REPORT

College of Micronesia - FSM Space Utilization and Facilities Master Plan Study - Part 1 Summary Report

Prepared for the College of Micronesia - FSM

Prepared by Beca International Consultants Ltd (Beca)

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REVISION HISTORY

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1	Annette Jones	Draft for review by PCG	31/10/2013
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DOCUMENT ACCEPTANCE

Action	Name	Signed	Date
Prepared by	Annette Jones, Mark Wilson, Warren Perkins, Mark James, Paul Leman, Claire Green. Wilson Hess /James Mulik from Sandy Pond Associates (Contributors of the Classroom Utilization Study)		28/02/2014
Reviewed by	Fraser Vickers Joe Briffa – Energy Audit Mark Wilson – Condition Assessment	  	28/02/2014
Approved by	Fraser Vickers		28/02/2014
on behalf of	Beca International Consultants Ltd		

EXECUTIVE SUMMARY

THE COM-FSM SPACE UTILIZATION AND FACILITIES MASTER PLAN STUDY PROVIDES A SUMMARY OF: THE CURRENT FACILITIES CONDITION AND THEIR UTILIZATION, THE LONG TERM VISION FOR THE CAMPUSES; AND THE PROPOSED STAGING TO ACHIEVE THIS VISION

SOME KEY POINTS TO CONSIDER IN THE IMPLEMENTATION OF THE FINDINGS OF THIS FACILITIES STUDY ARE:

NEW FACILITIES TIED TO THE EDUCATIONAL DELIVERY

The link between the expansion of campus facilities justified on the basis of educational delivery requirements and/or new course delivery.

PROJECTED HEADCOUNT AS THE DRIVER FOR CAMPUS FACILITIES

The need to align the allocation of new facilities through consideration of the projected headcount for each campus and considering how this is balanced across all campuses.

PREMIER EDUCATION FACILITY

There is an opportunity for COM-FSM to maintain position as the premier education provider with facilities of a quality to support National and State educational outcomes.

PREPAREDNESS FOR 2023

Through the implementation of the College's Facilities Master Plan informed by this Facilities Study position the COM-FSM in the best shape post the Compact agreement review. The strategy to achieve this is to:

Replace buildings that have disproportionate operational costs and/or have identified structural or building fabric condition issues

Provide for targeted upgrades of the remaining buildings and/or retrofit for new or alternative functions.

BRIDGE THE FUNDING GAP THROUGH GRANTS

To identify the funding available and implement a strategy of applying for additional grant funding to achieve all the projects outlined in the first five year plan within that period.

IDENTIFY THE COM-FSM REFERENCED MAINTENANCE LEVEL

The need to identify the appropriate building management framework to implement the College's Facilities Master Plan informed by this Facilities study that acknowledges the climate, cultural and financial funding factors.

PROJECT EXECUTION AND CAPACITY BUILDING

There is an opportunity in the implementation of the College's Facilities Master Plan informed by this Facilities Study to provide "real" world facilities management teaching opportunities for staff and students for the benefit of the nation.

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FACILITIES MASTERPLAN PROCESS

Beca International Consultants Ltd. were commissioned in May 2013 to prepare a Space Utilization and Facilities Master Plan Study (also referred to as the Facilities Study) for the College of Micronesia located across six campuses in the Federated States of Micronesia (COM-FSM). This study will inform the College's Facilities Master Plan. The steps in this study involved the establishment of a Project Control Group (PCG) with representatives from COM-FSM, Sandy Pond Associates and Beca International Ltd (Beca). Questionnaires and Requests for Information were prepared to capture existing information for each campus including building and site plans, energy usage data and any known campus and facilities issues. This was followed by site visits undertaken in June/July and August/ September to each of the campuses for the condition assessment and the spatial review by Beca technical staff. Site visits to each campus were undertaken separately by Sandy Pond Associates. The chapters within this study were developed with reviews by the PCG at key milestones.

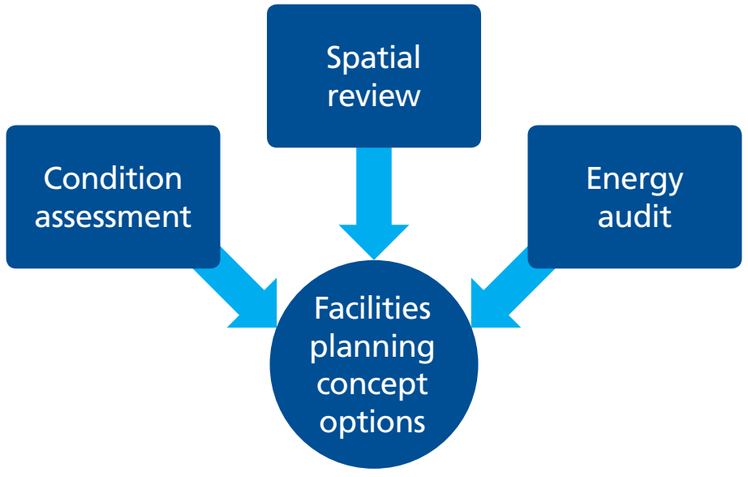
As outlined in the Determination of Future Space Needs in the Integrated Educational Master Plan:

"*The Facilities Master Plan* will provide a comprehensive review that evaluates and prioritizes the necessary facility improvements that respond to the college's forward strategic direction and links to the *Integrated Educational Master Plan*. This direction is outlined in the *COM-FSM Quality, Sustainability and Success: A framework for Planning and Action*, April 2012 and the *Facility and Campus Environment Plan*, January 2011 with goals being to:

- Increase rigor in decision making regarding new facilities construction
- Ensure adequate maintenance of college facilities
- Provide grounds and campus environments conducive to learning.

1.1 Work Streams

The following three work streams provided input into the development of the Space Utilization and Facilities Master Plan Study:



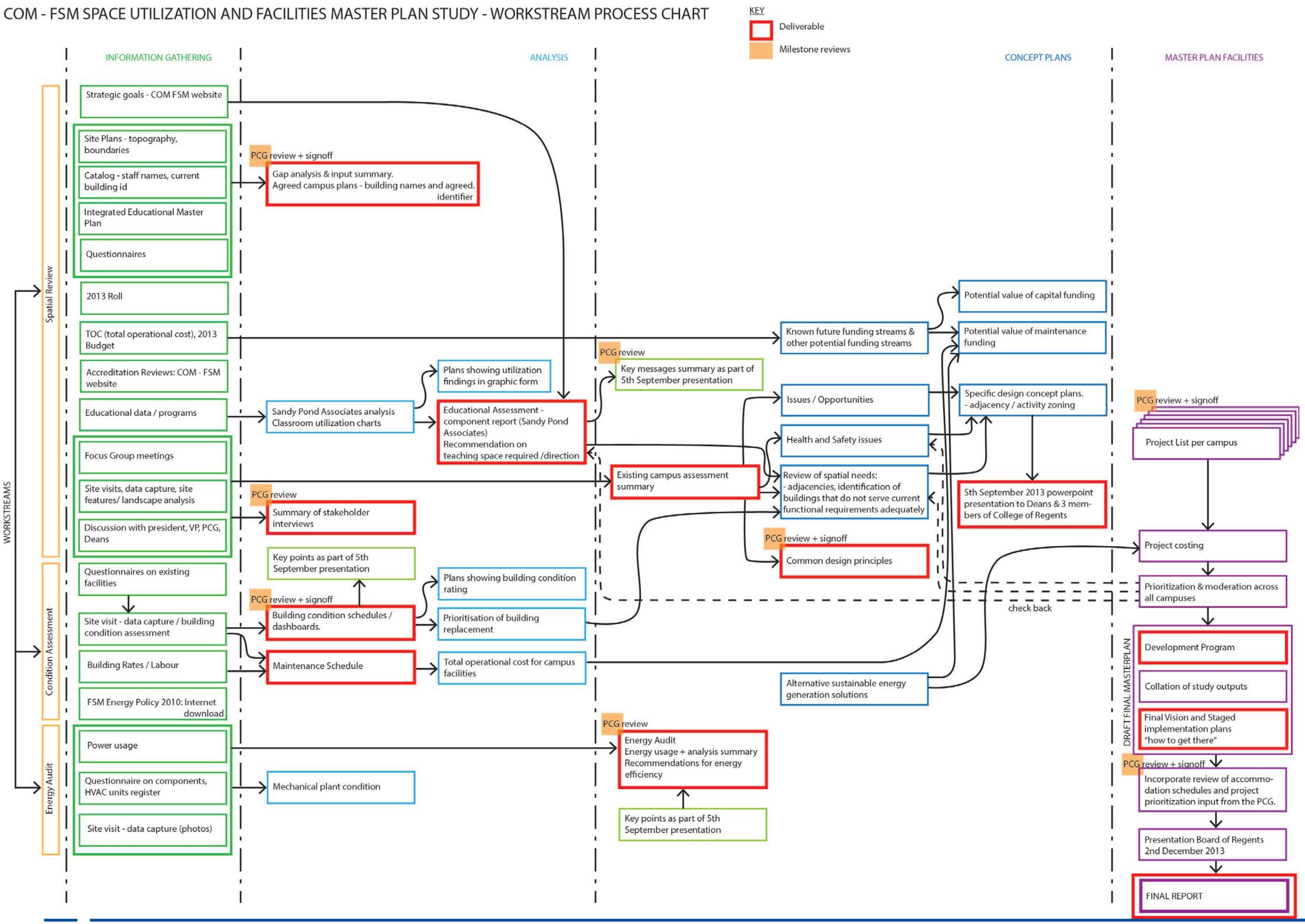
The output from each of these work streams informed the Facilities Study concept process which reviewed options for site development with the Project Control Group. Following the selection of the preferred option a series of campus specific projects were identified, costed and programmed. A summary of this for each campus is provided at the end of this report (pages 54 to 95) with more detail in the respective Part 3 detailed campus reports.

The general tasks undertaken in each of the work streams are summarised on the next page along with their location in the Space Utilization and Facilities Master Plan Study.

Spatial Review	Condition assessment	Energy Audit
▸ Educational assessment component - classroom utilization study (Part 2 - Chapter 6)	▸ On site review of existing buildings and infrastructure	▸ Review combining site observations and supplied energy use data
▸ Spatial analysis following site visit (Part 3 - specific campus reports)	▸ Maintenance plan	▸ Both in Part 2 - Chapter 8 and Part 3 - specific campus reports
▸ Focus group input (Part 3 - specific campus reports)	▸ Both in Part 2 - Chapter 8 and Part 3 - specific campus reports	
▸ Common campus design principles (Part 2 - Chapter 7)		

A series of feedback loops, deliverables and milestone reviews were completed through the development of the COM-FSM Space Utilization and Facilities Master Plan Study. These are captured in the following methodology diagram.

COM - FSM SPACE UTILIZATION AND FACILITIES MASTER PLAN STUDY - WORKSTREAM PROCESS CHART



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REPORT STRUCTURE

The Part 1 Report provides a summary of the findings of the spatial review, educational assessment component, asset condition assessment and energy use review. These summaries outline the key findings and are in graphic format. Detailed information/ analysis plus raw data is provided in the Part 2 and 3 volumes.

The Part 2 Report provides a collation of the findings and actions derived from the space utilization study, the asset condition assessment and the energy review actions that are common to all campuses. It provides a comprehensive overview of prioritized project plan across all campuses and the common design principles proposed to underpin this future development.

The six Part 3 reports provides detailed campus specific information. This includes the input of the focus groups and spatial review as well as the asset condition and energy usage dashboards summarising the particular findings for each campus.

3

COLLEGE WIDE DEVELOPMENT STRATEGY

This development strategy has grown out of the Facilities Study process identifying the necessary steps to achieve the educational and community goals/ vision of the College of Micronesia - FSM. The recommended development strategy for the six College of Micronesia campuses is to:

1. Continue with COM-FSM being located across six campus locations with:

- The state campuses providing 100 and 200 courses and providing the role of transition into degree courses generally offered at the National campus
- The existing National campus strengthened as the campus where most degree courses are offered
- The existing Pohnpei campus being recognised as the Career and Technical Education Center and for the efficient use of resources be the sole vocational facility for the nation
- There being one campus in two locations in Pohnpei each with their own character and offering but with increased sharing between the two

2. Focus on sustainability of the existing campuses buildings and infrastructure by:

- Identifying funding source/s for maintenance and renewals
- Working through the proposed maintenance recommendations to address deferred maintenance and minimise the escalation of campus building maintenance and renewal costs
- Reducing the maintenance cost through the removal and replacement of buildings and infrastructure that contribute to a disproportionate amount of the operating and maintenance costs

3. Focus on the future sustainability of the COM-FSM campuses beyond 2023 by:

- Following a staged development approach for each campus broken into 5, 10 and 10 + years with plan reviews/ updates at 5 year intervals to assess the impact of changes in actual and projected student numbers plus changes to education delivery, plus prioritising the development of campus assets as follows:
  - i. Addressing any health and safety issues
  - ii. Projects that have a link to educational outcomes
  - iii. Other projects that assist to support better campus outcomes
- Designing replacement and new buildings to be delivered through staged implementation and/or designed to have a multipurpose function allowing for change of use over time
- Focussing on sustainable design principles for new buildings i.e. passive solar design, material selection, use of natural ventilation and insulation to reduce operational cost.

4. Implement a development strategy that:

- Is fiscally responsible and is informed from an evidence base i.e. space utilization study, condition assessment, spatial review components
- Prioritises the provision of dedicated classroom space for Vocational Education giving effect to the Board of Regents Two-Year Action Agenda's emphasis on vocational programming
- Works towards a permanent site for the Chuuk campus on the Nantaku site based on a review of the spatial requirements, proposed infrastructure servicing and access assumptions from the 2001 Master Plan
- Considers development beyond the traditional classroom and Learning Resource Center models acknowledging that with the availability of wi-fi the location for learning to occur is no longer restricted to just these spaces
- Upgrades technology as a key component of campus upgrades

3.1 Project Prioritization and Identification

3.1.1 Project prioritization

The development strategy underpins a series of projects that have been identified for each campus. These have been identified in considering the physical condition, spatial quality and energy efficiency of the current campuses particularly through the focus groups undertaken with students, faculty and staff as well as discussions with Deans of each campus.

The projects have been through a process of prioritization for each campus – identifying projects that are desired in the short term (next 5 years), medium term (10 years) and the long term (10+ years). A campus specific project plan, capturing the projects with their cost estimates, is included within each of the respective Part 3 Campus Detailed Reports.

The consolidated project plan included in this section brings together all the campus projects into a potential program, developed with the underlying principle of providing parity across campuses. Fundamental to this is the application of financial constraints, so the consolidated project list has been reviewed against the identified funding stream as informed by the PCG during the study.

3.1.2 Project identification

The outputs of the Space Utilization and Facilities Master Plan Study have informed the prioritization of facilities improvements. The inputs to the decisions made with regard to project development and prioritization has been drawn from a range of work streams, these being:

Classroom utilization study – a component of the spatial review workstream: The fourth key finding of the space utilization study is that "dedicated classroom space for Vocational Education should receive priority attention in facilities planning" with consideration in regard to the Pohnpei and Yap campus in the first instance. It is noted that the Board of Regents Two Year Action Agenda has placed an emphasis on vocational programming.

A further point raised as an outcome of the study is that the analysis suggests "there is little need to increase overall institutional classroom capacity on the basis of any foreseeable trend." The basis to this point is that the overall classroom need as measured by projected enrolment changes throughout COM-FSM six-campus system is noted as relatively flat within the ten year horizon.

Key point from the classroom utilization study: The existing campuses are adequately provided for in regard to teaching spaces. The drivers for removing, relocating and/ or replacing existing facilities do not come from a requirement to provide additional classroom space.

Asset (Building and Infrastructure) Condition Assessment workstream: A series of buildings have been identified and it is considered uneconomic to renew/maintain the building or asset and demolition/ replacement is recommended. This has come from either feedback received from the facilities questionnaire on specific building condition or observations from the assessment visit and analysis suggesting either structural failure of the foundations or building frame elements. This is further outlined in Section 2.3.

Spatial review workstream: The development of activity zones grouping similar activities in close proximity has led to a review of building suitability based on their location and function. The result is a list of projects where functions are proposed to be moved to achieve operational efficiency. Suggestions for modifications to buildings to suit new functions are also made in the campus project list.

To establish parity across campuses additional space is suggested for functions where the desired COM –FSM spatial target is not reached.

A review of the facilities that need to be provided for a future headcount number has also been completed. This has found that on some campuses there is need for additional Learning Resource Center or computer lab space along with facilities such as toilets or carparking to cater for the projected increased headcount.

Lastly, new activities that require specific buildings with spaces of a size and shape not already provided for on each campus completes the project list. A comprehensive campus list identifying proposed projects is contained in Chapter 2.6.

3.2 Ability for Campuses to Meet the Spatial Requirements of an Additional Headcount with Existing Classroom and other Facilities

As outlined in 2.1.2 Project Identification, "there is little need to increase overall institutional classroom capacity on the basis of any foreseeable trend."

The historical data on enrolment figures from the COM-FSM website shows the fluctuation of headcounts over the last 10 year period. What is revealed by these figures is the ability of each campus to absorb increased headcount numbers.

Enrollment trends Fall Semester 2004 - 2013 by Campus

Term	Chuuk	Kosrae	National	Pohnpei	Yap	Total
Fall 2004	690	322	968	567	149	2696
Fall 2005	371	320	929	583	176	2379
Fall 2006	548	194	974	620	177	2513
Fall 2007	491	184	903	608	180	2366
Fall 2008	457	252	895	642	209	2455
Fall 2009	580	233	1005	712	228	2758
Fall 2010	479	218	1051	742	209	2699
Fall 2011	493	261	1088	845	228	2913
Fall 2012	409	268	1069	771	227	2744
Fall 2013	319	243	1017	672	195	2446

Further to this historical table the planning for the future requirements of each campus has been informed by the findings of the Education Assessment Study by Sandy Pond Associates (refer to Chapter 6 of this report):

One of the key planning tools is the campus design capacity driven by the 5-Year study period utilization rates and actual enrolments.

Following is an excerpt from Sandy Pond Associates to provide background:

Capacity Headcount by Campus

Chuuk	Kosrae	National	Pohnpei	*Yap
702	374	1300	956	364

** Note that the use of historic & observed data over the five year study period on the Yap campus does not fully account for classroom capacity represented by construction that just came into service or left service in Fall 2013.*

It should be noted that capacity is not a precise measure. It is influenced by a number of variables, including programmatic enrolments, pedagogical methodologies, and new program demands.

The methodology chosen utilizes the average of the historic headcounts and the average observed classroom utilization rates during the 5 year study period. The historic headcounts were divided by the average observed utilization rates for each campus location.

Across all campuses, this methodology suggests that cumulatively a growth factor of 34% above the 5 year study period average remains. This factor varies widely on each campus:

Chuuk	Kosrae	National	Pohnpei	*Yap
45%	52%	27%	19%	34%

Note: These capacity recommendations per campus are not seating capacities and classroom space should not be allocated or designed based on these figures. Furthermore, these capacities are based upon campus headcounts and are derived from the utilization rates of classrooms on each campus and thus can be used with some confidence to project the ability of the campus to function within these limits.

3.3 Assessing the Need for Additional Facilities Based on the 2018 Projected Headcount Figure

The COM-FSM Fall Enrollment Trends (2004-2023) captured in TABLE I.C.1 in Chapter 6 shows a total projected headcount figure in 2023 of 2914. This is less than the capacity headcount of 3696.

The briefing for the desired new facilities was taken on the campus site visits and has been assessed post trip against the projected headcount (from the space utilization review). The 2018 headcount figure has been selected as a facilities design figure as it is understood that there will be a review after a 5 year period. This provides an opportunity to check the actual headcount number and see if it is trending up or down.

As seen in the table below the 2018 headcount figures for some campuses is less than the current headcount. The impact of this is that there will be less projects on some campuses than anticipated. This information was made available after the August spatial review site visits. One of the drivers for the project prioritization is to achieve parity of facilities across campuses informed by the projected headcount.

Current and projected headcount in 2018 per campus

Campus	2013	2018
Kosrae	243	212 (13% less)
National	1017	1136
Pohnpei	672	898
Chuuk	319	296 (7% less)
Yap	195	263

The headcount number outlined in the table above is used within the individual Part 3 campus reports to benchmark the provision of toilets, learning resource center and computer lab space and parking stalls. This has led to a recommendation at some campuses (Yap, Pohnpei and National in particular) to increase the amount or size of some facilities and because of this has triggered a new building project.

3.4 Buildings Requiring Replacement Based on the Asset Condition Assessment

As outlined in 2.1.2 Project identification, the findings of the Asset Condition Assessment has informed the project prioritization. Out of the 68 buildings surveyed, 11 have been identified as having a poor grading with an added overlay of a poor structural condition grade. Repairs to the structural elements becomes an issue, particularly for teaching spaces without the availability of spare buildings to move into while these buildings undergo repair.

The following buildings have been identified as having a poor structural or building fabric grade:

Campus	ID	Building Description
National	L	FSM- China Friendship Sports Center
Pohnpei	B	Bookstore
	C	I.C Building/ Electronics Classrooms
	D	Classroom Building A
	K	TSP/ UB Building
Chuuk	D	Campus Dean's Office
	J	Student Center
Kosrae		Nil
Yap	A	Administration Building
	C	CRE building
	G	Vocational building
FSM-FMI	F	Security Post

The location of these buildings on each campus is shown on the Building Condition Assessment Summary Plans in Chapter 8 of this report.

The following buildings have been identified as having a disproportionate operational and maintenance cost (when compared to their estimated replacement cost).

Campus	Building or Asset	Replacement Cost (as % of Campus Assets) (A)	Operational Cost (as % of Campus Operational Cost) (B)	Difference (C= B - A)
National	Gymnasium	19%	31%	+12%
Pohnpei	UB & TSP	17%	49%	+32%
Chuuk	Midtown (off campus)	6%	20%	+14%
Kosrae	Site infrastructure	17%	25%	+8%
Yap	Vocational Building	10%	29%	+19%
Yap	Administration Building	14%	22%	+8%
FSM-FMI	None identified			

The above table assumes that the proportional ratio between the replacement cost and the operational cost should be equal. Any discrepancy in this ratio highlights where additional operational cost is being incurred. Refer to Appendix C in the campus specific reports for more detail on the above.

In comparison (to the table above) the new buildings on the Yap campus (as shown in the table below) highlight the savings in operational costs that new and appropriately designed buildings can deliver for COM-FSM.

Campus	Building or Asset	Replacement Cost (as % of Campus Assets) (A)	Operational Cost (as % of Campus Operational Cost) (B)	Difference (C= B - A)
Yap	Student Center (New)	15%	8%	-7%
Yap	Classroom Building (New)	18%	8%	-10%

3.5 Proposed Removal, Relocation and/or Replacement of Existing Facilities Informed by the Spatial Review

The outcome of the spatial review is the identification of new building projects. In this Facilities Study the following buildings have been identified for removal in the next 5 years either because of their location (they need to be removed for access or there is a new building to be located in their place) or their shape and size means they no longer provide a functional use.

Campus	ID	Building Description	Reason for removal
Kosrae		Toilet block next to Classroom Building J	No longer used as a toilet block
	C	Faculty Building	Open up the center of the campus

The remaining buildings on each site will require the deferred renewals and maintenance to be addressed so they will not degrade further. This is discussed in the Asset Condition Assessment in Chapter 8 of this report.

The following new buildings have been identified through the spatial review for development in the next 10 years (up to 2023).
A further iteration of the table below is required based on the available funding.

Ten year project list 2013 - 2023

Campus	Plan ID [1]	Building Description	Reason for identification
National	1	Health Clinic	COM-FSM initiative following the move of Public Health to southern boundary and potential to interface with the community
	2	New student center	Provide a center for students on campus
		Covered area for residential students	Provide a center for students on campus, meeting place
		Contemplation building	Identified as a need through the focus groups
Pohnpei	1	New technical education classroom (previously called Voced)	Support the 2 year Board of Regents Action Agenda's Emphasis Plan to prioritize the provision of dedicated classroom space for Vocational Education
	2	New multipurpose technical education building	
	3	New learning resource center`	Provide adequate space for increased student numbers
	4	Multipurpose technical education building on the main road frontage (previously called Voced)	Support the 2 year Board of Regents Action Agenda's Emphasis Plan to prioritize the provision of dedicated classroom space for Vocational Education
Chuuk – existing site	A	CRE Extension(funded by others)	Provide space for existing extension offering currently lacking dedicated space
Chuuk - Nantaku site	1	Administration, faculty and student services	Provide the facilities required on the new site for the projected student numbers
	2	New classroom building	
Kosrae	1A	New multipurpose building (Stage 1)	Provide for centralized services and a covered student meeting space
	1B	New multipurpose building (Stage 2)	Expand the building to meet service requirements for an increased roll
	2	Maintenance facility	Replacement and provision of storage facility
Yap	1	Vocational education building	Support the 2 year Board of Regents Action Agenda's Emphasis Plan to prioritize the provision of dedicated classroom space for Vocational Education
	2	Administration and faculty building	New building replacing the existing that has issues with floor and walls
	3	CRE Extension building (funded by others)	Space not currently provided for on site
	4	LRC and computer lab	Provide adequate space for student numbers
FSM-FMI	1	Residential building	Allow for expansion of administration functions in the administration wing by providing a separate residence
	2	Classroom/ study building	Enable the existing computer lab to expand and allow for group study
	3	Engineering shop	Provide for adequate space and ventilation

[1] For location of the building on site refer to the plans in Chapter 1.2 of the Part 3 report detailed report.

The following new buildings have been identified through the spatial review for development after 2023:

Campus	Plan ID [2]	Building Description	Reason for addition
National	3	New Marine Science/ Applied research	Provide for degree courses in marine science and support research by having a dedicated facility
Pohnpei	5	Two storey administration and classroom building	Provide for replacement classrooms and improved entrance facility – front face to the campus
Chuuk	3	New LRC and Land Grant	Provide the facilities required on the new site based on projected student numbers
	4	New maintenance facility	
Kosrae	3	CRE building (funded by others)	Replacement building
	4	LRC building	New facility and allow for expansion of functions in the multipurpose building
	5	Multipurpose sports/ drama building	Support educational aims
Yap	5	CRE - Research (funded by others)	Replacement based on the existing building condition assessment
	6	New classroom block	Additional classrooms dependent on increased student numbers
	7	Gymnasium or covered court	Provision of a recreational amenity
FSM-FMI		Covered recreation area	Provision of an all-weather recreation facility

[2] For location of the building on site refer to the plans in Chapter 1.2 of the Part 3 report detailed report.

3.6 Consolidated Campus Project List

Additional to new buildings on each campus is the refurbishment of existing buildings, infrastructure and open space projects. The full consolidated campus project list developed for the Facilities Study is outlined in the following table. The order of projects is captured in a summary list at the end of this table. This summary captures the priorities for new development at the COM-FSM campuses following input from the Board of Regents in December 2013, PCG input through the study and discussions held during the Campus site visits.

	NATIONAL CAMPUS	$0
	5 year period to 2018	
1	Secure IT facilities with server room and backup area	$40,000
2	Public community health interface building	$1,510,000
3	Toilets at MITC building - replace darkroom area with wc facilities accessible for weekend use	$35,000
4	Rationalize the science storage space to include project space through replanning layout of the existing space	$50,000
5	Rationalize the administration area through the review of area used for storage of files and alternative means of storage - moveable shelving, digitized files	$50,000
6	Upgrade the gymnasium building to provide facilities required for next 10 years - i.e. space cooling, water storage, solar panels (potential for funding by others)	$400,000
7	Increase disabled access across the site - access to both administration levels	$170,000
8	Consolidate bookstore and bookstore warehouse area	$20,000
9	Relocate security within the campus (previous bookstore area)	$5,000
10	Provide a covered pick up/ drop off space for taxis/ buses at main entry	$20,000
11	New two level student services building	$2,909,999
12	Landscape work, paths in connection with the new student services building	$265,000
13	Remove offices on the side of the dining hall and increase dining hall space	$20,000
14	Combined covered area for residential students	$115,000
15	Full outdoor Basketball court	$80,000
15a	Sewage leaching field	$135,000
15b	Track and field / baseball facility including associated vehicle access and parking as well as pedestrian access	$1,000,000
	10 year vision to 2023	
16	Quiet contemplation place for residential students - pastoral care	$50,000
17	Marine science/ applied research building adjacent to the agriculture building	$2,035,000
	Further projects (not in order of priority)	
	Solar power generation	$500,000

	POHNPEI CAMPUS	$0
	5 year period to 2018	
1	Create a vehicle route through the campus for service access and service with fire hydrants, consider demolition of end of classroom building to route access around existing mahogany trees. Seating areas for small group or individual study.	$280,000
2	Relocate building K functions (TRIO program) to top floor of PSBDC	$5,000
3	Demolish Building K	$100,000
4	Demolish the Electronics building	$20,000
5	New technical education classroom building along the boundary on the upper campus	$1,530,000
6	New multipurpose technical education building along the boundary on the upper campus	$1,525,000
7	Wifi connectivity	$0
8	Site works associated with the new technical education buildings including rationalizing vehicle access, parking lot, signage, pedestrian connections, perimeter and structured planting	$320,000
9	Create a public face for the upper campus with new signage and entry points	$25,000
10	New facility for LRC	$1,160,000
11	Demolish bookstore	$30,000
12	Walkway connecting high level buildings to lower level access road, access route from elementary school to top of the site as an alternative access	$275,000
	10 year vision to 2023	
13	Demolish carpentry and mechanical building	$30,000
14	New multipurpose technical education building at the upper campus entry with area for maintenance and storage	$765,000
15	Relocate Land Grant to top floor of PSBDC and remove COM Land Grant and relandscape front of PSBDC	$175,000
	Long term vision - beyond 2023	
16	Turn around area in front of administration with a one way entry and exit	$50,000
17	Two storey building at the front gate of the lower campus for administration and faculty	$4,870,000
18	Demolish administration building	$30,000
19	Increased carpark area in the lower campus and landscaped small study area, outdoor volleyball area, eating space	$630,000
	Further projects (not in order of priority)	
	Solar power generation	$500,000
	Works to increase drainage capacity - swales and subsoil drainage	$150,000
	Fire fighting hydrants through site	$170,000

	CHUUK CAMPUS	$0
	5 year period to 2018 - assumes interim upgrades prior to move to a permanent site	
1	Extend campus to the north, fence perimeter and create a coral base carpark area with an entry and exit onto the main road	$210,000
2	Restrict cars to campus, designate carpark area for visitors, create a central grassed area, 2 study huts on the coastal edge	$100,000
3	Retrofit a classroom with a science bench and plumbing	$80,000
4	Reroof student covered area and add roof ventilation	$0
5	Upgrade wi fi	$0
6	Extend CRE - extension building to main road ($520,000 funded by others)	$0
7	Landscaping (continuous line of hedges) along the road frontage and upgrade signage	$20,000
8	Meeting room for student body meetings - review classroom use and retrofit within existing building footprint	$5,000
9	Staff lounge - meeting place for all faculty - review classroom/ faculty space and consider conversion of one faculty office	$5,000
10	Conference space set up with conferencing remote learning - review classroom utilization and convert classroom space to new function	$0
	7 year vision on the Nantaku site - to 2020	
11	Road connection to site	$2,300,000
12	Site infrastructure services - water supply, site drainage, sewage disposal, electricty	$3,250,000
13	On site roading infrastructure and form basketball hardcourt area	$1,250,000
14	Building 1,2 - two level administration and classroom building and associated landscaping	$8,030,000
	10 year vision to 2030	
15	Building 3 – LRC and Land Grant	$4,235,000
16	Building 4 - Maintenance building (at top of the site)	$430,000
17	Building 5 - two level classroom building dependent on roll number increase	$3,390,000
18	Associated landscaping	$135,000
	Further projects (not in order of priority)	
	Solar power generation	$500,000

	KOSRAE CAMPUS	$0
	5 year period to 2018	
1	IT server in a secure environment in the existing administration building	$40,000
2	Upgraded Wifi	$0
3	Open sided shelters for charging electronics and outdoor study (4 off)	$40,000
4	Consolidate student services functions in a multifunctional building - stage 1 two storey building	$3,280,000
5	Site works associated with multifunctional entry building - carpark, streamside works along the length of the new building , landscaping, signage, pedestrian connections, perimeter and structured planting, clear view shafts to visitor center	$560,000
6	Recreational area - outdoor basketball/ volleyball space and associated landscape works	$150,000
7	Refurbishment of the old LRC and computer lab into classrooms	$30,000
8	Demolition of the toilet block at the eastern end of Classroom Building J	$5,000
9	Demolition of Faculty Building C and upgrade surrounding vehicle access and carpark	$290,000
10	Demolition of Bookstore Building I and provide for a landscaped area (either active or passive recreation). Alternative is to remove portions of the walls to create an open air study area and solar charging station	$110,000
	10 year vision to 2023	
11	Stage 2 of the entry multipurpose building with faculty and administration functions added to building	$1,050,000
12	Relocation and fitout of specialized science classroom and faculty space into Block J. Demolish administration / science building	$220,000
13	Pedestrian bridge across to southern streamside bank and level area for covered open sided multipurpose drama/ recreation space - ability to seat up to 300	$1,050,000
14	New storage and maintenance building	$400,000
15	Demolish existing maintenance office and building - landscape works along the streamside	$150,000
	Long term vision - beyond 2023	
16	New CRE - extension building either at research building site or in the community interface activity zone	$1,310,000
17	New Learning Resource Center	$2,525,000
18	Associated landscaping with the LRC - paths, shrubs, seating	$560,000
	Further projects (not in order of priority)	$0
	Provide facility for on site water supply	$530,000
	Solar power generation	$500,000
	Investigate and reroute power lines across the site	$50,000
	Works to increase drainage capacity - swales and subsoil drainage	$50,000

	YAP CAMPUS	$0
	5 year period to 2018	
1	Formed paths providing direct connection between buildings through the center of the campus	$65,000
2	Refit computer classroom for combined upward bound and computer lab	$20,000
3	Access to boundary carpark - southern boundary	$440,000
4	Fence around German tower if required	$15,000
5	New VOCED building and maintenance facility	$2,400,000
6	Create hard court area near Student Services building , 2 study huts and landscaping	$40,000
7	Implement a landscape plan across the campus	$265,000
	10 year vision to 2023	
8	Demolish computer lab building	$30,000
9	New administration and faculty building on computer lab site	$1,720,000
10	Demolish administration building	$30,000
11	New LRC and computer lab on previous administration site	$1,900,000
12	New CRE extension to CRE building	$670,000
	Long term vision - beyond 2023	
13	Relocate hardcourt area	$85,000
14	Additional new classroom block between student center and classroom block	$740,000
15	New gymnasium	$1,930,000
16	New CRE - Research wing ($1,120,000 funded by others)	$0
	Further projects (not in order of priority)	
	Relocate power poles servicing other properties	$50,000
	Solar power generation	$500,000
	Works to increase drainage capacity - swales and subsoil drainage	$50,000

	FSM-FMI CAMPUS	$0
	5 year period to 2018	
1	Address provision of fire fighting facilities	$165,000
2	Building 1 - New duplex residence for instructors in the residential zone	$840,000
3	Relocate women's quarters into the north eastern end of Administration Building A and add conference room and administration office to area vacated by the residence.	$40,000
4	Remove wall between men's and previous women's quarters. Move men's quarters to the north and utilise the southern quarters as library study space	$5,000
5	Increase computer room to incorporate former library space in Building C	$3,000
6	Separate server room from IT office (within existing building envelope)	$20,000
7	Provide covered access over classroom doors to Building C, new cadet toilet block next to Seaman's shelter and rationalise location of the access path	$60,000
8	Upgrade below ground services - drainage and watersupply	$200,000
9	Storage for maintenance materials (potentially a container type facility)	$10,000
10	Address the current sewage system and leaching field	$135,000
	10 year vision to 2023	
11	New classroom/ study space with covered access connecting to residential quarters	$465,000
12	Improve shop areas by constructing a stand alone engineering shop area	$265,000
13	New security post	$30,000
	Provide facility for on site water supply	$350,000
	Solar power generation	$500,000
	Works to increase drainage capacity - swales and subsoil drainage	$100,000
	Long term vision - beyond 2023	
14	Covered recreation area (over basketball court) for drills	$740,000
	Further projects (not in order of priority)	
	Work with State Government to investigate rerouting the main road to the south of the classroom Building C	$200,000
	TOTAL	**$73,968,000**

New Development Priority listing (Prepared following input from the Board of Regents in December 2013, PCG input and discussions held during the Campus site visits during the course of the Facilities Study).

Year 1 to 5

1. Pohnpei campus - 3 buildings

   New Technical Education Classroom, Multipurpose Technical Building (including workshops) and Learning Resource Center and associated demolition and onsite campus roading and infrastructure services upgrades

2. National campus - 2 buildings

   Health Clinic and new Student Center

3. Yap - 1 building

   Vocational Education building and associated onsite campus roading and infrastructure services upgrades

4. Chuuk - existing Weno site

   Targeted upgrades to the existing Weno site and further investigations for the Nantaku site

5. Kosrae - 1 building

   Stage 1 of a multipurpose building (Student and Administration Center) and associated onsite campus roading and infrastructure services upgrades

6. FSM-FMI

   Onsite campus infrastructure services upgrades

Year 6 to 10 - US $24.2 Million

1. National - 1 building

   Marine Science and Applied Research building

2. Pohnpei - 1 building

   New multipurpose technical education building at the upper campus entry with associated campus roading and services infrastructure

3. Yap - 2 buildings

   Administration/ faculty building and Learning Resource Center/ Computer hub buildings

4. Chuuk (Nantaku site – 3 buildings)

   On site infrastructure servicing (roads, sewerage, water, power, telecoms supply), two educational/administration function buildings and a maintenance facility. Extent of the facilities provided will need to be reviewed at Year 6 based on the projected student roll. The outcome of the Facilities Study indicates a declining roll and therefore reduced need for facilities in the future. An assumption made is the road to the Nantaku site is funded and built by others prior to the campus development.

5. Kosrae - 2 buildings

   Stage 2 of the multipurpose building, multipurpose drama building with associated site services infrastructure and upgrades to maintenance and storage facilities

6. FSM-FMI - 2 buildings

   New classroom building and extension to the engineer shop facilities

Year 10 to 15 – US $19.9 Million (post Compact timeframe)

1.Pohnpei - 1 building

   Administration/LRC and Faculty building at the lower campus entry with associated site services infrastructure and carpark provision

2. Yap - 2 buildings

   New classroom block and a gymnasium building

3. Chuuk - Nantaku site – 2 buildings

   Two additional educational buildings dependent on student roll numbers

4. Kosrae - 1 building

   Learning Resource Center

5. FSM-FMI - 1 building

   Covered recreation area

3.7 Identified Funding Source

Known funding sources available to COM-FSM have been identified by the Project Control Group. As well as the known funding streams there are also potential funding streams. There is a need to identify funding for both new facilities as well as the renewal and maintenance of the existing facilities. A balance is required between the desire for new facilities and making sure the existing facilities are at a standard that enables the campus to function adequately.

3.7.1. Identified funding sources for capital works

We understand that there has been a previous budgetary commitment for capital improvement projects. Table 1 outlines the list of projects with estimated capital values submitted to FSM and OIA (US Office of Insular Affairs) provided by the PCG as an input to the study. We have taken this project list as an indication of the quantum of funding forthcoming as part of the Compact agreement. The final project plan developed as part of the Facilities Study incorporates the projects in Table 1 below that continue to be identified as those that will contribute to the future sustainability and educational direction of the College.

Table 3 summarises the anticipated Compact of Free Association, FSM Infrastructure Development Funds out to 2023. These figures have been used to inform capital project planning.

3.7.2 Identified funding source for maintenance and renewals

With the figure of $3.3M for the periodic maintenance and renewal of building element requirements (including escalation) identified in the Asset Condition Assessment it is imperative to secure funding sources for this activity. This is required alongside funding for replacement buildings that have deteriorated beyond repair or are no longer effectively supporting educational outcomes.

Table 1: Outline of the current budget appropriation

COLLEGE OF MICRONESIA - FSM
CAPITAL IMPROVEMENT PROJECT
BUDGET PLAN FY 200

As of April 22, 2010

Project Description	2005- to 2006	2007	2008	2009	2010	2011	2012	2013	TOTAL
Yap Campus Classroom & Student Center & Furnishing	**2,200,000**	**Under Construction**							
Yap VOCED	**(Hold)**								
Kosrae Campus Student Center		1,334,880							
Kosrae Campus LRC	**(Hold)**		1,085,830						
Kosrae VOCED	**(Hold)**								
Pohnpei Campus LRC	**(Hold)**			1,448,038					
Pohnpei Campus Classroom & Vocational Center				1,335,000					
National Campus Student Center					1,856,000				
Chuuk Campus Phase I	**(Hold)**					2,760,000			
Chuuk Campus Phase II	**(Hold)**						4,731,380		
Chuuk Phase III	**(Hold)**							1,595,000	
Natural Science Classroom & CRE									
Total Project Cost	**2,200,000**	**1,334,880**	**1,085,830**	**2,783,038**	**1,856,000**	**2,760,000**	**4,731,380**	**1,595,000**	**18,346,128**
IMF									917,306.40
Budget Appropriation	**1,830,000**	**1,500,000**	**2,350,852**	**2,397,956**					**8,078,808**
Difference	**-370,000**	**165,120**	**1,265,022**	**-385,082**					**(10,267,320)**

Table 2: Cross reference of the appropriated amount to the FSM Public Law number

Public Law Number	Fiscal Year	Amount					
PL11-9	**2005**	$ 330,000.00			**Amount Appropriated**	$ 8,078,817.00	
PL14-50	**2006**	$ 1,500,000.00			**Amount Obligated**	$ 2,200,000.00	
PL14-80	**2007**	$ 1,500,000.00			**Balance**	$ 5,878,817.00	
PL15-11	**2008**	$ 2,350,852.00					
PL15-71	**2009**	$ 2,397,965.00					
TOTAL Appropriation		**$ 8,078,817.00**					

Note: PL13-35 FY2004 IDP budget of $350,000 for Chuuk has been reimbursed to COM-FSM.

Table 3 summarises the anticipated Compact of Free Association, FSM Infrastructure Development Funds out to 2023. These figures have been used to inform capital project planning.

Table 3: Anticipated Compact of Free Association, FSM Infrastructure Development Funds to inform capital project planning (assume up to 2009 figure of $5.9M with $2M US per year from 2010 to 2023)

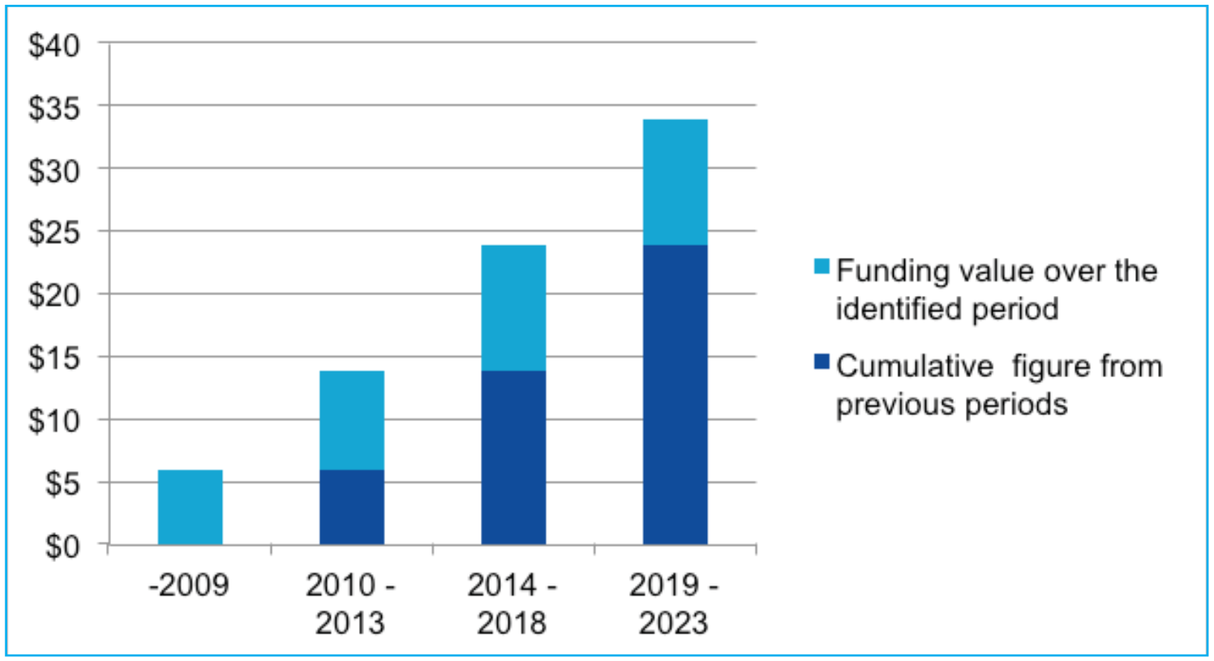
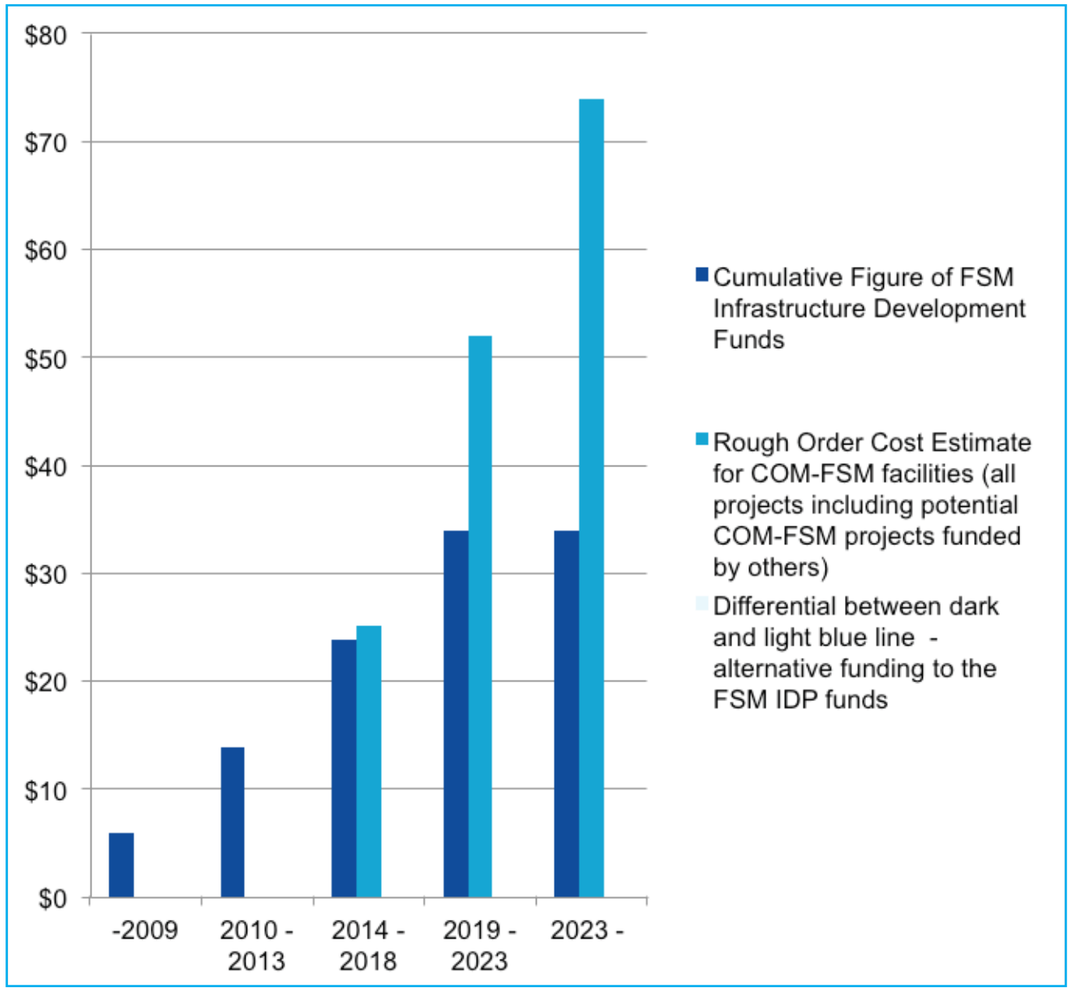


Table 4: Anticipated Compact of Free Association, FSM Infrastructure Development Funds versus Facilities Study rough order cost estimate



3.7.3 Additional Potential Funding sources

The following additional funding sources and value are identified:

Physical Resources Contingencies Fund

On August 16, 2011, the President's Cabinet approved a Physical Resources Contingency Fund policy presented by the Vice President for Administrative Services. The policy called

for an initial allocation of $500,000 from the fund balance and additional deposits of $50,000 annually. The purpose of the policy is to ensure immediate access to a reliable and ongoing funding source to support facilities issues not funded through the annual operations budget.[3]

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[3] College of Micronesia-FSM Mid-Term and Follow-Up Report (March 2013) http://www.comfsm.fm/accreditation/2013/midtermreport/MidTerm_and_Follow_Up_Report_2013_Final.pdf, page 46.

Further to this the following potential funding has been identified - the availability and scale of the following needs to be considered.

- Sustainable energy initiatives - capital projects
- Student facilities fee
- FSM state funding
- Education aid for capital projects
- Potential student volunteer labour (See Chapter 10.2 Optimised Maintenance Strategy)
- Any other known sources that can be identified by the PCG
- Current COM-FSM operations budget for maintenance (currently $150,000)
- Current COM-FSM budgeted amount for renewals (currently advised by PCG set at $350,000)

3.8 Connection to Facilities Planning and Financial Planning Discussed in the Integrated Educational Master Plan (IEMP) and Other Reports

This report, the Space Utilization and Facilities Master Plan Study, will inform the review of the Facilities component of the Integrated Educational Master Plan (IEMP). The IEMP was last issued in March 2013 and is due for review in 2018.

There is an issue to address in the financial plan regarding the operations and maintenance budget due to the scale of the renewals and maintenance budget identified as required in this study.

The integration of finances and the planning process has been raised in the following paper referenced in the IEMP, the *COM-FSM Quality, Sustainability and Success: A framework for Planning and Action*, written by President Joseph M. Daisy, EdD in April 2012.[4]

Step 3 (in italics below) in this paper outlines the importance of allocation of COM-FSM resources and integration of finances and the planning process.

Engaging in a systematic and regular review of the allocation of resources to assure that we fulfill our mission and maintain institutional effectiveness. In light of the significant financial constraints we face as a result of the JEMCO decrement, more than ever before it will be essential for us to integrate our finances with our planning process. An ongoing, transparent financial planning process which informs our integrated planning process will enable us to prioritize our broad educational objectives and effectively deploy our human, physical, technological and financial resources

- *Review immediately the alignment of our operational and financial plans for FY 2013 and if necessary re-prioritize these plans. We must also carefully review the financial resources in our plan implementation through FY 2015.*
- *Institute program reviews for all non-academic areas beginning in FY 2013 and link the results of academic and non-academic program reviews to resource allocations that will achieve our institutional learning outcomes.*

A status report by Sandy Pond Associates called *COM-FSM Quality, Sustainability, and Success: a Framework for Planning and Action - Status Report*[5] in October 2012 measures the progress of the steps outlined in the White Paper, and outlines the work that remains.

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[4] Daisy EdD, President J. M. (2012, April). COM-FSM Quality, Sustainability, and Success: A Framework for Planning and Action. http://www.comfsm.fm/irpo/visioning-summit/White-Paper.pdf

[5] Sandy Pond Associates, (October 2012) COM-FSM Quality, Sustainability, and Success: a Framework for Planning and Action - Status Report http://www.comfsm.fm/accreditation/files/10-26/COM-FSM-Status-Report-on-White-Paper.pdf

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For Task 1 for Step 3 the following was documented:

Step 3.

Engaging in a systematic and regular review of the allocation of resources to assure that we fulfill our mission and maintain institutional effectiveness. In light of the significant financial constraints we face as a result of the JEMCO decrement, more than ever before it will be essential for us to integrate our finances with our planning process. An ongoing, transparent financial planning process which informs our integrated planning process will enable us to prioritize our broad educational objectives and effectively deploy our human, physical, technological and financial resources.

Task 1.

Review immediately the alignment of our operational and financial plans for FY 2013 and if necessary re-prioritize these plans. We must also carefully review the financial resources in our plan implementation through FY 2015.

Work Completed

- The college has created a five-year financial plan that is tied to the Integrated Educational Master Plan (IEMP).
- The FSM National Government has reiterated its commitment to the college, as evidenced by its approval to restore the first $700,000 of the JEMCO decrement.

Work Remaining

- The college ought to prioritize the plans within the IEMP through an approved governance structure.
- The college should determine the long-term level of financial commitment of the FSM National Government to the college as related to the remaining $2.1 million JEMCO decrement.
- The college should consider establishing documented contingency scenarios for replacing the JEMCO decrement.

Table 5: Financial Plan from the IEMP

The Financial Data of the Plan

College of Micronesia - FSM
Five – Year Financial Plan 2013 to 2017
By Functional Classifications

	2013	2014	2015	2016	2017
Projected operative revenue:					
Tuition and fees	6,931,351	6,931,351	7,758,742	8,380,201	9,015,960
Increase in tuition and fees	-	618,873	621,482	635,759	-
Increase in average credit	-	208,518	-	-	-
Increase in enrollment	-	-	-	-	177,923
Other revenue	-	130,000	130,000	130,000	130,000
FSM - Education Sector Grant	3,100,000	2,400,000	1,700,000	1,000,000	1,000,000
FSM - General Fund	700,000	1,400,000	2,100,000	2,800,000	2,800,000
	10,731,351	**11,688,742**	**12,310,204**	**12,945,960**	**13,123,883**
Projected operating expense:					
Instruction	4,899,442	5,144,414	5,401,635	5,671,716	5,955,302
Student services	1,308,714	1,372,050	1,440,652	1,512,685	1,588,319
Academic support	951,002	998,552	1,048,480	1,100,904	1,155,949
Institutional support	1,453,381	1,526,050	1,602,354	1,682,471	1,766,594
Operations and maintenance	1,866,027	2,095,828	2,200,620	2,310,651	2,426,183
	10,606,566	**11,136,894**	**11,693,741**	**12,278,427**	**12,892,347**
Projected operating earnings	**124,785**	**551,848**	**616,463**	**667,533**	**231,536**

4

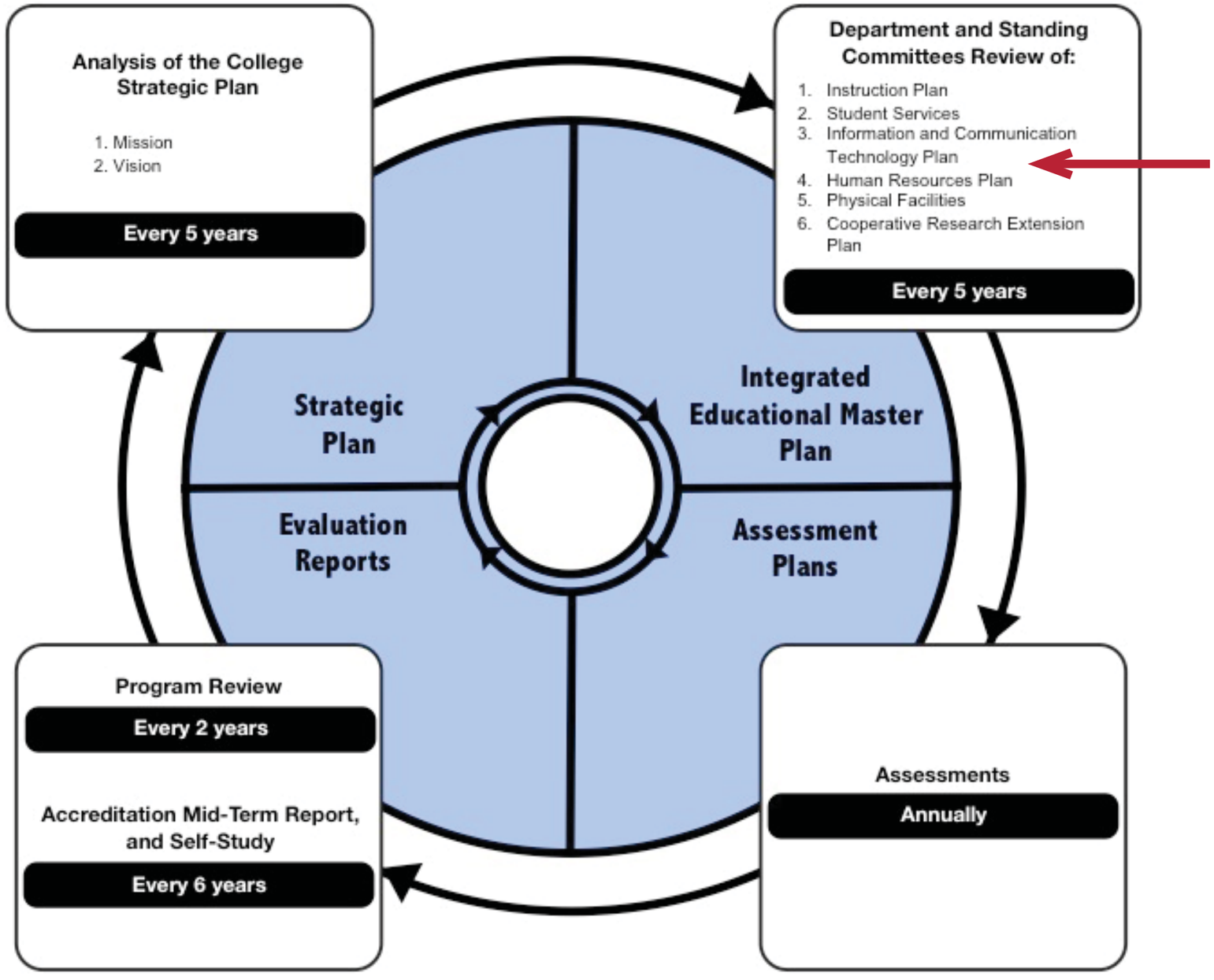
SPACE UTILIZATION AND FACILITIES MASTER PLAN STUDY - LINK TO THE INTEGRATED EDUCATIONAL MASTER PLAN AND OTHER COM-FSM REPORTS

The outcomes of this Facilities Study will be used as a basis for energy conservation programs, remodelling of existing buildings or replacement of buildings as well as future financial forecasting.

These will be implemented through the Physical Facilities Plan (see red arrow on the diagram below copied from the IEMP Report) - one component of the Integrated Educational Master Plan.

Through the Accrediting Commission for Community and Junior Colleges (ACCJC) reviews for the Western Association of Schools and Colleges (WASC) it has been stated that there is a need to address the following recommendation:

Recommendation 6: Physical Resources "To fully meet this standard the college must develop a Facilities Master Plan that reflects the institution's long term educational goals and plans and is linked to an identified, reliable and ongoing funding source that supports the total cost of ownership.(IIIB.2.a)"



The Assessment of COM-FSM's 2006 – 2011 Strategic Plan, a report submitted to President Joseph M. Daisy, EdD by Sandy Pond Associates outlines key strategic goals and objectives.This Facilities Study addresses some of these points as outlined in the table below:

Strategic goal 3: Create an adequate, healthy and functional learning and working environment

Objectives	Strategies	How this is addressed in the Facilities Study and/or implemented by COM-FSM
3A: Provide for adequate facilities to support a learning community	3A1: Complete and implement the college's physical Master Plan in consultation with the FSM's Project Management Unit	COM-FSM on adoption of this Space Utilization and Facilities Master Plan Study
	3A1a: Include accessibility issues in all design considerations	Addressed in Part 2 – Common Campus Design Principles (6.4.2)
	3A1b: Include efficient use of power in all design considerations	Addressed in Part 2 – Common Campus Design Principles
	3A1c: Recognizes the history and culture of Micronesia in design and construction of facilities	Addressed in Part 2 – Common Campus Design Principles
	3A2: Develop and implement a landscape place for each campus that promotes a learning environment	Addressed in Part 2 – Common Campus Design Principles
3B: Provide for maintenance and upkeep of grounds, facilities, and equipment	3B1: Develop and implement a facilities and equipment maintenance program for the college	COM-FSM Facilities Maintenance Staff informed by a maintenance plan
	3B2: Assess and improve existing facilities accessibility	Reviewed by building in the specific campus Master Plan reports – Part 3
	3B3: Ensure college facilities and grounds are clean and conducive to learning	COM-FSM Facilities Maintenance Staff supported by the common design principles
3C: Provide for a safe, secure and effective college environment	3C1: Development and implement internal security systems for each campus	COM-FSM Facilities Maintenance Staff supported by the common design principles
	3C2: Evaluate and improve facilities and grounds from a safety and security standpoint	Safety issues reviewed as part of the spatial review and the highest priority project item
	3C3: Develop and enforce policy on facilities use and management	COM-FSM Facilities Maintenance Staff
	3C4: Develop and implement infrastructure, security and transportation standard operating procedures for all campuses	COM-FSM Facilities Maintenance Staff

Strategic goal 6: Ensure sufficient and well-managed fiscal resources that maintain financial stability

Objectives	Strategies	How this is addressed in the Facilities Study and/or implemented by COM-FSM
6A: Enhance new and existing revenue resources to promote growth and increase cost effectiveness	6A1: Redefine college budgeting strategies for the efficient use of resources and delivery of quality programs & services	COM-FSM supported by the Energy and Condition Assessment
	6A2: Communicate the needs of the college effectively in support of capital campaigns	COM-FSM supported by the cost analysis and maintenance replacement program
	6A3: Enhance college alumni programs and scholarship development	COM-FSM
	6A4: Promote strategies that ensure the effective and efficient use of resources through reconciliation of accounts and tracking of performance against expenditures	COM-FSM
6B: Diversify resources of the College	6B1: Establish and secure other funding relationships with other government agencies, foundations, grant sources	COM-FSM
	6B2: Formalize and strengthen the alumni association and funding activities	COM-FSM
6C: Budgeting and resource allocation	6C1: implement a budgeting process that links resource allocation with the college's strategic and short term planning	COM-FSM
	6C2: Establish long and short term institutional priorities to provide broad guidelines for budget allocations	COM-FSM
	6C3: Ensure that budget allocation are adequate to meet program and project needs	COM-FSM
6D: Develop and implement college sustainability plans that will lead to the careful stewardship of natural and man-made resources, saving of revenue, and enhancement of the college experience; serves as a model for the nation	6D1: Develop and utilize alternative sources of energy	COM-FSM informed by the energy review
	6D2: Implement best practices for energy conservation	Best practice guidance addressed in Part 2 – Common Campus Design Principles
	6D3: Develop college housing for off-island faculty	COM-FSM
	6D4: Develop incentives to bring back FSM citizens working and living abroad to work for the college	COM-FSM
	6D5: Ensure effective use of external funding through institutionalization of proven programs and services	COM-FSM

5

GAP ANALYSIS AND INPUT SUMMARY

A Gap Analysis and Input Summary was prepared in Phase 1 of the study, the Information Gathering and Analysis phase for review by the Project Control Group.

The purpose of the gap analysis process was to identify the level of existing information available, information gaps and further information required. The Gap Analysis and Input Summary was issued on 5th August 2013 and approved with review comments from the PCG on the 17th October 2013.

The Gap Analysis and Input summary is contained in Appendix A.

6

SUMMARY OF CLASSROOM UTILIZATION STUDY

Sandy Pond Associates

6.1 Analysis of Classroom Utilization Rates

Section I deals primarily with "institutional capacity" versus "need" to assess the utilization of classroom space.

A. Five Year Trend Analysis Methodology

The Five Year Trend Analysis uses concepts common to the American Association of Collegiate Registrars and Admissions Officers (AACRAO). Reference is made to the definitive work by C. James Quann and Associates, Admissions, Academic Records, and Registrar Services (San Francisco: Jossey-Bass, 1979).

The Classroom Utilization Study presents a five (5) year trend analysis of space utilization across the institution. Space utilization must account for maximum capacities. The enrollment measure used is headcount rather than full time equivalents (FTEs)[4] because each student (no matter what proportion of an accounting FTE he or she represents) must have space in a class. Fall enrollments are used because they are usually higher than spring enrollments and consequently a better measure of capacity.

Typical measures of classroom utilization take into account scheduling during normal teaching hours (example Monday through Friday 08:00 to 17:00 hours). This analysis does make use of evening classroom use, which (based upon the examination of COM-FSM's published class schedules) does not appear to be significant. Normally, classrooms lie vacant or are given over to other uses during these times. For utilization purposes, this represents excess capacity that can be pressed into service during times of high enrollment. In the five year study period there is no evidence of a current or historic need for such use.

During the period of the study 81 rooms were scheduled for the conduct of classes. Some were used only once or twice. Some are no longer in use. It is understood that in 2013, as in other previous years, some rooms may have come into service or gone out of service.

B. Classroom Utilization as a Function of Capacity

Three (3) measures are used in this study to examine classroom capacity:

distribution by utilization classification
longitudinal utilization rate
distribution and central tendencies of classroom utilization

Within these parameters, classrooms that are in use 75% (or more) of scheduled class times is deemed "high" (alternatively "at capacity"). Classroom use between 66.7% and 74.9% is considered "moderate use." Classrooms between 50% and 66.6% are "low use" and those below 50% are considered "underutilized."

Utilization Classification Method: Table I.B.1 illustrates the pattern of classroom use during five year period of the study using the utilization classification method. One major observation is that over time approximately 45% of classrooms have fallen into the "low" or "underutilized" categories, while 35% have been utilized "at capacity." **This utilization classification analysis suggests that COM-FSM as a six-campus system has adequate classroom capacity** for its regular college programs given their historic enrollment and classroom use patterns.

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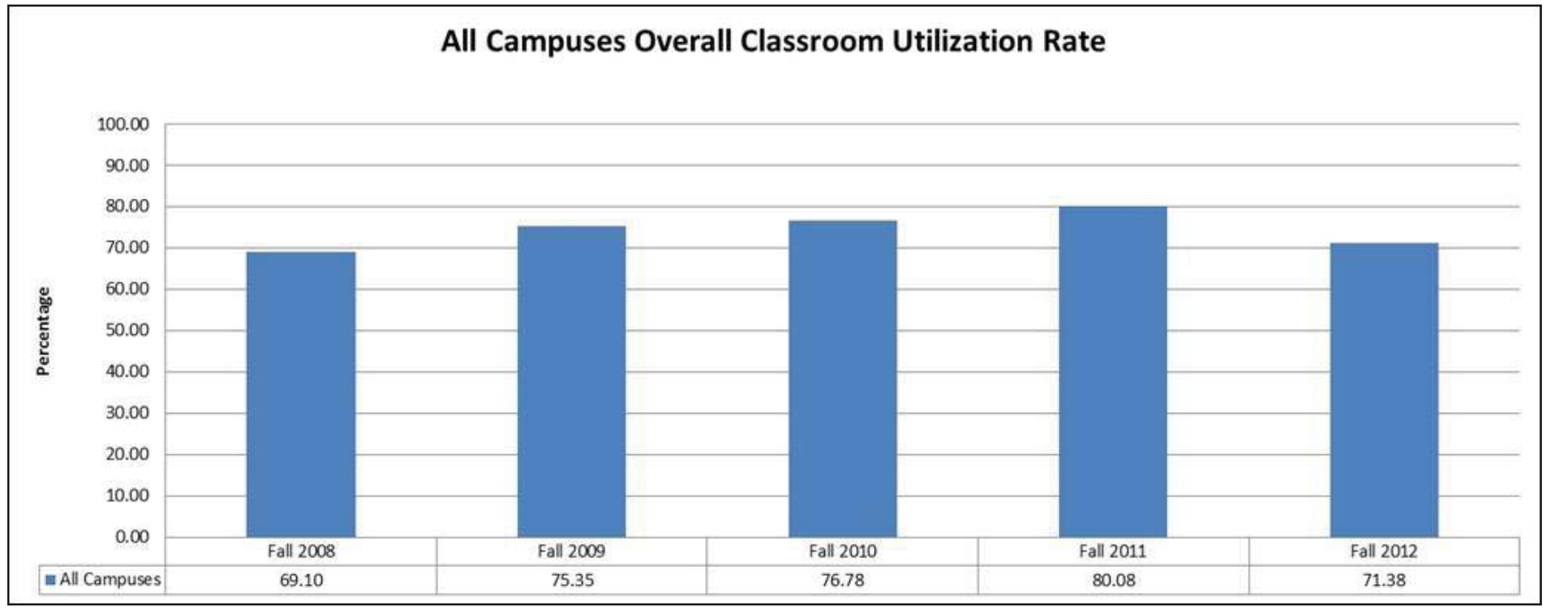
[4] FTEs are, however, used in this study for enrollment analyses and projections as a point of comparison for headcount data.

CHART I.B.1
Summary COM-FSM Classroom Utilization Classification (2008-2012)

Utilization Levels	All Campuses
high (>75%)	35%
moderate (>66%)	21%
low (>50%)	30%
underutilized (<=50%)	15%
Total	**100%**
Total Number of Rooms	**81**

Longitudinal Utilization Method: Analysis of cumulative classroom use employing **longitudinal utilization rate method (illustrated in Chart I.B.2) supports a conclusion of a "moderate-to-high" capacity usage** – ranging from 69%-80% between 2008 and 2012 – with a peak utilization rate in 2011[5].

CHART I.B.2
Longitudinal Summary of COM-FSM Classroom Utilization Rates (2008-2012)



Distribution and Central Tendency Method (see Chart I.B.3): When viewed collectively as a histogram, the frequency distribution of classroom utilization across COM-FSM's six campuses over a five year period yields both average and mean utilization rates at 68% – again representing an overall **"moderate-to-high" utilization rate of classroom space across the six-campus system using the Distribution and Central Tendency Method.**

This presentation format also allows a "quick glance reference" for classroom-by-classroom comparison of utilization rates across the system campuses.

Finding #1: the six campus system stands in the "high moderate" range (74.99% utilization upper limit) within the five year study period. This represents a near optimal positioning in terms of effective use of existing capacity while allowing adequate room for modest expansion over a ten year planning horizon.

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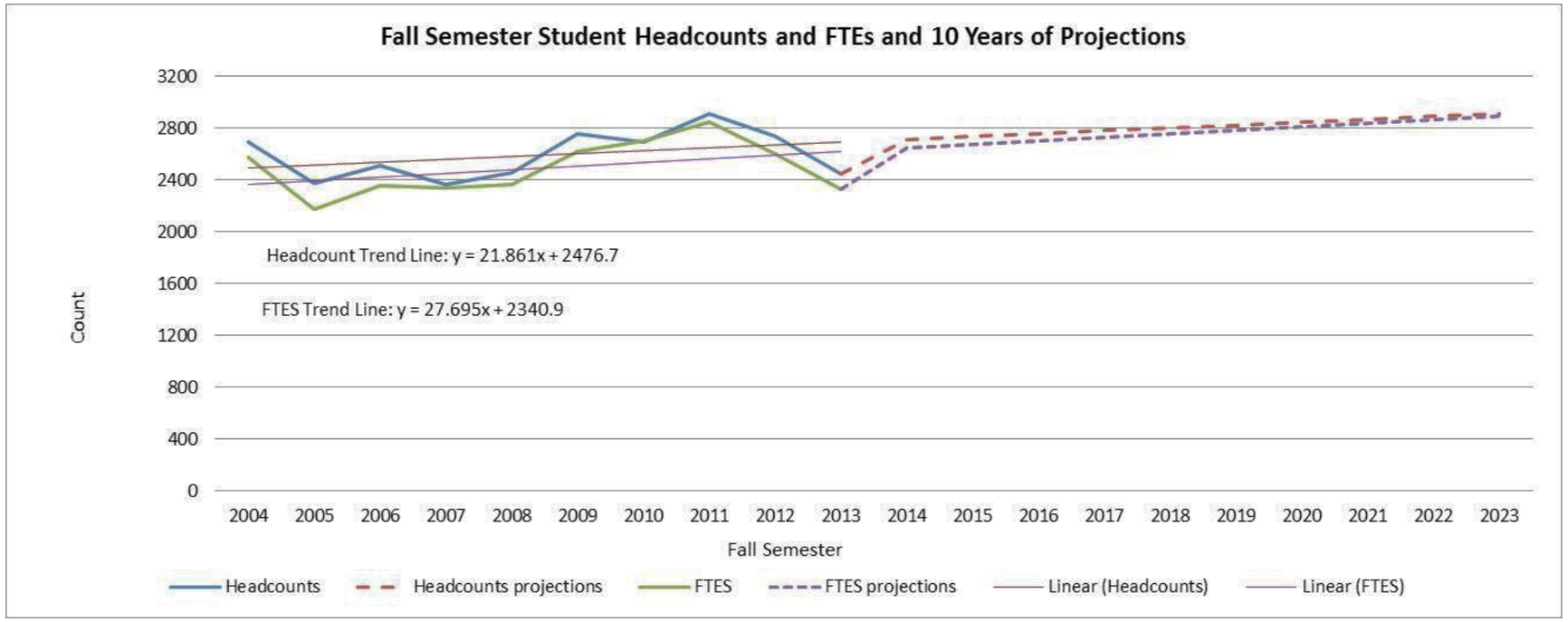
[5] Subsequent data available in Fall 2013 suggests a continued declining utilization rate, affirming 2011 as a peak, rather than an outlier year.

TABLE I.C.1
COM-FSM Fall Enrollment Trends (2004-2023)



Semester	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015	Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023
Headcount	2696	2379	2513	2366	2455	2758	2699	2913	2744	2446	2717	2739	2761	2783	2805	2826	2848	2870	2892	2914
FTE	2577	2176	2357	2342	2367	2626	2707	2845	2602	2332	2775	2815	2855	2895	2367	2626	2707	2845	2602	2332

C. Enrollment Trends and Projections

Over time classroom utilization is driven primarily by institutional enrollment. The Classroom Utilization analysis method in Section B: Classroom Utilization as a Function of Capacity represents current and historic use. Projections of large-scale enrollment trends into the future to inform planning decisions can be accomplished through enrollment trend analysis.

The Enrollment Projection Methodology uses a ten-year basis (2004-2013) including both headcount and FTE data to create a trendline. Trendline projection models use a "best fit" analysis (see Chart I.C.1 on the next page) and show a very limited rate of total enrollment growth through AY 2023-24.

COM-FSM planning projections call for flat growth through AY 2015-16, followed by 2% growth through AY 2017-18[6]. National demographic projections tend to support the "no growth" scenario[7]. Therefore the "best fit" trendline analysis appears to represent the upper limit for facilities' needs during the ten-year projection horizon.

In this model enrollment throughout the six campus system will stay within the historic usage range throughout the ten (10) year projection window, not achieving the Fall 2011 high of 2913 headcount students until 2023. Indeed, a return to 2011 levels alone will require a 19% increase in enrollment. This suggests that the classroom utilization rate of 80.8% shown in the longitudinal analysis represented in Chart I.B.2 may represent the "high water mark" of overall classroom utilization through 2023.

FINDING #2: Overall classroom need as measured by projected enrollment changes throughout the COM-FSM six-campus system is relatively flat within the ten year horizon (2014-2023). This suggests little need to increase overall institutional classroom capacity on the basis of any foreseeable enrollment trend.

FINDING #3: Across the 6 campus system COM-FSM has adequate overall classroom capacity through 2023 given its historic enrollment and classroom use patterns.

3.1 Consideration should also be given as to how facilities on less fully utilized campuses could be used to provide a "relief valve" for selected programs and student populations on more heavily utilized campuses. This is especially true where two campuses are located on one island and additional capacity is needed (see 6.1.D, below, for discussion of Pohnpei and Yap).

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[6] College of Micronesia-FSM, Five-Year Financial Plan Summary (August , 2012)

[7] College of Micronesia-FSM, Factbook (2013)

D. Campus-by-Campus Observations

Findings across the six-campus system may not be consistent from campus to campus, however. This section will provide a high-level overview of campus-to-campus variations from the broader norm. More detailed analysis of each campus will be provided in the appropriate Campus Volumes, Part 3 – Detailed Reports.

Analysis by the Utilization Classification methodology (Table I.D.1) illustrates the distribution throughout campuses and shows the important variations which merit special consideration at the Pohnpei, Chu'uk, and FMI campuses.

Table I.D.1
Distribution of COM-FSM Classroom Use by Utilization Classification (2008-2012)

Utilization Levels	Chu'uk	FMI	Kosrae	National	Pohnpei	Yap	All Campuses
high (>75%)	0%	13%	11%	33%	76%	25%	35%
moderate (>66%)	36%	0%	33%	33%	0%	25%	21%
low (>50%)	55%	25%	44%	21%	24%	25%	30%
underutilized (<=50%)	9%	63%	11%	13%	0%	25%	15%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Total Number of Rooms	**11**	**8**	**9**	**24**	**21**	**8**	**81**

A campus-by-campus enrollment analysis yields trends at the National campus and the State campus at Pohnpei which suggest slightly steeper growth trends than the six-campus system, but they are still within the historic usage range projections. The State campuses at Kosrae and Yap fall within the system's historic range through the next ten (10) years. Enrollment trends for the State campus at Chu'uk and the FMI campus show no projections for overall enrollment growth.

The Pohnpei State Campus shows very high utilization rates (76% in the "high utilization" range and 0% in the "underutilized" range -- indicating capacity use) which strain current program use and limit capacity for future growth. "Best fit" trendline analysis of enrollment suggests that the Pohnpei campus may return to 2011 enrollment levels as early as 2017.

Given the Pohnpei State Campus' role in vocational education, which the board has prioritized in its Two-Year Action Agenda, special consideration should be given to the capacity of the Pohnpei Campus facilities to handle even modest future growth. As a measure of expediency while longer term solutions are explored, it may be possible for certain support courses to be offered at the National Campus.

Table I.D.2
Pohnpei Campus Fall Enrollment Trends (2004–2023)

Historic Enrollment										
Semester	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Fall 2008	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013
Headcount	567	583	620	608	642	712	742	845	771	672
FTE	571	559	553	583	620	669	721	770	671	586
Projected Enrollment										
Semester	Fall 2014	Fall 2015	Fall 2016	Fall 2017	Fall 2018	Fall 2019	Fall 2020	Fall 2021	Fall 2022	Fall 2023
Headcount	805	828	852	875	898	922	945	968	992	1015
FTE	713	728	743	758	773	788	803	818	833	848

The Chu'uk Campus has experienced less robust enrollment during the study period – likely in-part due to on-island competition from Caroline College and Pastoral Institute (an offshoot campus of Hawaii-based Chaminade College). Given the lease status of the Chu'uk facility, careful thought should be given to the size and scope of projected new or renovated construction. The Chu'uk Campus has great capacity serve as a resource for the six-campus system during periods of enrollment growth.

Chart I.D.3
Chu'uk Campus Fall Enrollment Projections (2004-2023)

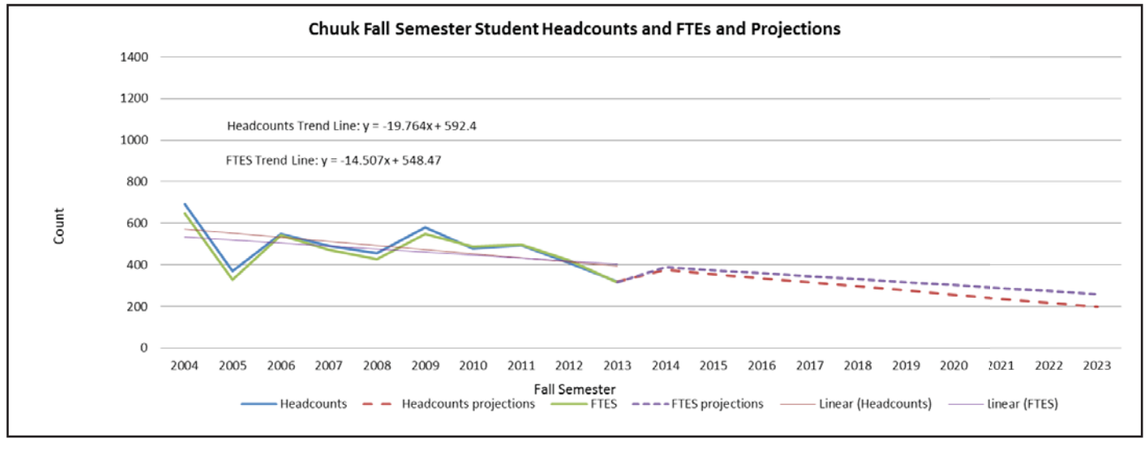
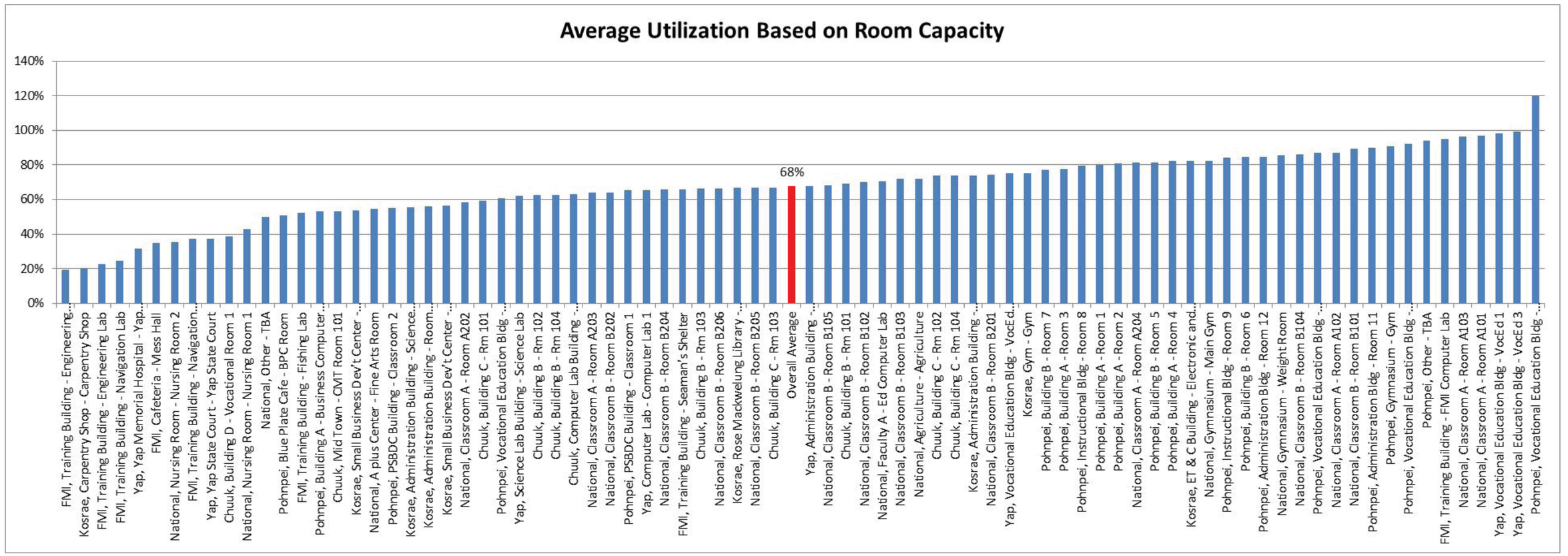


CHART I.B.3
Distribution of COM-FSM Classroom Utilization (2004 -2008)



By the nature of its programs, which tend to be short term and intensive, the FMI Campus is an outlier for utilization analysis (Table I.D.1). The opportunity represented by this campus' capacity for offering specialized technical programs, developing specialized immersion programs, and hosting visiting scientific and academic interests ought to be more fully developed and explored.

Special Considerations – Vocational Education

The high utilization rates on the Pohnpei campus observed in Table I.D.1 and Chart I.B.3 are driven by the demands of vocational education – especially the need for dedicated space. Given the Pohnpei State Campus' role in vocational education, which the board has prioritized in its Two-Year Action Agenda, special consideration should be given to the capacity of the Pohnpei campus facilities to handle even modest future growth.

Additionally, the Yap State Campus shows evidence of high utilization for its vocational education spaces.

FINDING #4 Given the Board of Regents Two-Year Action Agenda's emphasis on vocational programming, dedicated classroom space for Vocational Education should receive priority attention in facilities planning.

6.2 Summary

The six campus system stands in the "high moderate" range within the five year study period. This represents a near optimal positioning in terms of effective use of existing capacity while allowing adequate room for modest expansion over a ten year planning horizon.

Utilization Classification Analysis suggests that COM-FSM as a six-campus system has adequate classroom capacity for its regular college programs given their historic enrollment and classroom use patterns.

Longitudinal Utilization Analysis supports a conclusion of a "moderate-to-high" capacity usage with a peak utilization rate in 2011.

Distribution and Central Tendency Analysis describes a "moderate" utilization rate of classroom space across the six-campus system.

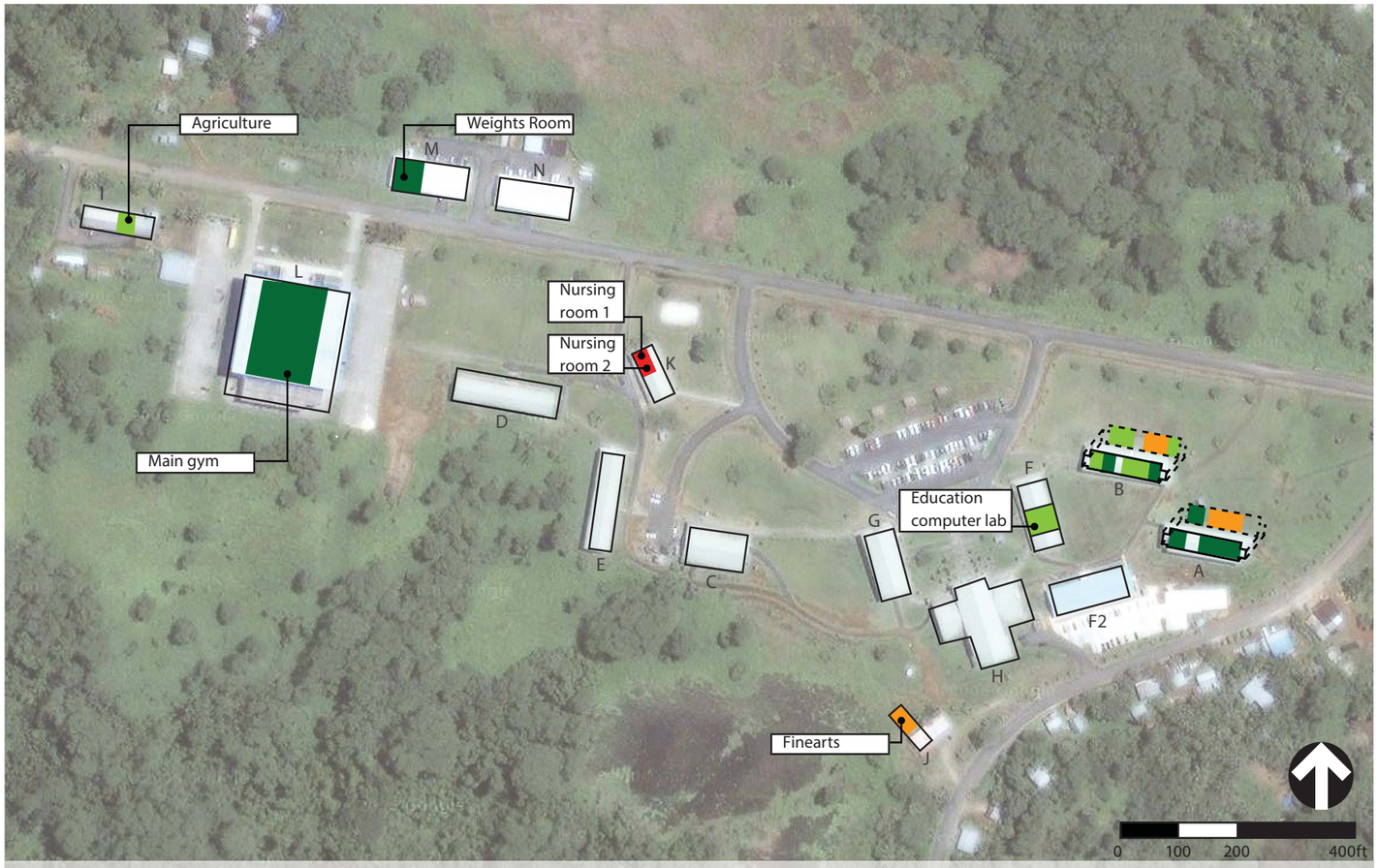
Classroom utilization rates at COM-FSM show a relatively high inelasticity compared to enrollment within the study period – a product of moderate-to-high capacity. Since the range of classroom utilization in the five (5) year study lies within the ten (10) year enrollment range, capacity can be projected forward for ten (10) years for planning purposes with a relatively high degree of confidence.

Overall classroom need as measured by projected enrollment changes throughout the COM-FSM six-campus system is relatively flat within the ten year horizon (2014-2023). This suggests little need to increase overall institutional classroom capacity on the basis of any foreseeable enrollment trend. Across the 6 campus system COM-FSM has adequate overall classroom capacity through 2023 given its historic enrollment and classroom use patterns.

Given the Board of Regents Two-Year Action Agenda's emphasis on vocational programming, dedicated classroom space for Vocational Education should receive priority attention in facilities planning.

Findings across the six-campus system show campus to campus variation around the six-campus system norms. The National, Kosrae, and Yap campus follow the broad system trends. The Pohnpei, Chu'uk, and FMI campuses merit special consideration due to their unique circumstances. Classroom utilization on each campus is summarised in the following plans and is further discussed in the respective campus Part 3 – Detailed Report.

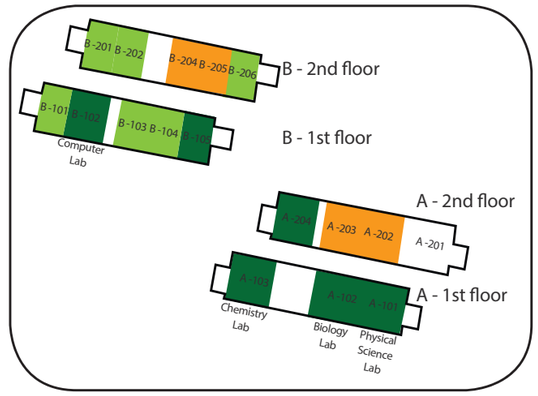
NATIONAL CAMPUS



National Campus - Teaching Space Utilization Summary Plan - Data up to Summer 2012

No.	Building Description
A	Specialized classrooms (Building A)
B	Standard classrooms (Building B)
C	Dining Hall
D	Men's Residence Hall
E	Women's Residence Hall
F	Faculty Offices (old)
F2	Faculty Offices (new)
G	Administration
H	Learning Resources Center and MITC

I	Agriculture
J	A + Center and Art Classroom
K	Book store, Dispensary, Student Services
L	FSM - China Friendship Sports Center
M	Security, Weights Room, IT Shop
N	Maintenance, CRE, Music Classroom



Classroom A and B detail

NOTE:

This plan shows the Sandy Pond utilization assessment in Summer 2012. Nursing teaching spaces have been moved into building J for the start of Fall Semester 2013.

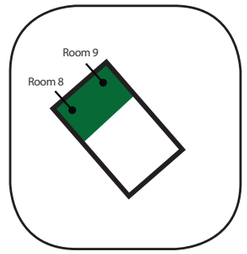
LEGEND

(Average utilization based on room capacities)

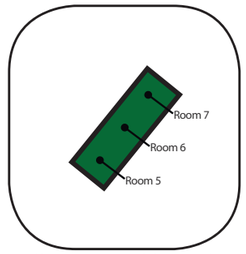
- High (> 75%)
- Moderate (>66%)
- Low (>50%)
- Underutilized (≤50%)
- Not timetabled

POHNPEI CAMPUS

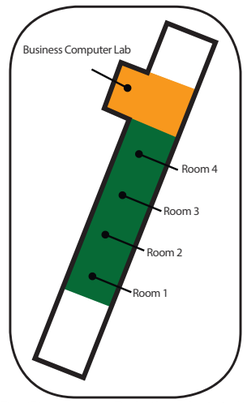
Pohnpei Campus - Teaching Space Utilization Summary Plan - Data up to Summer 2012



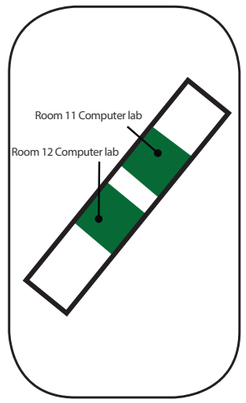
C - I.C. Building detail



J - Classroom Building B detail



D - Classroom Building A detail



A - Administration Building detail

No.	Building Description
A	Administration Building
B	Bookstore
C	I.C. Building/ Electronics classrooms
D	Classroom Building A
E	Electrical Building
F	Carpentry Shop
G	Gymnasium
H	Hotel and Tourism Building
I	IT Shop
J	Classroom Building B

K	Vocational classrooms, TSP, UB, CES
L	Student Services Center
M	Mechanic Shop
N	Land Grant Building
O	PSBDC Building
P	Security Shed
Q	Nahs (removed Fall 2013)
R	Maintenance Building
S	Refridgeration Shop

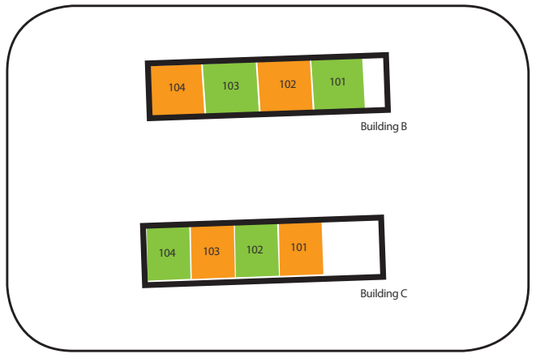
LEGEND

(Average utilization based on room capacities)

- High (> 75%)
- Moderate (>66%)
- Low (>50%)
- Underutilized (≤50%)
- Not timetabled

CHUUK CAMPUS

Chuuk Campus - Teaching Space Utilization Summary Plan - Data up to Summer 2012



Classroom Buildings B and C detail

No.	Building Description
A	Administration / Faculty Office
B	Classroom Building B
C	Classroom Building C
D	Campus Dean's Office
E	Restrooms
F	CRE Building
G	Generator House
H	Student Services Building
I	Computer Lab
J	Student Center
K	Learning Resources Center

Off Campus - Building D, Vocational Room 1

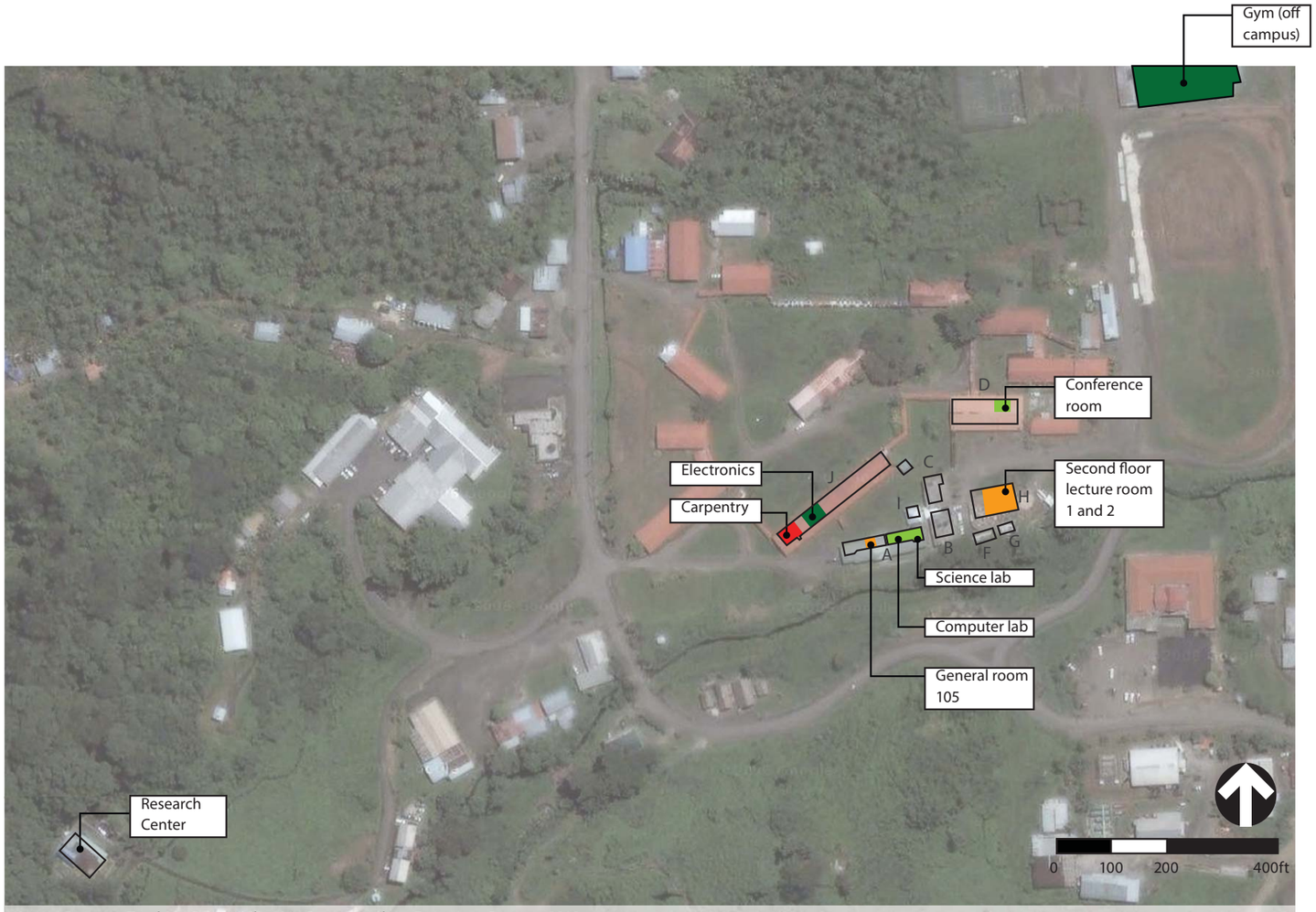
- Midtown - CMT Room 101

LEGEND

(Average utilization based on room capacities)

- High (> 75%)
- Moderate (>66%)
- Low (>50%)
- Underutilized (≤50%)
- Not timetabled

KOSRAE CAMPUS



Kosrae Campus - Teaching Space Utilization Summary Plan - Data up to Summer 2012

No.	Building Description
A	Administration Building/ Classrooms
B	Land Grant Building
C	Faculty Building
D	Rose Mackwelung Library
F	Maintenance Shop
G	Maintenance Office
H	KSBDC Building
I	Bookstore
J	Learning Resources and Career Development

NOTE:

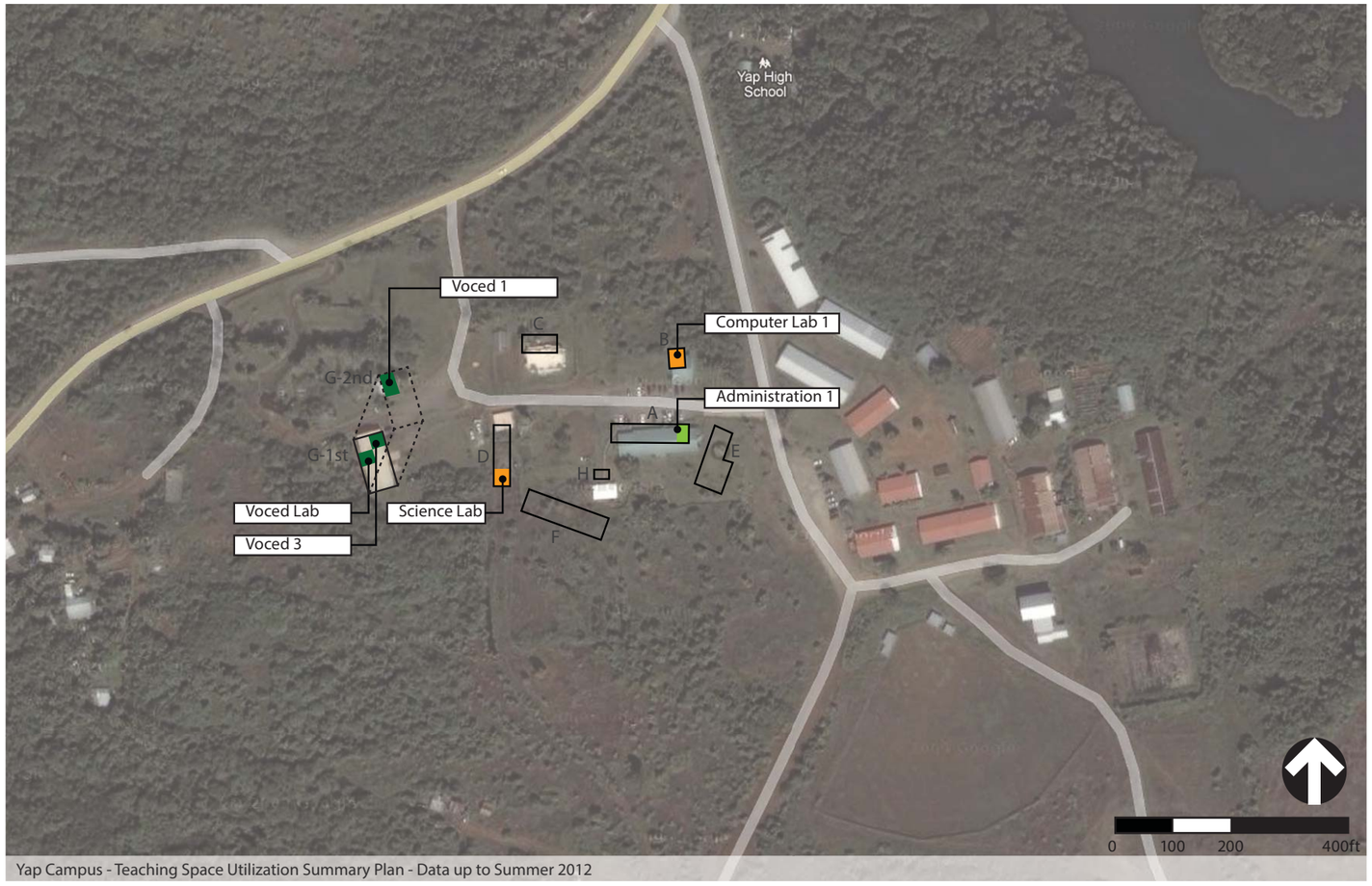
Carpentry shop and electronic classroom in block J from summer 2013 semester.

LEGEND

(Average utilization based on room capacities)

- High (> 75%)
- Moderate (>66%)
- Low (>50%)
- Underutilized (≤50%)
- Not timetabled

YAP CAMPUS



Yap Campus - Teaching Space Utilization Summary Plan - Data up to Summer 2012

No.	Building Description
A	Administration Building
B	Computer Lab
C	CRE Building
D	Science Laboratory
E	Student Center Building
F	Classroom Building
G	Vocational Building
H	Student Open Lounge

LEGEND

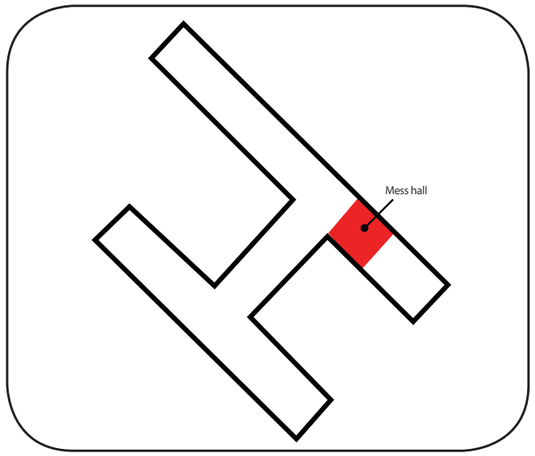
(Average utilization based on room capacities)

- High (> 75%)
- Moderate (>66%)
- Low (>50%)
- Underutilized (≤50%)
- Not timetabled

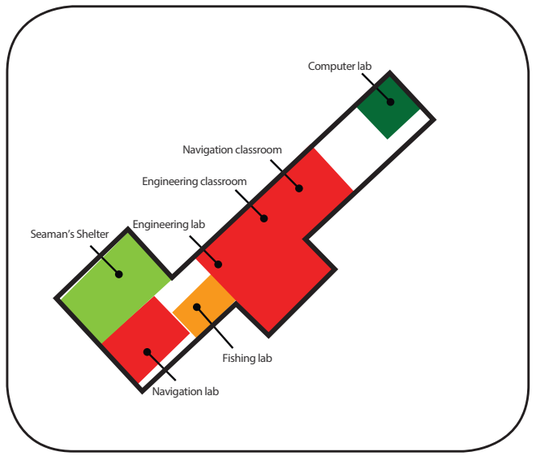
FSM - FMI

FSM-FMI Campus - Teaching Space Utilization Summary Plan - Data up to Summer 2012

No.	Building Description
A	Administration/Student Services and Living Quarters/Mess hall
B	Staff housing
C	Classrooms, Library and Shops
D	Maintenance office



Building A detail



Building C detail

LEGEND

(Average utilization based on room capacities)

- High (> 75%)
- Moderate (>66%)
- Low (>50%)
- Underutilized (≤50%)
- Not timetabled

7

COMMON CAMPUS DESIGN PRINCIPLES

7.1 Introduction

Design principles are a way of describing the "must have" qualities that a building or campus should have prior to the development of a design brief and accommodation schedule. These are informed from best practice as well as discussions with the client, operators and users. While there will be a range of architectural concept design options that may be developed using these design principles as a framework for design it is anticipated that any option developed could satisfy the high level objectives that are at the core of the design principles.

The following design principles have been generated through observations during site visits to each campus, discussions on site and input from the Project Control Group.

These principles outline the desired future character of the College and their development was also informed by the strategic outcomes and objectives outlined in The College of Micronesia – FSM Strategic Plan 2013-2017draft. (2013, April).
Refer to the http://wiki.comfsm.fm/@api/deki/files/2286/=Strategic-Plan-Draft_6APR13.pdf

The design principles are divided into "common" design principles across all campuses and "specific" design principles providing further guidance for each campus. The specific design principles are included within each campus detailed report - Part 3.

Extract from the COM-FSM. (2013, April). The College of Micronesia – FSM Strategic Plan 2013-2017 draft. Retrieved from http://wiki.comfsm.fm/@api/deki/files/2286/=Strategic-Plan-Draft_6APR13.pdf

7.2 College of Micronesia-FSM Vision and Mission

The Integrated Educational Masterplan (IEMP) 2013 provides a framework by which the College of Micronesia – FSM can attain its vision to:

The College of Micronesia-FSM will assist the citizens of the Federated States of Micronesia to be well-educated, prosperous, globally-connected, accountable, healthy and able to live in harmony with the environment and the world community.

and fulfill the mission of being:

Historically diverse, uniquely Micronesian and globally connected, the College of Micronesia-FSM is a continuously improving and student centered institute of higher education. The college is committed to assisting in the development of the Federated States of Micronesia by providing academic, career and technical educational opportunities for student learning.

This vision and mission reflect the identified values

In the IEMP six strategic Institutional Outcomes have helped to inform the Vision for COM-FSM.

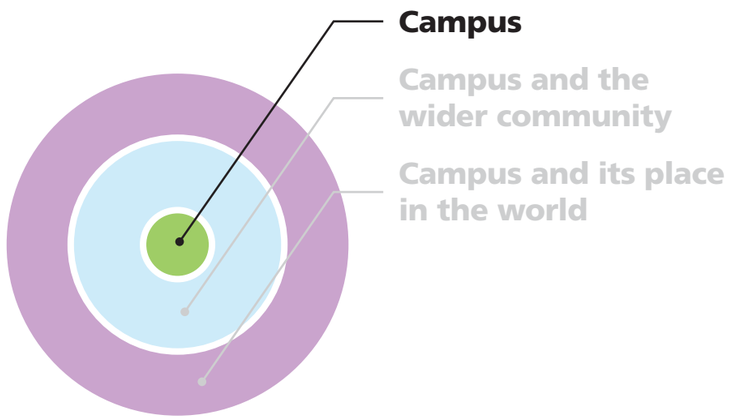
These strategic directions call for COM-FSM to do the following within the next 5 years:

1. Focus on Student Success
2. Emphasize Academic Offerings in Service to National Needs
3. Be financially Sound, Financially Responsible, and Build Resources in Anticipation of Future Needs
4. Invest in and Build a Strong Capacity in Human Capital
5. Be a Learning Organization through Development of a Learning Culture Guided by Learning Leaders
6. Evoke an image of Quality

Design principles are a description of the tangible ways in which the future form and character can be described. As they are overarching they sit under the Vision and above the five year strategic direction statements.

The principles are grouped in three parts: the campus itself, the campus and the surrounding area and finally the campus and the relationship with the world. This reflects being located in Micronesia yet also as outlined in the vision able *"to live in harmony with the environment and the world community"*.

7.3 The Campus



7.4 Key objectives

- Design buildings and the campus environment to be sustainable and to respond to the climate, topography and setting
- Design for buildings to accommodate change of use over time i.e. multipurpose spaces that can be adapted to suit future needs
- Create an adequate, healthy and functional learning and working environment considering the function and form of buildings, open space, character and circulation
- Consider efficiency in design and selection of materials to minimise the Total Operational Cost

7.4.1 Site Design

The campus should be designed around:

- Identifying functions that are compatible with each other and group them into types of activity zones.
- The efficient use of infrastructure
- Consider safety and the importance of people on a campus by prioritising pedestrian movement over vehicular movement
- Identifying a variety of spaces for different uses – active/ social zones and quiet zones

7.4.2 The Learning Environment

The zones on campus

- Provide distinctive academic and residential zones to provide separation for students who live on campus
- Provide for a student centred zone where student services, peer counselling and unstructured study can take place
- Provide for quiet study and interactive collaborative study area zones with acoustic separation between both
- Provide a defined zone for traffic circulation and parking on the perimeter of the site enabling the campus to be primarily for pedestrians
- The technology on campus
- Provide opportunities to maximise the use of wi-fi outside of buildings with the provision of seating areas, covered study spaces and including the addition of electronic charging stations
- Locate student areas within coverage of wi-fi zones
- Consider localising cooling to computer areas rather than overall room cooling

7.5 The Character and Feel of the Campus Environment

7.5.1 A campus that reflects its location in Micronesia

- Consider designing buildings that reflect the local vernacular building style acknowledging this can be accomplished using modern building materials.
- Arrange the campus buildings and layout to reflect Micronesian culture including consideration of the central building being the most important function and being taller as well as considering the arrival process onto the campus

7.5.2 A campus that embraces all, accessible to all

- Consider gender equity and cultural background in the design.
  - Provide places for small groups to meet and consider minimising sitting spaces where people have to walk between two groups sitting either side of a walkway.
  - Provide neutral spaces at the edges of main spaces to foster gradual integration of minority groups
- Enable the campus to be used by everybody without restriction due to a disability

7.5.3 A hub for students

- Provide for a student centred activity zone where student services, peer counselling and unstructured study can take place

7.6 The Built Environment

The buildings – both the building forms and the relationship of the building forms to the environment

- Reference vernacular architecture either in building forms or materials but careful that their use does not unreasonably impact on the cost of ownership
- Create positive (not 'leftover) spaces by modifying existing buildings where possible to address / overlook spaces; and by inserting new buildings to help contain spaces that 'bleed' because they are too large or undefined to be appealing
- Where possible relocate building entries to line up with desire lines and main pedestrian axes
- Consider whether the building hierarchy is reflected in the difference in building scale, with most important buildings taking precedence along main axes.
- Use structuring elements such as symmetry and axes to order the building blocks.
- Locate new buildings to reinforce and activate open spaces and circulation routes – enable buildings to be aligned with and overlook pathways
- Locate and design new buildings to edge open spaces within the site, to help make spaces feel like 'places' rather than empty left over zones.

7.7 The Quality of the Interior Environment

Spatial and facility ratios

As a basis for determining the spatial and facility ratios the following appendix was extracted from the Assessment of COM-FSM's 2006-2011 Strategic Plan by Sandy Pond Associates, May13 2012. The table in the appendix formed the basis of discussion during the site visits and any alterations to the table are noted in the comments column.

Appendix B: Enrollment Management - Campus Standards Key Indicators

To ensure equity and quality of services across the six campuses of the college, the following broad guidelines will be used to determine how many students a campus may enrol. Wherever possible, the indicators have been expressed as per student ratios. In order to maintain consistent standards across the college, each campus will be expected to meet these criteria as soon as possible. All enrolment changes require the approval of the President.

The following spreadsheets provide the actual status of each campus and the various indicators and enrolment projections for each campus. The indicator data and projections are to be updated each fall and spring semester.

Indicator	Target ratio per student ratio	Comments
Student/Faculty ratio	1 faculty member for each 17-22 students	This range allows for unexpected vacancies # of full time faculty + part time (credits/12)
Learning resources staff ratio	1 LRC staff member for each 150 students	
LRC volumes capacity	30 volumes per student	Advised this has increased to 40 volumes per student during the development of the Facilities Study
Learning Resources seating capacity	1 seat in the LRC for every 10 students	Advised that goal is 1 seat for every 5 students during the during the development of the Facilities Study. This is unlikely to be able to be met in a dedicated facility so a ratio of 1:10 will be used for planning purposes
Counselors (FAO, OAR & Counseling)	1 counselor of each type for every 250 students	
Student Life Specialists (excluding dorm staff)	1 student life staff member for each 200 students	
Nurse/Health	1 nurse for every 1,400 students	
Administrative staff	1 administrative staff for each 190 students	Depending on the size of the campus
Overall Environment – Power & email access; toilet facilities, ratio of drinking water & building, availability of textbooks and refreshments	Percentage of time electrical power and email access available during all school hours; 1 female toilet for every 30 students & 1 male toilet facility for every 40 students; per cent of buildings with accessible drinking water; a bookstore and campus store or available food source	
Daytime security	1 security guard for every 300 students	This varies by the size and location of the campus and therefore must have some case by case considerations
Classroom capacity	1 classroom per 60 students	Individual class enrollment must not exceed recommended course enrollment guidelines
Maintenance	1 maintenance staff member for each 68 students	Ratio exclude janitorial and ground maintenance
Janitors	1 janitor per 140 students	Not including dorm janitors
IT Technician	1 technician per 300 students with at least 1 IT technician per campus	This currently represents a target for all campuses
Student computers	1 computer available for every 10 students	Includes computer labs, LRC and others
Faculty computers	1 computer for each full time faculty and 1 computer for each part time FTE	Assume dedicated computer and desk

During the site visits to all campuses it was noted that there are a range of spaces for similar functions and campus size. This can be attributed to using the space that is currently available. Looking to the future development the following spatial target for various functions should be used as a guide.

Function	Spatial target	Comments
Information Technology	Office, workstation to repair computers, storage of computers, secure server room	Chuuk campus has a good server room and office configuration
Dean's office	Desk plus seating area for 2 visitors	Adjacent to conference room
Administration	Counter, workstation area, waiting area, printer area and file storage	
Bookstore	Fiscal offices included or adjacent, bookstore shelving, 2 desks (for state campuses), counter area for students	Chuuk campus has a good bookstore / fiscal office configuration
Faculty offices	Room for 4-5 desks, connection to a small meeting room for one to one discussions, access to storage	National and Chuuk campus are a good example of faculty office layout and size
Learning Resource Center	Walk through the computer lab lobby to access the library area. Couches, tables and study carrels	Kosrae has a good computer lab/ library configuration

7.7.1 Air

- Provide air, which is as fresh and clean as possible to each classroom and workspace by:
- Specifying building and furniture, materials/products with the least possible contaminants emission (e.g. formaldehyde, lead releasing products etc to be avoided).
- Providing ventilation with air change rates which are higher than the minimum rates required by utilized design codes. Where practical preference will be given to natural ventilation solutions. Control of ventilation should be available to the individual users of each space.

7.7.2 Light (health and safety)

- Provide full-spectrum light to each space which is suitable for all users and activities both day and night by:
- Providing natural light to all workspaces with fixed or adjustable glare control devices. Provide glazing to allow full-spectrum natural light to penetrate all classrooms and workspaces, where appropriate.
- Providing glare free artificial lighting, using full-spectrum fluorescent or LED lamps with a constant lighting level between 350-450 lux.

7.7.3 Temperature

- Provide a comfortable temperature to all occupied areas by:
- Using building materials and design solutions which prevent the sun from overheating the classrooms and workspaces.
- Providing supplementary cooling systems in those areas where a constant cool temperature is required for equipment or to suit the function of the room – set point at 25 degrees Celsius.
- Optimising the use of natural ventilation to provide comfort conditions, e.g. breezeways.

7.7.4 Sound

- Provide spaces which are acoustically optimum for their function and which minimise sound interference and noise pollution from within the complex by:
- Specifying surface finishes which produce appropriate levels of reverberation for each function within the complex (no echoes).
- Isolating noisy equipment from teaching and workspaces and control noise at source.
- Providing a series of 'quiet' rooms and areas for focussed study within the campus

7.8 The Landscape Environment

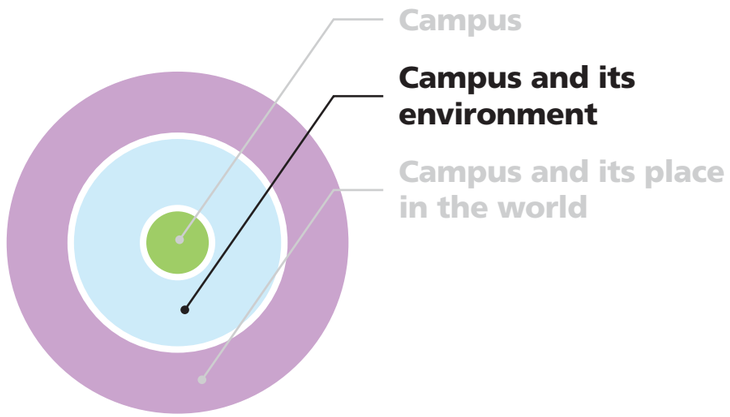
7.8.1 Variety of spaces offering different activity use – active, social and quiet zones

- Design a logical hierarchy of open spaces that clearly supports visitor orientation within the campus as well as staff and students
- Design a range of spaces of different sizes and character, to provide choice and interest. Relate open spaces to view shafts and key points of interest within the campus
- Spaces and their connecting routes should be fully accessible and with high amenity, including shelter where there is high rainfall, seating areas, landscaping and signage, and a consistent palette of furniture and lighting.
- Partially cover / enclose spaces / pedestrian paths that are exposed to weather and wind, for pedestrian amenity
- Pathways to be wide enough for 3 people to walk alongside each other

7.8.2 The role of trees and landscaping on campus

- Take opportunities to feature local plants i.e. consider using flowering shrubs to add colour and variety, medicinal plants, culturally important or fruiting trees. A campus specific landscape palette has been developed for the Yap Campus (Refer to Part 3 Report) – this template could be used for other campuses and modified to suit the species within each state.
- Use shade trees to create communal outdoor meeting places in open spaces
- Deeper rooting trees to be selected for campus areas with resistance to high winds as these are planted outside of the underground services zones.

7.9 The Campus and its Relationship to the Surrounding Area



7.10 Key Objectives

- To be a Community College within each State providing for the needs of the wider community and a place of ongoing educational opportunities

7.11 The Physical Relationship Between the Campus and the Wider Community

7.11.1 Interface with the community

- Provide amenities that can be used and accessed by the wider community - potential for night classes, dispensary, learning resource center access and locate these on the edge of the campus

7.11.2 Capturing views

- Look at opening up views from the campus as well as framing interesting sites. The campus could borrow from the outside landscape through the opening up of these views to create a more interesting space that emphasises these views
- Protect and enhance important view shafts and panoramic views to the ocean and other significant surrounding landscape features.

7.11.3 Safety

- Separate pedestrian areas and vehicular areas (as much a reasonably practicable) to create defined pedestrian routes and promote safety on the campus.
- Provide access for fire truck and emergency vehicle access through to key points within the site

7.11.4 Security

- Consider how the campus can be reduced into defined secure areas as move from day to nightime

7.11.5 Campus edges

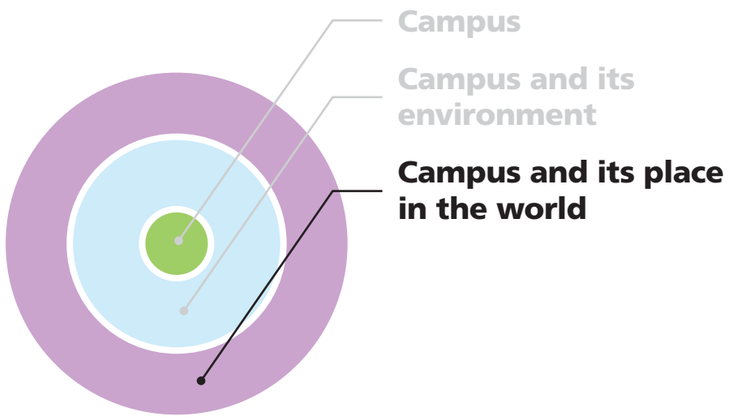
- Mark the campus by a well defined edge that also allows visual interaction between the campus and the surrounding community
- Use signage to reinforce the campus edges and assist way finding

7.11.6 Campus entry points

- Consider how the entry reflects the campus. A friendly, well maintained and welcoming entry conveys openness and can encourage visitors and interaction

Consider areas where public are encouraged to come onto site i.e. recreation areas, vocational education, learning resource areas and provision of parking spaces

7.12 Campus Relationship to World Issues



7.13 Key Objectives

- Align with the goal of the 2010 FSM Energy Policy that states "By 2020 the share of renewable energy sources will be at least 30% of total energy production, while electricity efficiency will increase by 50%. Energy efficiency referred here would also mean reduction of energy loss."
- COM-FSM actions will align with the Energy Policy action points outlined in the 2010 FSM Energy Policy

7.14 The Energy Efficient and Sustainable Campus

High level principles are to:

- Conserve resources and save energy
- Protect natural areas
- Reduce carbon footprint through considered energy use
- Incorporate LEED (Leadership in Energy and Environmental Design) construction principles
- Minimize building footprint
- Design flexible (long life, loose fit) buildings whose uses can change over time.

7.14.1 Energy

Optimise building location and design in order to minimise the use of energy without reducing comfort and efficiency. The guidelines to achieve this are:

- Provide low wattage energy efficient lights.
- Provide individual controls to light sources. (Switching and/or dimming)
- Investigate efficiencies that can be gained from the use of power conditioners especially the effect consistent power quality can have on the life of sensitive equipment and fixtures e.g. compact bulbs
- Use of time and/or movement activated switches in selected spaces to avoid lights being left on unnecessarily.
- Optimise use of natural climate control to limit electricity use for ventilation and cooling.
- Specify energy efficient cooling equipment.
- Provide optimum levels of insulation in floors, walls and roof space
- Provide pressure sensitive taps and showers which automatically turn off after a few minutes to minimise water waste.
- Specify low flow taps and fittings
- Consider water harvesting opportunities
- Installation of photovoltaics (solar panels) on the roof where appropriate.
- Specify energy efficient and water use appliances
- Use solar hot water heating where appropriate
- Review alternative energy options e.g. wind power

7.14.2 Non renewable natural resources

The goal is to minimise the use of non-renewable natural resource. The guidelines to achieve this are:

- Identify and specify materials with a lifecycle of 50 years or more.
- Identify and specify materials which have minimum effect on the environment and which are renewable.
- Identify and specify materials which minimise the use of energy and other resources during production, fabrication and transportation.
- Re-use existing buildings where possible instead of demolishing (factoring in the serviceable life)
- Consider how and where demolition and waste construction materials are disposed of on the island.

7.14.3 Maintenance versus replacement of buildings

- Consider maintenance versus replacement costs in the design of all new buildings
- Optimise maintenance regimes to extend the life of existing campus buildings
- Specify materials that minimise maintenance costs and enable simple maintenance regimes that extend the serviceable life
- Specify materials that consider the harsh environmental conditions
- Form a strategy for replacing buildings beyond a serviceable cost limit (above and beyond an agreed replacement value)

NOTE: There are no hard and fast rules and each design decision must be based on investigation of the information available at the time.

7.15 The Climate Responsive Campus

Climate responsive design recognises that climate affects both the thermal performance of buildings and human comfort levels, and combines the study of climate, biology and building design to enhance living conditions and reduce energy consumption.

This practice can be defined as "the use of design principles and strategies which help reduce the ecological impact of buildings e.g. by reducing the consumption of energy and resources, or by minimising disturbances to existing vegetation" (Fawcett et al 2006)[8].

Due to the tropical climatic conditions experienced in the Federated States of Micronesia, climate sensitive design is fundamental to achieving quality built form and comfortable spaces. The following details how design can be used to create solutions that respond to the local climate.

7.15.1 Campus layout

Ventilation is essential for a hot humid climate, and existing air movements should be utilized and enhanced as much as possible to provide evaporative cooling, reduce temperatures and to avoid mould growth.

Spaces that are cool, shady and capture gentle cooling breezes will always attract greater concentrations of people. Places that are especially climatically pleasant will attract groups of people who meet to chat, study or simply sit.

At the COM-FSM campuses, the places where people congregate due to pleasant climatic conditions are:

1. National campus - under the narra trees
2. Pohnpei campus - under the avenue of mahogany trees
3. Kosrae and Yap campus - The gap in the Administration Block verandah

Principles for campus design that creates a pleasant microclimate:

- An open built form pattern will enhance air flow. Buildings should be separated, with few structures between them so as to improve air flow
- Any footpaths between buildings should be shaded, and air should not be allowed to pass over such hot surfaces before reaching buildings
- Buildings in rows should be staggered to avoid downwind airflow shadows, and long facades should introduce devices (such as wing walls) to direct airflow into buildings
- Walkways should be covered, but cross-ventilation should not be impeded.
- Generous and well distributed areas of vegetation help to improve the microclimate
- Provide a vegetated screen as a barrier to direct sun heating up the building facade

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[8] (Fawcett, A., Palich, N., Nervegna, L. 2006, 'Ecologically Sustainable Development – Glossary of Terms', BDP Environment Design Guide, NOT 11, May).

7.15.2 Landscaping

Vegetation provides an excellent means of improving the climatic conditions. Its surface does not heat up nor reflect heat to adjacent spaces and it provides efficient shading at low cost. However, it has to be arranged in a way that does not impede air circulation. Good selection and grouping of vegetation can concentrate and direct breezes and wind to improve the cooling effect where desired. Vegetation also absorbs dust and pollution, and the type of vegetation may also influence wind velocity. The ideal tree for a hot, humid climate has a free, high trunk and high canopy providing shade.

Principles:

- A vegetated cover of the ground keeps it comparatively cool and contributes much to a cooler outdoor microclimate. Ground areas should be vegetated rather than paved wherever possible, with care taken to not impede air flow into buildings
- Asphalt increases radiation, and stone paving or cement increases it to a lesser extent. The use of asphalt should be discouraged
- High trees with wide, shading crowns provide significant protection from solar radiation and should be incorporated as much as possible into any landscape planting

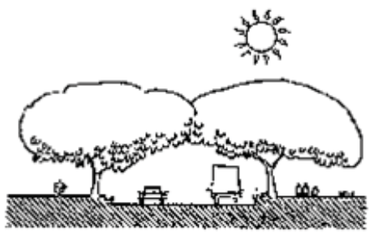


Figure 1: Climate Responsive Building - Appropriate Building Construction in Tropical and Subtropical Regions (SKAT; 1993; 324 pages)

- Dense or tall bushes should not be planted near buildings. The space between the ground vegetation and the high crowns of the trees should remain open, providing free access for the wind at the level of the living spaces

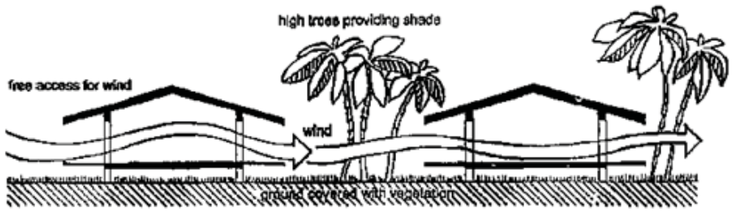


Figure 2: Climate Responsive Building - Appropriate Building Construction in Tropical and Subtropical Regions (SKAT; 1993; 324 pages)

In the COM-FSM campuses, suitable species for landscaping gathering spaces that provide shade and protection have already been used in specific areas.

Figure 3:Groups of students sitting under the narra tree

Figure 4: Canopies providing a shaded and cool area for pedestrians along the walkway to Classroom Building B at the National Campus

Figure 5: Stone slab seating at the entrance to the Learning Resource Center at the National campus

Figure 6:Seating areas along the Pohnpei campus boundary under the line of the mahogany trees

7.15.3 Building design

The design of buildings has a significant impact on the personal comfort of occupants or users. Well-designed buildings are dry, well-ventilated, comfortable and neither too hot nor too cool.

There are a number of factors that influence the successful design of a building. The placement of a building on a site, the basic arrangement of form and the basic internal layout are the most critical determinants of a building's comfort and should be addressed first. Following on from that, matters such as materials and efficiency can be considered.

The main goal is the reduction of (i) direct heat gain by radiation through openings and (ii) the internal surface temperature. The building should therefore be designed not only with protected openings, but also with protected walls. This task will be much easier if the building is kept low. In addition, the roof should extend far beyond the line of walls, with broad overhanging eaves and other means of shading. Intense diffuse solar radiation calls for buildings that have large overhanging roofs and wide shaded verandahs.

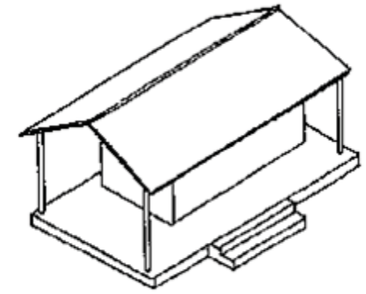


Figure 7: Low building with wide overhanging roof Climate Responsive Building - Appropriate Building Construction in Tropical and Subtropical Regions (SKAT; 1993; 324 pages)

The height of the buildings should, in general, not exceed 3 storeys. Higher buildings receive too much radiant heat and give wind obstruction to neighbouring buildings.

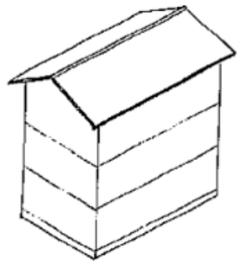


Figure 8; Building height not exceeding 3 storeys Climate Responsive Building - Appropriate Building Construction in Tropical and Subtropical Regions (SKAT; 1993; 324 pages)

The design of buildings for hot humid climates such as those in Micronesia should encompass the following basic principles:

- Buildings should respond to the climate, topography and setting as well as being able to stand up to extreme weather conditions
- The long sides of a building should be oriented to the north and south, where possible, and should be protected by an overhanging roof or eaves to reduce solar gain. Where a predominant wind direction can clearly be identified, long-shaped buildings should be arranged at 30 and 60 degrees across this direction. It is better to break up the length of long buildings with breezeways to allow air flow through
- The width of the building should be determined by ease and effectiveness of natural ventilation and light
- Use verandahs or large roof overhangs to:
  - enable windows to remain open during rainy periods.
  - provide shaded and dry access around the building for occupants and the public.
  - keep the building cooler by shading the external building fabric especially windows.

- Insulate roofs and verandah overhangs to reduce heat gain and rain noise.
- Select lighter colour roofing material to reflect radiant heat
- Consider the maximum shipping length of roof sheets as a factor in determining the optimal building width.
- The high humidity and warm temperatures require maximum ventilation. This is valid not only for the design of the elevations, but also for the floor plan.
- Free passage of air for cross-ventilation can be achieved by having large openings, not only in the outer walls but also in the internal partitions. An even more efficient solution is that of single-banked rooms with access from open verandahs or galleries.

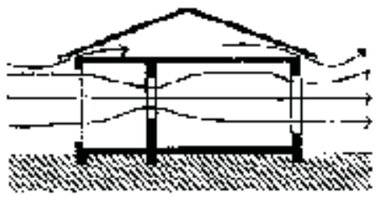


Figure 9: Large openings and screened in porches. Climate Responsive Building - Appropriate Building Construction in Tropical and Subtropical Regions (SKAT; 1993; 324 pages)

To achieve this:

- orientate buildings at an angle to the prevailing wind – preferably building faces at 30 & 60 degrees to wind not square on.
- have frequent breaks in long facades to keep breeze flowing through even when buildings are less occupied and operable windows are closed.
- locate intake ventilation openings at low level wherever possible to pass across occupants' bodies rather than over their heads.
- locate exhaust ventilation at high level to optimise thermal stack effect and remove hot air pockets at ceiling level.
- place offices or other partitioning that slows or disturbs airflow downstream of open plan spaces.
- position or protect at least some ventilation openings so they can operate continuously day and night even when spaces are unoccupied.
- design an elongated floor plan with minimum internal partitions (preferably open plan spaces) to create an easy passage for cross ventilation.
- high ceilings will help enable heat to ventilate out via roof joints (or chimneys).
- Look at possibilities for diverting the wind direction by means of vegetation and structural arrangements

Conceptual building design is a process that weighs a range of design drivers and decisions. Not all of these basic principles will be employed in every case and a detailed analysis of the specific situation should be part of the process of each design development.

Input for this section has been sourced from Climate Responsive Building - Appropriate Building Construction in Tropical and Subtropical Regions (SKAT; 1993; 324 pages), http://collections.infocollections.org/ukedu/en/d/Jsk02ce/5.2.html

8

ASSET CONDITION ASSESSMENT

8.1 Introduction

An Asset Condition Assessment of the existing buildings and site infrastructure located at the Yap, FSM-FMI, Chuuk, National, Pohnpei and Kosrae campuses was carried out in June 2013..

The purpose of this Asset Condition Assessment Report is to record the existing condition of the COM-FSM assets (buildings and site infrastructure) so that:

1. The indicative cost of operating the COM-FSM assets through a 10, 20 and 30 year life cycle is identified and,
2. Decisions to either renew/upgrade or to demolish/replace the existing assets can be made.

This Asset Condition Assessment Report gives each asset an indicative condition grade, identifies the asset replacement cost, and the cost of operating (renewing and maintaining) them to provide a base reference for campus Facilities Planning decisions. It should be noted that the costs presented assume that the existing assets will be renewed, refurbished and maintained (with the exception of some buildings which are demolished). Any buildings which are replaced by the current campus Facilities Planning process (and subsequent changes in annual operating costs) are not included in this Asset Condition Assessment Report

The findings of this section are based on the on-site Condition Assessment conducted by Beca in June 2013. It should be noted that a visual assessment only has been carried out and that no in-depth investigations (e.g. no detailed structural or seismic strength investigations) have been undertaken.

8.2 Scope of Condition Assessment and Key Outputs

The scope of the Condition Assessment covers 68 No. existing buildings (excluding minor support structures and buildings) and site infrastructure located within the five COM-FSM campuses. The site area of the Yap, FSM-FMI, Chuuk, National, Pohnpei and Kosrae campuses totals approximately 6,283,851 sqft (144 acres) with 285,138 sqft of buildings. The key tasks undertaken include:

- The five campuses were visited in June 2013 to photograph and record visual defects in the buildings and site infrastructure.
- Data gathering and making observations.
- Grading the condition of each building asset (against a pre-determined set of criteria) and collating this to establish an overall condition grade for each asset.
- Assess the physical condition of the built assets (i.e. buildings and site infrastructure). Establish baseline condition to enable Life Cycle cost analysis.

The key outputs include:

- A general overview of the current condition of the assets.
- A condition appraisal of each building block by building element.
- Site observations and records of the existing site infrastructure
- Estimate of the potential replacement cost of each asset.
- Estimate the Operational Cost (Asset Renewals plus maintenance) of the assets as they currently exist. NOTE: the Operational Cost contained in this Condition Assessment assumes that all current assets are retained and maintained. Alternative Operational Costs for the proposed campus Facilities Planning re-development are noted separately in this overall report.

8.3 Definitions

The following terminology has been used in the Condition Assessment Report and is defined as follows:

Terminology Used	Definition
Annualised Cost	The operational cost (renewals plus maintenance) which is averaged across either a 10 or 30 year period
Assets	Buildings, facilities and site infrastructure which are owned by CoM-FSM. For the purposes of this report assets exclude buildings and land which are leased (from other parties).
Condition Grade	Assessment of current condition, the amount of deterioration and life remaining in the asset (or element) – refer to Beca Condition Grading System (table below)
Element (Building Element)	An individual part of an asset or building e.g. substructure, roof, floor finishes, mechanical services.
Maintain / maintenance	The regular / routine upkeep of the asset. This includes building washing, minor repairs and building services maintenance etc.
Operational Cost	The combined cost of renewal (of deteriorated elements) and maintenance of assets. The cost (and funding required) required for the upkeep of the assets and to extend their serviceable life.
Renew / Renewal	The periodic renewal (or refurbishment) of an individual element when it has reached the end of its economic life e.g. the renewal of a roof when it is corroded or the renewal of air conditioning units when they can no longer be maintained
Replace / Replacement	Where an entire asset has deteriorated to the point where it is deemed to be uneconomic to renew individual elements it is demolished and may (if required) be replaced with a new asset/facility
Run-down	The time period between when an asset is identified as needing to be demolished and replaced is defined as the 'run-down period'. Minimal maintenance, essentially to rectify any health and safety issues only, is carried out during this period (to reduce costs).

8.4 Methodology

The approach we have adopted for carrying out the Condition Assessment is based on the following principles:

- Inspect, photograph and assess all built assets on an elemental basis (e.g.. Building Structure, Internal Building Fit-Out, Building Services and Site Infrastructure, etc) to establish the baseline of physical condition for the facilities (Refer: Beca Condition Grading System - Table below)
- Identify immediate maintenance requirements (from the site inspection) that can help extend the serviceable life of built assets.
- Quantify and value building/site infrastructure elements to understand the full asset replacement cost.
- Develop a maintenance cost plan that addresses the upkeep of the facility. This identifies when elements of the assets are due for renewal and the budget required for this renewal.
- Forecast capital replacement cost cycles taking into consideration the baseline condition assessment.
- Calculate the Operational Cost requirements in terms of asset renewal and maintenance costs.

8.5 Information Collection

As part of this building condition assessment, Beca undertook various information collection and data gathering activities to gain an understanding of the existing buildings and site infrastructure on site. This included for gathering and reviewing existing building and maintenance records, taking photographic records of defects encountered, detailed annotation of the building condition (and other specific findings), reviewing comments from a facility questionnaire and liaising with the on-site property manager to address any specific issues or requirements.

8.6 Condition Grading System

The condition of the buildings and site infrastructure elements were recorded and graded on a scale of 1 to 5, the basis of which is as detailed below:

Beca Condition Grading System

Condition Grade	Life Expiry (%)	Grade Definition
0	0%	Not present or not applicable
1	0% to 20%	The building/element is new and is functioning as required. Routine maintenance is required to extend serviceable life
2	20% to 40%	The building/element is functioning as required. Routine maintenance is required to extend serviceable life
3	40% to 60%	The building element is approaching the end of its serviceable life but is still functioning as required. Significant maintenance is required to extend serviceable life.
4	60% to 80%	The building element is showing signs of failure and deterioration. Extensive maintenance is required or the item should be considered for renewal or replacement
5	80% to 100%	The building element has failed and has deteriorated significantly beyond the point of repair or renewal. The item must be replaced

The Condition Grades are used to assess the point at which the asset undergoes renewal or replacement. The condition assessment, amount of remaining life in each element, the forecast capital replacement cost and operational costs are all considered when determining the point of renewal or replacement. This assists in supporting operational cost funding proposals.

For the CoM-FSM, we have assumed that a condition grade of 4 or 5 will generally trigger the requirement for renewal of building elements, or for the replacement of assets. It should be noted that in some cases the overall condition of a building may be grade 3, but because of structural failure of either the foundations or the building frame elements (which have a condition grade of 5) it is considered uneconomic to renew/maintain the building and demolition/replacement is recommended.

8.7 Building Elements Assessed

The building condition assessment consisted of an inspection of the building premises and above ground site infrastructure. This was carried out on a 'block-by-block' basis and covered both the interior and exterior of the buildings and site improvements. The information recorded from the building condition assessment was used to provide real-time information on the current state of building assets which is critical for accurate capital replacement and maintenance expenditure planning.

The plans supplied by COM-FSM were used to calculate the general floor, wall and ceiling areas of each building and open space. The building elements that were assessed as part of the building condition assessment typically included the following:

Elements Assessed	Definition
Structural Elements Generally	Evidence of spalling concrete, cracking, settlement, corrosion, poor workmanship, decay, insect attack (termites/borer), etc
Roof Finishes	Delaminating and flaking paint finishes, excessive mould, worn liquid applied finishes, etc
Roof Cladding	Corrosion, bowing and warping of cladding material, flashings around penetrations, water ingress, insufficient fixings, etc
Wall Structure/Cladding	Corrosion, bowing and warping of cladding material, flashings around penetrations, water ingress, insufficient fixings, etc
External Wall Finishes	Delaminating and flaking paint finishes, excessive mould, cracked and worn plaster finishes, water ingress, etc
External Doors	Rotting timber or corroding doors, door frames and hardware, Significant damage through vandalism or general wear and tear.
External Windows	Rotting timber frames, corrosion, inadequate flashing details, signs of water ingress, vandalism damage, wear and tear
Ceiling Finish	Warped ceiling tiles, water damage, worn or flaking paint finishes, excessive mould growth, etc
Ceiling Structure	Deflection or sagging in the ceiling line, etc
Internal Wall Finishes	Worn or flaking paint finishes, excessive mould growth, general wear and tear of finishes, vandalism, etc
Internal Partitions	Rot, general wear and tear, vandalism, penetrations, etc
Floor Finishes	General wear and tear, lifting or delaminating floor coverings, cracked or broken tiles, threshold strips, etc
Floor Structure	Rot, marks, leveling of floor, penetrations, water ingress, etc
Internal Doors	General wear and tear, vandalism, etc
Services Generally	General age and condition of the service installations (Note: Not a detailed audit)

Dashboards recording individual building condition grades and the top five elements requiring urgent maintenance, renewal or replacement are included in the appendices of the individual campus specific reports.

8.8 Forecast of Operational Costs

The forecast Operational Costs have been prepared as follows:

1. Develop the Maintenance Cost Plan. This is the cost of annual routine maintenance and includes building washing, painting, repairs and maintaining building services (mechanical, electrical fire etc.). This cost has been established by multiplying quantities (e.g. wall area) by an appropriate $/ft2 rate for washing or painting. To this an allowance for general overheads (e.g. supervision, vehicle running expenses etc.) has been added.

2. Develop the cost of periodic element Renewals. From the condition grade assessment and amount of remaining life in the building element the date and cost of renewal is determined (e.g. a roof with 10 years life remaining has been budgeted for replacement in 2023). For the COM-FSM campuses the cost of renewals has been viewed over 10, 20 and 30 year periods.

3. The forecast Operational Cost is established by adding annual maintenance and periodic element renewal costs. This is annualised or averaged over a 30 year period (i.e. the total operational cost over 30 years divided by 30). It should be recognized that for cash-flow purposes actual operational costs will vary from year to year depending on the amount of actual renewals required in that specific year. Detailed monitoring and management of the operational cost cash flow on an annual basis will be required by COM-FSM.

8.9 Escalation

Escalation over a 30 year period of asset renewals and maintenance is a significant cost. Because of the significant impact of escalation two sets of cost, one which excludes escalation (i.e. present day 2013 costs) and the other which includes escalation have been presented at the main summary level. Escalation has been assumed to be 3.4% per annum for the next 30 years. This is based on an assessment of historical data provided by Mundi (refer web-site address below):

http://www.indexmundi.com/federated_states_of_micronesia/#Economy

It is critical for long term funding purposes that the allowances for escalation are included in all budgets and funding applications.

8.10 Economic Modelling

All costs have been presented in 2013 dollar values and have been escalated over a 30 year period. No economic modelling to calculate the future cost of money, net present value or allowance for funding/intersect charges have been made. It is recommended that a detailed economic model of the operational cost of the CoM assets is carried out as this may influence the funding requirements.

8.11 Results/Findings

8.11.1 Condition Grade Assessment Results

The following is a summary of the condition grade of the assets across the six campuses.

Campus	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Yap	2	2	3	2	
FSM-FMI			1	5	
Chuuk			8	2	1
National			13	2	
Pohnpei			12	3	1
Kosrae			6	5	
Total	**2**	**2**	**43**	**19**	**2**

From our condition assessment we observe the following:

1. Buildings constructed from permanent low maintenance materials e.g. blockwork walls, aluminium windows etc. are generally in better condition and have a longer economic life span than steel or timber framed structures.
2. Most buildings have water tight issues with their roofs and many require re-roofing or roofing repairs. The ingress of water is causing additional deterioration to the buildings.
3. A large number of air conditioning units are due for renewal and this will be a significant cost.
4. Maintenance being carried out under the current Operational budget of $150,000 per annum is insufficient. The periodic renewal of building element under the IF Maintenance Fund of $350,000 per annum is also insufficient. There is a significant amount of deferred asset renewals and maintenance which is increasing the amount of deterioration in the assets.
    a. Unless the current Operational budget is increased the condition of the assets will continue to deteriorate and the number of buildings requiring replacement (and consequently additional capital replacement funding) will increase.
    b. A clear, well organised asset renewal and routine maintenance plan needs to be developed and this needs to be implemented. An indicative asset renewal and maintenance cost plan has been included in Appendix D of this report as an all campus summary and Appendix C of the specific Part 3 campus reports.
    c. Regular monitoring and review of the asset renewal and routine maintenance plan needs to be carried out.

8.11.2 Forecast Operational Costs Results

Outlined below are forecast operational costs split into 10 year sections over a 30 year period. Note that costs including and excluding escalation are identified. Funding of the operational costs should be based on the costs that include escalation.

Forecast Operational Costs – Excluding Escalation

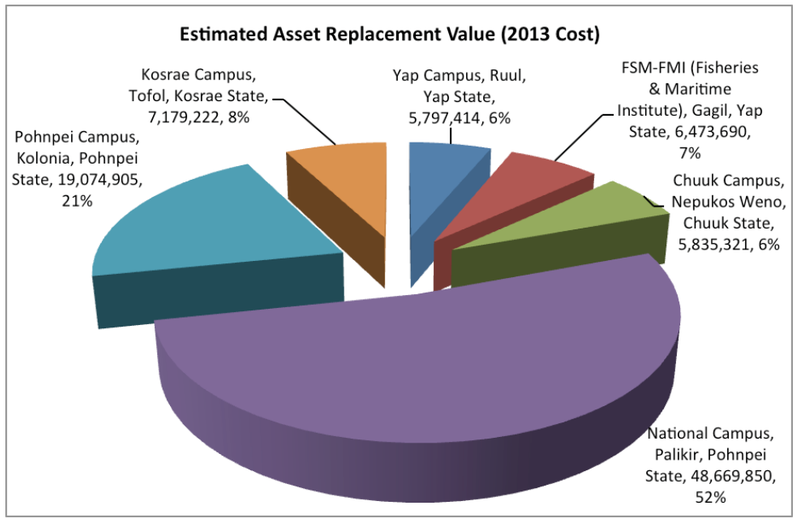
Ref	Campus	Estimated Full Replacement Cost Cost ($ USD) Excluding Escalation	Annualised Total Operational Cost (Excluding Escalation)	Total Year 1-10 Operational Cost ($USD) Excluding Escalation	Total Year 11-20 Operational Cost ($USD) Excluding Escalation	Total Year 21-30 Operational Cost($USD) Excluding Escalation
1.00	Yap Campus, Ruul, Yap State	5,797,414	168,167	1,186,683	1,603,286	2,255,042
2.00	FSM-FMI (Fisheries & Maritime Institute), Gagil, Yap State	6,473,690	222,348	1,915,988	2,542,092	2,212,369
3.00	Chuuk Campus, Nepukos Weno, Chuuk State	5,835,321	195,262	1,702,962	1,861,741	2,293,145
4.00	National Campus, Palikir, Pohnpei State	48,669,850	916,447	7,181,838	11,003,654	9,307,913
5.00	Pohnpei Campus, Kolonia, Pohnpei State	19,074,905	610,302	5,931,315	5,389,036	6,988,723
6.00	Kosrae Campus, Tofol, Kosrae State	7,179,222	226,796	1,631,210	2,345,998	2,826,665
	TOTALS EXCLUDING ESCALATION	93,030,402	2,339,322	19,549,997	24,745,807	25,883,857

Forecast Operational Costs – Including Escalation (USE THESE AMOUNTS FOR FUNDING)

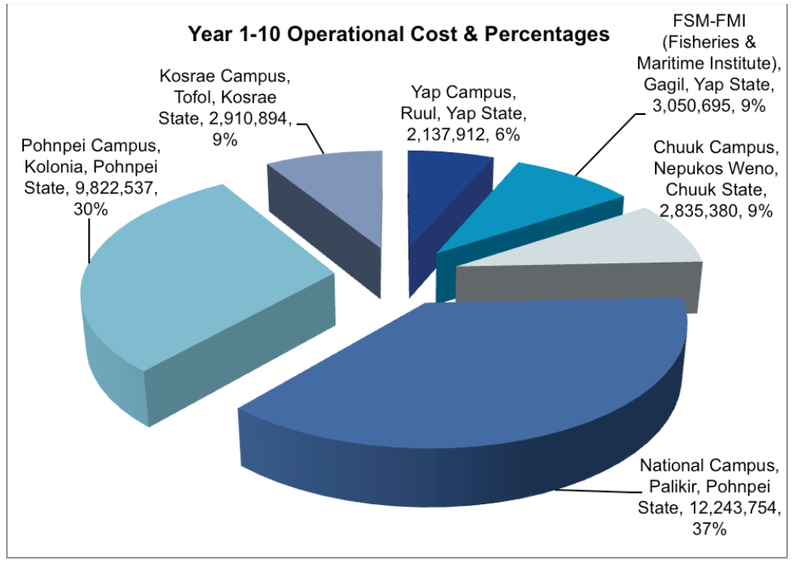
Ref	Campus	Annualised Total Operational Cost (Including Escalation)	Total Year 1-10 Operational Cost ($USD) Including Escalation	Total Year 11-20 Operational Cost ($USD) Including Escalation	Total Year 21-30 Oerational Cost ($USD) Including Escalation
1.00	Yap Campus, Ruul, Yap State	362,061	2,137,912	3,201,481	5,522,434
2.00	FSM-FMI (Fisheries & Maritime Institute), Gagil, Yap State	441,158	3,050,695	4,840,302	5,343,741
3.00	Chuuk Campus, Nepukos Weno, Chuuk State	404,042	2,835,380	3,694,252	5,591,638
4.00	National Campus, Palikir, Pohnpei State	1,849,675	12,243,754	20,875,228	22,371,255
5.00	Pohnpei Campus, Kolonia, Pohnpei State	1,239,311	9,822,537	10,641,118	16,715,684
6.00	Kosrae Campus, Tofol, Kosrae State	479,714	2,910,894	4,556,998	6,923,526
	TOTALS INCLUDING ESCALATION	4,775,961	33,001,171	47,809,378	62,468,278

The forecast Operational Costs (including escalation) as outlined in the above table are suggested for funding and budgeting purposes. Annualised costs are the total operational costs spent over a 30 year period (divided by 30).

The estimated replacement cost (2013 costs) of the COM-FSM assets on the six campuses is approximately $US93M (excluding land, loose furniture and equipment). Outlined below is the breakdown of the asset replacement costs per campus.



The Operational Cost and Percentages table (below) highlights where CoM-FSM needs to invest in asset renewal and routine maintenance to maximise the life of the existing capital assets, to prevent deterioration and to avoid additional capital replacement expenditure.



The forecast operational costs ($US33M for Years 1-10 equates to approximately $US3.3M per year average) identified above are significantly higher than the $US150,000 per annum that is currently being budgeted for maintenance by COM-FSM. The forecast operational cost equates to approximately 2.5% of the estimated asset replacement cost (based on Year 1 operational and replacement costs). Historically in New Zealand institutional and corporate organisations invest in the order of 3-4% of the replacement cost into operational costs. We consider that the forecast operational costs as outlined above are necessary to operate and maintain the capital investment already made by the COM-FSM.

8.11.3 Results/Findings for Individual Campuses

Refer to "College of Micronesia - FSM Space Utilization and Facilities Masterplan Study, Part 3 for detailed reports for the Condition Assessment of each individual campus which contains a more detailed analysis of forecast Operational costs. Dashboards recording individual building condition grades and the top five elements requiring urgent maintenance, renewal or replacement are included in the appendices of the Part 3 campus specific Asset Condition reports. Refer to Appendix D in this study for the summary of the indicative asset renewal and maintenance plan.

8.12 Conclusions & Recommendations

The conclusions and recommendations from the Asset Condition Assessment are:

1. There is a significant amount of deferred asset renewals and maintenance which is increasing the amount of deterioration in the assets.
2. The current COM-FSM operational budget of $150,000 per annum is insufficient to meet both maintenance and the periodic renewal of building element requirements.
3. Unless the current Operational budget is increased the condition of the assets will continue to deteriorate and the number of buildings requiring replacement (and consequently additional capital replacement funding) will increase.
4. The forecast Operational budget for the six campuses for Years 1-10 is estimated at $US33M including escalation (assumed at 3.4% per annum). No detailed economic modelling has been completed and it is recommended that this is carried out to ascertain the future 'cost of money' which may influence funding requirements.
5. Any Operational cost savings, which may be achieved, from replacing buildings by the current (proposed) campus Facilities Planning process have not been considered in this forecast and are addressed separately.
6. A clear, well organised asset renewal and routine maintenance plan needs to be developed and implemented. An indicative asset renewal and maintenance cost plan has been included in Appendix D.
7. Regular monitoring and review of the asset renewal and routine maintenance plan and the asset condition needs to be carried out.
8. This assessment ignores integration issues with future developments identified in the Development Strategy component of this Facilities Study. This assessment is based purely on the visual condition of the existing buildings and ignores the practicalities of whether the buildings are suitable for refurbishment or should demolished and replaced (this is to be determined by the Development Strategy component of this Facilities Study).

8.13 Limitations of the Condition Assessment

The life cycle and renewal/replacement projections used in our report are indicative only as they are predictions of future circumstances, which cannot be assured. Actual results may vary from the projections and these variations may be significantly more or less favorable than assumed herein. The findings in this report are current as at the date of inspection (June 2013) and not at the date of this report.

All estimated asset/capital replacement costs are high-level and indicative with an accuracy range of +/- 30%. Please note that these costs exclude all Government Goods and Services Taxes, Import/Customs Duties, Design/Procurement Costs, etc.

All estimated operational costs reflect capital replacement and maintenance works only of the buildings and site infrastructure.

All costs are detailed in the data sheets and spreadsheets (refer appendices) are current as at June 2013. Escalation of the Operational Costs have been added to the overall cost summaries. Escalation is assumed to be 3.4% per annum.

This assessment is not a health and safety audit. Beca does not accept liability for any client health and safety issues whether reported or not. Any issues arising from the possible presence of contaminated or potentially toxic materials onsite, (e.g. asbestos) are excluded from this report. This report does not constitute an environmental audit and no allowance has been made for the presence of any such materials should they exist at the subject property.

Our building condition audit is based on a visual assessment of the buildings and site infrastructure only. Furthermore the visual assessment was not a detailed engineering survey of the assets. Cursory observations have been made of the following specialist elements however our report will not include for detailed investigation reports such as:

- Building Code of Compliance issues
- Building structures (e.g. Structural integrity, building subsidence, structural decay, etc)
- Health and safety issues (e.g. asbestos, contaminated fill, leaky buildings, etc)
- Mechanical services such as heating and ventilation
- Electrical services such as power, lighting and building management systems
- Information & technology and communication systems
- Sanitary plumbing and drainage
- Water reticulation
- Fire services
- Vertical transportation such as lifts and escalators
- Security

Whilst each building's structure was inspected for defects such as settlement, spalling, cracking and bowing, etc it should be noted that this was an exterior visual assessment of the exposed parts of the building structures for the purpose of assigning condition grades and was not a structural engineering assessment of the buildings.

The building condition audit does not include for the inspection of sub-floor voids, roof/ ceiling voids, plenum spaces or other areas that are difficult to access or could trigger health and safety issues. Our report will include a condition assessment of the roof surfaces, however these will be observed from ground level. No underground services have been able to be assessed. No detailed inspections (e.g. removal of wall linings etc) have been carried out.

The building condition audit will not include for destructive testing of building elements which is normally associated with identifying extensive damage as a result of weather tightness issues. Problems potentially relating to leaky buildings and weather tightness will be flagged for further investigation.

The preparation of this report does not imply in any way that Beca has audited the financial statements, management accounts, engineering or other records of the COM-FSM Where another party has supplied information for use in this report, it is assumed to be reliable.

This report should not be reproduced or used for any other purpose without Beca's prior written permission in each instance.

Beca reserves the right, but not the obligation, to review all calculations included or referred to in this report and, if considered necessary, to revise its opinion in the light of any information existing at the site visit which becomes known after.

8.14 Assumptions Made in the Condition Assessment

It has been assumed that:

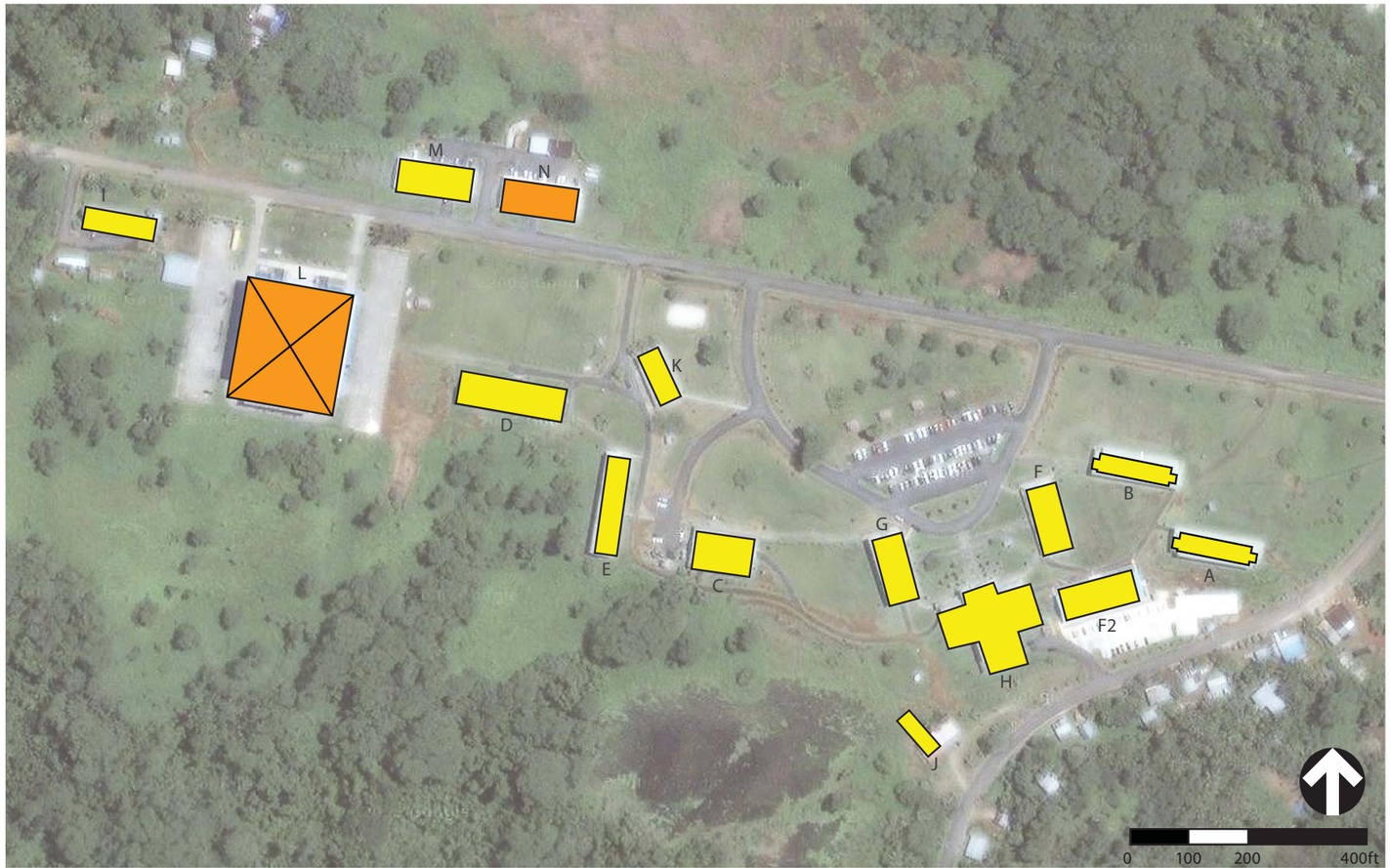
- The rate of escalation over the next 30 years will be an average of 3.4% per annum.
- The existing buildings will be retained (this ignores the possible re-development of buildings as proposed by the Development Strategy component of this Facilities Study)

8.15 Exclusions from the Condition Assessment and Forecast Operational Costs

The following has been excluded from the Condition Assessment and forecast Operational Costs:

- Replacement of loose furniture, fittings and equipment.
- The cost of renewal or maintenance of buildings that are leased (it is assumed that the building owners will carry out renewals and maintenance)
- All other College operating costs such as energy bills, teaching & administration staff salaries and expenses, disposables, vehicles, tools, machinery, rental equipment, property/building leasing costs, travel costs, insurances etc.
- The Total Cost of Ownership has not been calculated as part of this study. It is assumed that the COM-FSM will use the operational costs (maintenance plus asset renewal costs) provided as an input to their build-up of the total cost of ownership.
- Taxes, duties and government fees or charges.

8.16 Campus Condition Grading Summary Plans



National Campus - Building Condition Assessment Summary

No.	Building Description
A	Specialized classrooms (Building A)
B	Standard classrooms (Building B)
C	Dining Hall
D	Men's Residence Hall
E	Women's Residence Hall
F	Faculty Offices (old)
F2	Faculty Offices (new)
G	Administration
H	Learning Resources Center and MITC

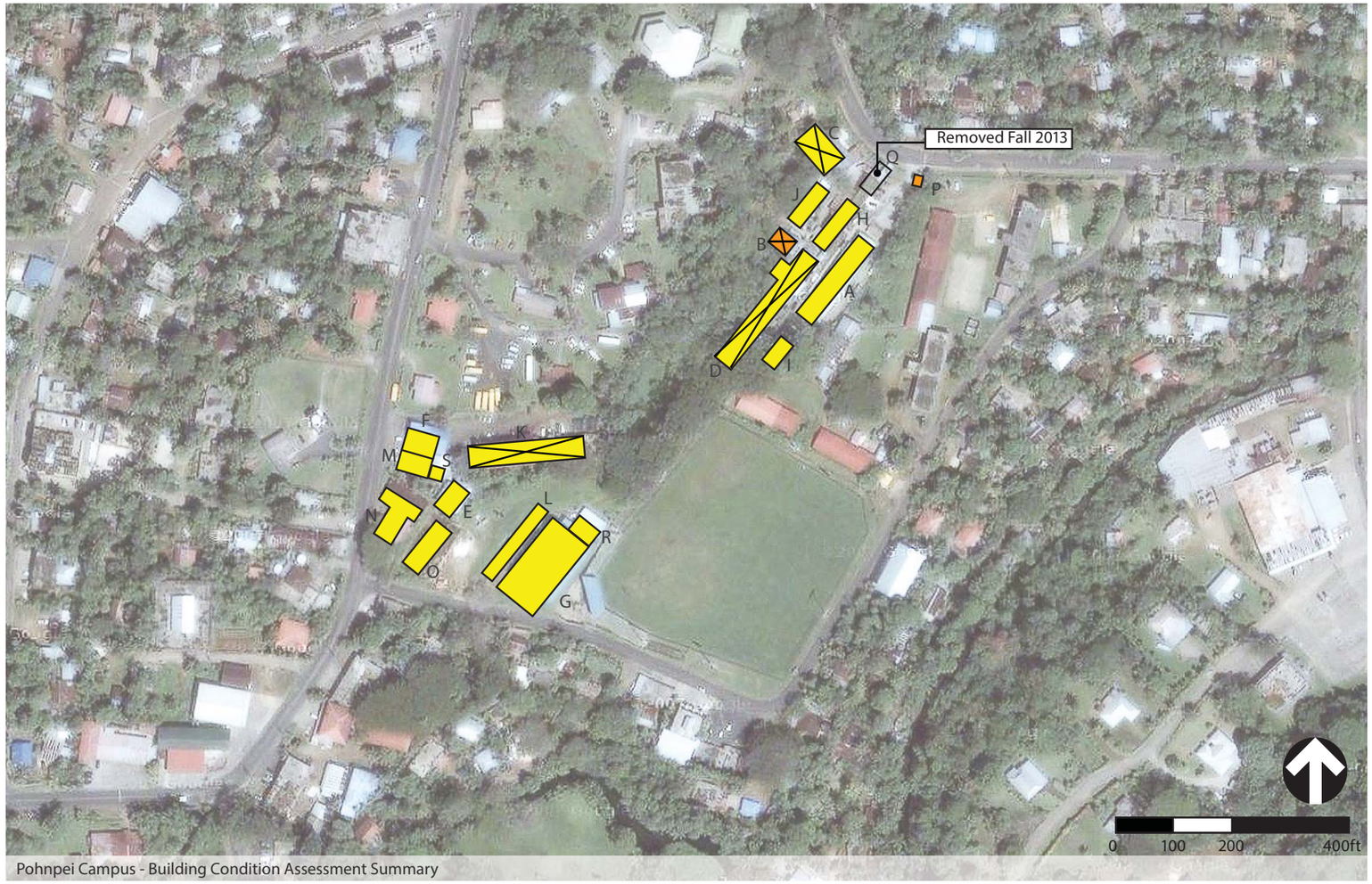
I	Agriculture
J	A + Center and Art Classroom
K	Book store, Dispensary, Student Services
L	FSM - China Friendship Sports Center
M	Security, Weights Room, IT Shop
N	Maintenance, CRE, Music Classroom

LEGEND

(Summary of Building and Element Condition Grades)

- Very Good (0-20%)
- Good (20-50%)
- Average (40-60%))
- Poor (50-80%)
- Very Poor (>80%)
- Buildings shown crossed have a poor structural condition grade

POHNPEI CAMPUS



Pohnpei Campus - Building Condition Assessment Summary

No.	Building Description
A	Administration Building
B	Bookstore
C	I.C. Building/ Electronics classrooms
D	Classroom Building A
E	Electrical Building
F	Carpentry Shop
G	Gymnasium
H	Hotel and Tourism Building
I	IT Shop
J	Classroom Building B

K	Vocational classrooms, TSP, UB, CES
L	Student Services Center
M	Mechanic Shop
N	Land Grant Building
O	PSBDC Building
P	Security Shed
Q	Nahs (removed Fall 2013)
R	Maintenance Building
S	Refridgeration Shop

LEGEND

(Summary of Building and Element Condition Grades)

- Very Good (0-20%)
- Good (20-50%)
- Average (40-60%))
- Poor (50-80%)
- Very Poor (>80%)
- Buildings shown crossed have a poor structural condition grade

Chuuk Campus - Building Condition Assessment Summary

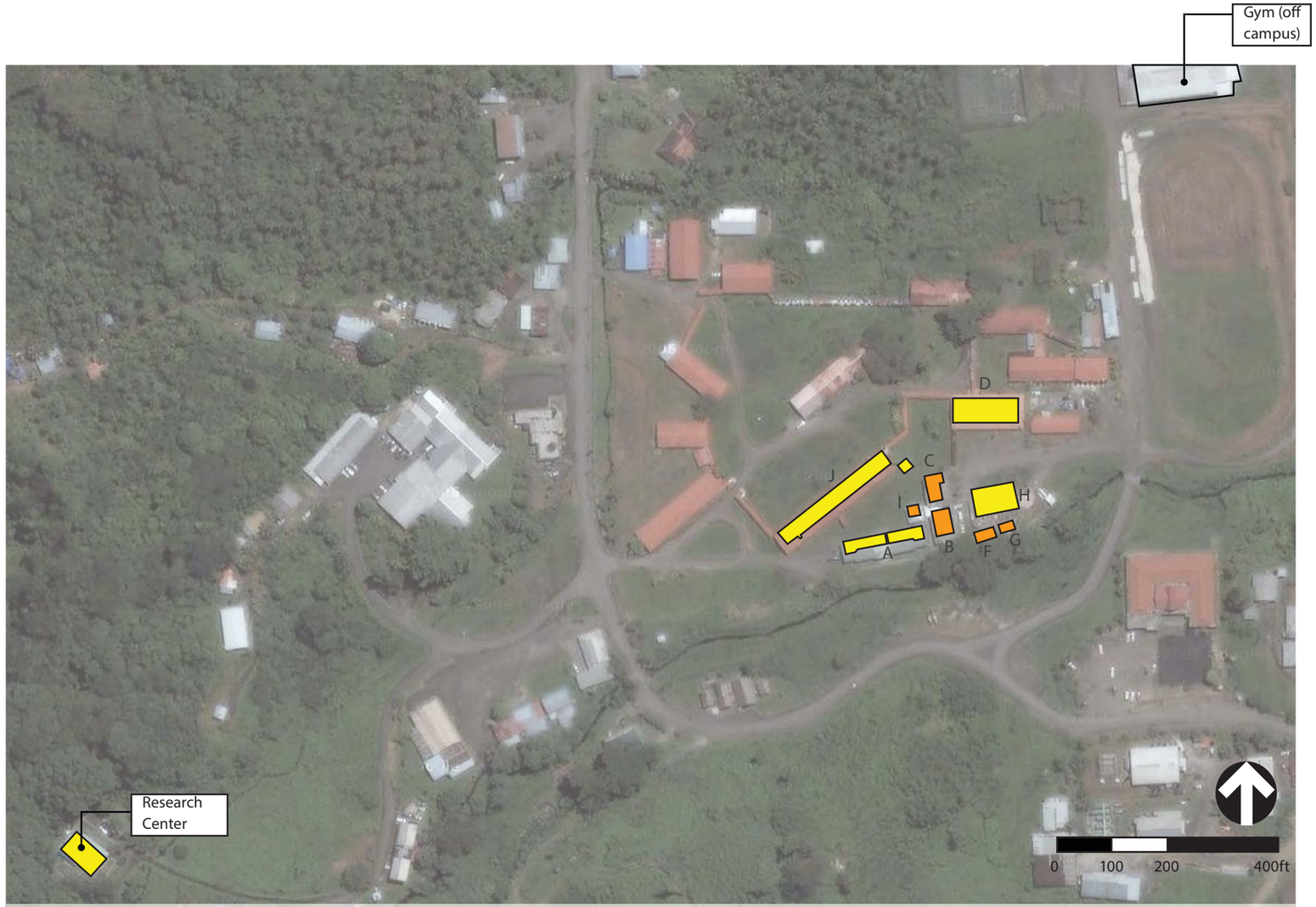
No.	Building Description
A	Administration / Faculty Office
B	Classroom Building B
C	Classroom Building C
D	Campus Dean's Office
E	Restrooms
F	CRE Building
G	Generator House
H	Student Services Building
I	Computer Lab
J	Student Center
K	Learning Resources Center

LEGEND

(Summary of Building and Element Condition Grades)

- Very Good (0-20%)
- Good (20-50%)
- Average (40-60%))
- Poor (50-80%)
- Very Poor (>80%)
- Buildings shown crossed have a poor structural condition grade

KOSRAE CAMPUS



Kosrae Campus - Building Condition Assessment Summary

No.	Building Description
A	Administration Building/ Classrooms
B	Land Grant Building
C	Faculty Building
D	Rose Mackwelung Library
F	Maintenance Shop
G	Maintenance Office
H	KSBDC Building
I	Bookstore
J	Learning Resources and Career Development

NOTE:

Carpentry shop and electronic

LEGEND

(Summary of Building and Element Condition Grades)

- Very Good (0-20%)
- Good (20-50%)
- Average (40-60%))
- Poor (50-80%)
- Very Poor (>80%)
- Buildings shown crossed have a poor structural condition grade

YAP CAMPUS

Yap Campus - Building Condition Assessment Summary

No.	Building Description
A	Administration Building
B	Computer Lab
C	CRE Building
D	Science Laboratory
E	Student Center Building
F	Classroom Building
G	Vocational Building
H	Student Open Lounge

LEGEND

(Summary of Building and Element Condition Grades)

- Very Good (0-20%)
- Good (20-50%)
- Average (40-60%))
- Poor (50-80%)
- Very Poor (>80%)
- Buildings shown crossed have a poor structural condition grade

FSM - FMI

FSM-FMI Campus - Building Condition Assessment Summary

No.	Building Description
A	Administration/Student Services and Living Quarters/Mess hall
B	Staff housing
C	Classrooms, Library and Shops
D	Maintenance office

LEGEND

(Summary of Building and Element Condition Grades)

- Very Good (0-20%)
- Good (20-50%)
- Average (40-60%))
- Poor (50-80%)
- Very Poor (>80%)
- Buildings shown crossed have a poor structural condition grade

9

SPACE UTILIZATION AND FACILITIES STUDY ROUGH ORDER OF COST ESTIMATE

9.1 Assumptions Made in the Rough Order of Cost Estimate

A number of assumptions have been made in the preparation of the rough order of cost estimates. These assumptions include the following:

- Fit-out costs for desks, chairs and loose furniture have been assumed at $10/ft2. No allowance has been made for any additional furniture, fittings and equipment required.
- The estimates have been prepared in both current (2013) costs with escalation allowances identified separately. The rate of escalation has been assumed to be 3.4% per annum. The actual escalation amounts assume construction within the time period identified in the re-development programme. No escalation for construction of projects outside of this timeframe has been allowed for.
- Architectural and engineering fees have been assumed to average 15% across all projects.
- A contingency allowance of 15% has been included across all projects. This allowance will require confirmation at developed design stage when the project scope and risks will be better understood.

9.2 Exclusions from the Rough Order of Cost Estimate

The following are excluded from the rough order of cost estimates:

- No allowance for data projectors, computers, printers and associated hardware and software, photocopiers etc. has been made,
- Property purchase and leasing costs,
- Relocation of staff, fittings and equipment on the existing Chuuk Nepukos Weno campus to the proposed Nantaku site.
- Any demolition or holding costs associated with the Chuuk campus Nepukos Weno site (after relocation to the proposed Nantaku site),
- Taxes, duties and fees.

9.3 Limitations to the Rough Order of Cost Estimate

These estimates are rough order of cost estimates and are based on highly conceptual information. No detailed investigation or design has been carried out. Accordingly these rough order of cost estimates are not a statement of absolute cost and have an accuracy range that is no better than -20% to +30%. Because of this wide accuracy range it is assumed that all estimates will be confirmed at developed design stage (where the project scope and risks will be better understood) and prior to making funding applications.

9.4 Summary of Rough Order of Cost Estimates

The purpose of the rough order of cost estimates is to inform the COM-FSM Facilities Study of the potential cost of re-development of the COM-FSM campuses. The potential order of cost for the proposed re-development of the COM-FSM campuses is summarized in the table below.

	COM-FSM Space Utilization and Facilities Study Rough Order of Cost Estimate Summary - All Campuses All Projects	Buildings, Services & Siteworks $USD (Nov 2013 cost)	Allowance for Fit-out $USD (Nov 2013 cost)	TOTAL $USD (Nov 2013 cost)	Allowance for Escalation (3.4% pa)	TOTAL Escalated Cost $USD
a	These are 'rough order of cost' estimates based on highly conceptual information and have an accuracy range that is no better than +/-20%. All estimates need to					
b	Fit-out costs (desks, chairs & loose furniture only) assumed at $10/ft2					
c	No allowance for data projectors, screens, computers, printers, photo-copiers etc					
d	Architectural & Engineering fees and contingency allowances have been included					
e	Escalation has been assumed at the rate of 3.4% per annum. November 2013 has					
f	Property purchase or leasing costs are excluded					
g	Taxes, duties and fees are excluded on all projects					
h	Rough order of costs are based on historical cost data on a per square foot basis for a standard of building that is assumed					
	CoM (all Campuses) 5 year period to 2018					
	Yap	3,145,000	100,000	3,245,000	137,000	3,382,000
	FSM - FMI	1,438,000	40,000	1,478,000	60,000	1,538,000
	Chuuk	15,240,000	440,000	15,680,000	639,000	16,319,000
	National	5,665,000	160,000	5,825,000	238,000	6,063,000
	Pohnpei	5,115,000	155,000	5,270,000	235,000	5,505,000
	Kosrae	4,385,000	120,000	4,505,000	175,000	4,680,000
	TOTAL CoM (All Campuses) 5 Year Period to 2018	**34,988,000**	**1,015,000**	**36,003,000**	**1,484,000**	**37,487,000**
	CoM (All Campuses) 10 year vision (2019 to 2023)					
	Yap	4,120,000	230,000	4,350,000	214,000	4,564,000
	FSM - FMI	725,000	35,000	760,000	37,000	797,000
	Chuuk	4,235,000	135,000	4,370,000	205,000	4,575,000
	National	2,010,000	75,000	2,085,000	102,000	2,187,000
	Pohnpei	945,000	25,000	970,000	46,000	1,016,000
	Kosrae	2,810,000	60,000	2,870,000	140,000	3,010,000
	TOTAL All Campuses - 10 year vision	**14,845,000**	**560,000**	**15,405,000**	**744,000**	**16,149,000**
	CoM (All Campuses) Long term vision (Beyond 2023)					
	Yap	2,735,000	20,000	2,755,000	135,000	2,890,000
	FSM - FMI	740,000	0	740,000	35,000	775,000
	Chuuk	3,280,000	110,000	3,390,000	156,000	3,546,000
	National	1,000,000	0	1,000,000	50,000	1,050,000
	Pohnpei	5,410,000	170,000	5,580,000	265,000	5,845,000
	Kosrae	4,215,000	180,000	4,395,000	211,000	4,606,000
	TOTAL All Campuses - Long Term	**17,380,000**	**480,000**	**17,860,000**	**852,000**	**18,712,000**
	CoM (All Campuses) Further Projects					
	Yap	600,000	0	600,000	35,000	635,000
	FSM - FMI	1,150,000	0	1,150,000	55,000	1,205,000
	Chuuk	500,000	0	500,000	25,000	525,000
	National	500,000	0	500,000	25,000	525,000
	Pohnpei	820,000	0	820,000	50,000	870,000
	Kosrae	1,130,000	0	1,130,000	55,000	1,185,000
	TOTAL CoM (All Campuses) Futher Projects	**4,700,000**	**0**	**4,700,000**	**245,000**	**4,945,000**
	GRAND TOTAL (All Campuses)	**71,913,000**	**2,055,000**	**73,968,000**	**3,325,000**	**77,293,000**

As noted above the proposed re-development of the COM-FSM campuses totals $US73.968M in 2013 present day costs and totals $US77.293M including escalation allowances. Refer to Appendix E for more detail regarding the rough order of cost estimates.

10

ASSET VALUATION (FOLLOWING CAMPUS PROJECT PLAN INITIATIVES)

The following table is a summary of our estimated asset valuation pre and post implementation of the campus project plan (master plan) initiatives. This assessment displays the current asset value (i.e. estimated full replacement value); the total estimated capital improvements and an estimated forecast of asset value on completion of the projects. The findings of this assessment are as tabled below:

Table 1 – Summary of Asset Value

Campus	Estimated Full Replacement Cost of Existing Asset ($ USD)	Total Capital Improvements ($ USD)	Asset Value after Capital Improvements ($ USD)	Increase on Asset Value ($ USD)	Increase on Asset Value (%)	Variance on Asset Value vs Capital Improvements ($ USD)
	Current Estimated Asset Value (Base Assessment)	Estimated Capital Improvements (As Per Master Plan)	Estimated Asset Value (On Completion of MP Projects)			
Yap Campus	5,797,414	10,950,000	14,515,892	8,718,478	150.39%	-2,231,522
FSM-FMI (Fisheries & Maritime Institute)	6,473,690	4,128,000	10,504,738	4,031,048	62.27%	-96,952
Chuuk Campus	5,835,321	23,940,000	29,690,321	23,855,000	408.80%	-85,000
National Campus	48,669,850	9,410,000	57,934,850	9,265,000	19.04%	-145,000
Pohnpei Campus	19,074,905	12,640,000	24,067,250	4,992,345	26.17%	-7,647,655
Kosrae Campus	7,179,222	12,900,000	17,899,272	10,720,051	149.32%	-2,179,949
Total	93,030,402	73,968,000	154,612,323	61,581,922	66.20%	-12,386,078

Please refer to Appendix D of the Part 2 Common Report for further detail on the above assessment. All of the above figures exclude escalation costs and Government taxes etc.

The following points should be noted in respect of the above assessment:

Chuuk Campus (Nepukos Weno Site & Nantaku Site)

The Asset Valuation after Capital Improvements of $29,690,321 is the combined total of both the existing Nepukos Weno site and the proposed new Nantaku site. Please note that the Asset Valuation after Capital Improvements for the Nepukos Weno site only is approximately USD $6,170,321 (Note: At full replacement value). Consideration should be given to the actual market value of the assets located at the Nepukos Weno site for potential resale as this may be considerably less than the full replacement value stated above.

Variance on Asset Value vs Capital Improvements

Please note that the variance of USD -$12,386,078 relates to Project Plan initiatives that are of demolition, enabling, temporary works nature or 'like for like' building/site infrastructure replacement. These projects will not increase the overall asset value but will provide other physical benefits such as better functioning teaching facilities and/or reduced operational costs. Under the current capital improvement strategy, every $1.00 USD spent is returning approximately $0.66 increase in asset value.

10.1 Facilities Study Impacts on Operational Costs

As part of this study we have reviewed the operational cost model in conjunction with the Facilities Study project initiatives. This assessment generally aims to provide an adjusted (but theoretical) operational cost model after implementation of the proposed project initiatives over a 30 year period. The analysis covers the effects of capital improvements made to an existing asset base recognising that some of the master plan projects could increase or discharge part (or all) of the operational costs (i.e. asset renewal and maintenance cost obligations).

Operational cost adjustments have been assessed for each campus on a building and site infrastructure line level basis. The assessment broadly considers the planned period of Facilities Study project implementation (Note: 10 year blocks have been used for this assessment) and factor increases/decreases operational costs according to asset value and operational cost trends. For example, a run-down building with a condition grade of 4 to 5 (being the worst grade range) will be reset to a condition grade of 1 if refurbished. This in-turn results in a lower and more cost efficient operational cost model. The findings of this analysis are as tabled below:

Table 2 – Summary of 1-10Y Operational Cost Forecast

Campus	1-10Y Capital Improvements ($ USD)	1-10Y Base Operational Cost ($ USD)	1-10Y Adjusted Operational Cost on Completion of MP Projects ($ USD)	1-10Y Variance on Operational Cost on Completion of MP Projects ($ USD)	1-10Y Variance on Operational Cost on Completion of MP Projects (%)
Yap Campus	7,595,000	1,186,683	537,613	-649,071	-120.73%
FSM-FMI (Fisheries & Maritime Institute)	2,238,000	1,915,988	1,891,635	-24,353	-1.29%
Chuuk Campus	20,050,000	1,702,962	458,824	-1,244,139	-271.16%
National Campus	7,910,000	7,181,838	7,181,838	0	0.00%
Pohnpei Campus	6,240,000	5,931,315	2,161,034	-3,770,281	-174.47%
Kosrae Campus	7,375,000	1,631,210	1,222,277	-408,934	-33.46%
Total	51,408,000	19,549,997	13,453,220	-6,096,777	-45.32%

Summary of 11-20Y Operational Cost Forecast

Campus	11-20Y Capital Improvements ($ USD)	11-20Y Base Operational Cost ($ USD)	11-20Y Adjusted Operational Cost on Completion of MP Projects ($ USD)	11-20Y Variance on Operational Cost on Completion of MP Projects ($ USD)	11-20Y Variance on Operational Cost on Completion of MP Projects (%)
Yap Campus	2,755,000	1,603,286	1,578,072	-25,214	-1.60%
FSM-FMI (Fisheries & Maritime Institute)	740,000	2,542,092	2,637,453	95,361	3.62%
Chuuk Campus	3,390,000	1,861,741	1,161,516	-700,225	-60.29%
National Campus	1,000,000	11,003,654	11,423,304	419,650	3.67%
Pohnpei Campus	5,580,000	5,389,036	3,867,236	-1,521,800	-39.35%
Kosrae Campus	4,395,000	2,345,998	2,116,840	-229,158	-10.83%
Total	17,860,000	24,745,807	22,784,420	-1,961,386	-8.61%

Summary of 21-30Y Operational Cost Forecast

Campus	21-30Y Capital Improvements ($ USD)	21-30Y Base Operational Cost ($ USD)	21-30Y Adjusted Operational Cost on Completion of MP Projects ($ USD)	21-30Y Variance on Operational Cost on Completion of MP Projects ($ USD)	21-30Y Variance on Operational Cost on Completion of MP Projects (%)
Yap Campus	600,000	2,255,042	2,643,483	388,441	14.69%
FSM-FMI (Fisheries & Maritime Institute)	1,150,000	2,212,369	2,471,619	259,249	10.49%
Chuuk Campus	500,000	2,293,145	2,434,515	141,370	5.81%
National Campus	500,000	9,307,913	10,181,563	873,650	8.58%
Pohnpei Campus	820,000	6,988,723	6,056,193	-932,530	-15.40%
Kosrae Campus	1,130,000	2,826,665	2,924,509	97,844	3.35%
Total	4,700,000	25,883,857	26,711,882	828,025	3.10%

Summary of 30Y Operational Forecast

Campus	Total 30Y Capital Improvements ($ USD)	Total 30Y Base Operational Cost ($ USD)	Total 30Y Adjusted Operational Cost on Completion of MP Projects ($ USD)	30Y Variance on Operational Cost on Completion of MP Projects ($ USD)	30Y Variance on Operational Cost on Completion of MP Projects (%)
Yap Campus	10,950,000	5,045,011	4,759,168	-285,843	-6.01%
FSM-FMI (Fisheries & Maritime Institute)	4,128,000	6,670,450	7,000,708	330,257	4.72%
Chuuk Campus	23,940,000	5,857,848	4,054,855	-1,802,994	-44.47%
National Campus	9,410,000	27,493,404	28,786,704	1,293,300	4.49%
Pohnpei Campus	12,640,000	18,309,074	12,084,463	-6,224,611	-51.51%
Kosrae Campus	12,900,000	6,803,873	6,263,626	-540,248	-8.63%
Total	73,968,000	70,179,661	62,949,523	-7,230,138	-11.49%

Please refer to Appendix D of the Part 2 Common Report for further detail on the above assessment.

Please note that this assessment is indicative only and should not be relied upon as absolute or final for budgetary planning purposes. All of the above figures are based dated in 2013 dollars and exclude escalation costs, Government taxes and other costs associated with the day-to-day running of campuses (i.e. management, administration and energy costs, etc).

The above findings demonstrate major operational cost benefits for the Chuuk and Pohnpei campuses which is due to a combination of new building/site infrastructure development (taking place of existing run-down facilities) and general consolidation and reduction of building space needed. A bulk of the operational cost savings (i.e. 45.32%) are realised in the first 10 year period where a majority of the capital improvement projects (i.e. USD $51,408,000) would take place.

By year 30 the total asset value is forecast to be USD $154,612,323 (i.e. an increase from the current asset replacement value of USD $93,030,402 by 66.20%). At the end of this period there is also a forecast reduction in operational costs of -$7,230,138 (or -11.49%). Please note that beyond 30 years, operational costs will increase significantly on the new development projects as asset renewal cycles reach the end of maturity. Operational costs extending beyond 30 years have not been forecast and are specifically excluded from this assessment.

10.2 Optimised Maintenance Strategy

Upon review of the annual maintenance cost results, Beca have reviewed possible alternatives to executing a maintenance regime. The most obvious alternative to reducing maintenance expenditure is to reduce the frequency of maintenance across all campuses. This is not advised as it could potentially compromise the asset renewal cycle (and the overall operational cost) as a result of elements not being maintained to an appropriate level prescribed by manufacturers/suppliers and other international standards. The frequency of maintenance allowed for in the base assessment is considered to be already optimised and set at an appropriate level to service the asset maintenance and renewal requirements under a normal commercial model.

Another suggested approach to reducing the maintenance cost burden is to implement a voluntary maintenance regime (utilising COM-FSM students) across all campuses to undertake low skill level maintenance activities. This regime may also deliver other positive (but passive) benefits such as a sense of ownership and upkeep of the facilities by students. Beca has undertaken a resource requirements/cost benefit analysis for deploying a combined voluntary labour (VL) and employed/contract labour (ECL) maintenance regime. This assessment also recognises that some maintenance activities must be undertaken by skilled trades or employed professionals in specialised fields. The results of this analysis are as summarised below:

Table 6 – Annual Summary of Voluntary Labour Requirements and Cost Benefits (Combined Buildings & Site Infrastructure)

Campus	ECL (Base) Maint. Cost Assessment ($ USD)	VL & ECL Maint. Cost Assessment ($ USD)	Total Cost Saving ($ USD)	Total Cost Saving (%)	Total Voluntary Labour Required (Hours)
Yap Campus	45,130	32,735	-12,395	-37.87%	4,132
FSM-FMI (Fisheries & Maritime Institute)	44,942	33,951	-10,991	-32.37%	3,664
Chuuk Campus	47,673	35,129	-12,543	-35.71%	4,181
National Campus	207,427	155,374	-52,053	-33.50%	17,351
Pohnpei Campus	151,580	118,117	-33,463	-28.33%	11,154
Kosrae Campus	57,116	44,044	-13,072	-29.68%	4,357
Total	553,868	419,350	-134,517	-32.08%	44,839

ECL – Employed or Contract Labour / VL – Voluntary Labour

Please refer to Appendix D of the Part 2 Common Report for further detail on the above assessment.

Please note that this assessment is indicative only and should not be relied upon as absolute or final for budgetary planning use. All of the above figures are based dated in 2013 dollars and exclude escalation costs, Government taxes and other costs associated with the day-to-day running of campuses (i.e. management, administration and energy costs, etc).

The annual voluntary labour assessment of 44,839 hours for the buildings and site infrastructure maintenance works could potentially be met by the existing student roll (i.e. numbering approximately 2,500). This would equate to a commitment of approximately 18 hours per student (or 2 days per annum) as a voluntary maintenance service and could potentially deliver approximately USD $135,000 per annum in savings.

The following (and not limited to) maintenance activities could be undertaken as part of the voluntary service:

- Washing down and cleaning of buildings externally (roof cladding, clearing out gutters, wall cladding, doors and windows, etc).
- Painting the building envelope (roof and wall cladding) and internal finishes.
- General cleaning internally (walls, floors and ceiling finishes).
- Basic servicing/cleaning of split system air-conditioning systems.
- Support with grounds keeping including (mowing, spraying, tree pruning etc).
- Washing, cleaning, painting and repair of minor structures and external furniture.
- Other more skilled and technical areas deemed appropriate to support the current teaching curriculum (e.g. mechanical, electrical, plumbing and drainage services).

10.3 Maintenance Cost Benefit Analysis

In New Zealand the life span of a fully maintained building is expected to be in the order of approximately 50 years as a minimum. These buildings are exposed to harsh environmental elements such as corrosion in coastal areas, adverse weather (humidity, high winds, storms, etc) and earthquakes. Yet there is a high rate of building stock in New Zealand that have performed well against these severe elements and have undergone minor asset renewal works. The common factors behind this trend are the thorough maintenance regimes that are deployed (i.e. spend money now to save on substantial cost later). For example, under these principles a roof cladding that is washed and repainted on regular programmed cycles could last much longer than its prescribed life span. Buildings and infrastructure however can be more susceptible to and will have an inherently higher frequency of asset renewal cycles (e.g. teaching institutions, hospitals and other public use buildings). This is highly dependent on the asset function, volume of human traffic, period of use and environment.

Beca have undertaken a high level Maintenance Cost Benefit Analysis to assess the benefits of implementing a thorough maintenance regime. These benefits can generally be summarised as lower asset renewal cost and extended life of built assets as a result of revival back to a good maintainable base condition. Please note that forecasting cost benefit is a highly subjective exercise involving predictions of how long elements will last if maintained as required. The results of the assessment below are purely for illustrative purposes and should not be referred to as absolute or final.

Table 7 – Summary of Maintenance Cost Benefit Analysis (Buildings Only)

	A	B	C = A - B	D	E = C - D
Element	30Y Asset Renewal Cost ($ USD)	30Y Asset Renewal Cost if Maintained ($ USD)	30Y Asset Renewal Cost Saving ($ USD)	30Y ECL Maint. Cost ($ USD)	Cost Benefit Over 30Y ($ USD)
External Wall & Roof Cladding	7,752,167	3,876,084	3,876,084	3,606,675	269,408
External Windows & Doors	2,903,577	2,073,984	829,594	403,275	426,319
Structure – Miscellaneous	2,310,000	1,732,500	577,500	866,250	-288,750
Floor Finishes	6,168,664	4,626,498	1,542,166	252,354	1,289,812
Internal Wall Linings	6,030,328	4,020,219	2,010,109	700,289	1,309,820
Ceiling & Soffit Linings	3,204,134	2,136,089	1,068,045	434,104	633,941
Internal Doors	569,700	406,929	162,771	474,750	-311,979
Internal Fit-Out – Miscellaneous	583,750	437,813	145,938	875,625	-729,688
Fire Supp. Detection & Alarm	855,415	855,415	0	416,896	-416,896
Mechanical Ventilation	115,500	77,000	38,500	231,000	-192,500
A/C Systems	7,335,429	4,279,000	3,056,429	1,167,000	1,889,429
Hot Water Generation	60,000	45,000	15,000	180,000	-165,000
Electrical Services	5,132,490	3,849,367	1,283,122	420,972	862,150
Hydraulic Services	2,107,000	1,580,250	526,750	451,500	75,250
Comm. Systems	1,710,830	1,710,830	0	802,500	-802,500
Vertical Transport	48,750	39,000	9,750	75,000	-65,250
Internal Fit-Out – Miscellaneous	1,145,000	858,750	286,250	858,750	-572,500
Total	48,032,734	32,604,728	15,428,007	12,216,940	3,211,066

Please refer to Appendix D of the Part 2 Common Report for further detail on the above assessment. All of the above figures are based dated in 2013 dollars and exclude escalation costs, Government taxes and other costs associated with the day-to-day running of campuses (i.e. management, administration and energy costs, etc).

Please note that the above assessment is based on a standard commercial maintenance model (i.e. including direct employed labour and contract labour) and does not take into account a voluntary based maintenance regime.

The above cost benefit analysis saving result of $3,211,066 (6.7% of the baseline expected asset renewal cost) could be considered as a low value (or neutral) outcome in monetary terms when viewed over a 30 year period. However, the tangible benefits of maintaining assets as prescribed could ultimately result in an intact/robust asset for the future (i.e. beyond 30 years) with a renewed or extended life expectancy.

It is advised that maintenance strategies be planned in accordance with the over-arching College Facilities Study to ensure that all efforts are targeted appropriately on assets set for long term use and minimised on assets due to be decommissioned (e.g. phase out buildings that are not economically viable to repair and/or are no longer required). This will in-turn help reduce the operational cost burden.

11

COMMON ENERGY REVIEW ACTIONS

11.1 Introduction

Energy Efficiency is one of the four primary components of the FSM Energy policy.

The Energy Audit workstream was commissioned to review the performance of the site in terms of its current energy usage.

Currently the vast majority of electricity consumed on site is provided from a local grid connection, with electricity produced by diesel fuelled generators.

CoM-FSM Goals

The major goal of the national energy policy is "to become less dependent on imported sources of energy", and that "by 2020…energy efficiency will increase by 50%".

Further to this the IEMP for COM-FSM, contains the goals of "implementing best practices for energy conservation", and "Developing and utilizing alternative sources of energy" with the goal of saving natural resources and hence revenue expenditure.

Actions Taken

To help in achieving the above goals in the context of COM-FSM, the following works have been undertaken.

- Review and analysis of the following data sources
  - Analysis of current energy use from review of energy bills
  - Review of how energy is used, the efficiency of energy use and benchmarking across campuses.
- Based on the above, identify key recommendations across all campuses, and specific recommendations on a campus-by-campus basis.

Recommended Methodology:

To achieve the above, the following steps are generally recognised as being the most effective way of reducing energy consumption.

1. Reduce to a minimum energy wastage. These measures are generally "low handing fruit": simple and low cost to implement, but can have a significant impact on energy usage. Measures include:
   a. Turning off lights / computers etc when not in use
   b. Measures such as increasing the setpoint of air conditioning units
2. Maximise Energy Efficiency. These measures have a capital cost associated, but can be incorporated as part of an on-going scheduled replacement cycle of equipment. Measures include:
   a. Replace light fittings with high efficiency models. Modern LED light fittings have a payback time of 3-5 years over compact florescent fittings, and have an additional benefit of longer life and reduced on-going maintenance.
   b. Ensure plant is operating at its maximum efficiency by provided regular planned preventative maintenance – e.g. cleaning filters etc.
   c. When replacing plant or equipment, select models providing an optimum balance of capital cost and running efficiency.
3. Integrate renewable energy technologies - it is important to ensure that any renewable technologies are introduced in an integrated and effective way, and can be maintained long term. These would generally form separate capital expenditure projects, such as:
   a. Photovoltaic electricity generation, Solar hot water generation

If steps 1 and 2 have been completed prior to undertaking step 3, this ensures that any renewable energy generated is being used effectively, rather than used in-efficiently, or wasted by un-necessary use.

11.2 Recommendations

A key component in improving energy efficiency is the ability to assess progress.

The National Campus is leading the way with full records of each buildings energy use for the last 3 years. This is the standard which all campuses should attain to allow accurate tracking of the effectiveness of energy reduction strategies implemented.

In reviewing the data available, several trends became apparent across all campuses.

Identified Issue	Proposed Improvement
Records of Energy Usage	Review of metering to all sites (with exception of the National Campus), with installation of additional meters to provide a more focussed view of energy usage.
Electrical Use	Ensure all lights and computers are turned off when not in use. Consider installation of occupancy sensors to control lighting where appropriate.
	Replace magnetic ballast to existing lights with electronic
Air Conditioning	Set points of units often very low (16°c). Setting units to achieve a temperature of 24 or 25° will allow the units to operate far more efficiently.
	Close windows when systems are operating, and seal any holes in air conditioned spaces
Planned Preventative Maintenance	Ensure planned preventative maintenance is carried out to keep plant operating efficiently and to prolong plant life. E.g. regular washing of outdoor units to reduce corrosion, ensure filters are clean and un-obstructed etc.

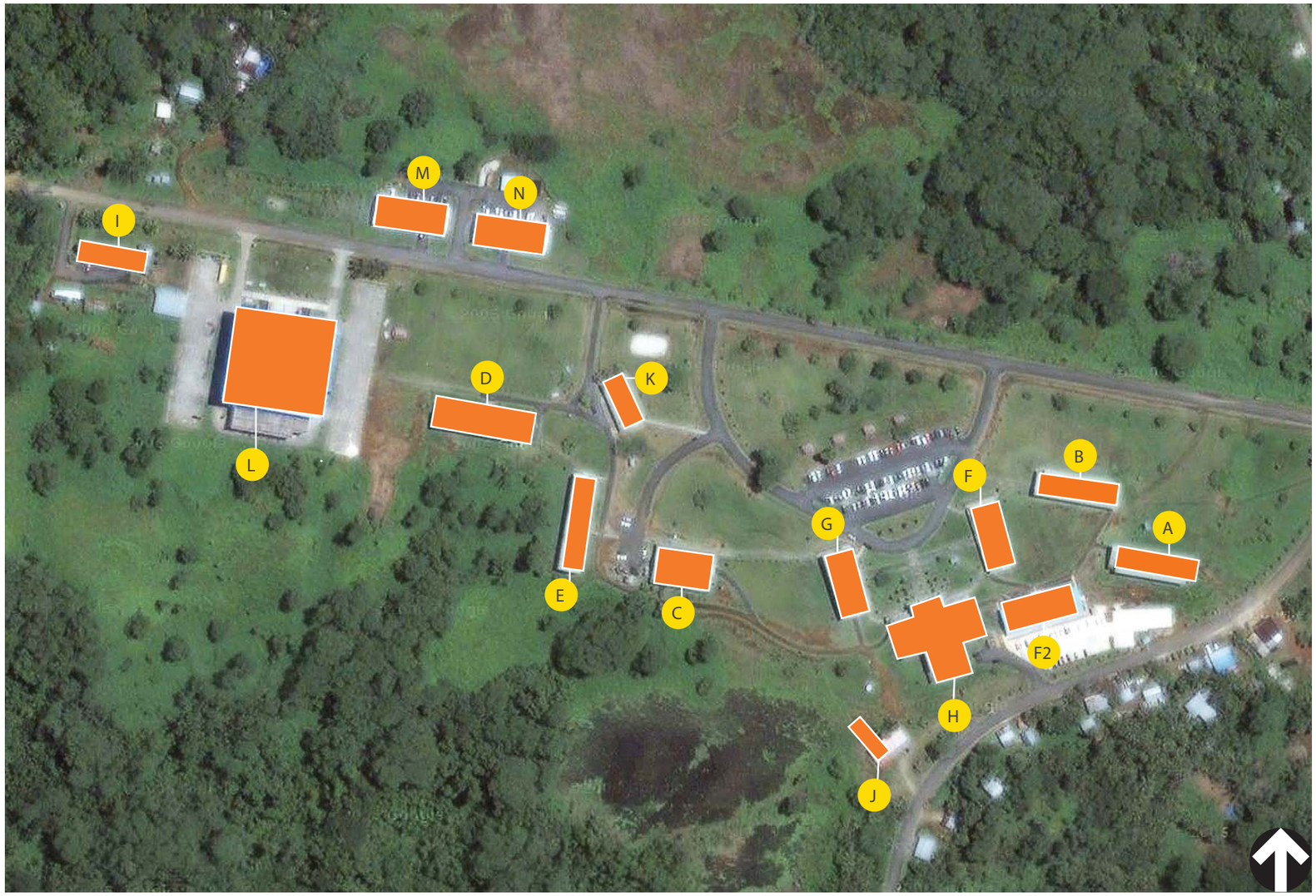
The energy usage data has been analysed using electricity usage per unit floor area (kWh / ft²) as a measure to account for the large variation in size of the sites. Directly comparing "raw" energy usage is not appropriate as it does not take into account that one campus may be larger or smaller than another.

These figures indicate that targeting permanently occupied spaces such as offices, admin areas etc will provide the greatest potential for energy saving.

Engagement of staff, facilities staff and students will be key in achieving a sustained reduction in energy usage, and the use of educational literature, energy saving competitions, and regular updates on energy performance can all be used to maintain interest.

NATIONAL CAMPUS MASTERPLAN

1.1 National Campus 2013



The National Campus is located on 73 acres near Pailikir in Pohnpei. The campus provides degree courses and has a boarding facility on site. The campus is 6 miles from the Pohnpei Career and Technical Education Centre in Kolonia.

The Fall 2013 National campus enrolment (headcount) is 1017. The maximum number enrolled occurred in Fall 2011 at 1018 with this figure not reached since then.

A headcount of 1136 has been provided by the Space Utilization study as the projected headcount in 2018. This 5 year projection figure has been used as the basis for the design figure for assessing future facilities requirements.

No.	Building Description
A	Specialized classrooms (Building A)
B	Standard classrooms (Building B)
C	Dining Hall
D	Men's Residence Hall
E	Women's Residence Hall
F	Faculty Offices (old)
F2	Faculty Office (new)
G	Administration
H	Learning Resources Centre & MITC
I	Agriculture
J	A + Centre & Art Classroom
K	Bookstore, Dispensary
L	FSM-China Friendship Sports Centre
M	Security, Weights Room, IT Shop
N	Maintenance CRE, Music Classroom

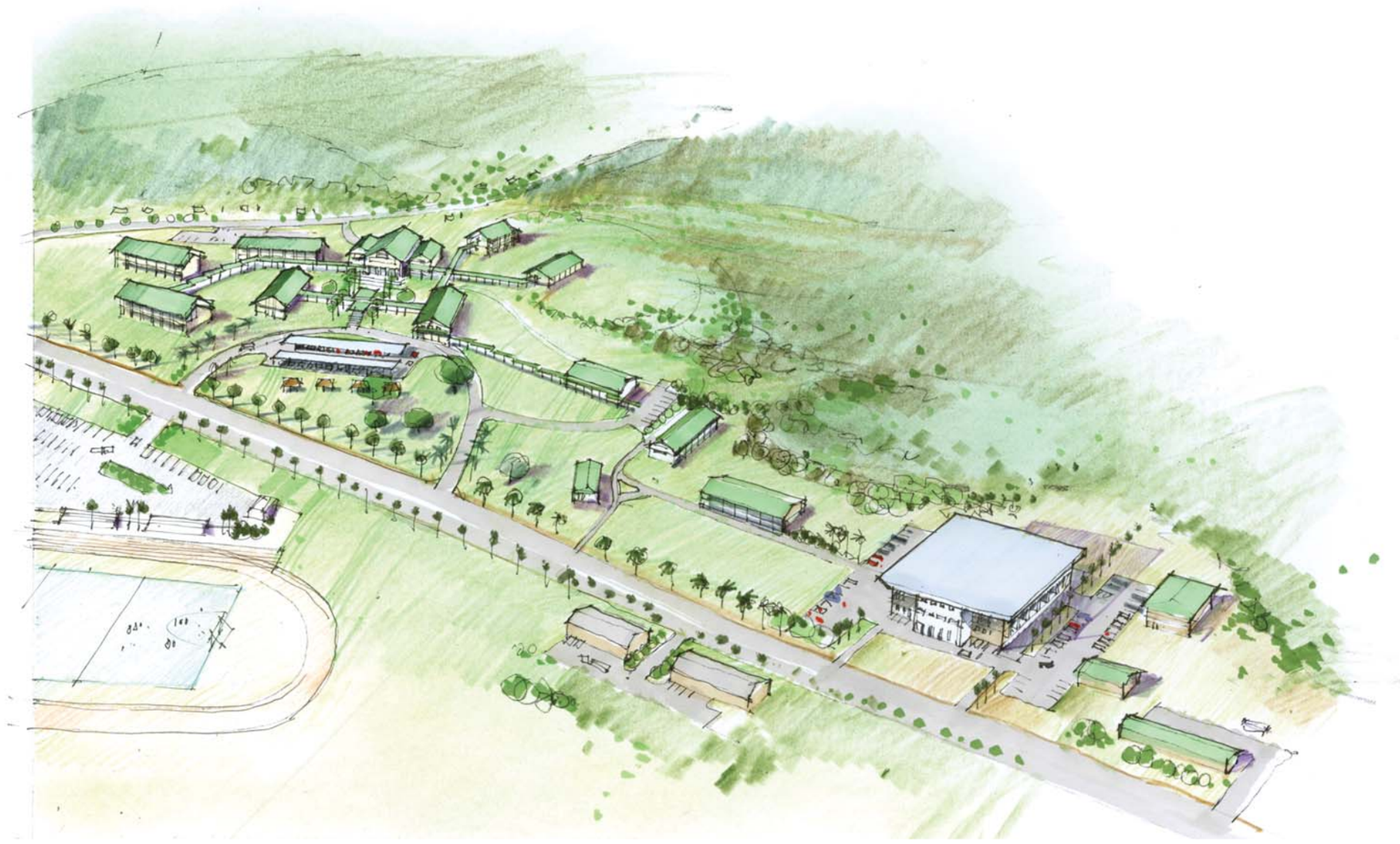
1.2 Long Term Vision

The National campus will have facilities to support the following;

- Increased sharing of courses and facilities with the Technical and Education Centre in Kolonia - moving towards being one campus – two locations
- A place on the campus where students can go to during the day that supports campus life
- A strengthened community interface on the southern boundary
- Buildings that have a reduced maintenance and operational cost through design and selection of materials
- Renewable energy and incorporate sustainability measures

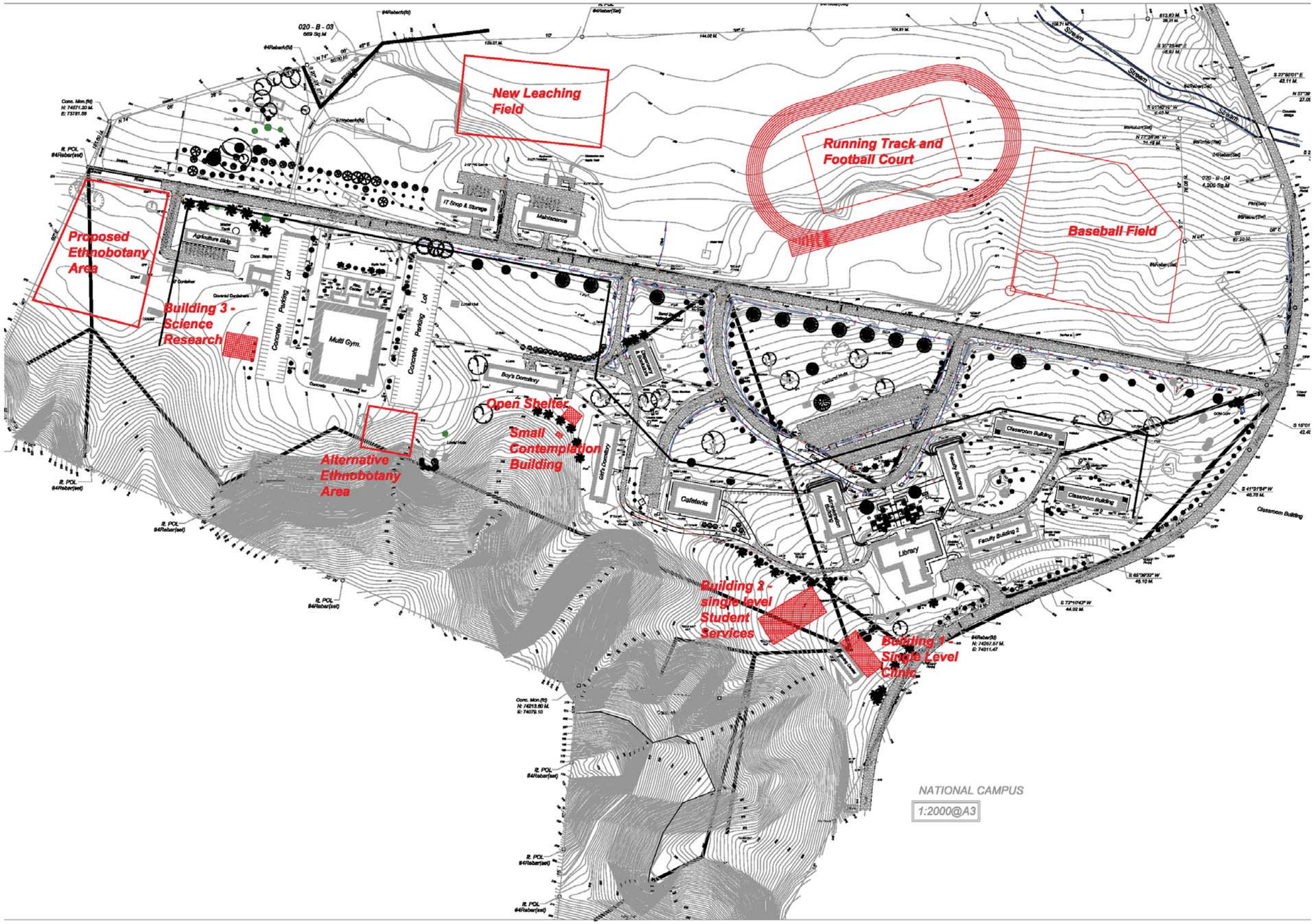
Key Moves

1. Review the impact on the National campus facilities with a one campus - two location approach
2. Support campus life, the student experience and learning outcomes with increased focussed study areas, student centre, communal outdoor area for the residential facilities
3. Look at ways to gain space efficiencies by moving functions within existing buildings – for example swapping Public Health and Student Services in Fall 2013, using mobile shelving or an additional storage building to gain more space for administration staff
4. Increase the recreational facilities with completion of athletics track and baseball pitch in the long term



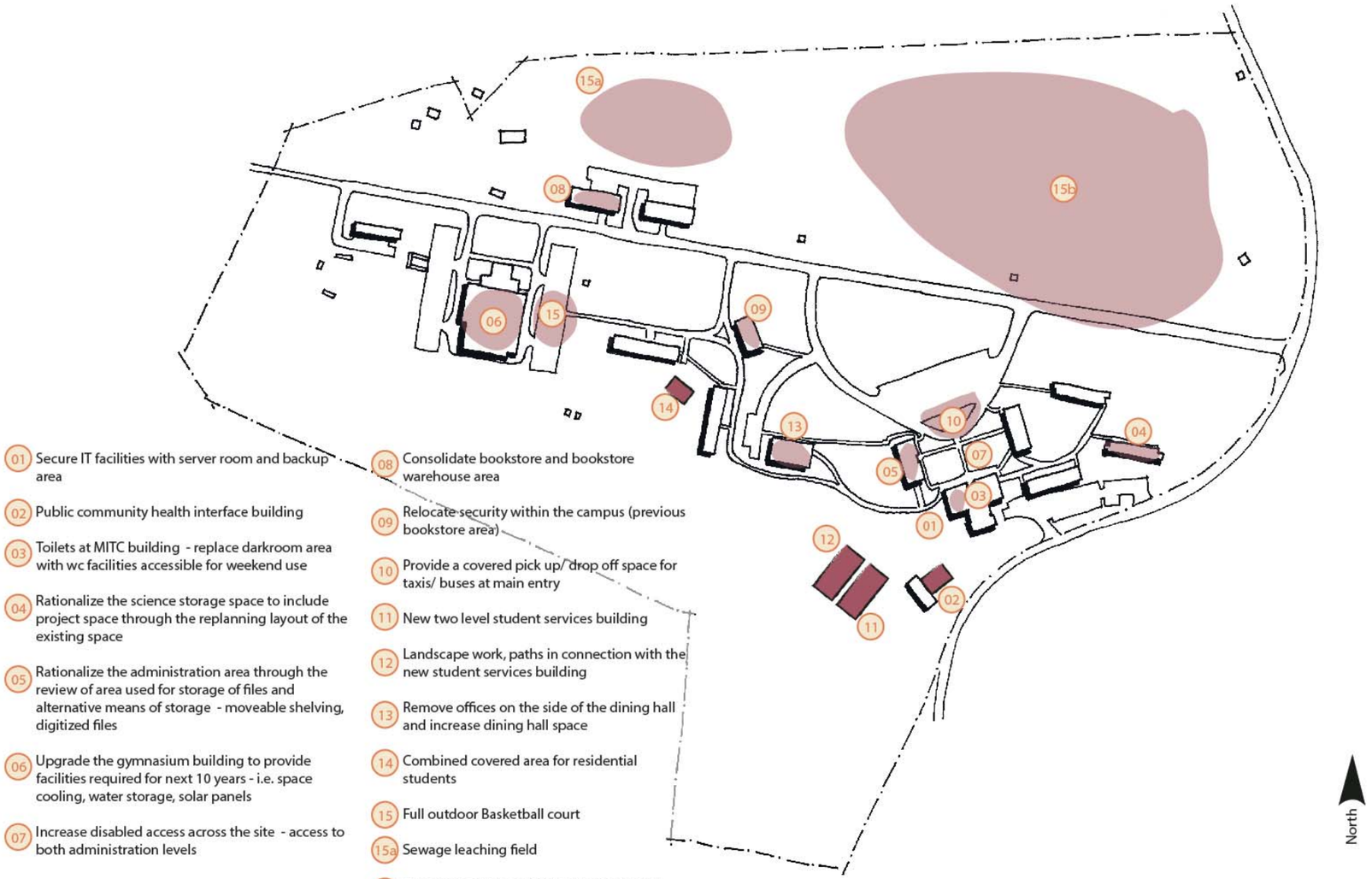
The following plan depicts the proposed layout with the new buildings identified in red. The accommodation schedules listing the functions and areas for the spaces within these buildings are contained in Chapter 3.4.2 in the Part 3 – Detailed Report for the National Campus.

The stages to reach this long term vision are described in the staging plans and the program on the following pages.



1.3 5 year period – to 2018

5 year period to 2018



01 Secure IT facilities with server room and backup area

02 Public community health interface building

03 Toilets at MITC building - replace darkroom area with wc facilities accessible for weekend use

04 Rationalize the science storage space to include project space through the replanning layout of the existing space

05 Rationalize the administration area through the review of area used for storage of files and alternative means of storage - moveable shelving, digitized files

06 Upgrade the gymnasium building to provide facilities required for next 10 years - i.e. space cooling, water storage, solar panels

07 Increase disabled access across the site - access to both administration levels

08 Consolidate bookstore and bookstore warehouse area

09 Relocate security within the campus (previous bookstore area)

10 Provide a covered pick up/ drop off space for taxis/ buses at main entry

11 New two level student services building

12 Landscape work, paths in connection with the new student services building

13 Remove offices on the side of the dining hall and increase dining hall space

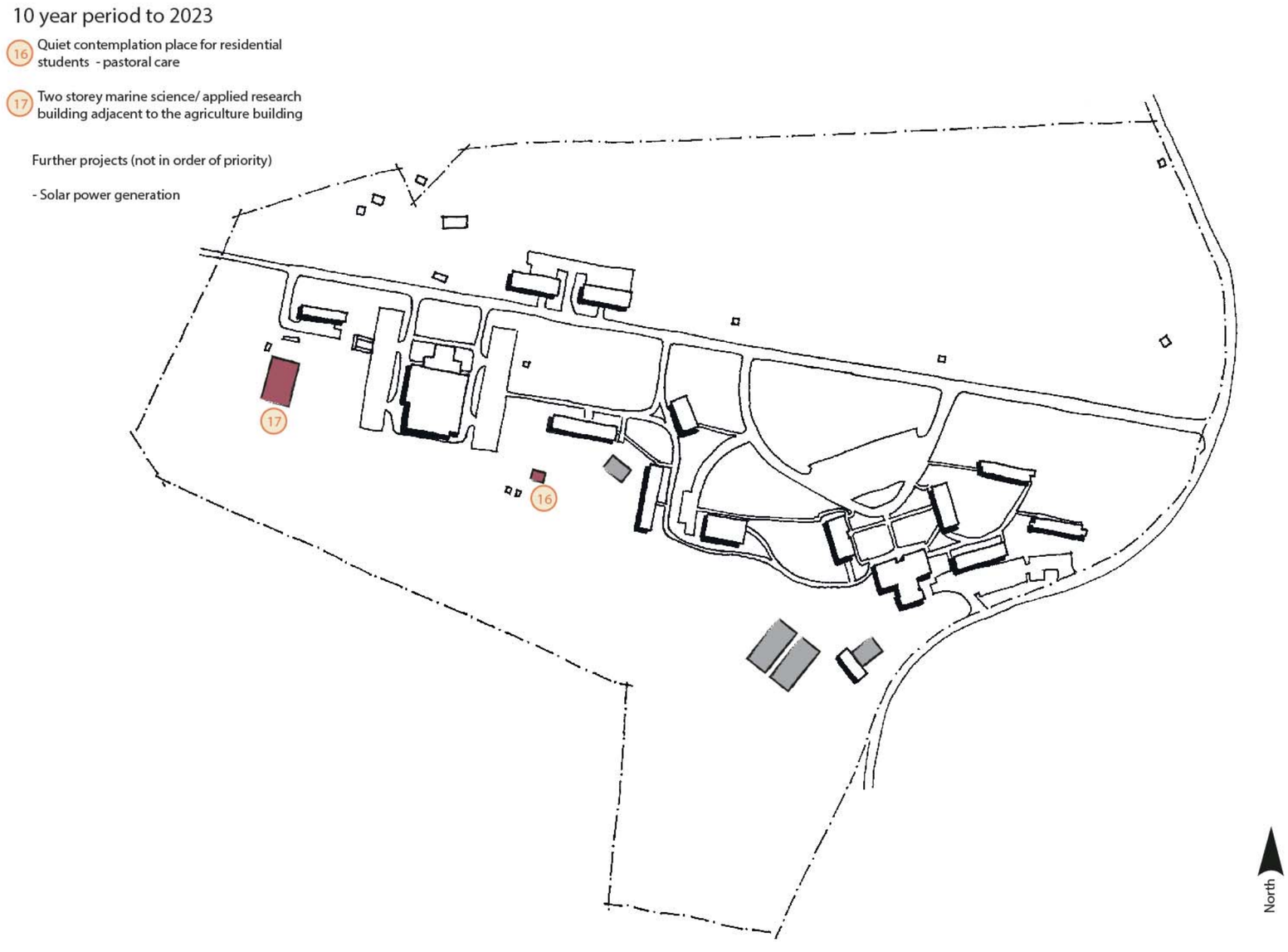
14 Combined covered area for residential students

15 Full outdoor Basketball court

15a Sewage leaching field

15b Track and field / baseball facility including associated vehicle access and parking as well as pedestrian access (ideally in this period dependant on funding)

1.4 10 year period – to 2023

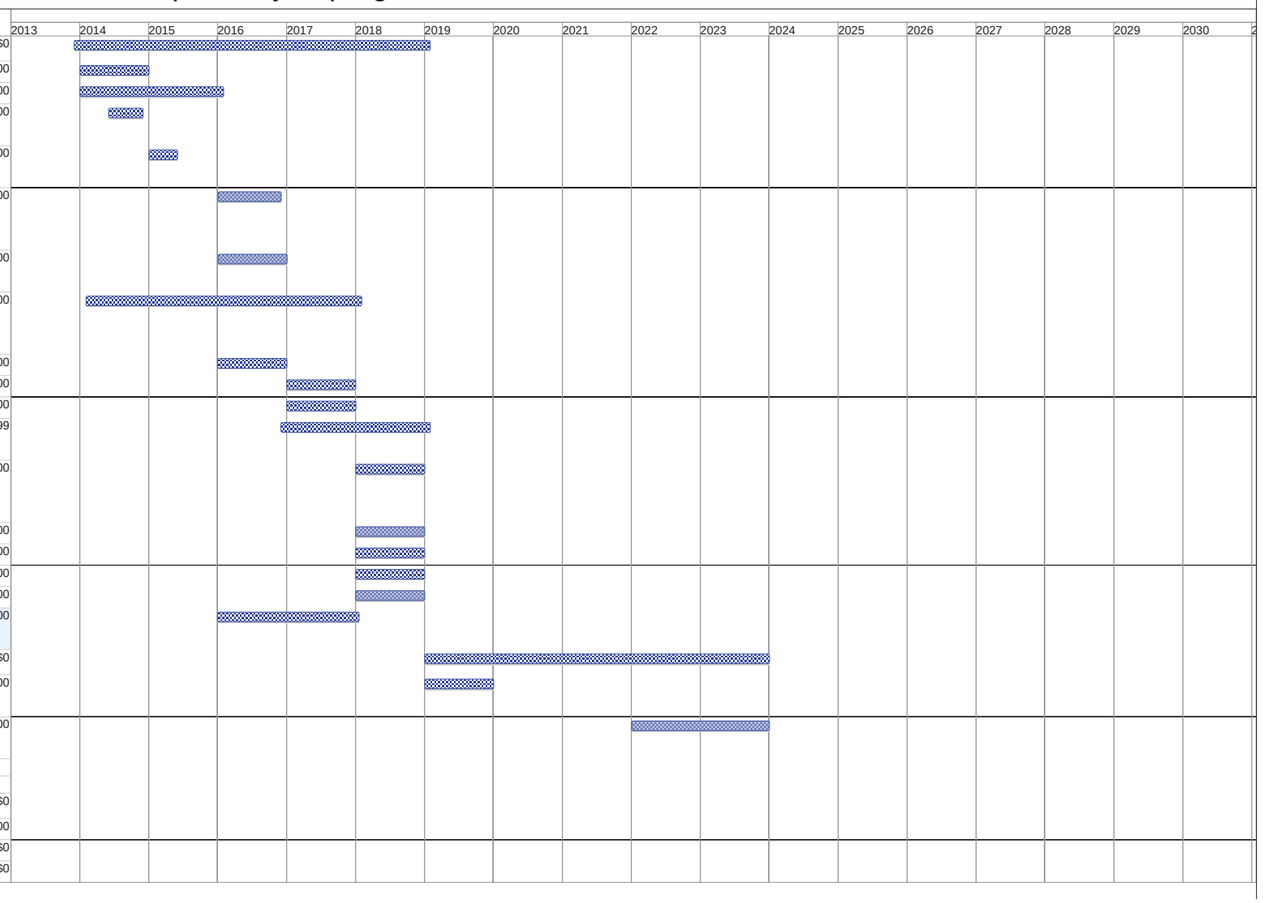


1.6 Development Staging and Program - Implementation

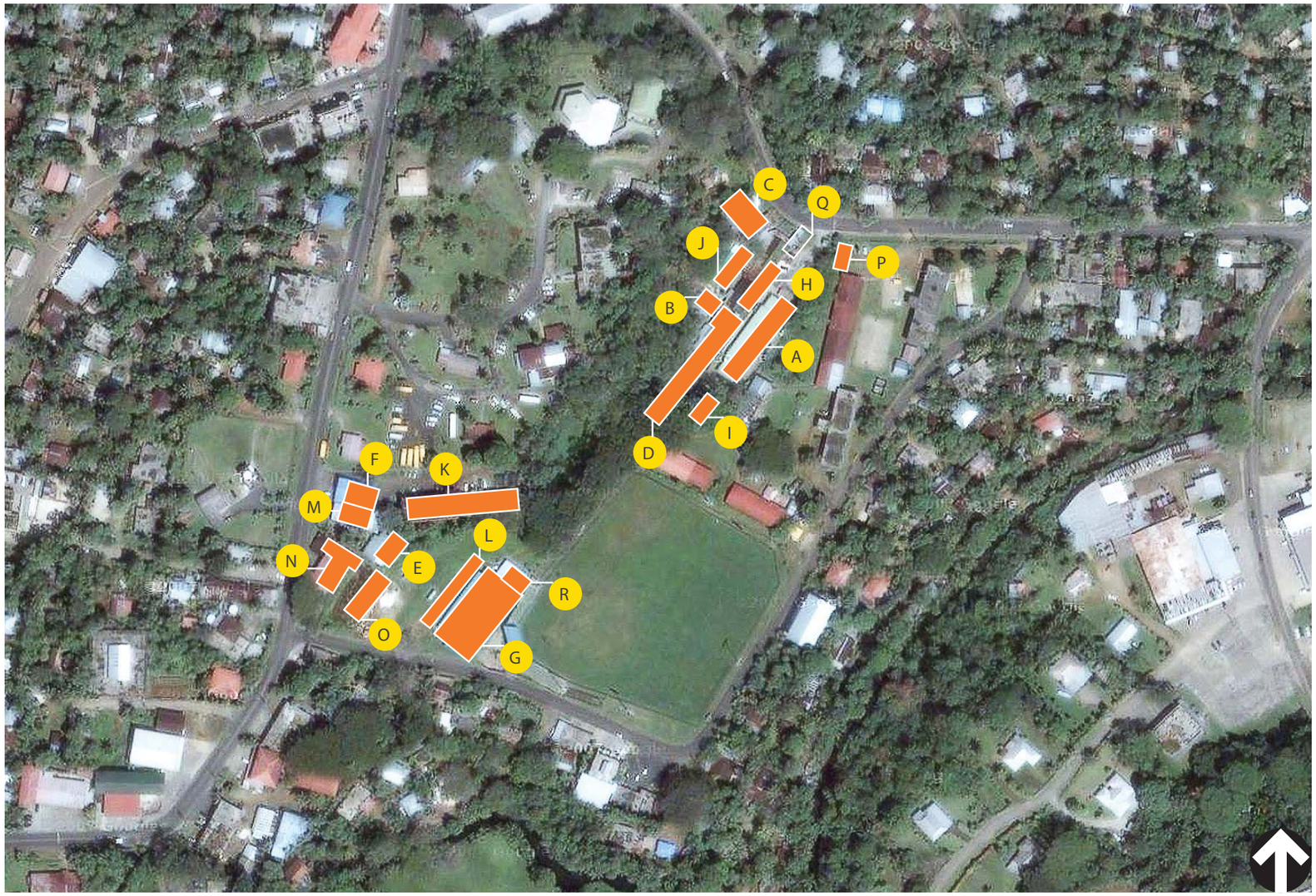
National Campus Project program

Rev 6/ 28th February 2014

Project no	Task Name	Estimate
	5 year period to 2018	$0
1	Secure IT facilities with server room and backup area	$40,000
2	Public community health interface building - BUILDING 1	$1,510,000
3	Toilets at MITC building - replace darkroom area with wc facilities accessible for weekend use	$35,000
4	Rationalize the science storage space to include project space throughreplanning layout of the existing space	$50,000
5	Rationalize the administration area through the review of area used for storage of files and alternative means of storage - moveable shelving, digitized files	$50,000
6	Upgrade the gymnasium building to provide facilities required for next 10 years - i.e. space cooling, water storage, solar panels	$400,000
7	Increase disabled access across the site - access to both administration levels	$170,000
8	Consolidate bookstore and bookstore warehouse area	$20,000
9	Relocate security within the campus (previous bookstore area)	$5,000
10	Provide a covered pick up/ drop off space for taxis/ buses at main entry	$20,000
11	New two level student services building - BUILDING 2	$2,909,999
12	Landscape work, paths in connection with the new student services building	$265,000
13	Remove offices on the side of the dining hall and increase dining hall space	$20,000
14	Combined covered area for residential students	$115,000
15	Full outdoor Basketball court	$80,000
15a	Sewage leaching field	$135,000
15b	Track and field / baseball facility including associated vehicle access and parking as well as pedestrian access	$1,000,000
	10 year vision to 2023	$0
16	Quiet contemplation place for residential students - pastoral care	$50,000
17	Marine science/ applied research building adjacent to the agriculture building - BUILDING 3	$2,035,000
	Further projects (not in order of priority)	$0
	Solar power generation	$500,000
		$0
		$0



1.1 Pohnpei Campus



The Pohnpei campus is located on an elongated site that is 67,876m2 (16.6 acres) within Kolonia in Pohnpei. One of the key features of the site is its two road frontages and the steep shaded slope that defines the central area.

The Fall 2013 Pohnpei campus enrolment (headcount) is 672. The maximum number enrolled occurred in Fall 2011 at 845 with this figure not reached since then.

A headcount of 898 has been provided by the space utilization study as the projected headcount in 2018. This 5 year projection figure has been used as the basis for the design figure for assessing future facilities requirements.

No.	Building Description
A	Administration Building
B	Bookstore
C	I.C. Building/ Electronics Classrooms
D	Classroom Building A
E	Electrical Building
F	Carpentry Shop
G	Gymnasium
H	Hotel & Tourism Building
I	IT Shop
J	Classroom Building B
K	Vocational classrooms, TSP, UB, CES
L	Student Services Center
M	Mechanic Shop
N	Land Grant Building
O	PSBDC Building
P	Security Shed
Q	Nahs (removed Fall 2013)
R	Maintenance Building

1.2 Long Term Vision

The Pohnpei campus will have facilities to support the following:

- A campus recognised as the Pohnpei Career and Technical Center
- Clear vehicle and pedestrian routes onto and through the campus increasing safety of all users
- A recognisable campus edge through the implementation of a structured campus landscape plan
- A strengthened interface with the community with increase in facilities for use beyond standard workday hours i.e. night classes, block courses
- Wifi available across the campus
- Increased access for people with disabilities across the campus and within new buildings
- Renewable energy and incorporate sustainability measures
- Buildings that have a reduced maintenance and operational cost through design and selection of materials

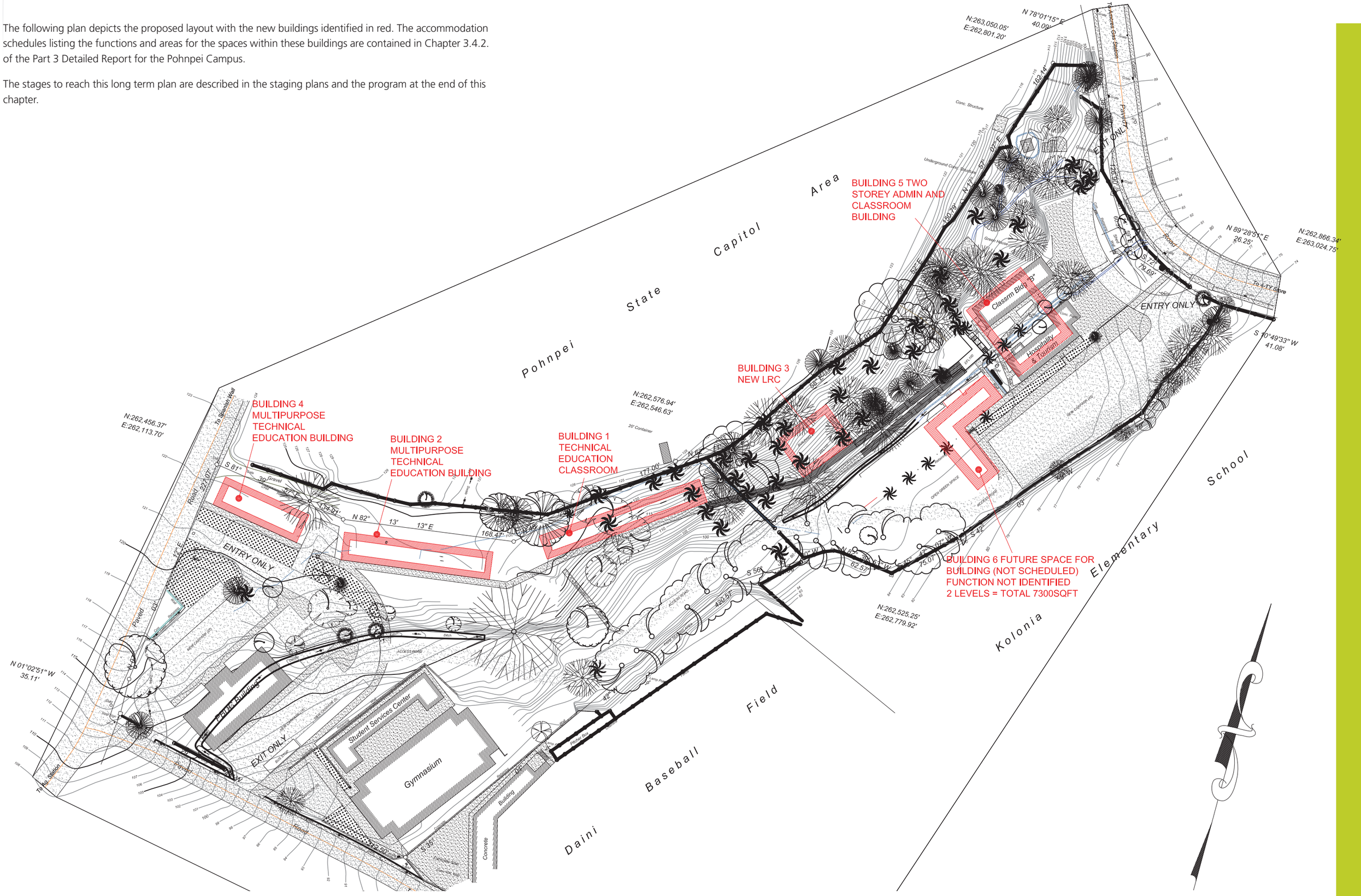
Key Moves

1. New classrooms on upper campus boundary, remove Trio building (Building K)
2. Construct new Technical Education buildings
3. Remove and replace further technical education buildings (Building E,F,M) Create a public face to the campus through building design/ signage
4. Remove Electronics building (Building C)
5. Remove bookstore (Building B)
6. Walkway connecting high level buildings and shared path/ service road under the line of the mahogany trees

View from the shared path under the line of mahogany trees looking up towards the proposed technical buildings.

The following plan depicts the proposed layout with the new buildings identified in red. The accommodation schedules listing the functions and areas for the spaces within these buildings are contained in Chapter 3.4.2. of the Part 3 Detailed Report for the Pohnpei Campus.

The stages to reach this long term plan are described in the staging plans and the program at the end of this chapter.



1.3 5 year period – to 2018

5 year period to 2018

01 Create a vehicle route through the campus for service access and service with fire hydrants, consider demolition of end of classroom building to route access around existing mahogany trees. Seating areas for small group or individual study.

02 Relocate building K functions (TRIO program) to top floor of PSBDC

03 Demolish Building K

04 Demolish the Electrical building

05 New technical education classroom building along the boundary on the upper campus

06 New multipurpose technical education building along the boundary on the upper campus

07 Wifi connectivity

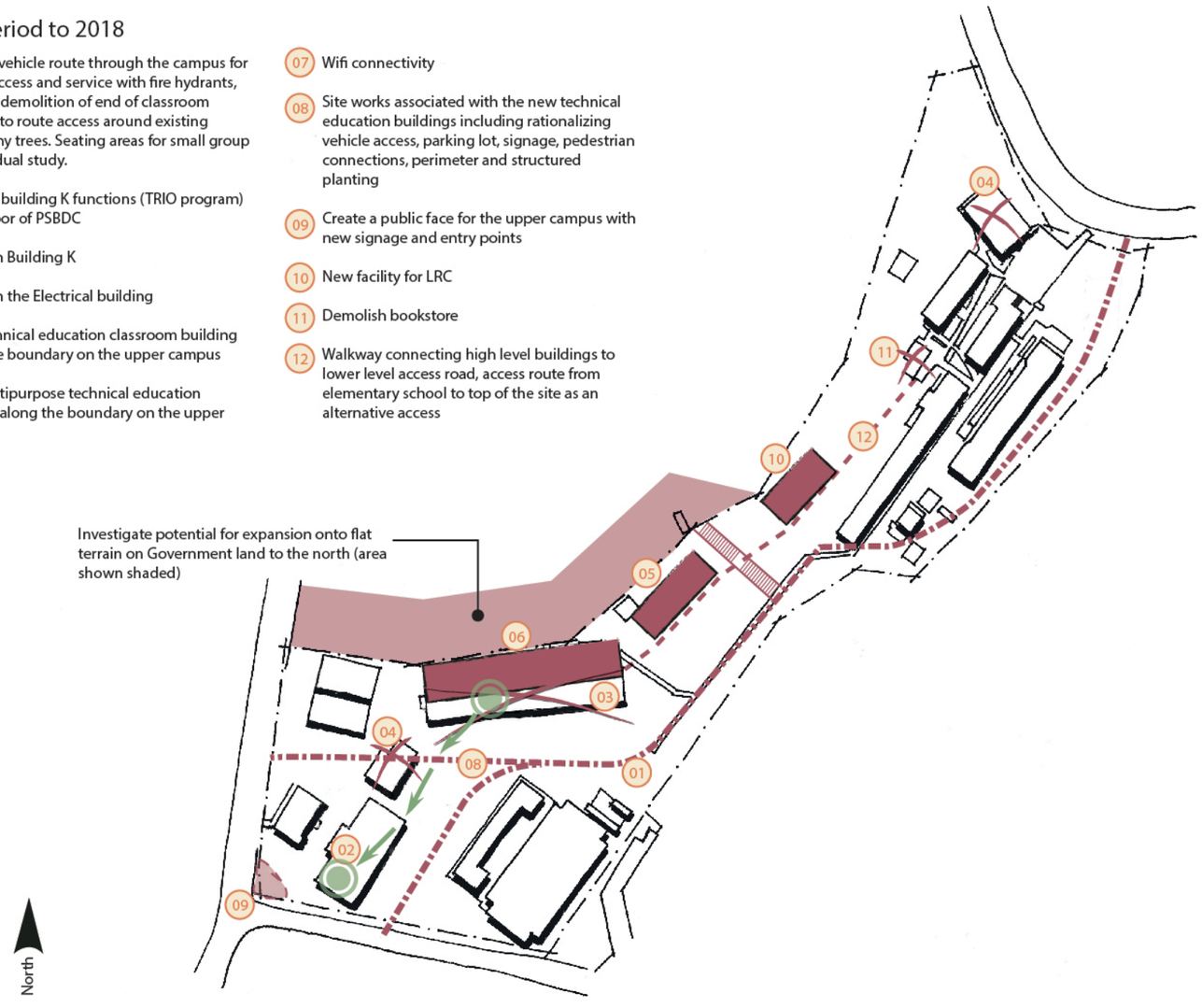
08 Site works associated with the new technical education buildings including rationalizing vehicle access, parking lot, signage, pedestrian connections, perimeter and structured planting

09 Create a public face for the upper campus with new signage and entry points

10 New facility for LRC

11 Demolish bookstore

12 Walkway connecting high level buildings to lower level access road, access route from elementary school to top of the site as an alternative access



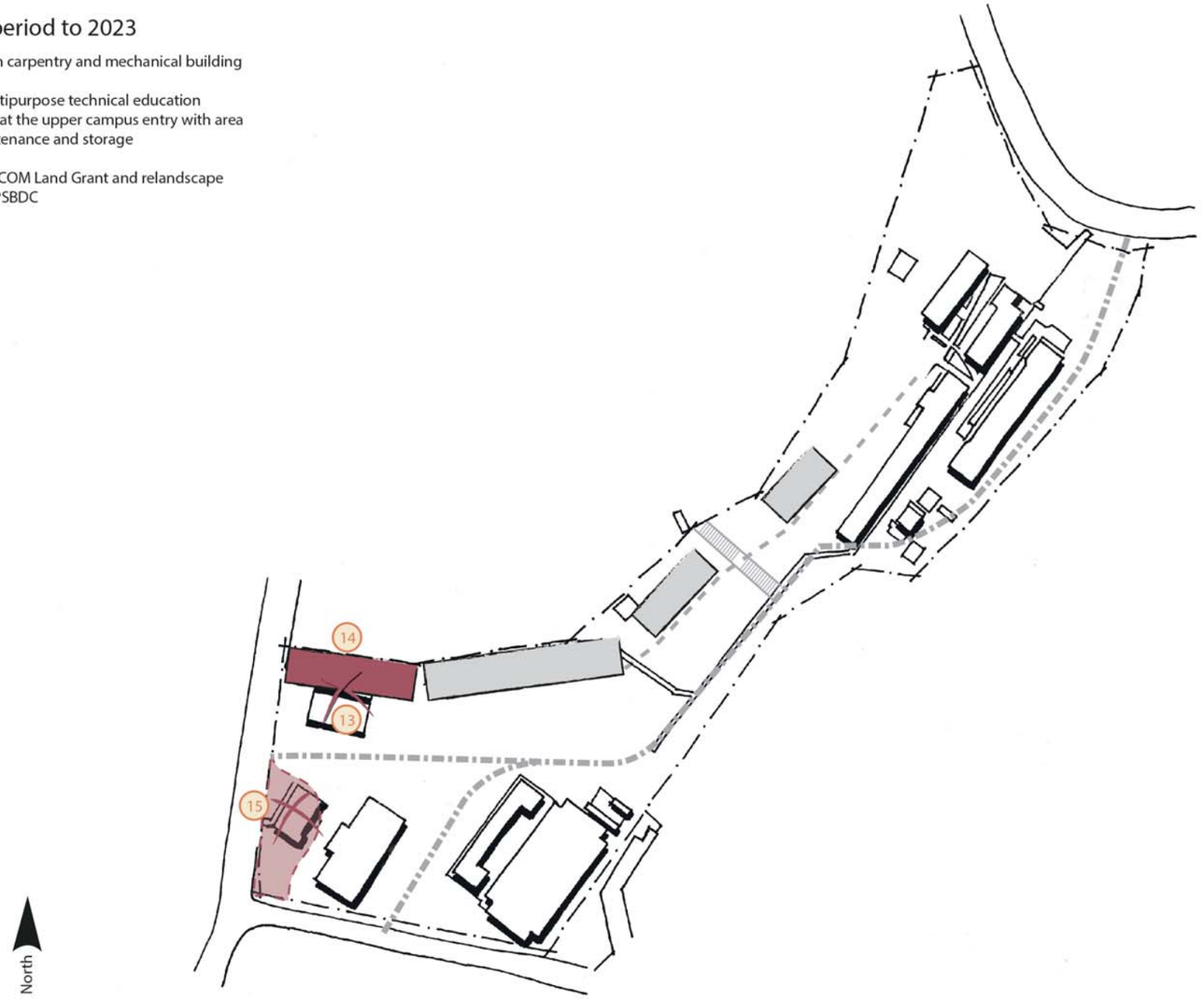
1.4 10 year period – to 2023

10 year period to 2023

13 Demolish carpentry and mechanical building

14 New multipurpose technical education building at the upper campus entry with area for maintenance and storage

15 Remove COM Land Grant and relandscape front of PSBDC



1.5 Long Term Vision – beyond 2023

Beyond 2023

16 Turn around area in front of administration with a one way entry and exit

17 Two storey building at the front gate of the lower campus for administration and faculty

18 Demolish administration building

19 Increased carpark area in the lower campus and landscaped small study area, outdoor volleyball area, eating space

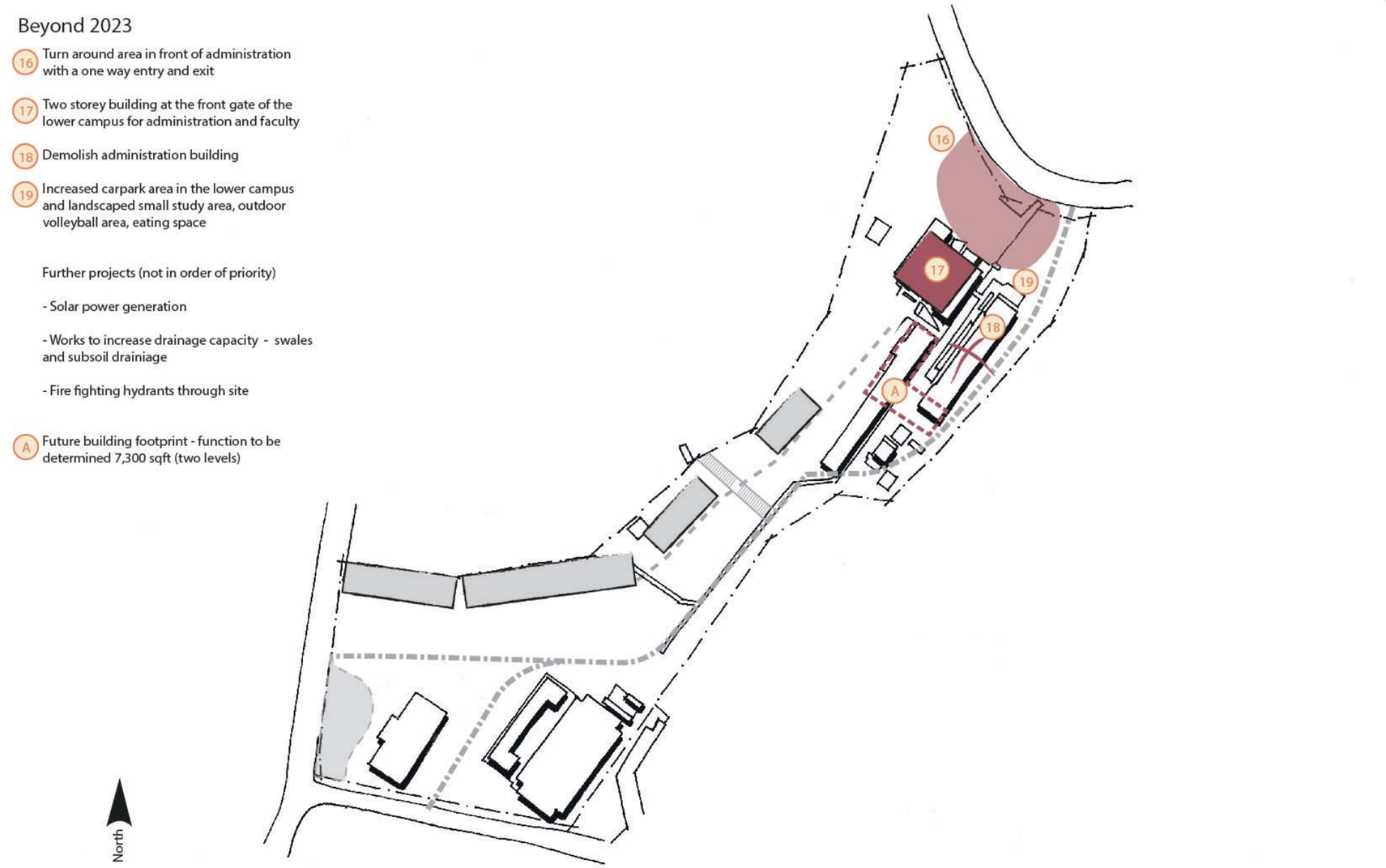
Further projects (not in order of priority)

- Solar power generation

- Works to increase drainage capacity - swales and subsoil drainiage

- Fire fighting hydrants through site

A Future building footprint - function to be determined 7,300 sqft (two levels)

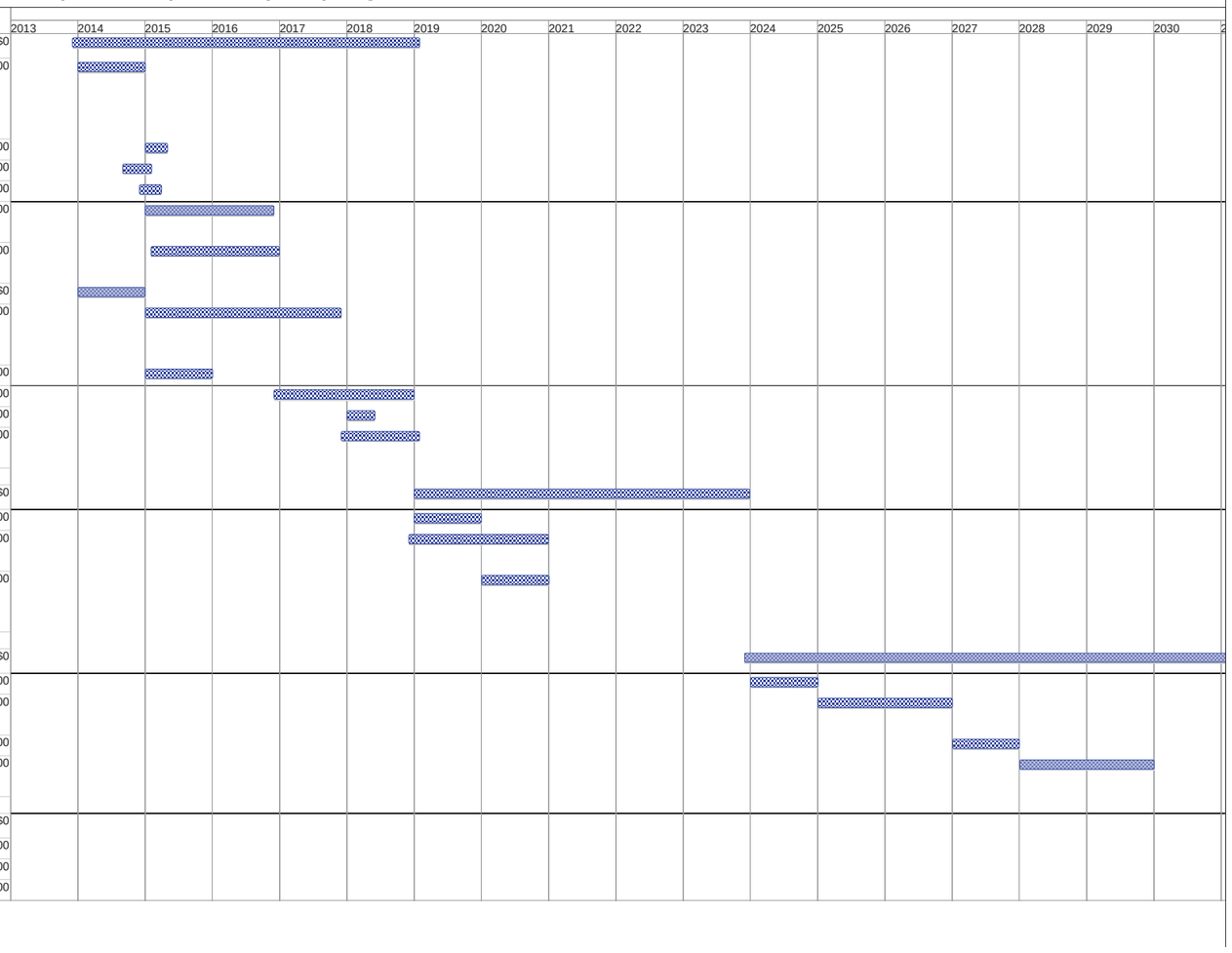


1.6 Development Staging and Program - Implementation

Pohnpei Campus Project program

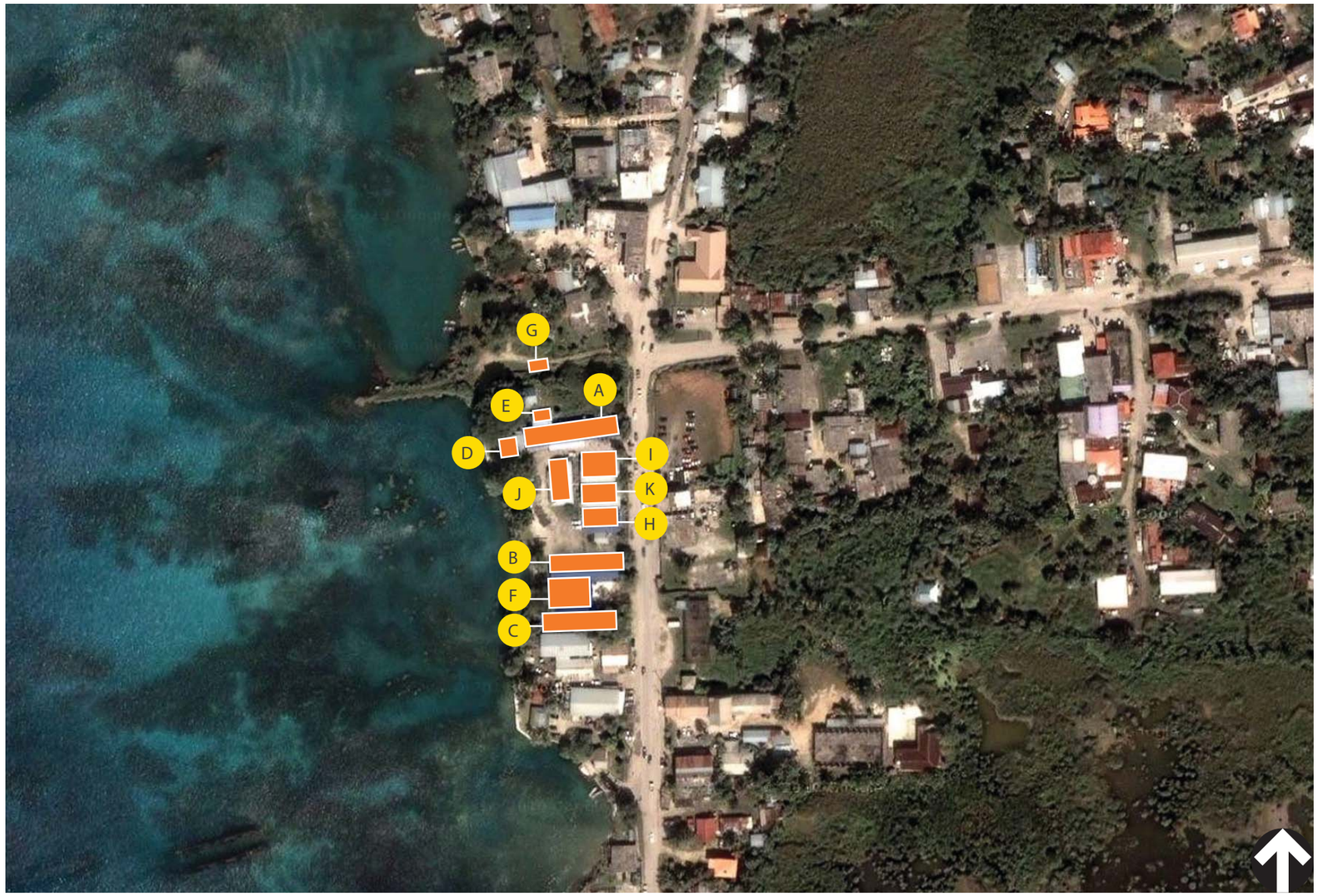
Rev 6 28th February 2014

Project no	Task Name	Estimate
	5 year period to 2018	$0
1	Create a vehicle route through the campus for service access and service with fire hydrants, consider demolition of end of classroom building to route access around existing mahogany trees. Seating areas for small group or individual study.	$280,000
2	Relocate building K functions (TRIO program) to top floor of PSBDC	$5,000
3	Demolish Building K	$100,000
4	Demolish the Electronics building	$20,000
5	New technical education classroom building along the boundary on the upper campus - BUILDING 1	$1,530,000
6	New multipurpose technical education building along the boundary on the upper campus - BUILDING 2	$1,525,000
7	Wifi connectivity	$0
8	Site works associated with the new technical education buildings including rationalizing vehicle access, parking lot, signage, pedestrian connections, perimeter and structured planting	$320,000
9	Create a public face for the upper campus with new signage and entry points	$25,000
10	New facility for LRC - BUILDING 3	$1,160,000
11	Demolish bookstore	$30,000
12	Walkway connecting high level buildings to lower level access road, access route from elementary school to top of the site as an alternative access	$275,000
	10 year vision to 2023	$0
13	Demolish carpentry and mechanical building	$30,000
14	New multipurpose technical education building at the upper campus entry with area for maintenance and storage - BUILDING 4	$765,000
15	Relocate Land Grant to top floor of PSBDC and remove COM Land Grant and relandscape front of PSBDC	$175,000
	Long term vision - beyond 2023	$0
16	Turn around area in front of administration with a one way entry and exit	$50,000
17	Two storey building at the front gate of the lower campus for administration and faculty - BUILDING 5	$4,870,000
18	Demolish administration building	$30,000
19	Increased carpark area in the lower campus and landscaped small study area, outdoor volleyball area, eating space	$630,000
	Further projects (not in order of priority)	$0
	Solar power generation	$500,000
	Works to increase drainage capacity - swales and subsoil drainage	$150,000
	Fire fighting hydrants through site	$170,000



CHUUK CAMPUS MASTERPLAN

1.1 Chuuk Campus 2013



The Chuuk campus is located on a 2.0 acre leased site close to the centre of Weno and on the coastal edge of the island of Weno. A CRE research facility is included on the site.

The Fall 2013 Chuuk campus enrolment (headcount) is 319. The maximum number enrolled occurred in Fall 2004 at 690 with this figure not reached since then.

A headcount of 296 has been provided by the space utilization study as the projected headcount in 2018. This 5 year projection figure has been used as the basis for the design figure for assessing future facilities requirements.

No.	Building Description
A	Administration/Faculty Office
B	Classroom Building B
C	Classroom Building C
D	Campus Dean's Office
E	Restrooms
F	CRE Building
G	Generator House
H	Student Services Building
I	Computer Lab
J	Student Center
K	Learning Resources Center

1.2 Long Term Vision

The Chuuk campus will have facilities to support the following:

- A campus that provides permanence and certainty long term. Based on the identification of further vocational education courses and dependent on an increase in the student roll plan review and plan for additional facilities on the Nantaku site.
- A campus that enables expansion of facilities to occur over time
- Renewable energy and incorporates sustainability measures
- Buildings that have a reduced maintenance and operational cost through design and selection of materials

Key Moves

1. Implement a move to a permanent site based on tangible benefits. These include providing long term safety from typhoon and tidal surge, ability to expand to provide a wider range of courses to meet the Chuuk state educational aims and an ability to reduce the current operational cost with the location on the current leasehold site.

2. Review the previous engineering assumptions contained in the April 2001 Master Plan for the Nantaku site including ground conditions, water availability, timing of the road upgrade to the site and availability of public services connections.

3. In the interim implement low cost facilities upgrades on the Weno site to meet existing safety and site factors limiting delivery of education and student learning outcomes.

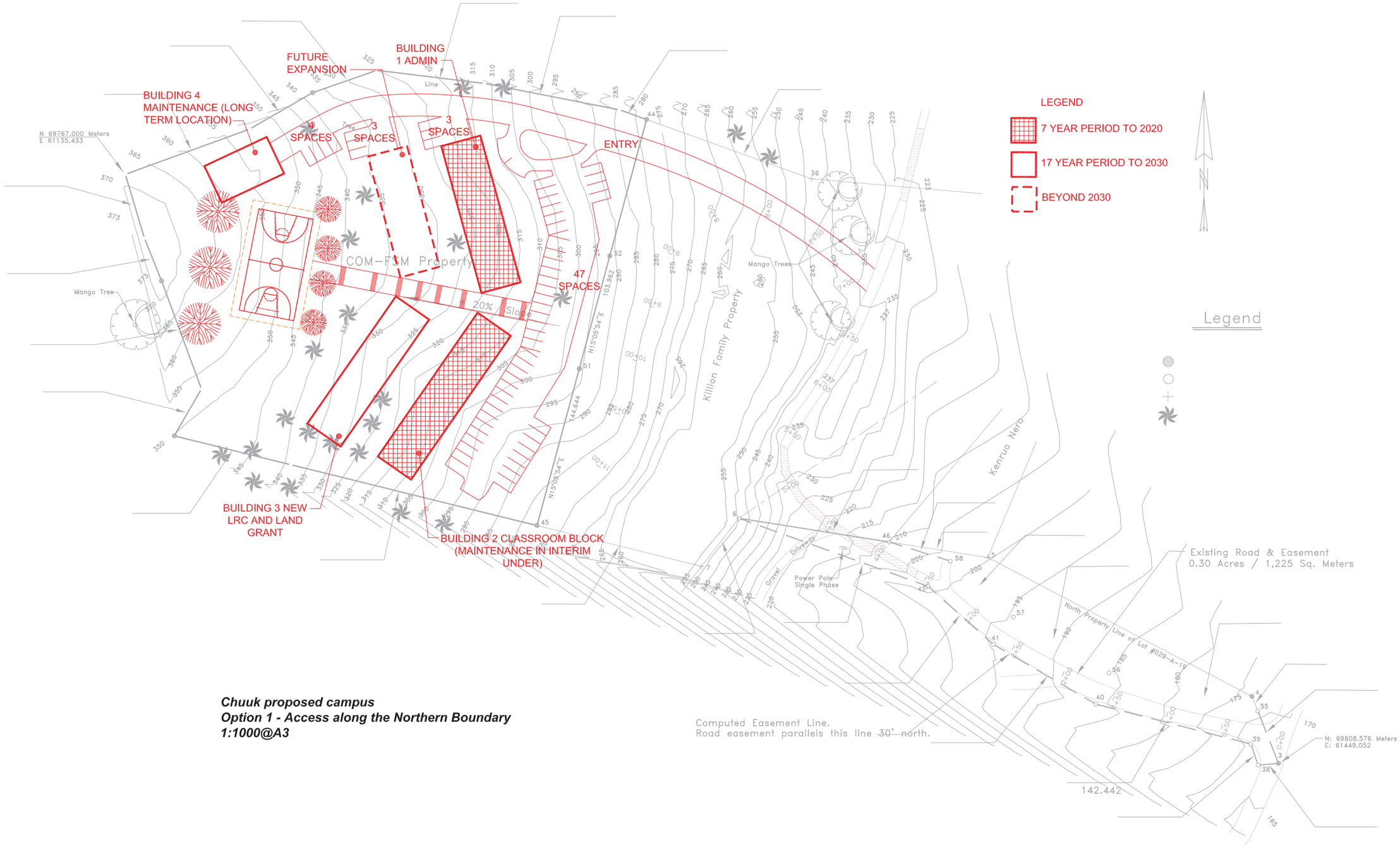
Existing Weno site with proposed study huts and carpark.

Impression of the full development Nantaku site.

The following plans depict the proposed layout with the new buildings identified in red. The accommodation schedules listing the functions and areas for the spaces within these buildings are contained in Chapter 3.4.2 for the current site and 3.4.3 for the Nantaku site in the Part 3 detailed report for the Chuuk Campus.

The stages to reach this long term vision are described in the staging plans and the program on the following pages.

Pacific Survey Company
P. O. Box 1212, Pohnpei, FM 96941
Tel: 691-320-6264, Fax: 691-320-5724
Tim McVey - RLS#20
Briner Sam - Party Chief
Date: 27 August 2002



Chuuk proposed campus
Option 1 - Access along the Northern Boundary
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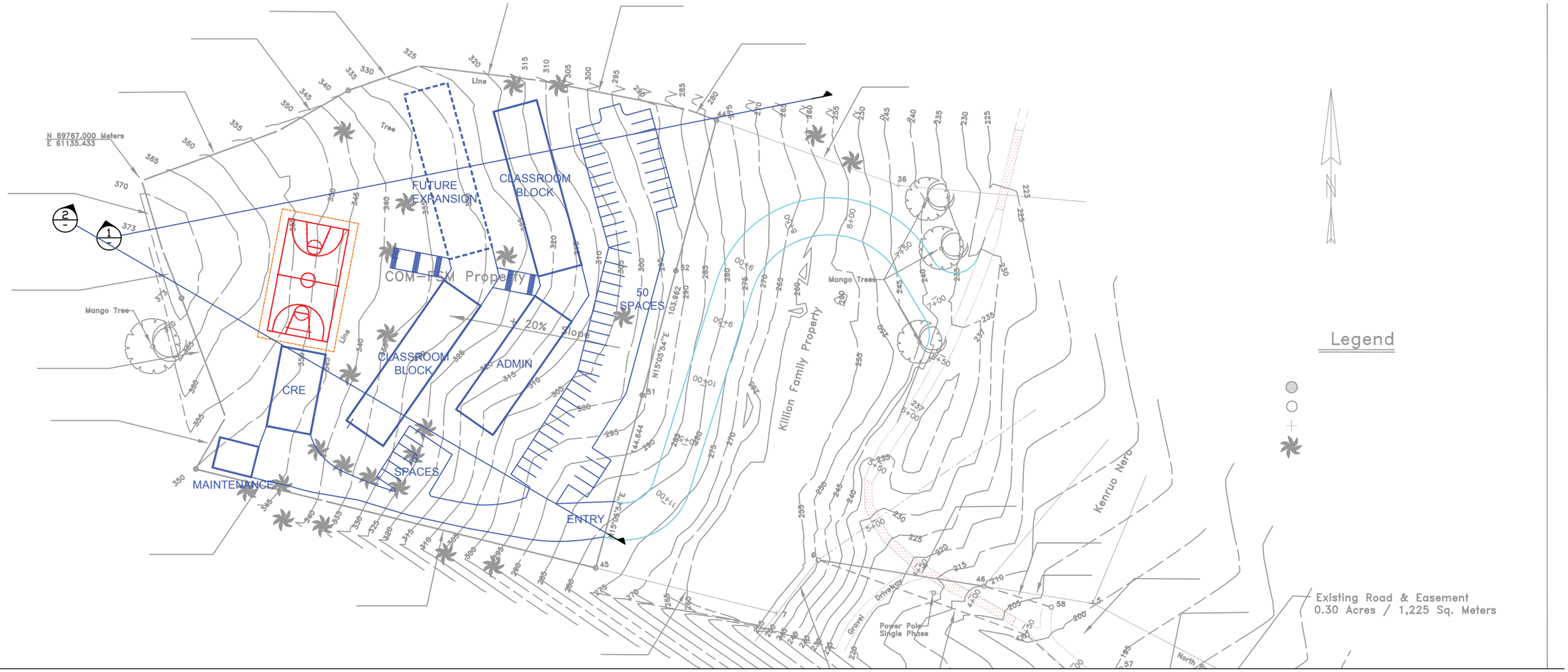
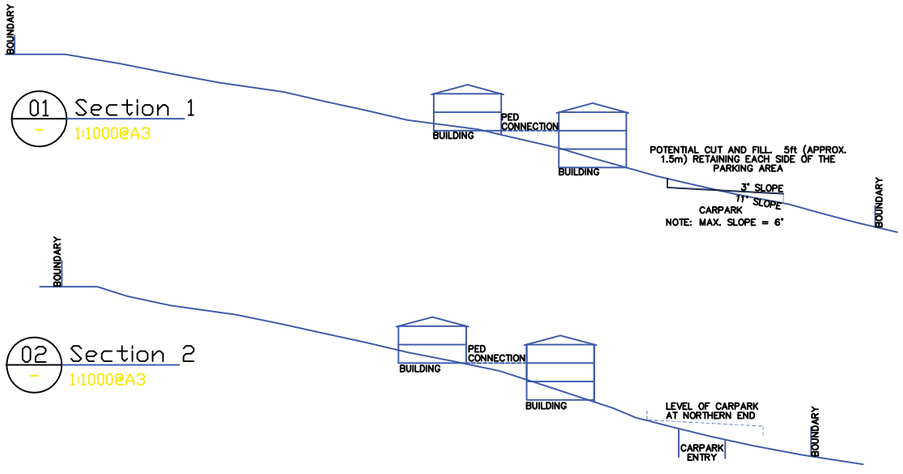


Chuuk proposed campus
Option 2 - Access on Southern Boundary
1:1000@A3



1.3 5 year period – to 2018

5 year period to 2018
- assumes interim upgrades prior to move to a permanent site

01 Extend campus to the north, fence perimeter and create a coral base carpark area with an entry and exit onto the main road

02 Restrict cars to campus, designate carpark area for visitors, create a central grassed area, 2 study huts on the coastal edge

03 Retrofit a classroom with a science bench and plumbing

04 Reroof student covered area and add roof ventilation

05 Upgrade wi fi

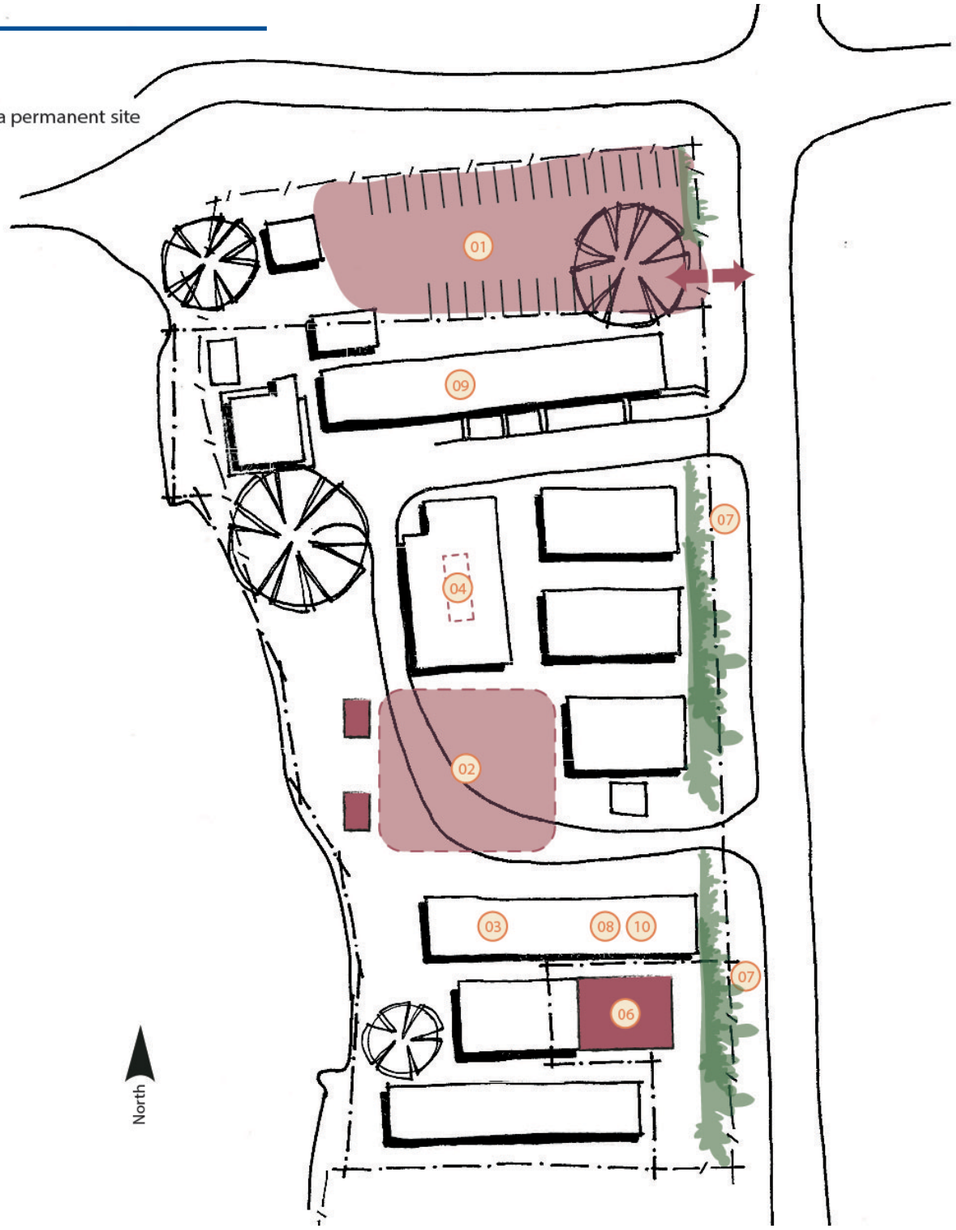
06 Extend CRE - extension building to main road

07 Landscaping (continuous line of hedges) along the road frontage and upgrade signage

08 Meeting room for student body meetings - review classroom use and retrofit within existing building footprint

09 Staff lounge - meeting place for all faculty - review classroom/ faculty space and consider conversion of one faculty office

10 Conference space set up with conferencing remote learning - review classroom utilization and convert classroom space to new function



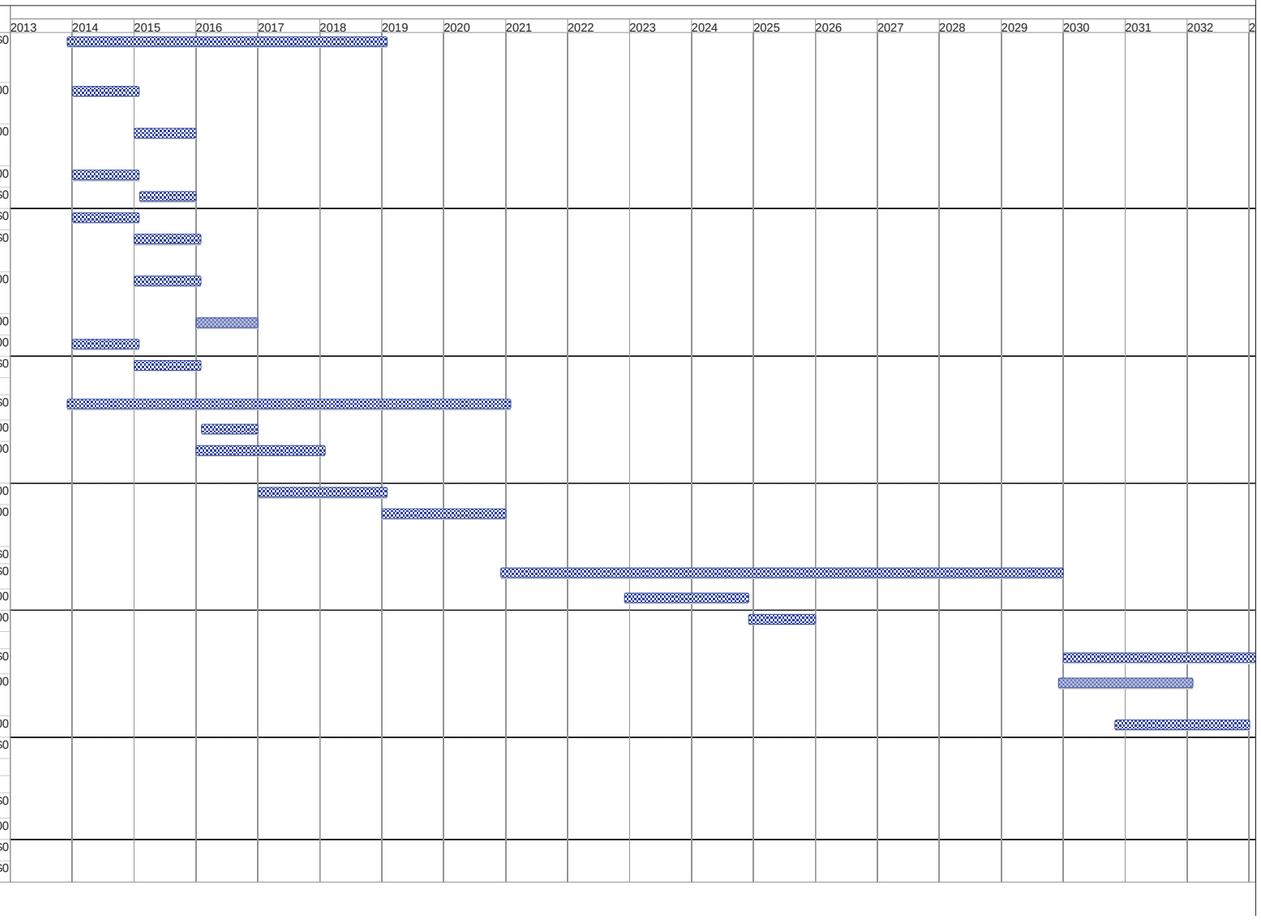
During the next 5 years there are a series of small upgrades that can be made to the existing site to address current issues. At the same time an engineering review needs to be conducted of the Chuuk site to confirm the assumptions made in the Master Plan dated April 2001.

1.4 Development Staging and Program – Implementation

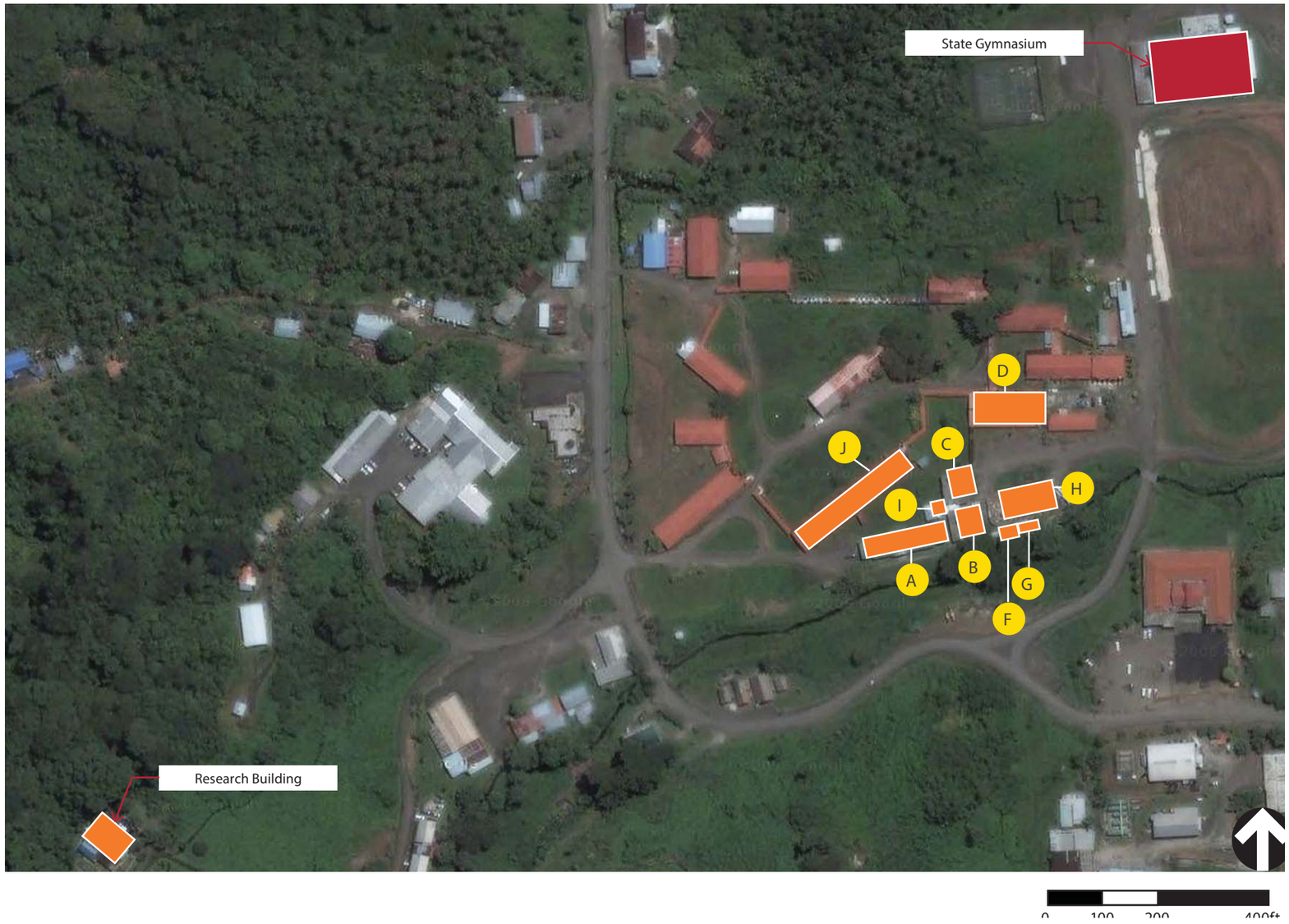
Chuuk Campus Project program

Rev 6 28th Feb 2014

Project no	Task Name	Estimate
	5 year period to 2018 - assumes interim upgrades prior to move to a permanent site	$0
1	Extend campus to the north, fence perimeter and create a coral base carpark area with an entry and exit onto the main road	$210,000
2	Restrict cars to campus, designate carpark area for visitors, create a central grassed area, 2 study huts on the coastal edge	$100,000
3	Retrofit a classroom with a science bench and plumbing	$80,000
4	Reroof student covered area and add roof ventilation	$0
5	Upgrade wi fi	$0
6	Extend CRE - extension building to main road (funded by others or lease building off site as an alternative)	$0
7	Landscaping (continuous line of hedges) along the road frontage and upgrade signage	$20,000
8	Meeting room for student body meetings - review classroom use and retrofit withi	$5,000
9	Staff lounge - meeting place for all faculty - review classroom/ faculty space and	$5,000
10	Conference space set up with conferencing remote learning - review classroom u	$0
	7 year vision on the Nantaku site - to 2020	$0
11	Road connection to site	$2,300,000
12	Site infrastructure services - water supply, site drainage, sewage disposal, electricty	$3,250,000
13	On site roading infrastructure and form basketball hardcourt area	$1,250,000
14	Building 1,2 - two level administration and classroom building and associated landscaping	$8,030,000
		$0
	10 year vision to 2030	$0
15	Building 3 - LRC and Land Grant	$4,235,000
16	Building 4 - Maintenance building (at top of the site)	$430,000
	Beyond 2030	$0
17	Building 5 - two level classroom building dependent on roll number increase	$3,390,000
18	Associated landscaping	$135,000
		$0
	Further projects (not in order of priority)	$0
	Solar power generation	$500,000
		$0
		$0



1.1 Kosrae Campus 2013



The Kosrae campus is located on 20,346m2 of land (5 acres) adjacent to the Kosrae High School grounds. A research facility is located off site one quarter of a mile west of the campus.

The Fall 2013 Kosrae campus enrolment (headcount) is 243. The maximum number enrolled occurred in Fall 2004 at 322 with this figure not reached since then.

A headcount of 212 has been provided by the space utilization study as the projected headcount in 2018. This 5 year projection figure has been used as the basis for the design figure for assessing future facilities requirements.

No.	Building Description
A	Administration Building/Classrooms
B	Land Grant Building
C	Faculty Building
D	Rose Mackwelung Library
F	Maintenance Shop
G	Maintenance Office
H	KSBDC Building
I	Bookstore
J	Learning Resources and Career Development

1.2 Long Term Vision

The Kosrae campus will have facilities to support the following:

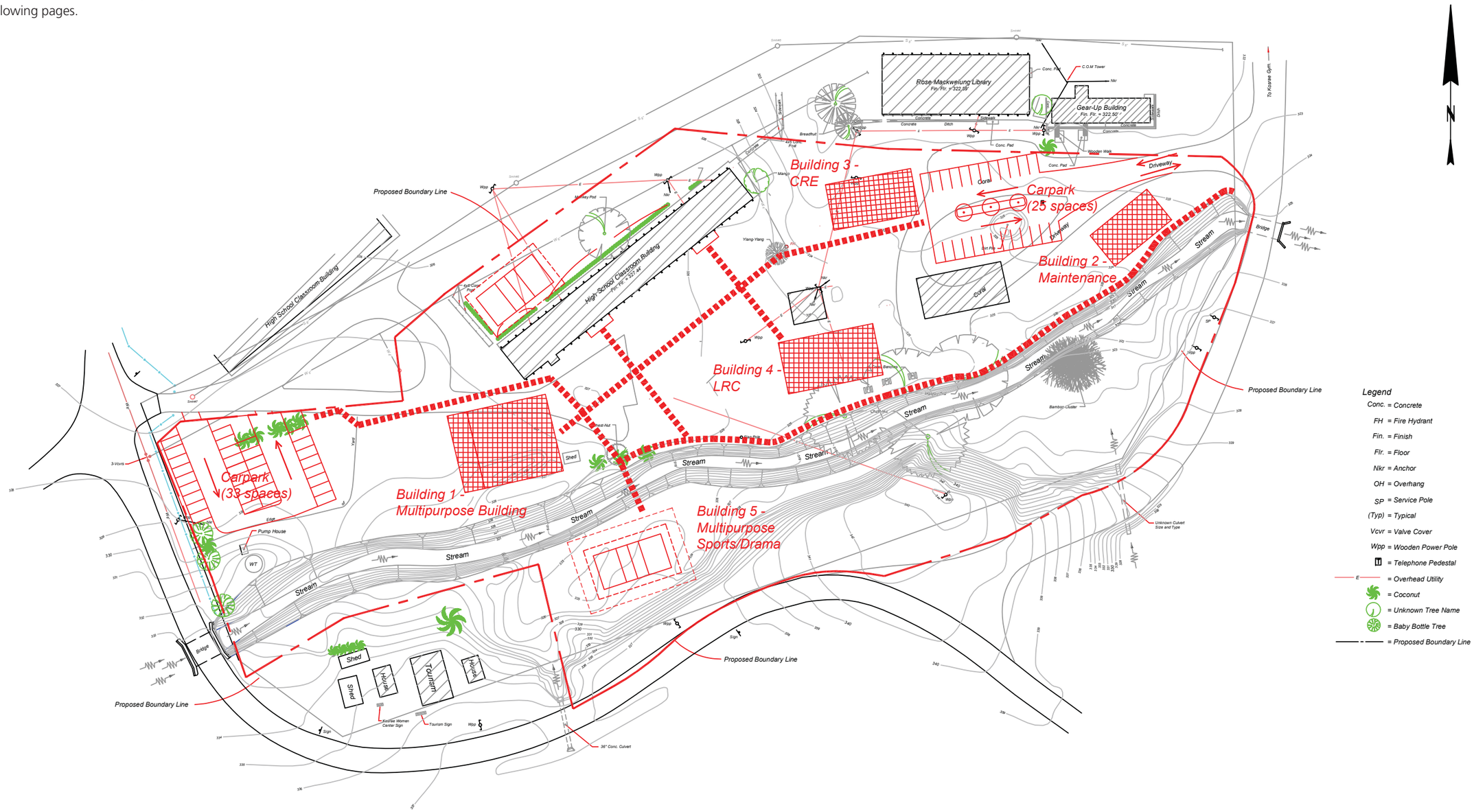
- A recognisable campus edge through the implementation of a structured campus landscape plan
- A strengthened community interface at the eastern edge of the site
- Additional computer labs and greater Wi-Fi capability
- Renewable energy and incorporate sustainability measures
- Buildings that have a reduced maintenance and operational cost through design and selection of materials.

Key Moves

1. Consolidate all functions onto the campus site relocating Student Services into a purpose designed building. Design a facility to accommodate other functions that are in poor condition buildings (Faculty and Bookstore) Relocate uses currently located adjacent to each other that are not compatible (Move Learning Resource Center away from Carpentry shops).
2. Provide clear parking lot area, vehicle circulation and signage at both campus entries
3. Clear the stream bank and open up views to the Visitor Center buildings
4. Provide recreational area - basketball/ volleyball
5. Provide an auditorium/ multipurpose space
6. New maintenance building
7. New CRE building and Learning Resource Center

The following plan depicts the proposed layout with the new buildings identified in red. The accommodation schedules listing the functions and areas for the spaces within these buildings are contained in Chapter 3.4.2 of the Part 3 Detailed Report for the Kosrae Campus.

The stages to reach this long term vision are described in the staging plans on the following pages.



Legend

- Conc. = Concrete
- FH = Fire Hydrant
- Fin. = Finish
- Flr. = Floor
- Nkr = Anchor
- OH = Overhang
- SP = Service Pole
- (Typ) = Typical
- Vcvr = Valve Cover
- Wpp = Wooden Power Pole
- = Telephone Pedestal
- E = Overhead Utility
- = Coconut
- = Unknown Tree Name
- = Baby Bottle Tree
- = Proposed Boundary Line

Metric 1:1000@A3

1.3 5 year period - to 2018

5 year period to 2018

01 IT server in a secure environment in the existing administration building

02 Upgraded Wifi

03 Open side shelters for charging electronics and outdoor study (4 off)

04 Consolidate student services functions in a multifunctional building - stage 1 of a two storey building. Containing student services, LRC and computer lab plus associated functions

05 Site works associated with multifunctional entry building - carpark, streamside works along the length of the new building, landscaping, signage, pedestrian connections, perimeter and structured planting

06 Recreational area - outdoor basketball/ volleyball space and associated landscape works

07 Refurbish old LRC and computer lab.

08 Demolition of the toilet block at the eastern end of Classroom Building J

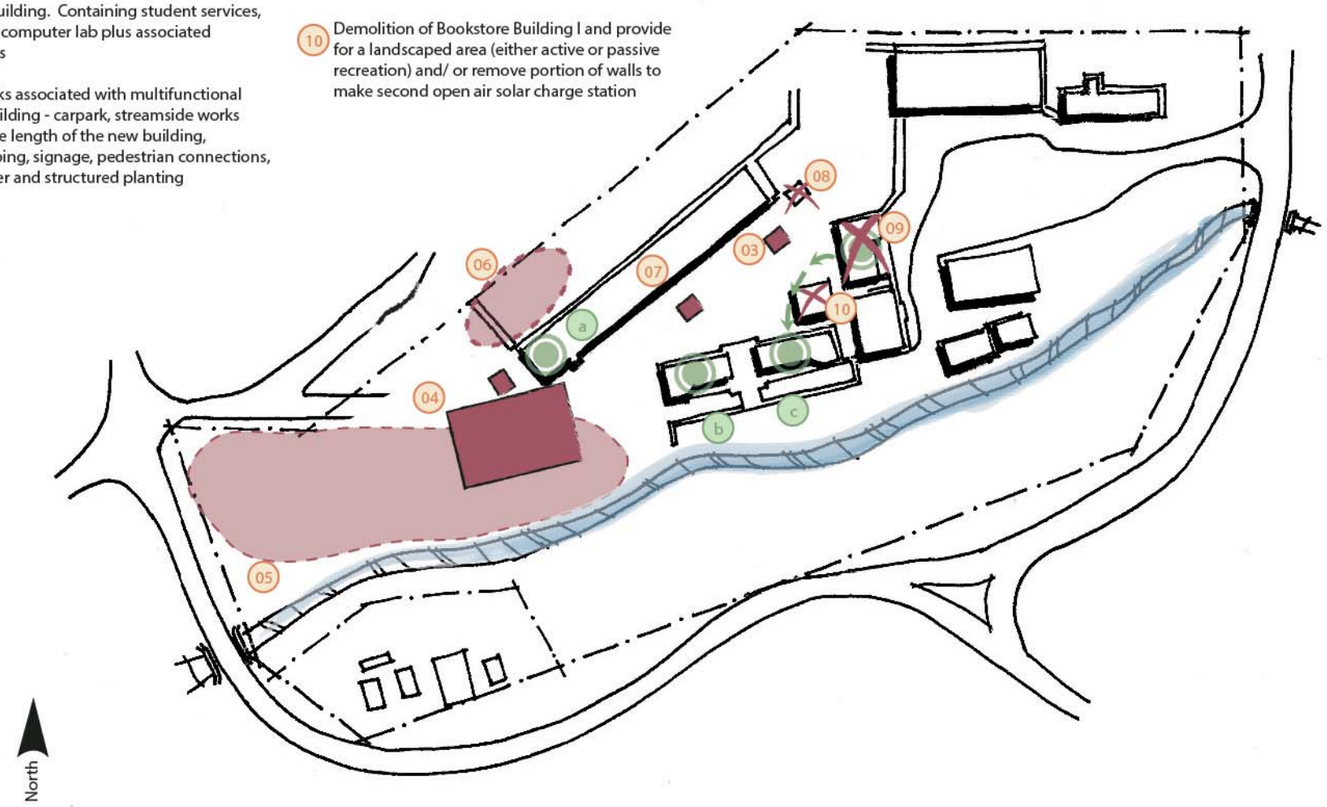
09 Demolition of Faculty Building C and upgrade surrounding vehicle access and carpark

10 Demolition of Bookstore Building I and provide for a landscaped area (either active or passive recreation) and/ or remove portion of walls to make second open air solar charge station

a Retain carpentry until new space is available away from new multipurpose building

b Administration remains in current location

c Faculty moves into eastern end of administration



1.4 10 year period - to 2023

10 year period to 2023

11 Stage 2 of the entry multipurpose building with faculty and administration functions added to building

12 Relocation and fitout of specialized science classroom and general classroom into Block J. Demolish old specialized science classroom block and landscape area left behind with trees and study huts.

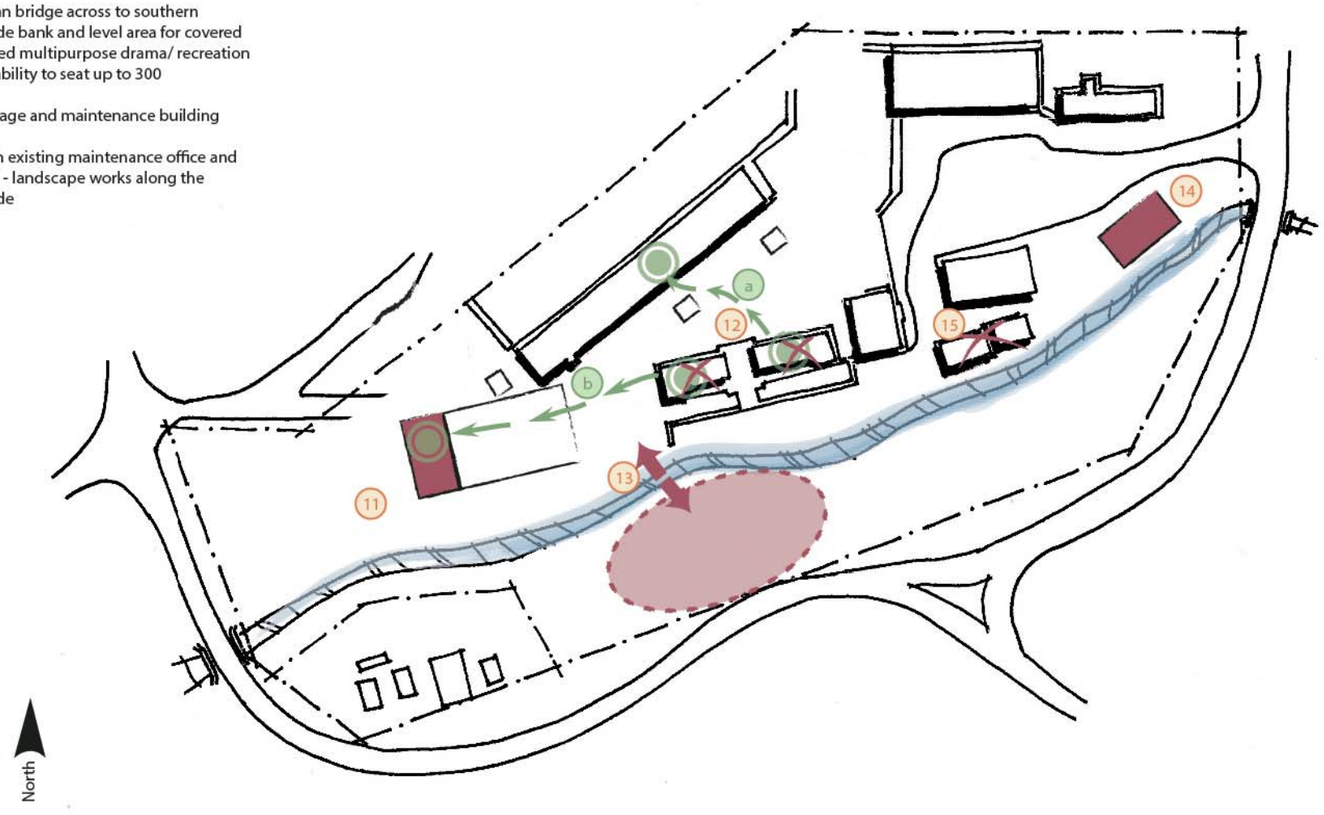
13 Pedestrian bridge across to southern streamside bank and level area for covered open sided multipurpose drama/ recreation space - ability to seat up to 300

14 New storage and maintenance building

15 Demolish existing maintenance office and building - landscape works along the streamside

a Relocate science lab to room vacated by the LRC

b Relocate dean, business and coordinator functions to extension of multipurpose building



1.5 Long Term Vision - beyond 2023

Beyond 2023

16 New CRE - extension building either at research building site or in the community interface activity zone

17 New Learning Resource Center

18 Associated landscape works, pedestrian connections

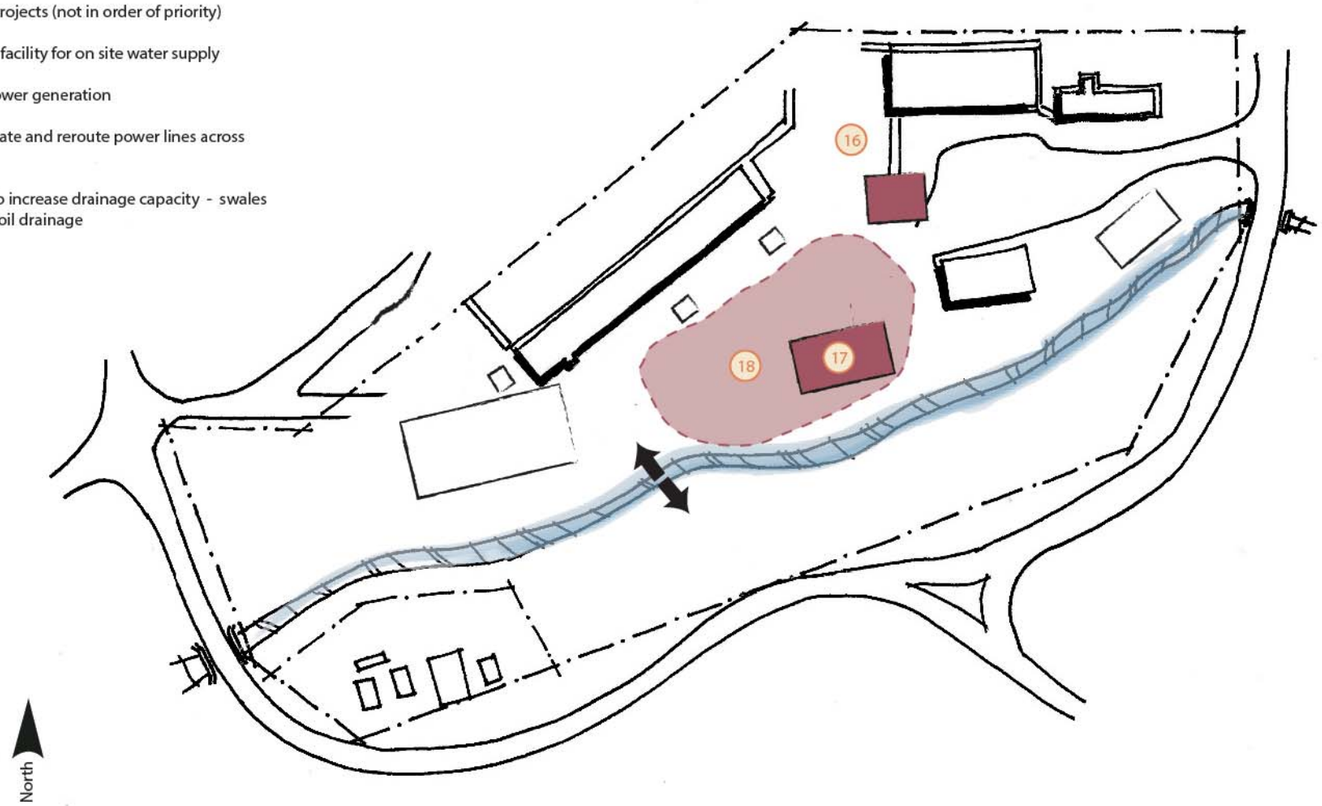
Further projects (not in order of priority)

- Provide facility for on site water supply

- Solar power generation

- Investigate and reroute power lines across the site

- Works to increase drainage capacity - swales and subsoil drainage

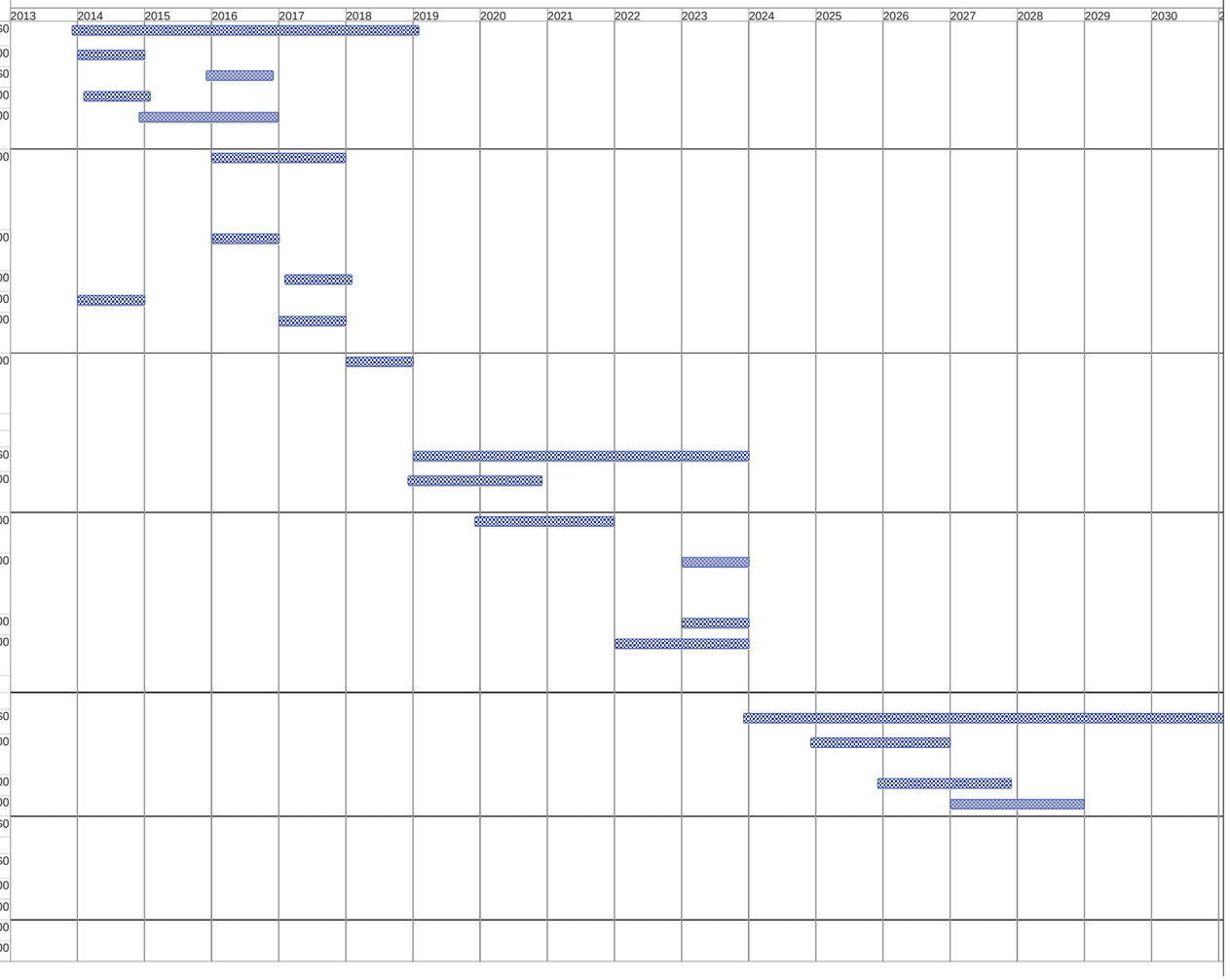


1.6 Development Staging and Program – Implementation

Kosrae Campus Project program

Rev 6/ 28th Feb 2014

Project no	Task Name	Estimate
	5 year period to 2018	$0
1	IT server in a secure environment in the existing administration building	$40,000
2	Upgraded Wifi	$0
3	Open sided shelters for charging electronics and outdoor study (4 off)	$40,000
4	Consolidate student services functions in a multifunctional building - stage 1 two storey building-BUILDING 1	$3,280,000
5	Site works associated with multifunctional entry building - carpark, streamside works along the length of the new building , landscaping, signage, pedestrian connections, perimeter and structured planting, clear view shafts to visitor centre	$560,000
6	Recreational area - outdoor basketball/ volleyball space and associated landscape works	$150,000
7	Refurbishment of old LRC and computer lab into classrooms	$30,000
8	Demolition of the toilet block at the eastern end of Classroom Building J	$5,000
9	Demolition of Faculty Building C and upgrade surrounding vehicle access and carpark	$290,000
10	Demolition of Bookstore Building I and provide for a landscaped area (either active or passive recreation). Alternative is to remove portions of the walls to create an open air study area and solar charging station	$110,000
	10 year vision to 2023	$0
11	Stage 2 of the entry multipurpose building with faculty and administration functions added to building- BUILDING 1	$1,050,000
12	Relocation and fitout of specialized science classroom and faculty into Block J. Demolish administration/ science building	$220,000
13	Pedestrian bridge across to southern streamside bank and level area for covered open sided multipurpose drama/ recreation space - ability to seat up to 300	$1,050,000
14	New storage and maintenance building- BUILDING 2	$400,000
15	Demolish existing maintenance office and building - landscape works along the streamside	$150,000
	Long term vision - beyond 2023	$0
16	New CRE - extension building either at research building site or in the community interface activity zone-BUILDING 3	$1,310,000
17	New Learning Resource Center- BUILDING 4	$2,525,000
18	Associated landscaping with the LRC - paths, shrubs, seating	$560,000
19	Multipurpose / sports - BUILDING 5 (long term project to be funded by others)	$0
	Further projects (not in order of priority)	$0
	Provide facility for on site water supply	$530,000
	Solar power generation	$500,000
	Investigate and reroute power lines across the site	$50,000
	Works to increase drainage capacity - swales and subsoil drainage	$50,000



YAP CAMPUS MASTERPLAN

1.1 Yap Campus 2013

The Yap campus is located on 7 acres adjacent to the Yap High School. The campus incorporates CRE-Research and extension as well as Gear Up initiatives.

The Fall 2013 Yap campus enrolment (headcount) is 195. The maximum number enrolled occurred in Fall 2009 and Fall 2011 at 228 with this figure not reached since then.

A headcount of 263 has been provided by the space utilization study as the projected headcount in 2018. This 5 year projection figure has been used as the basis for the design figure for assessing future facilities requirements.

No.	Building Description
A	Administration building
-	Classrooms
-	Bookstore
B	Computer Lab
C	CRE Building
D	Science Laboratory
-	Library
-	Science Lab
E	Student Center Building
F	Classroom Building
G	Vocational Building
H	Student Open Lounge
J	Restrooms

1.2 Long Term Vision

The Yap campus will have facilities to support the following:

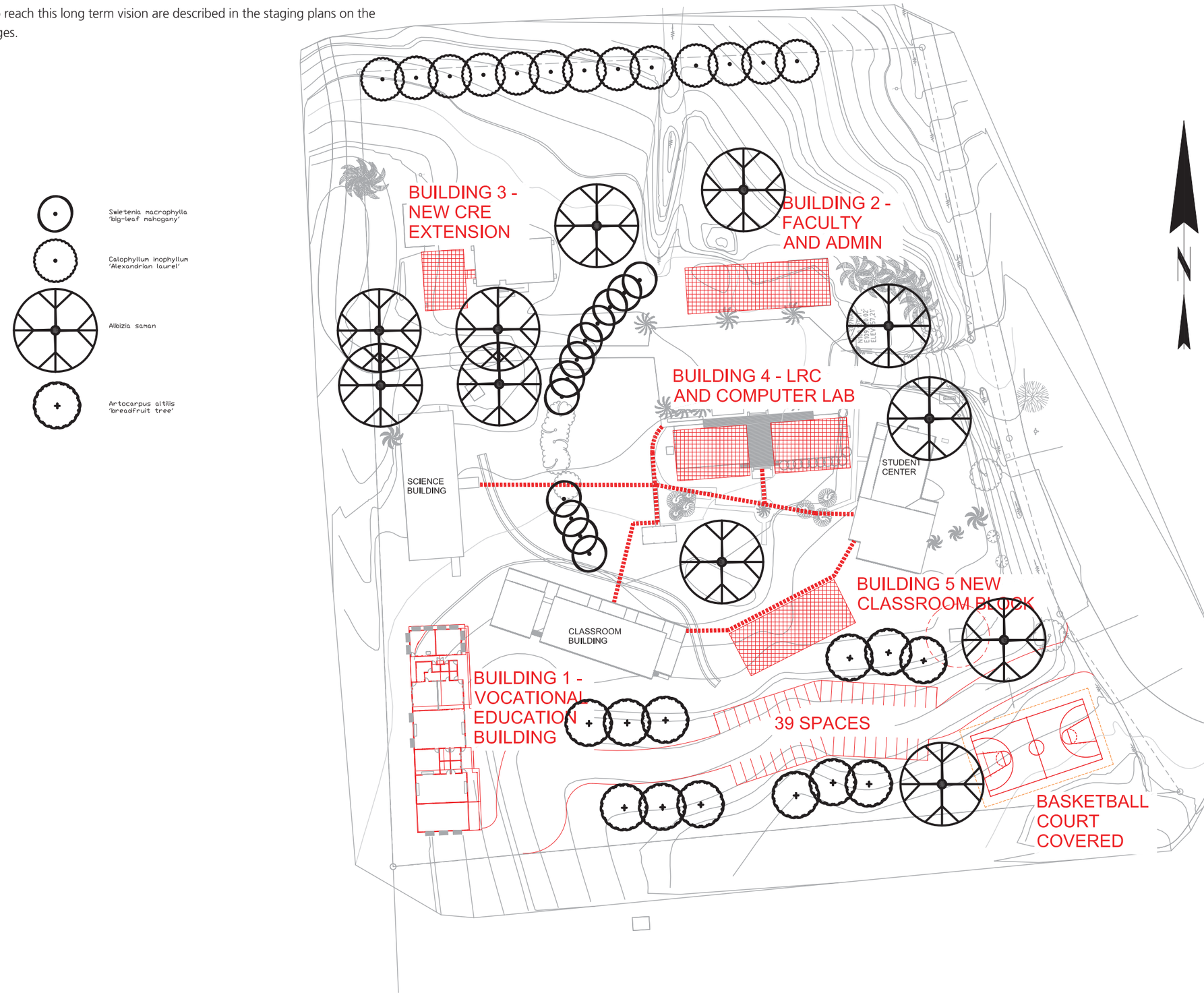
- A recognisable campus centre through the implementation of a structured campus landscape plan
- A strengthened community interface and use of the main entry buildings (LRC, computer lab)
- Renewable energy and incorporate sustainability measures
- Buildings that have a reduced maintenance and operational cost through design and selection of materials

Key moves to achieve this vision

1. New VOCED building including shops, classrooms and including the site maintenance facility. This facility will be designed with multipurpose classrooms that allow for future educational or curriculum changes. It will also incorporate design measures that minimise the use of mechanical cooling. Allow for new entry onto the site and sealed road access to the new VOCED building
2. Provide a defined space for a volleyball/ basketball court adjacent to the Student Centre. Small study huts interspersed with trees to provide shaded study areas creating an edge to the central campus area
3. Adjacent to the recreation area provide a student car parking area
4. Pave the desire lines between main building access points
5. Implement a coordinated landscape plan with feature trees to reinforce the centre of the campus, the boundaries and highlight entry points
6. Provide for dedicated faculty space on site with the ability for one on one discussions to provide the feedback required to achieve positive student learning outcomes.
7. Provide a dedicated administration building on the edge of the campus and in close proximity to the main entry
8. New Learning Resource Center with a separate computer lab building.
9. Extension to the CRE-Research for CRE – Extension or the provision of space within the existing Yap campus building envelope for CRE – Extension.

The following plan depicts the proposed layout with the new buildings identified in red. The accommodation schedules listing the functions and areas for the spaces within these buildings are contained in Chapter 3.4.2 of the Part 3 Detailed Report for the Yap Campus.

The stages to reach this long term vision are described in the staging plans on the following pages.



Yap Campus
1:1000@A3

1.3 5 year period – to 2018

5 year period to 2018

01 Formed paths providing direct connection between buildings through the centre of the campus

02 Refit computer classroom for combined upward bound and computer lab

03 Access to boundary carpark - southern boundary

04 Fence around German tower

05 New VOCED building and maintenance facility

06 Create hard court area near Student Services building, 2 study huts and landscaping and/or upgrade in the current location

07 Implement a landscape plan across the campus

Further projects:

- Solar power generation

1.4 10 year period – to 2023

10 year period to 2023

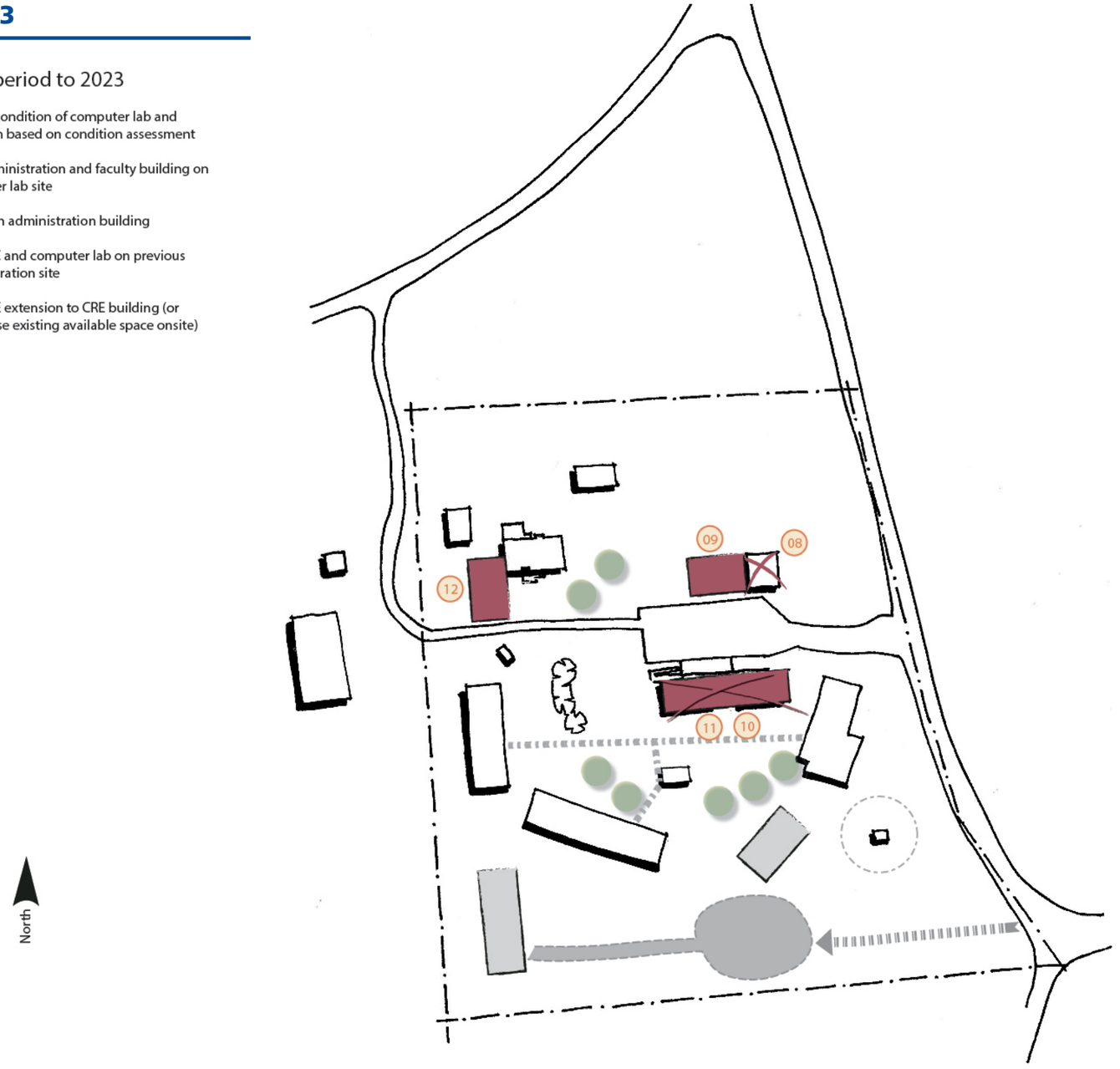
08 Review condition of computer lab and demolish based on condition assessment

09 New administration and faculty building on computer lab site

10 Demolish administration building

11 New LRC and computer lab on previous administration site

12 New CRE extension to CRE building (or repurpose existing available space onsite)



1.5 Long Term Vision – beyond 2023

Beyond 2023

13 Relocate hardcourt area

14 Additional new classroom block between student centre and classroom block

15 New gymnasium

16 New CRE - Research wing (funded by others)

Further projects (not in order of priority)

- Relocate power poles servicing other properties

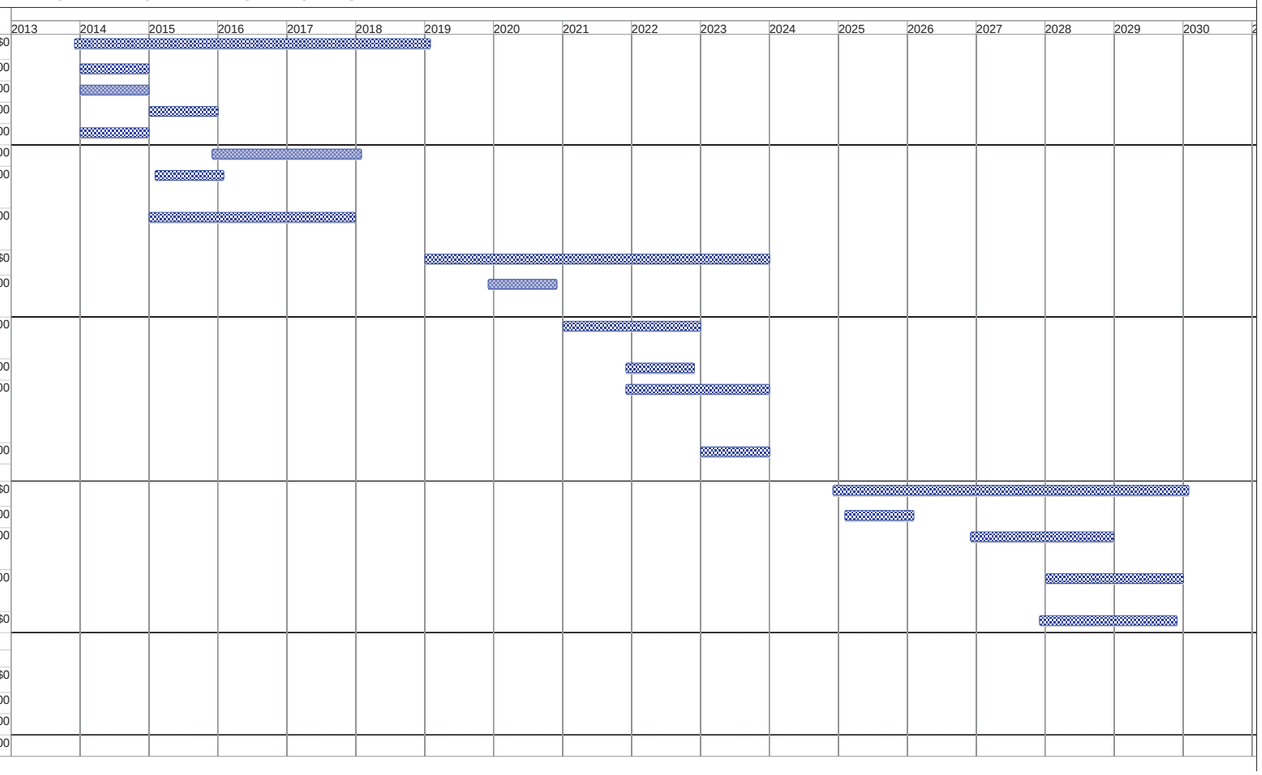
- Works to increase drainage capacity - swales and subsoil drainage

1.6 Development Staging and Program - Implementation

Yap Campus Project program

Rev 6 28th February 2014

Project no	Task Name	Estimate
	5 year period to 2018	$0
1	Formed paths providing direct connection between buildings through the centre o	$65,000
2	Refit computer classroom for combined upward bound and computer lab	$20,000
3	Access to boundary carpark - southern boundary	$440,000
4	Fence around German tower if required	$15,000
5	New VOCED building and maintenance facility - BUILDING 1	$2,400,000
6	Create hard court area near Student Services building , 2 study huts and landscaping	$40,000
7	Implement a landscape plan across the campus	$265,000
	10 year vision to 2023	$0
8	Demolish computer lab building	$30,000
9	New administration and faculty building on computer lab site - BUILDING 2	$1,720,000
10	Demolish administration building	$30,000
11	New LRC and computer lab on previous administration site - BUILDING 4	$1,900,000
12	New CRE extension to CRE building - BUILDING 3	$670,000
	Long term vision - beyond 2023	$0
13	Relocate hardcourt area	$85,000
14	Additional new classroom block between student centre and classroom block - BUILDING 5	$740,000
15	New gymnasium	$1,930,000
16	New CRE - Research wing ($1,120,000 funded by others)	$0
	Further projects (not in order of priority)	$0
	Relocate power poles servicing other properties	$50,000
	Solar power generation	$500,000
	Works to increase drainage capacity - swales and subsoil drainage	$50,000



1.1 FSM-FMI Campus 2013

As outlined in the COM-FSM website "The FSM Fisheries and Marine Institute (FSM-FMI) is located on the island of Yap, occupying the facilities built in the late 1960's for the Loran Station operated by the United States Coast Guard. The Institute is situated some six miles north of the capital, Colonia.

There are three majors offered at FSM-FMI: Navigation, Marine Engineering and Fishing Technology. Currently, these fields of studies or programs normally run for two years, and anyone completing one of them is awarded an Advanced Certificate of Achievement in each of them, and an industry Certificate of Competency as Master of vessels of not over 200 gross tonnage (or Class 5 Master) for a Navigation major; or a Certificate of Competency as Marine Engineer of vessels of not over 500 kilowatts total propulsion power (or Class 5 Marine Engineer) for a Marine Engineering major."

No.	Building Description
A	Administration/Student Services and Living Quarters/Mess Hall
B	Staff housing
C	Classrooms, Library and Shops
D	Maintenance office
E	Shower House
F	Security Post

1.2 Long Term Vision

The FSM-FMI campus will have facilities to support the following:

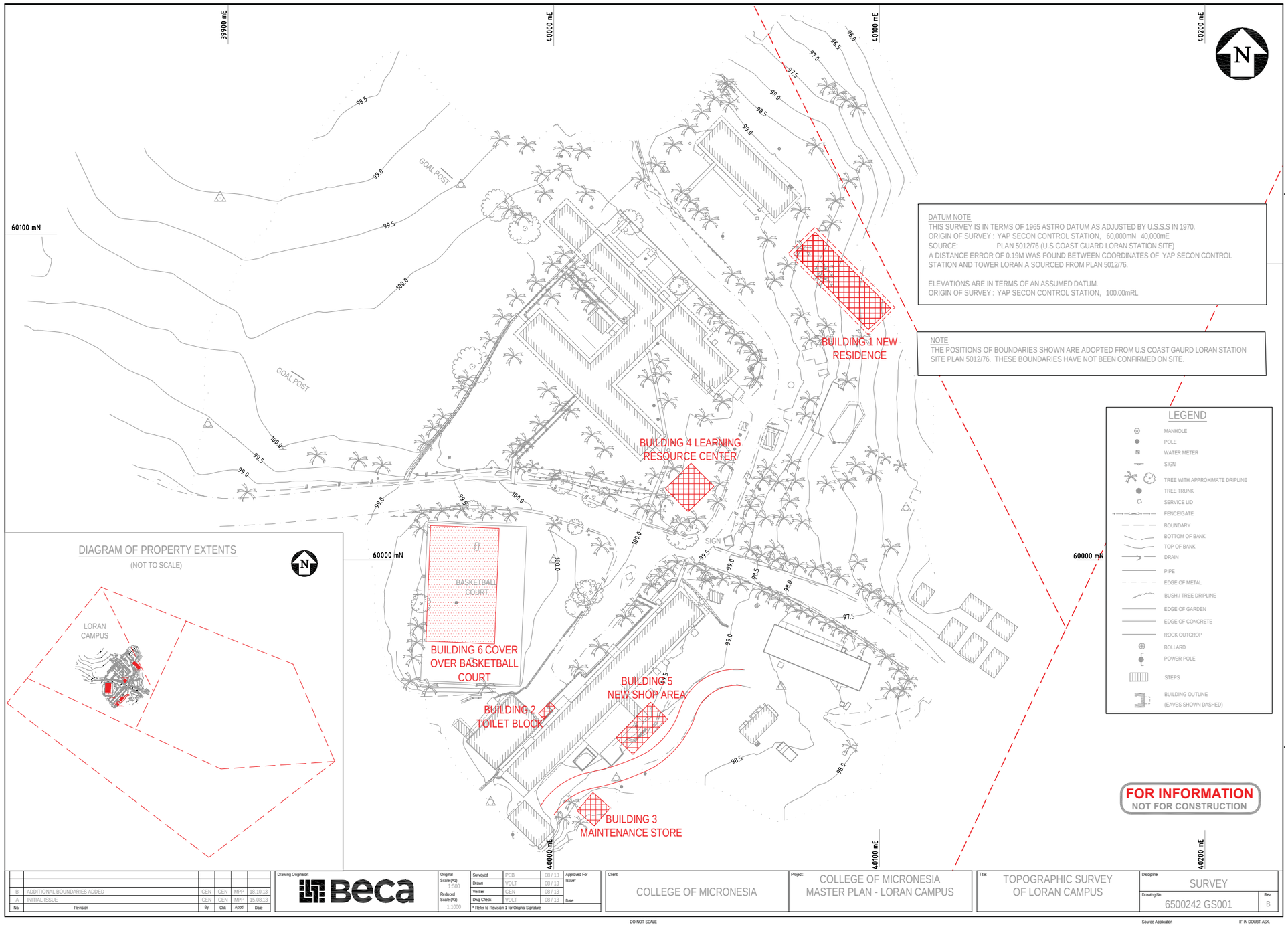
- A consolidated campus with its own access road
- An ability to provide courses beyond the three majors that are offered - Navigation, Marine Engineering and Fishing Technology. This could be block courses or non-credit courses.
- Wi-Fi capability
- Renewable energy and incorporate sustainability measures
- Buildings that have a reduced maintenance and operational cost through design and selection of materials
- Increased access for women cadets

Key Moves

1. Review provision of a stand-alone instructors residence (2 units) in the residential zone
2. Move instructors residence out of Building A to enable relocate women's quarters to be relocated into the north – eastern end of the Administration building. Upgrade shower amenities and toilets. Increase the size of the administration area by creating a conference room space
3. Provide covered access over classroom doors to Building C, new cadet toilet block next to Seaman's shelter and rationalise location of the access path
4. New classroom/ study space with covered access connecting to residential quarters
5. Improve shop areas by constructing a stand-alone engineering shop area
6. Work with State Government to investigate rerouting the main road to the south of the classroom Building C

The following plan depicts the proposed layout with the new buildings identified in red. The accommodation schedules listing the functions and areas for the spaces within these buildings are contained in Chapter 3.4.2 of the Part 3 Detailed Report for the FSM-FMI Campus.

The stages to reach this Long Term Vision are described in the staging plans and the program on the folllowing pages.



1.3 5 year period - to 2018

5 year period to 2018

01 Address provision of fire fighting facilities

02 New duplex residence for instructors in the residential zone

03 Relocate women's quarters into the north eastern end of Administration Building A and add conference room and administration office to area vacated by the residence

04 Remove wall between men's and previous women's quarters. Move men's quarters to the north and utilise the southern quarters as library study space

05 Increase computer room to incorporate former library space in Building C

06 Separate server room from IT office (within existing building envelope)

07 Provide covered access over classroom doors to Building C, new cadet toilet block next to Seaman's shelter and rationalise location of the access path

08 Upgrade below ground services - drainage and water supply

09 Storage for maintenance materials (potentially a container type facility)

10 Address the current sewage system and leaching field

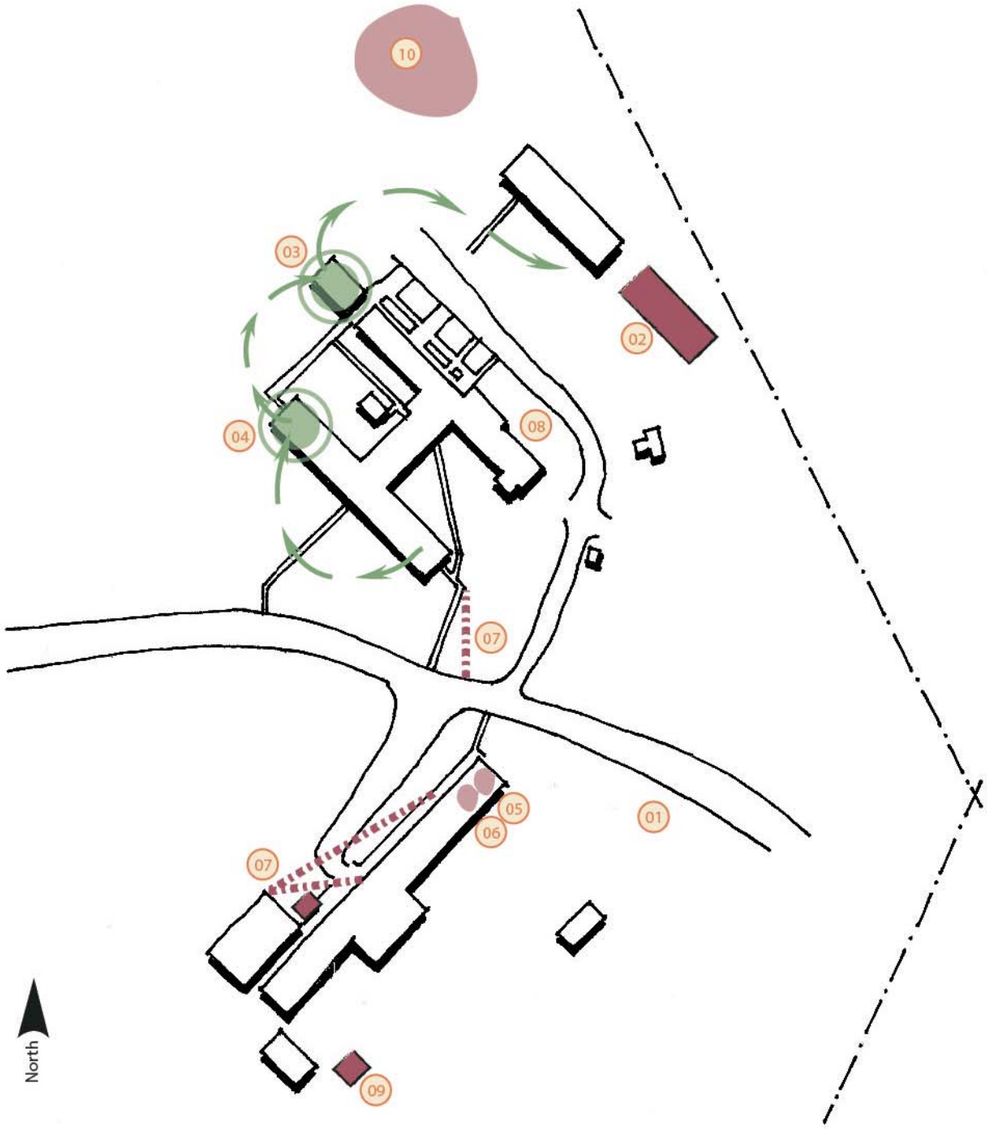
Further projects (not in order of priority)

- Provide facility for on site water supply

- Solar power generation

- Works to increase drainage capacity - swales and subsoil drainage

- New overhead power connection to residences



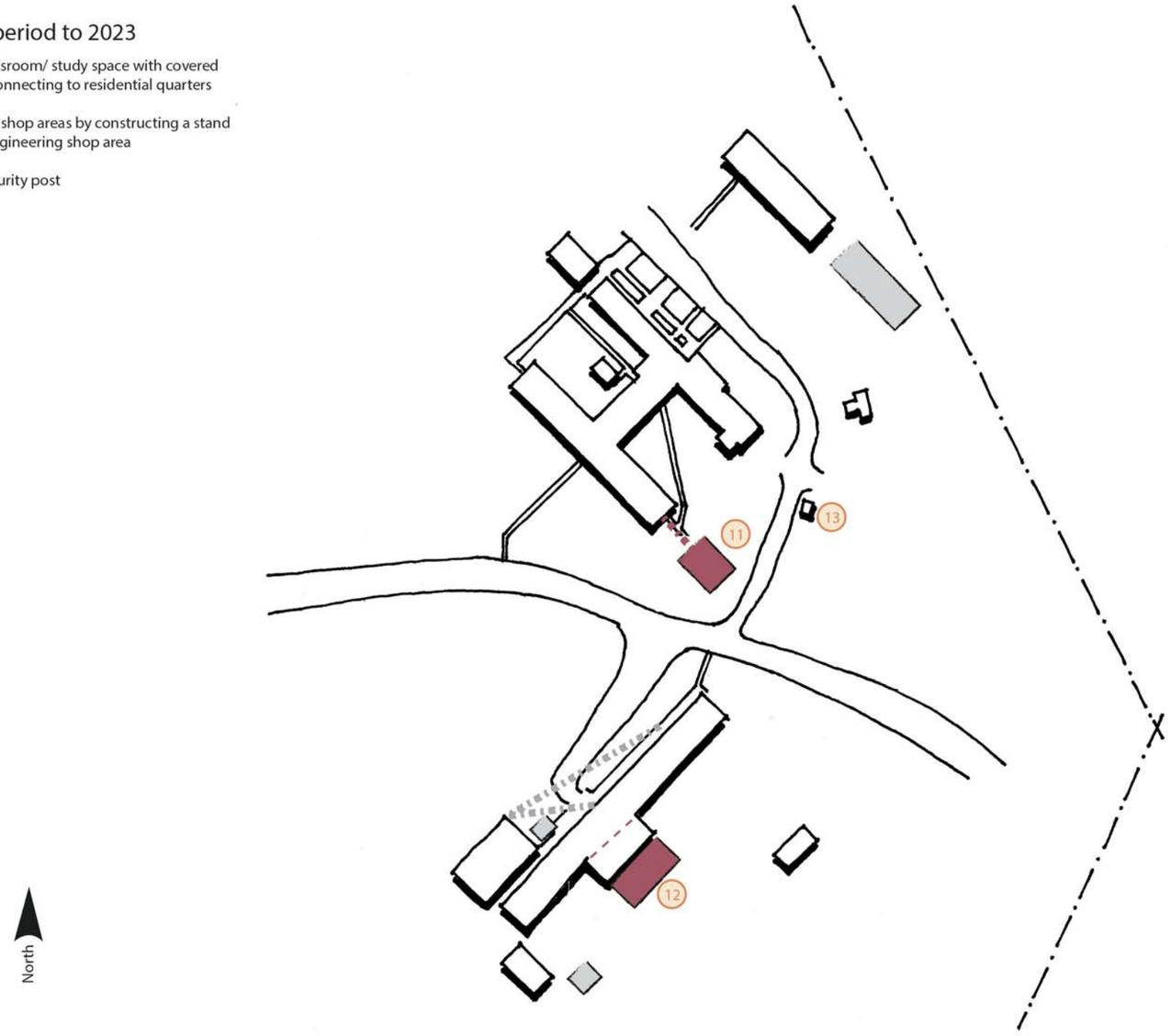
1.4 10 year period - to 2023

10 year period to 2023

11 New classroom/ study space with covered access connecting to residential quarters

12 Improve shop areas by constructing a stand alone engineering shop area

13 New security post



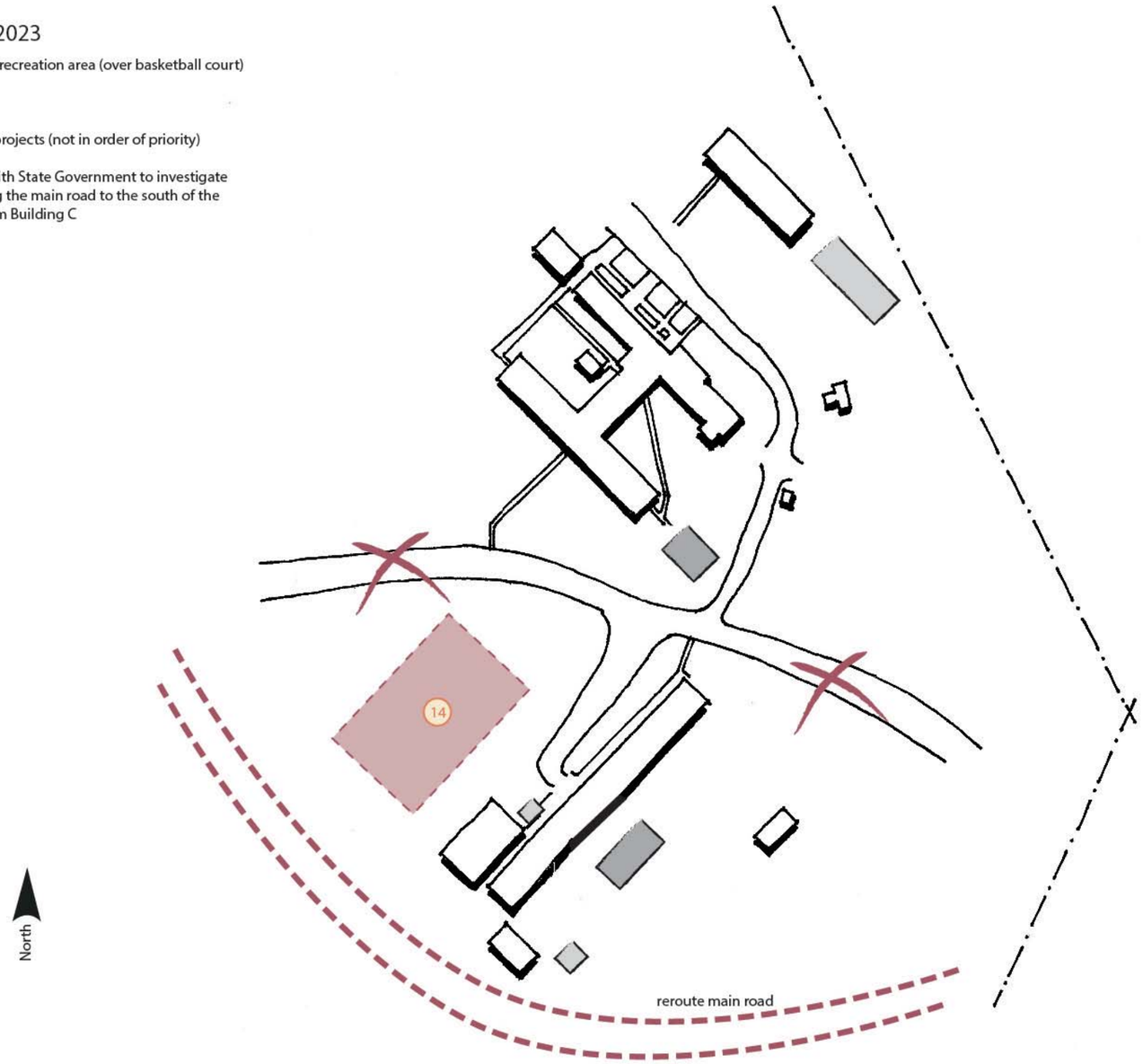
1.5 Long Term Vision - Beyond 2023

Beyond 2023

(14) Covered recreation area (over basketball court) for drills

Further projects (not in order of priority)

- Work with State Government to investigate rerouting the main road to the south of the classroom Building C

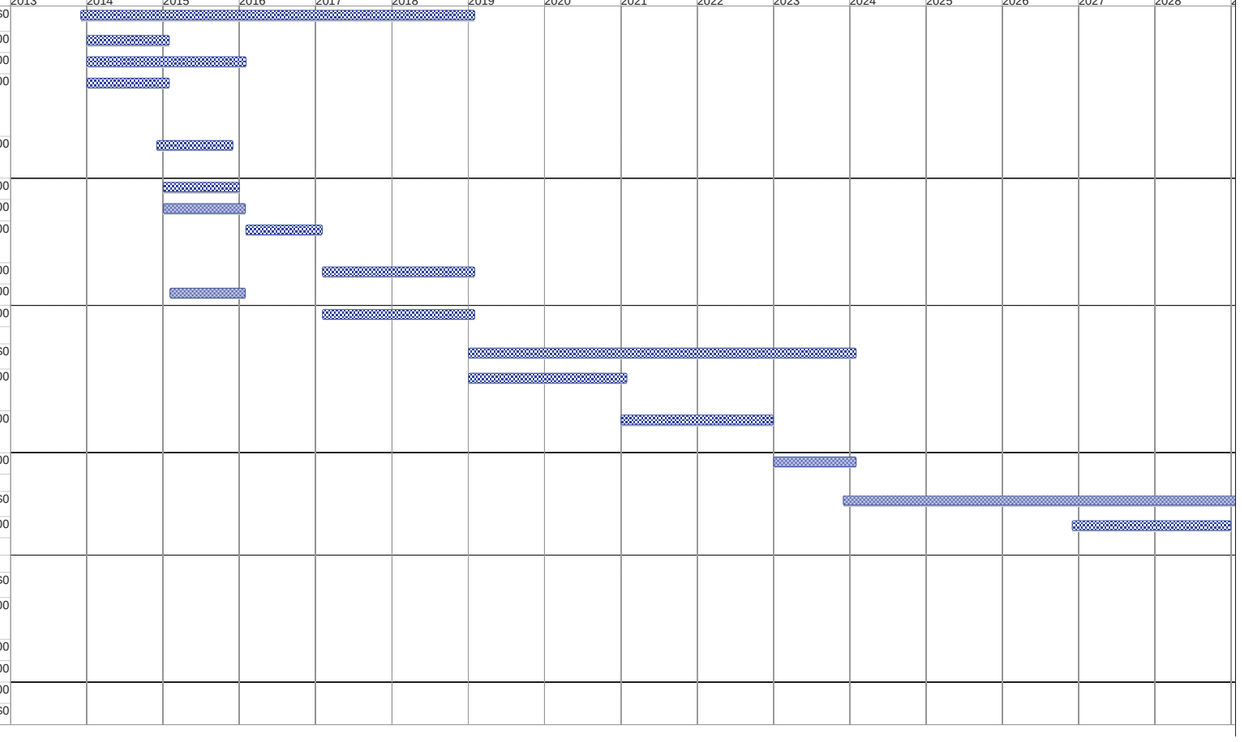


1.6 Development Staging and Program – Implementation

FSM-FMI Campus Project program

Rev 6 / 28th February2014

Notes	Task Name	Estimate
	5 year period to 2018	$0
1	Address provision of fire fighting facilities	$165,000
2	BUILDING 1 - New duplex residence for instructors in the residential zone	$840,000
3	Relocate women's quarters into the north eastern end of Administration Building A and add conference room and administration office to area vacated by the residence.	$40,000
4	Remove wall between men's and previous women's quarters. Move men's quarters to the north and utilise the southern quarters as library study space	$5,000
5	Increase computer room to incorporate former library space in Building C	$3,000
6	Separate server room from IT office (within existing building envelope)	$20,000
7	Provide covered access over classroom doors to Building C, new cadet toilet block next to Seaman's shelter and rationalise location of the access path	$60,000
8	Upgrade below ground services - drainage and watersupply	$200,000
9	Storage for maintenance materials (potentially a container type facility)	$10,000
10	Address the current sewage system and leaching field	$135,000
	10 year vision to 2023	$0
11	New classroom/ study space with covered access connecting to residential quarters - BUILDING 2	$465,000
12	Improve shop areas by constructing a stand alone engineering shop area - BUILDING 3	$265,000
13	New security post	$30,000
	Long term vision - beyond 2023	$0
14	Covered recreation area (over basketball court) for drills	$740,000
	Further projects (not in order of priority)	$0
	Work with State Government to investigate rerouting the main road to the south of the classroom Building C	$200,000
	Provide facility for on site water supply	$350,000
	Solar power generation	$500,000
	Works to increase drainage capacity - swales and subsoil drainage	$100,000
	New overhead power connection to residences	$0



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