the collective dreams, opinions, thoughts of all its stakeholders into concrete and succinct documents, plans and maps,
2. visualize with 3-D models, diagrams, reports, and maps the current development and future dreams,
3. create a Melanesian-friendly living, working, and learning environment that reflect spiritual values,
4. obtain a useful, insightful, and carefully thought out plan for the future development that represents the university's mission through its physical environment,
5. guide in an orderly fashion renovations of existing structures, the establishment of LUPNG, and the future development of an attractive, unified, and distinctive properties,
6. plan for the physical necessities to implement the university's strategic plan,
7. consider how land, space and assets can most effectively generate revenue and increase sustainability and financial independence of the university,
8. promote confidence and enthusiasm in donor and stakeholders toward initiating significant capital fund raising and investment plans,
9. improve the quality and aesthetics of the campuses in order to attract and retain students, faculty and staff,
10. deliver results that will maintain project enthusiasm and so that student intake will be able to begin in January 2010,
11. revise and keep the planning current, useful and relevant to Papua New Guinea.
12. ...
13. ...
14. ...
15. ...

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<sup>3</sup> Adapted from The University of Maine Campus Master Plan Objectives

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## Sources of Input for Master Planning

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- Lutheran Church Bishops and Church Executives
- Establishment Committee
- Project Director and Staff
- Principals Martin Luther Seminary and Balob Teachers College
- Neighbouring Community (Landowners)
- Business Community
- National Academic Community
- Murdoch University Representatives
- Faculty Focus groups
- Student Focus groups
- Government Focus groups
- Donors
- Other focus groups
- ...
- ...
- ...

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## Central Adjectives and Phrases in LUPNG Master Planning

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The terms and phrases that may appear and reoccur as the LUPNG moves toward a master plan include:

- Distinctive/ Unique
- Unified
- Creative Innovative
- Inspirational and Spiritual
- Socially friendly
- Environmentally friendly
- Professional
- Secure
- Open
- Spacious
- Clean
- Comfortable
- Cool
- Fresh
- Safe, harmonious and healthy
- Equal opportunity
- Collaborative and Interactive
- Ecologically and Socially responsible
- ...

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## Guidelines to Achieve Principle Goals

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To achieve the stated objectives of the LUPNG Master plan, the following IDEAS may be discussed with the master planning consultants and stakeholders<sup>4</sup>:

### **Image and structure:**

Consideration should be given to the creation of and the renovation of buildings and structures that are unique to LUPNG and not “cookie cutter” designs of other learning institutions in Papua New Guinea. It would be desirable for building design or general décor to reflect the uniqueness of Melanesian culture.

Buildings and designs need to present a unified image with a general consistency of architectural style, materials, colours and landscaping within precincts. Flexible, comfortable and movable furnishings should also be consistent in character and colour to further project a unified campus image and identity.

Architectural standards and university facility square area guidelines should be set at or above international standards.

“Design and implement a warm and welcoming entry”<sup>5</sup>. The front gate, the front door and reception area for the first time user or visitor must be distinctive, well marked with signage and lighting, warm and inviting. Warm and welcoming entry into each precinct should be considered. “Create clearly defined and attractive entry points to the campus from major thoroughfares”<sup>6</sup>.

Provisions should be made to provide for appropriate access to all parts of campus for those with physical limitations or disabilities.

Provision should be made for an infirmary for students. Area should be at a suggested size of not less than 20 m<sup>2</sup>. The Infirmary should include a small office for a medical representative.<sup>7</sup>

Provision should be made for adequate storage space in each building. The area should equal not less than the instructional area X 3.5%.<sup>9</sup>

Consistent building height that compliments a park-like perspective should be considered.

Attractive buildings that are easy to clean and maintain should be addressed. Special attention must be given to avoid rust and mold issues that arise from tropical climate.

Accommodation should be provided for a total of 51 + staff members. Extra security measures need to be taken into consideration for this precinct. It will be necessary to provide flexibility in developing the facilities to meet the needs of the Papua New Guinean teaching staff and ‘expatriate’ staff. There will need to be a variety of options to provide for; married couples, families, single people (individual), single people (share).

### **Assemblage**

Knowledge of precedent of existing building types must be understood to provide individuality and a sense of assemblage.

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<sup>4</sup> <http://facilities.anu.edu.au/index.php?pid=339>

<sup>5</sup> <http://www.uwgb.edu/masterplan/execSummary/primary.html#context>

<sup>6</sup> Cleveland State University <http://www.csuohio.edu/campusmasterplan/goals.html>

<sup>7</sup> Highland Lutheran International School – Master plan 1999

## **Distinctive Identity**

Each building is designed to express its own distinguishing features and architectural substance to fit the overall framework.

## **Materials Approach**

Academic institutions should be constructed with a well chosen but limited palette of quality building materials.

## **Form and Change**

The architectural vocabulary should be similar to a town whereby the structured landscape, pedestrian streets, squares and courtyards form a series of outdoor rooms, with the buildings establishing the edge of walls to the spaces formed. These spaces allow the buildings to evolve and change over time.

## **Vegetation and Landscape**

The natural environment is of significant visual impact and amenity and should be developed as a key landscape character element.

Planner may wish to give a “Park-like Quality” to the campus<sup>8</sup>. Special attention may be given to the outdoor environment to create a “Botanical Park” or “Tropical Garden”. Such a theme may be attractive and comfortable for most Melanesian students and faculty. A small bird sanctuary or a bird friendly campus could also be considered.

Design could consider a symbiotic relationship with the natural outdoor environment and the indoor environment. Careful consideration needs to be given to the transitions from outdoor environment to the indoor environment in relation to comfort and to ability to keep facilities clean during heavy rains.

Uniform sets of landscape furniture for items including seats, bins, signage, sound barriers and lighting need consideration. Noise and distracting sound considerations related power generation, traffic and farm animals need to be taken into account.

Lighting of parking and pathways should generally be at pedestrian level with pole and fixture between 2.7 m and 4.2 m to prevent vandalism and provide illumination.<sup>9</sup>

## **Utilities:**

Utilities at LUPNG should be designed to be self sufficient from the national supply or should be considered with backup capability and an independently sustainable plan. The plan should address the need to minimise energy and maintenance costs. Environment friendly backup utilities are very important in PNG. National or city supply of power,

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<sup>8</sup> <http://www.uwgb.edu/masterplan/execSummary/primary.html#context>

<sup>9</sup> Commercial Development Permit Guidelines [www.city.pg.bc.ca/city\\_services/cpd/zoning\\_7850\\_2007/08-06.pdf](http://www.city.pg.bc.ca/city_services/cpd/zoning_7850_2007/08-06.pdf)

water, and telecommunications are frequently interrupted. Therefore uninterrupted and affordable power, water and telecommunications needs full consideration.

Efforts to reduce energy consumption with proper insulation for heat and focus on renewable energy such solar water heating. Active and passive cooling systems to keep working and living areas at reasonable temperatures need to be considered. Orientation of buildings to minimize solar radiation and maximize natural breezes also needs to be considered.

Utility, garbage containers, and mechanical equipment such a standby generators should be screened from pedestrians and preferably not near entrances of precincts.<sup>10</sup>

### **Movement:**

Ensure campus population, visitors and service vehicles can move safely about the campus, with priority given to pedestrians. Reduce vehicle movement on campus to a minimum consistent with functional requirements by discouraging through traffic and plan for methods to reduce the speed of vehicles. Uniform hard surface (paved) treatment for paths and activity areas need to be planned to reinforce pedestrian movement. Consideration of bike paths would be worthwhile.

Locate activities so as to minimize walking distances for students and staff by concentrating high usage facilities such as lecture theatres and libraries around major venues and along main pedestrian paths providing safe access by day and night.

Consider the use of attractive and wide covered walkways. Walkways need to be wide enough (not less than 1.7 meters or 5.5 feet) for two to stand and talk with out interruption to those moving by. Wider sidewalks also accommodate wheel chair movement. Covered walkways need to be considered related to heavy rains or intense solar radiation.

### **Cultural Heritage:**

Provide appropriate locations for cultural activities. Conserve and enhance important natural and man-made features on the site and integrate new development alongside or within such spaces should they exist.

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<sup>10</sup> Commercial Development Permit Guidelines [www.city.pg.bc.ca/city\\_services/cpd/zoning\\_7850\\_2007/08-06.pdf](http://www.city.pg.bc.ca/city_services/cpd/zoning_7850_2007/08-06.pdf)

## **Sports, Social and Community:**

The master plan needs to consider structural methods to enhance the sense of a unified campus community. Consider appropriate locations for recreational, leisure and community activities. Spaces for hospitality, dining, and food services are important aspects related to social and community interactions.

Within the constraints of the existing site, budgets and any possible extension of the site, provision should be made for regulation size sporting facilities such as:

1	soccer field	2	netball courts
1	rugby field	2	tennis courts
2	basketball courts	1	swimming pool
2	volleyball courts		

## **Linkages:**

LUPNG is approximately five (5) Kilometers from “top town” (downtown commercial centre). Public transportation is limited and at times uncomfortable. Therefore small retail services service could be provided on campus such as a café, postal services, small boutiques, bookstore, small chemist, food store, small sports shop etc. Space could be rented to vendors in order to provide such services.

A university shuttle to “top town” could also be organized with predetermined drop-off and pick-up sites.

## **Flexibility:**

Ensure the University is able to respond to changing circumstances as related to instability related to socio-political and financial support systems.

## **Implementation:**

Ensure the master plan implemented in incrementally and in a timely fashion, with minimum disruption to existing academic programs and buildings, and at an acceptable cost.

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## Scope and Sequence of a Master Plan<sup>11</sup>

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The master plan involves a comprehensive report together with imagery and diagrams that guides the vision and future plans of the University. However prior to the completion of a master plan a careful study of existing facilities and patterns must be completed. The completion of the following components is intrinsic to an effective master plan.

1. History of the Institution(s)
2. Project Mission and Vision Statement
3. Consultation Process - needs assessment and dreams for the future
4. Current Site Analysis
5. Physical Condition Survey
6. Edge Conditions
7. Future Campus Requirements and Strategic Plan as provide by LUPNG
8. Existing and potential constraints to new development
9. Existing opportunities for development
10. Student enrolment projections and gross floor Area forecast per field of study
11. Proposed Master Plan Brief
12. Consultation Process - Review and input into the proposed Master Plan
13. Completed Master Plan

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## 1. History

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A brief history of Martin Luther Seminary (MLS), Balob Teachers College (BTC) and Lutheran University of Papua New Guinea (LUPNG) will serve as an introduction.

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## 2. Mission and Vision Statement

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The mission statement of LUPNG and a brief statement of the universities vision for the future are presented below:

### **Mission Statement:**

The **mission** of the Lutheran University of Papua New Guinea is to conscientiously educate individuals through “Teaching”, “Research”, and preparing them for “Service” in the church and community as servant leaders.<sup>12</sup>

### **Vision Statement:**

The Establishment Committee of the Lutheran University Papua New Guinea (LUPNG) has a compelling **vision** to establish a new University at Lae and to unify under that umbrella the distinctive institutions of Martin Luther Seminary and Balob Teachers College. LUPNG will insure a sound, quality, and a high-quality model-educational institution for the citizens of Papua New Guinea.

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<sup>11</sup> Adapted from the University of Maine-Master Plan

<sup>12</sup> This is an abridged version of the original mission written in 2005. This version will submitted for approval to the Establishment Committee

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### 3. Consultation Process (Needs Analysis and Dreams):<sup>13</sup>

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A consultation process is central to an effective master plan. Consultation involving existing students, faculty, administration and other stakeholders, is part of the preliminaries leading to the final master plan. Consultation will encourage stakeholder participation<sup>14</sup> and ownership of the project. It also allows planners to understand and account for the needs of the stakeholders. Questions such as outlined below may be considered.<sup>15</sup>

#### List of questions to stimulate the consultation process:

1. What is your area of involvement in relation to Lutheran Tertiary Education?
2. What are the positive aspects of the existing campuses of Martin Luther Seminary and Balob Teachers College that are important to preserve? (What is working well?).
3. What developments would make LUPNG unique or distinctive in Papua New Guinea?
4. What are the potential growth areas for the campuses or for Lutheran Educations in Papua New Guinea?
5. What challenges do you envision in tertiary education or in your area of responsibility in the next twenty years?
6. What challenges (if any) does your are of responsibility have in meeting national or provincial government standards or expectations (such as the National Government's Medium Term Development Strategy).
7. How would you describe the culture and values of your area of responsibility?
8. Are the teaching methods and learning experiences changing in your area of responsibility and if so how?
9. What are the areas that need improvement? (What is not working well?)
10. How would you describe the overall student experience on campus?
11. How can the student experience be improved?
12. How would you describe your overall experience on campus?
13. How can your experience be improved?
14. In what ways do the campuses accommodate for your family and cultural background?
15. What opportunities for innovation do you think exist in research, teaching and learning spaces?
16. What kind of image do you think is important to project to staff, students, researchers, government, church, business community, NGO's and the general public?
17. What would be the key measures of success for the LUPNG project in the future – the most important things to achieve that are measurable?
18. ...
19. ...

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<sup>13</sup> <http://www.newcastle.edu.au/unit/facilities/masterplanning/index.html>

<sup>14</sup> <http://www.murdoch.edu.au/comdev/planning/Student%20wksp%20pres%20outputs%20200504.pdf>

<sup>15</sup> Based on the University of Newcastle Consultation Process.

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#### **4. Current Site Analysis (as presently exists)**

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Data collection:

- mapping,
- soil study,
- topography,
- precipitation,
- solar radiation,
- drainage,
- wind, and weather conditions
- storm water management

Space utilization

Available Open Space

Square area analysis

Land Use Patterns

Parking

Vehicular, pedestrian, bicycle circulation and transit

Athletic and recreation facilities

Campus architecture, buildings, historic zones

Infrastructure

Signage

Lighting

Telecommunications and Information Technology

Student Housing and Dining

Faculty Housing and Recreation

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#### **5. Physical Conditions Survey (as presently exists)**

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Physical conditions of existing buildings

Estimated remaining useful life of facilities and if buildings are worth the cost of renovations

Plumbing, water supply, ventilation, insulation and electrical survey

Telecommunications

Seismic activity and tsunami preparedness

Fire and physical safety

Lighting and signage

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#### **6. Edge Conditions (as presently exists)**

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Information is gathered to determine the property boundaries

Study interfaces between the campus and surrounding community

General land use, open space, circulation within approx. 0.5 kilometre

Connections to community transportations and resources

Natural Resources Surrounding Campus

Linkages with off-campus facilities in surrounding communities

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## 7. Future Campus Requirements – Plans and Programs

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Strategic Plans

Student Demographics and Projections

Five-Year Academic Projections

- School of Primary Education
- School of Theology
- School of Secondary Education

Twenty Year Academic Projections including future academic programs and growth areas

- School of Business
- School of Agriculture
- School of Nursing
- School of Engineering
- School of Law
- School of Medicine
- Post Graduate Program(s)

Faculty, Staff, Administration Projections

Offices, Interdisciplinary Spaces

Housing, on- and off-campus

Health, Art, Culture, Sports, and Recreation

Public Use and visitors (Campus destinations and events)

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## 8. Existing and Potential Constraints for Development

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Limitations of available lands

Limitations of available funding

Design issues

- Tropical climate and with extreme heat, humidity, and heavy annual rainfall
- Distance between Balob Teachers and Martin Luther Seminary is over one kilometer divided by a main thoroughfare.
- Under utilized land and properties
- Rising security issues in nearby communities.
- Current mixture of precincts (lack of zoning) – i.e. faculty and student housing near classrooms, rental properties and agricultural precincts.
- Backlog of deferred maintenance
- Unreliable telecommunications and power services
- Increasing occurrences of graffiti in the larger community

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## 9. Existing Opportunities for Development

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Government, Church, and Public support

Large undeveloped green site

Existing structures in place

## 10. Student Enrolment Projections (gross floor area – outstanding)

### Estimation of Student Population and Lectures Required<sup>16</sup>

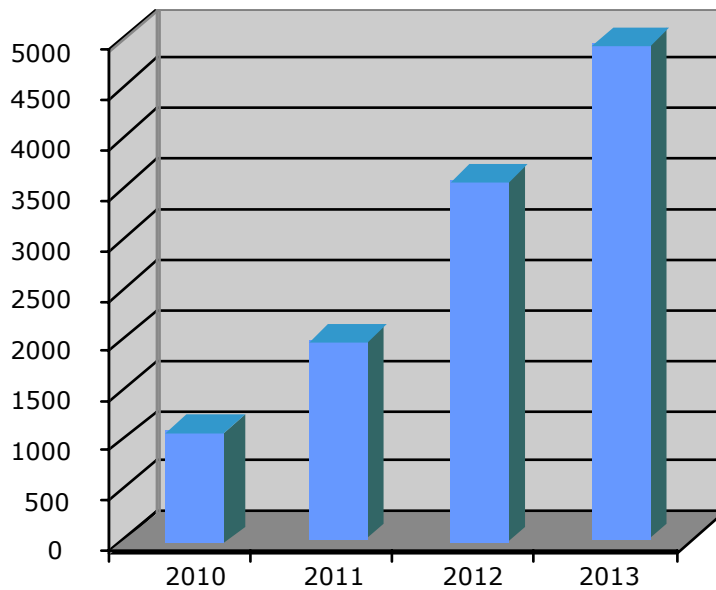
Year	Total Number of Students	Estimated Number of Lecturers	Student Year One Population	Student Year Two Population	Student Year Three Population	Student Year Four Population
2010	1100	10	1100			
2011	1980	18	1100	880		
2012	3572	40	1900	880	792	
2013	4925	51	1900	1520	792	713

The term intake class indicates the number of first time students estimated enrolling each year. The numbers are based on the following assumptions:

- The number of first year Primary Education intake students is estimated at 1000
- The number of first year Theology intake students is estimated at 100
- In the third year of operation, the desire is to start the Secondary Education strand with an intake of 800 students
- The attrition rate for first year students is estimated at 20%
- The attrition for year 2 and following is estimated at 10%
- When estimating the needs for lecturers, the following formula is followed:
  - Thirty students per class section
  - Each student will enroll in 4 subjects per-semester
  - Each subject will meet 3 times per week unless a lab is considered a part of the subject
  - Each lecturer will be assigned at least 4 sections of a subject to be taught per semester
  - A lecturer may be assigned 2 or three different subjects to be taught each semester depending on their expertise
  - When determining the number of lecturers, the number recorded is rounded off to the next higher number

### Student Population Projections

<sup>16</sup> The numbers are raw numbers based on uninformed estimates and should be used only to provide general guidance. These numbers should be used only as starting point for calculations. I am certain they will change, but they provide a base lime for future development.




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## 11. Master Plan Brief (inclusive of the following elements)

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Summary of essential data program, long-term goals, objectives, and strategic planning

Summary of Land location and ownership or lease arrangements

Landscape and gardens plan

Land Use plan including open areas and future building area

Drawing and writing of existing and proposed future space uses.

Define and consider precincts<sup>17</sup> and transition zones between MLS/ BTC and LUPNG including:

- Campus Centre Core
- Worship Core
- Classrooms Instructional Core
- Research Core (Library/Multimedia Centre/ Laboratories)
- Retail Core (bookstore/post office/canteen/chemist/café)
- Administration
- Married housing
- Dormitory male and female
- Faculty residential area
- Rental Housing
- Athletics and Recreation Core
- Parking
- Maintenance and utilities
- Agricultural and Farm animal areas

Provide space and opportunity for interdisciplinary engagement<sup>18</sup>

Athletic and Recreation and Fine Arts Facilities

Phasing plan for future growth and improvement

Capital Repair and maintenance plan (including backlog of deferred maintenance)

Chapel, library/multimedia centre, faculty and Admin offices, laboratory and other special needs

Demographic and enrollment target research

<sup>17</sup> A zone or part of campus designated for a particular use.

<sup>18</sup> [http://www.emich.edu/masterplan/goals\\_outcomes.html](http://www.emich.edu/masterplan/goals_outcomes.html)

Faculty and student housing needs  
Hospitality, Dining, and Food service provisions  
Landscaping proposal  
Long term classroom and physical space requirements  
Pedestrian friendly plan with covered walkways as needed  
Public Transportation considerations  
Recommended Squares, Boutiques, plazas, and focal points  
Rental and Retail considerations  
Research, Multi-Media, and Information Technology provisions  
Transportation Vehicles, Parking, Traffic, Bike paths and trails  
Signage proposal  
Safety, Health, Fire prevention and protection  
Security installations  
Utilities plan – Telecommunications, Power, Gas, Water, lighting, Sewage, Waste  
Management

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## **12. Consultation Process - Review and Input into the Master Plan Brief**

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A careful review of the proposed master plan will look to collect input and reflection from all major stakeholders. Positive and negative comments will be collated and considered in order to finetune the master plan.

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## **13. Completed Master Plan**

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A final product including sketches, other illustrations, and maps will be available for public viewing.

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## References:

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**Cleveland State University** - Campus Master Plan

<http://www.csuohio.edu/campusmasterplan/principles.html>

**Clemson University** - Campus Master Plan

<http://www.clemson.edu/masterplan/plan/overview.htm>

**Commercial Development Permit Guidelines** [www.city.pg.bc.ca/city\\_services/cpd/zoning\\_7850\\_2007/08-06.pdf](http://www.city.pg.bc.ca/city_services/cpd/zoning_7850_2007/08-06.pdf)

**Eastern Michigan University** - Campus Concept Plan

<http://www.emich.edu/masterplan/overview.html>

**Highland Lutheran International School-Master Plan Report Revision 2 -1999**

**Groves of Academe** - Edward Cullinan Architects' master plan for the University of North Carolina at Charlotte

[http://findarticles.com/p/articles/mi\\_m3575/is\\_n1192\\_v199/ai\\_18604260](http://findarticles.com/p/articles/mi_m3575/is_n1192_v199/ai_18604260)

**Mississippi State University** - Campus Master Plan

<http://msuinfo.ur.msstate.edu/campusplan/components.html>

**Murdoch University** - Master Plan

<http://www.murdoch.edu.au/comdev/planning/planning.html>

**Southern Cross University Gold Coast Airport Campus** - Master Plan Final Report (Rev A May 2007)

**The Australian National University**- Facilities and Services

<http://facilities.anu.edu.au/index.php?pid=339>

**The University of Maine Master** - Planning Process

<http://www.umaine.edu/campusplanning/process.htm>

**The University of Melbourne**, Parkville campus - master plan 2000

<http://www.pb.unimelb.edu.au/propertyandbuildings/projects.php3?subcat=100>

**The University of Newcastle Australia** - Master planning

<http://www.newcastle.edu.au/unit/facilities/masterplanning/index.html>

**University of Wisconsin** Green Bay - 2006 Master Plan

<http://www.uwgb.edu/masterplan/themes/index.html>