



31 October 2014

Honorable Phillip Muller
Minister of Health
Republic of the Marshall Islands

Subject: Majuro Hospital Redevelopment

Yokwe Minister Muller:

LEO A DALY is pleased to submit this Final Programming and Concept Design Report for the Majuro Hospital.

Our initial visit to Majuro in August involved extensive information gathering and meetings and interviews with the Ministry of Health and the Majuro Hospital Leadership and staff. The LEO A DALY Team was also pleased to meet with and receive input from the President and Cabinet.

Our second visit to Majuro in September completed the interviews with the Hospital and resulted in a Preliminary Program and Budget. A detailed Trip Report with several exhibits was provided.

Our third and final visit to Majuro in October involved the presentation of alternative Concepts (4) and much discussion with the Hospital and Cabinet. This resulted in important decisions and guidance as to the Final Program, Conceptual Design, Schedule, and Budget. A Trip Report was provided.

Some of the Program and Design Highlights of the agreed upon Concept are:

- Planning for preventive care and wellness programs.
- Programming replacement of all current clinical functions only with no growth of new programs.
- Separating required inpatient hospital services from outpatient clinical and support services to allow for cost appropriate building construction types.
- Raising the hospital and support services to 3 feet above the current JICA building floor level to manage the risk of rising sea levels, or king tide events.
- Shifting need for 20 beds from acute care (hospital) setting to a Short-Term facility to allow for lower initial construction cost and long-term operation cost.
- Combining some services that are currently duplicated (i.e., food preparation kitchen).
- Minimizing phases of construction, to reduce initial cost, total building time, and temporary facilities.
- Concentrating 33,000 square feet (33%) additional building area on critically short services, like Surgery, Emergency, Radiology, Laboratory and Inpatient wards.
- Harvesting rainwater from building roofs.
- Using saltwater for water closets and urinals to conserve fresh water resources.
- Importing of aggregate and sand to reduce costs, minimize environmental impacts and to ensure quality control (i.e., low electrolyte content for the long-term integrity of concrete).
- Using split air conditioning systems to maximize reliability and minimize maintenance.

Please note that per the Cabinet's direction, LEO A DALY has laid out an aggressive schedule. In order to accomplish this schedule, it is absolutely necessary that the contracting of a qualified health care architect-engineer occur as soon as possible.

LEO A DALY remains available and keenly interested to work on the detailed design of this important project.

Please do not hesitate to contact me.

Very truly yours,



Edward Z. Pskowski
Vice President

cc: Chief Secretary Casten Nemra
Secretary of Health Julia Alfred
Minister of Public Works Hiroshi Yamamura
Secretary of Public Works Wilber Allen
Acting PM Manager Melvin Dacillo



Table of Contents

Cover Letter	2
Concept Overview	4
Concept A	12
Concept B	21
Concept C	30
Concept D	39
Concept E	49
Basis of Concept Design	58
Project Metrics	62
Project Schedule and Cost Estimate	71





Concept Overview



Concept Overview



Concept Overview- Concept A



Positive:

- Consolidates ancillary services to the south.
- Raises essential services to second floor.
- Provides sufficient parking.
- Good future expansion for patient units.

Negative:

- Requires ramps and/or elevators to access second floor.
- Ancillary services are at grade.
- Requires temporary relocation for surgery.
- Phasing will be difficult for ancillary services.



Concept Overview- Concept B



Positive:

- Consolidates ancillary services to the south.
- Raises all patient rooms and essential services to second floor.
- Utilizes east campus area.
- Provides sufficient parking.

Negative:

- Requires ramps and/or elevators to access second floor.
- Requires temporary relocation for surgery.
- Phasing will be difficult for ancillary services.
- Limited potential for future expansion.



Concept Overview- Concept C



Positive:

- Single story construction, with essential services and patient rooms 2'-6" above grade.
- Eliminates need for ramps and/or elevators, enabling efficient layout.
- Consolidates ancillary services to the east.
- Separate ancillary service building enables less expensive construction.

Negative:

- Requires demolition of Administration Building.
- Requires temporary relocation for surgery.
- Parking is dispersed with fewer stalls, and area around main entry is limited.
- Very limited potential for future expansion.
- Uses the most undeveloped site area.



Concept Overview- Concept D



Positive:

- Preserves Administration Building and east campus.
- Consolidates ancillary services to the south.
- Raises essential services to second floor.
- Provides sufficient parking, while leaving room for future expansion.
- Uses the least undeveloped site area.

Negative:

- Requires ramps and/or elevators to access second and third floor.
- Ancillary services are at grade.
- Will require temporary relocation for surgery.
- Phasing will be difficult for ancillary services.



Concept Overview- Concept E



Positive:

- Essential services and patient rooms 2'-6" above grade and on second floor.
- Consolidates ancillary services to the east.
- Separate ancillary service building enables less expensive construction.
- Introduces a 20 bed Short Stay Unit which reduces construction cost.

Negative:

- Requires temporary relocation for surgery.
- Parking is dispersed with fewer stalls.
- Very limited potential for future expansion.
- Requires temporary relocation for surgery.
- Phasing will be difficult for ancillary services.

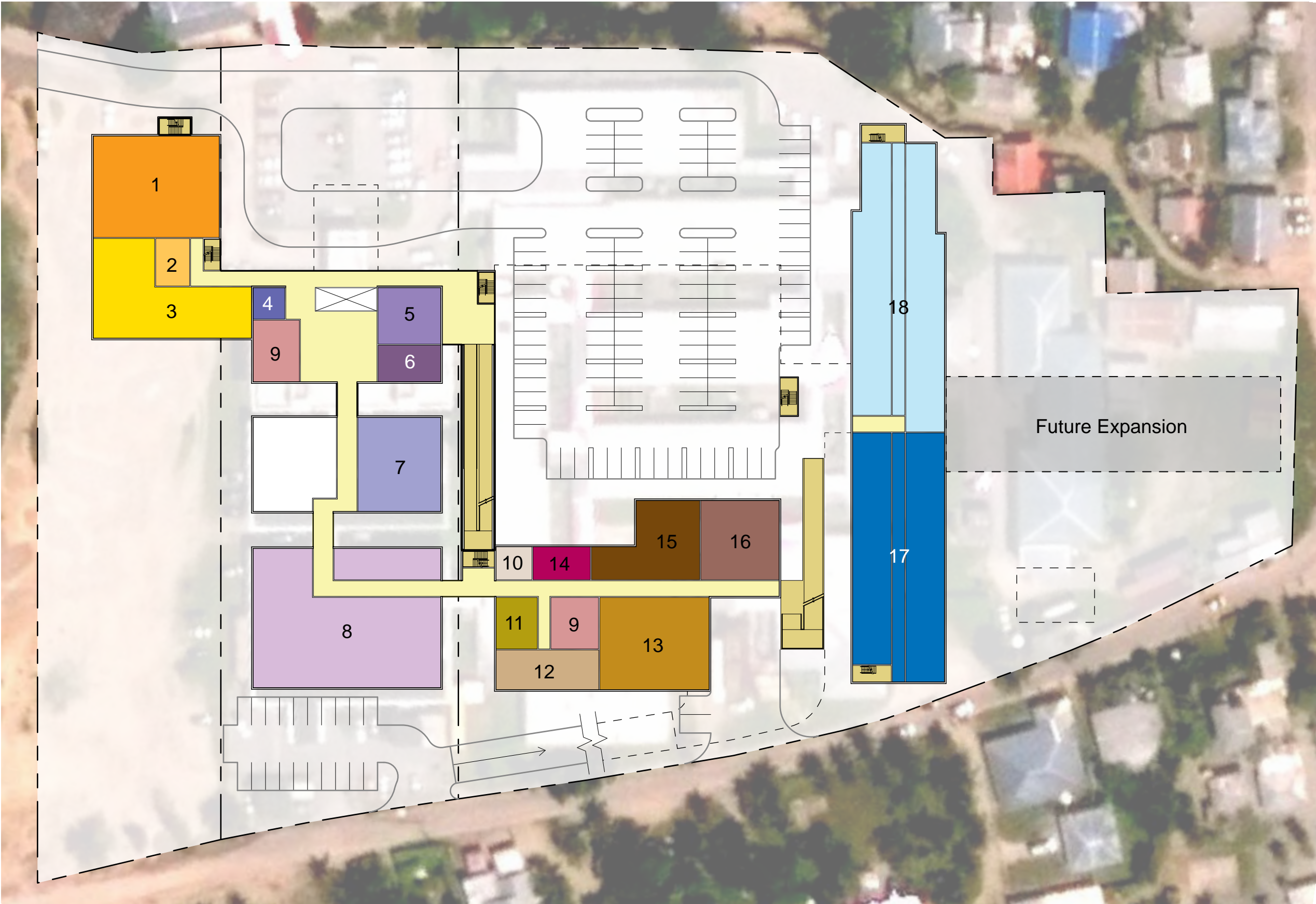




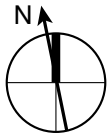
Concept A- Overall



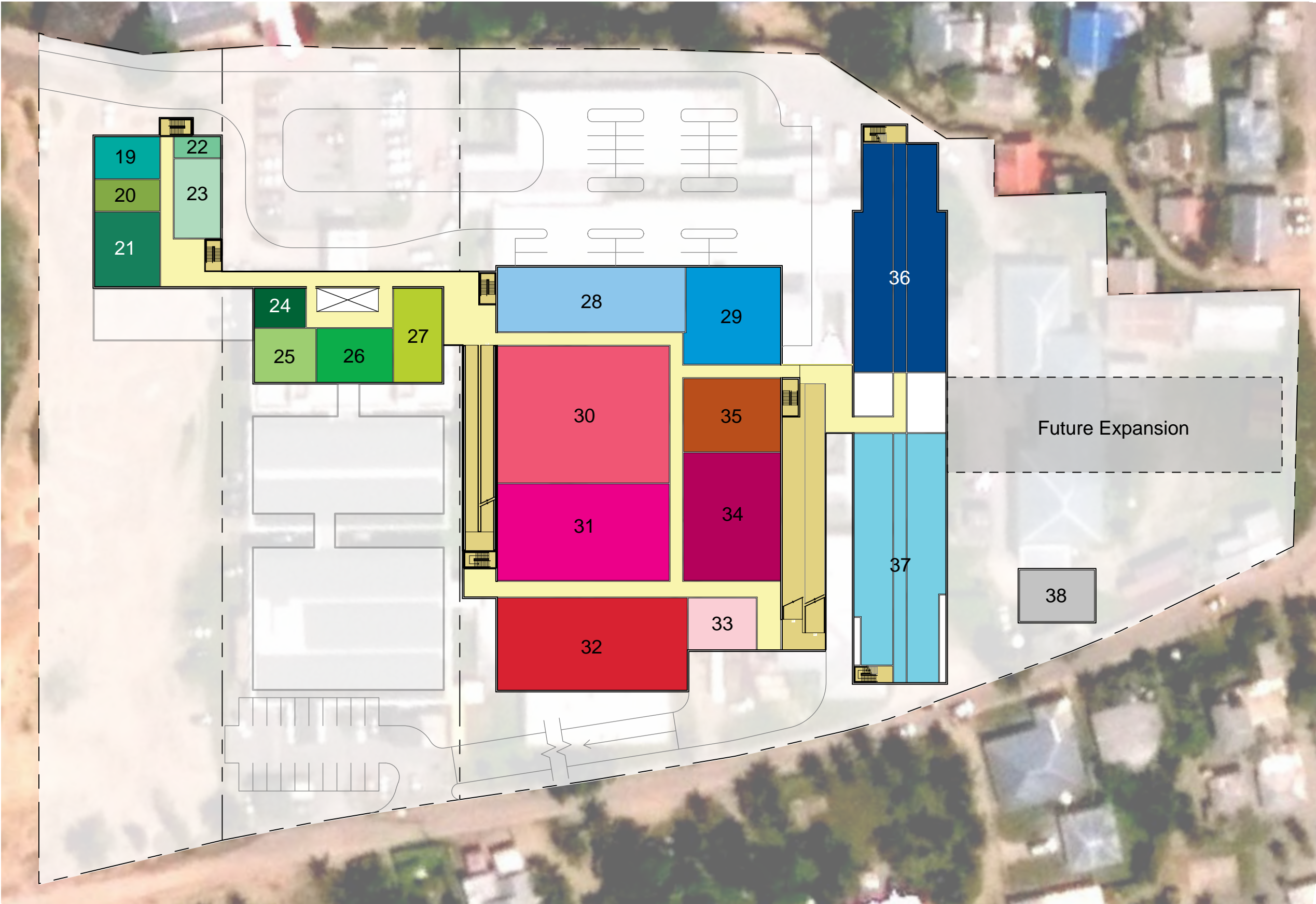
Concept A- Level 1



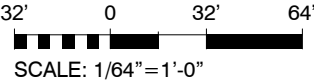
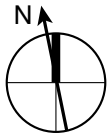
- 1 Rehabilitation Services
- 2 Prosthetics and Orthotic Service (Rehab)
- 3 Wellness Center
- 4 Chaplain Service
- 5 Health Information Management
- 6 Vital Statistics
- 7 Dental Service
- 8 Public Health
- 9 Pharmacy Service
- 10 Environmental Management Service
- 11 Housekeeping
- 12 Laundry and Linen Operation
- 13 Procurement and Supply
- 14 Pathology and Laboratory Medicine
- 15 Engineering Services
- 16 Nutrition and Food Service
- 17 Surgical Patient Care Unit
- 18 Maternity Unit



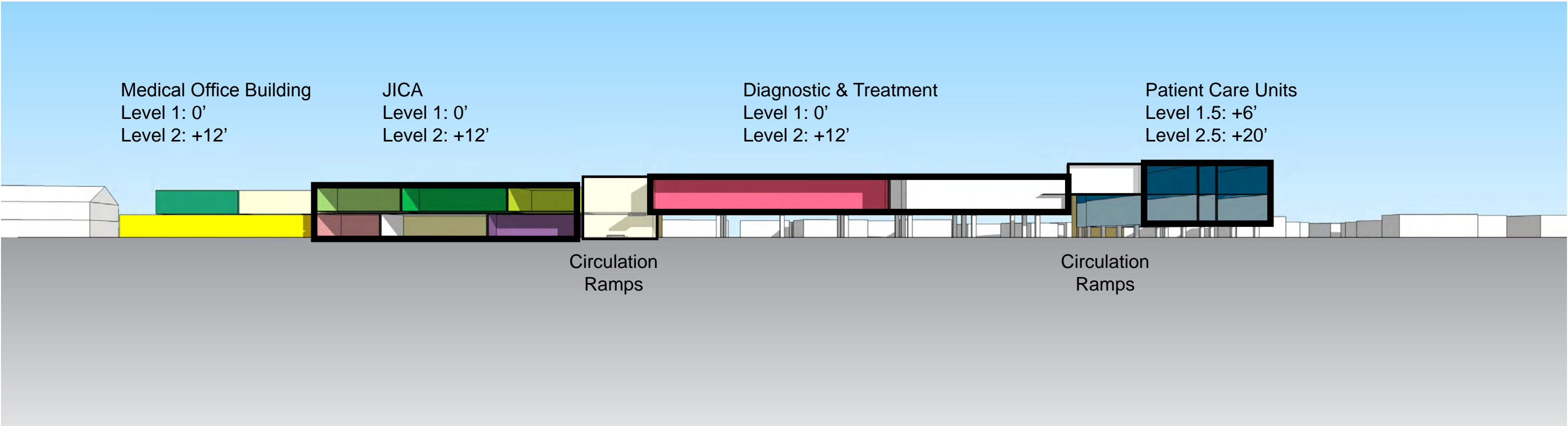
Concept A- Level 2



- 19 Fiscal Service
- 20 177 Program
- 21 OIDS
- 22 IT Department
- 23 Mental Health Clinic
- 24 Clinical Services Admin
- 25 Human Resources Mgmt
- 26 Medical Center Director's Suite
- 27 Nursing Service Admin
- 28 TB Isolation
- 29 Intensive Care Nursing Unit
- 30 Surgical Service
- 31 Radiology Service
- 32 Emergency Department and Hyperbaric
- 33 Pulmonary Medicine
- 34 Pathology and Laboratory Medicine
- 35 Supply Processing and Distribution
- 36 Medical Patient Care Unit
- 37 Pediatric Patient Care Unit
- 38 Central Utility Plant



Concept A- Section



Concept A- Phase 1



- Rehabilitation Services
- Prosthetics and Orthotic Service (Rehab)
- Wellness Center
- Fiscal Service
- 177 Program
- OIDS
- IT Department
- Mental Health Clinic
- Central Utility Plant



Concept A- Phase 2



- Medical Patient Care Unit
- Pediatric Patient Care Unit
- Surgical Patient Care Unit
- Maternity Unit



Concept A- Phase 3



- Environmental Management Service
- Housekeeping
- Laundry and Linen Operation
- Pharmacy Service
- Procurement and Supply
- Pathology and Laboratory Medicine
- Engineering Services
- Nutrition and Food Service
- TB Isolation
- Intensive Care Nursing Unit
- Surgical Service
- Radiology Service
- Emergency Department and Hyperbaric
- Pulmonary Medicine



Concept A- Phase 4



- Chaplain Service
- Health Information Management
- Vital Statistics
- Dental Service
- Public Health
- Clinical Services Admin
- Human Resources Mgmt
- Medical Center
- Director's Suite
- Nursing Service Admin

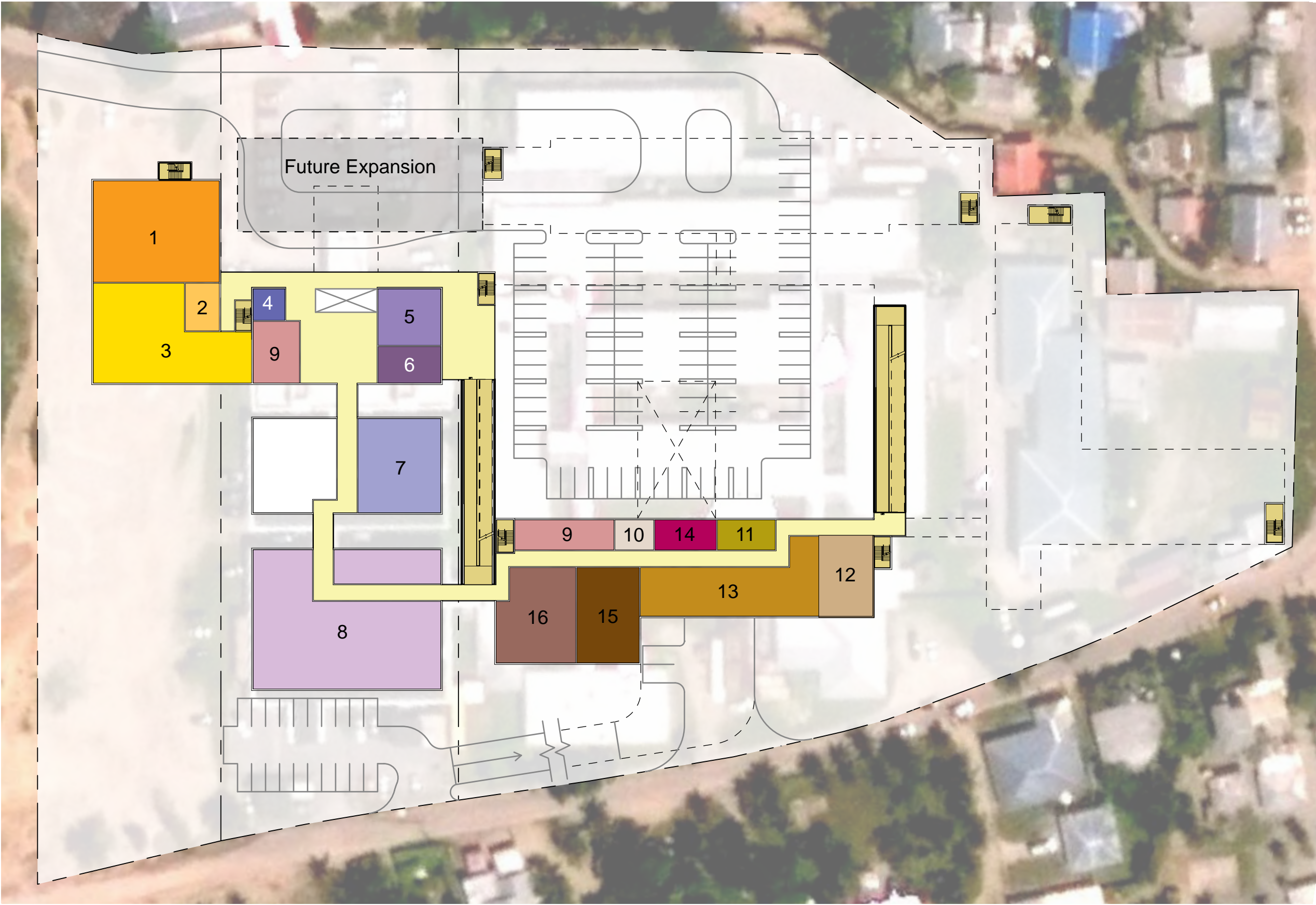




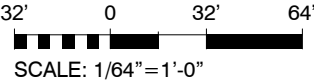
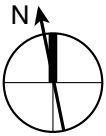
Concept B- Overall



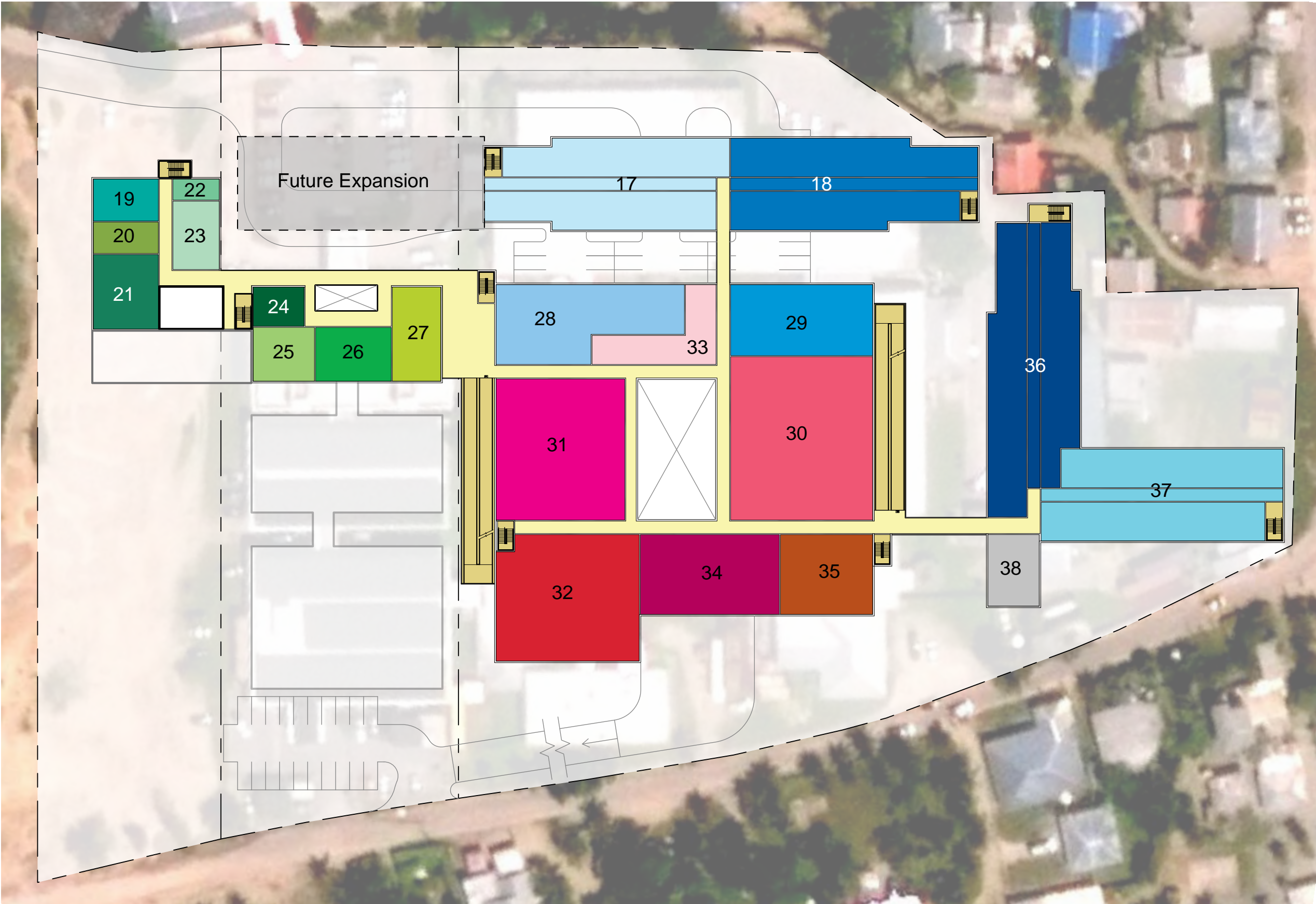
Concept B- Level 1



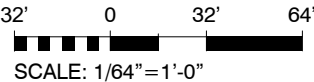
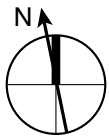
- 1 Rehabilitation Services
- 2 Prosthetics and Orthotic Service (Rehab)
- 3 Wellness Center
- 4 Chaplain Service
- 5 Health Information Management
- 6 Vital Statistics
- 7 Dental Service
- 8 Public Health
- 9 Pharmacy Service
- 10 Environmental Management Service
- 11 Housekeeping
- 12 Laundry and Linen Operation
- 13 Procurement and Supply
- 14 Pathology and Laboratory Medicine
- 15 Engineering Services
- 16 Nutrition and Food Service



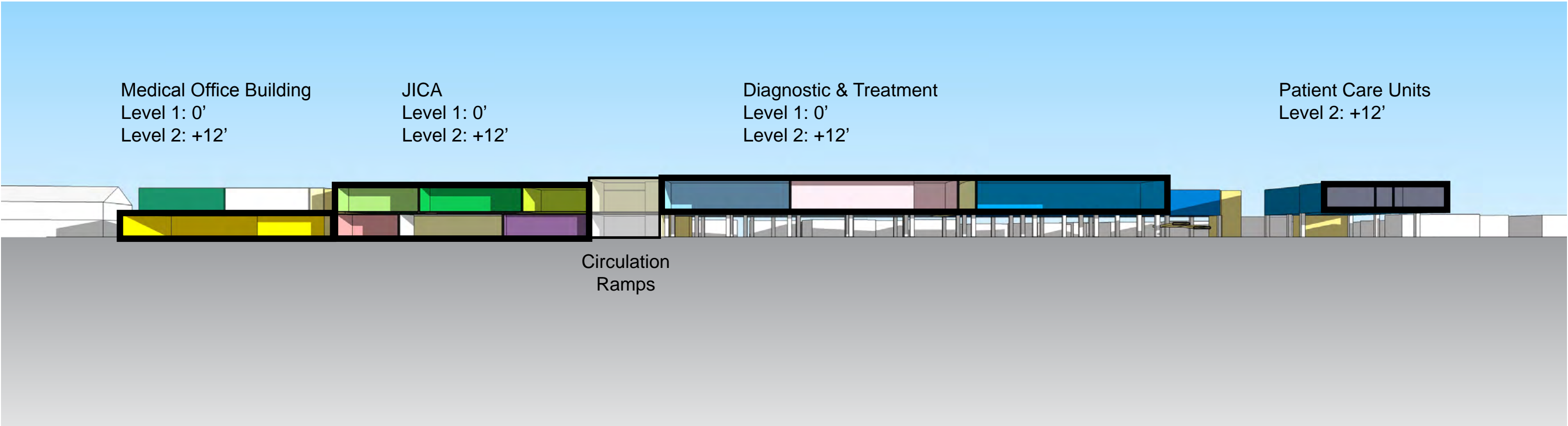
Concept B- Level 2



- 17 Maternity Unit
- 18 Surgical Patient Care Unit
- 19 Fiscal Service
- 20 OIDS
- 20 177 Program
- 21 OIDS
- 22 IT Department
- 23 Mental Health Clinic
- 24 Clinical Services Admin
- 25 Human Resources Mgmt
- 26 Medical Center Director's Suite
- 27 Nursing Service Admin
- 28 TB Isolation
- 29 Intensive Care Nursing Unit
- 30 Surgical Service
- 31 Radiology Service
- 32 Emergency Department and Hyperbaric
- 33 Pulmonary Medicine
- 34 Pathology and Laboratory Medicine
- 35 Supply Processing and Distribution
- 36 Medical Patient Care Unit
- 37 Pediatric Patient Care Unit
- 38 Central Utility Plant



Concept B- Section



Concept B- Phase 1



- Rehabilitation Services
- Prosthetics and Orthotic Service (Rehab)
- Wellness Center
- Fiscal Service
- 177 Program
- AIDS
- IT Department
- Mental Health Clinic



Concept B- Phase 2



- Maternity Unit
- Surgical Patient Care Unit
- Medical Patient Care Unit
- Pediatric Patient Care Unit
- Central Utility Plant



Concept B- Phase 3



- Pharmacy Service
- Environmental Management Service
- Housekeeping
- Laundry and Linen Operation
- Procurement and Supply
- Pathology and Laboratory Medicine
- Engineering Services
- Nutrition and Food Service
- TB Isolation
- Intensive Care Nursing Unit
- Surgical Service
- Radiology Service
- Emergency Department and Hyperbaric
- Pulmonary Medicine
- Pathology and Laboratory Medicine
- Supply Processing and Distribution



Concept B- Phase 4



- Chaplain Service
- Health Information Management
- Vital Statistics
- Dental Service
- Public Health
- Clinical Services Admin
- Human Resources Mgmt
- Medical Center Director's Suite
- Nursing Service Admin

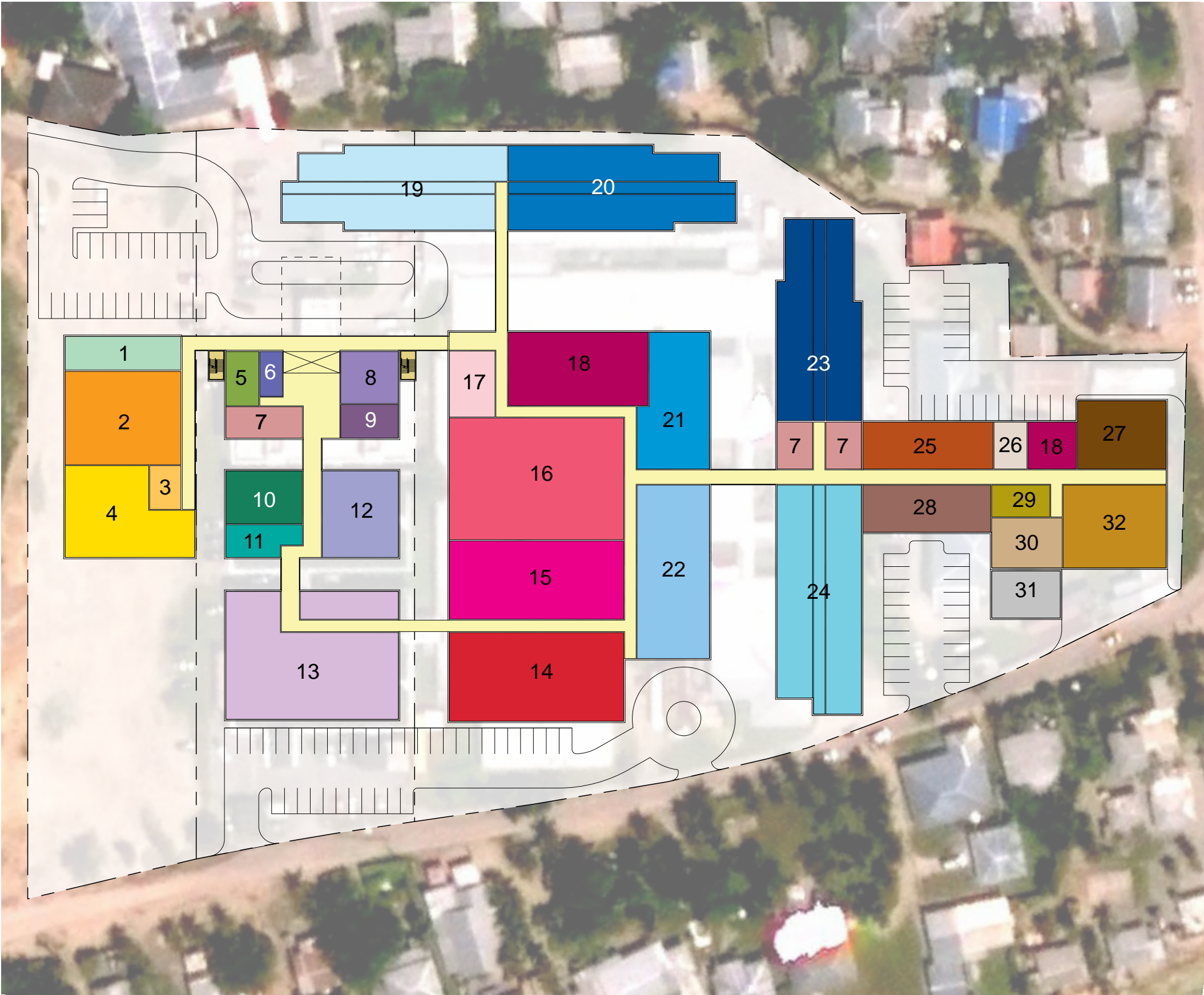




Concept C- Overall



Concept C- Level 1



- | | |
|--|---------------------------------------|
| 1 Mental Health | 23 Medical Patient Care Unit |
| 2 Rehabilitation Services | 24 Pediatric Patient Care Unit |
| 3 Prosthetics and Orthotic Service (Rehab) | 25 Supply Processing and Distribution |
| 4 Wellness Center | 26 Environmental Mgmt Service |
| 5 177 Program | 27 Engineering Services |
| 6 Chaplain Service | 28 Nutrition and Food Service |
| 7 Pharmacy Service | 29 Housekeeping |
| 8 Health Information Management | 30 Laundry and Linen Operation |
| 9 Vital Statistics | 31 Central Utility Plant |
| 10 OIDS | 32 Procurement and Supply |
| 11 Fiscal Service | |
| 12 Dental Service | |
| 13 Public Health | |
| 14 Emergency Department and Hyperbaric | |
| 15 Radiology Service | |
| 16 Surgical Service | |
| 17 Pulmonary Medicine | |
| 18 Pathology and Laboratory Medicine | |
| 19 Maternity Unit | |
| 20 Surgical Patient Care Unit | |
| 21 Intensive Care Nursing Unit | |
| 22 TB Isolation | |



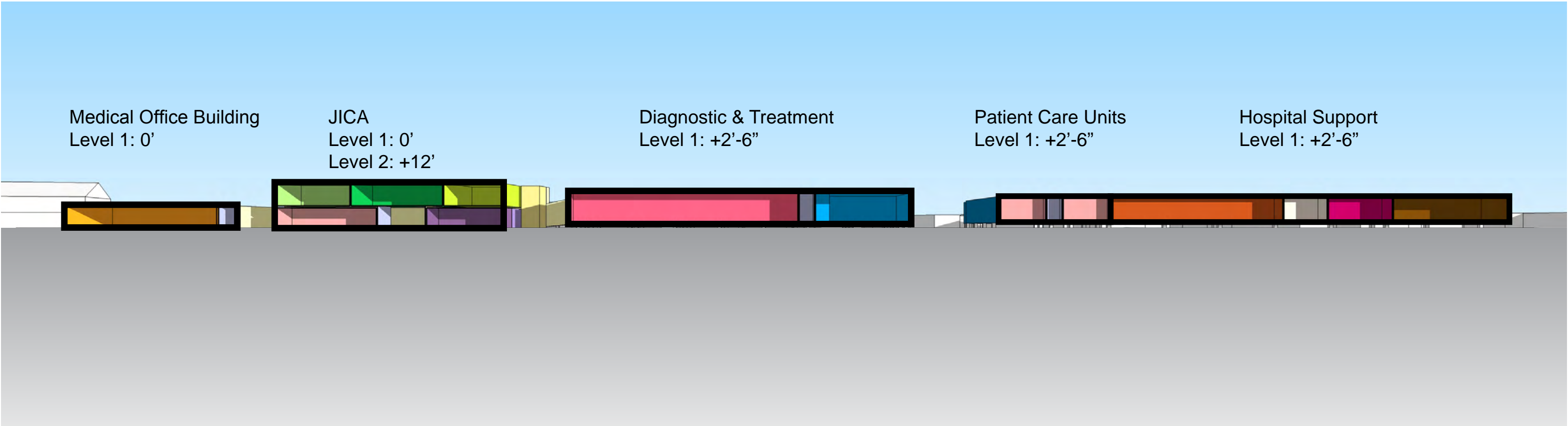
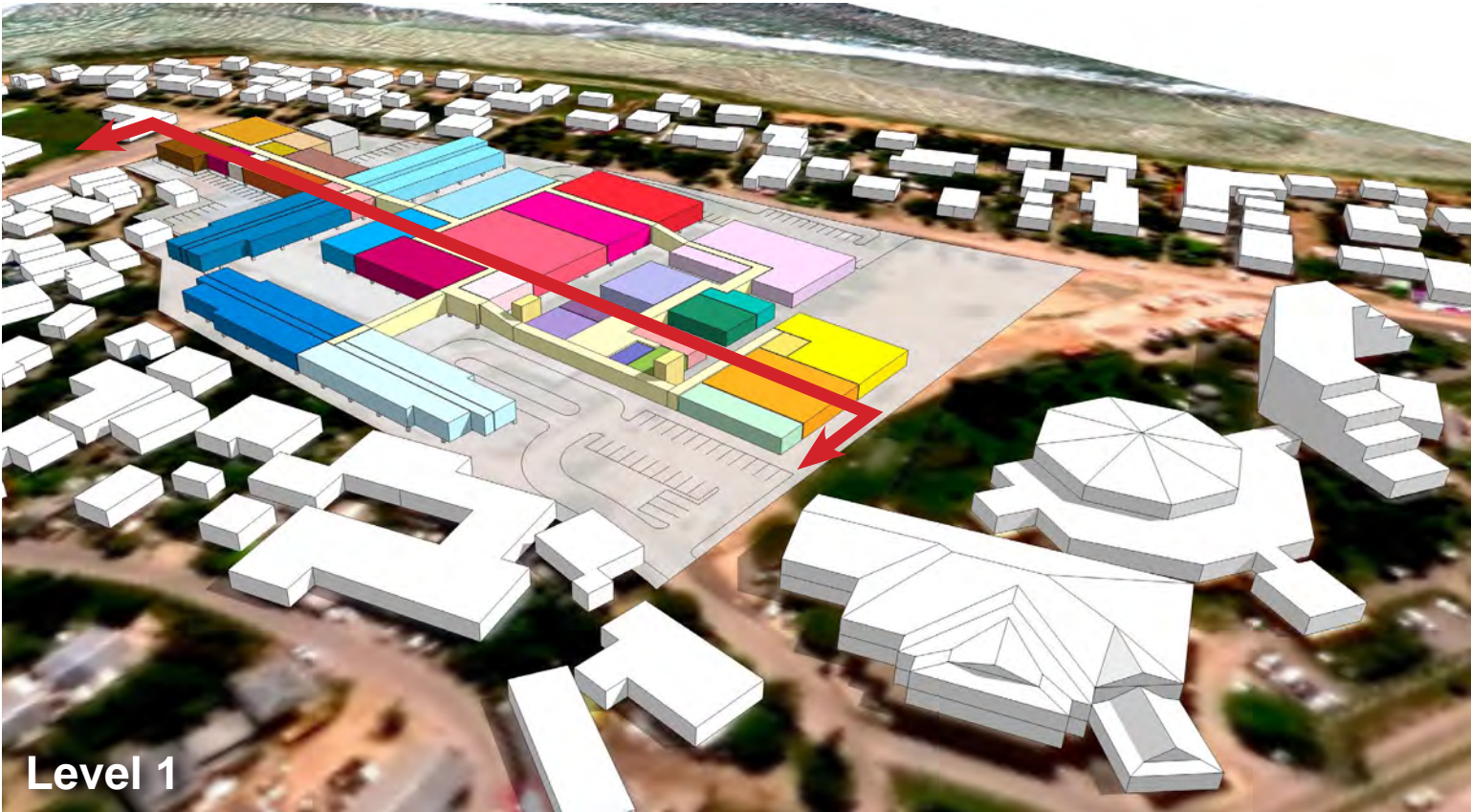
Concept C- Level 2



- 33 Clinical Services Admin
- 34 Human Resources Mgmt
- 35 Medical Center Director's Suite
- 36 Nursing Service Admin
- 37 IT Department



Concept C- Section



Concept C- Phase 1



- Rehabilitation Services
- Prosthetics and Orthotic Service (Rehab)
- Wellness Center
- Mental Health Clinic



Concept C- Phase 2



- Maternity Unit
- Surgical Patient Care Unit
- Medical Patient Care Unit
- Pediatric Patient Care Unit
- Supply Processing and Distribution
- Environmental Mgmt Service
- Engineering Services
- Nutrition and Food Service
- Housekeeping
- Laundry and Linen Operation
- Central Utility Plant
- Procurement and Supply



Concept C- Phase 3



- Emergency Department and Hyperbaric
- Radiology Service
- Surgical Service
- Pulmonary Medicine
- Pathology and Laboratory Medicine
- Intensive Care Nursing Unit
- TB Isolation



Concept C- Phase 4



- 177 Program
- Chaplain Service
- Pharmacy Service
- Health Information Management
- Vital Statistics
- IDS
- Fiscal Service
- Dental Service
- Public Health
- Clinical Services Admin
- Human Resources Mgmt
- Medical Center Director's Suite
- Nursing Service Admin
- IT Department





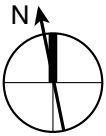
Concept D- Overall



Concept D- Level 1



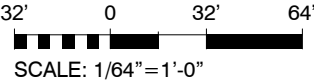
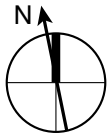
- 1 Rehabilitation Services
- 2 Prosthetics and Orthotic Service (Rehab)
- 3 Wellness Center
- 4 Chaplain Service
- 5 Health Information Management
- 6 Vital Statistics
- 7 Dental Service
- 8 Public Health
- 9 Pharmacy Service
- 10 177 Program
- 11 Environmental Management Service
- 12 Housekeeping
- 13 Laundry and Linen Operation
- 14 Procurement and Supply
- 15 Pathology and Laboratory Medicine
- 16 Engineering Services
- 17 Nutrition and Food Service
- 18 Mental Health Clinic
- 19 OIDS



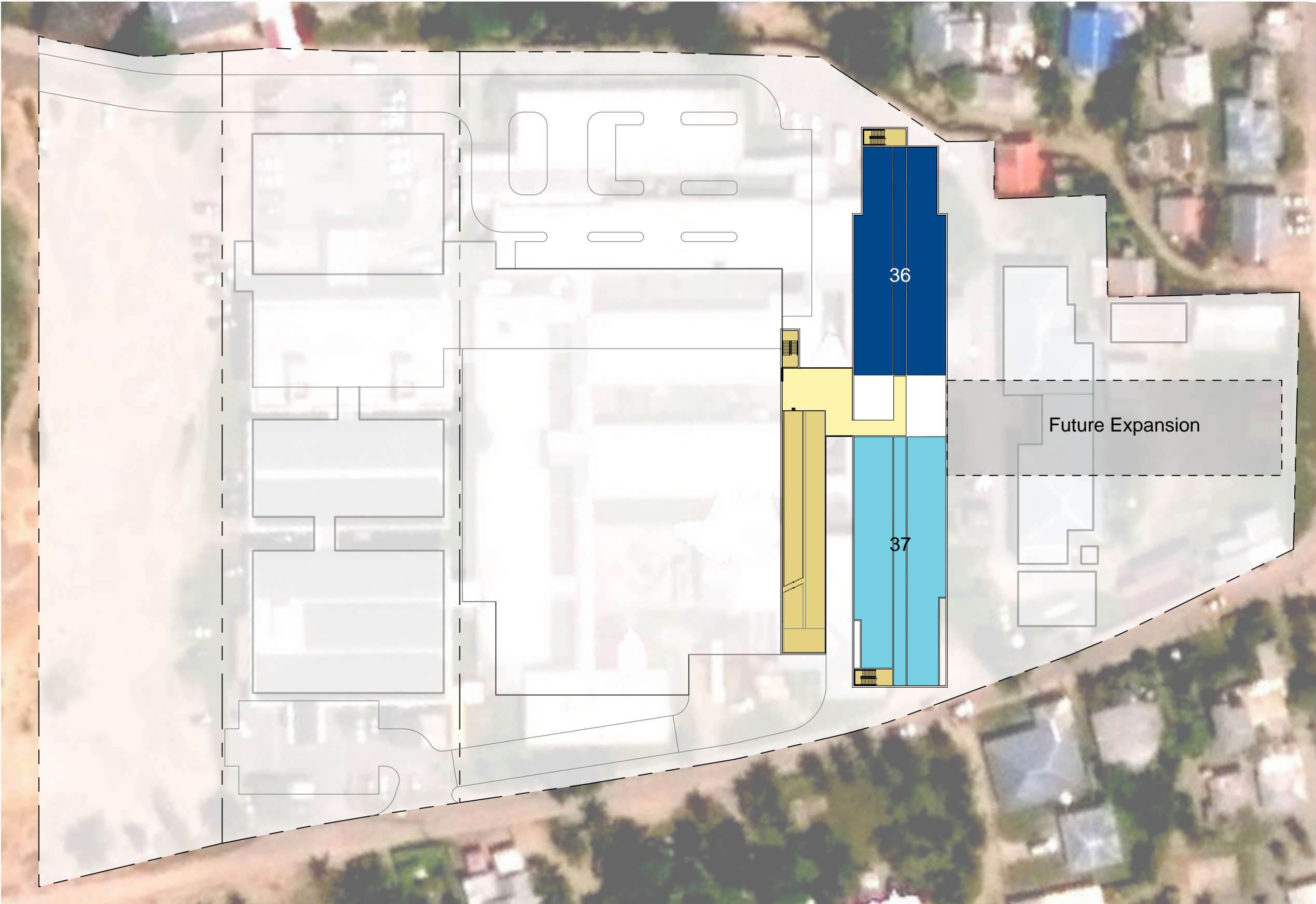
Concept D- Level 2



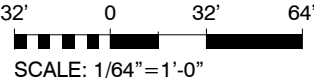
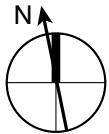
- 20 Clinical Services Admin
- 21 Human Resources Mgmt
- 22 IT Department
- 23 Medical Center Director's Suite
- 24 Nursing Service Admin
- 25 TB Isolation
- 26 Surgical Service
- 27 Radiology Service
- 28 Emergency Department and Hyperbaric
- 29 Intensive Care Nursing Unit
- 30 Supply Processing and Distribution
- 31 Pathology and Laboratory Medicine
- 32 Pulmonary Medicine
- 33 Maternity Unit
- 34 Surgical Patient Care Unit
- 35 Fiscal Services



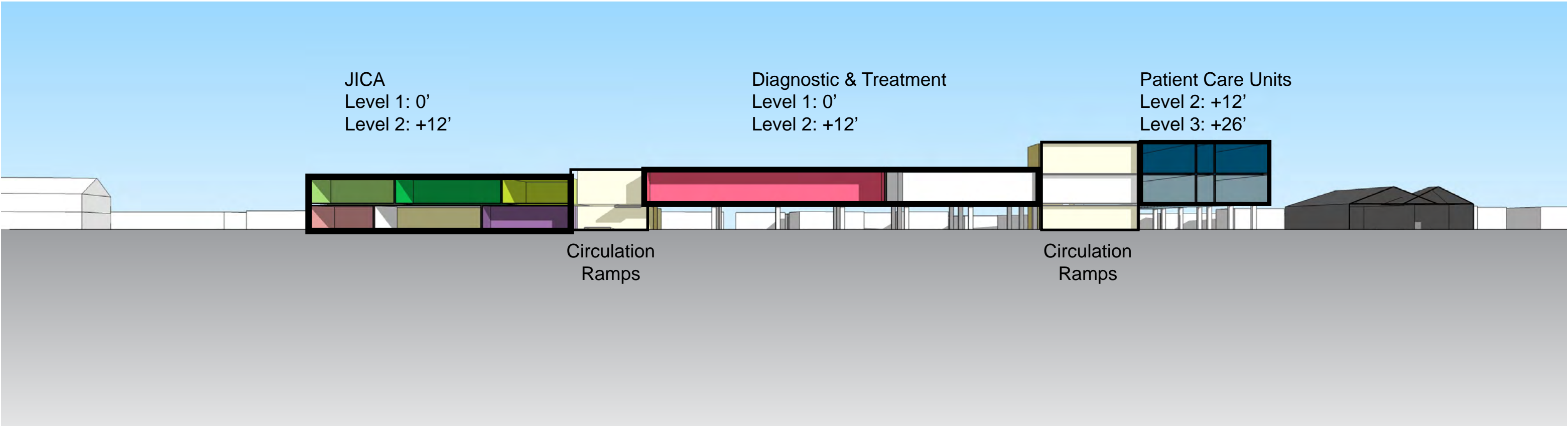
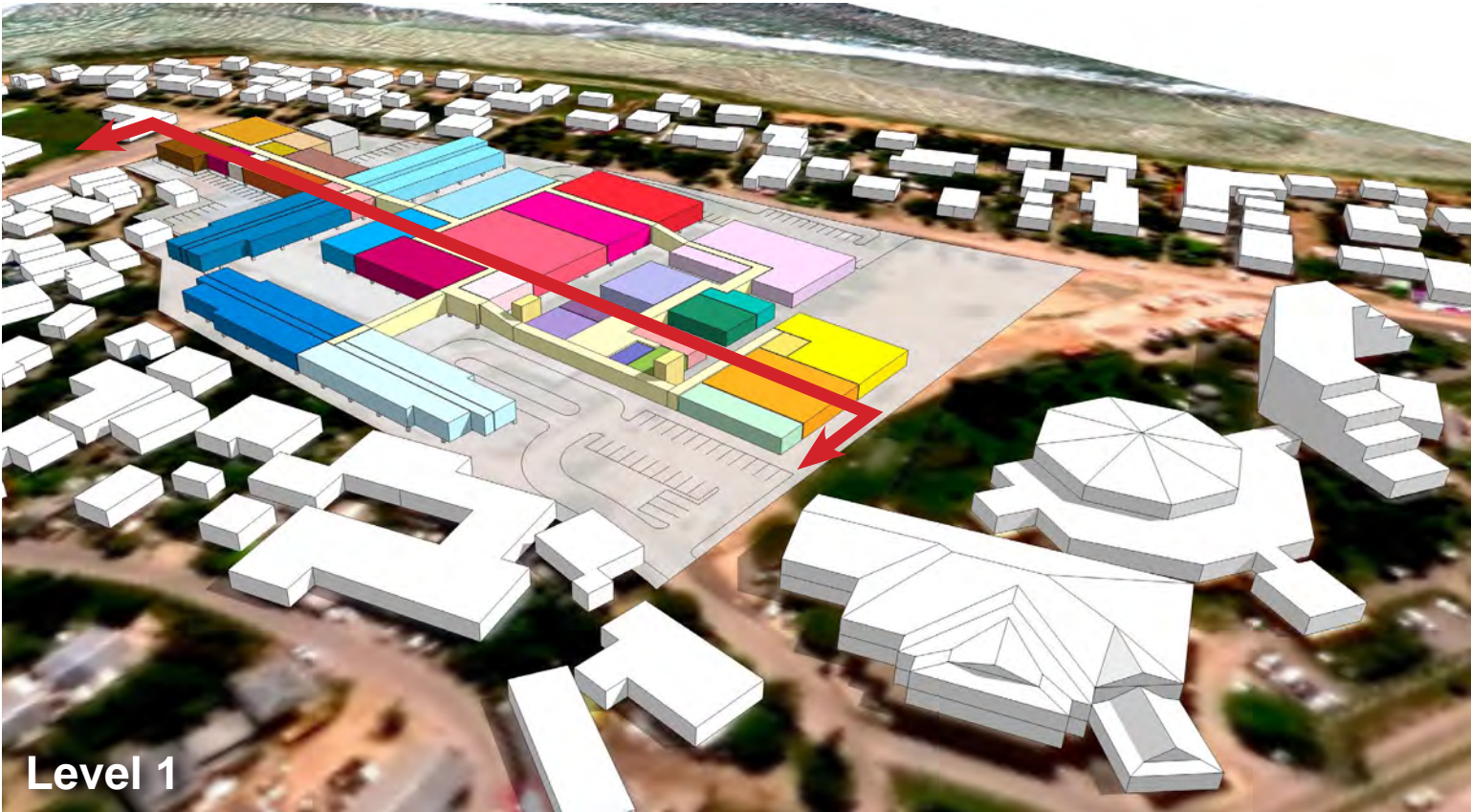
Concept D- Level 3



- 36 Medical Patient Care Unit
- 37 Pediatric Patient Care Unit



Concept D- Section



Concept D- Phase 1



- Rehabilitation Services
- Prosthetics and Orthotic Service (Rehab)
- Wellness Center
- Central Utility Plant



Concept D- Phase 2



- Maternity Unit
- Surgical Patient Care Unit
- Medical Patient Care Unit
- Pediatric Patient Care Unit



Concept D- Phase 3



- Pharmacy Service
- Environmental Management Service
- Housekeeping
- Laundry and Linen Operation
- Procurement and Supply
- Pathology and Laboratory Medicine
- Engineering Services
- Nutrition and Food Service
- TB Isolation
- Intensive Care Nursing Unit
- Surgical Service
- Radiology Service
- Emergency Department and Hyperbaric
- Pulmonary Medicine
- Pathology and Laboratory Medicine
- Supply Processing and Distribution



Concept D- Phase 4



- Chaplain Service
- Health Information Management
- Vital Statistics
- Dental Service
- Public Health
- Pharmacy Service
- 177 Program
- Clinical Services Admin
- Human Resources Mgmt
- Medical Center Director's Suite
- Nursing Service Admin
- IT Department





Concept E- Overall



Concept E- Level 1



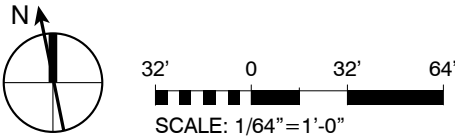
- | | |
|--|--|
| 1 Reproductive Services and Mother and Maternal Child | 21 Prosthetics and Orthotic Service (Rehab) |
| 2 Wellness Center | 22 Maternity Unit |
| 3 177 Program | 23 Surgical Patient Care Unit |
| 4 Pharmacy Service | 24 Nutrition and Food Service |
| 5 Health Information Management | 25 Supply Processing and Distribution |
| 6 Vital Statistics | 26 Environmental Mgmt Service |
| 7 OIDS | 27 Housekeeping |
| 8 Fiscal Service | 28 Laundry and Linen Operation |
| 9 Dental Service | 29 Engineering Services |
| 10 Public Health | 30 Procurement and Supply |
| 11 Mental Health | 31 Central Utility Plant |
| 12 Pulmonary Medicine | |
| 13 Surgical Service | |
| 14 Radiology Service | |
| 15 Emergency Department and Hyperbaric | |
| 16 Pathology and Laboratory Medicine | |
| 17 Short Stay Unit | |
| 18 Rehabilitation Services | |
| 19 Chaplain Service | |
| 20 TB Isolation | |



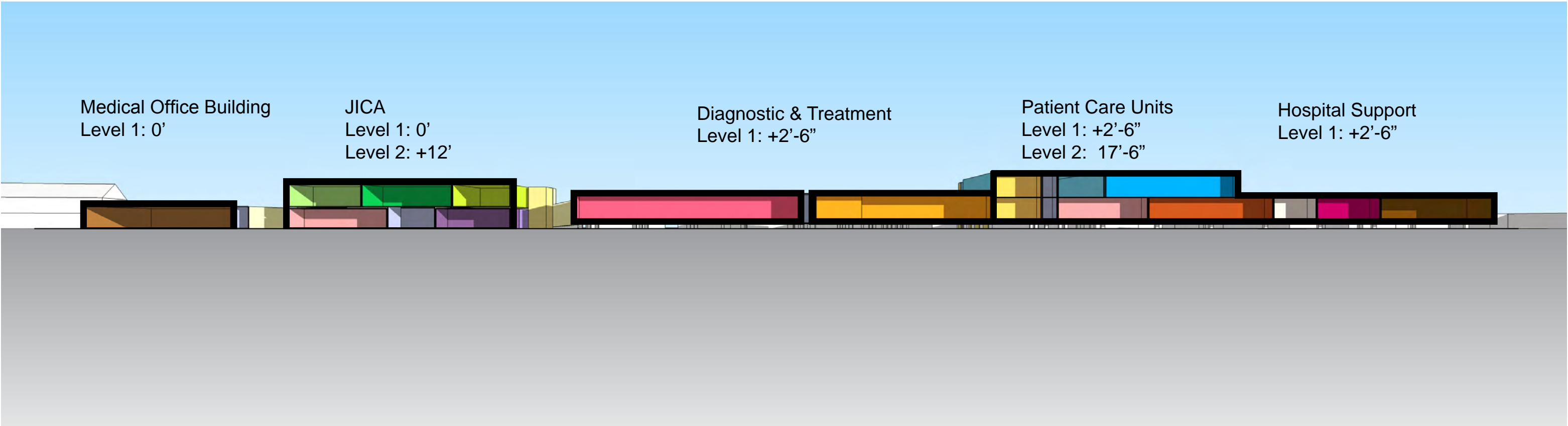
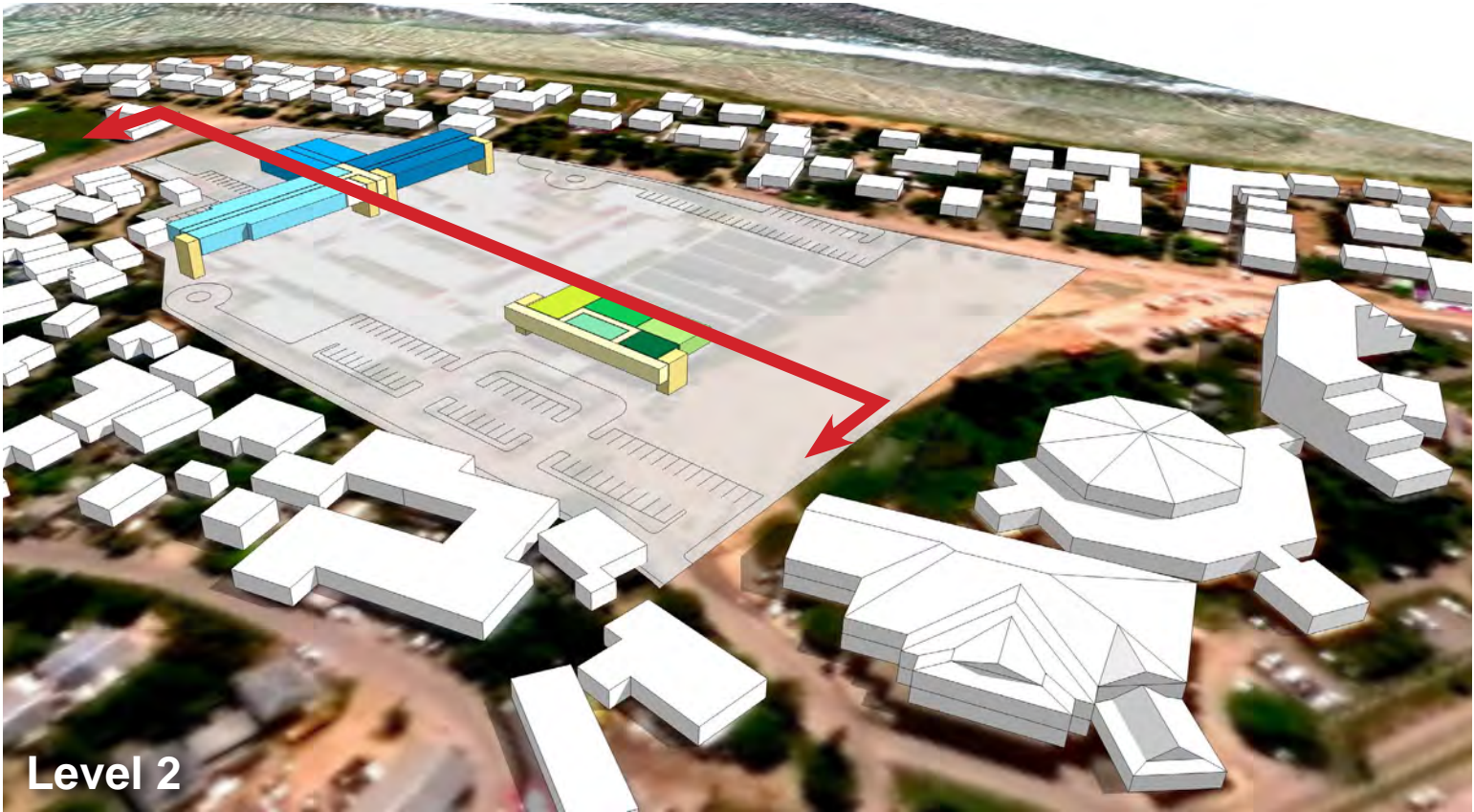
Concept E- Level 2



- 32 Clinical Services Admin
- 33 Human Resources Mgmt
- 34 Medical Center Director's Suite
- 35 Nursing Service Admin
- 36 IT Department
- 37 Intensive Care Nursing Unit
- 38 Medical Patient Care Unit
- 39 Pediatric Patient Care Unit



Concept E- Section



Concept E- Phase 1



- Reproductive Services and Mother and Maternal Child
- Wellness Center



Concept E- Phase 2



- Intensive Care Nursing Unit
- Medical Patient Care Unit
- Pediatric Patient Care Unit
- Maternity Unit
- Surgical Patient Care Unit
- Pharmacy Service
- Prosthetics and Orthotic Service (Rehab)
- Nutrition and Food Service
- Supply Processing and Distribution
- Environmental Mgmt Service
- Housekeeping
- Laundry and Linen Operation
- Engineering Services
- Procurement and Supply
- Central Utility Plant
- Pathology and Laboratory Medicine



Concept E- Phase 3



- TB Isolation
- Short Stay Unit
- Rehabilitation Services
- Surgical Service
- Radiology Service
- Emergency Department and Hyperbaric
- Pulmonary Medicine
- Pathology and Laboratory Medicine
- Chaplain Service



Concept E- Phase 4



- Health Information Management
- Vital Statistics
- Dental Service
- Public Health
- Pharmacy Service
- 177 Program
- Clinical Services Admin
- Human Resources Mgmt
- Medical Center Director's Suite
- Nursing Service Admin
- IT Department
- IDS
- Fiscal Service
- Mental Health





HOSPITAL PROGRAMMING AND CONCEPT DESIGN HIGHLIGHTS

- Planning for preventive care and wellness programs.
- Programming replacement of all current clinical functions only with no growth of new programs.
- Separating required inpatient hospital services from outpatient clinical and support services to allow for cost appropriate building construction types.
- Raising the hospital and support services to 3 feet above the current JICA building floor level to manage the risk of rising sea levels, or king tide events.
- Shifting need for 20 beds from acute care (hospital) setting to a Short-Term facility to allow for lower initial construction cost and long-term operation cost.
- Combining some services that are currently duplicated (i.e., food preparation kitchen).
- Minimizing phases of construction, to reduce initial cost, total building time, and temporary facilities.
- Concentrating 33,000 square feet (33%) additional building area on critically short services, like Surgery, Emergency, Radiology, Laboratory and Inpatient wards.

PROGRAM FOR DESIGN

- The Program for Design is a list of departments, functional areas, rooms, room quantities and room sizes needed to provide facilities for a particular service. The Program for Design is independent of site and would apply equally to renovation or new construction.
- Normally, room sizes are determined using published standards and guidelines, such as the Guidelines for Design and Construction of Health Care Facilities by The Facilities Guidelines Institute. Room quantities are usually determined by historical and projected future patient volumes.
- The Program for Design is primarily used to determine if a proposed location has sufficient space available to accommodate facilities. It also helps us to compare the current areas occupied by each department and compare them to the projected requirement for the replacement hospital.
- It is constantly evolving during this early stage and compared with the proposed budget for the project to start to identify how much existing floor area could be reused and how much new construction is being recommended.

CONCEPT DESIGN

- The conceptual design graphically depicts application of the Program for Design to a particular space or location. Four options were developed to give the Hospital stakeholder choices with pros and cons about each option.
- From this design exercise and presentations the design team is able to finalize this process with a preferred Concept E that evolved from the presented Concept C (which was preferred by all stakeholders).
- Concept E is then the recommended Concept Design to move to the next stage of design for the project.

CIVIL AND LANDSCAPING

- Rainwater harvesting captured from building roofs.
- Rainwater to be routed off hospital site and interfaced with existing Majuro Water Sewer Company (MWSC) forced main system for storage at Majuro reservoir site.
- Hospital to interface with both MWSC potable water and saltwater distribution systems. Saltwater supply to be used for water closets and urinals to conserve fresh water resources.
- Asphaltic concrete pavements to be utilized for driveways, parking areas and loading docks to route vehicular traffic on the hospital site.
- Storm water drainage to rely upon sheet flow to remove water from the hospital site.
- New buildings are to be elevated to minimize adverse impacts from storm surges, king tides, and ponding/flooding from heavy rains.
- Imported aggregates and sand anticipated for quality control, to minimize environmental impacts, and to ensure low electrolyte content for the long-term maintainability of concrete structures.
 - Only new sod will be included in the project. No other landscaping by the construction contractor will be included. Landscaping budget for the RMI First Lady's non-profit group can be set aside for beautification of the hospital campus if authorized by the RMI Cabinet.

ARCHITECTURAL AND INTERIOR DESIGN

Exterior Enclosure

- Exterior wall construction options will be evaluated during the schematic design phase. Options for concrete masonry, exterior insulation finish system (EIFS), and aluminum or fiberglass siding will all be evaluated.
- Vertical glass design accent elements will be enclosed with anodized aluminum storefront system with 1" high performance insulating glass.
- The roof will consist of polyisocyanurate insulation with single-ply TPO membrane. Parapet copings and exposed sheet metal work shall be pre-finished Kynar 500 aluminum.
- Exterior doors will be anodized aluminum, medium-stile with 1" insulating glass. Aluminum doors will be single hung with pivots.
- Exterior windows will be anodized aluminum storefront with 1" insulating glass and will be thermally broken and fixed design. All exterior glazing will be tinted with a low-E coating. Exterior door hardware shall be stainless steel or aluminum finish and will be ADA compliant. Components will include exit devices, closers, weather-stripping and thresholds. Hinges will have non-removable pins.
- Use of any ferrous metal products on the exterior will not be allowed.



Interior Construction

- Interior partitions will typically consist of 5/8" gypsum board on both sides of 3-5/8" metal studs at 16" on center, full height to the bottom of the structure. Sound insulation will be installed in partitions where the function of the enclosed spaces requires a degree of privacy. 2-hour shaft wall construction will be provided at all vertical shafts, including stairs, elevators and mechanical shafts.
- Door and window frames will be 16 gauge, hollow metal. Interior doors will be solid core wood with wood veneer of premium grade. Interior door hardware will be satin chromium finish and will be ADA compliant. Components shall include mortise locksets, exit devices, closers, trim and smoke or sound gasketing. Swing clear hinges and stainless steel door edge protection shall be used at doors to OR's, procedure rooms and patient rooms.
- Interior paint shall all be cleanable, low VOC, with anti-microbial additive. Ceilings will be typically 2'x2' acoustical panels and standard 15/16" grid. Ceilings in special areas will be specified during the design development phase of the project.
- Exterior window sills will be a solid surface material.

Specialties

- Multipurpose dry chemical fire extinguishers in recessed stainless steel cabinets will be provided. All toilets, sinks, and shower areas will be provided with appropriate accessories including paper towel dispensers, soap dispensers, waste receptacles, toilet paper holders, grab bars, framed mirrors, coat hooks, and shower seats. Toilet partitions located in public toilets shall be ceiling-hung, stainless steel units.
- Ceiling mounted cubicle curtain tracks and curtains will be provided at LDRP and Patient rooms, and nursery. Corner guards will be provided throughout and handrail/crashrails in all inpatient corridors.

Equipment

- There will be many different types of equipment in this project, including audio-visual, food service and medical. Each piece of equipment will be identified as Contractor Furnished-Contractor Installed (CFCI), Owner Furnished-Contractor Installed (OFCI) or Owner Furnished-Owner Installed (OFOI). The equipment listed will require connection to building power, water, drains and/or medical gas systems. Movable equipment such as stretchers, wheelchairs, and movable carts and furniture items such as tables, chairs, treatment chairs, and storage shelving are not included in the construction cost.
- A thorough inventory of existing equipment and furniture shall be conducted during the schematic design phase to determine equipment that can be salvaged and reused in the finished project.

Vertical Transportation

- Consideration was given to utilize enclosed ramps in lieu of elevators to access the proposed second story of inpatient rooms. The design team expressed concern about power quality and ongoing maintenance of this equipment as history of other elevator use on Majuro has not been good. The RMI Cabinet said high quality elevators must be specified and provided, unlike the ones used at the RMI Capitol building. If that was the condition then the RMI Cabinet definitely prefers the use of elevators over ramps.
- The elevators will consist of two 5,000 pound capacity, 200 FPM, machine room-less elevators, with no buried hydraulic cylinders. The total travel distance is 15-16 feet and there are two openings per elevator. The hallway entrances shall be stainless steel doors and frames with ADA compliant controls and lanterns. The elevator will be part of the accessible means of egress and therefore emergency operation and signaling devices shall comply with Section 2.27 of ASTM A17.1. Standby power shall be provided in accordance with Sections 2702 and 3003. The cabs will consist of stainless steel control panels and doors, plastic laminate side and back panels with stainless steel trim, stainless steel handrails. The elevators will be controlled by a group automatic operating system. Both elevators will be connected to the emergency generator system.

STRUCTURAL DESIGN

- The First Floor of the proposed additions, is intended to be structurally supported (with a crawl space), and be designed as noted in next paragraph.
- The supported levels of the new structure will utilize the more economical of two structural system choices. The basic choices involve reinforced concrete slabs, beams, girders and columns, or reinforced concrete flat slabs and beams and columns. A few typical bay designs, measuring approximately 30' x 30', will be assessed to determine the most economical of the systems. The selected system will then be used as the typical floor framing system throughout the facility.
- The floor structures supporting unique functional areas such as storage rooms or procedure rooms with heavy equipment will also require structures that supply greater strength or stiffness than is required by the typical floor areas.
- The floor structures are required to have a fire resistance rating of 2 hours.
 - The roof structures, over the occupied spaces, are required to support loads that are expected to be lower than those of the typical floor structures. To maximize overall project economy, it is anticipated that the roof structural system material (concrete) will be the same as that used in the floor framing. The roof structure and roofing material will be designed to accommodate roof-top photo-voltaic (PV) equipment.
 - Lateral loads (those imposed by wind, and earthquake) applied to each portion of the proposed structure are anticipated to be resisted by moment resisting frames or braced frames located throughout the building. The use of moment resisting frames will maximize the usable floor space on each level and allow the maximum level of flexibility to accommodate functional changes in the future. The use of braced frames will allow the greatest economy in member selection and connection design.



HEATING, VENTILATION, AND AIR CONDITIONING

- Split air conditioning systems to be used for cooling interior spaces. Such systems are the most common in RMI and can be reliably maintained. Centralized air conditioning systems are relatively rare and historically have not been reliably maintained.
- Limited LPG use anticipated for cooking and water heating. Portable LPG tanks to be manifold together for distribution to gas appliances under the main kitchen cooking hood, to water heaters supplying showers in bed wings, and to water heaters for laundry equipment.

PLUMBING

- Saltwater supply to be used for water closets and urinals to conserve fresh water resources.
- Complete medical gases shall be provided to all required hospital patient areas, piped from a central supply tank room near the loading dock.

FIRE PROTECTION

- Existing fire hydrant on abutting public roads are not reliable in terms of pressure and flow rates for firefighting purposes on the hospital campus.
- A water storage tank will be constructed to serve as the source of firefighting water used by the fire sprinkler systems within the new buildings.
- A fire and jockey pump will be used to pressurize the fire sprinkler systems.
- A complete fire sprinkler system will be provided in all building areas.
- A fire alarm system will be provided for all the new facilities.
- The fire alarm system will include visual signaling for hearing impaired, automatic detection for compartmentalizing areas to allow for defending immobile inpatients in place and protecting high value equipment.

ELECTRICAL SYSTEMS

- Two Marshalls Energy Company (MEC) primary (13.8 kV) circuits to be tapped to supply power to the hospital in conformance with code.
- MEC underground Feeder 3 is the preferred feeder for energizing the hospital as it has been limited from supplying other customers between the utility power plant and the hospital site and has an existing maximum demand load of approximately 1.0 MW.
- MEC overhead Feeder 1 is the alternate feeder, but it supplies customers from the utility power plant all the way out to Rita.

- Pad-mounted primary switch to be used to switch between the preferred and alternative feeders, as well as to energize the two service transformers supplying the hospital.
- Two service transformers will be used to energize all the new hospital campus facilities. Each steps down the utility 13.8 kV primary power to 480/277 volts, 3 phase, 4 wire. The 480/277 volt system minimizes construction costs by reducing circuit sizes, permits energization around the hospital campus without adverse voltage drop effects, and saves energy via lower system losses in a medical facilities campus setting.
- Two emergency generators will be used to energize the medical facilities during a utility power outage. Two units are recommended for redundancy to ensure uninterrupted medical care within the hospital proper, to allow outlying non-hospital medical functions to become energized when spare generator capacity is available, and to permit a little more than the code mandated hospital loads to be supported during a long-term utility outage or disaster event.
- Centralized uninterruptible power supplies (UPS) will be used to support sensitive medical equipment and data servers where required.
- Lightning protection system requirements will be assessed during the design phase with input from the hospital and RMI government relating to its associated risk assessment.
- Lighting systems to utilize energy saving technologies like higher efficiency LED and fluorescent sources for interiors and LED for exteriors.

TELEPHONE / DATA / ELECTRONICS

- A new centralized EPBAX will be used to interconnect all telephones used throughout the campus.
- Paging of medical staff will be via speakers on telephone instruments and strategically placed speakers where required.
- Both hard-wired and wireless internet connectivity will be utilized throughout the project site. Both fiber optic and CAT 6 copper wiring will be used.
- Provisions for patient care cable TV connectivity will not be provided.
- Intrusion detection systems for sensitive areas such as the pharmacy, controlled substance storage, and high value storage will be provided.
- Cable TV service will be very restricted. Currently, only the 177 Program is authorized to subscribe to Cable TV service.





Existing Beds by Building

Building	Beds	Private	Semi-Private	Three Bed	Four Bed	Seven Bed	Ten Bed	Psych/Iso	Occupants
A	6	6							Wellness, (6) TB
B	0								Warehouse
C	26	4	3		4				No plan available. 24 are medical beds, 1 semi-private is ICU
D	37	3		3	2	1	1		(15) Patient Beds (post partum), (22) Pediatric Beds, Nursery
E	6	2			1				Surgery, Obstetrics
F	0								Engineering, Laundry, Lockers?
G	28	4	3		4			2	Hemodialysis?, Physical Therapy, Prosthetics, (26) Surgical Beds, (2) Surgical Isolation
H	0								Kitchen
J	0								Morgue, Hyperbaric, Incinerator, Generator
JICA1	0								Medical Administration, Pharmacy, Dental
JICA2	0								Ophthalmology, Public Health
JICA3	0								Laboratory, Radiology, Emergency, Reproductive Health
OIDS	0								Medical Administration, OIDS
177	0								177 Health Plan
Total Beds:	103	19	6	3	11	1	1	2	



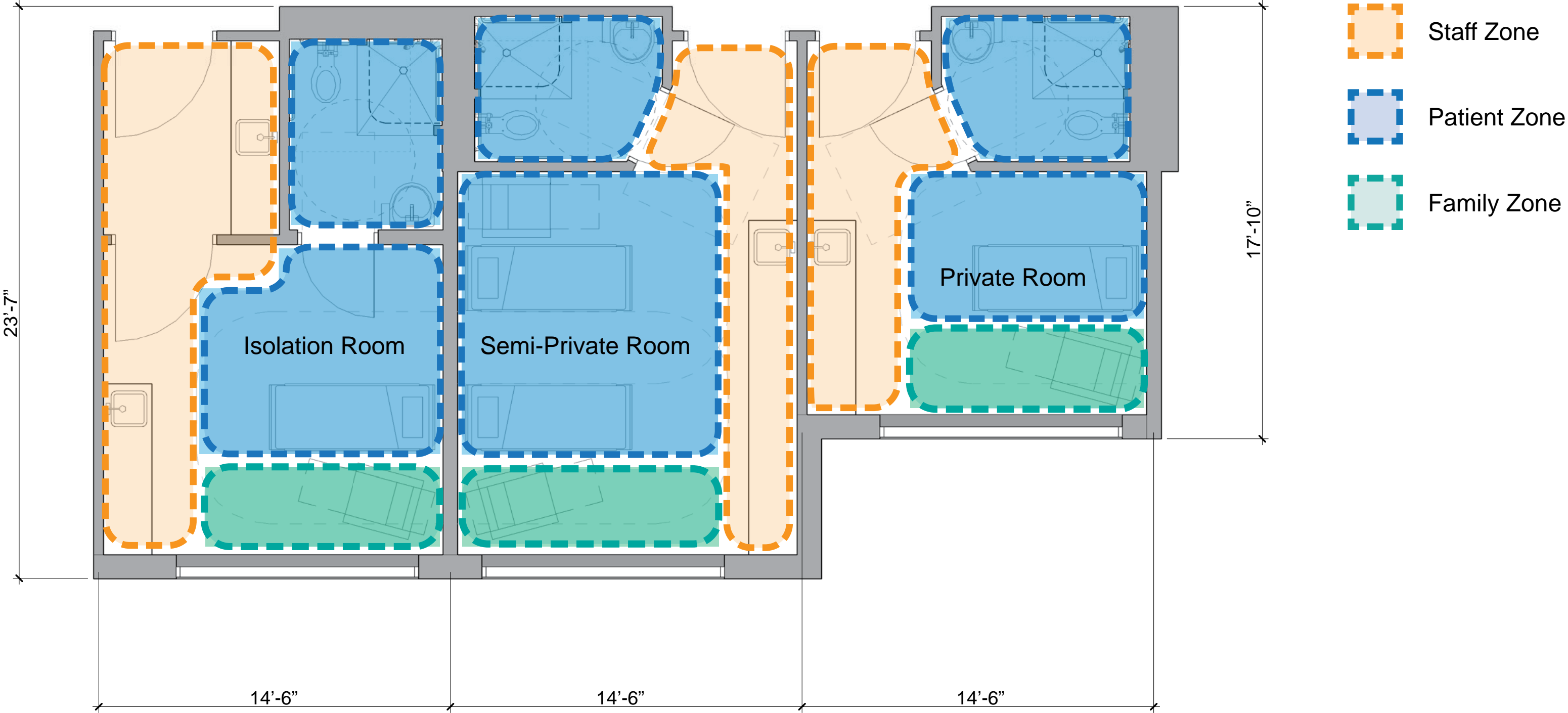
Proposed Bed Count (150,000 SF Option)- Minimal Area:

		Beds:	Rooms:	Patient Room Area:	Patient Toilet Area:	Ante-Room	Sub Total:	Total:
Medicine:	Private	4	4	135	55		190	760
	Semi Private	12	6	215	55		270	1,620
	Isolation	2	2	135	55	55	245	490
Surgery:	Private	3	3	135	55		190	570
	Semi Private	10	5	215	55		270	1,350
	Isolation	3	3	135	55	55	245	735
ICU:	Private	3	3	215	55		270	810
	Isolation	1	1	215	55	55	325	325
Pediatrics:	Private	0	0	0	0		0	0
	Semi Private	20	10	215	55		270	2,700
	Isolation	4	4	135	55	55	245	980
	PICU Semi-Private	2	1	215	55		270	270
OB/Maternity	Private (LDR)	4	4	215	55		270	1,080
	Private Post Partum	4	4	135	55		190	760
	Semi Private Post Partum	8	4	215	55		270	1,080
Tuberculosis:	Isolation	8	8	135	55	55	245	1,960
Psych:	in Emergency - Private	2	2	135	55		190	380
Short Stay:	Private	4	4	135	55		190	760
	Semi Private	16	8	215	55		270	2,160
Totals:		110	76					18,790

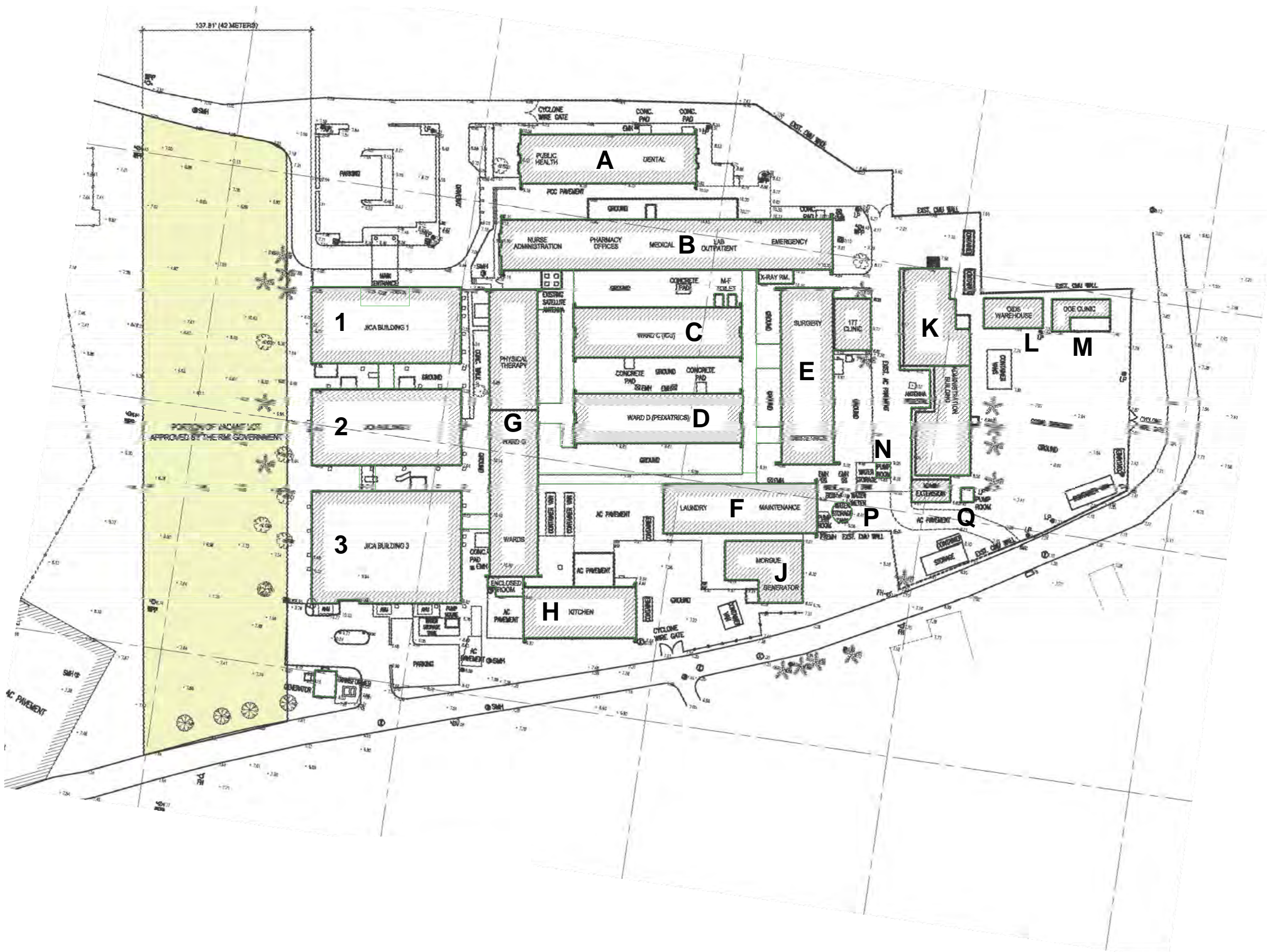
DNSF	DGSF	BGSF
2,870	4305	5166
2,655	3982.5	4779
1,135	1702.5	2043
3,950	5925	7110
2,920	4380	5256
1,960	2940	3528
380	570	684
2,920	4380	5256
	28,185	33,822



Patient Room Types



Existing Buildings- Gross Areas



Building Areas

	SF	SM
1	14,701	1,366
2	8,274	769
3	11,214	1,042
A	5,806	539
B	11,649	1,082
C	6,812	633
D	6,662	619
E	9,142	849
F	6,689	621
G	12,230	1,136
H	3,899	362
J	2,699	251
K	12,254	1,138
L	1,214	113
M	898	83
N	152	14
P	230	21
Q	121	11
Total:	114,646	10,651



Program for Design- Gain/Loss Summary

Project Number: 081-10071-001

Chapter ID: Department:

		Existing Gross Bldg Area:	Proposed Gross Bldg Area:	Gross Gain/Loss:	Percent Gross Gain/Loss:	Notes:
100	MED. SURG. & PED. PATIENT CARE UNITS	18,883 Sq. Ft.	25,142 Sq. Ft.	6,259 Sq. Ft.	33.15%	
102	INTENSIVE CARE NURSING UNITS	2,591 Sq. Ft.	4,470 Sq. Ft.	1,879 Sq. Ft.	72.52%	
104	TB ISOLATION CARE UNIT	1,891 Sq. Ft.	4,985 Sq. Ft.	3,094 Sq. Ft.	163.62%	Uncertain of current size.
106	SHORT STAY CARE UNIT	Sq. Ft.	10,368 Sq. Ft.	10,368 Sq. Ft.	100.00%	
110	MATERNITY UNIT	3,400 Sq. Ft.	9,205 Sq. Ft.	5,805 Sq. Ft.	170.74%	
206	WELLNESS CENTER	3,914 Sq. Ft.	4,851 Sq. Ft.	937 Sq. Ft.	23.94%	
208	CHAPLAIN SERVICE	Sq. Ft.	477 Sq. Ft.	477 Sq. Ft.	100.00%	Uncertain of current location.
212	PULMONARY MEDICINE (PM)	850 Sq. Ft.	1,629 Sq. Ft.	779 Sq. Ft.	91.65%	Uncertain of current location.
214	CLINICAL SERVICES ADMINISTRATION	850 Sq. Ft.	1,071 Sq. Ft.	221 Sq. Ft.	26.00%	Uncertain of current location.
218	177 PROGRAM	1,375 Sq. Ft.	1,085 Sq. Ft.	-290 Sq. Ft.	-21.09%	
222	DENTAL SERVICE	2,126 Sq. Ft.	3,991 Sq. Ft.	1,865 Sq. Ft.	87.72%	
224	NUTRITION AND FOOD SERVICE (COMB W/WELLNESS)	3,650 Sq. Ft.	3,184 Sq. Ft.	-466 Sq. Ft.	-12.77%	
230	ENGINEERING SERVICE	2,913 Sq. Ft.	3,143 Sq. Ft.	230 Sq. Ft.	7.90%	
234	FISCAL SERVICE	1,500 Sq. Ft.	1,360 Sq. Ft.	-140 Sq. Ft.	-9.33%	Uncertain of current location.
238	MEDICAL CENTER DIRECTOR'S SUITE	2,119 Sq. Ft.	1,768 Sq. Ft.	-351 Sq. Ft.	-16.56%	"Hospital Administration" in JICA
240	PATHOLOGY AND LABORATORY MEDICINE SERVICE	3,053 Sq. Ft.	6,614 Sq. Ft.	3,561 Sq. Ft.	116.65%	Including Morgue
244	LOBBY	500 Sq. Ft.	878 Sq. Ft.	378 Sq. Ft.	75.60%	
246	HEALTH INFORMATION MANAGEMENT	1,300 Sq. Ft.	1,687 Sq. Ft.	387 Sq. Ft.	29.77%	Medical Records
254	NURSING SERVICE ADMINISTRATION	2,500 Sq. Ft.	2,128 Sq. Ft.	-372 Sq. Ft.	-14.88%	
260	MENTAL HEALTH CLINIC	1,500 Sq. Ft.	1,886 Sq. Ft.	386 Sq. Ft.	25.73%	Uncertain of current size.
262	EMERGENCY DEPARTMENT & HYPERBARIC UNIT	2,406 Sq. Ft.	8,249 Sq. Ft.	5,843 Sq. Ft.	242.85%	
266	HUMAN RESOURCES MANAGEMENT	1,400 Sq. Ft.	1,498 Sq. Ft.	98 Sq. Ft.	7.00%	Uncertain of current location.
268	PHARMACY SERVICE	1,724 Sq. Ft.	2,699 Sq. Ft.	975 Sq. Ft.	56.55%	
270	REHABILITATION SERVICES	3,912 Sq. Ft.	5,915 Sq. Ft.	2,003 Sq. Ft.	51.20%	
276	RADIOLOGY SERVICE	2,357 Sq. Ft.	7,384 Sq. Ft.	5,027 Sq. Ft.	213.28%	
285	SUPPLY PROCESSING AND DISTRIBUTION	850 Sq. Ft.	2,645 Sq. Ft.	1,795 Sq. Ft.	211.18%	Included in Surgical Service?
286	SURGICAL SERVICE	3,769 Sq. Ft.	11,095 Sq. Ft.	7,326 Sq. Ft.	194.39%	
291	PROCUREMENT & SUPPLY	3,046 Sq. Ft.	4,425 Sq. Ft.	1,379 Sq. Ft.	45.27%	
308	PROSTHETIC AND ORTHOTIC SERVICE (REHAB)	Sq. Ft.	791 Sq. Ft.	791 Sq. Ft.	100.00%	Included in Rehab Services
406	HOUSEKEEPING	500 Sq. Ft.	873 Sq. Ft.	373 Sq. Ft.	74.60%	Uncertain of current location.
408	LAUNDRY AND LINEN OPERATION	1,974 Sq. Ft.	1,991 Sq. Ft.	17 Sq. Ft.	0.86%	
410	ENVIRONMENTAL MANAGEMENT SERV	500 Sq. Ft.	559 Sq. Ft.	59 Sq. Ft.	11.80%	Uncertain of current location.



Program for Design- Gain/Loss Summary

Project Number: 081-10071-001

Chapter ID: Department:

		Existing Gross Bldg Area:	Proposed Gross Bldg Area:	Gross Gain/Loss:	Percent Gross Gain/Loss:	Notes:
503	IT DEPARTMENT	300 Sq. Ft.	625 Sq. Ft.	325 Sq. Ft.	108.33%	Uncertain of current location.
504	VITAL STATISTICS	750 Sq. Ft.	1,071 Sq. Ft.	321 Sq. Ft.	42.80%	Uncertain of current location.
505	PUBLIC HEALTH	11,594 Sq. Ft.	11,134 Sq. Ft.	-460 Sq. Ft.	-3.96%	Including Reproductive Health and Health Promotion & Human Services in JICA
506	OIDS	2,200 Sq. Ft.	2,480 Sq. Ft.	280 Sq. Ft.	12.73%	May include other clinics on first floor of Admin Building
	EXISTING SPACE UNKNOWN OCCUPANCY	5,051 Sq. Ft.	0 Sq. Ft.	-5,051 Sq. Ft.	-100.00%	
	EXISTING SPACE CIRCULATION	16,898 Sq. Ft.	0 Sq. Ft.	-16,898 Sq. Ft.	-100.00%	Including JICA internal.
	TOTAL BUILDING AREA	114,646 Sq. Ft.	153,357 Sq. Ft.	38,711 Sq. Ft.	33.77%	

Hospital 83,307 Sq. Ft.
MOB or Support Services 70,050 Sq. Ft.



Program for Design

Chapter ID: Department:		Net Dept Area:		Net/Gross Dept Factor:	Gross Dept Area:		Net/Gross Bldg Factor:	Gross Bldg Area:	
100	MED. SURG. & PED. PATIENT CARE UNI	13,517	Sq. Ft.	1.5	20,276	Sq. Ft.	1.24	25,142	Sq. Ft.
102	INTENSIVE CARE NURSING UNIT	2,403	Sq. Ft.	1.5	3,605	Sq. Ft.	1.24	4,470	Sq. Ft.
104	TB ISOLATION CARE UNIT	2,680	Sq. Ft.	1.5	4,020	Sq. Ft.	1.24	4,985	Sq. Ft.
106	SHORT STAY CARE UNIT	5,574	Sq. Ft.	1.5	8,361	Sq. Ft.	1.24	10,368	Sq. Ft.
110	MATERNITY UNIT	4,949	Sq. Ft.	1.5	7,424	Sq. Ft.	1.24	9,205	Sq. Ft.
206	WELLNESS CENTER	3,260	Sq. Ft.	1.2	3,912	Sq. Ft.	1.24	4,851	Sq. Ft.
208	CHAPLAIN SERVICE	350	Sq. Ft.	1.1	385	Sq. Ft.	1.24	477	Sq. Ft.
212	PULMONARY MEDICINE (PM)	1,095	Sq. Ft.	1.2	1,314	Sq. Ft.	1.24	1,629	Sq. Ft.
214	CLINICAL SERVICES ADMINISTRATION	720	Sq. Ft.	1.2	864	Sq. Ft.	1.24	1,071	Sq. Ft.
218	177 PROGRAM	729	Sq. Ft.	1.2	875	Sq. Ft.	1.24	1,085	Sq. Ft.
222	DENTAL SERVICE	2,575	Sq. Ft.	1.25	3,219	Sq. Ft.	1.24	3,991	Sq. Ft.
224	NUTRITION AND FOOD SERVICE (COMB	2,140	Sq. Ft.	1.2	2,568	Sq. Ft.	1.24	3,184	Sq. Ft.
230	ENGINEERING SERVICE	2,204	Sq. Ft.	1.15	2,535	Sq. Ft.	1.24	3,143	Sq. Ft.
234	FISCAL SERVICE	914	Sq. Ft.	1.2	1,097	Sq. Ft.	1.24	1,360	Sq. Ft.
238	MEDICAL CENTER DIRECTOR'S SUITE	1,188	Sq. Ft.	1.2	1,426	Sq. Ft.	1.24	1,768	Sq. Ft.
240	PATHOLOGY AND LABORATORY MEDICI	4,445	Sq. Ft.	1.2	5,334	Sq. Ft.	1.24	6,614	Sq. Ft.
244	LOBBY	644	Sq. Ft.	1.1	708	Sq. Ft.	1.24	878	Sq. Ft.
246	HEALTH INFORMATION MANAGEMENT	1,134	Sq. Ft.	1.2	1,361	Sq. Ft.	1.24	1,687	Sq. Ft.
254	NURSING SERVICE ADMINISTRATION	1,430	Sq. Ft.	1.2	1,716	Sq. Ft.	1.24	2,128	Sq. Ft.
260	MENTAL HEALTH CLINIC	1,170	Sq. Ft.	1.3	1,521	Sq. Ft.	1.24	1,886	Sq. Ft.
262	EMERGENCY DEPARTMENT & HYPERBA	4,588	Sq. Ft.	1.45	6,653	Sq. Ft.	1.24	8,249	Sq. Ft.
266	HUMAN RESOURCES MANAGEMENT	1,007	Sq. Ft.	1.2	1,208	Sq. Ft.	1.24	1,498	Sq. Ft.
268	PHARMACY SERVICE	1,814	Sq. Ft.	1.2	2,177	Sq. Ft.	1.24	2,699	Sq. Ft.



Program for Design

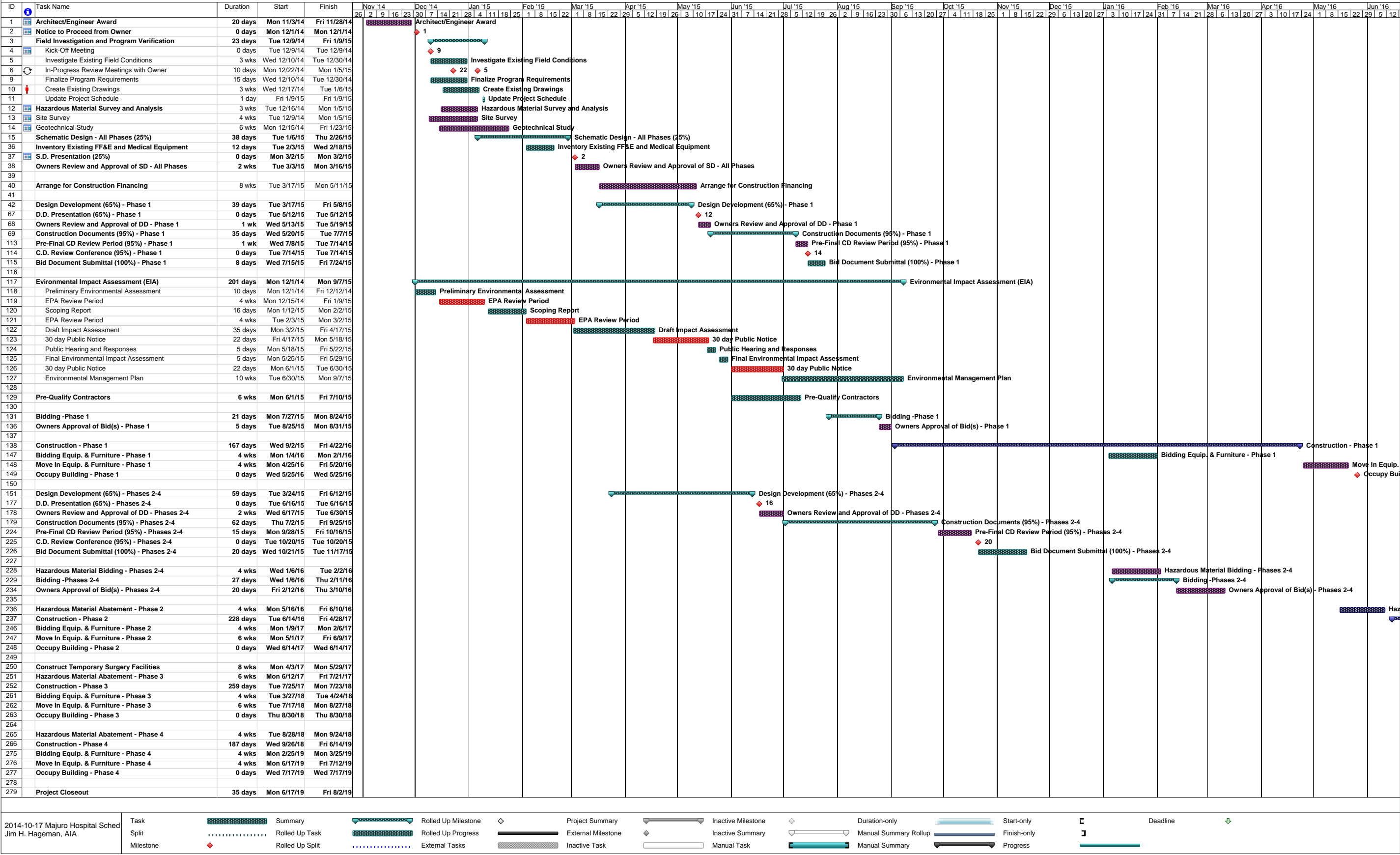
Chapter ID: Department:		Net Dept Area:		Net/Gross Dept Factor:		Gross Dept Area:		Net/Gross Bldg Factor:		Gross Bldg Area:	
270	REHABILITATION SERVICES	3,975	Sq. Ft.	1.2		4,770	Sq. Ft.	1.24		5,915	Sq. Ft.
276	RADIOLOGY SERVICE	3,970	Sq. Ft.	1.5		5,955	Sq. Ft.	1.24		7,384	Sq. Ft.
285	SUPPLY PROCESSING AND DISTRIBUTIO	1,939	Sq. Ft.	1.1		2,133	Sq. Ft.	1.24		2,645	Sq. Ft.
286	SURGICAL SERVICE	5,965	Sq. Ft.	1.5		8,948	Sq. Ft.	1.24		11,095	Sq. Ft.
291	PROCUREMENT & SUPPLY	3,244	Sq. Ft.	1.1		3,568	Sq. Ft.	1.24		4,425	Sq. Ft.
308	PROSTHETIC AND ORTHOTIC SERVICE (580	Sq. Ft.	1.1		638	Sq. Ft.	1.24		791	Sq. Ft.
406	HOUSEKEEPING	640	Sq. Ft.	1.1		704	Sq. Ft.	1.24		873	Sq. Ft.
408	LAUNDRY AND LINEN OPERATION	1,460	Sq. Ft.	1.1		1,606	Sq. Ft.	1.24		1,991	Sq. Ft.
410	ENVIRONMENTAL MANAGEMENT SERV	410	Sq. Ft.	1.1		451	Sq. Ft.	1.24		559	Sq. Ft.
503	IT DEPARTMENT	420	Sq. Ft.	1.2		504	Sq. Ft.	1.24		625	Sq. Ft.
504	VITAL STATISTICS	720	Sq. Ft.	1.2		864	Sq. Ft.	1.24		1,071	Sq. Ft.
505	PUBLIC HEALTH	8,979	Sq. Ft.	1		8,979	Sq. Ft.	1.24		11,134	Sq. Ft.
506	OIDS	2,000	Sq. Ft.	1		2,000	Sq. Ft.	1.24		2,480	Sq. Ft.
Total Building Gross Area:										153,358	Sq. Ft.





MAJURO HOSPITAL REPLACEMENT SCHEDULE

LEO A DALY



LEO A DALY

2014-10-17 Majuro Hospital Sched Jim H. Hageman, AIA	Task		Summary		Rolled Up Milestone		Project Summary		Inactive Milestone		Duration-only		Start-only		Deadline	
	Split		Rolled Up Task		Rolled Up Progress		External Milestone		Inactive Summary		Manual Summary Rollup		Finish-only			
	Milestone		Rolled Up Split		External Tasks		Inactive Task		Manual Task		Manual Summary		Progress			

LEO A DALY

2014-10-17 Majuro Hospital Sched Jim H. Hageman, AIA	Task		Summary		Rolled Up Milestone		Project Summary		Inactive Milestone		Duration-only		Start-only		Deadline	
	Split		Rolled Up Task		Rolled Up Progress		External Milestone		Inactive Summary		Manual Summary Rollup		Finish-only			
	Milestone		Rolled Up Split		External Tasks		Inactive Task		Manual Task		Manual Summary		Progress			

Cost Estimate

MAJURO HOSPITAL REDEVELOPMENT BUDGETING																			
PROJECT REQUIREMENTS	CONSTRUCTION BUDGET														MAINTENANCE BUDGET				
DESIGN OPTION	Demolition	JICA BUILDING + 2-FLOOR ADMIN. BUILDING IF RETAINED			NEW HOSPITAL FACILITIES			NEW CLINICAL/AUX. FACILITIES (non-hospital functions)			TOTAL BUILDINGS BUDGET w/o Extraordinary Project Costs	FF&E + MEDICAL EQUIPMENT (Assume 20% of existing reuseable)		TOTAL MEDICAL FACILITIES BUDGET (CONSTRUCTION COST + FIT OUT - w/o Extraordinary Project Costs)	FACIITIES MAINTENANCE (including Extraordinary Costs)		FF&E + MEDICAL EQUIPMENT		ANNUAL MAINTENANCE BUDGET
	LUMP SUM	SQ. FT	RENOV. COST	SUBTOTAL	SQ. FT.	CONSTRUCT. COST	SUBTOTAL	SQ. FT.	CONSTRUCT. COST	SUBTOTAL		% OF CONSTRUCT. COST	SUBTOTAL		% OF CONSTRUCT. COST	SUBTOTAL	% OF FIT OUT COST	SUBTOTAL	
OPTION A	\$500,000	34,189	\$225	\$7,692,525	90,854	\$462	\$41,974,548	27,531	\$300	\$8,259,300	\$58,426,373	25%	\$14,422,145	\$72,848,518	5%	\$3,244,958	4%	\$576,886	\$3,821,843
OPTION B	\$500,000	34,189	\$225	\$7,692,525	90,854	\$468	\$42,519,672	27,531	\$300	\$8,259,300	\$58,971,497	25%	\$14,422,145	\$73,393,642	5%	\$3,179,831	4%	\$576,886	\$3,756,717
OPTION C	\$500,000	34,189	\$225	\$7,692,525	90,854	\$450	\$40,884,300	27,531	\$300	\$8,259,300	\$57,336,125	25%	\$14,422,145	\$71,758,270	5%	\$3,080,606	4%	\$576,886	\$3,657,492
OPTION D	\$450,000	46,443	\$225	\$10,449,675	90,854	\$465	\$42,247,110	15,277	\$300	\$4,583,100	\$57,729,885	25%	\$14,422,145	\$72,152,030	5%	\$3,137,726	4%	\$576,886	\$3,714,612
OPTION E	\$500,000	34,189	\$225	\$7,692,525	83,307	\$465	\$38,737,755	35,861	\$300	\$10,758,300	\$57,688,580	25%	\$14,422,145	\$72,110,725	5%	\$3,100,356	4%	\$576,886	\$3,677,242
EXTRAORDINARY PROJECT COSTS:					VERTICAL CIRCULATION COSTS PER DESIGN OPTION:				DESIGN OPTION		TOTAL BUILDINGS BUDGET WITH EXTRAORDINARY PROJECT COSTS			TOTAL MEDICAL FACILITIES BUDGET WITH EXTRAORDINARY PROJECT COSTS					
Power Plant				\$2,900,000	S.F. or Qty. Elev. \$ / S.F. or Elev. Subtotal				Option A		\$65,989,398			Option A \$80,411,543					
Fire Water Storage Tank				\$250,000	Option A 16,409 \$225 \$3,692,025				Option B		\$65,231,997			Option B \$79,654,142					
Water Harvesting / Catchment				\$150,000	Option B 10,620 \$225 \$2,389,500				Option C		\$61,612,125			Option C \$76,034,270					
Photovoltaic (3 each 75kW systems) *				\$480,000	Option C 1,800 \$225 \$405,000				Option D		\$67,317,460			Option D \$81,739,605					
Medical Waste Incinerator				NIC	Option D 25,407 \$225 \$5,716,575				Option E		\$62,359,580			Option E \$76,781,725					
Lightning Protection *				\$91,000	Option E 2 \$400,000 \$800,000														
Subtotal of Extraordinary Project Costs without Vertical Circulation Costs				\$3,871,000	Options A thru D utilizing ramps									Project soft costs for elements like A/E fees are not included in these estimates. Another \$5.5-8 million should be budgeted to cover these costs.					
					Option E utilizing elevators														

Concept Overview



Concept A



Concept B



Concept C



Concept D



Concept Overview

