PART FOUR

A. MAJOR DEFICIENCIES OF EXISTING DEPARTMENTS

The following section identifies the major deficiencies within each department of the hospital. These deficiencies were identified through personal interviews with physicians and/or hospital staff. Some observations were noted by MIHS staff through tours of the facility.

This section of the report is designed to be critical and does not attempt to highlight any positive findings regarding the hospital. Most deficiencies noted relate to space, location, and/or design deficiencies. Healthcare delivery has changed significantly since LBJ was constructed in 1968. As a result a significant number of deficiencies are noted.

In general, it must be noted that most departments within LBJ are functioning with severe physical facility deficiencies relating to the amount of space, departmental location, and design. Most are operating at volumes that are beyond the levels of service for which they were originally designed.

AMBULATORY CARE

Emergency Department

- Insufficient number of examination rooms
- Insufficient number of treatment rooms
- Insufficient number of patient toilets, sinks
- Inadequate supply storage, equipment storage, medication space
- Lack isolation room
- Desire separate area for IV fluid patient area
- Undersized reception/ waiting area

Clinics

A number of clinics are housed at LBJ. These include OB/GYN, surgical, pediatric, eye and ENT, Hansen's disease, and dental. The following comments generally apply to all clinics:

- All work areas are undersized: exam rooms, treatment rooms
- Lack of privacy for staff and patients
- Undersized waiting and reception areas
- Inadequate number of clinics to support patient demand results in long waiting times for patients

DIAGNOSTIC/THERAPEUTICS

Surgery

- Operating rooms, cysto room and recovery rooms undersized
- Lighting and equipment has been removed from one OR
- No pre-op holding area
- Insufficient supply and equipment storage
- Undersized anesthesia work area
- Significant equipment problems related to OR lights, anesthesia machines, sinks
- Significant air conditioning problems which sometimes limit surgery hours

Obstetrical Suite

- Insufficient number of labor and delivery rooms
- No recovery room
- No birthing rooms
- Insufficient supply storage, equipment storage
- Insufficient number of toilets, sinks
- Lack on call rooms
- Desire flash sterilizer

Laboratory

- All work areas/counters are undersized
- Insufficient supply storage
- Insufficient office space
- Undersized blood/specimen drawing; lack of privacy
- Some lab functions located outside of department; ideally all functions should be together

Radiology Department

- Lack full-time coverage by radiologist
- Procedure rooms undersized; equipment functioning in only one room. Desire dedicated ultrasound machine. Consider CT scanner if radiologist coverage increases.
- No special procedure room
- Doorways tight for patient stretchers, wheelchairs
- Insufficient supply storage
- Lack changing rooms
- Undersized waiting/reception area
- Insufficient office space
- Ideally, location should be closer to emergency department

Renal Dialysis

- Location is distant from nursing units to support emergency codes
- Insufficient number of treatment stations
- All areas are undersized, most notably treatment space, work areas, supply storage, and waiting room

LOGISTICAL SUPPORT

Biomedical Electronics

- Computer to run preventive maintenance software.
- Full range of test equipment
- Large work room with plenty of bench space for repair work, test equipment, etc. (double existing to meet current and future needs.)
- Secure store room for spare parts to keep them readily at hand. (return to Biomed from Central Stores)

Supply Storage

- Insufficient cool storage for medical supplies
- Limited loading dock space

Laundry

- Poor department ventilation
- Limited number of washers and dryers
- Space is adequate but not compartmentalized within laundry area
- Limited storage on wards for clean linen

Dietary Department

- Storage space for food products needs to double in size
- Need work area for stores clerk
- Food storage should be air conditioned; exceeds allowable heat guidelines for stores
- Need three offices for dieticians in the future; now only one
- Deep sink and clean-up room or space
- No tray line, no dishwashing machine, 2 out of 5 coolers work, freezer does not work
- No employee lockers. Inadequate change and handwashing areas
- No fire suppression system in range hood ducts
- Restore computerization service

Housekeeping

- No housekeeping closets on nursing unit
- No housekeeping supply storage. Currently use locker-room/shower for storage.
- No work area for cleaning/repairing housekeeping equipment

Social Services

- Computer
- Design of space to provide confidentiality
- Counseling room in the medical/surgical nursing unit
- Conference room in Social Services
- Office space for 3 social workers, 1 director, 1 secretary as you look to year 2005

ADMINISTRATIVE SERVICES

Administration

- Not enough space for board meetings
- Not enough space for education programs
- No mail room for hospital

Staff Education

- Insufficient classroom, education space
- Insufficient office space

Finance/Patient Accounts

- Insufficient space for accounting staff cubicles and copy machine
- Insufficient space for clerical staff
- No space for patients to discuss bills
- No storage space for older records

Medical Records

- Work space to accommodate 20 staff at present time
- Additional square feet to accommodate staff growth in future
- Active records storage too small. Improved shelf system to maximize utilization of space
- Inactive record storage (climate controlled) with work space for clerks to purge records
- Chart completion room for doctors in Medical Records.

Quality Assurance

- Consolidate from two different offices into one area.
- Office space for Q.A. director, Q.A. staff member, and one secretary.

INPATIENT NURSING CARE

Intensive/Special Care

- Bed space too small
- No outside light in unit
- Insufficient number of toilets, sinks
- No toilet in observation rooms; compromises sterile technique
- Insufficient supply and equipment storage
- Insufficient number of electrical outlets
- Lack nurse lounge and adequate work station

Nursery

- No isolation rooms
- Insufficient supply and equipment storage

The following general observations apply to each of the nursing units:

- Poor visibility of patients from nursing station
- Only 2 toilet rooms for entire unit
- All rooms are 3-bed wards, which are crowded and limit patient and family privacy
- No air conditioning in patient rooms
- Insufficient number of sinks
- Insufficient number of isolation rooms
- Insufficient supply storage and equipment storage space

B. PROJECTED UTILIZATION OF BEDS AND SERVICES IN THE YEAR 2005

Introduction

Hospital utilization in the year 2005 has been projected based on a review of actual data covering the most recent five year period from 1989 to 1993.

Assumptions

Population Growth

According to the American Samoa Statistical Digest-1992, the population is growing at a rate of 3.7% annually. During discussions with representatives from the Research and Statistics Division of the Economic Development Planning Office,

they stated that the growth rate reported in the digest is expected to hold through the year 2005 and will result in a total population of 71,332 by then.

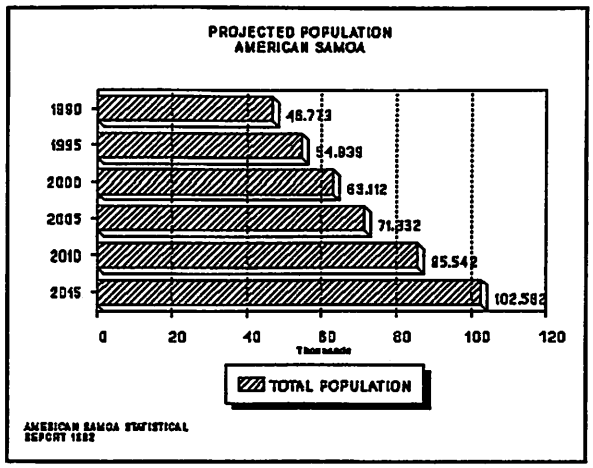


Figure 6

Discharges

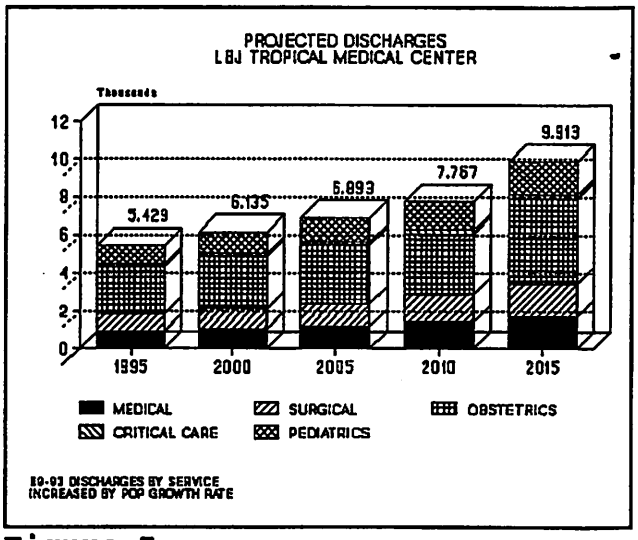


Figure 7

The growth in discharges is closely related to the growth in population over that same time. Discharges (with the exception of obstetrics and newborns) have been projected to increase at the same rate as the population during the period 1995 through 2005.

Obstetric discharges and newborns have been projected to increase at the same rate as women in the 15-44 age cohort.

Discharges within the various services have been constant over the past five years and are expected to maintain the same proportions seen in the past five years.

Length of Stay

Over the past five years length of stay has averaged 3.6 days and has decreased by .2 days from the average in 1989.

Since length of stay is a significant variable, from the standpoint of projecting future utilization, discussions were held with members of the medical staff to get their input. They indicated that they did not think that length of stay would change drastically in the period 1995 to 2005, citing a combination of factors such as pressure from federal agencies to keep length of stay as low as possible, and the overall youth of the population.

Length of stay is projected to remain at 3.6 days for the period of 1995 through 2005.

Outpatient Clinics

Volume has been projected based on the growth rate for the entire population with the exception of the OB clinic which has been projected based on the women 15-44 age cohort.

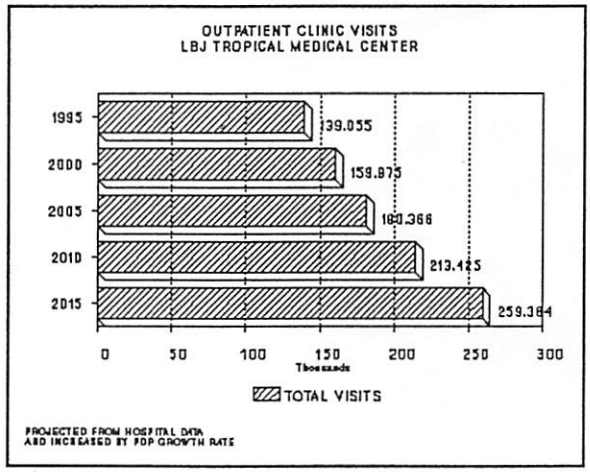


Figure 8

Ancillary Volumes

Ancillary volumes have been projected based on the growth rate for the entire population.

Bed Need

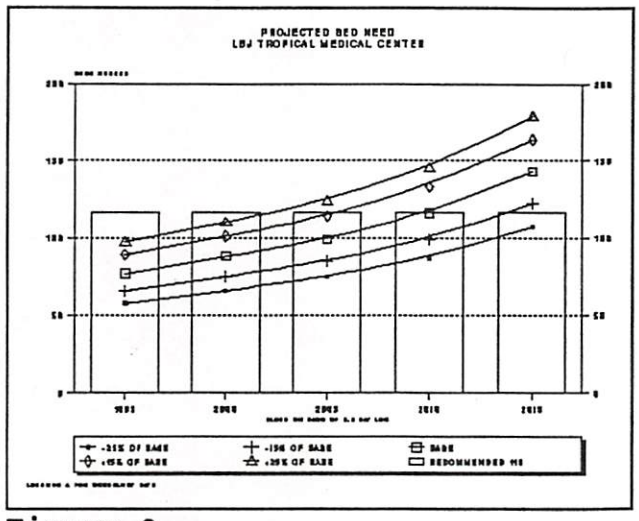


Figure 9

Over the past five years occupancy has averaged 43% with a length of stay of 3.6 days. Using population growth assumptions mentioned above and assuming a 70% occupancy rate, the number of beds needed in the year 2005 will be 99 beds.

To test a range of assumptions (see chart to left), the 3.6 day length of stay was varied over a range of -25% to +25% on the base of 3.6 days. At the lowest length of stay (-25% from the base of 3.6 days), 58 beds would be needed in 1995 and 75 beds by the year 2005. At the highest length of stay (+25% from the base), the hospital will need 97 beds in 1995 and 124 by the year 2005.

If the occupancy rate were increased to 80%, the hospital would need 51 beds in 1995 and 65 beds by the year 2005 under the lowest length of stay scenario (-25% from base). At that same occupancy under the highest length of stay scenario, the hospital would need 85 beds in 1995 and 109 beds by the year 2005.

Projecting further out to 2015 shows the need to perhaps add as many as 63 more beds under the highest occupancy levels (+25% from base). Although medical practices can't be determined that far out into the future, plans for future development should factor in the possibility of increased bed need by the year 2015.

We recommend that the hospital not reduce its bed complement below 116 and that future development plans be established to allow accommodation of an additional 10 to 15 patients should it be required.

C. EXISTING AND PROPOSED SPACE REQUIREMENTS

The existing hospital was surveyed to determine the gross square footage currently utilized by each department and service. Scale drawings were utilized as available, with rough measurements made in areas that were not covered on file floor plans.

Departmental staff were interviewed, and each work space visited by study team members to clarify space usages and deficiencies. Trend line studies were prepared based on patient and departmental volumes and projected into the future, taking into consideration population changes and potential changes in medical practice.

The gross square feet shortfalls are as follows:

ZONE	EXISTING	PROPOSED	SHORTFALL	%*
Ambulatory Clinics	14,160	48,600	-34,440	243
Diagnostic/Therap.	15,445	29,400	-13,955	90
Logistical	24,050	28,570	- 4,520	19
Administration	11,280	13,240	- 1,960	17
Nursing Units	25,750	50,800	- 25,050	97
	90,685	170,610	- 79,925	88

* Percent increase proposed (shortfall ÷ existing)

The proposed gross square footages outlined above were successfully tested against formulas that have been utilized by international hospital planning organizations for many years to validate the projections.

D. FACILITY SOLUTION OPTIONS

The MIHS study team considered the following facility responses to the projected space requirements defined in this report.

- Additions to and renovation of present hospital
- New hospital on a new site
- New hospital on the existing site

Please see Appendix A for departmental block diagrams illustrating possible approaches to correct space deficiencies.

1. Additions to and Renovation of Present Hospital

This concept identifies the opportunities and limitations of the existing facility. The planning strategies employed included:

- Follow the basic infrastructure of the facility (general plan, structural grid, etc.).

- Expand in place departments that are relatively expensive to move (as much as possible).

- Move departments that are relatively inexpensive to move to new locations to make room for other departments to expand.

- Use traditional healthcare planning principles to organize the overall plan which affects adjacencies and circulation.

Three diagrams in Appendix A illustrate this approach.

- Site Concept Plan, LBJ Tropical Medical Center
- Departmental Block Diagram Plan-Hospital, LBJ Tropical Medical Center
- Departmental Block Diagram Plan-Medical Office Building, LBJ Tropical Medical Center

As shown on the site concept plan, the proposed space requirements cannot be entirely met on the existing site. Generally, the clinic activities are removed from the hospital proper and grouped with the proposed medical office space and housed in a new medical office building located across the road from the hospital. This vacates space in the hospital, and along with additions to the existing hospital, provides approximately just enough space to accommodate the projected space requirements. Note the additions necessary are:

East Wing-extend north
Eastern Three Wings-extend south
West Wing-extend north to ambulance shelter

Obviously, these proposals precipitate numerous other considerations such as the impact on adjacent land owners, access to adjacent land, demolition of other existing structures, replacement of displaced parking, future expansion, and the accommodation of new parking spaces.

Another issue is construction phasing. One approach to this is as follows:

1. Build the professional office across the road from the hospital first.
2. Move the clinics into the medical office building. This creates "swing" space in the hospital proper to begin incremental renovation in the hospital.
3. Begin renovation of the hospital, one area at a time. By observation, the increments can be no larger than one wing at a time, for a minimum number of six (6) phases, with a strong possibility that full wings cannot be renovated which will create smaller, more numerous phases.

The phasing of additions and renovations to the present hospital will be relatively complex. Other potential complications will result when moving or renovating certain functions or equipment which do not have redundancy. This

will have to be addressed by closing down functions or bringing in backup equipment for interim periods.

The departmental block diagram of the hospital illustrates a possible reconfiguration accommodating the required space program. This plan reasonably adheres to good healthcare facility planning principles, given the limitations of the existing facility. It also approximately accommodates the proposed space requirements. Note that the eastern wings could be extended north, rather than south, in view of the impact of the southern extensions. However, note that this option has a further impact on parking, and the nursing unit locations are not as desirable.

The departmental block diagram of the medical office building illustrates a floor plate of approximately 23,500 GSF. The building would be three floors high for a total of approximately 70,500 GSF. A three-story building has additional implications such as elevators and fire safety. Note the flexibility of the tenant space for clinics and offices as demonstrated by the suite plan examples. Finally, see the site concept indicating the parking and other features. There are 100 parking spaces indicated. While the zoning regulations do not explicitly address medical office buildings, an overview of the regulations suggest a minimum number of parking spaces may be based on 1 per 300 or 400 gross square feet. Conservatively, a 70,500 GSF building would require 235 spaces. In the United States this ratio can be as low as 1 parking space per 175 GSF. However, a higher ratio may be more appropriate for American Samoa due to the use of bus transportation. (The site concept plan indicates a prototypical medical office building with a regular parking arrangement. The actual design may result in a slightly different arrangement which is dependent on topographical information not available at the time of this report. By observation the net effect will not meet the projected parking requirements.)

In general, while the pure space requirements can be approximately accommodated on the existing site if the property across from the hospital proper is utilized,

a comprehensive solution has to include adequate parking. Like the medical office building, the zoning regulations do not explicitly address hospitals. In the United States standard parking ratios for a hospital are on the order of one (1) parking space per two (2) patient beds plus one space per employee on the main shift. This equates to approximately 225 spaces required for the hospital proper. The current site has approximately 100 marked spaces. Given this, the existing site is not adequate for the projected space requirements. Furthermore, the ramifications of using this site include a multistory building (3 floors), affecting access to adjacent residential property and affecting the stream at the southern boundary of the property. Special exceptions may or may not be made to land use regulations due to the nature of this facility.

2. New Hospital on a New Site

This concept illustrates the opportunity of a new hospital on a new site. Two diagrams in Appendix A illustrate this approach.

- Site Concept Plan, New Site
- Departmental Block Diagram Plan, New Site

The site concept plan indicates the relationship of the major building components. These are the diagnostic/treatment/support areas, the nursing units, and the medical office building. The nursing units are illustrated in a multistory structure (two to three floors) adjacent to the diagnostic/treatment/support area which is a single floor structure. The nursing units may also be completely on one floor as indicated by the dashed lines or located on top of the diagnostic/treatment/support structure. This macro level relationship has numerous interrelated issues. The medical office building is indicated to the left of the hospital and could be physically connected to the hospital. This would be very convenient for physicians visiting inpatients or for MOB outpatients requiring other services provided at the hospital (lab, radiology, etc.). While this prototypical block diagram is founded on

traditional healthcare planning principles, there are many configurations possible, each with its advantages and disadvantages. The precise plan for American Samoa would be explored and determined in the early phase of actual facility design.

The departmental block diagram plan is also founded on traditional healthcare facility planning principles. The areas indicated are reflective of the projected space requirements established as part of this study. As with the global plan relationships, the departmental relationships would be explored and determined in the early phase of actual facility design.

In general, these diagrams illustrate the scope of the proposed space requirements while the precise configuration may or may not be appropriate. Other considerations to be addressed, such as the actual site selection, acceptability of multistory buildings, land use criteria, and fire safety all will shape an actual design.

3. New Hospital on the Existing Site

This concept addresses the notion of regenerating the hospital on the existing site. Due to phasing complexities identified in "Additions to and Renovation of the Present Hospital", it is apparent that enough of the existing hospital cannot be demolished to create a reasonable amount of area to construct a significant phase of a new facility, and keep a certain critical mass of the hospital operating, not to mention an acceptable level of care. For this reason, this concept was not developed any further.

E. PRELIMINARY COST GUIDELINES

The MIHS study team prepared preliminary cost guidelines for both the "New Hospital on a New Site" and "Additions and Renovation of Present Hospital" schemes. These guidelines indicate an order of magnitude of the potential costs

associated with each scheme. They will be helpful when coupled with other characteristics of each scheme in evaluating the direction to pursue. Obviously detailed information about each scheme is not developed at this juncture. Consequently costs associated with each scheme are equally as general and can vary. These guidelines are to be viewed as a tool to help assess alternative facility responses only. Subsequently, a specific scheme can be developed to the next level of detail along with an estimate appropriate to that phase of work.

The preliminary cost guidelines are founded not only on historical information kept by the study team, but by a conceptual cost model prepared by a construction management firm specifically for this report. While numerous assumptions are necessary to prepare such a cost model, key assumptions are as follows:

BOTH SCHEMES:

1. Summer 1995 construction start.
2. Five percent per year escalation rate.
3. Medical office building cost is included in cost model for each scheme.
4. Site development costs are included (i.e., parking areas, sidewalks, etc.).

NEW HOSPITAL ON A NEW SITE

1. Medical office building and hospital constructed simultaneously.
2. Construction time frame: Approximately 2 to 2.5 years.
3. Utilities are readily available to the selected site.
4. Land acquisition costs are not included.
5. Extraordinary site preparation costs are not included (i.e., demolition of existing structures, extreme cut and fill, etc.).

ADDITIONS AND RENOVATION OF PRESENT HOSPITAL

1. Medical office building constructed first to create "swing" space for phased remodel of hospital.
2. Renovation based on "gutting" the building to the structure and replacing all systems.
3. Renovation phase limits will be no larger than one wing (six phases minimum).
4. Medical office building construction time frame: approximately 15 months.
5. Hospital construction time frame: approximately four (4) years.
6. An allowance is included for asbestos abatement. Actual location and amount is not part of this analysis.
7. An allowance is included for structural repairs (bents). Actual location and amount is not part of this analysis.
8. Minimal site improvements.
9. Soil stabilization, if required as per an engineering study, is not included.
10. Shell for hospital additions is constructed simultaneously with the medical office building.

Based on the above assumptions, building construction costs are expected to be:

NEW HOSPITAL ON A NEW SITE

$37 million

ADDITIONS AND RENOVATION OF EXISTING HOSPITAL

$27 million

At this phase a more comprehensive perspective of costs includes professional fees and equipment. Based on typical factors modified for this analysis, a factor in the range of 45% of the building construction costs is appropriate. Also, a factor for a project contingency is normally applied to these costs. At this conceptual stage of the project, our clients historically are comfortable

in the area of 20%. Please see the following for the application of these factors.

NEW HOSPITAL ON A NEW SITE

$37 million x 1.45 Project Cost Factor = $54 million approximately

x 1.20 Project Contingency Factor = $65 million approximately

ADDITIONS AND RENOVATION OF EXISTING HOSPITAL

$27 million x 1.45 Project Cost Factor = $39 million approximately

x 1.20 Project Contingency Factor = $47 million approximately

This cost model equates to the following expected average costs per square foot and are provided for comparison purposes. They represent the building component only, do not include site improvement costs, and are in current dollars (do not include escalation).

NEW HOSPITAL ON A NEW SITE

$150.00/SF average approximately

ADDITIONS AND RENOVATION OF EXISTING HOSPITAL

$95.00/SF average approximately

MEDICAL OFFICE BUILDING (either site)

$110.00/SF average approximately

F. EQUIPMENT COST PROJECTIONS

After making several visits to each hospital department and interviewing staff and physicians, the MIHS team determined that a minimal amount of existing

hospital equipment of all types would be worth moving into a modern new hospital, whether renovated or constructed totally new.

It is projected that there will be replacements and additions of major pieces of equipment, such as in the radiology department where the cost may easily range between $100,000 to $300,000 depending upon final decisions. From surgery to the patient wards, most equipment is far past its useful life, parts are difficult to find, and reliability must be questioned.

The hospital building is a place to house patients, the trained personnel who treat them, and the up-to-date, functioning equipment needed to diagnose and treat diseases. Equipment must not be left to the short end of the budget.

It is estimated that the replacement of the vast majority of all current hospital equipment and the installation of selected new items will cost between $8,000,000 to $10,000,000. To remain within this budget, careful attention will have to be given to competitive purchasing, acquiring equipment that is appropriate to the level of care for this hospital, and careful evaluation of what existing equipment can be restored and made use of in the new facility. All equipment purchasing should be made within large purchasing groups, if at all possible,to take advantage of volume discounts.

G. PROJECT CONSTRUCTION TIME LINE

As noted in Part Four, Section E, Preliminary Cost Guidelines, the expected construction time for the new hospital on the new site is 2 to 2.5 years while the construction time for the additions and renovation of the present hospital is approximately four (4) to five (5) years.

The schedule for adding to and renovating the present hospital is longer due to creation of swing space, project phasing, and the need to keep the facility operational. Conversely, the new hospital on a new site scheme does not have

these coordination and operational issues. All major components of the project may be initiated and constructed simultaneously.

H. PREVENTIVE AND GENERAL MAINTENANCE ISSUES WITH ANY OPTION

Regardless of whether a new hospital is constructed or the existing modernized, a sufficient annual budget must be established and regularly funded to provide for preventive and general maintenance of equipment and buildings and housekeeping services. Current staff must be evaluated for skill level and ability/willingness to learn new skills and apply them regularly.

Management of these three areas, biomedical engineering, maintenance, and housekeeping, should be aggressive in carrying out the functions assigned them. Separate budgets should be established for each of the three departments, and a trained/experienced manager placed in charge. It may be possible to contract out one or more of these functions, but bid requirements must be specific and monitoring of performance constant. These three areas are critical in protecting the multimillion dollar investment that will be made in the hospital, regardless of the option selected.

I. CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations have been carefully drawn from all of the information gathered and presented in previous sections of this report. Its intent is to provide the Government of American Samoa and community leaders with a concise presentation based on the analysis of data, interpretation of interviews, and the experience of MIHS team members in Pacific island hospital planning, operations and care delivery over the past decade.

It is vitally important for decision makers to take careful note of the following preliminary comments.

On December 22, 1993, the U.S. Army Corps of Engineers, Pacific Ocean Division released a Fire Safety Evaluation System Survey and Facility Analysis of the L.B.J. Tropical Medical Center, as prepared by Daniel Consulting of Springfield, Virginia. In brief, it sets out an estimated cost of $5,294,227.00 to correct Life Safety Code deficiencies and maintain operation of the existing hospital over the next ten years. The report further notes that this does not include any departmental renovations, air conditioning, or other mechanical/electrical system upgrading.

In the "Existing Conditions" section of this same report by Daniel Consulting (pg. 19), reference is made to a geotechnical analysis of the hospital site conducted by Mr. Olson Okada, civil engineer, Soils Design Section, Pacific Ocean Division, Corps of Engineers. His report states that it appears the hospital floor slab is moving laterally from north to south. Further, that this movement may well be caused by a creep of soil mass away from the mountain ridge to the north.

The MIHS study team strongly suggests that the threat that this soil mass creep may or may not represent should be expertly evaluated before any final determination is made on use of the existing hospital site for modernization or new construction. The cost of stabilization of the site, if required, must be considered in final cost estimates.

Attention is also called to the findings and Plan of Correction set out in a report prepared by Mr. Mayer Zimmerman, HCFA, Baltimore, Maryland, and Mr. Paul Perry, LSC surveyor for the State of Hawaii, from a site visit conducted at LBJ Tropical Medical Center September 30 - October 2, 1993. It is our understanding from talking with Mr. Zimmerman that government officials agreed to the plan of correction which included (1) installation of a sprinkler system for all patient sleeping areas by December of 1994, (2) separation of all patient sleeping wings from the rest of the hospital, to be done as part of the overall air conditioning

project along with six other requirements that are much more modest in cost and disruption of patient care areas.

In addition, there is a plan to remodel the existing emergency and outpatient department with assistance from the power authority.

All of the above items have an impact on plans to modernize the existing hospital or build a new hospital on a new site. The most obvious is the spending of scarce funds to carry out projects that may well be torn out or down, depending upon the hospital development plan accepted.

J. NEXT STEPS

The following points are suggested as potential next steps the Government of American Samoa may wish to take in the decision-making process:

1. Determination of remodeling versus new hospital/new site

    a. Form a multidisciplinary hospital building committee.

    b. Construct a list of critical issues that require decisions. Suggested decision points are:

        b.1 Is the proposal for complete renovation and modernization of the existing site an acceptable concept?

        b.2 Do the positives for a complete renovation and modernization on the existing site outweigh the negatives sufficiently to support the extended time line required and the dollars to be expended?

        b.3 If the program presented in this report is too extensive or costly, is a general fix-up and paint job along with repair of

Life Safety Code violations, which have been estimated to cost $7,000,000 themselves, the preferred option for the existing site? (see HCFA report, 12/93).

b.4 Is the concept proposed for a new hospital on a new site acceptable?

b.5 Is there sufficient land available to accommodate the proposed new hospital, as designed? (Note: The new hospital concept design can be made multistory to conserve some land requirements.)

b.6 What are the sources of funding for either proposal? In which proposal would potential funding sources be more interested?

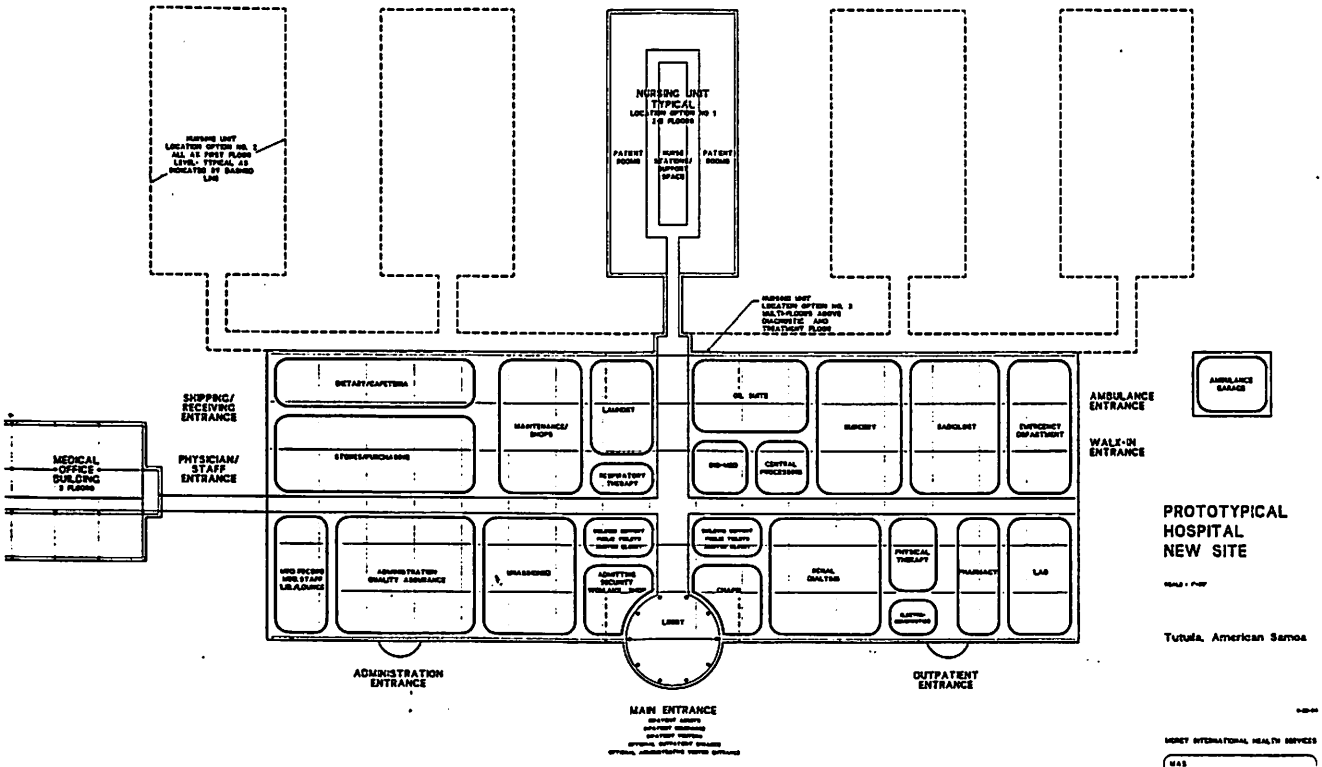
c. Determine preferred option.

d. Initiate funding search.

e. Contract for design development.

APPENDIX A

BLOCK DRAWINGS

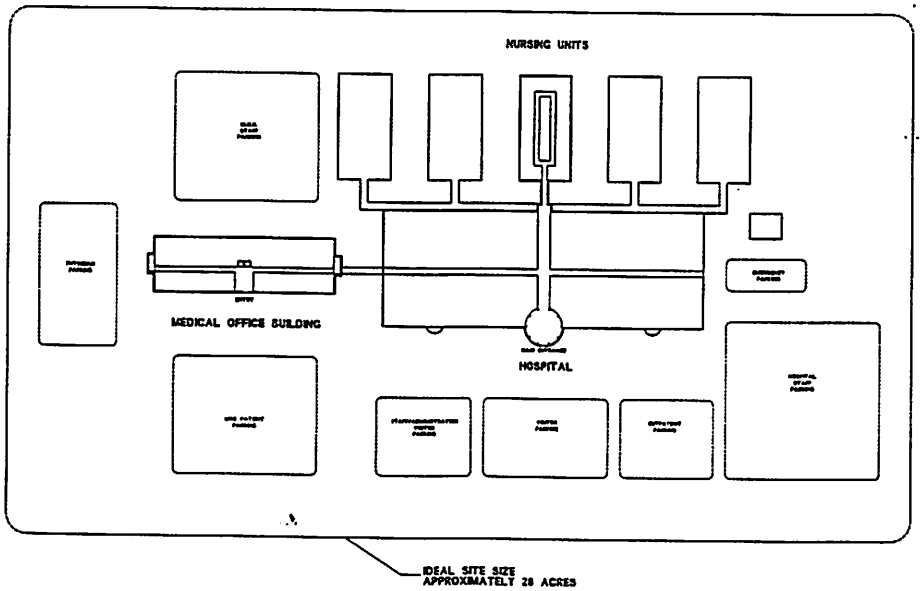


PROTOTYPICAL HOSPITAL NEW SITE

Tutuila, American Samoa

MARY INTERNATIONAL HEALTH SERVICES

MAS ASSOCIATES INCORPORATED ARCHITECTURE



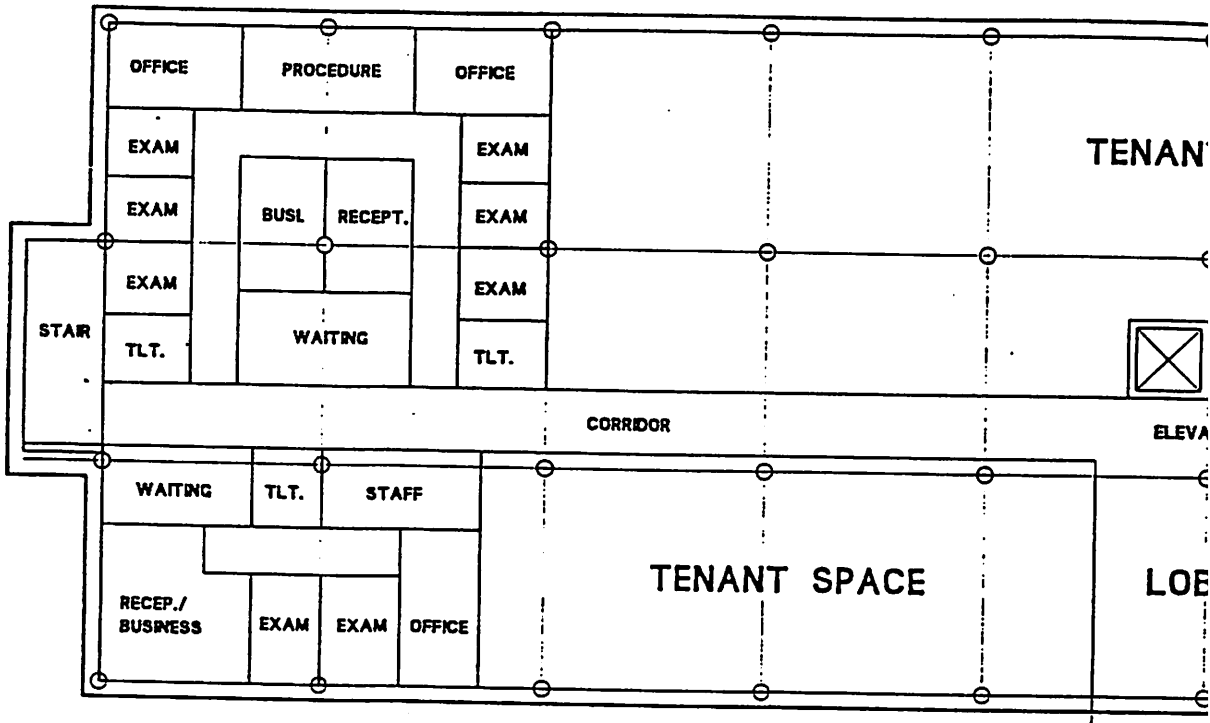
PROTOTYPICAL HEALTH CENTER NEW SITE

Tutuila, American Samoa

MOSEY INTERNATIONAL HEALTH SERVICES

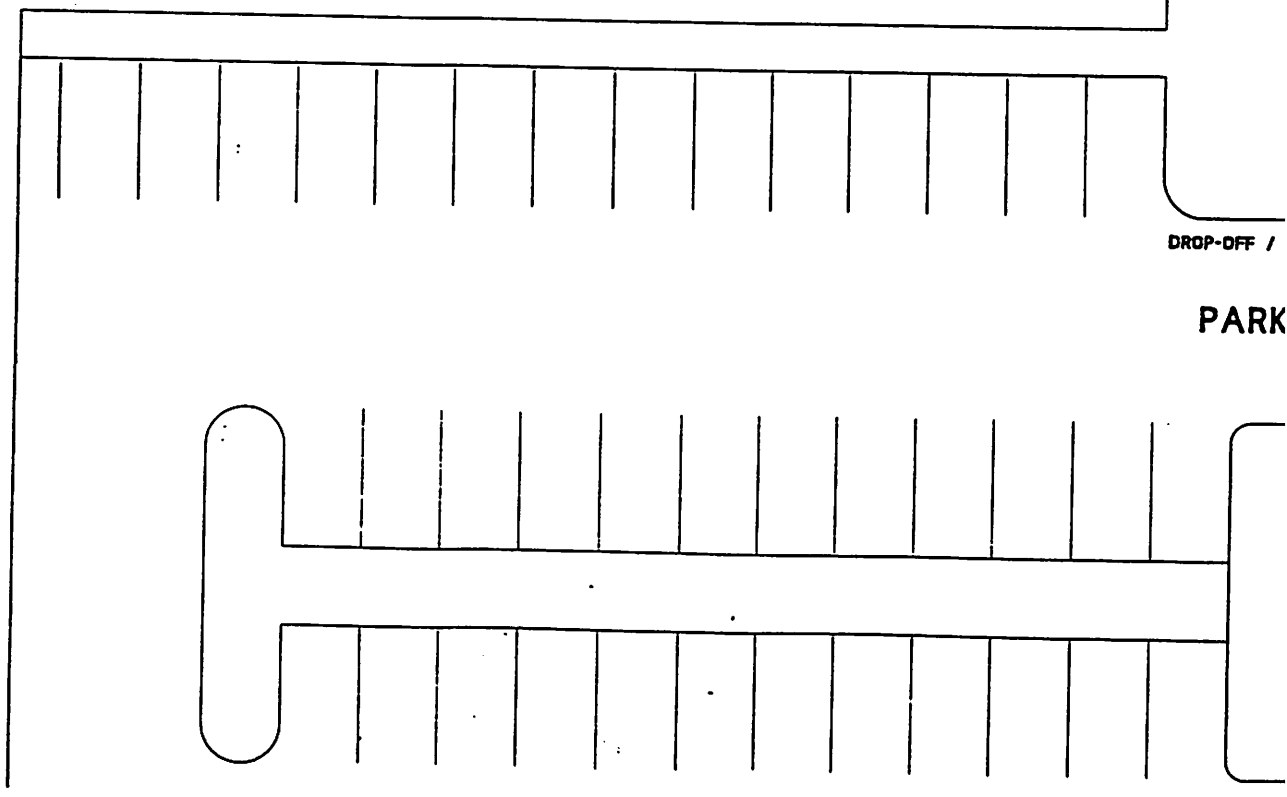
WAS ASSOCIATES INCORPORATED ARCHITECTURE INTERIOR DESIGN

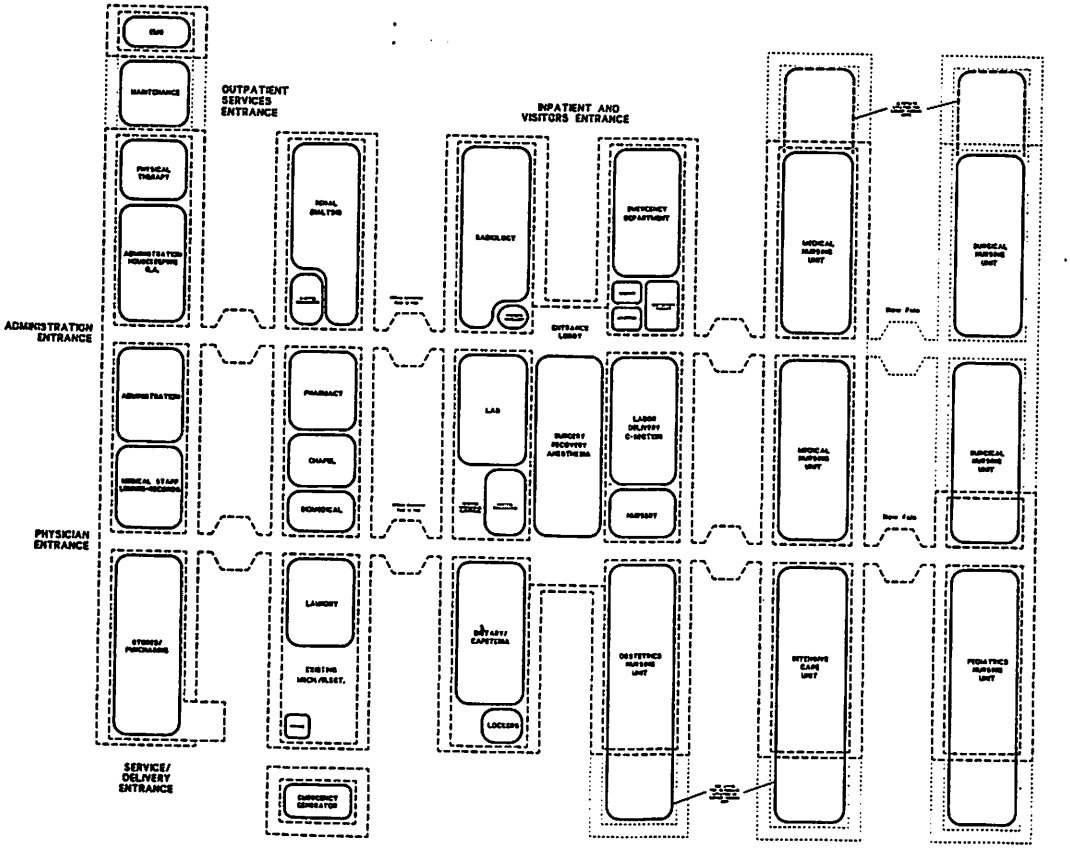
EXAMPLE SUITE PLAN
2700 SF +/-
2 DOCTORS



EXAMPLE SUITE PLAN
1350 SF +/-
1 DOCTOR

ENT

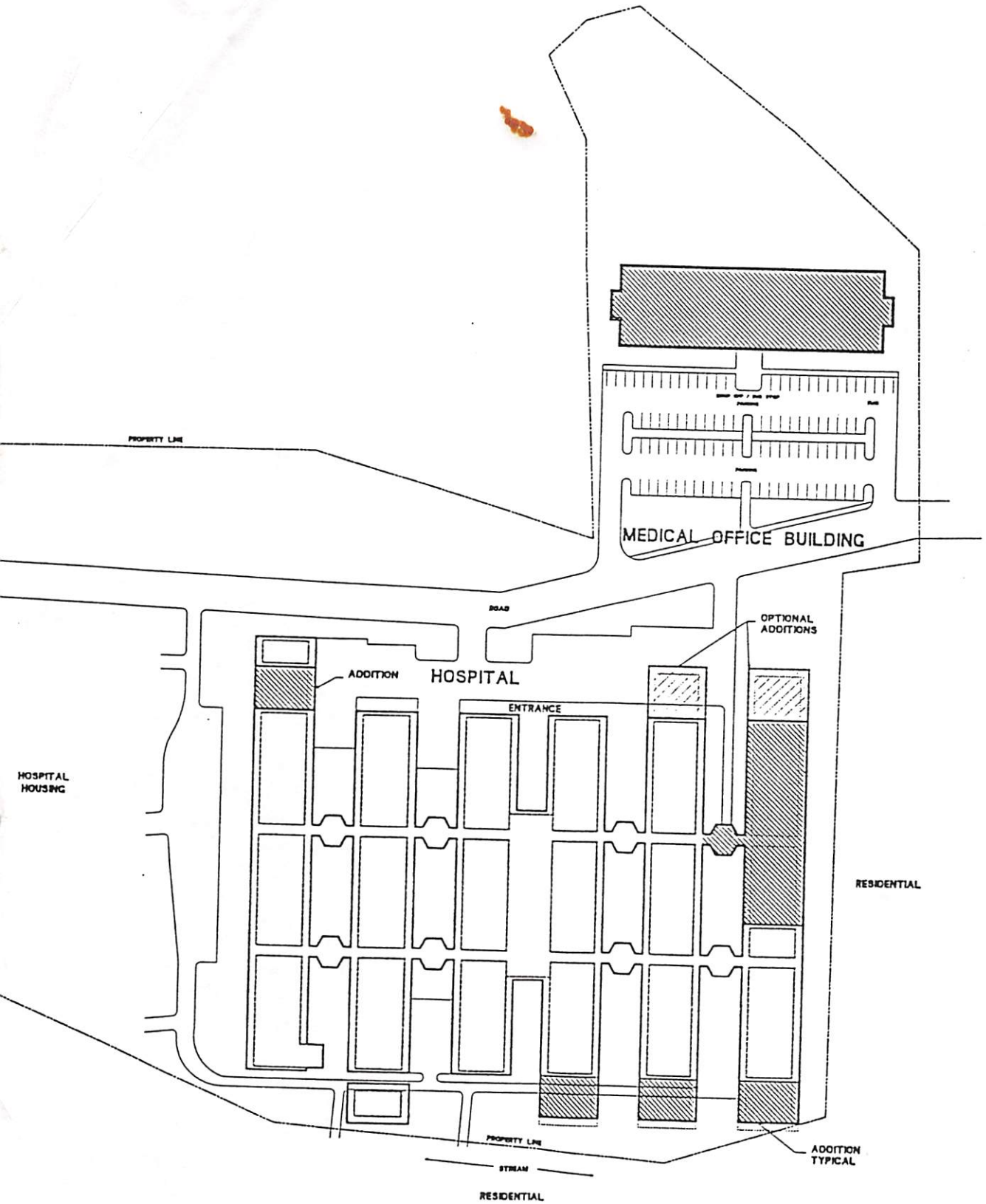




DEPARTMENTAL BLOCK DIAGRAM PLAN

LYNDON B. JOHNSON
TROPICAL MEDICAL CENTER
Tutuila, American Samoa

MAS ASSOCIATES
ARCHITECTURE
ENGINEERING
INTERIOR DESIGN


PROPERTY LINE
MEDICAL OFFICE BUILDING
ROAD
OPTIONAL ADDITIONS
ADDITION
HOSPITAL
ENTRANCE
HOSPITAL HOUSING
RESIDENTIAL
PROPERTY LINE
ADDITION TYPICAL
STREAM
RESIDENTIAL