

ARCHITECTURAL THESIS
1976-1977

Gary L. Vance

PUTNAM COUNTY HOSPITAL
Greencastle Indiana

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**putnam
county
hospital**

Putnam County Hospital

Putnam County Hospital

Proposal

The practice of architecture and all interrelated professional disciplines is becoming more and more diversified with each passing day. To meet this demand, designers must become more sensitive to our interior and exterior environment, must respond better to user needs, and must more realistically take into account the buildability of projects.

In my personal experience of design I have responded to the previously mentioned factors in a well planned and closely regulated architectural curriculum for four years. However, the fifth year thesis project is mine to manipulate with respect to my strengths, weaknesses, philosophies, and professional directives.

I am designing a full service medical facility for Greencastle, Indiana, a city of 15,000 people. These are my clients, they are in need of this facility.

Few buildings compare to a hospital's complexity of synthesizing multiple subsystems, both natural and man-made. It is a project that must be designed exactly for the patients or else it is a failure. It is an environment where people are born, live, work, visit, and die. It is a self-contained unit. Despite stringent control of space with respect to codes, governmental funding, and the like, I feel I can express my individuality as a designer. This is vital in that my intent is to comprehensively design this hospital from programming, to schematic design, to design development, and to detail refinement.

The site is a 15 acre sloping wooded meadow 1 mile southwest of Greencastle, Indiana. The certificate of bed need calls for an 85 bed facility including medical surgical beds, intensive care beds, and nursery beds.

Putnam County Hospital

Goals and Objectives

PUTNAM COUNTY HOSPITAL
GREENCASTLE, INDIANA
85 BEDS 69,640 SQUARE FEET

Putnam County Hospital intends to continue operation as a primary health care center. It is not anticipated that there will be a drastic change in scope or level of services offered.

Every effort will be made to establish as the medical center for both inpatient and outpatient needs of the Putnam County population. It is the intent of the hospital to continue to explore all avenues to reduce patient stay.

The proposed new facility will provide facilities to further increase the hospital's ability to provide efficient quality patient care on an increased basis. It is further the objective of the hospital to maintain sufficient flexibility to move rapidly to meet the needs resulting from changes in both medical practice and technology.

The Putnam County Hospital will continue to be owned and operated by the Board of Trustees.

**EXISTING
FACILITY
ANALYSIS**

Putnam County Hospital

Existing Facility

The existing Putnam County Hospital is currently a very successful facility considering that it suffers from inefficient circulation and awkward division of services. Although alternative methods were considered, none provided the combined benefits of a totally new replacement facility.

Presently the facility is not accredited with the Indiana State Board of Health and is operating on waivers with the health Board and the Indiana State Fire Marshall. All 85 beds are non-conforming and the facility is in non-compliance with life-safety requirements. Modernization is badly needed in the areas existing, fire protection, space requirements, and insufficient mechanical systems.

Putnam County Hospital

The Community

GREENCASTLE, INDIANA

This pleasant college town of 8,800 people is located in the west central portion of Indiana, midway between Terre Haute and Indianapolis on both U.S. Highway 40 and Interstate 70. Putnam County, of which Greencastle is the County Seat, has grown steadily over the past two decades. 1978 projections indicate the population to reach 32,600 in the county. The present population is 27,000.

The Greencastle urban environment is a rich mixture of diverse industrial base, farm land, Depauw University, and growing retail trade. The economic environment is certainly a healthy one and prospering due to this diversity.

The economy of Putnam County is more diversified than that of most rural Indiana communities. The physical resources of the surrounding area (including drainage basins, topography, groundwater, mineral resources, highways and roads, and railroads, and an airport) have some limitations, but are certainly adequate to provide positive opportunities for growth. There are negative factors that both the community and county must contend with, including the inadequate sewage disposal system, the need to establish land-use controls, the inadequacies of the county road system, and the need to continue to attract industry. However, the basic resources exist, and the primary governmental services (such as fire protection and schools) have been deemed a positive point by a consultants report to the Putnam County Plan Commission in 1969.

The influence of the 2,500 student Depauw University has had a positive effect on the community. In addition to the stable source of employment the university provides, it has added to the total retail sales and services receipts for the business establishment, and it has added to the stability of real estate values. Not only have there been economic benefits, the 138 year old institution adds to the quality of the towns environment - even visually, with the attractive campus and quaint residential areas surrounding it. Its staff adds to the supply of well educated and concerned citizens; it has a significant cultural impact on the community; it has helped attract new industry; it provides a source of professional services not normally found in a town the size of Greencastle.

The two largest industrial employers in Greencastle are IBM and Mallory Capacitor Company providing for employment of 15% of the working force. Other industries include Angwell Curtain Company, Lone Star Industries, Greencastle Manufacturing Company, and Ohio and Indiana Stone Company. The labor force in Putnam County currently includes 10,840 persons and throughout the seventies, the unemployment rate has been below 6%, well below the national rate.

It truly is a community hospital in concept as the doctors, employees, and patients are closely related in their day to day activities as in any small community. The doctors are very community minded, and the intelligence level of the service area is above average intelligence. With the new medical facility and, of course adequate parking, visiting hours will be extended from 7am to 11pm. This is one example of the uniqueness in operational procedures a community hospital can provide.

The geographical area served by the Putnam County Hospital is primarily Putnam County and since Greencastle is the county seat, it is justifiable to relocate the facility there. Within the service area of 25 miles there are no general hospitals and the nearest is in Brazil, located 30 miles away. The construction of a new facility would have little or no impact on surrounding facilities.

Site restrictions is another important aspect of the non-conformance of the present Putnam County Hospital. The physical facility itself is located in three different buildings; the main structure which houses patients and patient support; the old nurses quarters which accommodates administration and medical records; and the power plant that operates the entire hospital. The construction dates of these buildings are 1922, 1939, 1959, respectively, which certainly explains many of the inadequacies resulting in the facility presently being on waivers with health officials.

THE SERVICE AREA

| county | number of cases | % total |
|-----------|-----------------|---------|
| Putnam | 2620 | 72.4 |
| Clay | 33 | .9 |
| Hendricks | 465 | 12.8 |
| Morgan | 77 | 2.2 |
| Owen | 249 | 6.9 |
| Others | 159 | 4.3 |
| | 3628 | 100.0% |

SITE ANALYSIS

Putnam County Hospital

Site Introduction

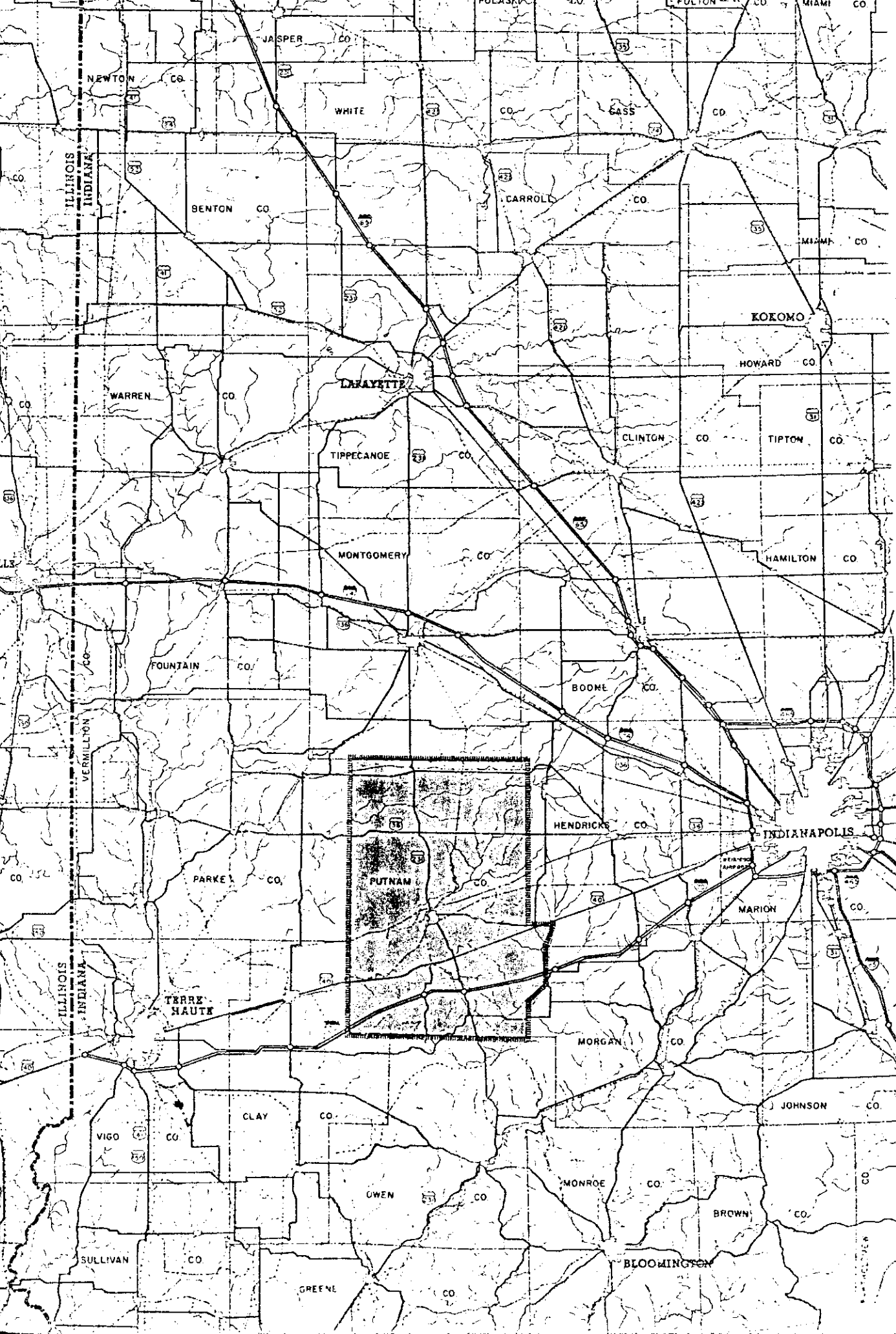
The twenty-two acre site, located within the Greencastle city limits, is buffered on the east and west by vacant land from the nearby residencies and by an extension of Shadowlawn Avenue on the north for public access. On the south, the site is bordered by a Shopping Center, however, an access road to State Road 240 will be provided.

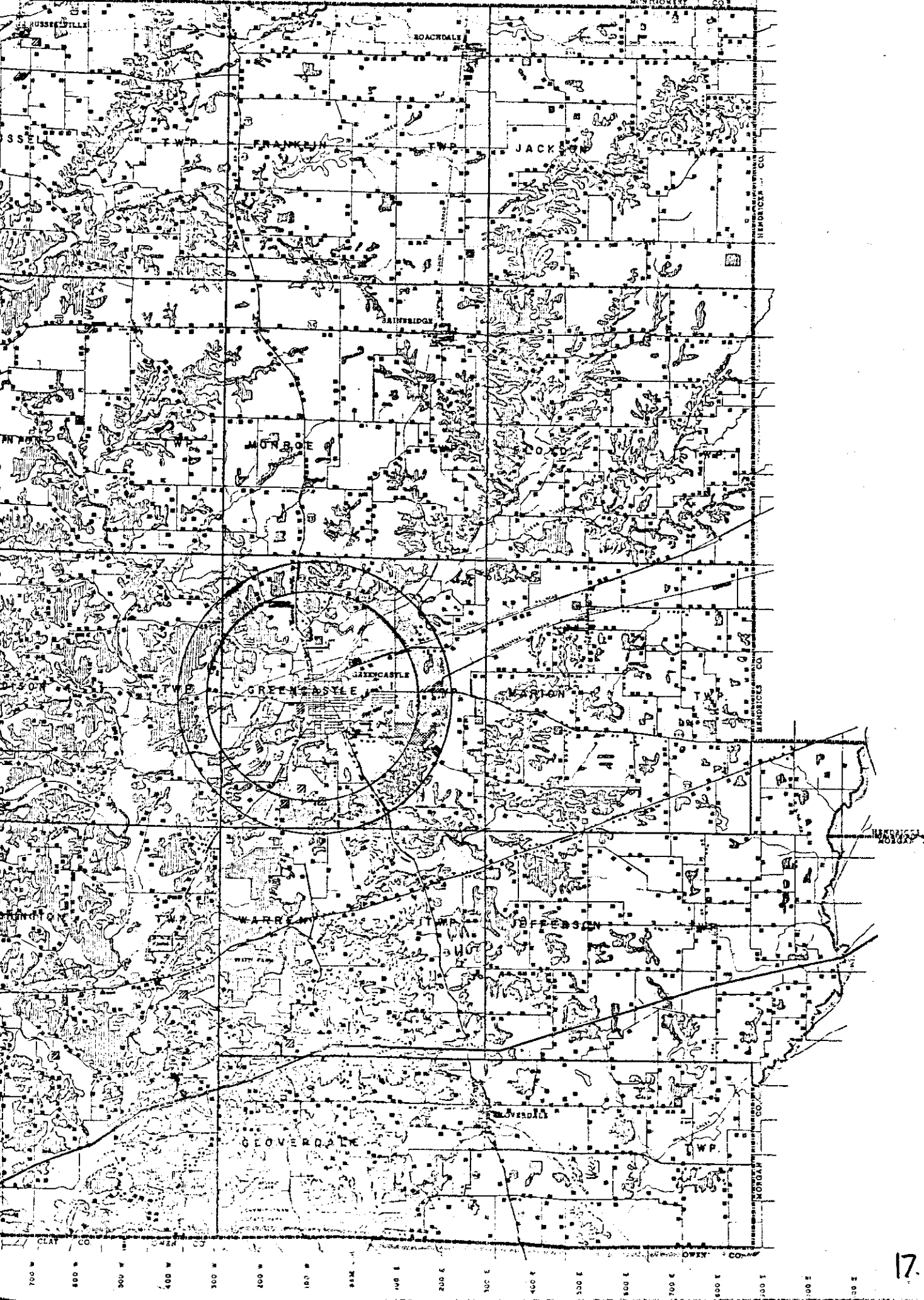
The site of the new Putnam County Hospital is less than one-half mile from the existing county owned facility and less than one mile from the county hall in the center of downtown.

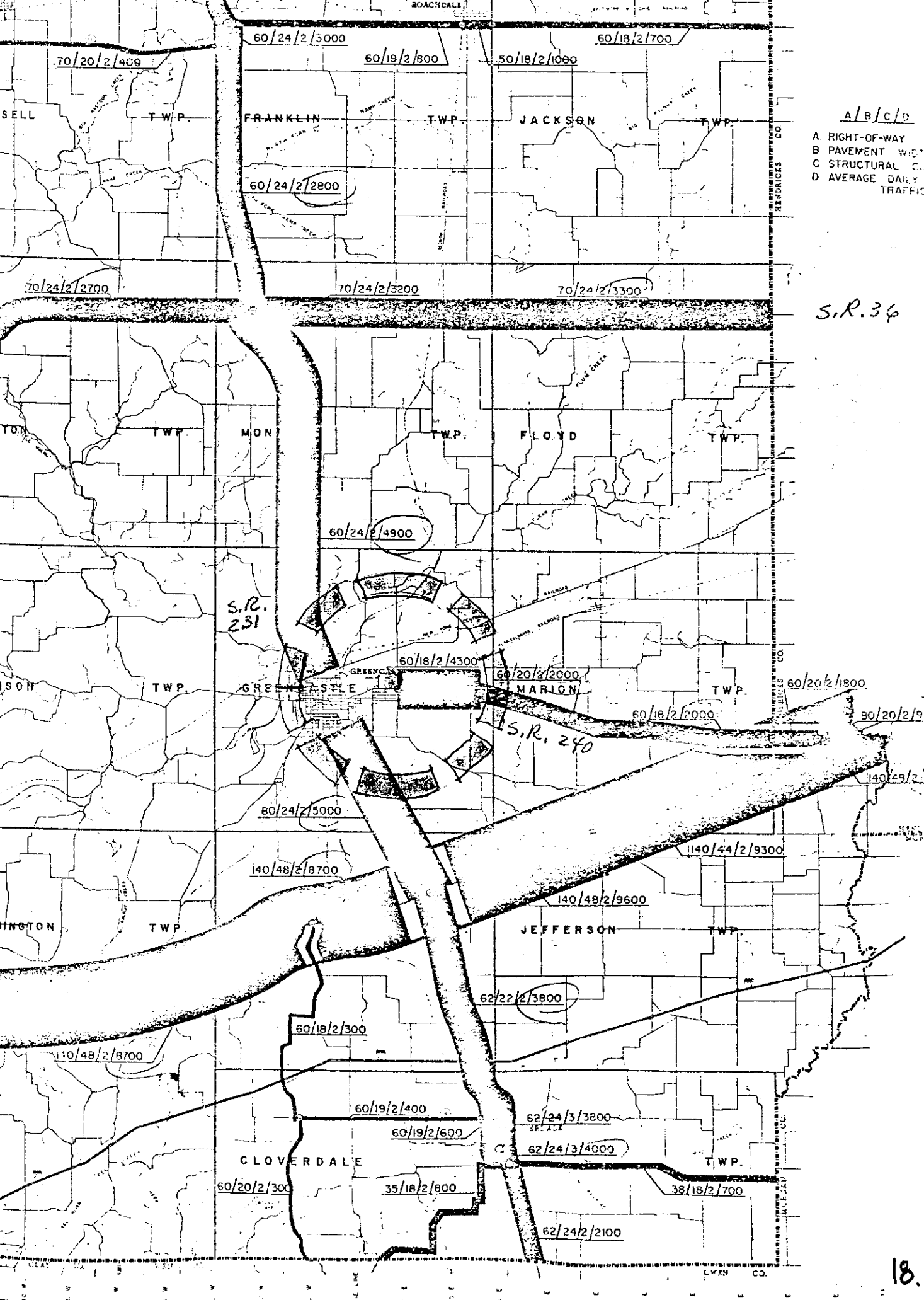
Putnam County Hospital

Site Organization

Patient, outpatient/emergency, visitor and staff access is to be from Shadowlawn Avenue Extended. The main entrance should be visible to approaching visitor and O.P./emergency traffic and the option of driving to the main entrance or directly to the parking areas should be provided and clearly perceived. Short-term parking spaces should be provided near the main entrance for admitting, discharge and emergency patient traffic. The outpatient/visitor parking area should be located for direct and easy access to the main entrance.







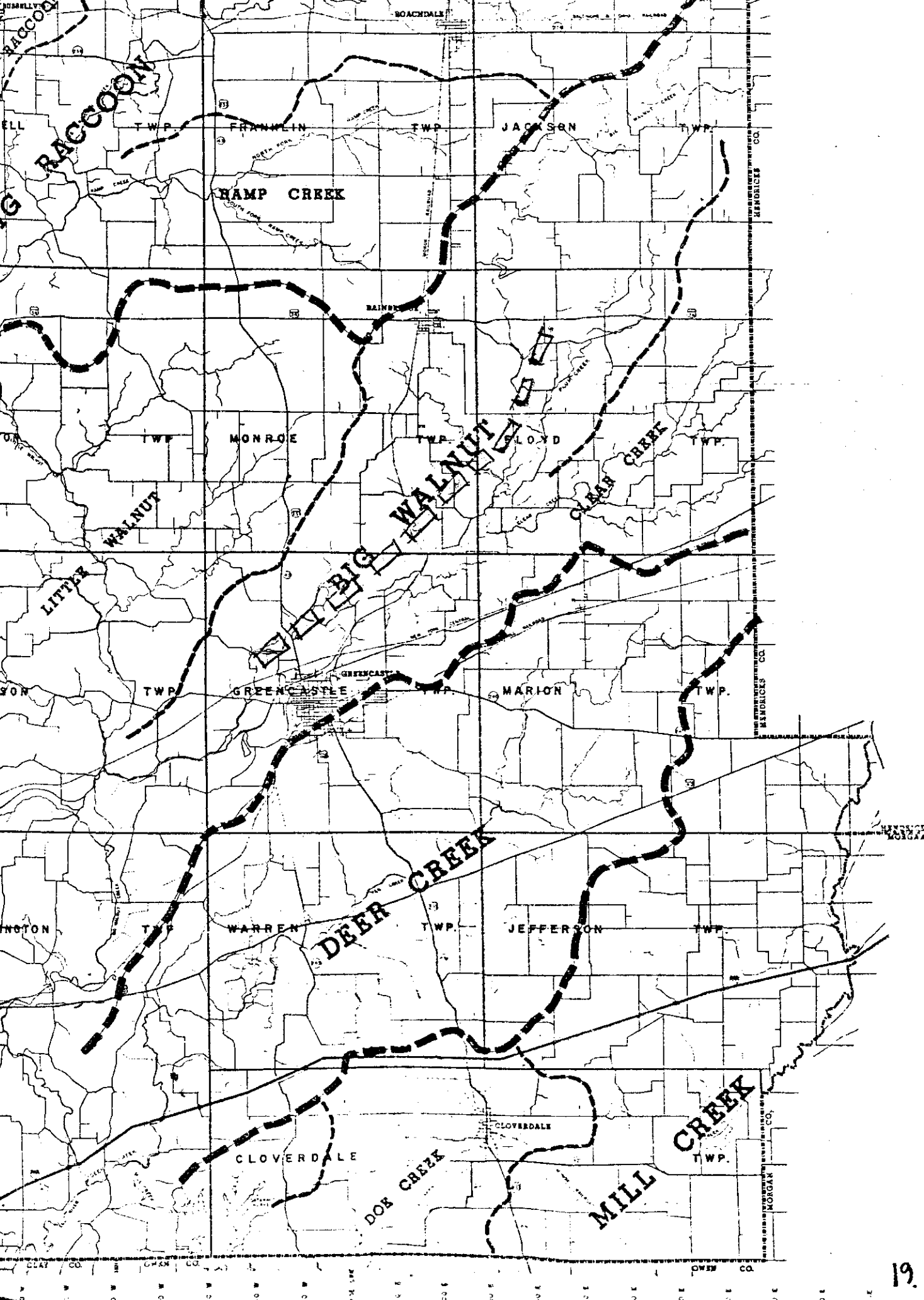
A/B/C/D

- A RIGHT-OF-WAY
- B PAVEMENT WIDTH
- C STRUCTURAL CLASSIFICATION
- D AVERAGE DAILY TRAFFIC

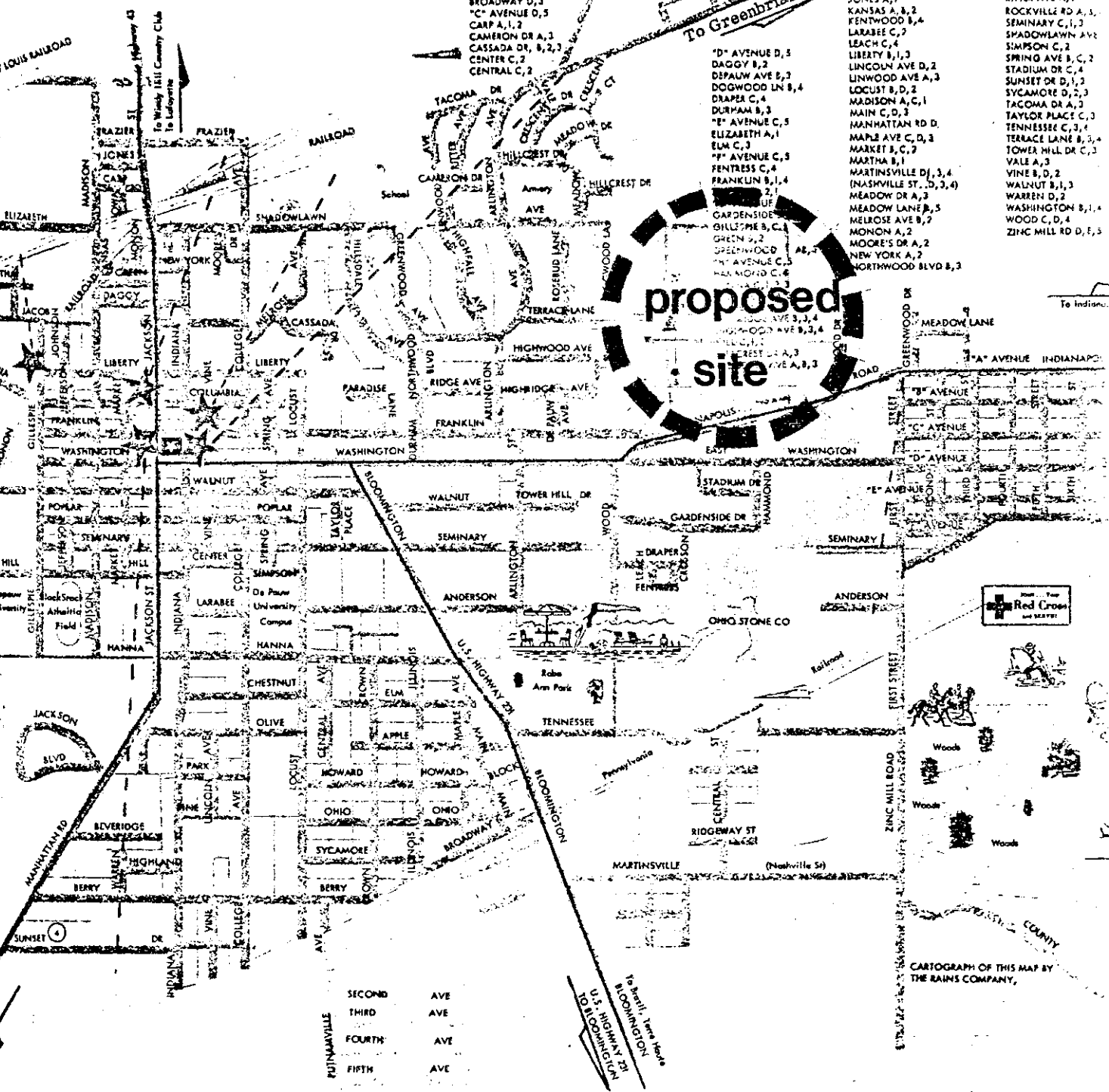
S.R. 36

S.R. 231

S.R. 240



CARE!



INDEX TO STREET LOCATIONS

- "A" AVENUE D,3
- ANDERSON C,3,4
- APPLE D,3
- ARLINGTON AVE A, B,3
- ARLINGTON ST B, C,3
- "B" AVENUE D,3
- BERRY D,1,3
- BEVERIDGE D,2
- BLOCK D,3
- BROOMINGTON B, E,3,4
- BROADWAY D,3
- "C" AVENUE D,5
- CAMP A,1,2
- CARRISON DR A,3
- CASSADA DR, B,2,3
- CENTER C,2
- CENTRAL C,2
- CENTRAL ST D,4
- CHESTNUT C,2,3
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- CRESCENT DR A,3
- CRESCENT CT A,3
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- ILLINOIS C, E,3
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- INDIANAPOLIS RD B,3,5
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- JACKSON BLVD C, D,1,2
- JACKSON ST A, C,2
- JACOB B,1
- JEFFERSON B, C,1
- JOHNSON B,1
- JONES A,1
- KANSAS A, A,2
- FENTWOOD B,4
- LARABEE C,2
- LEACH C,4
- LIBERTY B,1,3
- LINCOLN AVE D,2
- LINWOOD AVE A,3
- LOCUST B, D,2
- MADISON A, C,1
- MAIN C, D,3
- MANHATTAN RD D
- MAPLE AVE C, D,3
- MARKET B, C,2
- MARTHA B,1
- MARTINSVILLE DJ,3,4
- (NASHVILLE ST., D,3,4)
- MEADOW DR A,3
- MEADOW LANE B,5
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- MOORE'S DR A,2
- NEW YORK A,2
- NORTHWOOD BLVD B,3
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- PINE D,2
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- POTNAMVILLE AVE B,3
- ROSEBUD LANE B,3
- RIDGE AVE B,3
- RIDGEWAY ST D,4
- BITTER AVE A,3
- ROCKWELL DR A,1
- SEMINARY C,1,2
- SHADOWLAWN AVE B
- SIMPSON C,2
- SPRING AVE B, C,2
- STADIUM DR C,2
- SUNSET DR D,1,2
- SYCAMORE D,2,3
- TACOMA DR A,2,3
- TAYLOR PLACE C,3
- TENNESSEE C,3,4
- TERRACE LANE B,3,4
- TOWER HILL DR C,3
- VALE A,3
- VINE B, D,2
- WALNUT B,1,3
- WARREN D,2
- WASHINGTON B,1,4
- WOOD C, D,4
- ZINC HILL RD D, E,3

proposed site



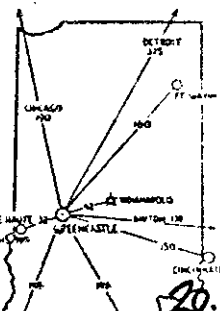
CARTOGRAPH OF THIS MAP BY THE RAINS COMPANY,

- SECOND AVE
- THIRD AVE
- FOURTH AVE
- FIFTH AVE
- POTNAMVILLE
- U.S. HIGHWAY 23
- BLOOMINGTON
- To North, 1/2 mi. above BLOOMINGTON

HISTORY

TEN O'CLOCK INDIAN BOUNDARY LINE—The Ten O'Clock Indian Boundary Line was a line running diagonally southeast from the mouth of Big Raccoon Creek in Vermilion County on the Wabash River to a point on the east bank of White River about five miles above Brownstown, Indiana, Jackson County. This line which crosses the southern parts of Washington and Cleverdale Townships, was established in a treaty with the Indians made by General Harrison at Fort Wayne 1809. Southeast of this line the land was made available for settling by the whites, the land north and west of the line being reserved to the Indians. When Indiana was admitted to the union in 1816, the Indians still had a claim on about two-thirds of the territory, but in 1818 the previous treaty with the Indians was revised and another large territory north and east of the Ten O'Clock line was open for settlement. The name Ten O'Clock Line came from the fact that the boundary was established in the general direction of the line of the shadow of a tree at ten o'clock, the time of consummation of the treaty.

PLATTAM COUNTY was created by an Act of the Legislature approved December 2, 1821. The first white settlers entered land in Washington Township in 1818 "near the forks of Red River." In 1823 Ephraim Drake and his wife conveyed 10 acres for a town site which was named Greenacres, and this with 80 acres added two years later became the "Old Plat" of the town, now the city of Terre Haute, which includes the Public Square and Business district. The first 1826 court was held in the cabins of the settlers. The first Court House was erected in 1828-29, the second in 1837.



EMERGENCY

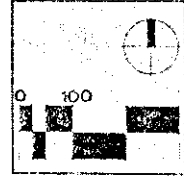
FIRE POLICE

FIRE.....OL 3-4111

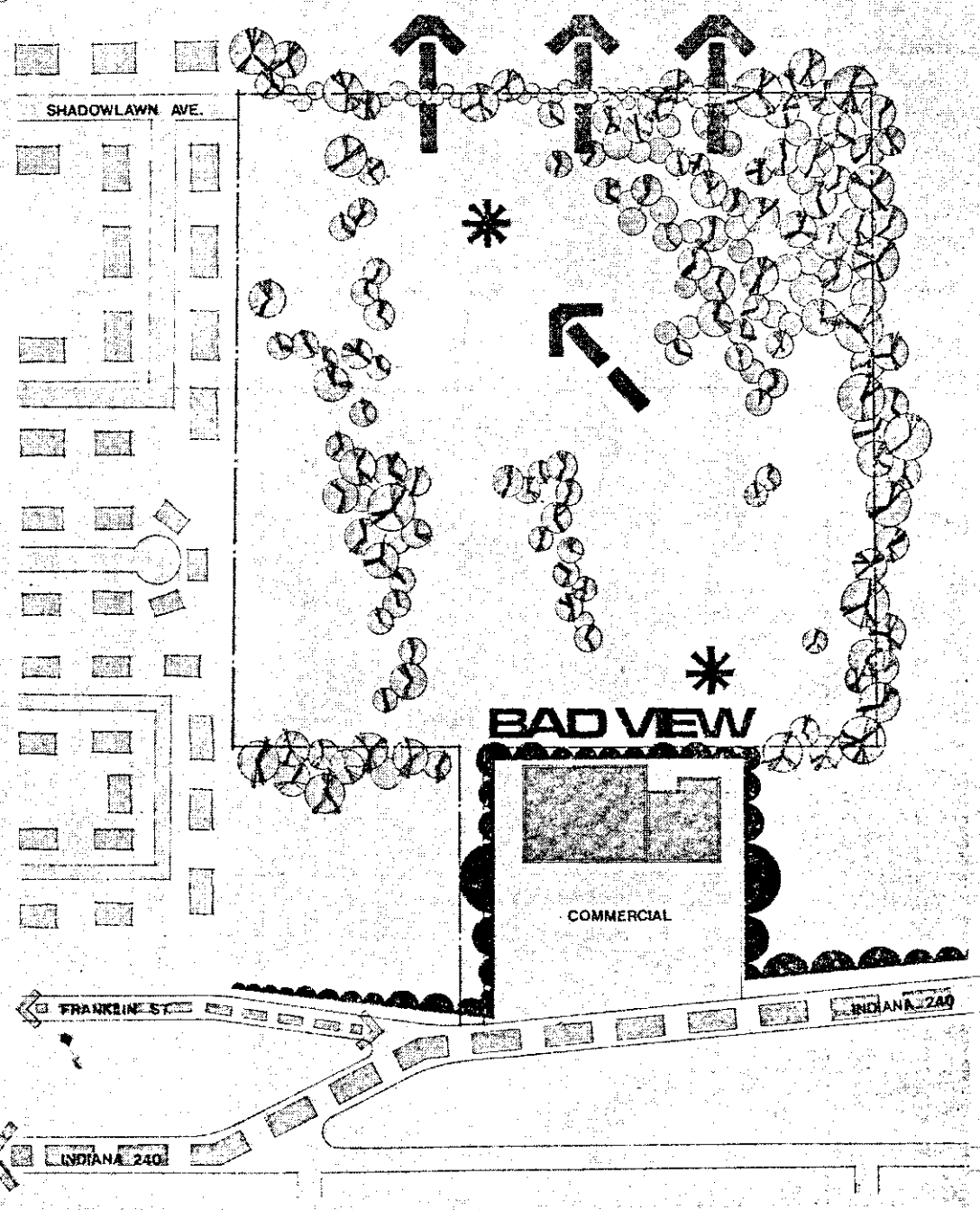
POLICE...OL 3-3953

SHERIFF...OL 3-4511

STATE POLICE...OL 3-4114



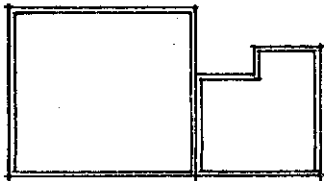
| | | | |
|--|----------------------|--|---------------------|
| | DESIRABLE VIEWS | | HIGH POINTS OF SITE |
| | TRAFFIC FLOW (UNDIR) | | EXISTING RESIDENCES |
| | SITE NOSE | | EXISTING STRUCTURES |



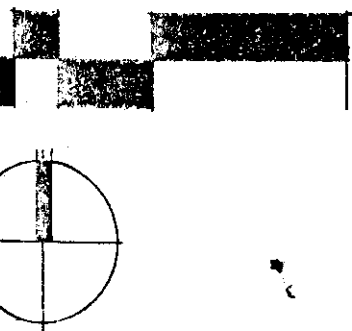
shadowlawn extension

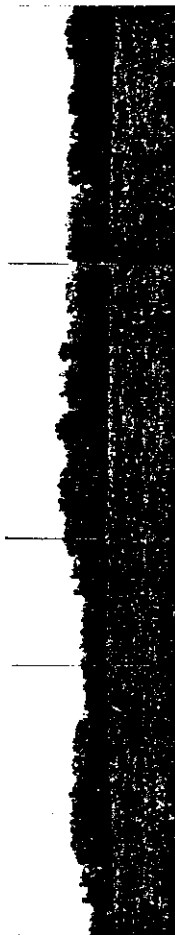
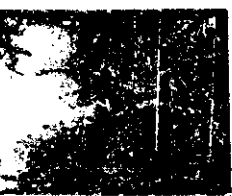
VISITORS
OUTPATIENTS

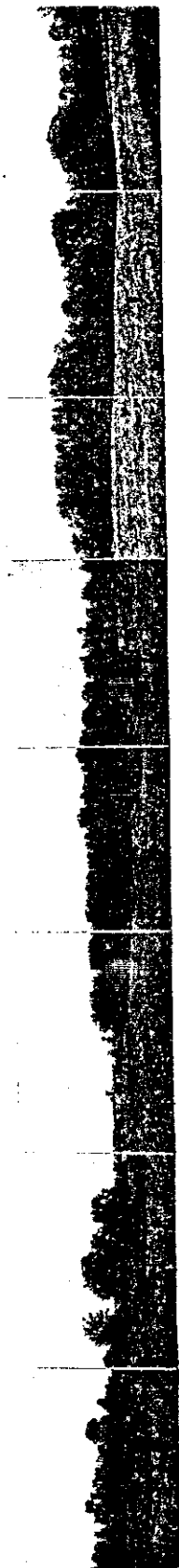
EMERGENCY
SERVICE
EMPLOYEES



indiana 240







**PLANNING
ANALYSIS**

Putnam County Hospital

Site Response

The following pages are the result of the preceding site analysis on the Putnam County Hospital site in Greencastle, Indiana. They respond to the needs of the schematic criteria established for both the building and the site.

- LOCATION locate building and parking in a specific area.
 existing drainage.
 cut-fill.
- ACCESS entrance and egress.
 parking.
- VIEWS patients from within (treatment; tranquility)
 visitor image and recognition.
- FLEXIBILITY ability to meet demanding building constraints.
 expansion.
 will respond to a variety of concepts.
- SCALE site has specific boundries (envelope).
 along with the topography, there are many existing trees that
 will provide integration of vehicles, pedestrian, and building.

Putnam County Hospital

Building Organization

Planning for the 85 bed Putnam County Hospital considers the five basic functional areas; inpatient services, ancillary services, logistical services, administrative services, and plant services. Departments within these areas and rooms within the departments are enumerated later in the program. The functions included in each of these five areas have close operational interdependencies and generate similar patient, staff, service, and visitor traffic activity. It is vital to the overall success of the hospital to effectively, economically, and efficiently design traffic flow. It is this end result that demands planning initially, for these five basic functional areas.

These functional areas, despite their interrelationships, are very distinct in their own needs with respect to pedestrian entries and vehicular entrances required. The diagram illustrates their individualistic characteristics in relation to how these functions should be planned on the site. Considerations will include wind, view, sun, privacy, entry statements, accessibility, parking, drives, and others.

Putnam County Hospital

Department Organization

INPATIENT SERVICES

- Medical Care
- Surgical Care
- Obstetrical Care
- Concentrated Care
- Nursery Care

ANCILLARY SERVICES

- Emergency
- Outpatient
- Surgery/Delivery
- Radiology
- Laboratory
- Central Sterile Supply
- Pharmacy
- Physical Therapy
- Inhalation Therapy

LOGISTICAL SERVICES

- Purchasing/General Stores
- Dietary
- Housekeeping/Linen

ADMINISTRATIVE SERVICES

- Administration
- Business Office
- Medical Records
- Public Areas

PLANT SERVICES

- Employee Facilities
- Engineering and Maintenance
- Mechanical

BED NEED CALCULATIONS

projected population (1979) 32,300

1972 use rate = 660

80% occupancy

$$\text{use rate} = \frac{\text{patient days (1972)}}{\text{current population (1972)}} = \frac{20,316}{30,400} = 660$$

$$\frac{\text{projected population} \times \text{use rate}}{365 \text{ days}} = \frac{\text{average daily census}}{80\% \text{ occupancy}} + 10$$

$$= \frac{32,300 \times 660}{365}$$

$$= \frac{59.1}{.80} = 74 + 10 = \text{84 beds}$$

PATIENT ROOM DISTRIBUTION

| | 2 bed | 1 bed | isol. | # beds |
|-------------------|-------|-------|-------|----------------|
| medical | 11 | 7 | 2 | 31 |
| pediatric | | 4 | | 4 |
| psychiatric | | | 1 | 1 |
| surgical | 15 | 8 | 1 | 39 |
| convalescent care | | 5 | 1 | 6 |
| obstetrics | 2 | | | 4 |
| <u>totals</u> | 20 | 24 | 5 | <u>85 beds</u> |

Putnam County Hospital

Expansion Considerations

A very important aspect of any medical facility is the unpredictability of future needs. The number of variables considered in planning and programming is quite extensive and similarly those considered in expansion of departments is extensive. These include population trends, trends in medical practice, availability of services offered, doctors expertise, and changes in staffing, to name a few.

From a financial standpoint, it is often considered that any medical facility that is less than 100 beds in size is not a feasible endeavor, however, in the case of the Putnam County Hospital the proposed 85 bed facility is a viable project. This is due to the community hospital image it has achieved over the years.

Within the previously mentioned context, expansion capability becomes very important. The programmed ancillary service base could easily accommodate a 100 bed facility and this eventual development could greatly improve the efficiency and successfulness of the hospital.

Thus, expansion must be accommodated within two increments. Within the short range, the addition of 15 beds must be planned without the expansion of any other departments. It must be included here that expansion of any other departments, due to the increase of inpatient functions should not occur, but that expansion by unpredicted factors is a constant possibility. With the addition of 15 beds, no nursing services or support facilities should be required.

In the longer range plan, the overall hospital plan should accommodate an additional self-contained nursing floor. Programmed in this unit will be 35 to 50 beds, nursing station, utility areas and storage facilities. This ultimate capability of a 150 bed medical facility obviously requires that additions to certain key ancillary areas commensurate to the medical and surgical care departments. The actual programming of these proposed expansion capabilities is outlined in the master planning section of this program.

Putnam County Hospital

Masterplanning

The Putnam County Hospital with the planning of an 85 bed new facility has the opportunity to start out brand new. After years of bit by bit planning, finally expansion and growth can be accommodated in an orderly fashion. The short range plan calls for an additional 15 beds and the long range plan adds 35 to 50 more beds totalling the ultimate capacity at 150 beds.

SHORT RANGE PLAN

15 additional beds

No ancillary department expansion

LONG RANGE PLAN

35-50 additional beds

Department expansions

Putnam County Hospital

Programming Issues

The following comments relate to the department relationship matrix and must be considered during schematic development. They are outlined here to indicate their significance and to provide guidance in planning.

Staffing and patient care could be enhanced by grouping emergency, delivery, surgery, recovery, intensive care, and CCU in one area.

Delivery and surgery by code will share recovery facilities.

Recovery adjacent to surgery with an entrance from surgical suite and an exit to inpatient nursing units.

Outpatient surgery facilities should be near the department of surgery.

Emergency department should be near outpatient surgery.

CSR near surgery and should be planned for soiled receiving and clean issue traffic flow.

Emergency and radiology should allow movement within, without exposure to public (outpatient).

Pharmacy location near inpatient nursing stations or near elevators.

General stores near maintenance and housekeeping for efficient use of personnel.

Maintenance shop near purchasing.

Waiting rooms will be heavily used (prime consideration).

**SPACE
ANALYSIS**

Putnam County Hospital

Inpatient Services

The primary planning considerations for the nursing areas will include: climate orientation; optimizing the views to the north, east, and west; a segregation of public traffic and in-house traffic; separation from vehicular access drives; and both vertical and horizontal transportation links with the other functional areas of the hospital. Particularly close staffing and patient movement links are required between the inpatient units and surgery/recovery and labor/delivery areas.

The fact that the use-rate methodology is based upon the utilization of the existing facility and is limited by many factors which have comprised the overall census performance of the Putnam County Hospital leads one to believe that this new facility will generate a bed need in excess of the proposed 85. From a marketing standpoint, a 100 bed facility would probably not be out of reason. Expandability becomes very important within this context.

The bed distribution for the nursing units is as follows:

| | | |
|-------------------|---------|---------|
| MEDICAL CARE | | 36 beds |
| medical | 31 beds | |
| pediatric | 4 beds | |
| psychiatric | 1 bed | |
| SURGICAL CARE | | 39 beds |
| surgical | 39 beds | |
| OBSTETRICAL CARE | | 4 beds |
| surgical | 4 beds | |
| CONCENTRATED CARE | | 6 beds |
| surgical | 6 beds | |
| NURSERY CARE | | - |
| | | 85 beds |

Departmental planning and adjacencies within these basic service groups should accommodate the following considerations.

CONCENTRATED CARE

adjacent to surgical recovery on the one hand and acute surgical in-patient care on the other. This concentration of facilities permits centralization of trauma-trained nursing staff and step-down patient care. If possible, planning should permit "swing" utilization of beds and joint utilization of nursing support facilities. Family waiting, consultation, toilet and telephone facilities are provided in this area for recovery and concentrated care.

Patient rooms should have solid dividing walls but glass fronts for direct supervision from the nurses station. Patients' vital signs will be monitored at the nurses station for the six concentrated care beds and through telemetry for two adjacent one-bed rooms on the surgical unit.

OBSTETRICAL CARE

locate adjacent to labor/delivery on the one hand and surgical acute care beds on the other. These relationships should permit staffing options and "swing" utilization between ob and adjacent surgical beds, and these are important considerations for quality care and economy of operation in a maternity service of this small size. Planning would ideally permit both:

- independent staffing of labor/delivery and nursery; staffing of post-partum beds from the surgical acute care nurses station and
- staffing labor/delivery, post-partum beds, and nursery from one nursing station.

MEDICAL AND SURGICAL CARE

in addition to the relationships for surgical care discussed in the previous paragraphs, planning for the medical and surgical units would ideally permit the use of one nurse station and support area for the reduced night-time staffing requirement.

The units should be planned so that patients do not feel isolated from the nursing staff - so that they can be aware, if they choose, of internal nursing unit activities - and, conversely, so that nurses have a comprehensible overview of, and a sense of involvement in, the nursing unit. Planning should anticipate expansion by approximately 15 beds without functional compromise for these beds or disruption of the initial inpatient care relationships described.

NURSERIES

nurseries should be located adjacent to post-partum beds for ease of movement of babies at feeding time. Planning should permit visual observation of the required two full term and one observation nurseries from a central nurse work area. The full-term nurseries should be entered directly from this area but the observation nursery must have its own workroom located for ease of access from the central work area and adjacent to gown and scrub, so that the nurse going into the observation nursery can regown and scrub before reentering the full-term work area. View windows from corridors outside the nursing unit are required for all three nurseries.

PEDIATRIC CARE

these four rooms should be located on the medical acute care unit adjacent to the nurses station. Glass partitions should be used for ease of nurse supervision. Noise transfer between these pediatric beds and playroom and the adjacent medical care beds should be minimized by planning pediatrics as a unit within the larger confines of the medical unit. The rooms are sized to accommodate a crib and a parent bed. Parents should be made welcome and encouraged to stay with their infants. The provision of appropriate overnight, toilet, and lounge facilities will accomplish this. Planning should permit the occasional use of adjacent adult medical care rooms for pediatric cribs and cots.

Putnam County Hospital

Ancillary Services

Those ancillary services which offer diagnoses, therapy or other forms of treatment have experienced an increase in demand on a national level. Certainly this is applicable in Greencastle. Increasing restrictions on inpatient care will continue this trend. When the 85 bed inpatient capability reaches a saturation point, the major growth potential will be the continuing increase in outpatient orientation. What this means in terms of facility planning, is that the design of these ancillary services should reflect this emphasis and should make considerable accommodations for the outpatient.

The design solution must make this accommodation in the floor plan and relationships of the departments offering outpatient and emergency services. Their relationships should be based upon the logical traffic flow of such a patient and the need for staff control over this patient at all times. To the patient, the hospital is often perceived as a confusing assortment of technological hardware and procedures. Radiology, laboratory, physical therapy, respiratory therapy, outpatient surgery, and the emergency services will be grouped in the hospital as to clarify, for the patient, where he should be, how he should proceed, and who he should see.

EMERGENCY/OUTPATIENT

outpatients enter through the main entrance and are directed from the information center to the outpatient reception and waiting area. This movement is facilitated if the outpatient reception and waiting areas are visible from the main entrance. A separate entrance is provided for traumatic emergencies arriving by ambulance. This entrance should be controlled from the outpatient reception area, but traffic from the ambulance entrance to the emergency treatment room should not be visible from the outpatient waiting room and consultation facilities.

If planning permits, this waiting area in the outpatient consultation section would ideally be used by radiology and laboratory as well. This would simplify outpatient control and localize the movement of these patients within the hospital. Admitting, medical records and cashiers should be planned in the traffic pattern between the entrance and the outpatient reception and waiting area.

To separate outpatients and emergency traffic, it will be necessary that the consultation/exam rooms and the emergency treatment rooms be separated. One of the emergency treatment rooms will be used for cast changes, however, and the examination rooms should be available in the event that additional emergency treatment facilities are required, so these rooms should be accessible to both outpatients and emergency patients. Also, staff and supply facilities should be planned for close access to both sets of rooms.

Planning should permit movement of an emergency patient to radiology, surgery or concentrated care without involvement in outpatient or public areas.

SURGERY AND DELIVERY

While the State Health Regulation dated 1970 do not permit joint utilization of support services by surgery and delivery, the U.S. Public Health Service Regulations were revised in 1974 to permit consolidation. Facilities outlined in this Program are based on the United States Public Health Service Regulations.

Surgery/delivery is ideally located near emergency, x-ray and laboratory for the easy movement of emergency patients, radiology technicians to the cystoscopy and orthopedic x-ray control station, and gross tissue specimens respectively. In a hospital of this size, for nurse supervision and development of swing bed possibilities, it is also ideally located contiguous to the inpatient care units. As discussed earlier, the close relationship of recovery, concentrated care and surgical acute care permits centralization of trained nursing personnel, step-down patient care, swing utilization of beds, and joint utilization of nurse support facilities. Also, adjacencies between labor, delivery, post-partum beds, and nurseries permits similar flexibility and economy of staffing and facilities utilization.

Inpatient movement to surgery is from the nursing unit to patient preparation, to operating room, to recovery and back to the patient care units. Surgical outpatients check-in at the control station and move through the dressing and locker area to the patient prep cubicles. From patient prep their movement is to the operating room, to recovery, and back to patient prep and dressing before discharge. Maternity patients are admitted to labor, move to the delivery room (or possibly to one of the operating rooms of cesarian sections), and from the delivery are either moved directly to a post-partum bed or routed through surgical recovery when indicated. The baby is bathed in the delivery room and moved directly to the nurseries.

The surgical section (and possibly the delivery section as well, if practicable for one delivery room) should be planned on the triple corridor arrangement. This planning permits separation of traffic flow between clean and soiled supplies, personnel, physicians, and patients. Clean supplies, personnel, and surgeons enter the operating rooms from an internal clean supply and staff corridor. Locker facilities should be planned so that staff enter from the outside, move through the lounge and changing areas and don a scrub gown before entering the clean supply corridor. Upon completion of a procedure, patient, soiled material, and staff are all considered dirty and they leave the operating room via the peripheral corridor. The patient moves on to the recovery area, soiled material to soiled collection rooms, and staff to the locker rooms where they leave their scrub gowns, bathe, change, and leave the department or prepare for re-entry to the clean supply corridor for the next case.

While this flow would also be desirable for the delivery room, its separation from the operating rooms on the one hand and the joint utilization of locker facilities on the other may not permit it.

Upon completion of the surgical caseload, the nurses move to central sterile supply for the reprocessing and sterilization of instruments and the preparation of surgical packs. For ease of staffing and operation, space economies, and elimination of double handling of supplies, it would be very desirable to plan central sterile supply contiguous to the operating room block in such a way that sterile supplies move directly to the clean supply corridor in surgery and that soiled materials move directly from operating rooms to the soiled receiving and decontamination area in central sterile supply.

Two of the four operating rooms are equipped with surgical tables and fixed x-ray equipment for cystoscopy and orthopedic work. Planning, however, should not preclude the use of these rooms for other surgical procedures. These two rooms should flank a control station and dark room, and the cystoscopy room should be located for ease of access to the outpatient surgery staging area.

Recovery should be located near the operating rooms, convenient to the surgeon's changing area and lounge, and adjacent, if possible, to concentrated care and acute surgical care. Facility should include recovery beds in cubicles with the exception of one bed for isolation or terminal cases which is to be enclosed with glazed partitions permitting observation from the recovery nurses station.

Surgery and delivery should be located on an outside wall at ground level with the major patient movement and clean supply corridors located perpendicular to the outside wall and operating, delivery, and recovery rooms positioned for horizontal expansion while maintaining general organization and traffic flow.

RADIOLOGY

serves in and out-patients for diagnostic and treatment work in radiography and fluoroscopy. It should be located near the outpatient/emergency department and nursing units for ease of access by patients, and adjacency to surgery would permit coverage of cystoscopy and orthopedic x-ray procedures and processing by x-ray technicians.

As stated previously, radiology outpatient waiting can be combined with waiting for exam/consultation, laboratory, and physical therapy outpatients. Depending on planning, it may also be possible to provide one central reception and control point for all of these outpatient functions. Inpatients arrive in the radiology department by stretcher or wheelchair and a separate inpatient/series waiting area is located accessible to hospital corridors so that inpatient flow can be independent of outpatient traffic.

Three dressing cubicles and a toilet are provided for each of the two x-ray rooms. Outpatients move through dressing, to the x-ray room, return to the dressing cubicle, are discharged when the film has been viewed for technical clarity, dress and leave. The three dressing cubicles permits staging of patients so that there is no interruption in the use of x-ray equipment. The toilet should be planned so that it is accessible from the x-ray room and from the dressing cubicles. Patients undergoing series examinations wait in the inpatient waiting area between exposures.

The x-ray rooms are both equipped for radiographic and fluoroscopic procedures and should be planned flanking a dark room and control station so that one technician can work both rooms passing film through cassette pass boxes to a darkroom technician or entering the darkroom and processing the film himself between each patient. Planning should permit the radiologist to move between the two darkened rooms without entering a lighted area when he is doing fluoroscopy.

An automatic processor is used which discharges film to a viewing and sorting area. At this point the film is checked for acceptability and a jacket is typed. The film is available at this point for initial viewing by radiologists and physicians. Processed films are collected periodically by the film file clerk, matched with previous films for that patient, and taken to the radiologist's office for reading and dictation. The typed report is combined with the film and returned to the file area. The Radiologist's office and reading room also serves as a viewing and consultation area and should be conveniently located with respect to film sorting and film files. Planning should separate patient flow from film processing, viewing, consultation, and files. The radiologists control point should link the patient and staff areas

and the radiologists office, while outside patient flow, should be accessible to patients. Physicians entering the viewing and consultation areas should be able to do so without encountering patient traffic.

Radiology can be expected to expand in response to increasing use by inpatients and outpatients and expanding diagnostic techniques. The department should be located on an outside wall and planned so that horizontal expansion can occur without compromise of patient and staff traffic and film processing procedures.

LABORATORY

As stated previously, a central outpatient waiting area can be used by the laboratory. If this level of consolidation cannot be achieved in planning, outpatient waiting and reception can be combined for x-ray and laboratory.

The specimen area, including a specimen toilet and blood drawing chair, and the blood donor room should be located adjacent the outpatient waiting area. Pass-throughs should be provided from the specimen collection toilet to urinalysis, from blood drawing to hematology, and from blood donor to the crossmatch and blood bank area.

The blood donor room will be used for history taking and blood drawing and should be equipped with a desk and visitor chair as well as the blood drawing chair.

The constantly changing and increasing uses of laboratory procedures demand the provision of a flexible space and the size of this laboratory service requires that technicians handle various procedures rather than being identified with one procedure. For these reasons, facilities for those procedures which can be consolidated, urinalysis, hematology, chemistry, and possibly seriology, should be planned as modular work bays in one large space. Such grouping permits adjacent work areas to be used when workloads vary from section to section. Separate rooms, however, are required for bacteriology and gross tissue. The autopsy room and morgue is ideally located adjacent to both the laboratory and the loading dock. If planning does not permit this, it can be in either location. If located with laboratory however, movement of cadavers to the loading dock must be possible without encountering patient or public traffic.

It is anticipated that the laboratory should be an increasingly important diagnostic tool with expansion of both service and technology. It is important, therefore, that the laboratory be located and planned for horizontal expansion and/or internal modification with minimal disruption of service.

PHYSICAL THERAPY

Physical Therapy should be located in the inpatient and outpatient traffic flow system which services the other diagnostic and treatment areas. An outside exposure and access to a protected exterior court are desirable and suggest a ground floor, exterior wall location.

Patient movement is from reception through dressing and toilet area to hydro-therapy, treatment cubicles and exercise area. The dressing and toilet facilities should be accessible to these areas without requiring movement through the reception area. Two treatment cubicles and a hydro-therapy cubicle with one whirlpool and a treatment table are provided. These should be planned with solid dividing partitions and curtained fronts. However, control of humidity from the hydro-therapy area may require a complete enclosure and door for that function. The exercise room will include parallel bars, exercise mats, wall mounted exercise apparatus and be 20' long to permit gait studies.

With increasing emphasis on preventive and rehabilitative medicine and increasing third party payments, this department has growth potential and planning should permit future expansion.

Putnam County Hospital

Logistical Services

The non-clinical support services which sustain the delivery of medical care through the provision of necessary supplies and services will include general stores, housekeeping, dietary. These departments will be grouped due to their relationship to the delivery point as well as the need to segregate these services from the patient care and public areas of the hospital.

PURCHASING/GENERAL STORES

Material management functions of the hospital will be handled by this department. All goods entering the hospital (including dietary deliveries) will come to this central receiving point. Other hospital departments will then be supplied by a cart exchange system emanating from the general stores function.

HOUSEKEEPING/LINEN

Supplies will come from the general stores department. Trash collected at various points of use within the hospital will be transported to a centralized compactor for removal. The housekeeping department will also control the linen management function. No laundry will be provided within the facility and all laundry materials will be delivered to the hospital on a contract basis.

DIETARY

Designed to employ a conventional preparation and serving system. The food will be prepared within the kitchen for use in the cafeteria as well as the patient care areas. Once portioned and organized on trays, the meals are delivered by carts to the nursing unit via service elevators. This system will offer considerable flexibility and should be planned so as to be modified as technology allows functional response. Cafeteria and dining facilities are an integral part of the dietary department.

Putnam County Hospital

Administrative Services

As opposed to the logistical support provided by the preceding section, other departments provide non-clinical support of a different nature. The organizational, management and record-keeping tasks that are required for the effective provision of health care fall within the purview of the administrative departments. The business of the hospital facility (with its financial management, public relations, medical and business record-keeping, and the organization of an ongoing training program), is as important to the patient and the community as the direct care rendered by the nursing staff.

It is important that the organization and space allocation relating to these services be appropriate for the patient-oriented functions they provide. In the past, these departments were often minimized to reduce the scope of the physical facility in deference to the functions of direct care. Physical hardships within these management functions, however, can potentially impair the effectiveness of the entire operation. The cost of inconvenience in terms of personnel time is a very real operational cost.

BUSINESS OFFICE

All admitting and discharge procedures will fall into the purview of this department. In addition, insurance, credit, posting and general accounting functions will be performed in this department. As a support to the business office, computer facilities and business machines will be included.

ADMINISTRATION

Will be designed to accomodate the administrator and his administrative staff. In addition to waiting, secretarial and conference areas, other related administrative functions of the hospital will be consolidated, such as nursing personnel.

MEDICAL RECORDS

Will be convenient to physicians entering the hospital at that entry designated. It will provide space not only for transcribing and file storage, but also the dictation center for visiting physicians. Also included will be a lounge and library for the sixteen staff doctors.

PUBLIC AREAS

In addition to the spaces and functions provided within each of the hospital departments, there will be functions scattered throughout the hospital that serve patients, visitors, staff and employees. Vending facilities, lounges, toilets, telephones, reception point, and a gift shop.

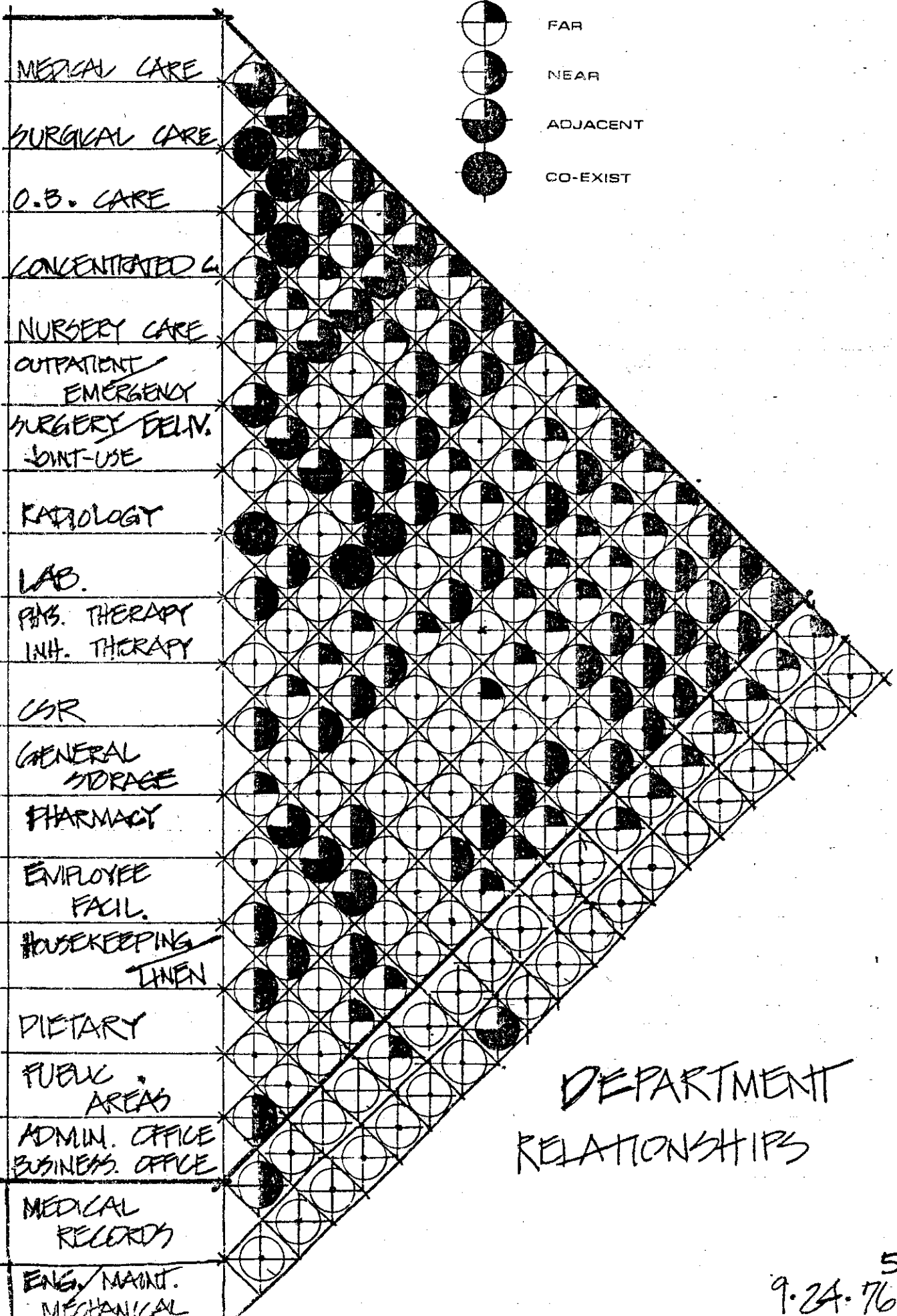
Putnam County Hospital

Plant Services

The maintenance of a hospital requires the allocation of spaces in many areas of the facility. Throughout the building will be facilities for employees, engineering and maintenance, and the mechanical systems necessary for proper functioning.



NOT COMPATABLE
 FAR
 NEAR
 ADJACENT
 CO-EXIST



DEPARTMENT RELATIONSHIPS

58.
 9.24.76

SPACE REQUIREMENTS

NOTES:

calculations

85 total beds

$$1636 \times 6 \div 365 \div 70\%$$

$$= 39 \text{ beds}$$

$$39 \div 85 = 46\%$$

pediatric 4 beds

SURGICAL CARE (39 beds)

Space Requirements

surgical

| | |
|---------------------------|------|
| 2 bed rooms 15 @ 200 | 3000 |
| 1 bed rooms 8 @ 140 | 1120 |
| isolation room | 160 |
| toilet-shower 24 @ 50 | 1200 |
| day room | 200 |
| nurse station | 240 |
| nurse conference | 100 |
| doctor dictating/charting | 60 |
| medications | 40 |
| nourishments | 80 |
| clean supply | 140 |
| soiled collection | 100 |
| exam and treatment | 120 |
| tub room | 40 |
| janitor | 10 |

TOTAL 6710

NOTES:

calculations

85 total beds

6 conc. care
 39 surgical
 4 obstetrical

 49 beds

85 - 49 = 36 beds

pediatric 4 beds
 psychiatric holding 1 bed

1973 statistics:

1636 procedures
 6 day average stay
 70% average occupancy

MEDICAL CARE (36 beds)

Space Requirements

medical

2 bed rooms 11 @ 200 2200
 1 bed rooms 7 @ 140 980
 isolation rooms 2 @ 160 320
 toilet/shower 20 @ 50 1000
 day room 300

pediatric

1 bed rooms 4 @ 150 560
 toilet/bath 4 @ 50 200
 equipment storage 80
 playroom 120
 parents lounge 120

psychiatric

isolation room 160
 toilet/shower 50

nurse station 240

nurse conference 100

doctor dictating/charting 60

medications 40

nourishments 80

clean supply 140

soiled collection 100

exam and treatment 120

tub room 40

janitor 10

share with surg. care nurs. unit:

supervisor's office 80

nurses lounge, lockers 200

equipment storage 120

wheelchair facilities 120

public facilities 70

staff toilet 30

TOTAL

7640

NOTES:

calculations

80% average occupancy
average stay 3.3 days
projected births 310/yr

$$310 \times 3.3 \div 365 = 2.8 \text{ beds}$$

$$2.8 \div 80\% = 4 \text{ beds}$$

OBSTETRICAL CARE

Space Requirements

| | | |
|-------------------|------------|-----|
| two-bed rooms | 2 @ 200 | 400 |
| toilet-shower | 2 @ 50 | 100 |
| sitz bath | | 40 |
| nurse station | share with | |
| clean supply | labor/ | |
| soiled collection | delivery | |
| TOTAL | | 540 |

NOTES:

calculations

$$85 \text{ beds} \times 7\% = 6 \text{ beds}$$

1 isolation bed

CONCENTRATED CARE (6 beds)

| Space Requirements | |
|------------------------|------|
| one bed rooms 5 @ 120 | 600 |
| isolation room | 160 |
| patient toilets 2 @ 30 | 60 |
| nurse station | 240 |
| doctor dictating | 60 |
| clean supply | 140 |
| soiled collection | 100 |
| equipment storage | 80 |
| family waiting | 160 |
| consultation | 80 |
| public facilities | 40 |
| TOTAL | 1720 |

NOTES:

calculations

total births = 317
 total C-sections (11%) = 35
 total premature C-sec. = 2
 total premature = 23
 total full term = 250

premature + c-sections

60 x 9 day/stay
 540 days ÷ 365 ÷ 80% =
 2 bassinets

Full term

250 days ÷ 365 ÷ 80% =
 3 bassinets

Indiana State Health Regulations require a minimum of 2 full-term nurseries @ 24 sq ft. per bassinet.

$(2 \times 3) + 2 = 8$ bassinets

NURSERY CARE (8 bassinets)

Space Requirements

| | |
|---------------------------|------------|
| full term nursery 2 @ 120 | 240 |
| premature nursery | 80 |
| doctors' scrub/chart | 80 |
| observation nursery | 80 |
| examination and workroom | 160 |
| nurse station | 160 |
| janitor | 20 |
| TOTAL | 900 |

NOTES:

calculations

emergency rooms

$$1007 \text{ yr.} \times 80\% \div 104 \text{ days} =$$

$$8/\text{day} + 50\% \text{ increase}$$

$$12 \text{ day} \div 8 \text{ hrs.} =$$

$$1.5 \text{ hr.} \div 1 \text{ hr./room}$$

= 2 rooms

waiting

| | |
|-------------|---------|
| outpatients | 4/hr |
| emergencies | 1.5/hr |
| | <hr/> |
| | 5.5/hr. |

| | |
|------------|---------|
| companions | 11.0 |
| | <hr/> |
| | 5.5 |
| | <hr/> |
| | 16.5/hr |

16.5 x 1/2 hr. wait = 8 seats

outpatient surgery

based on 10 hr. day

1. O.R.

6 staging

2 recovery

cases staying overnight 10%

EMERGENCY/OUTPATIENT

Space Requirements

| | |
|----------------------------|-----|
| emergency rooms 2 @ 240 | 480 |
| cardiac emergency room | 225 |
| examination room | 120 |
| reception/waiting | 180 |
| resident doctors lounge | 150 |
| patient preparation 4 @ 80 | 320 |
| male toilet/dressing | 100 |
| female toilet/dressing | 100 |
| patient shower/bath | 100 |
| storage | 200 |
| patient holding | 80 |
| clean supply | 100 |
| soiled collection | 100 |
| office | 80 |

TOTAL 2335

NOTES:

calculations

$$5 \text{ hrs/day} \times 6 \text{ days/wk} \times 52 \text{ wks} \\ = 1560 \text{ O.R. hours/year.}$$

operating rooms

$$\text{major/min: } 2203 \text{ hrs.} \div 1560 \\ = 2$$

$$\text{orthopedic: } 360 \text{ hrs.} \div 1560 \\ = 1$$

$$\text{cystoscopy: } 318 \text{ hrs.} \div 1560 \\ = 1$$

$$\underline{\underline{= 4 \text{ O.R.}}}$$

$$85 \text{ beds} \times 48\% \text{ surgical} = 41 \text{ beds}$$

$$41 \times 365 \times 100\% = 12,000 \text{ pat days.}$$

$$12,000 \div 6 \text{ day stay} =$$

$$\therefore 2000 \text{ inpatient cases/year}$$

SURGERY/RECOVERY

Space Requirements

| | |
|--------------------------|-----|
| operating rooms 2 @ 400 | 800 |
| orthopedic surgery | 400 |
| cystoscopy room | 250 |
| minor surgery | 250 |
| exam room | 250 |
| cast room | 250 |
| decontam area | 120 |
| clean and sterile supply | 240 |
| equipment storage | 120 |
| anesthesia storage | 60 |
| nurse dressing room | 80 |
| doctor dressing room | 80 |
| office | 100 |
| janitor closet | 20 |
| doctor charting/conf. | 80 |
| beds 6 @ 100 | 600 |
| isolation bed | 160 |
| nurse station | 60 |
| clean supply | 40 |
| soiled collection | 40 |
| nurse toilet | 30 |

TOTAL 4030

NOTES:

calculations

radiology

1973 patients 8903

7yr @ 7% inc. 4492

(1980) 13,475 pat.

$13,475 \div 4/hr. = 3,370 \text{ hrs.}$

fluoroscopic

1973 patients 1726

7yr @ 7% inc. 345

(1980) 2071 pat.

$2071 \div 6/hr. = 345 \text{ hrs.}$

3370 hrs. radiology

345 hrs. fluor

3715 hrs.

$3715 \text{ hrs.} \div 1872 \text{ hr/mach/yr.}$

$\therefore = 2 \text{ R \& F rooms}$

Film files

$13,475 \text{ pat/yr.} \times 2.5 \text{ films} \times$

$3 \text{ yrs.} \div 600 \text{ films/lin ft.}$

$\div 5 \text{ tiers shelving} =$

$\therefore 34 \text{ linear ft.}$

waiting

$1 \text{ pat/hr.} \div 6 \text{ companions} = 14$

$14 \times \frac{1}{2} \text{ hr. wait} =$

$\therefore = 7 \text{ seats}$

RADIOLOGY

Space Requirements

| | |
|---------------------------|-----|
| fluoroscope rooms 2 @ 240 | 480 |
| therapy room | 120 |
| radiographic room | 120 |
| toilets 2 @ 30 | 60 |
| dressing booths 6 @ 20 | 120 |
| dark room | 50 |
| viewing and sorting | 50 |
| film files | 225 |
| office/conference | 160 |
| storage | 60 |
| tech lounge/lockers | 120 |
| inpatients series waiting | 100 |
| barium preparation | 40 |
| waiting | 120 |
| stretcher park | 30 |
| janitor closet | 20 |

TOTAL 1875

NOTES:

LABOR/DELIVERY

calculations

delivery rooms

$310/\text{yr.} \div 365 = 1/\text{day}$

$200\% \text{ increase} = 3/\text{day}$

$3 \text{ del./day} \div 5 \text{ average stay} = .6$

$\therefore = 1 \text{ delivery room}$

labor rooms

$2 \text{ beds/del. room} \times 1 \text{ del. rm.}$

$\therefore = 2 \text{ beds}$

recovery

$1/2 \text{ or } 1/3 \times 2 \text{ labor beds}$

$\therefore = 1 \text{ bed}$

Space Requirements

| | |
|---------------------|------|
| delivery room | 300 |
| labor rooms 2 @ 100 | 200 |
| scrub-up area | 80 |
| clean supply | 120 |
| nurse station | 80 |
| toilet and shower | 80 |
| fathers waiting | 120 |
| dressing and toilet | 40 |
| janitor | 20 |
| TOTAL | 1040 |

NOTES:

calculations

JOINT-USE FACILITIES

| Space Requirements | |
|-------------------------|-----|
| anesthesiology workroom | 120 |
| storage | 40 |
| equipment storage | 120 |
| doctors facilities | 180 |
| nurse facilities | 180 |
| on-call room | 120 |
| sleep room | 120 |
| TOTAL | 880 |

NOTES:

calculations

crossmatch

work counter 8 l.f.
 sink 2 l.f.
 refrigerator 3 l.f.
 refrigerator cont. 3 l.f.

16 L.F.

hematology

excessioning 4 l.f.
 staining sink 3 l.f.
 counter equip 3 l.f.
 coulter sink 3 l.f.
 microscope 8 l.f.
 refrigerator 3 l.f.

26 L.F.

urinalysis

excessioning 4 l.f.
 work counter/spin 4 l.f.
 microscope 4 l.f.

12 L.F.

chemistry

excessioning 6 l.f.
 work counter 8 l.f.
 counter equip 5 l.f.
 clinicard 6 l.f.
 fume hood 4 l.f.
 freezer 3 l.f.
 densitometer 4 l.f.

36 L.F.

serology

excessioning 5 l.f.
 work counter 5 l.f.
 sink 2 l.f.
 work counter 5 l.f.
 microscope 5 l.f.
 incubator 4 l.f.
 refrigerator 3 l.f.
 fume hood 3 l.f.

32 L.F.

LABORATORY

Space Requirements

waiting 125
 pathologists office 160
 chief tech office 160
 specimen collection 80
 exam/series testing 80
 blood donor 80
 bloodbank and crossmatch 120
 general laboratory 520
 gross tissue 100
 autopsy 225
 storage 150

TOTAL 1800

NOTES:

calculations

projected caseload

250 to 350 visits/month

$\div 22 \text{ days} = 16 \text{ visits/day}$

facilities

treatment tables

$16/\text{day} \times 80\% \times 1 \text{ hr/pat.} \div 8$

$\therefore 2 \text{ treatment tables}$

hydrotherapy

$16/\text{day} \times 20\% \times 1 \text{ hr/pat.} \div 8$

$\therefore 1 \text{ whirlpool}$

PHYSICAL THERAPY

Space Requirements

| | |
|-------------------|-----|
| hydrotherapy | 100 |
| work cubicles | 120 |
| exercise area | 290 |
| toilet | 30 |
| storage | 20 |
| dressing | 20 |
| reception/waiting | 80 |
| EKG | 100 |

TOTAL

760

NOTES:

INHALATION THERAPY

calculations

Space Requirements

| | |
|----------------|-----|
| workroom | 120 |
| treatment area | 40 |
| storage room | 100 |

| | |
|-------|-----|
| TOTAL | 260 |
|-------|-----|

NOTES:

calculations

PHARMACY

Space Requirements

general storage

430

work area

50

night locker

80

TOTAL

560

NOTES:

calculations

DIETARY

| Space Requirements | |
|-------------------------|------|
| classroom | 500 |
| dining/conference | 240 |
| cafeteria | 800 |
| office | 140 |
| employees toilet | 30 |
| dry storage | 250 |
| refrigerators | 180 |
| preparation and cooking | 320 |
| tray assembly | 260 |
| cart park | 80 |
| serving line | 160 |
| dishwash | 160 |
| janitor closet | 20 |
| vending | 200 |
| TOTAL | 3340 |

NOTES:

CENTRAL STERILE SUPPLY

calculations

| | |
|--------------------|-----|
| Space Requirements | |
| clean-up area | 60 |
| unsterile supplies | 160 |
| linen packs | 160 |
| auto-clave area | 120 |
| sterile storage | 160 |
| receiving | 60 |
| TOTAL | 720 |

NOTES:

PURCHASING/GENERAL STORES

calculations

| Space Requirements | |
|-----------------------|------|
| loading dock | 75 |
| oxygen storage | 80 |
| cylinder storage | 40 |
| receiving | 120 |
| purchasing office | 120 |
| clerk office | 100 |
| bulk and unit storage | 1300 |
| equipment storage | 400 |
| toilet | 30 |
| TOTAL | 2265 |

NOTES:

calculations

HOUSEKEEPING AND LINEN

| Space Requirements | |
|----------------------|-----|
| housekeeping office | 80 |
| housekeeping storage | 200 |
| paint storage | 80 |
| clean linen | 200 |
| soiled linen | 120 |
| TOTAL | 680 |

NOTES:

calculations

ADMINISTRATION

| Space Requirements | |
|-----------------------|------|
| administrator | 200 |
| toilet | 40 |
| coats | 60 |
| secretary/reception | 120 |
| board room | 325 |
| director of nursing | 150 |
| in-service director | 150 |
| office | 150 |
| office | 150 |
| trainees | 100 |
| toilets 2 @ 40 | 80 |
| ladies guild | 350 |
| nurse education | 610 |
| typical patients room | 200 |
| TOTAL | 2685 |

NOTES:

BUSINESS OFFICE

calculations

| | |
|----------------------|-----|
| Space Requirements | |
| dir. financial mgmt. | 150 |
| insurance clerk | 120 |
| posting clerk | 150 |
| cashiers | 120 |
| admitting | 160 |
| switchboard | 60 |
| TOTAL | 760 |

NOTES:

calculations

inpatient
 $85 \text{ beds} \times 85\% \times 365 \div 6 \text{ d/pt stay}$
 $= 4360$
 $4360 + (4360 \times 80\% \times 3 \text{ yrs})$
 $= 14,830 \text{ records}$

newborn
 $300 \text{ births} \times 4 \text{ yrs.} = 1200$
 $= 1200 \text{ records}$

outpatient
 emergency
 $4400 \text{ vis/yr.} + (4400 \times 20\% \times 3 \text{ yrs})$
 $= 7040 \text{ records}$

totals

$$\begin{array}{r} 14,830 \\ 1,200 \\ 7,040 \\ \hline 23,070 \text{ records} \end{array}$$

$$23,070 \div 65 \text{ rec/lf.} \div 7 \text{ tiers}$$

$$= 51 \text{ lineal feet}$$

MEDICAL RECORDS

| | |
|----------------------------|-----|
| Space Requirements | |
| library | 180 |
| coats and toilet | 60 |
| supervisor | 120 |
| medical records/clerical | 240 |
| steno pool | 210 |
| doctors' reading/dictation | 160 |
| TOTAL | 970 |

NOTES:

ENGINEERING AND MAINTENANCE

calculations

| | |
|----------------------|-----|
| Space Requirements | |
| office and plan room | 120 |
| maintenance shop | 240 |
| yard storage | 120 |
| TOTAL | 480 |

NOTES:

calculations

EMPLOYEE FACILITIES

| | |
|-----------------------------|-----|
| Space Requirements | |
| male lockers/toilets (12) | 280 |
| female lockers/toilets (20) | 280 |
| personnel office | 120 |
| testing room | 80 |
| TOTAL | 760 |

NOTES:

calculations

MECHANICAL

Space Requirements
boiler room, chase spaces 3300

TOTAL 3300

NOTES:

calculations

medical staff
 1 per attending doctor = 16

employees
 total = 170
 7-3 shift $170 \times 70\% = 119$
 3-11 shift $170 \times 20\% = 34$
 11-7 shift $170 \times 10\% = 17$

visitors
 1 per patient bed = 85

short term
 emergency
 outpatient
 entry = 10

60% circulation
 based on: access roads
 : truck maneuvers
 : emergency lanes
 : drop off lanes
 : wide lanes
 : efficiency

PARKING

| | |
|-----------------------------|------------|
| Space Requirements | |
| doctors parking | 16 |
| employee parking | 153 |
| short term parking | 10 |
| visitors/outpatient parking | 85 |
| TOTAL SPACES | 264 |

| | |
|-----------------------------|---------------|
| 264 spaces @ 200 sq. ft. | 52,800 |
| circulation 60% of 52,800 | 31,680 |
| TOTAL SQUARE FOOTAGE | 84,480 |

NET AREA SUMMARY/GROSS AREA PROJECTIONS

| department | dept. net. sq. ft. | circ. | dept. gross sq. ft. |
|-----------------------------------|-----------------------|-------|------------------------|
| INPATIENT SERVICES | | | |
| medical care | 7640 | 40% | 10,695 |
| surgical care | 6710 | 40% | 9,395 |
| obstetrical care | 540 | 40% | 755 |
| concentrated care | 1720 | 40% | 2,410 |
| nursery | 900 | 30% | 1,170 |
| ANCILLARY SERVICES | | | |
| emergency/outpatient | 2335 | 40% | 3,270 |
| surgery recovery | 4030 | 35% | 5,440 |
| labor/delivery | 1040 | 35% | 1,405 |
| joint-use facilities | 880 | 35% | 1,190 |
| radiology | 1875 | 40% | 2,625 |
| laboratory | 1800 | 40% | 2,520 |
| CSR | 720 | 5% | 760 |
| physical therapy | 760 | 5% | 800 |
| inhalation therapy | 260 | 5% | 275 |
| pharmacy | 560 | 5% | 590 |
| LOGISTICAL SERVICES | | | |
| dietary | 3340 | 5% | 3,510 |
| purchasing/general stores | 2265 | 5% | 2,380 |
| housekeeping/linen | 680 | 5% | 715 |
| ADMINISTRATIVE SERVICES | | | |
| administration | 2685 | 40% | 3,760 |
| business office | 760 | 40% | 1,065 |
| medical records | 970 | 40% | 1,360 |
| public areas | 6390 | 40% | 8,945 |
| PLANT SERVICES | | | |
| employee facilities | 760 | 5% | 800 |
| engineering maintenance | 480 | 5% | 505 |
| mechanical | 3300 | 0% | 3,300 |
| TOTAL GROSS SQUARE FOOTAGE | | | 69,640 |

SCHEMATIC DEVELOPMENT

SCHEMATIC CRITERIA

climate orientation: wind, sun, privacy

optimizing views to north, east, and west.

segregation of public corridor traffic and in-house traffic.

separation from vehicular access drives cross traffic.

vertical and horizontal transportation links with all functional areas within hospital (use flow diagrams).

corridor access points within departments facilitated.

close staffing and patient movement links between inpatient units/surgery-recovery/labor-delivery.

outpatient services expandible.

patient services expandibility (15 beds; 50 beds).

outpatient services clearly defined and separated (accessibility).

spaces accessible to natural environment.

service access protected from both view and elements.

functionability of all departments to those immediately relating to it.

time studies (movement of staff and materials).

heat and cooling problems.