

MULTIPHASE PLANNING AND DESIGN FOR HEALTH FACILITIES:
AN ASSESSMENT OF THE VA HOSPITAL DEVELOPMENT PROCESS

By

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Bachelor of Arts, Providence College 1972

Submitted in Partial Fulfillment of the Requirements for the Degrees of
Master of Architecture and Master of City Planning

at the MASSACHUSETTS INSTITUTE OF TECHNOLOGY
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ABSTRACT

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The current concern for cost containment in the delivery of health care calls for the implementation of federal guidelines for effective and efficient development of health services and resources. This thesis attempts to investigate the concept of multiphase planning and design in establishing these guidelines. Critical to the discussion will be a profile of the VA health delivery system and the systematic process utilized by this agency in hospital development. Through an interpretation of this model, the interactive qualities of multiphase development will be shown to be the most comprehensive means of insuring that long-range planning, programming, and design criteria be established during

preceding levels of decision making. An assessment of the innovative techniques associated with each component of the VA hospital development process will provide not only an interesting perspective on the state-of-the-art but will establish a framework by which to judge the unique ability of the VA system to improve its working methodologies.

Essential in this report will be the presentation of a case study focusing on the multiphase development of a VA replacement hospital in Baltimore, Maryland. By presenting a variety of socioeconomic issues surrounding key aspects of development, it is intended to analyze this process not only in terms of health care delivery but regarding the environmental planning and design of a major element in the redevelopment of the urban fabric of Baltimore.

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Thesis Supervisor: Tunney Lee ✓
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Comments and views herein are those of the author and do not reflect the view of the Veterans Administration unless adopted by a proper official of the agency. The information herein should not be used for quotation or attribution without this disclaimer.

DEDICATION

- To Charles "Yardbird" Parker
Genius: For the word that conceived all that jazz.
- To Machito
Salsero: For the fusion of Afro-Latin rhythms, a constant source of joy.
- To Felipe Luciano
Maestro: For teaching the spirit and vitality of Latin culture and inspiring the socialization and politicization of concerned Latin people.
- Para los ancianos, abuelos y familia Peña y Orta.
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INTRODUCTION

- Newspapers throughout the country decry "the critical condition of U. S. health care" and the failure of the health care system to serve all segments of the population.
- Public objections are raised toward a health care system that does not provide equitable, efficient, or economical service.
- Congress, in an effort to contain costs, continues to pass a variety of regulatory programs with limited knowledge of how these programs will be implemented.
- Community hospitals, which enjoyed a period of euphoric development in the 1960s, find themselves plagued by physical obsolescence resulting from myopic planning and ineffective design.
- Dramatic advances in medical technology in the past twenty years stand in sharp contrast to a floundering U. S. health care delivery system.

National health expenditures, mushrooming from \$12 billion in 1950 to \$116.2 billion in 1977, now consume 8.7 percent of the gross national product, as opposed to 4.6 percent in 1950.* While the consumer price index rose 98 percent between 1950 and 1974, physicians' fees rose nearly 168 percent, and the cost of a semi-private hospital room rose 532 percent.* Startling escalations in medical costs have provoked government policy makers, health planners, hospital administrators, and third party health insurers to seek an effective means of curbing the inflationary spiral of health care costs by analyzing the key elements necessary for the rational development of health services and resources. This thesis will attempt to present the need for a comprehensive development process which deals in a holistic manner with the long-range planning, programming, and design of needed services and facilities.

A brief presentation of the thirty-year history of federal involvement in hospital construction programs and area-wide planning will be contained in Chapter I. Post-World War II efforts to improve the health status of medically deficient areas throughout the country will introduce the reader to the initial goals and objectives of the Hospital Survey and Construction Act. The impact of

the Hill-Burton Program will be analyzed both in terms of its effect on the total bed complement in the U.S. and the means of federal subsidy directed at new project construction. A discussion of the evolution of the Hill-Burton Program during the course of 27 years and the evaluation of a number of major amendments present the reader with an analysis of how the program was redirected from new construction to hospital modernization projects and the effect of federal loan guarantee subsidies on the current mode of health facility investment. The impact of 27 years of growth and expansion prior to the enactment of comprehensive health planning legislation will set the stage for the presentation of a variety of federal planning and regulatory mechanisms in an effort to halt the unnecessary duplication of services and resources. An observation of the health concerns facing the 96th Congress will substantiate the fact that no current attempts are anticipated to rationalize the process of health service and facility development through amendments to PL. 93-641.

Chapter II will present the inability of DHEW and the civilian health system to implement a comprehensive methodology for service and facilities development. By means of an overview of the organizational structure of the

Health Resources Administration/DHEW and their fragmented methods regarding health planning and development, the basic lack of coordinated decision making will be assessed. The concept of comprehensive health care planning and development is a method of estimating the health and medical care needs of a population, by comparing available resources with required resources, and establishing area-wide and institutional plans for change in a logical and practical manner. The chapter will call for federal policy makers to search for and evaluate viable models which can assist in the formulation of guidelines for long-range planning, programming, and physical design of health care delivery systems. Chapter II will emphasize the point that only if a comprehensive or total health care delivery system is implemented will medical services be offered in a built environment that will accommodate long-range plans, program alternatives, and the constant changes in medical technology.

The search for a comprehensive health planning and development model will call for the examination of a model which is currently in the process of delivering a variety of services and which maintains a repository of experience

in health facility design and operation. Chapter III proposes a specific analysis of this model which requires:

- A. An in-depth evaluation of the operating methodology and decision-making process which occurs in the planning, programming, and design of health care facilities; and
- B. Presentation of this development process as it interacts with other modes of planning and development.

The chapter will present the argument that, in spite of current controversy over its future role in the delivery of U.S. health care, the problem-solving activities of the VA can be characterized as a comprehensive approach to health facility development. The history of the VA health system will be described, as will the socioeconomic characteristics of the veteran population in the United States. Current utilization levels of VA services and resources and the categorization of veterans within the system by age and respective war or military action (eg., Vietnam, Korea, etc.) will present the complexity of this system and the variables that impact on the VA health planning and development process.

Chapter IV will focus on the comprehensive nature of the VA health planning and development process. The current organizational structure of the VA Central Office will be examined in terms of the combination of long-range planning and programming activities in the Department of Medicine and Surgery (DM+S) and the project preplanning and design executed by means of a unique client-professional relationship between DM+S and the Office of Construction (OC).

The basic components of long-range planning in the VA development process will be introduced: the VA health facility and the medical district. The determination of the Primary Service Area of a VA facility will be described. The compilation of one- and five-year plans, to respond to the need for health services and resources of the veteran population, will be assessed in terms of the innovation techniques utilized by the VA for bed projection and resource evaluation. The review of institutional plans by the medical district and its prioritization of projects (according to the health status of the veteran population and the rating of physical deficiencies in existing resources) in the formulation of medical district plans will be described.

The chapter will describe the series of internal evaluation reviews that take place in the VA Central Office in Washington. Chapter IV will also present the activities of the A-95 Clearinghouses currently operating under the direction of the Office of Management and Budget. The reviews conducted under the A-95/OMB mandate combine the assessment of regional planning councils and local health systems agencies. Recommendations compiled in these reviews allow the VA to assess each project in an in-depth manner and to assemble a prioritized construction program for OMB. OMB then assembles the construction budget for the Veterans Administration. In conclusion, Chapter IV will present the elements involved in the physical development of VA facilities: selection of architectural/engineering firms, preplanning for projects, space/functional programming, conceptual and schematic design.

The abstract diagram of the development process provided in Chapter IV will be detailed in a case study contained in chapters VI through XIII. The Baltimore VA replacement hospital will be analyzed in terms of its 16-year development history. The case study will focus not only on the VA plans for health services and resources, which generated the need for the replacement facility, but also will undertake a profile of the socioeconomic and political framework associated with its acceptance in an overbedded downtown metropolitan area. Of special interest will be the architectural issues related to the design of a 400-bed teaching hospital. This highly technical facility will be evaluated not only in terms of environmental impact and consistency with Baltimore's MetroCenter redevelopment plans, but also as a key element in urban design. The public review process of the VA development process will be viewed as an ineffective means of dealing with the VA or other government projects. It will be seen that the process requires reorganization and regulatory powers to insure greater efficiency and efficacy in the use of the federal tax dollar.

In conclusion, throughout the later chapters of the case study dealing with project planning, programming, and design, the interaction of the VA project officer and principal architect of the A/E firm will present the reader with an example of current federal efforts to improve the effectiveness of process and product in large-scale government development. The latitude now offered by many federal agencies in encouraging the upgrading of architectural response presents the concerned design professional with a new challenge and direction in dealing with a variety of unique building types.

Chapter XIV will provide the reader with a brief assessment of the comprehensive nature of the VA hospital development process and will signal the shortcomings of this process in terms of its interrelationship with other modes of planning.

Chapter XV will also propose a major redirection in federal health planning and facility development, based on changing the interaction of federal agencies and emphasizing the need for adherence to national planning guidelines and development criteria by all systems of health care delivery.

* Note: Cambridge Research Institute, Trends Affecting U.S. Health Care, 1970.

CHAPTER I

A HISTORY OF U. S. HEALTH CARE PLANNING AND DEVELOPMENT

Initial concern about the inadequacy of health care in the United States was expressed by President Franklin D. Roosevelt during the early years of World War II. * At that time, one out of every three men called to active military duty was rejected for medical reasons. In 1946, the federal government embarked on a landmark campaign to provide nationwide medical services and resources through an innovative program of hospital construction proposed by

*Note: The need for federal participation in health and medical care programs was first recognized legislatively by the 5th Congress when it established the Marine Hospital Service, now the Public Health Service, in 1948.

Senators Lester Hill (D., Ala.) and Harold Burton (R., Ohio). This hospital survey and construction program, commonly known as the Hill-Burton Act, provided substantial funds for hospital construction to remedy the shortage and maldistribution of health facilities that had been created by a lack of construction during the Depression and World War II.

The Hill-Burton Act established a joint venture between federal and state authorities, in which the federal government awarded program grants to state agencies to finance surveys of hospital needs and construction programs directed toward meeting those needs.

The original goals and objectives of the Hill-Burton program were:

- Partnership - joint hospital development between state and federal governments;
- Planning - coordinated efforts and interrelationships among facilities and communities;
- Financing - federal aid through grants, direct loans, and loan guarantees with interest subsidies;
- Construction - innovative methods of health facilities development;
- Consultation - technical assistance and guidance in resolving problems and advancing new ideas;

- Change
 - development of state-of-the-art methodologies required for modification in response to changing concepts of medical practice and medical technology;
- Innovation
 - ongoing research into better design, organization, and administration aimed at effective and efficient delivery of patient services;
- Education
 - conferences, workshops, and consultation to improve the knowledge and skills of health facility staffs.¹

During the twenty-nine year history of the Hill-Burton Act* the general emphasis of the program was altered by amendments to the original legislation. A 1954 amendment authorized grants not only for hospital construction but also for the development of diagnostic and treatment centers, chronic disease hospitals, rehabilitation facilities, and nursing homes. By 1964 the shortage of hospital beds had been greatly alleviated, and the Hill-Burton Act was amended to provide funds not only for construction but also for modernization and replacement, with priority for urban areas.

With the enactment of 1970 amendments, the Hill-Burton program shifted its emphasis from grants to loans and loan guarantees. Loan guarantees

* Note: Hill-Burton legislation was superceded by the Health Planning and Development Act of 1974.

with interest subsidies were provided to private non-profit agencies, and direct loans were available to public agencies to aid in modernizing or constructing health care facilities. Between January 1972, when these programs began, and July 1, 1974, loans or loan guarantees were committed for a total of 255 projects. Of the \$2,154.6 million estimated to be the total cost of these projects, the loan and loan guarantee programs provided about 48% of \$1,039.1 million, of which \$97.7 million was in direct loans.

In the closing years of Hill-Burton, a shift also occurred in the type of project assisted from construction of new hospitals to modernization of existing hospitals or construction of outpatient clinics. At the outset of the program in 1947, 78% of Hill-Burton funds were expended for the construction of new health care facilities, particularly hospitals. By fiscal 1974 less than 3% of Hill-Burton funds were allocated for this purpose. Of the 255 projects assisted with loans or guarantees between January 1972 and July 1, 1974, 244 involved changes in existing facilities--either modernization or the addition of services such as outpatient clinics and long-term care beds. The de-emphasis of new hospital construction is in part a result of the apparent oversupply of hospital

beds at present, but it also reflects the fact that third party (Medicare, health insurance, etc.) reimbursement for capital depreciation enables hospitals to obtain loans for construction in private markets and thus reduces the need for government grants. Outpatient facilities, on the other hand, have greater difficulty financing capital expenditures since third party coverage is less extensive for ambulatory care than for inpatient hospital care.

During the history of the Hill-Burton program, over \$4.1 billion in grant funds was appropriated for construction or modernization; over \$1 billion in loan principal (either direct or guaranteed) was committed for financing general development. A total of 11,493 grant projects were approved, accounting for nearly 496,000 beds in hospitals and long-term care facilities. More than 3,969 communities were aided in the construction or modernization of 6,549 public and non-profit facilities. Of the \$14.5 billion required to complete the projects, the Hill-Burton share was \$4.1 billion (28% of the total). The other \$10.4 billion came from state and local sources.

The Hill-Burton program was highly successful in increasing the supply of hospital beds and furthering medical services. It also alleviated the

maldistribution of hospital beds that had existed in the country at the end of World War II. In 1946, the eight states with highest per capita incomes had 4.0 beds per 1,000 population, while the eight states with lowest per capita incomes had 2.5 beds per 1,000 population. By 1971, the same "high-income" states had 4.08 beds per 1,000 population and the "low-income" states had 4.34 beds per 1,000 population.

The general impact of the Hill-Burton program, however, was to reinforce the prejudice of the U.S. health care system toward expensive, acute care facilities, with inadequate attention to the possibilities for the development of other, less costly alternative types of facilities and services. "Like government-financed health research, the Hill-Burton Program provided large sums of money to further goals generally endorsed enthusiastically by leading health care providers. In both cases the government was not trying to move the health care system in a direction that conflicted with the interests and inclinations of health care providers." According to the proceedings of a 1974 Congressional subcommittee on health facilities assistance, DHEW data indicated that as of January 1974 there were 40,000 surplus hospital beds in the United States.

While enabling the improved distribution of hospital beds in rural areas, Hill-Burton had also played a crucial role in creating a costly surplus in most urban areas.

Twenty years after the passage of the Hill-Burton Act an initial attempt to coordinate and control the rapid growth in health facilities was proposed via the Comprehensive Health Planning Act (CHP) of 1966. Prior to this federal mandate, the practice of comprehensive health planning had been conducted in a limited and unsuccessful manner by Hill-Burton agencies. Various amendments to Hill-Burton legislation had attempted to promote the concept of CHP to insure against unnecessary duplication of services and facilities. The 1964 amendments to the Hill-Burton Act had established area-wide health facilities planning councils or "318 Agencies." These agencies were supplanted by the CHP agencies created in 1966. CHP legislation directed that local and state agencies plan not only for health facilities but for all segments of the health system, as well as for any aspect of the personal, physical, or work environment which affected health.

Like state level health authorities, the area-wide CHP agencies generally had small, underpaid staffs. Some of the funding for local agencies was supplied by health care providers (hospitals, Blue Cross, etc.), who thereby were able to exercise some control over CHP activities. The law specified that a majority of CHP advisory council members be consumers, but many advisory councils did not have this required majority or, even if they did, the consumers did not constitute the majority actually in attendance at council meetings. Furthermore, even when consumers attended meetings, providers were usually able to dominate decision making by virtue of their knowledge, authority, and prestige. Where consumers did dominate, they sometimes failed to guide the agencies effectively because of insufficient knowledge about health care.

The Social Security amendments of 1972 added Section 1122 procedures to the workload of CHP agencies. These procedures stated that health care facilities would not be reimbursed by Medicare, Medicaid, or the Maternal and Child Health Programs for depreciation, interest, or return on equity capital for capital expenditures determined by a Certificate of Need committee to be consistent with criteria or plans developed by state and area-wide CHP agencies.

Although the final ruling on a proposed capital expenditure was usually made by a designated body other than the CHP agency, CHP groups reviewed at great length all health facility capital expenditures to assure compliance with area-wide health interests. Project review so absorbed the time and interest of CHP agencies that they failed to develop comprehensive health planning guidelines against which to judge current and future projects.

The U. S. Comptroller General's report to Congress in April 1974 indicated that few CHP agencies had well-organized working committees contributing to planning efforts, and almost no agencies had made significant progress toward implementing planning processes or developing comprehensive health plans. The report concluded that, although CHP agencies had had some success in curbing unwarranted health facility construction, many agencies were underfunded, understaffed, directionless, and lacking in federal assistance and monitoring.⁸ In general, CHP agencies floundered from a lack of federal guidance. Ironically, throughout the late 1960s and early 1970s, DHEW deliberately avoided providing such guidance because of internal politics which

considered health planning a state and local function based on community needs rather than national priorities.

In an effort to regulate the health care industry, which in 1974 employed 4.5 million people and spent in excess of \$80 billion annually, the Congress presented the National Health Planning and Resources Development Act (PL. 93-641) to President Gerald R. Ford on January 4, 1975. Through his executive approval, Mr. Ford authorized a \$1 billion, three-year program to be administered by the Bureau of Health Planning and Resources Development in the Health Resources Administration of DHEW. PL. 93-641 was designed to put teeth into comprehensive health planning efforts and to combine in one program the remnants of the Hill-Burton program and medical programs funded on a regional basis.

Since its authorization in 1975, PL. 93-641 has had a critical impact on the organization of health care planning and regulation in the United States. Specifically, this law has called for the creation at the local level of health systems agencies (HSA's) to promote a systematic means of planning for needed services and resources. The geographic area served by each HSA was determined by the Secretary of HEW on the basis of recommendations by the state

governors. Over the last three years local HSA functions have included:

1. Developing a Health System Plan for the area, which is acceptable to the state and federal governments and which encompasses not only the traditional health services and facilities but also health manpower needs and environmental and occupational exposure factors affecting health.
2. Developing an Annual Implementation Plan, detailing how the Health System Plan is to be pursued and reporting progress in implementing the previous year's plan.
3. Reviewing all proposals for capital expenditures of \$100,000 or more for the addition of beds or for a substantial change in service. HSA's review not only the proposals of private, state, and local facilities, but also proposals for the expenditure of federal funds, including expenditures for community mental health centers and for alcohol treatment and drug abuse centers. Project reviews are to determine whether the proposed project fits the area's Health System Plan.
4. Providing technical assistance and/or planning grants to individuals and public and private entities for the development of projects and programs deemed necessary to achieve the objectives of the Health Systems Plan. HSA's are not restricted to approving or disapproving proposals of other providers and may encourage the development of proposals that further HSA plans.
5. Evaluating existing institutional health services and making recommendations about their appropriateness to the state planning agency.⁹

At the state level, the new law has created State Health Planning and Development Agencies (SHPDA's) and State Health Coordinating Councils

(SHCC's). The functions of these state bodies include:

1. To review and coordinate the plans of the HSA's and to prepare a State Health Plan.
2. On the basis of recommendations by the HSA's, the State Agency makes final decisions on proposed new projects under Section 1122 and the state Certificate of Need law. The state must have or develop a Certificate of Need program that provides for the approval of only those services, facilities, and organizations that are needed and found cost effective.
3. With the approval of the SHCC, the State Agency prepares and annually reviews a State Medical Facilities Plan that outlines how federal funds for health facility construction and modernization are to be spent. Specific projects under the State Medical Facilities Plan must be reviewed by the appropriate HSA and then approved by the State Agencies.

4. The State Agency reviews existing institutional health services and, after consideration of HSA recommendations, publishes its findings on the appropriateness of these services.

PL. 93-641 also established a National Council for Health Policy, assigned the task of developing a federal policy that specifies such objectives as accessibility, availability, and quality of health care at the lowest aggregate cost to the consumer. After three years of operation it is still unclear how national policy will actually be translated into the detailed plans prepared by HSA's or how effectively national policy can guide HSA's. The implementation of PL. 93-641 has been slow and ineffective in many areas of the country. HSA's have suffered the same fate as their predecessors under CHP legislation in terms of overworked, underpaid staffs; high turnover of upper level administrative personnel; and limited operating budgets.

HSA's have been required to review and comment on proposed changes in medical services, replacement of existing facilities, and feasibility of new construction projects. Although these activities have placed a greater emphasis

on the health facility than in the past, a comprehensive method of assessing needs and development of resources has been lacking.

In an emergency effort to incorporate the long-range development objectives of local providers into the planning efforts of the HSA, a number of states in the last two years have passed separate pieces of legislation mandating the submission of five-year plans by existing facilities.* Utilizing five-year projections, HSA's can perform evaluations of the specific areas of interest set forth by each provider and can begin to compare their appropriateness to the annual implementation plan of the agency. On a broader level, the experience of HSA's in evaluating five-year proposals can provide an outline for future programs, indicating the type of participation necessary in mediating and coordinating similar projects to avoid costly duplication of service.

Specific amendments to PL. 93-641 could mandate long-range planning activities on a federal basis and promote a more efficient and cost-effective

* Note: Summary of New Jersey, Massachusetts experience in long-range plans. Interview with Mark Mandel, B.U. Center for Health Planning.

means of health care delivery. However, according to Mr. John Moscoto, Director of Legislation for the Health Resource Administration DHEW, the likelihood of such innovative concepts being incorporated into the legislative activities of the 96th Congress is remote.

CHAPTER II

THE NEED FOR HEALTH CARE PLANNING AND DEVELOPMENT

Despite thirty-four years of federal intervention, the condition of U. S. health care remains critical. Current concern about the future impact of national health insurance on an already debilitated U. S. health system demands further research into a comprehensive methodology for development of services and related facilities.

The need for an integrated development process has been overlooked by various bureaus of federal health policy within DHEW. Suffering from short-sighted and incremental methods of decision making and a lack of substantive federal guidelines, area-wide health planning and facility development has failed to address overall needs in solving local problems of health delivery. The process of interrelating various components of the health care delivery system has been limited to the platitudes found in guidelines and to research conducted in academia.

Within the present organizational structure of central office DHEW, the administration of health planning and development legislation is conducted in an inconsistent and segmented manner. Although health planning and regulatory programs directed at HSA and SHPDA activities are well staffed and appropriately funded at the federal level, the scattered remnants of the Hill-Burton program have only recently been incorporated into the newly established Bureau of Health Facilities, Financing, Compliance and Conversion. Over the course of the last four years, research and development activities in health facility operation, maintenance, and design have been dispersed throughout the "sub-¹government of health" in DHEW. During this period, research in the areas of energy management, minimum requirements for construction and equipment, space and functional programming, conversion, modernization, and life-cycle cost accounting have been limited to select demonstration projects conducted by three separate agencies.* The findings of these activities have not been

*Note: The author is indebted to Tom Cleary, Elwood Thornton, and Burt Kline, DHEW for valuable information on this topic.

incorporated into federal health planning guidelines or implemented in the review processes conducted at the HSA and SHPDA levels.

Despite an abundance of relevant data for evaluating the state of the art of health facility development, the federal government has in the last four years overlooked the importance of technical assistance directed at the requirements of local planning and health care institutions. The need to disseminate current data on innovative methods of health facility development and operation is an essential step in the containment of cost. If federal guidelines for the planning of health services and facilities are to be complied in a comprehensive manner, then both components of the health delivery system must be administered in one focused federal bureau or agency. At present, the scattered organization of public health services throughout an unwieldy DHEW structure restricts any attempt to deal with health needs and resources in an integrated manner.

A comprehensive approach to problem solving views each individual activity and decision-making event in the context of an overall process so that all interrelationships can be identified and criteria for ongoing evaluation established. This type of problem-solving methodology, when applied to the evolution

of a rational and equitable health care delivery system, demands a structure which does not segregate in process or differentiate through legislation the planning of medical services and the development of health facilities. A comprehensive means of addressing current and future health care needs and resources to insure the availability, accessibility, and economy of medical delivery requires a large-scale, ongoing planning and development process. The ideal process for health services and facilities would involve:

- A. Establishment of institutional policy and planning framework
- B. Investigation of service area characteristics
- C. Estimation of health status and needs
- D. Analysis of health services and resources
- E. Documentation of plan development
- F. Review and comment by state and local agencies during various stages of physical design. *

*Note: Research and development of a generic planning and development process encompassing this methodology was conducted FY1976-FY1979 for DHEW by the joint venture team Stone, Marraccini and Patterson/CHI Systems Inc.

Implementation of this type of methodology would allow for corrections in underutilization or deficiencies in health programs through mergers or conversion of existing facilities. It would also provide technical assistance and guidance during the development of a new project, especially in functional programming and schematic aspects of physical design.

A comprehensive approach to state and area-wide health planning would direct SHPDA's to assess in greater detail the physical condition and the operational efficiency of existing health facilities, as well as the need for replacement of obsolete facilities. HSA's, under direction of DHEW and in conjunction with SHPDA's, would be expected to work with institutions in providing technical assistance for the development of projects dealing with modernization, conversion, closing, or merger of existing facilities. Proposals for new services and facilities would require HSA's to negotiate among providers in the selection of the most feasible institution to undergo expansion. Operational characteristics such as those listed above would demand the training of HSA and SHPDA personnel in various aspects of the physical development process for health facilities and would require in-house capability to deal with architectural and engineering evaluations of energy management, environmental impact, and reuse of buildings.

Planning health services and facilities in an integrated fashion would help to contain the cost of health care at the institutional level. The health facility would be regarded not only as a one-time capital expenditure but as an intricate part of the operational budget of a given institution. Through innovative cost-accounting methodologies such as "life-cycle costing"² the life and well-being of the facility would become part of the overall costs associated with health care delivery. The constant need for services to grow and expand with an ever-changing medical technology demands an ongoing evaluation of the space and functional characteristics of an institution by administrators and physical plant personnel. Through current surveys of space deficiencies and needed renovation, the cost of providing future services could be viewed not only in terms of the medical procedures performed but in terms of the development and operational effectiveness of the physical setting.

Planning for improvement in the delivery of care will require a more in-depth understanding of patient volume, staffing, and space requirements for specialized procedures, as well as the unique functional characteristics of each service. Evaluation of need would be based on current and projected utilization

of services and the design efficiency of the environments in which they are delivered. This comprehensive approach to problem solving would enable providers to compile five-year development plans to improve operational effectiveness of services and facilities and participate with the HSA in the coordination of area-wide planning.

Since HSA's are required to prepare Annual Implementation Plans to improve the quality and effectiveness of health care delivery, a systematic means of translating service needs into an approved process of facility planning would allow for a number of development options to be explored. Through an assessment of the spatial and functional requirements these services will demand, the built environment necessary for maximum utilization and continued operational efficiency could be established. Utilizing statewide inventories of the physical condition of existing resources, HSA's could determine whether needed services and programs could be provided by modernization or conversion of facilities or if replacement of older buildings would prove more cost-effective.

The comprehensive nature of planning for needed services and required facilities in a systematic manner would allow for operational factors regarding staffing, patient workload, and technical equipment to determine space and functional programs. Design options and alternatives based on these programs could be reviewed by the HSA and judged in terms of both the cost feasibility of the initial investment and the ongoing life-cycle cost of the facility. (Well after the capital expenditure has been recovered, the maintenance, operation, and depreciation costs of the facility continue to impact on the economic delivery of health services.)

Comprehensive health care planning and development would provide a method of estimating the health and medical care needs of a population, converting these to "service equivalents,"³ comparing available resources with required resources, and making area-wide and institutional plans for change in a logical and practical manner. This decision-making activity would employ a "team" concept, involving professionals trained in a number of disciplines. The team members would interact throughout the development process as a working group, not as individual consultants. In this manner the HSA staff would be

involved in a variety of ongoing problem-solving activities, such as evaluating the health status of its geographic area, providing institutions with technical assistance and guidance for space and functional planning, and reviewing schematic design and construction methodology.

In order for a comprehensive approach to be fully implemented in the delivery of health care, the costs, benefits, and impact of comprehensive problem solving must be determined feasible and applicable to a faltering national health policy. Although the cost of the implementation of a comprehensive approach to health care delivery cannot at this time be measured in dollars, it is clear that it will require administrative reorganization in DHEW; the training of state and local health officials in the implementation of new methodologies for planning and physical development; and a continuous flow of technical assistance data, generated by the federal government, regarding the planning of services, programming of functional areas, and design of facilities. It is the responsibility, however, of federal policy makers to search for a rational and integrated methodology which can promote the establishment of guidelines for the planning, programming, and physical design of health delivery

systems. If the current means of health care planning and development continue to permit low rates of utilization and extensive obsolescence of services and facilities, then current and future efforts to contain costs will prove ineffective. Only when a total approach to creating a viable health care delivery system is implemented will medical services be offered in a built environment that will accommodate program demands and constant changes in medical technology.

CHAPTER III

THE VA HEALTH CARE SYSTEM--A MODEL FOR A COMPREHENSIVE APPROACH TO HEALTH CARE PLANNING AND DEVELOPMENT

The examination of a health care planning and development model, which is currently in the process of delivering a variety of services and which maintains a repository of experience in facility design and operation, can be valuable in establishing federal guidelines for future hospital development. The examination of an existing model requires:

- A. an in-depth analysis of the operating methodology and decision-making process which occurs in the planning, programming, and design of health care facilities; and
- B. presentation of this development process as it interacts with other modes of planning and development.

In spite of current controversy over its future role in the delivery of U.S. health care, the problem-solving activities of the VA can be characterized as a comprehensive approach to health facility development. Although the VA

hospital system is outside of the public planning process, the methodologies utilized in the VA hospital development process clearly reflect a systematic means of assessing needs, developing spatial programs, and establishing design criteria. In recent years this integrated process has led a traditionally rigid bureaucracy into a new generation of hospital development which concentrates in matching efficient service delivery with physical design. The VA serves as a ready model for an evaluation of the provision of health care in a systematic and comprehensive manner.

The scope and range of medical care in the VA is unique. Because of its size, the VA can rapidly mobilize, when necessary, a critical mass of resources and manpower. Observers of health care delivery in this country have recognized that further development of multi-institutional aggregates for health care--such as the VA, although on a smaller scale--is inevitable in response to the need for greater efficiency and resulting cost containment. Valuable lessons in hospital development and long-range health care planning relative to non-VA systems can be learned by examination of the VA experience.

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Even more can be learned in the future given the demonstrated ability of the VA to incorporate innovative techniques for comprehensive health care delivery in a systematic manner.

The role of the VA health delivery system is impressive in terms of its function and historical perspective, legislative mission, and scope of health care delivery. Before the birth of our nation, the people of the colonies recognized an obligation to those who had served in defense of the nation.² The broad and comprehensive benefits now granted American veterans evolved from the simple maintenance provided by the colonies in the 17th century. Among the many other social programs now available, medical benefits have been greatly expanded and liberalized since 1811, when the first veterans domiciliary and medical facility was established by the federal government.

The newly formed United States was quick to recognize its debt to its veterans. In a letter dated June 8, 1793, George Washington wrote to the thirteen governors of the states: "It [benefits] was part of their hire. . . . It was the price of their blood and of your independence. It is, therefore, more than a common debt, it is a debt of honor. . . ." Every president since 1865 has

supported Abraham Lincoln's commitment ". . . to care for him who shall
3
have borne the battle, and his widow and his orphan."

In 1924, the 68th Congress provided for hospital services to veterans of all wars ". . . without regard to the nature or origin of their disabilities. . . ." This principle--to provide medical care for needy non-service-connected veterans while maintaining a priority of care for service-connected veterans--was reaffirmed in 1930 by the 73rd Congress and has remained the basic authority for the provision of direct medical care under the VA. On January 3, 1946, President Harry S. Truman signed PL. 79-293, authorizing the establishment of the Department of Medicine and Surgery (DM+S).

Because the quality of care provided American veterans was of major concern, this legislation endorsed medical education and research as essential to the
4
recruitment of physicians, nurses, and dentists of the highest caliber.

Recent legislation has enabled the VA to strengthen its physician recruitment and retention capabilities. The Congress has continued to specifically address the need for resources and personnel necessary to deliver high quality medical

care. The net effect of these actions has been to strengthen the VA health care system and to enable it to meet the health needs of greater numbers of veterans through the effectiveness and efficiency of VA health services and facilities.

The VA medical care functions are clearly defined in Section 38 of U.S. Code 4101. That section states:

There shall be in the Veterans Administration a Department of Medicine and Surgery under a Chief Medical Director. The primary function of the Department of Medicine and Surgery shall be to provide a complete medical and hospital service . . . for the medical care and treatment of veterans.

The section also states:

In order to carry out more effectively the primary function of the Department of Medicine and Surgery and in order to assist in providing an adequate supply of health manpower to the Nation, the Administrator shall, to the extent feasible without interfering with the medical care and treatment of veterans, develop and carry out a program of education and training of such health manpower (including the developing and evaluating of new health careers under disciplinary approaches and career advancement opportunities), and shall carry out a major program for the recruitment, training, and employment of veterans with military occupational specialties as physician assistants, expanded functional dental auxiliaries and other medical technicians acting in

cooperation with schools of medicine, osteopathy, dentistry, nursing, pharmacy, optometry, podiatry, public health or other allied health professions, other institutions of higher learning, medical centers, academic health centers, hospitals and such other public or nonprofit agencies, institutions or organizations as the Administrator deems appropriate.

A third, closely related function is also defined:

In order to carry out more effectively the primary function of the Department of Medicine and Surgery and in order to contribute to the nation's knowledge about disease and disability, the Administrator shall, in connection with the provisions of medical care and treatment to veterans, carry out a program of medical research (including biomedical, prosthetic and health services research). . . . 5

The VA health care system is a "prepaid"* comprehensive medical health care program that provides a wide spectrum of integrated health services to eligible veterans. It is the largest centrally coordinated health care system in the nation, furnishing direct medical care in hospitals, nursing homes, outpatient clinics, and domiciliaries. The VA also provides comparable services to a limited group of veterans using a fee-for-service mechanism to

*Note: All costs for medical services assumed by VA health benefits.

obtain services from the non-federal sector. At the end of fiscal year 1978, the VA health care system comprised 172 hospitals providing outpatient services; 44 additional outpatient clinics; 88 nursing homes; and 16 domiciliary⁶ aries.

The geographic distribution of VA health care facilities generally parallels the distribution of the nation's veteran population. There are one or more hospitals in each of the fifty states and the Commonwealth of Puerto Rico. In Hawaii and Alaska, the VA operates outpatient facilities and provides hospitalization under contract with non-VA institutions. In such major metropolitan areas as New York City, Los Angeles, Chicago-- which have considerable veteran populations--several VA health facilities exist to meet veteran health care needs. State boundaries do not create a barrier to veterans seeking VA health care. The veteran is free to seek⁷ services at any VA hospital throughout the country.

The size and age of the U. S. veteran population indicates the diversity of services necessary within this system. As of June 1976 a survey conducted by the Department of Medicine and Surgery stated that there were 29.6 million

American veterans. Twenty-nine percent of these veterans are from the Vietnam era, 21 percent from the Korean conflict, 47 percent from World War II, and 2 percent from World War I. These veterans represent 44 percent of all U.S. males 20 years and older. The average ages of the veterans for the above groups are 30.3, 46.8, 56.1, and 81.2 years of age respectively.

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The average age of all veterans is now 46.3 years.

In fiscal year 1976, there were 1,103,108 discharges from VA hospitals. The number of these discharges by medical, surgical, and psychiatric bed sections were 606,823; 327,642; and 168,643 respectively.

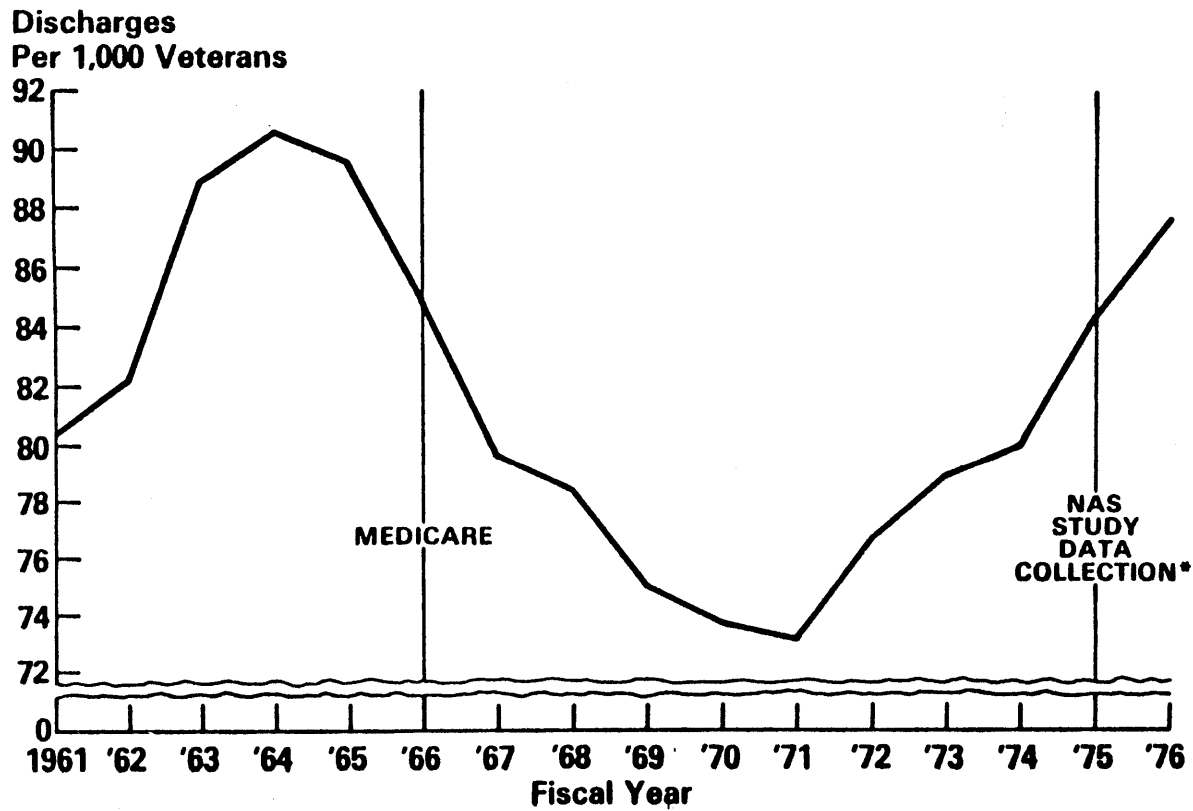
In a 1977 report entitled "The Study of Medical Care for American Veterans," the National Academy of Science (NAS) established that utilization of VA health care facilities is defined separately for inpatient care (hospital, nursing home, and domiciliary) and VA staff outpatient care. Inpatient utilization is described by "per bed" applications for any type of care, but is primarily restricted to general hospitals and is related to occupancy or average length of stay. Outpatient care utilization is expressed as "visits per year" to VA staff. The average bed occupancy rate of 83 percent for VA "acute" medical services in general hospitals was noted as roughly comparable to the rate of 75 percent in non-VA hospitals. Occupancy rates for other VA inpatient hospital programs are higher: VA nursing home care is 95 percent; and VA domiciliary care is 92 percent. NAS, however, does not present data for comparison of the VA with non-VA health facilities for patients who

are not "acute" in the usual community definition (e. g. , over 30 days average length of stay).

Following the passage of Medicare legislation, the utilization rate of VA beds by veterans over 65 years of age declined for several years. Since 1971, however, this rate of utilization, based on the number-per-thousand veterans over age 65 covered by Medicare) has consistently increased each year and has now exceeded the utilization rate of the VA by this group prior to Medicare coverage (see display). Thus, irrespective of Medicare or insurance coverage, a significant and increasing number of veterans over 65 choose the VA for hospital care.

Utilization of VA services increases with increased proximity to VA facilities. Twenty percent of users of the VA are service connected-- 26 million of the total number of veterans.

UTILIZATION OF VA HOSPITALS BY VETERANS 65 YEARS OF AGE OR OLDER



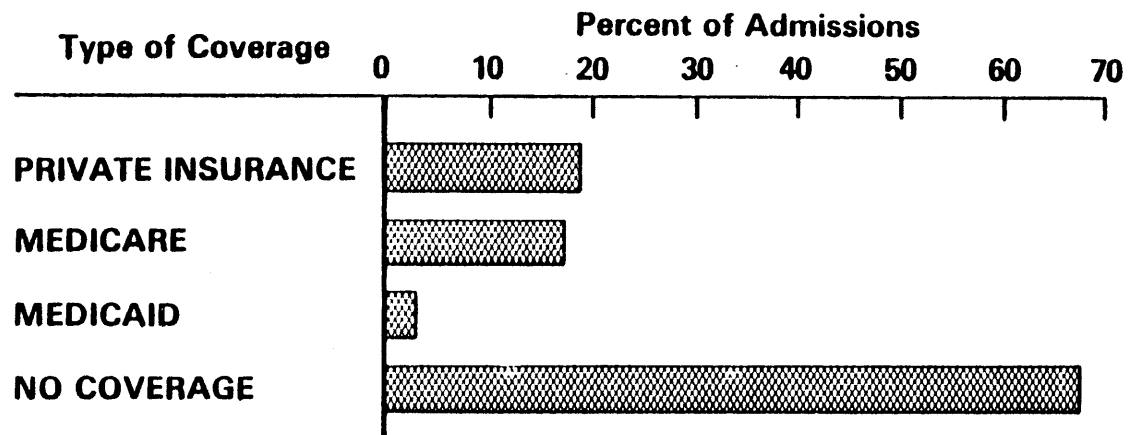
*November 1974 - March 1975

The median per capita income in fiscal year 1976 for all veterans was \$12,838. However, 18 percent of veterans had a per capita income of less than \$6,000.⁹ Current research within DM+S indicates that there are significant differences in VA hospital utilization according to veteran income.

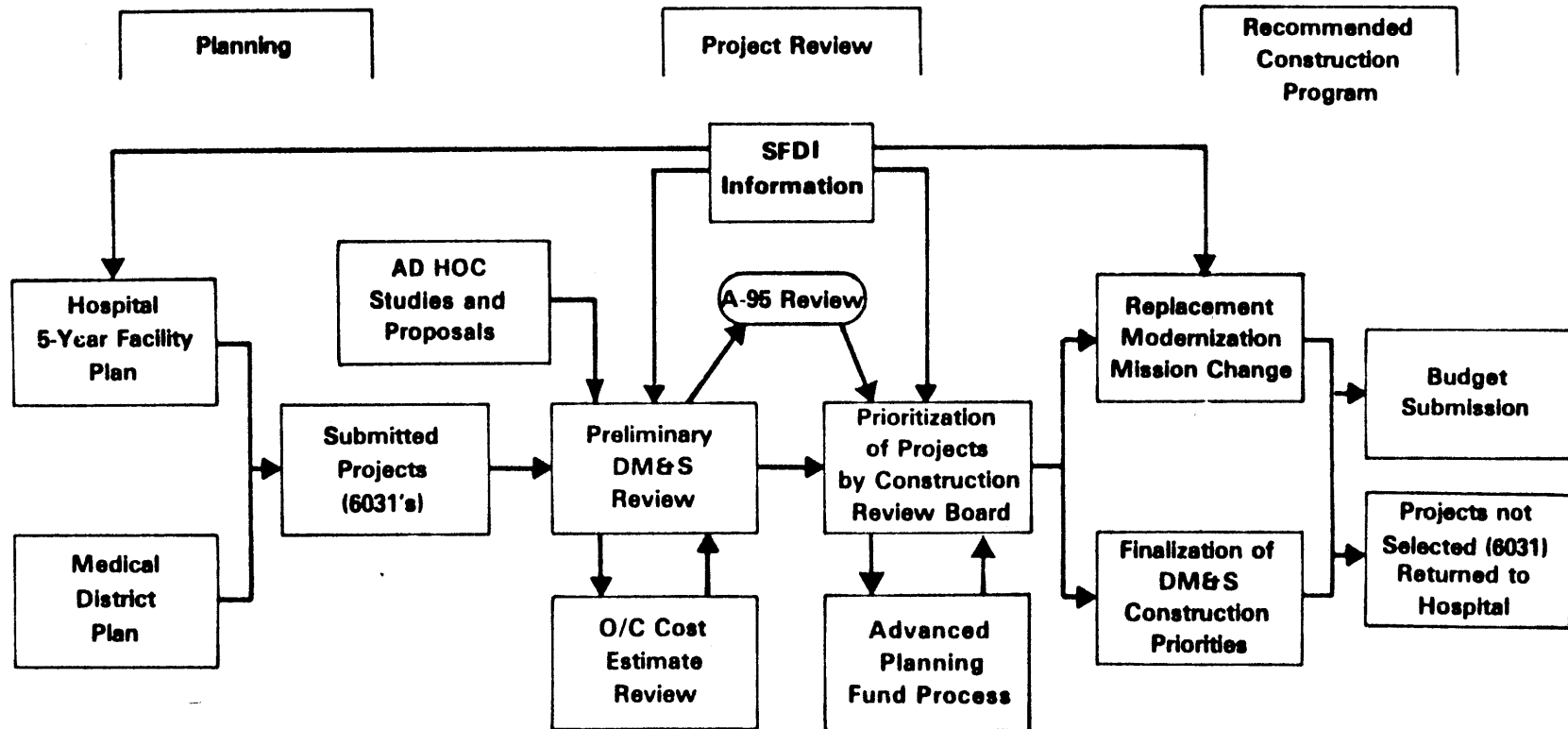
A VA study of admissions to veterans hospitals in 1975 concludes that 65.7 percent of veterans admitted had no health insurance coverage; 17 percent were covered by Medicare, 2 percent by Medicaid; and 18 percent had various other private health insurance coverages (see display). With the closing of municipal and state-run institutions in many areas of the country, the VA has¹⁰ become for many needy individuals the last resource for medical care.

HEALTH INSURANCE COVERAGE OF PATIENTS ADMITTED TO VA HOSPITALS

Admissions During March 23-29, 1975 (15,874)



DM&S PROCEDURE FOR SELECTION AND PRIORITIZING CONSTRUCTION REQUIREMENT



CHAPTER IV

THE VA HOSPITAL DEVELOPMENT PROCESS

A. INTRODUCTION

In his book The Hospital: A Social and Architectural History, John D. Thompson explains that a hospital is not just physical development, a building type, an architectural project. "The hospital is a living organism. . . no matter how it is built, it is run by people. In dealing with human beings instead of building materials or planning formulas, precision becomes impossible, prediction difficult." Thompson frames a unique situation in stating that "A hospital runs like the croquet game in Alice in Wonderland--the flamingos serving as mallets peer at you, the hedgehog balls run away." In summation, he questions how, in modern times, one can attempt to plan health services and develop resources in a comprehensive and systematic manner.

The VA system is the largest centrally coordinated civilian health care system in the nation. It is composed of 172 hospitals with outpatient facilities,

*Note: The Department of Defense maintains the largest health system in the world with medical stations throughout the globe.

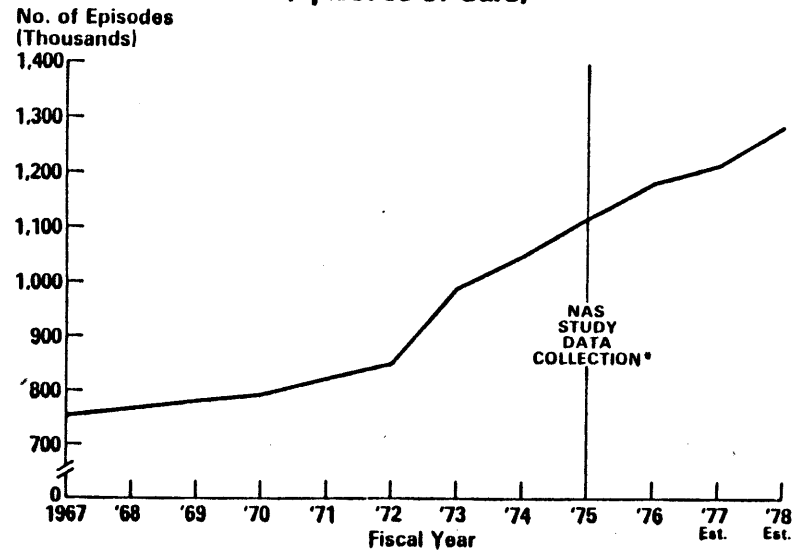
44 additional outpatient clinics, 88 nursing homes, and 16 domiciliaries.

Veterans are also given care in non-VA hospitals and community nursing homes by community physicians and dentists under VA auspices.* In addition, the VA provides financial assistance to 31 states that operate a total of eight hospitals, 33 nursing homes, and six domiciliaries.

As the central coordinator of long-range planning and programming, the VA's Department of Medicine and Surgery provides a comprehensive system of medical, surgical, and psychiatric care for more than 180,000 patients every day. More than 1.3 million episodes of inpatient care and over 16 million outpatient visits occurred during fiscal year 1976 (see display). The VA health care facilities are staffed by more than 185,000 employees. For thirty years, this system has developed alongside and cooperated with, but remained administratively and financially separate from, the private and other public and state health systems.

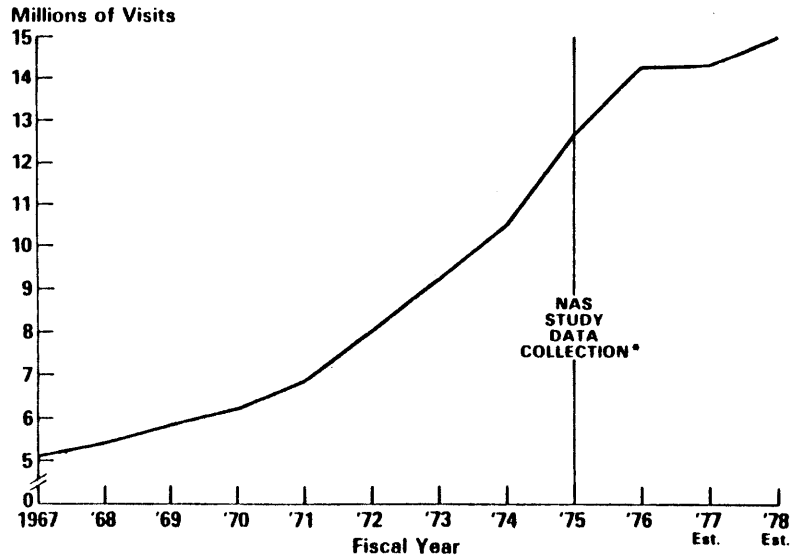
*Note: Federal code permits the VA to subcontract with non-VA providers of health care in areas with limited VA resources and spare population.

**PATIENTS TREATED IN VA HOSPITALS
(Episodes of Care)**



*November 1974 - March 1975

OUTPATIENT MEDICAL VISITS TO VA STAFF



*November 1974 - March 1975

The VA hospital development process is conducted in the VA central office in Washington, D.C. under the auspices of the DM+S. In a unique professional/client relationship with DM+S, the Office of Construction (OC) provides a technical service in acting as a liaison between DM+S and A/E firms selected for large-scale renovation, modernization, and replacement of VA facilities.

As recently as 1965, the OC conducted all aspects of the hospital development process, including planning, programming, schematic design, and working documentation. By 1968, directors of medical services at VA hospitals throughout the country* began to demand from VACO advanced methods of spatial programming and design for changing medical procedures and technology.

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The responsibility for all aspects of planning, programming, and project review up to and including block diagrams was shifted to DM+S in 1974 and its technical review committee, the Office of Facilities Services. The complexities of long-range planning and space and functional programming has led DM+S to seek those innovations which over the last ten years represent not only the state of the art of hospital development but also attempts at containment of life cycle costs.

* Note: In the majority of cases, these physicians were heads of academic departments in affiliated medical schools.

B. ORGANIZATIONAL FRAMEWORK

In an attempt to provide an organizational structure that will facilitate the planning of health services and development of required facilities, the VA has implemented a regionalized approach for health care delivery which divides the country into 28 medical districts. "The objective of regionalization is to improve patient care through the most precise use of available resources." The regionalization concept recognizes that innovative, expensive, and specialized medical services cannot be provided at each VA medical facility. However, these services are usually available within the medical district and the patient can receive the required services through referral mechanisms. Inter-district referrals also occur when technical services are required that are not available within each medical district. A spinal cord injury patient, for example, may be referred to a special unit outside the medical district in which he lives.

A secondary objective of regionalization is improved utilization of available VA and community health resources and facilities. Contractual agreements for sharing or mutual use permits expand utilization of community medical resources and in special situations allow health institutions to make use of the VA's specialized resources. Such an arrangement which provides a broader utilization base can, in some instances, justify the acquisition or establishment of services that could not otherwise be justified.

The VA medical district is composed of a variety of health facilities representing the determined health status and needs of the veteran population. Each VA health facility is defined as a "medical station" and will determine its catchment area or Primary Service Area (PSA) on the geographic location of 51 percent of the patient demand. The VA medical station and its PSA form the basic component of the VA health delivery system and the nucleus of the planning and development process for health services and resources.

C. RESOURCES INVENTORY: SFDI SYSTEM

The initial step in the VA hospital development process attempts to assess the conditions of existing health facilities and evaluate their ability to meet the health demands of a given veteran population. This evaluation is conducted at the medical station level. Each facility will undergo an evaluation on a yearly basis, of its physical plant, conducted by plant engineers. In the case of larger facilities (e.g., VA Los Angeles), in-house architectural assistance will complement the yearly building assessment conducted by engineering personnel. At the end of a faculty inventory, each VA health facility is directed by DM+S to prepare a long-range development plan intended to cover a time frame of five years.

The ability to satisfy current and future demand for health services requires an in-depth understanding of the present capability of the facility to provide these services in a cost-effective manner. In 1974 the VA initiated the development of a computerized space evaluation system. This system is intended to quantify the annual physical plant evaluations of the 172 hospitals administered by the VA. The Space and Functional Deficiency Identification

(SFDI) system was designed by a VA development task force coordinated by DM+S. In creating the SFDI system, the VA established three key objectives for its operation and implementation. These concerns focused on:

1. Identification of space and functional deficiencies utilizing a standardized objective and integrated methodology.
2. Development of an information base for the evaluation of facilities for
 - a. incremental improvements,
 - b. change in mission, and
 - c. replacement of facilities.
3. Providing feedback for development and review of individual five-year facility plans and medical district plans.

Initial application of the SFDI system was conducted in 1976 on seven test facilities ranging in size and age of hospital. According to Tom Weaver, Project Director for the SFDI system, DM+S, the VA hospital system was first surveyed and analyzed by trained personnel during fiscal year 1977.

The original on-site evaluations conducted by VA surveyors consisted of an

assessment of building conditions which were in violation of code, JCAM criteria, or life safety standards. Included in this survey was information on institutional affiliations with local medical schools, means of administrative support and determination of the users of specific program space.

The information base for the SFDI system was compiled from three functional areas. These program categories included:

1. Nursing (bed) units
 - a. medical wards
 - b. surgical wards
 - c. neurology wards
 - d. rehabilitative medicine wards
 - e. intermediate wards
 - f. psychiatric wards
 - g. intensive care units

2. Direct patient care services

- a. ambulatory care
- b. dental
- c. laboratory
- d. pharmacy
- e. radiology
- f. surgical suite

3. Indirect patient care services

- a. administration (fiscal, personnel, etc.)
- b. canteen
- c. dietetics
- d. engineering
- e. supply processing and distribution
- f. warehouse

The data on the actual space in use at each facility was obtained from the facilities' space inventory and verified by an independent inventory of space performed by the SFDI surveyor. Staffing and workload data was obtained by the

surveyor and was used to generate the space required to meet approved criteria. The difference between the required space and in-use space indicates the deficiency or excess. Other inputs included an assessment of the facilities' physical plants for building condition, utilities, and code requirements; an evaluation of the medical school affiliation; and an in-depth functional evaluation of nursing units and patient care services.

All facilities not scheduled for replacement were surveyed with an average of over 1,000 informational items entered into the raw data pool for each facility. The raw data pool was adjusted for the current construction program and the President's fiscal year 1979 construction budget submission to Congress, then analyzed to determine overall hospital scores and individual service scores. The facilities were ranked in system-wide deficiency priority order in each category.

The on-site space and functional evaluation of the facility covered three general areas: nursing bed units, direct care services, and indirect care services. Nursing bed units which were surveyed included ICUs, acute medical and surgical, neurological, rehabilitative medicine, psychiatric and intermediate

care units along with existing in-hospital nursing home care units. The direct care services reviewed included ambulatory care, dental, laboratory, pharmacy, radiology, and surgery. The indirect care services reviewed included administration, canteen, dietetics, engineering, supply processing and distribution (SPD), and warehouse. The survey was designed to include most of the major operations common to most facilities.

The physical adequacy (building shell) evaluation was performed by the surveyor if he was qualified in engineering or a related field; otherwise, it was performed jointly by the surveyor and the facility's professional engineer. This evaluation involved a technical assessment against criteria and covered three areas: building condition, utility systems, and ability to meet codes and standards.

An important concept incorporated in the system is that space and/or function may be adequate or only have limited deficiencies but the shell of the building may be extremely inadequate. Thus the physical plant would rate highly deficient and significantly affect the operation of the facility.

The SFDI data base contains information for each facility describing the degree of compliance with standards for available space and functional arrangement of individual patient care and support activities. In addition, data on construction projects, workload, medical school affiliation, condition of the building shell, condition of utility systems, and degree of compliance with VA, JCAH, OSHA, and other code requirements are maintained for each facility. Data on existing space, required space, and construction projects are obtained from the Medical Facilities Planning system and the Construction Management Information system. Data on the functional adequacy of the direct and indirect inpatient care services, adequacy of the physical plant, workloads, etc., were obtained by on-site surveys and evaluations conducted by district staff personnel. Special functional evaluation questionnaires were used which were designed and structured to minimize subjectivity. The data base is updated annually to reflect the impact of funded and completed construction projects, changes in workload and criteria, and refined information inputs from the field.

The degree of deficiency for individual facility functions and for the total facility is quantified by applying various weighting formulas to the standardized information base. Scoring in the SFDI system is similar to golf in that the more deficient the space and function, the higher the score. A composite score for all direct care and indirect care services and the nursing bed units is developed and all elements are summarized in each category ranging from zero to the maximum possible depending upon the degree of compliance with criteria.

System-wide rankings by degree of deficiency are generated and used to establish priorities for construction budget levels and to identify highly deficient facilities for incremental improvement, major modernization, or replacement. In addition, deficiency profiles are generated for each facility for use by district and facility management in developing facility plans. Because of the complex nature of the deficiency analysis and prioritization process there is no single formula capable of encompassing all the information needed by management. One of the strengths of the SFDI system is that it gives management the capability to view the deficiency

status of facilities from several perspectives by applying different formulas to the deficiency data base.

The results of these analyses are presented in a series of annual reports. One of the outputs of the SFDI system is the evaluation and ranking of a service by magnitude order indicating the degree of deficiency in comparison to all similar services system-wide.

A second output of the SFDI system is a listing of the overall hospital scores in magnitude order which were calculated from the individual service scores. This listing permits system-wide comparison and prioritization of facilities for overall deficiencies.

A third output of the SFDI system is the facility summary which provides a profile of the major deficiencies at a facility. This summary profile permits use of this information for evaluation of each facility in the development of its five-year facility and medical district plans and provides a ready comparison of deficiencies system-wide for use by both the medical district and the Central Office.

The space and functional deficiency identification system allows administrators of VA health facilities to assess the physical resources of the medical station. The deficiencies found in the functional areas, building systems, and shell will reflect the ability of the hospital to meet current and future demands for health services. Hospital deficiencies will also reflect the ability of a physical plant to contain the cost of operation and maintenance of the facility. An important concept incorporated in the system is that space and/or function may be adequate or only have limited deficiencies, but the shell of the building may be extremely inadequate. A highly deficient physical plant would adversely affect the operation of the facility. The ability to determine need and plan for corrections in the health status of a veteran population is presently a major concern for DM+S. In recent years, the VA hospital development process has been directed by the Congress, the Office of Management and Budget (OMB), and the Government Accounting Office (GAO) to update its planning methodology for health services. Growing concern over the quality and cost of VA health care has led DM+S to re-examine its traditional health planning model and evaluate the feasibility of more viable approaches to needs assessment.

D. GENERIC PLANNING ACTIVITIES

The current VA hospital planning model provides administrators and medical district personnel with a range of data regarding the estimated bed requirements for future hospital operation. This planning methodology can also provide data for decisions involving construction projects and five-year facility plan development. Proposals for modernization, replacement, and other construction projects will rely on bed estimates and medical service requirements to substantiate need and establish a priority order for the formulation of a construction budget.

The working elements of the VA planning model are grouped into three activities. Initially, a service area or catchment core for a medical station will be defined in this planning process as that geographic location which is the source of patient demand. This catchment core is subdivided into a Primary Service Area (PSA) encompassing those locations which represent at least 51 percent of the veteran demand and a secondary service area containing a maximum of 49 percent. In addition to the primary and secondary catchment areas, the VA model incorporates the health demands

of veterans from nondesignated areas which utilize the services of the VA medical station in a referral capacity. A second planning activity, which is more specific to the institution, is the establishment of a bed complement for current patient demand and a determination of utilization rates for existing services. As a final activity, the projection of future bed needs and required services will be compared in each case to the 1985 bed and medical services estimates compiled for certain medical districts by VACO.

The VA planning model incorporates a range of data in its current and future bed analysis. Such statistical elements as discharge rates, the veteran population base of the service area, average lengths of stay, and occupancy rates allow for a quantitative analysis of the required number of beds. The standard planning formula utilized by the VA is represented as:

$$\# \text{ beds} = \frac{\text{discharge rate} \times \text{veteran population} \times \text{avg. L. O. S.}}{365 \times \text{occupancy rate}}$$

The comparison of current bed need to future projections for each medical district relies on estimated variables from DM+S and the Office of the Controller. All future projections are based on a five-year forecast which represents:

- A. 1985 discharge rates and lengths of stay
 - estimated by graphic extrapolation of historical trends over a period of years
- B. 1985 veteran population
 - provided by Controller's Office
- C. 1985 occupancy rate
 - 85% -- medicine
 - 85% -- surgery
 - 90% -- psychiatry

Estimation of current needs and projected trends will allow for more informed planning decisions on the institutional and medical district levels.

In an effort to improve the institutional planning efforts of each medical station, the VACO is currently involved in an evaluation of an innovative hospital

planning model developed by the GAO. The GAO has, for the last five years, lobbied in Congress for major changes in the current VA health planning process. After a GAO report to the Congress in April 1976 outlining major shortcomings in the Department of Defense hospital development process, concern over the cost and effectiveness of the federal health care system was expressed in the Senate and by the OMB. In January 1977 Senator William Proxmire of the Senate Subcommittee on Appropriations requested that the GAO review the VA hospital development model in terms of cost feasibility and accuracy in needs assessment. The GAO engaged in an evaluation of the planning process for VA replacement hospitals in May 1977. Questioning the feasibility of the VA process, GAO applied its planning model to the same data base for the three replacement hospitals. Through innovative statistical analysis and a precise bed formula, the GAO was able to obtain an exact planning forecast for the health care needs of the three distinct veteran populations (see display).

The GAO hospital planning model differs from the VA planning process in terms of its data base and its aggregation of patient days into acute and non-acute units. The GAO model uses length of stay data from the Professional

HISTORY OF THE GAO HOSPITAL PLANNING MODEL

- A. APRIL 1976 - GAO REPORT ON SAN DIEGO NAVAL HOSPITAL
- B. JAN. 1977 - SENATE SUBCOMMITTEE ON APPROPRIATIONS HEARINGS
 - REQUEST THAT GAO REVIEW THE VA MODEL
- C. MAY 1977 - GAO PRESENTS THEIR MODEL APPLIED TO 3 VA REPLACEMENT HOSPITALS

Activity Study (PAS) of the Commission on Professional and Hospital Activities (CPHA). Data for this information system is generated by 30 percent of the non-federal short-term hospitals (approximately 1,800 facilities) and 40 percent of discharges from all U.S. non-federal short-term hospitals with a median hospital size of 180 beds. The GAO model can also incorporate data from the VA Patient Treatment File (PTF) for more precise forecasting of the health status of a PSA.

The planning methodology of the GAO model requires three levels of statistical analysis for needs assessments. Initially, the GAO model calls for the assessment of patient length of stay, categorized "acute days." Patient days from PTF records are labeled either "acute" or "non-acute" in the VA model. The GAO methodology can use this classification technique or rely on the PAS length of stay data which are listed as "acute days." All remaining patient days are considered "non-acute" in the GAO model. The number of patient days in both categories are accumulated in the GAO model by age and bed section (see display).

THE GAO MODEL

A. DATA SOURCES

1. LENGTH OF STAY DATA FROM THE PROFESSIONAL ACTIVITY STUDY (PAS) OF THE COMMISSION ON PROFESSIONAL & HOSPITAL ACTIVITIES (CPHA)
 - 1800 NON-FEDERAL SHORT TERM HOSPITALS - 30%
 - 40% OF DISCHARGES FROM ALL U.S. NON-FEDERAL SHORT TERM HOSPITALS
 - HOSPITAL MEDIAN SIZE IS 180 BEDS
2. VA PATIENT TREATMENT FILE (PTF)
3. NAS STUDY - APPROPRIATENESS OF PATIENT PLACEMENT
4. VA EXTENDED CARE STUDY (DRAFT)

Estimation of current bed need in the GAO model is based on acute care beds. The formula utilized by the GAO can be represented as:

$$\frac{\text{Patient days}}{365} = \frac{\text{Census}}{\text{Occupancy rate}} = \text{Beds (acute)}$$

Estimation of non-acute beds is established in the GAO planning model by extrapolating National Academy of Science percentages to accumulated "non-acute" patient days for internal medicine, surgery, psychiatry, and outpatient services; applying VA extended care study percentages for intermediate medicine and non-hospital care; and converting patient days to beds. Bed projections for 1985 are obtained by determining the ratio of 1975 veteran population (established by DM+S) to current veteran population data by age and multiplying current bed estimates by this ratio.

E. ONE- AND FIVE-YEAR FACILITY PLANS

Once a VA hospital has evaluated its physical plant and required services, one- and five-year institutional plans can be assembled and presented to the medical district. The executive council of the medical district will assess each type of institutional plan and will be dealt with as immediate or long-range development. Both modes of development will be ordered in terms of the following budget categories of projects ranging from:

under \$50,000

\$ 50,000 - \$200,000

\$200,000 - \$1 million

over \$1 million.

One-year plans will describe projects which in most cases have not been listed in five-year development proposals. If these projects were cited in long-range plans, their situation has become more critical since the plan was assembled and demands immediate action. These emergency projects will for the most part be itemized as projects ranging from below \$50,000 to \$200,000.

One-year plans detail physical deficiencies with scores of four to five, according to the SFDI system and within the 90th percentile for replacement or renovation system-wide. "Requests for immediate action are expected to become less frequent," according to Tom Weaver, Project Director of the SFDI system, "as the initial SFDI data base is updated annually by plant engineers, the evaluation of overall hospital scores will signal or 'red flag' facilities nearing obsolescence." ⁸ Outside of situations involving natural calamity (earthquakes, tornados, floods) or accidents involving fire or mechanical failure, planning for facility development or modernization can be accomplished in the five-year institutional plan.

F. MEDICAL DISTRICT PLAN

The 28 VA districts will assemble a medical district plan on a yearly basis. The five-year institutional development proposals will serve as the basis for this plan once all medical stations have assessed bed needs and resources. With the SFDI system in its second year of operation, each district can currently prioritize five-year proposals in terms of the overall deficiency score of the hospital, its percentile rating to all other facilities system-wide, and the deficiency rating for the particular functional or service area of the facility. Projects in each five-year institutional plan will also be ordered in terms of their estimated cost.

Each five-year plan and its accepted projects will become part of the annual construction and development activities of the medical district. The executive council will coordinate the establishment of the medical district plan for the facility replacement and modernization, which will list projects in four financial categories:

Under \$50,000

\$ 50,000 - \$200,000

\$200,000 - \$1 million

over \$1 million.

G. SUBMITTED (6031's) PROPOSALS

On an annual basis, the 28 VA medical districts will present DM+S with development plans arranged in terms of financial categories listed above. These construction projects will be assembled as "6031 proposals" for preliminary DM+S review. During the project review process in DM S, the SFDI system information is used during the preliminary facility review to determine if the project in fact addresses the most critical needs of the facility. The preliminary construction review process will take place simultaneously with the efforts of the Office of Construction in estimating the "first cost" of each "6031 proposal." SFDI system information will be utilized by the construction review board in the prioritization of projects for recommendation to the Chief Medical Director.

H. A-95 REVIEW

In an effort to introduce state and local participation, cost effectiveness, and greater operational efficiency into project planning, DM+S has incorporated the A-95 review and an advanced planning cycle prior to budget submission. The A-95 review and comment process-- which was instituted through the OMB circular of 1975-- calls for regional clearinghouses to hold public hearings on proposed federal projects. In recent years, OMB has directed A-95 clearinghouses to incorporate the staff reports of health systems agencies and state health planning and development agencies in the review and comment process for federal health facilities. Although generally limited in its capacity as a regulatory mechanism, the A-95 process does serve as a means of assessing the impact of a VA project on local and state development plans. The results of these reviews will allow OMB to judge not only the cost feasibility of the VA project but the social and economic impact of the facility on a given area. Future amendments to the OMB A-95 circular

are expected to contain "regulatory teeth" which would impact the overall health planning activities of the VA health system.

I. ADVANCED PLANNING FUND PROCESS

In a continued effort to contain the escalating cost of health facility construction and modernization, the VA has introduced an advanced planning cycle for final project evaluation. Once cost estimates for proposed projects have been prepared by OC and evaluated via SFDI, DM+S can conduct a prioritization of these projects. The same budget categorization system used for medical district plans will be applied to proposals currently evaluated by DM+S. The projects with the highest priority (ranked by total deficiency) and ranging in cost from \$200,000 to over \$1 million will not be incorporated in the final DM+S construction proposal. The advanced planning fund process will interrupt the DM+S procedure for evaluation of construction and modernization projects, to allot two years for an in-depth investigation as to the range and scope of a project and a final cost summary for construction and development.

In many respects the Advanced Planning Fund (APF) process is one of the most innovative aspects of the VA hospital development process. Established by OMB in fiscal year 1978, DM+S receives an annual Congressional appropriation* for a 24-month review process. The APF process will require on-site inspection teams to be sent to the respective medical stations proposing modernization, replacement, or change of mission. Alternatives and options for development will be discussed with station administrators, physical plant personnel, and medical district representatives to insure that the proposal for physical improvement or program change will be in the best interest of the veterans of the VA PSA and the other institutions of the medical district.

*Note: 2 percent of the annual VA construction budget.

Interviews will be conducted with the heads of medical services to re-evaluate functional and space requirements and insure that special circumstances do not exist that would interfere with the programming and design of a specific area. Re-evaluation of all planning data pertaining to the size of the veteran population, its health status, and current and projected services needs will be performed in coordination with district planners and the Executive Council. As a final activity, the APF process will recalculate the cost of development in light of more in-depth evaluation of program, services, and construction budget (compiled as capital expenditures and life-cycle costs). The APF process will be the final activity in the DM+S project internal review cycle.

J. PRIORITIZATION AND BUDGET SUBMISSION

Replacement and modernization projects for a given fiscal budget are compiled by DM+S as a line item representing a recommended construction program. As a result of the additional data obtained by means of the APF process, prioritization will be more precise in terms of program alternatives, development strategies, proposed actions, and building costs. When the APF process is complete, a comprehensive list of construction projects will be presented OMB by the Construction Review Board for review and comment. Projects will be categorized in terms of cost and arranged in ascending order of necessity. After negotiation with the Chief Medical Director of DM+S, OMB will reduce the number of proposed projects in each category until the total dollar cost of the annual replacement modernization program matches the respective line item allocation for the VA budget.

The final project selection process completes the "pre-budget" activities of DM+S. Congressional acceptance of the fiscal budget for a specific year will allow VACO to proceed into multiphase development for designated projects.

Presidential approval of the federal budget will call for the remaining components of the VA hospital process to be carried out by the Office of Construction in the areas of planning, programming, and design.

The DM+S will be involved with the later stages of the VA development process in a unique client/professional relationship with the OC.

As stated previously, prior to 1965 all elements of the VA hospital development process were conducted by the OC of the VA central office. Currently, the OC will program and design specific facilities which call for immediate renovation or modernization due to emergency conditions or which are generally estimated under \$1 million. Projects listed as replacement facilities or budgeted at over \$1 million will be subcontracted to approved A/E firms by the VA. Under both modes of development, whether design work is prepared in-house or conducted by outside contractors, the program requirements for functional areas of a health facility are assembled in the VA H08-9 manual.

K. HOSPITAL PROGRAMMING

The functional and space program is the document which describes and details the clinical and related programs which a health care institution plans to provide in new or remodeled space. When the need for new or changed health care services is identified by a medical station, it is specified in terms of "service equivalents." Donebedian defines service equivalents as the units of service which equate to the need for care. ¹¹ The systematic means by which these are translated into estimates of organization, staff, space, environmental requirements, and equipment are contained in the VA programming process.

The H08-9 manual (formerly the M-7 Space Planning Guide) is a functional and space program for health facilities utilized within the VA system. The H08-9 manual describes and details the clinical and related programs which correspond to various types of programming and development from modernization to changes of station. The H08-9 manual is based on the determination of space criteria related to patient volume, staffing patterns, required equipment and functional adjacencies to other program areas. The

relative importance of these factors varies for different service areas.¹²

Workload-related or "primary" activity space is generally determined from patient volume. Operating rooms and examination rooms are examples of spaces that are planned on the basis of workload volumes. "Out-patient spaces are generated primarily by staffing patterns and medical procedures. Systems and equipment become primary determinants of space in departments such as dietary and laundry."¹³

Space planning criteria are used by OC and DM+S as facility planning and budgetary/facility management tools. These criteria exist because of the broad and diverse range of services provided by the VA health system. If the VA operated one hospital or one domiciliary, for example, a highly structured body of space criteria would be unnecessary. However, the VA operates 172 hospitals and other facilities throughout the country; therefore, the VA-wide space planning concepts need to be recorded and updated for continuous reference.

Functional space and equipment--used either as planning, programming, or management tools--are utilized by the OC as well as outside contractors as

"design guidelines, not spatial mandates." The VA has purposely employed the services of civilian architects and engineers to seek new and innovative ways of testing these guidelines for cost containment and design adaptability. The information and concepts contained within the H08-9 criteria are evaluations of the state of the art of space planning for specific medical services and program areas. Criteria for diagnostic equipment, as well as physical adjacency of support areas, allows for a quantifiable approach to decision making. If this were not the case, an in-depth literature search, evaluation of planning options, and comprehensive programming efforts would be required for each individual project.

An example of the "guidance" character of the H08-9 criteria is found in the translation of program information into physical design. During the design process, concepts that are discussed in various chapters of H08-9, and the areas enumerated in the Institutional Plan, are brought together. An innovation in the layout of a department which results in a lower department gross area may entail minor net area reductions or variations in established circulation patterns. If the intent of the criteria is maintained in this layout,

a savings in construction cost will result from the approval of such an efficient plan. The VA has found that construction costs are at least as
15
equally attributable to nonfunctional space (gross) as to functional space.

A further example of the application of guideline concepts of H08-9 criteria can be found in a facility renovation project. By its nature, the renovation or retrofit project will entail compromise. To anticipate that the architect will respond to the space requirements of each functional area criterion is needed in such a project, realizing that design approvals come from a variety of services, programs, and medical directors. The H08-9 criteria are also used by the DM+S as a budgetary tool. Institutional development projects, or "6031 proposals," require that service equivalents be reviewed by the planning services of DM+S and interpreted in the form of a space program. This program is then tallied by the Office of Facilities Services, DM+S, and the Office of Construction, and the result is used in cost estimation.

Once a project is approved as a line item in the VA's fiscal budget, this space program is presented to the architect as basic design information. In post-budget activities, this data will represent a not-too-exceed target for project planning with a strong encouragement to improve upon preliminary spatial layouts and the conversion from net area to final gross building area.

L. CONCEPTUAL AND SCHEMATIC DESIGN

In the preliminary planning for approved replacement or modernization projects is conducted in the Office of Construction, VACO. In-house architectural services or private A/Es selected through open competition will begin physical development at the concept design stage. This organizational and problem-seeking activity is the initial step in development of schematic design documents. Alternative design concepts displayed as bubble diagrams or flow charts are developed for evaluation and selection, with due regard for the full range of project criteria.

Construction estimates at this stage of design are prepared on the basis of cost per square foot. It is possible to be more definitive at this stage of design and to analyze building costs of the various program areas of the facility as the basis for cost estimating. Outline specifications which generally describe the building organization, systems characteristics, schedule, and other space/functional criteria must be prepared by OC or assembled by the project A/E. Reviews of architectural services will be conducted through OC with the participation of the Office of Facilities Services, DM+S.

This unique planning, programming, and design group will act as a liaison between the OC and/or the A/Es on various development issues. Final approval of project plans, space program, building program, and design rests with the Chief Medical Director, DM+S. In view of this fact, DM+S and OC maintain a unique client/professional relationship through the VA hospital development process. DM+S will utilize the design and construction expertise of the OC to provide the types of physical environments necessary for the efficient delivery of health services.

The concept designs of the VA hospital process are often incorporated into the schematic or block plan phase of development. The products of this phase of work generally include small-scale architectural plans and sections, perspective sketches and/or study models, site plans, and more precise estimates of probable construction cost. Schematic design documents will be reviewed at various levels of detail by OC and DM+S facilities staff. The evaluation of alternative proposals for the spatial organization of various program areas and required adjacencies will be based on the design criteria in the H08-9 manual.

Projects that deal in renovation or modernization of existing facilities will have less chance to seek innovative options to the prescribed guidelines of the H08-9 Manual. According to Mike Goode, Project Officer OC/VACO, "In most cases retrofit will require customized program areas for required or existing services . . . costs will be increasingly higher . . . and the unavoidable situation of building on past mistakes is a constant problem." ¹⁶ Although renovation will constrain the number of design alternatives applicable to given service needs, the guidelines of the H08-9 manual will provide the maximum flexibility in terms of physical adjacencies and required equipment.

The planning and design for VA replacement facilities offers a far broader range of design responses both in terms of reuse of existing resources and conception of new facilities. The schematic phase of development will present a variety of options for spatial organization which can be evaluated by the heads of medical service within DM+S. Program needs will be closely associated with the academic and clinical needs of affiliated medical and dental

schools. Review and comment on block plans will include members of the administrations of these institutions, but final approval will remain with the Director of Medical Services DM+S.

The schematic phase of development will be complete when each program area has been reviewed and accepted by the heads of the medical services within the DM+S. The operational procedures, staffing patterns, availability for shared services, equipment requirements, and medical school affiliation will all be evaluated in terms of the standards of the H08-9 manual. Each service will allow for flexibility in interpretation of proposed spatial organization and design by A/Es and the OC. In recent years, the heads of medical services have been overruled in their demand for redesign of program areas by use of the SFDI system. Although medical services have petitioned for additional space or excess equipment, the median range of square footage and allotted equipment for similar program areas system-wide will establish the precedent for design decisions.

The Medical Director of DM+S can, during final review, call for the proposal of a design option for a specific functional area. However, the schematic design process relies heavily on review and comment from the heads of medical service while program areas are being developed. Prior acceptance of a spatial configuration or alteration in the physical adjacency of services will be established with the A/E during the design process. Costly and inefficient reorganization of program areas or redesign of the functional operation of the facility will be avoided by a systematic approach to design approval.

The approval of schematic designs or block plans in the VA development process will call for more detailed architectural studies to be undertaken by the OC or the A/Es. In this more complex aspect of design, the structural, mechanical, and electrical engineering consultants, along with the architect, will complete the building design process. In terms of all eight replacement hospitals currently being developed by the VA, a building

system produced by the joint venture team of Building System Development/Stone, Marraccini and Patterson has been utilized. This innovative system allows for a separation of utilities and mechanical systems from functional areas by the use of interstitial floor. The products of the building design phase of development include working drawings and specifications which display and illustrate in detail the requirements for the construction of the project. The OC or the contracted A/E will prepare the necessary bidding information, bidding forms, conditions of contract, as well as act in the capacity of liaison with the GAO.

In an effort to improve the architectonic quality of the VA hospital, the OC has initiated a series of design reviews which deal strictly with the environmental impact and visual quality of the facility. With the completion of the schematic design phase of development, the VA will present all plans, sections, elevations, perspective drawings, and building models to local and state design review committees. The majority of projects under review by

public agencies will involve major modernization or affect the environment in terms of traffic, noise, and pollution. In 1978, the Director of DM+S initiated a policy which would have environmental impact assessments conducted not by the contracted A/E or the OC but by an outside consultant. The VA continues to meet local and state environmental standards by reviewing site plans and physical designs at various levels of development. The A/Es for the eight replacement hospitals have involved the EPA and the Departments of Urban Planning and Design in their respective cities to comment on the development processes and overall plan for these facilities. With a greater emphasis on outpatient ambulatory care, programming, and design, VA hospitals are responding to a variety of users and creating environments that are more sensitive to episodic care and treatment as opposed to long-term facilities.

Utilizing multiphase development, the VA hospital design process can be directly associated with program requirements and long-range planning for specific projects. The VA process is a systematic and comprehensive approach to hospital development, yet it must successfully interface with the delivery of

health services in the non-federal system. Separate health planning legislation, urban development proposals, and economic and social impact of the VA development process provide a unique challenge to the effective implementation of this process. It is intended in Chapter V to present an in-depth case study of the application of the VA hospital development process for the establishment of a 400-bed replacement facility. Crucial to the presentation of this case study will be an evaluation of the effectiveness of the VA development process in planning for needed services, establishing spatial programs that will deal efficiently with projected patient volumes, strengthening medical school affiliations, and achieving a design concept and rationale that strive to minimize environmental impact of large-scale development.

CHAPTER V

CASE STUDY OUTLINE: VA BALTIMORE REPLACEMENT HOSPITAL

The following provides an overview of the health facility development process for the VA replacement hospital in Baltimore, Maryland, which is discussed in detail in Chapters VI through XIII. Although final approval of the schematic phase of the design had not yet been received by the architect at the time this study was compiled, the unique conditions in long-range planning, establishment of program alternatives, choice of site, and overall urban design considerations, allow for the study of the Baltimore replacement facility to highlight the comprehensive qualities of the VA hospital development process.

In Chapter VI the impact of the redevelopment of downtown Baltimore (via the MetroCenter Plan) on the VA decision to explore the feasibility of a replacement facility at the University of Maryland campus will be presented in the context of economic, educational, and social service improvements for the 1,000-acre downtown core. The chapter will also frame the political interaction

between the various players representing the administration of the U/M Medical School, the City of Baltimore, and the State of Maryland in successfully influencing the VA to develop a replacement facility in coordination with the Metro-Center Plan.

The primary inventory of VA and non-VA resources in the Baltimore PSA and the analysis of veteran demographic status will be contained in Chapter VII. The health service needs of the veteran population of the Baltimore PSA will be evaluated in terms of medical requirements by age group and the range of care to be offered to an aging veteran population in the future. Through this inventory of current and future health service needs and available VA and non-VA resources, areawide district medical plans were assembled and presented to the VACO for review and comment. Previous evaluations conducted by VACO of the conditions existing in the Baltimore PSA, plus a special ad hoc study, resulted in the preparation of a Master Plan for the Baltimore PSA.

In Chapter VIII the special investigation undertaken by the VA District 7 and its consultant, RTKL Associates, will be presented in terms of planning alternatives for needed services and resources. Each planning alternative will

not only present options for the reorganization of medical services but will consider the optimal location for needed facilities and the building configuration best suited to the site. With the completion of the special ad hoc study, District 7 was able to utilize planning and development data in compiling an updated proposal for a replacement facility in downtown Baltimore.

Chapter IX will focus on the review of District 7's updated proposal for a replacement facility and the revised long-range plan for the Baltimore PSA. It is intended in Chapter IX to highlight the DM+S evaluation of the proposal and the planning alternative chosen for its implementation. The formal VA decision to seek comment on the replacement project via the A-95 review process will be presented. An assessment of this process, which involves a joint review by the RPC and the HSA, will offer insight into the inability of the A-95 review to successfully impact on the development activities of the VA health system. The A-95 review remains a cursory attempt at local participation in the VA development process. It is the intention of this discussion to illustrate how the A-95 process must be restructured to include regulatory powers, to impact on the VA development process when the health delivery system of an area is in

jeopardy. The final review and comment regarding the approval of the Baltimore replacement hospital will describe the DM+S Advanced Planning Fund. This review will illustrate an innovative process in which initial construction costs are evaluated and an attempt is made to reach a more exact estimate of capital expenditures for the project. The process attempts to limit the responsibility for cost overruns through a more exact understanding of projected costs per square foot and conceptual designs. Included in Chapter IX will be the reply of DM+S/VACO to the issues raised by the A-95 review. The reply illustrates current VA policy toward shared service, project costs, and the ability of the VA to purchase needed medical services from community providers.

Chapter X will outline the preplanning activities for Baltimore replacement projects. These activities include evaluation of the neighborhood context, environmental design guidelines, urban design plans, and the interaction of the VACO and the A/E with state and local development authorities.

The conceptual/schematic design phase of development will be presented in Chapter XI. Each process will illustrate the impact of planning criteria on the formulation of program and design. The conceptual stage of

development will utilize diagrams to arrange and organize the required program area and services according to the H08-9 Manual. Schematic design will present these conceptual diagrams as "block plans" and define specific adjacencies and their related gross and net square footage. Included in this stage of development will be the design reviews conducted by the Heads of Service within DM+S regarding space allocations, required equipment, and preferred adjacencies for established medical procedures. The presentation of schematic designs by the A/E (RTKL/CSD Inc.) will not only present the organization of program areas but will also illustrate initial renderings of elevations and sections through the building. Because of increasing concern over the environmental design of VA facilities, Chapter XI will summarize the design review activities conducted at VACO regarding the architectural qualities of the facility.

Chapter XII will discuss the current interest of the VA in the development of urban facilities and their impact on the existing built environment. Through the implementation of design guidelines established in previous urban design reports, the urban design process utilized by RTKL will illustrate a number of concerns for the treatment of massing, building heights, a pedestrian

arcade, and the relation to key landmarks adjacent to the site. Chapter XII will explore the need for close coordination between the architect and the local urban design commission to insure that project design corresponds to the overall development plans for a multi-use area.

Chapter XIII will describe the design review process conducted by city and state architectural design boards. The design response proposed by RTKL will be presented in terms of its urban and environmental design qualities. The treatment of the mass and configuration of the building as well as the programming of the pedestrian arcade will be analyzed in terms of guidelines and criteria proposed in the "Urban Design Report for the U/M Campus" prepared by Harry Weese and Associates. The city/state design reviews will, it is hoped, illustrate the extent to which the VA is attempting to coordinate its development plans with local urban redesign.

CHAPTER VI

METROCENTER AND POLITICAL FRAMEWORK SURROUNDING REPLACEMENT OF THE VA BALTIMORE HOSPITAL

In the past twenty years MetroCenter, the 1,000-acre downtown core of Baltimore, has experienced massive redevelopment. Manufacturing and warehousing have been deemphasized while MetroCenter's role as the region's administrative center has been reinforced. New facilities are being developed to attract visitors and conventions, and plans have been drafted to revitalize the retail, financial, and municipal districts. New open spaces are being created for organized activity and passive use. Housing is being developed to enable people to live close to their workplaces. Accessibility is being improved through the construction of the rapid transit system, expressways, and parking facilities. Cultural, educational, social service, and health facilities are being improved to further enhance MetroCenter's attractiveness as the intense activity center of the region.

The general objectives of the MetroCenter development include:

- To increase the number and variety of jobs in MetroCenter.
- To develop MetroCenter's role as a major center of medical, educational, cultural, and research activity in the region.
- To improve accessibility within MetroCenter, and between MetroCenter and the rest of the city and region.

Fifty acres, or 5 percent of MetroCenter's land area, are occupied by major health, welfare, research, and social service institutions. One institution, the University of Maryland Medical Center, has recently expanded its School of Pharmacy and other medical services. The largest element of the MetroCenter development at the U/M Medical Center will be the 1-million gsf replacement hospital facility now being designed by RTKL Associates for the VA. This facility is the focus of the case study in the following chapters.

Since 1962 the administration of U/M has imposed strong political pressure on Congress and the Senate, as well as on the Governor's Office, with the intention of influencing the VA to replace existing resources in the PSA.

The extensive lobbying efforts carried out by U/M Medical School President John Kuhn with then-Governor Spiro T. Agnew encouraged an early U/M evaluation of the possibility for expansion of the medical school. Key elements in the proposed expansion program were additional clinical and research areas that would be shared with a new VA facility within the Baltimore PSA.

With the passage of the Emerging Medical School Act in 1976, the VA itself became increasingly concerned with strengthening existing programs in medical education with neighboring institutions. Utilizing the political leverage of the nation's vice presidency, Mr. Agnew, throughout his term in office, encouraged the VA to assess the status of health care in the Baltimore PSA and to further medical affiliation with the U/M Medical School. By 1972 the VA had begun to evaluate the long-range health status of many major urban centers and had selected Baltimore as an area for future assessment.

The linkage between the U/M Medical School administration and the Governor's Office in Annapolis continued to exert major influence on the VA during the administration of Governor Marvin Mandel. The governor, a strong supporter of the massive redevelopment of the City of Baltimore, considered

the development of a VA medical teaching/research facility to be an essential component of economic and social service revitalization. It became well known at VACO that interest in a replacement facility in the Baltimore PSA was a "joint venture" between the Office of the President of the U/M Medical School, the Office of the Governor of the State of Maryland, and the ex-governor of the State, Vice President Agnew.² The cast of interested players in the political development of long-range health plans for Baltimore was complete when Mayor William Schaffer, strongly in favor of new development within the Metro-Center, became an active supporter of U/M efforts to propose development of a VA facility in the core downtown area.

The U/M medical complex maintains a particularly strong social and economic tie to the mixed use components of Charles Center, a component of MetroCenter. The new metro system and the proposed City Boulevard for high speed bus service will enhance total accessibility of these facilities to Baltimore residents. In the next two decades, with the completion of many of these projects, Baltimoreans can expect to enjoy an increasingly lively, efficient, and attractive downtown center with a wide variety of social and medical services.

CHAPTER VII

INVENTORY OF VA AND NON-VA RESOURCES AND PROJECTED NEEDS WITHIN THE BALTIMORE PSA

The Baltimore PSA was defined as a result of the demographic analysis and organization of District 7 (Region 2) of the VA Hospital System. According to the "Demographic Analysis of the Baltimore, Maryland Area: 1985 V.A. Hospital Bed Requirements," the Baltimore PSA comprises the City of Baltimore and the surrounding Maryland communities of Anne Arundel, Baltimore, Calvert, Carrol, Cecil, Harford, Howard, Kent, Queen Anne's, and Talbot counties.

A. VA RESOURCES

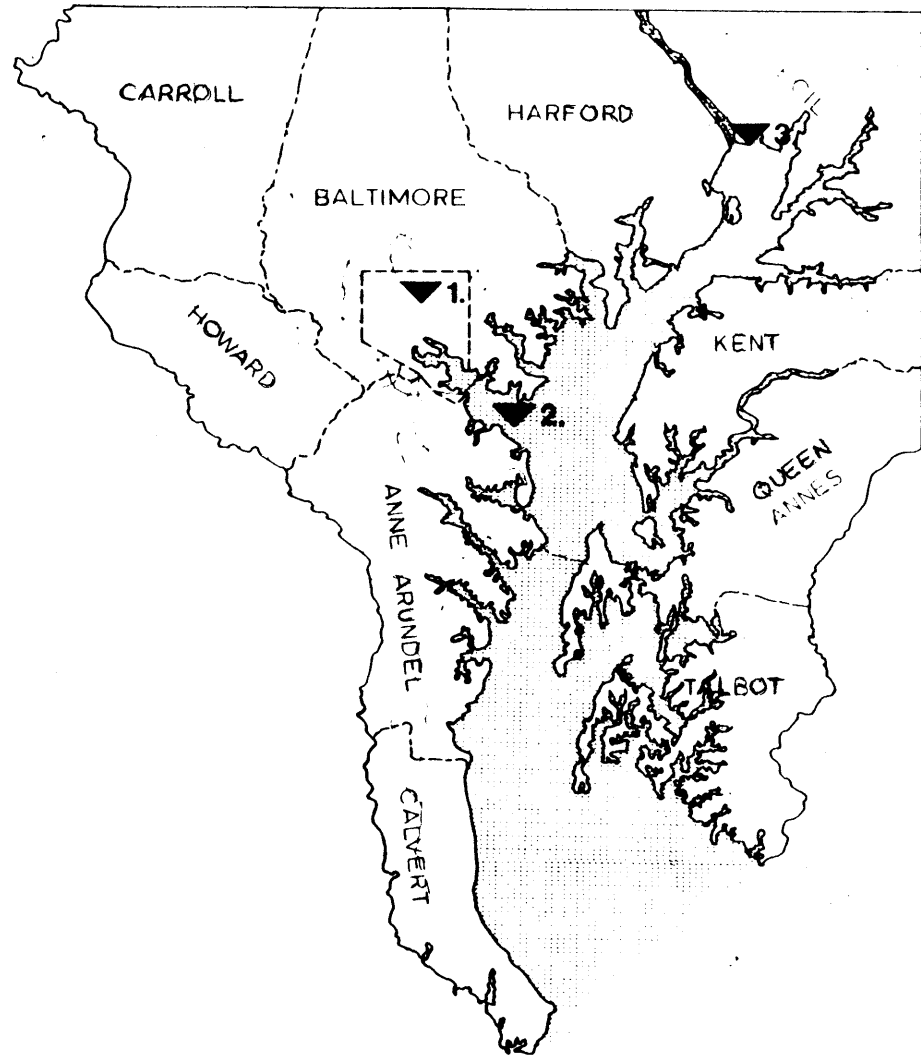
The Baltimore PSA is serviced by three VA hospitals and one satellite clinic. The three VA facilities are the VA Baltimore (Loch Raven), located in Baltimore City; Fort Howard, in Baltimore County; Perry Point, in Cecil County. The satellite, located in the Federal Building, MetroCenter, Baltimore, is staffed by the Baltimore VA Hospital and operates as an extension of the ambulatory outpatient services. The map of the PSA shows the geographic location and physical proximity of the three VA stations to the related catchment area¹ (see display).

Presently, these three hospitals have a total of 1,502 medical, surgical, and psychiatric beds, and 111 extended care nursing home care beds. The services offered to veterans on an outpatient basis at the Baltimore City satellite clinic include medical examinations, dental treatments, prosthetic appliances, social work services, and drug and alcohol dependency programs.²

In 1972, the PSA, which is part of VA District 7, compiled a five-year proposal with the assistance of an outside consultant, McKinsey and Company, Inc. The proposal outlined "the problems for each station and proposes program

BALTIMORE AREA V.A. HOSPITALS

- ▼ 1. VAH Baltimore (Loch Raven)
- ▼ 2. VAH Fort Howard
- ▼ 3. VAH Perry Point



VETERANS ADMINISTRATION HOSPITALS
BALTIMORE, MARYLAND AREA MASTER PLAN
(PROJECT 511-001)

BALTIMORE PRIMARY SERVICE AREA



and policy changes which address these problems. In addition, it provides a preliminary facilities plan which is responsive to the [VA] program and policy recommendations." ³ Subsequently, employing data from the five-year proposal, profiles of the three VA stations within the Baltimore PSA were compiled by RTKL, in a special ad hoc study which summarized the facilities as follows:

VA Baltimore (Loch Raven) Hospital

The hospital, located at the intersection of Loch Raven Boulevard and the Alameda in Baltimore City, occupies 15 acres within a scenic and well maintained single-family residential neighborhood. Since its original construction as a tuberculosis hospital in 1952, the station has undergone various modernizations and minor and major renovations in order to functionally accommodate the re-⁴quirements of an acute general hospital. The facility houses 291 beds in three therapeutic bed classifications: 168 acute medical, 109 surgical, 14 psychiatric (drug treatment). The hospital is affiliated with both the U/M and the Johns Hopkins University medical schools. The more extensive programs at the station are conducted under U/M auspices (see display).

EXISTING BED DISTRIBUTION BY THERAPEUTIC BED CLASSIFICATION AND STATION

BED CLASSIFICATION	BALTIMORE (LOCH RAVEN)	FORT HOWARD	PERRY POINT	TOTAL
Acute Medical	168		60	228
Medical Support			59	59
Long Term Medical			355	355
Intermediate Medical		186		186
Rehabilitative Medical		<u>45</u>		<u>45</u>
Subtotal	168	231	474	873
Surgical	109			109
Psychiatric	<u>14</u>		<u>506</u>	<u>520</u>
Subtotal	291	231	980	1,502
Nursing Home Care		<u>47</u>	<u>64</u>	<u>111</u>
TOTAL	291	278	1,044	1,613

Major modernization would be required for the VA Loch Raven Baltimore to remain a viable general hospital. In assessing the hospital for the future, several options were listed by RTKL. One alternative proposed phasing in development in a manner which initially addressed only the most demanding requirements of outpatient services and continued operations with the current inefficiencies throughout the ancillary departments. A second option was to convert the hospital to accommodate those inpatient services that do not place full emphasis or demand upon the diagnostic/treatment departments. "Alternative inpatient services which could be accommodated and would be appropriately located in Baltimore City are: acute psychiatry, drug treatment, alcohol treatment, nursing home care, and intermediate⁵ medicine."

Fort Howard VA Hospital

Constructed in 1942 and expanded since the end of World War II, the Fort Howard VA Hospital is located in Baltimore County in the North Point section of the city overlooking the Patapsco River. The site is adjacent to the Chesapeake Bay and Sparrows Point, a large steel manufacturing plant owned by Bethlehem Steel.

The station occupies land of historical value. During the War of 1912, British troops invaded the United States by landing at North Point. This is the only site in the United States that has experienced a land invasion. . . . On August 2, 1940, the V. A. acquired title to Fort Howard from the Army.⁶

The postwar expansion at Fort Howard consisted of the construction of quonset huts, which still house ancillary support services for the hospital. Fort Howard houses 278 beds, in three therapeutic classifications: 186 intermediate medical, 45 rehabilitative medical, 47 nursing home care. The station also provides outpatient and diagnostic/treatment services.

The existing role of Fort Howard as a rehabilitative center is appropriate to the site, especially in view of modernizations carried out in the main buildings. The station, however, remains a problem in terms of accessibility

and modes of transport (public versus private) for the veteran. Past plans had been prepared by VACO to close Fort Howard, but in later studies judged the facility viable for long-term/rehabilitative care. Acute care was infeasible because of required modernization and the disadvantage of a suburban site. The future intention of the Executive Council of District 7 is to utilize Fort Howard as a long-term facility and rehabilitative center because of its "campus like setting and scenic environment."

7

Perry Point VA Hospital

The VA health care facility at Perry Point in Cecil County is the least accessible to veterans residing in the metropolitan Baltimore City area. The facility's remote location is poorly suited to extensive outpatient or acute inpatient medical or psychiatric services for the Baltimore PSA. According to the architectural assessment completed in 1974 by RTKL and the District 7 Executive Council, the physical quality of its site and its remote semi-rural location make Perry Point a better choice for extended care and long-term psychiatric services. The location of a veteran population in the northern and eastern shore areas of Maryland, reasonably close to Perry Point, demands that the medical mission of the station include a limited number of acute medical inpatient beds.

Present inpatient accommodations provide a level of care that is below the quality standards set by DM+S. The current Medical District Plan for Perry Point includes construction of fire stairs, upgrading the inpatient buildings, and improving the outpatient adjacencies.

B. NON-VA RESOURCES

The original inventory of non-VA medical resources in the Baltimore PSA was conducted in 1975 by RTKL in coordination with District 7. In the last four years District 7 has worked in coordination with the Maryland Regional Planning Council and the Central Maryland Health Systems Agency in tabulating the total resources of the greater Baltimore area. This compilation of planning information has proved essential not only in the merger and closures of public, private, and proprietary hospitals (regulated under PL. 93-641), but for the development of medical and allied health educational programs.

The VA in developing long-range plans for modernization and replacement of facilities has, to the extent allowed by federal codes regulating VA health services' use of non-VA services, "considered the availability and utilization of the existing and proposed community medical resources." Non-VA resource inventories permit the Medical District and VACO to evaluate which medical programs can be offered to the area veterans via agreements with non-VA health care providers. By sharing special medical resources with

other health providers, the replacement or renovation of VA facilities can be reduced in terms of the physical and staffing requirements necessary to meet
10
the health care needs of the veterans.

District 7 and RTKL, in coordinating the long-range planning efforts of the Baltimore PSA, evaluated current and projected inpatient needs provided by non-VA facilities. These data, which were the basis for VA replacement proposals, included statistics pertaining to general medical and surgical hospitals, federal institutions, psychiatric hospitals, specialty hospitals, and nursing home facilities. In an effort to establish an historical trend in utilization of these services, research was directed at the estimation of hospital outpatient and emergency room visits, currently and in the future.

Summaries of the non-VA medical resources within the Baltimore PSA were compiled by RTKL in six generic hospital categories:

Federal Institutions

Health care facilities owned and managed by the federal government include public health service hospitals, facilities that are part of the DOD

(Army, Navy, Air Force) health system, and hospitals that are part of the Indian Health Service. According to current legislation pertaining to medical services for veterans, federal institutions can provide care to those who have retired from military service.

Within the Baltimore PSA there are four federal hospitals with a total 401 beds. Three of the four hospitals are military facilities situated in areas that are inconveniently located and inaccessible to the veteran population in the Baltimore PSA. The U. S. Public Health Service Hospital in Baltimore is the fourth federal hospital, located near the Baltimore (Loch Raven) VA Hospital. The latter is presently under proposal for a change of mission which would decommission existing beds and convert the facility to a long-term care nursing home.

Psychiatric Hospitals

There are eight long-term psychiatric facilities in the Baltimore PSA. The facilities house 6,132 beds.

General Medical/Surgical Hospitals

According to statistics prepared by the Regional Planning Council, the 29 hospitals in the Baltimore PSA have a total of 8,685 licensed beds, with an average occupancy of 79.4 percent. Of the total beds, 6,530 were classified as medical/surgical and have an occupancy of 86.5 percent. Represented in the total bed count were 202 acute psychiatric beds with estimated average occupancy of 83.2 percent (see display).

Specialty Hospitals

In the Baltimore PSA ten separate institutions offer such medical specialties as orthopedics, cardiology, and rehabilitative service. The total bed count, providing a variety of medical services for the Baltimore PSA, is 3,858.

Nursing Home Care

The Maryland State Department of Health and Mental Hygiene's "State of Maryland Medical Facilities Survey and Plan, 1974" cites 34 percent of the 8004 beds in the Baltimore PSA as nonconforming to Maryland standards. The total number of licensed nursing homes in the Baltimore PSA is 100.

*NOTE: Use of 1970 Census Data in VA Master Planning efforts, reflects
a growing need for more extensive demographic research within DM+S.

*NOTE: Medical/Surgical data.

SUMMARY OF GENERAL MEDICAL/SURGICAL HOSPITALS

	Number of Hospitals	Total Beds		Medical/Surgical Beds		Psychiatric Beds	
		Number	Occupancy	Number	Occupancy	Number	Occupancy
Anne Arundel County	2	353	81.9%	294	83.0%	0	--
Baltimore City	15	6,198	77.9%	4,420	86.1%	185	82.7%
Baltimore County	4	1,291	85.4%	1,094	89.5%	17	88.2%
Calvert County	1	78	78.2%	70	81.4%	.0	--
Carroll County	1	124	75.0%	102	82.4%	0	--
Cecil County	1	110	85.5%	100	89.0%	0	--
Harford County (1)	1	255	83.1%	239	90.4%	0	--
Kent County	1	80	63.8%	65	67.7%	0	--
Talbot County	1	196	83.7%	146	89.7%	0	--
TOTAL PSA(2) (3)	27	8,685	79.4%	6,530	86.5%	202	83.2%

(1) Fallston General Hospital not reporting: 150 beds

(2) Howard County General Hospital not reporting: 59 beds

(3) No general medical/surgical hospitals in Queen Anne's County.

C. PROJECTED MEDICAL SERVICE NEEDS FOR VETERANS IN THE BALTIMORE PSA

In January 1975 DM+S/VACO defined the service area, projected population figures to 1985, and quantified required inpatient medical resources for the Baltimore PSA. The "Demographic Analysis of the Baltimore, Maryland Area; 1985 V.A. Hospital Bed Requirements" became the primary input to the quantification of veteran health care needs. Veteran population projections for 1985 were estimated to be 319,000 by the VA demographic analysis, utilizing the 1970 census as base line data.

The total population of the PSA in 1970 was 2,202,891, with veterans comprising 14.5 percent of the total, or 320,057. In 1970, 94.8 percent of the veterans in the PSA resided in the Baltimore region as defined by the Regional Planning Council (RPC). According to the 1970 census, 44.3 percent of the veterans in the PSA were categorized as serving in the military during World War II; approximately 45 percent of the veterans were between 45 and 55 years of age.

Assuming that the 1970 veteran distributions hold true for 1985, the following statistical characteristics can be projected for the 1985 veteran population:

- 319,000 veterans will be residing within the Baltimore PSA;
- 303,000 veterans (95 percent of the total) will be residing in the RPC Baltimore region;
- 144,000 veterans (45 percent of the total) will be over 60 years of age (see display).

POPULATION FIGURES FOR THE PRIMARY SERVICE AREA – 1970 CENSUS (1)

LOCATION	TOTAL POPULATION	VETERAN POPULATION	% OF TOTAL POPULATION	% OF PSA VETERAN POPULATION	W.W. II VETERANS	% OF VETERAN POPULATION
Anne Arundel Co	297,539	46,113	15.5%	14.4%	18,031	39.1%
Baltimore City	905,757	118,692	13.1%	37.1%	55,062	46.4%
Baltimore County	621,077	103,811	16.7%	32.4%	48,144	46.4%
Calvert County	20,682	2,321	11.2%	0.7%	887	38.2%
Carroll County	69,006	9,279	13.4%	2.9%	3,492	37.6%
Cecil County	53,291	6,905	13.0%	2.2%	2,899	42.0%
Harford County	115,378	16,099	14.0%	5.0%	6,114	37.8%
Howard County	61,911	9,506	15.4%	3.0%	3,775	39.7%
Kent County	16,146	1,832	11.3%	0.6%	836	45.6%
Queen Anne's Co.	18,422	2,375	12.3%	0.7%	1,133	47.7%
Talbot County	23,682	3,124	13.2%	1.0%	1,532	49.0%
TOTALS	2,202,891	320,057	14.5%	100.0%	141,905	44.3%

(1) Source: U.S. Department of Commerce, Bureau of the Census, General Social and Economic Characteristics, Maryland

The VA demographic analysis established the need for an increase of 56 beds, representative of an aging veteran population and of a need for additional acute and extended inpatient services to provide a comprehensive system of health care. Utilizing a therapeutic bed classification methodology, which represents acute bed days, existing and projected bed distributions are shown in the following display.

BED DISTRIBUTION

Therapeutic Bed Section	Existing 1975	Projected 1985	Change
Acute Medical	228	276	+ 48
Medical Support	59	46	- 13
Long Term Medical	355	382	+ 27
Intermediate Medical	186	213	+ 27
Rehabilitative Medical	<u>45</u>	<u>82</u>	<u>+ 37</u>
Subtotal	873	999	+126
Surgical	109	120	+ 11
Psychiatric	<u>520</u>	<u>410</u>	<u>-110</u>
Subtotal	1,502	1,529	+ 27
Nursing Home Care	<u>111</u>	<u>140</u>	<u>+ 29</u>
 TOTAL	 1,613	 1,669	 + 56

Source: VA Department of Medicine and Surgery, "Demographic Analysis of Baltimore, Maryland, Area, 1985 VA Hospital Bed Requirements," January 1975.

D. LONG-RANGE CONCLUSIONS

The final assessment of the condition of VA facilities within the Baltimore PSA, presented by RTKL for review and comment to the DM+S, OC/VACO and the Executive Council of the Medical District 7, stated that if the "Veterans Administration is committed to providing acute medical services at V.A. facilities in the Baltimore P.S.A., then major construction at [VA] Baltimore (Loch Raven) or a new replacement facility is necessary." ¹¹ RTKL suggested that relocation of acute medical services to a new replacement facility would enable the Loch Raven facility to house inpatient services that place less demand on medical ancillary resources.

Although conclusions reached by RTKL for District 7 emphasized the moratorium on the construction of additional medical/surgical beds established by the RPC and areawide planning groups in RPC planning guidelines, those guidelines also outline the following special considerations for construction:

- To providers of continuing care for defined service population;
- To replace existing facilities;
- To convert or modernize existing facilities.

All of the considerations listed above were applicable to the VA's long-range plans for both existing and proposed facilities in the Baltimore PSA. According to the results of the combined RTKL/District 7 assessment of VA and non-VA resources, VA facilities served a defined population; any new facility would be a replacement for services presently offered at the existing facilities; and the existing facilities would be either renovated or converted.

CHAPTER VIII

VA DISTRICT 7 (RTKL) MASTER PLAN

The District 7 Medical District Plan for the Baltimore PSA recommended that the VA develop major programs in renovation, change of mission, and replacement for the resources and services needed to meet current and projected veteran demands. In order to maintain viable medical school educational programs, to meet increased demand for care, to accommodate changes in program, and to continue the present quality of services, the physical environment and building structures of the existing VA facilities were matched to the profile of health care needs of the PSA.

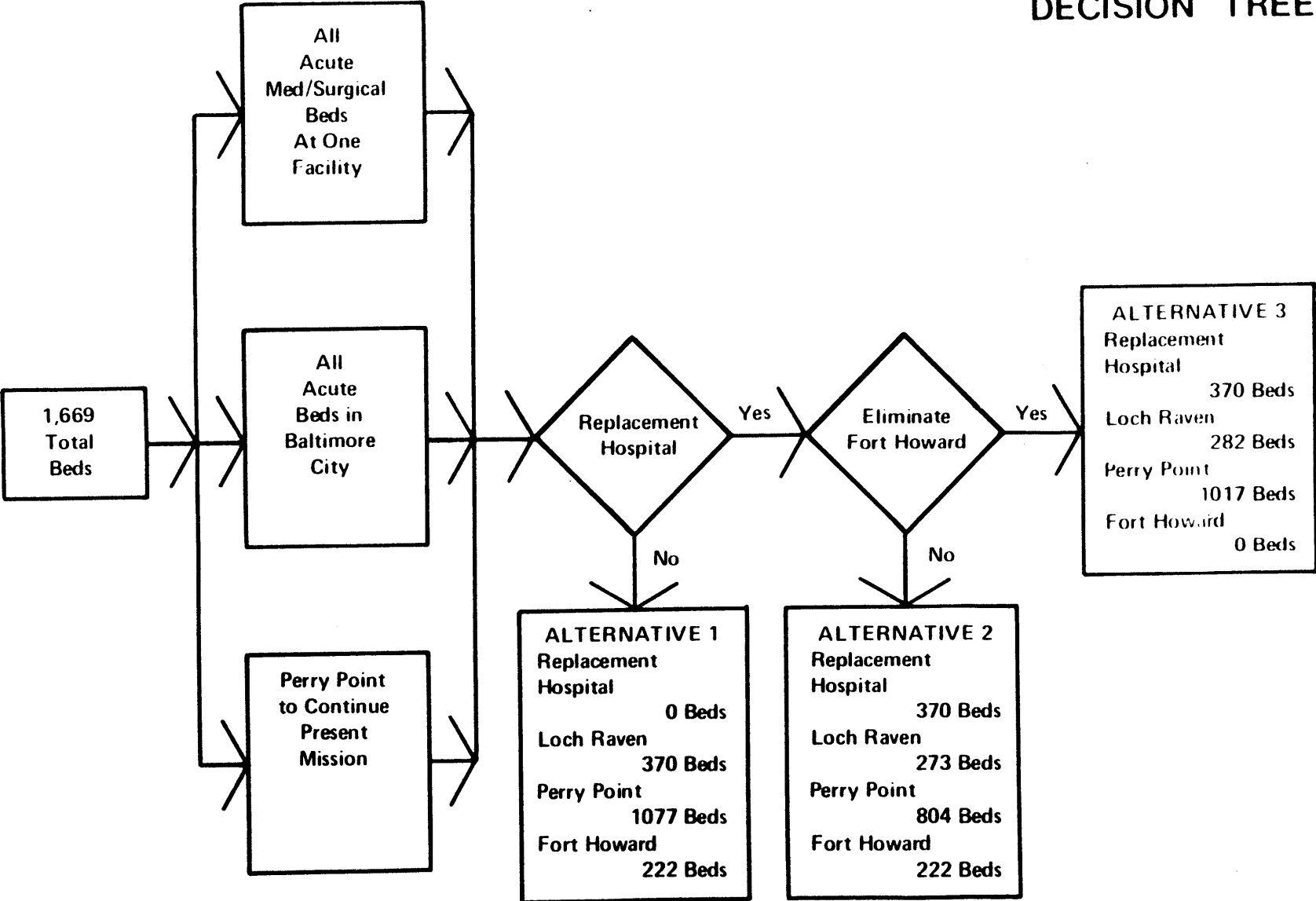
*Note: As a result of the evaluation of VA resources by RTKL Associates, all of the existing VA hospitals were found in violation of the Life Safety Code and JCAH Quality Standards. In specific cases violations related to the existence of dead-end corridors; other deficiencies related to functional efficiencies established in the H08-9 Manual or outdated modes of patient accommodations.

The VA Medical District Plan drew three basic conclusions dealing with the physical evaluations of the existing facilities and needed health services:

1. Concentrate the acute medical and surgical beds at one facility;
2. Concentrate all acute beds in Baltimore City;
3. Continue long-term inpatient psychiatric and medical services at Perry Point.

(See display)

DECISION TREE

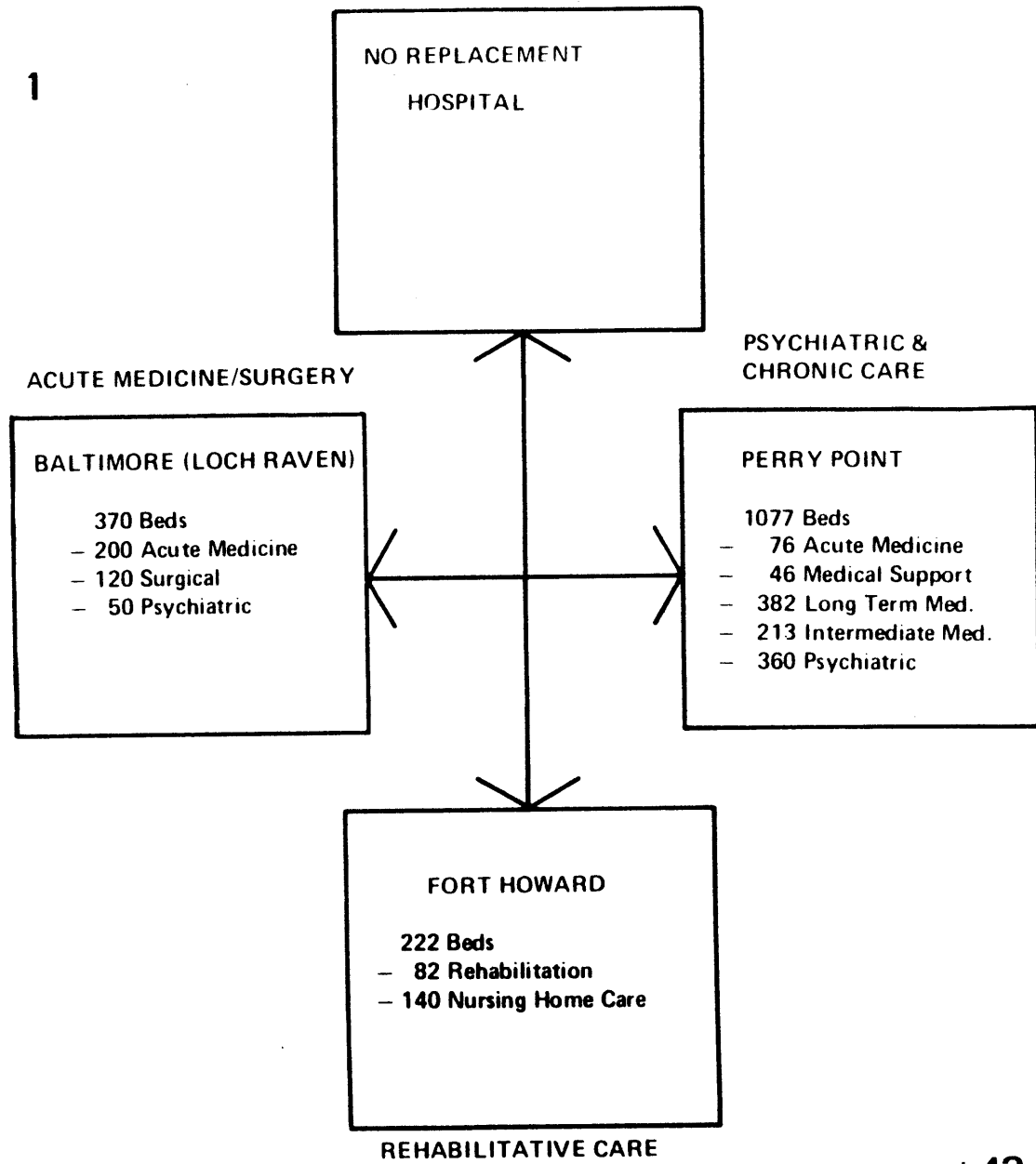


A. PLANNING ALTERNATIVES

Planning Alternative 1 (see display)

The 1973 District 7 long-range development proposal, prepared in cooperation with McKinsey and Company, had recommended that no new hospital be developed in Baltimore City and that the three existing stations provide the necessary services. The proposal had recommended 48,000 gsf be added to the VA Baltimore (Loch Raven) Hospital to accommodate additional outpatient and ancillary services. The VA Master Plan for Baltimore proposed that the expansion at Loch Raven was to service the medical programs required by the 1975 demographic analysis. The PSA population projection required an increase of 56 beds over the present inpatient complement at the facility. The Loch Raven VA Hospital would have a total of 370 beds, all of which were to be acute care. Planning Alternative 1 was intended to consolidate all outpatient activity at the VA Baltimore facility. The expansion would correct functional deficiencies and was intended to house additional service needs projected through 1985. Under Planning Alternative 1, Fort Howard would maintain its traditional role and mission. It would house 222 beds (82 rehabilitation, 140 nursing home care), a decrease of 56 beds, to allow for the expansion of major departments. No new

PROGRAM ALTERNATIVE 1



construction would be necessary to accomplish needed improvements in services. With no added demand on ancillary services, Fort Howard could continue to provide primary or ambulatory care to veterans in the PSA.

Because of the need for acute care beds to serve veterans on the eastern shore and northeastern section of Maryland, Alternative 1 proposed that Perry Point continue to maintain a number of acute care beds, as well as to support the chronic and long-term care programs in the Baltimore FSA. The alternative further stated that Perry Point continue to provide ambulatory care services to veterans in the immediate area. To meet these service needs, the total bed complement at the station was proposed to be 1,077, an increase of 33 beds.

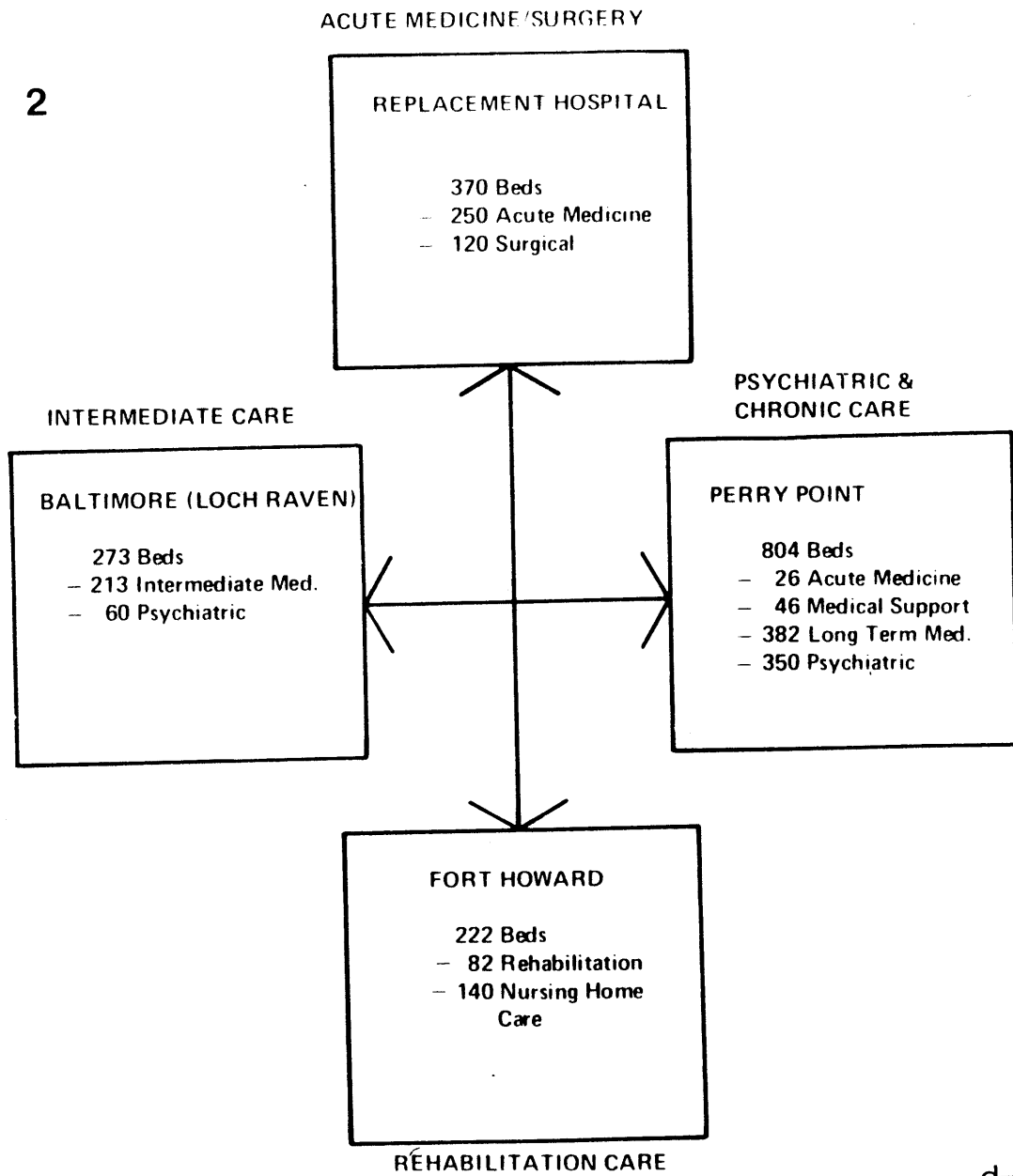
Planning Alternative 2 (see display)

In preparing Planning Alternative 2 for District 7, RTKL proposed the continuation of services in the three existing stations, plus the construction of a replacement hospital adjacent to the U/M Hospital. Unlike Alternative 1, Alternative 2 was intended to strengthen the traditional tie between the VA and the University of Maryland medical education program, as well as to provide the opportunities for exploring ways to develop new clinical and research programs between the VA Baltimore station and the Johns Hopkins Medical School.

1

The physical adjacency of the proposed replacement facility to the U/M Hospital was conceived to provide greater potential for shared services, staff, equipment, and space, creating a strong tie between the health providers. Outpatient service for the Baltimore City area was to be provided at the new downtown facility. Inpatient care for acute medical and surgical patients was also to be provided in the new replacement facility, causing a change in the programs at VA Baltimore to accommodate new programs in geriatrics and rehabilitative care. These programs would be the basis of affiliation with Johns Hopkins.

PROGRAM ALTERNATIVE 2



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Note: Alternative 2 was heavily favored by the residents of the community in the vicinity of Fort Howard Hospital because of the employment of many local citizens.

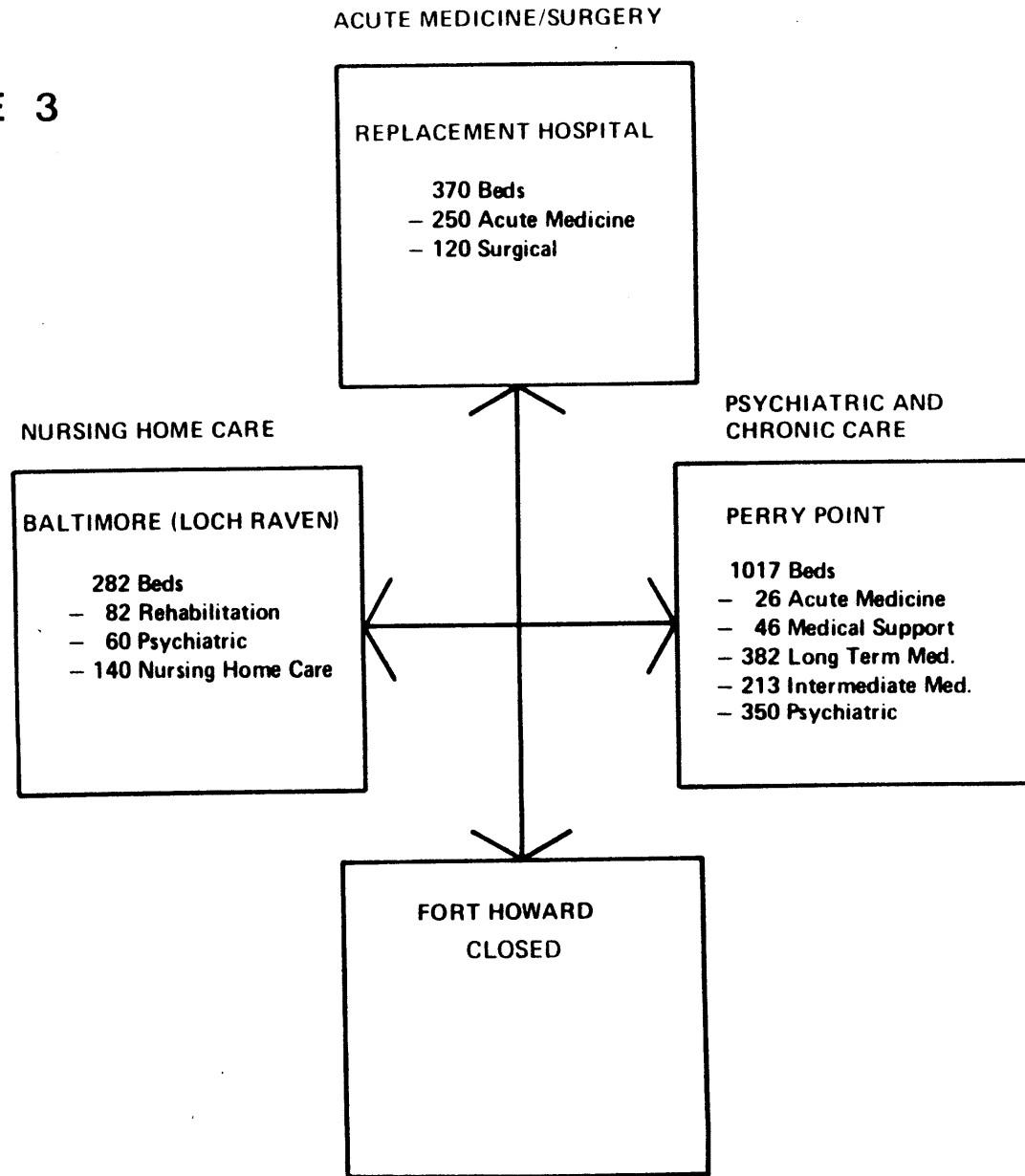
The bed complement proposed in Alternative 2 for the Baltimore PSA was established at 1,669. In the VA Master Plan prepared by RTKL, the replacement facility in Alternative 2 was to house 370 acute medical and surgical beds.* Also included in this proposal were plans for Loch Raven to house 200 acute care beds and 17 intermediate medical beds, as well as clinical support for the newly established gerontology program. The total bed complement would be 273, a reduction of 18 beds from the existing number. The reduction of beds was intended to create limited demand for existing ancillary services so that no major construction would be required at Loch Raven despite its change of mission. Alternative 2 was similar to Alternative 1 in that Fort Howard and Perry Point would have the same mission; however, the latter would have 273 fewer beds since these would be located at Loch Raven Baltimore.

* Note: The final VA development plan for the Baltimore replacement hospital proposed an additional 30 acute care beds for the facility, bringing the total bed count to 400.

Planning Alternative 3 (see display)

According to RTKL's (ad hoc study) VA Master Plan for Baltimore, Planning Alternative 3 was similar to the second option. The total bed complement for the PSA, however, would be contained in three VA stations instead of four. The main recommendation of Alternative 3 was the closing of Fort Howard. The proposal for the replacement hospital in downtown Baltimore was intended to strengthen the medical affiliation with the U/M Medical School. Increased clinical involvement in acute medicine and surgery were viewed as direct benefits of this third planning alternative. VA Baltimore (Loch Raven) was to house 282 beds, and to include new programs in gerontology, as well as the relocation of 82 rehabilitation beds (from Fort Howard). Alternative 3 also proposed the initiation of clinical affiliations with Johns Hopkins University School of Medicine in the area of geriatrics.

PROGRAM ALTERNATIVE 3



All three alternatives were evaluated by District 7 and RTKL

in terms of:

- cost/timing;
- phasing disruption cost;
- functional/operational benefits;
- site/environmental assessment;
- institutional affiliations;
- effective utilization of current resources; and
- future VA service goals.

B. SITE ANALYSIS AND MASSING ALTERNATIVES

The VACO/DM+S established planning criteria in 1973 mandating the location of replacement facilities in proximity to affiliated medical schools. The criteria were intended to make VA facilities more accessible to medical school students, rotating house staffs, and providing for shared research and clinical areas. In fact, each of the eight replacement hospitals presently being developed by the VA has been planned for optimum proximity to affiliated medical schools. In addition, each facility has been planned to take advantage of the amenities of urban locations.

In Planning Alternative 1, the VA Baltimore facility was proposed as the site of the 370-bed acute medical/surgical hospital. Both Planning Alternatives 2 and 3 proposed a replacement facility, sited in downtown Baltimore in the vicinity of the U/M Hospital, to house the acute medical/surgical services. Long-range planning for needed services in the PSA, as well as organizational priorities in affiliating with the University of Maryland, led not only to an analysis of various urban sites, but also to a massing and configuration that would prove effective in terms of both program and environmental design.

The Baltimore VA Master Plan compiled by RTKL analyzed the Loch Raven and downtown Baltimore sites in terms of circulation, parking, land use, neighborhood context, and urban design considerations. Through a careful investigation of existing and future design constraints on development of a VA replacement facility, the Executive Council of District 7 and VACO began to evaluate the type of facility that would be most effective in the delivery of needed services.

In the VA Master Plan, Planning Alternative 1 calls for expansion and modernization at the Loch Raven station. This proposal, which reinforced the recommendation of McKinsey and Company to maintain current facilities within the Baltimore PSA and to overlook construction on downtown sites, emphasizes the viability of the Loch Raven site to accommodate current and future VA needs. The neighborhood conditions surrounding the Loch Raven site, however, posed difficult environmental problems regarding the impact of the project on traffic noise and the quality of a residential life. The area is not considered in transition and, with the exception of possible future renovations to the Memorial Stadium, the neighborhood maintains no plans for redevelopment.

The 15-acre VA facility was planned with a main hospital building as the functional center of ancillary and administrative activity and several outlying buildings creating a campus-like setting. The zoning for the site and the adjacent area, according to the City of Baltimore, is currently R-5, residential, with the VA facility approved for hospital uses by a special variance which approved a maximum FAR of 0.7. The areas adjacent to the Loch Raven station were zoned by the City of Baltimore as residential from R-1 to R-4, and have been developed, according to RTKL, "in a range from large, single-family homes to garden apartments. The entire northern edge of the site is occupied by the larger, single-family homes."²

In proposing Planning Alternatives 2 and 3, RTKL dealt specifically with recommendations for the siting of the replacement hospital in downtown Baltimore. One of the three downtown sites was seriously evaluated. Since one of the essential VA development criteria places greater viability on the proximity of the site to an affiliated medical school, this site, immediately north of U/M Hospital, was evaluated with interest. The critical element involved in evaluating each design scheme was the presence of a 680-car, seven-level parking

garage on the site. The ad hoc special study by RTKL presented two design alternatives, one maintaining the existing parking structure and a second assuming demolition of the structure "to provide a clear, unencumbered site." ³

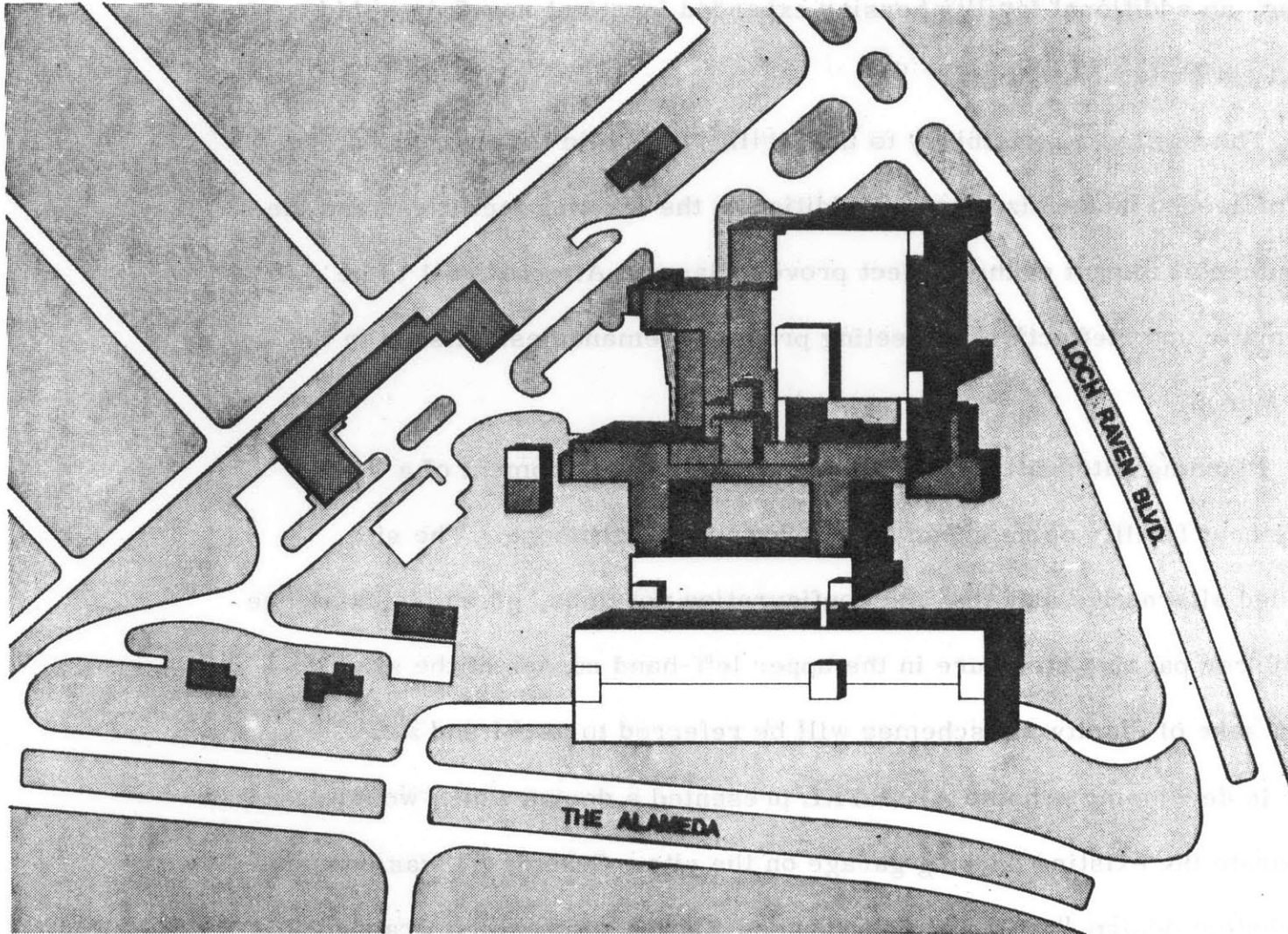
The University of Maryland garage, completed in mid-1969, is a precast concrete structure with brick facades. The 680 spaces provided in the structure would be sufficient for staff use; however, outpatient demand would have to be met either through an alternative structure or through the use of planned public transportation. The garage was evaluated by RTKL as maintaining minimum ability for providing additional spaces. The structure of the facility could not be expanded vertically because of inadequate footings and systems deficiency.

The massing and configuration proposed for each site resulted from extensive site analysis, conducted originally by the VA Site Board and later by RTKL. Of the three possible massing configurations, the only additive design process would take place on the site of the VA Baltimore (Loch Raven) facility, in Planning Alternative 1.* The evaluation of the Loch Raven VA facility was based on the ability of the old structure and proposed expansion to satisfy the desired functional relationships prescribed by the VA H08-9 Manual. The modification and addition to the Loch Raven facility would only satisfy 29 of the 61 desired space functional relationships prescribed in the manual. According to the VA Master Plan, 70 percent of the unmet criteria related to outpatient

* Note: The question of modernization and renovation is currently of great interest to the VA and non-VA providers as it was in the evaluation of the Loch Raven program. Sandor Csobaji (RTKL), Project Director for the VA Baltimore Master Plan, questions the apparent value of renovation or retro fit on two key issues. "The inflexibility of certain aspects of existing structures," according to Mr. Csobaji, "hinders the ability to accommodate certain state-of-the-art medical programs. In addition, the ever-present constraint of altering or modernizing the past 'design mistakes' of previous projects is a recurring problem in planning and design processes."

function or operation procedures. The separation of the specialty clinics from the ambulatory care service, dictated by the limited floor area per level, would result in an excessive dependence on vertical circulation. "An additional penalty of expanding Loch Raven was the requirement to match the existing floor-to-floor height, a limited dimension of 11'4"⁴. " The original specifications for the facility were established in 1952 for an inpatient tuberculosis hospital; however, innovation in medical care delivery, especially in terms of acute medical/surgical hospital planning and programming, requires more sophisticated building systems as a basis for redesign.

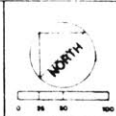
In proposing the modernization and expansion of VA Baltimore, RTKL presented to District 7 a conceptual massing and configuration (see display). The configuration of the proposed addition was rectilinear, containing over 200,000 gsf, and located northeast of the existing main hospital building. The mass would reach an estimated six stories and would provide needed diagnostic, treatment, outpatient, administrative, research, and support services. The design was intended to meet the identified medical needs of the 1975 Demographic Analysis. Adjacent to the existing nursing units, and southwest of the main



VETERANS ADMINISTRATION HOSPITALS
 BALTIMORE, MARYLAND AREA MASTER PLAN
 (PROJECT 511-001)

DESIGN ALTERNATIVE: LR

- NEW VA CONSTRUCTION
- SURROUNDING BUILDINGS



building, an additional facility housing expanded inpatient services would occupy an estimated 78,000 gsf.

The limited accessibility to the facility by public transportation, the scope of needed modernization and addition to the existing facilities, and the environmental impact of the project proved Planning Alternative 1 to be problematic and ineffective in meeting program demands established in the H08-9 Manual.

Planning Alternatives 2 and 3 proposed the development of a VA replacement facility on an urban site in downtown Baltimore. The site demanded alternative massing and configuration schemes, given the existence of a 680-car parking structure in the upper left-hand corner of the site. For the sake of clarity the schemes will be referred to as A1 and A2.

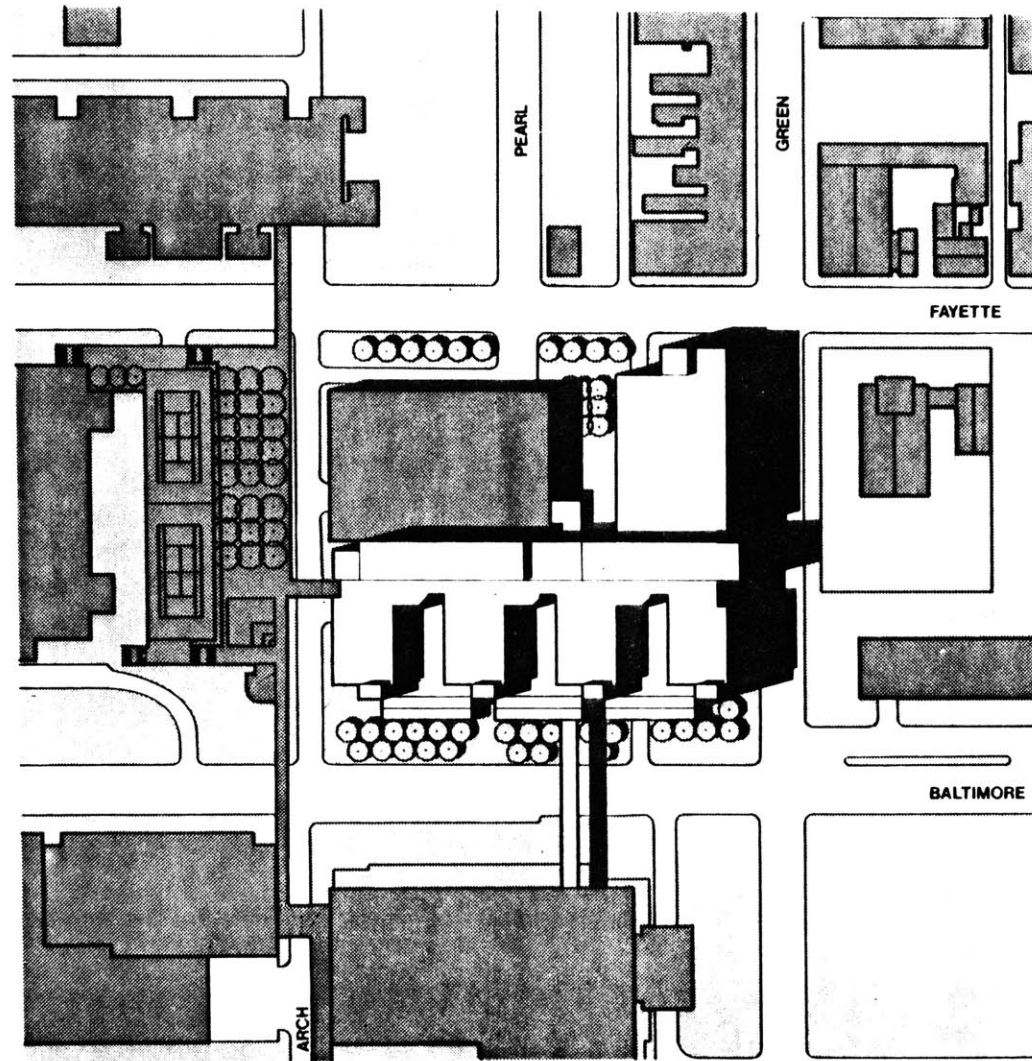
In developing scheme A1, RTKL presented a design which would incorporate the existing parking garage on the site. Scheme A1 was considered a "custom design," utilizing an L-shaped configuration which wrapped around the existing structure. The scheme called for a more articulated approach to the definition of nursing towers and ancillary/administrative areas.

The design would consist of a four-story base for support, administrative, ancillary, and storage areas; a mechanical floor; and a four-story inpatient area. The concept is similar to the traditional tower and podium design utilized heavily during the Hill Burton period. The massing and configuration would allow for an abundance of light and air to enhance the patient environment. The nursing inpatient units would be located in the southern leg of the "L", oriented to the sun and views. The northern leg of the configuration would be programmed for diagnostic treatment, teaching, and research activities. "The major diagnostic/treatment, outpatient, administrative, and support services, as proposed by Scheme A1, would be located in the four-story podium base."

A major element in the development of a design scheme was the connection of the facility to the existing levels of U/M Hospital. The scheme proposed a covered pathway or bridge joining the two facilities. The bridge would link the second floor of the replacement facility to the third level of University Hospital. In keeping with the building systems criteria established by VACO, interstitial design would yield higher operational efficiency and better opportunities for

upgrading mechanical systems for energy efficiency. The design scheme proposed by RTKL presented an interstitial concept, in which two floors of the VA hospital would equal the floor-to-ceiling height of three floors of University Hospital. It was anticipated that the bulk of the vehicular traffic coming to the hospital would approach the facility on the newly planned City Boulevard. The Baltimore metro, which was in the process of development in 1975, was also planned to service the University medical complex within a two-block radius of the facility. The outstanding benefit presented in Scheme A1 was clearly the cost savings involved in retaining the existing parking structure. Although the space and programmatic efficiency of the design were below the VA criteria established for internal flexibility and building systems development, the scheme was still a viable alternative for a replacement facility. (see display)

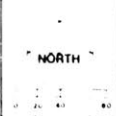
Scheme A2 required the demolition of the existing 680-car parking structure. Clearly shown is the massing and boxlike configuration of the second design, which occupies the entire site (see display). The uniform shape of the facility was intended to allow for greater program adaptability by the use of the VA building system. This system utilizes an interstitial design which



VETERANS ADMINISTRATION HOSPITALS
 BALTIMORE, MARYLAND AREA MASTER PLAN
 (PROJECT 311-001)

DESIGN ALTERNATIVE: A1

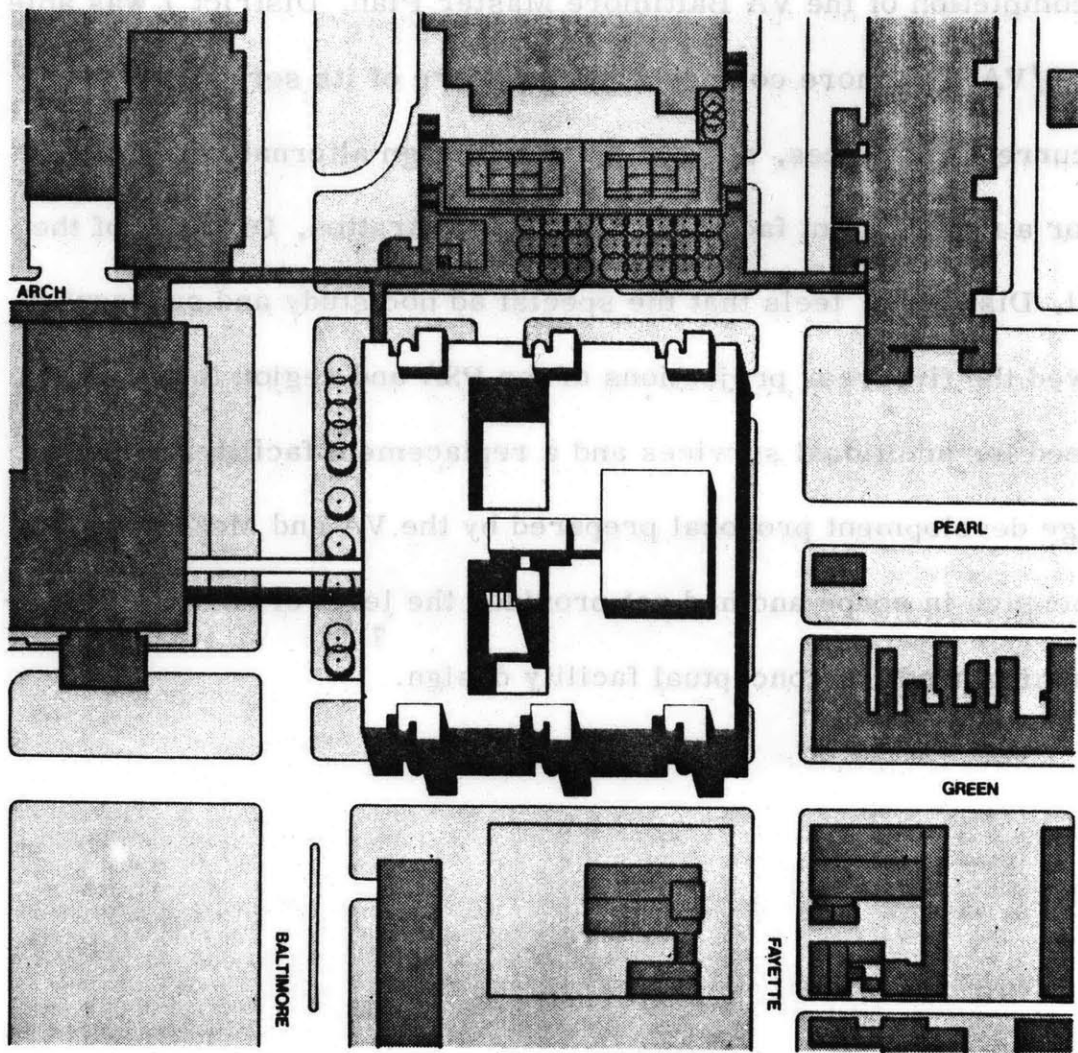
- NEW VA CONSTRUCTION
- SURROUNDING BUILDINGS



separates space and functional areas by the use of a mechanical zone. The use of the VA system was viewed by RTKL as a means of reaching greater efficiency in operation and maintenance of the facility and flexibility for internal organization. As in Scheme A1, the proximity of the site to the U/M Hospital called for the establishment of a link between the existing and proposed facilities. (see display)

Scheme A2 proposed three levels of below-grade parking, directly under the hospital. In the schematic proposal, the hospital would consist of a storage/service basement, a first level outpatient or ambulatory care area, a second floor programmed for administrative and research activities, and four upper levels on the southern portion of the facility with two levels of diagnostic/treatment services, with an interstitial area of 8'6".

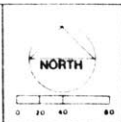
Scheme A2 provided the VA with the option of total development as opposed to the customized design of A1. The configuration, although cubicle in form, was evaluated as having greater potential for a patient environment which would be capable of future clinical and research activities. With three conceptual design options, DM+S/VACO analyzed District 7/RTKL's Master Plan and in 1976 began to assist District 7 in preparing a final proposal for a replacement facility.



VETERANS ADMINISTRATION HOSPITALS
 BALTIMORE, MARYLAND AREA MASTER PLAN
 (PROJECT 511-001)

DESIGN ALTERNATIVE: A 2

NEW VA CONSTRUCTION
 SURROUNDING BUILDINGS



With the completion of the VA Baltimore Master Plan, District 7 was able to present to DM+S/VACO a more comprehensive picture of its service needs, the status of its current resources, and the site and design alternatives which would be viable for a replacement facility. Mr. Arbon Stratton, Director of the Executive Council, District 7, feels that the special ad hoc study and subsequent master plan allowed the five-year projections of the PSA and region to focus on the established need for additional services and a replacement facility. The original long-range development proposal prepared by the VA and McKinsey had not been comprehensive in scope and had not provided the level of analysis necessary to match planning needs to conceptual facility design.

CHAPTER IX
REVIEW PROCESS

A. PRELIMINARY DM+S REVIEW

The preliminary DM+S assessment of 6031 proposals reviews and modifies development projects for the 28 medical districts. Planning estimates for current and future health services, scope of medical program, requirements for medical school affiliation, preliminary space/function analysis¹ and conceptual design options are analyzed for each project at VACO. Efforts are made by OC and DM+S to work with the medical district in clarification of specific elements of the development process.

The preliminary DM+S review of the District 7 VA Baltimore Master Plan and the 6031 Proposal for a replacement facility was initiated in 1976. The review conducted at VACO in Washington assessed in an exact manner the demographic need of the veteran population of the PSA and future projections for medical services through 1985. The DM+S health planners were able to determine the types of patient volumes which could be expected through 1985

and began to apply staff/patient workload ratios for preliminary programming via the H08-9 criteria. Throughout the DM+S preliminary review, VACO planners assigned to the project worked directly with District 7 staff as well as with the Executive Council of the District. The assessment and refinement process of 6031 proposals, according to Robert O'Hara, Project Planner for the Baltimore replacement hospital, requires the technical capabilities of the central office in evaluating regional planning strategies, establishing program objectives, and negotiating with the local VA District administration in modifying long-range development. The VA development process at times experiences the strain between district plans based on strong affiliation with prominent medical schools, and the budget and program restrictions established by VACO. In the case of the Baltimore replacement hospital, the scope and range of the development was within the needs of the affiliated medical institutions and the health care objectives of the VACO. The problem in the development of the VA Baltimore facility arose in terms of the stronger inclination on the part of the VA to affiliate directly with the University of Maryland and

limit programs with Johns Hopkins to geriatric and surgery at the Loch Raven station.³ The long history of joint VA/University of Maryland medical and research programs substantiated the choice for the affiliation but "raised many questions within the medical and academic community as to location of research facilities and the opportunity for joint house staff/faculty appointments."⁴

As part of the preliminary project evaluation, the VA replacement facility was also reviewed for capital expenditure and life-cycle cost by OC/VACO. The construction estimate review is the first of three evaluations of the cost of planning options, scope of program, and design alternatives. For a given project, preliminary cost estimation is an essential component of the VA development process because it allows, according to Mike Goode, "real dollar cost to be associated with project objectives throughout the initial phase of development."⁵ With each consecutive cost estimation the type of analysis performed assists the VA in formulating a project budget that will not only stand the rigors of OMB review, but also prove viable in limiting cost overruns.⁶

Criteria for estimating construction costs for the VA replacement hospital were based on:

- 533,800 gsf required by medical program and H08-9 criteria;
- 533,800 gsf of new construction required on downtown sites;
- 291,540 gsf of new construction required on Loch Raven site;
- \$85.20 per gsf for long-span, interstitial space construction (January 1976 dollars); and
- \$66.90 per gsf for construction with conventional spans and floor-to-floor heights.

The translation of these criteria into 1976 dollar figures for each respective design option was reached by the multiplication of gsf required by 1976 dollar cost per gsf. The resulting figures were:

Planning Alternative 1 (LR): $291,540 \times 66.90 = \$19,504,000$

Planning Alternative 2 (A1): $533,800 \times 85.20 = \$45,480,000$

Planning Alternative 3 (A2): $533,800 \times 85.20 = \$45,480,000$

The major capital cost for Planning Alternative 1, which included the operation of all three VA stations, was \$42.4 million. An additional escalation

cost of 10 percent per annum was included in the final figure in order to assess each alternative. For Loch Raven and modernizations at Fort Howard and Perry Point the escalation figures were estimated at:

- Loch Raven: \$17.7 million
- Fort Howard: \$1.25 million
- Perry Point: \$1.25 million

Thus, the total capital investment for Program Alternative 1 was \$62.6 million.

The new VA hospital adjacent to the University was part of Planning Alternatives 2 and 3. In both these alternatives, the replacement facility was intended to provide the same range of services and have a capital cost of \$55.8 million. RTKL estimated the total major capital investments at the four VA stations at \$67.0 million as of January 1976. For all new construction the 10 percent per annum escalation factor was assessed to be \$20.5 million; the escalation for the alterations at Loch Raven, Fort Howard, and Perry Point was estimated to be \$2.4 million for Alternative 2 and \$2.7 million for Alternative 3. The total capital expenditure for Planning Alternative 2 was therefore set at \$89.9 million.

As in Planning Alternative 2, the cost for the Baltimore replacement facility in Planning Alternative 3 was \$55.8 million. The capital expenditure at the three VA stations was estimated to be \$68.7 million. According to RTKL the escalation factor for major construction at Loch Raven and Perry Point is estimated at \$20.5 million; the escalation factor for modifications at both facilities would be \$20.7 million. The total capital investment for Planning Alternative 3, including 10 percent escalation, would be \$91.9 million.

In making a final decision, the VA was hesitant to choose a facility design that would have to be customized to meet existing constraints of another structure or fully optimize such innovations as automated transport systems or complete utilization of interstitial mechanical floors. In an attempt to assure application of the VA building system and maximum flexibility of program areas in the replacement facility, DM+S chose Planning Alternative 3 (A2) for the new facility.

B. A-95 REVIEW

Since January 13, 1976, OMB, in an effort to encourage the participation of local planning agencies in the review and comment of federal construction projects, has required the A-95 regional clearinghouse to assess all proposals. In a recent effort to enhance areawide planning for health services and resources, OMB has invited local HSAs to participate in the review and comment process on projects proposed by the federal health system. Once a project has been initially reviewed by DM+S and estimated for construction costs by OC, the executive committee of the respective medical district will publish notice of intent for the A-95 clearinghouse to review the current VA hospital development proposal. In most cases the district's executive council will be in close coordination with the RPC (administrator of the A-95 review), local HSAs, concerned health provider groups, and state and city planning officials to reach important agreements prior to the official review. Although the A-95 review will be the stage on which a variety of players will express specific comment, the impact and viability of a project will relate directly to the scope of the project and the complexity of multiphase hospital development.

In February 1977 the VACO/DM+S submitted an official notice of intent to reorganize the VA health system in central Maryland. As early as 1976 the CMHSA and the RPC had begun to accumulate data on the VA Baltimore replacement hospital from the RTKL ad hoc study for District 7 and the 1975 VA Demographic Analysis of the Baltimore PSA. In June 1976 the RPC and CMHSA received a preliminary briefing on the proposed new facility from the planning and development staff of the U/M Medical School and University Hospital. Initial discussion focused on the moratorium on new bed construction established by the RPC in 1975. Members of the Executive Council of District 7 and VACO presented the regional and areawide planning groups with the status of VA inpatient beds in the PSA. The information, based on the RTKL report, emphasized the fact that the 370-bed acute care hospital would replace beds in obsolete or highly deficient facilities; therefore it would be a replacement facility. The additional 30 beds in this proposal would be justified on the basis of an aging veteran population which by 1985 would have additional need for acute care beds.

Although the U/M Medical School supported the proposal for the replacement facility on the grounds of a strengthened affiliation with the VA and the possibility for shared services, the RPC and CMHSA prepared a series of questions regarding the viability and impact of the project.

A request for a delay in review of the VA Baltimore project was proposed by the RPC staff until another briefing was scheduled for March 23, 1977 with
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VA representatives and CMHSA staff.

During the meeting of March 23, 1977 the information requested of the VA regarding demographic projections for the PSA, utilization of non-VA resources, and extent of shared services were presented by Robert O'Hara, DM+S and Adam Shuman, District 7 to the joint RPC/CMHSA review. At this meeting, according to RPC Health Planner Dan Babich, the Council and CMHSA agreed on a 90-day study period for evaluation of current and future data regarding the project and the accumulation of input from various sources. A tentative date was set for July 13, 1977 for a meeting of the A-95 clearinghouse.

On July 13, 1977 the CMHSA staff met with the RPC staff, VA staff, representatives of the local jurisdictions, and other interested parties to discuss

any issues concerning the VA project as it related to the recently submitted application and supplemental material. At this meeting the CMHSA staff discussed their concerns regarding this application with other participants. The questions or concerns raised were based on the initial review by staff of the information contained in the VA application and supplemental material.

Questions were raised as to the need for the VA representatives to supply the CMHSA staff with additional information and clarification on such items as patient demand and proposed bed configuration, inpatient and outpatient utilization statistics, staffing patterns, patient origin studies, clinic management and administrative procedures, etc. It was stressed by Dave Jackson of CMHSA that this information was necessary for CMHSA staff to make a proper analysis of the proposal.

Substantive issues relating to operational matters were raised by Dan Babich and Dave Jackson. Discussion included such issues as shared services, impact on utilization of general hospitals in the inner city, linkages with other health facilities and/or health related organizations in the community, alternative courses of action, and costs.

"It was concluded by the VA representatives at the meeting that responses to the above questions would take some time and it was then agreed that the project would be scheduled to appear on the September 12, 1977 Certification and Review Committee agenda." ⁹

On August 3, 1977 the CMHSA staff met with representatives of the U/M School of Medicine. The concepts of shared services and sharing of space, according to Dave Jackson, were the major items of discussion. Dr. Dennis of the University Hospital had explained that shared services were under discussion with VA representatives, but that these discussions were still in the general and abstract stage and had not yet reached the point of specifics. ¹⁰ The minutes of the A-95 meeting on August 3 indicate that the CMHSA staff questioned whether the University was actively pursuing the culmination of a shared service agreement. University officials indicated there was a strong interest in sharing, but the joint planning process had not yet reached a point where specific programs could be identified.

By investigating the information provided to the CMHSA staff to date, it appears that the "sharing" being discussed by the VA and the University

Hospital has mainly centered around such items as training and education for University Hospital house staff, avoiding duplication of some highly specialized clinical services, and reference to the opportunity to share ancillary services currently provided by University Hospital. However, neither the application nor supplemental material specifically addressed what ancillary services would be shared. This question was pursued with University Hospital representatives by Dave Jackson. The CMHSA staff asked whether previous discussion with the VA had addressed such specific ancillary services as pharmacy, radiology, laboratory, etc. At the time of the review, CMHSA staff were informed that discussions had not yet reached the specific services that would be shared.

On August 8, 1977 the CMHSA staff received a formal written response from the VA to the questions raised at the RPC meeting of July 13, 1977.

Although the VA proposal pertained to a specific replacement project which in many ways does not fall neatly into the present system of A-95 review established under PL. 93-641, from the standpoint of the CMHSA the application was reviewed using the same criteria as applied to all applicants. Specifically, the merits of this project were viewed in the same context as would be expected

from any other applicant seeking certification approval for the expenditure of significant amounts of capital dollars. Based on the initial questions raised by staff and the subsequent response to these questions by the applicant, the CMHSA and RPC raised the following concerns regarding the VA replacement project:

1. Shared Services or Programs

As mentioned in the original list of questions and concerns prepared by the CMHSA, the extent to which the VA and University Hospital would enter into shared service or shared program agreements was still unclear. The RPC/CMHSA fully endorsed the concept of sharing and the discussions which had been held to date between the Dean's Committee and VA representatives. Neither specific programs nor any concrete agreements had yet been reached.

The proposed location of the new VA hospital, adjacent to University Hospital, created an ideal situation for implementing the shared service concept. Recognizing the significant cost savings which could be realized by avoiding needless duplication, sharing became a most attractive

alternative. Moreover, the "sharing" concept was to be explored to its fullest extent to include all possibilities, i. e., ancillary services, ambulatory care, etc., in addition to the avoidance of duplicating highly specialized inpatient services. In addition to services and programs, the sharing of facilities and physical space was not to be overlooked. Whereas shared services and programs could have major impact on operating dollars, the sharing of physical space, where possible, could significantly affect the capital dollars to be expended. These cost savings would not only be realized by the VA but could also possibly reduce operating costs at the U/M Hospital. For example, "increased volumes in services which are not currently utilized to full capacity should have the effect of reducing unit costs for those same services."

2. Impact on Utilization of Other Facilities

Although the VA maintained, through information compiled by its consultants, that the proposed replacement hospital in Baltimore City would have "no major impact upon the already well-utilized medical/

surgical inpatient services in the Baltimore Service Area,¹¹ the CMHSA
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staff had concerns regarding the validity of this statement. Since
there are no data on veteran use of non-VA facilities, or information on
their preference for VA care in the Baltimore area, the ability of pre-
dict the impact of this proposed facility on the utilization rate of other
health facilities in the area is most difficult. The impact, therefore,
could possibly be far greater than initially realized. For example, how
many eligible veterans would use the new replacement facility that
presently do not use any of the existing VA facilities, since it might be
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closer to the community in which they reside? Since many general
hospitals in Baltimore City were already experiencing marginal occu-
pancy rates, any reduction in utilization could be damaging.*

The financial implications of decreased utilization are significant.

It has been estimated by many authorities that a vacant bed in an acute

*Note: As cited in Chapter IV, the final cost estimation is a result of an in-depth analysis of site, preconstruction documents, space/functional programming, and long-range plans. The APF review was conducted before submission of a construction budget to OMB.

care general hospital bears two-thirds of the cost of an occupied bed.

If an occupied bed were conservatively estimated to cost \$100/day, then the unoccupied bed, using this assumption, would cost \$67/day ($\100×0.67). On a yearly basis, therefore, one unoccupied bed would cost \$24,455 ($365 \times \67).

3. Project Cost

As is the case with any other application under review by the CMHSA, project cost was an item which had to be scrutinized. PL. 93-641 specifically mentions cost containment as a major objective and also stresses that all possible alternatives should be explored.

An analysis of project costs of the VA application was most difficult. However, estimated project costs were included in the study performed by RTKL, and therefore were used for analysis. It was noted at the A-95 review that the evaluation of the data contained in the Master Plan had to be made with caution. According to Dave Jackson, "A Master Plan does not get into enough specifics so that

functional as well as total costs can be accurately reflected."¹⁷

This was especially true in the case of the VA Baltimore proposal since the project will not begin construction until 1980 and will not be completed until 1984. Thus an inflation factor had to be incorporated which would reflect an eight-year period.

As stated previously, the total costs for this project were estimated to be \$87,000,000, including modernization of existing facilities. Based on information in the Master Plan, the new replacement facility was estimated to cost approximately \$76,000,000. Of this amount, approximately \$20,000 was cost escalation to the year 1984. The A-95 RPC/CMHSA staff were concerned with this estimated project cost. Even if the cost of inflation were subtracted from the new replacement hospital, the projected cost per bed for this facility using 1977 dollars would be \$140,000 ($\$76,000,000 - \$20,000,000 \div 400$ beds). It was the A-95 review's comment that this amount was extreme when judged against the costs for similar projects reviewed by the Certification and Review Board. This is especially true when it is noted that no financing

costs were factored into this amount. Based on information received from the Health Service Cost Review Commission (HSCRC), the typical cost/bed ratio for construction of new acute care general hospitals is approximately \$60,000, excluding financing costs.

Another way to judge the reasonableness of project cost is to analyze whether all available alternatives were investigated. It was recognized by the A-95, RPC/CMHSA staff that there were many facets to this project other than the construction of a new 400-bed replacement facility. The need to renovate or modernize outdated buildings and reorganize existing services and bed configurations to meet patient needs is necessary for any facility or health system to remain viable. However, the question was raised as to the extent these needs could be met in view of the scarce resources that are available. In the case of the VA application, the CMHSA staff had serious concerns as to whether this proposal for a new construction and renovation could be justified at \$87,000,000.

Throughout the A-95 review process a number of concerned groups voiced a variety of opinions regarding the impact of the VA Baltimore replacement hospital on the comprehensive health plans for the region, and economic value to MetroCenter and the city as a whole. Since 1965, Baltimore has been heavily involved in areawide health planning. Through a variety of federal demonstration programs and local efforts at health planning regulation, the greater Baltimore area has, over the course of 14 years, established a series of comprehensive plans for the service needs and resources of the community. Under the direction of Mr. William Hiscock, the areawide Health Planning 314(b) Agency for the Baltimore Metropolitan Area has maintained a reputation as one of the most effective local planning groups in the nation. The Baltimore (b) Agency was successful in regulating the expansion of health facilities in the area, reducing the bed complement through merger and closure of facilities, and encouraging the sharing of services and support functions.

An essential component of this areawide planning effort was the active participation of local provider groups in the formulation of the Baltimore Sub-Area Council to bring about active dialogue between local providers and state

and local planning bodies. Before the enactment of PL. 93-641, the structure of the Baltimore Areawide Health Planning Council was similar to that of the current HSA organizational framework. The participation of consumers and providers alike was encouraged on the Council and percentage representation was divided 51/49, respectively. Established guidelines and criteria for cost effective health care delivery allowed for a direct incorporation of these objectives in the pro forma characteristics of the Central Maryland Health Systems Agency.²¹

Like most American cities, Baltimore faces a severe problem in terms of overbedding. The health systems plan for the CMHSA indicates that central Maryland's 25 non-federal general short-term hospitals contain a total of 8,559 licensed beds. While these hospitals are dispersed throughout the health service area, the majority are concentrated in Baltimore City. In an interview with Barry Bowers, Director of the Maryland General Hospital, the relocation of a 400-bed VA replacement hospital was discussed as to its impact on the health providers in the Baltimore City area.

According to Mr. Bowers, "After ten years of comprehensive planning, the providers of the CMHSA witnessed the inability of the public planning process to regulate other modes of health care delivery."²² Reflecting on the A-95 review, Mr. Bowers recalls three key issues regarding the debate over the proposal of the VA replacement facility:

1. Historical Precedent

The hospitals of the greater Baltimore area were concerned with the growing amount of federal regulations and long-range planning guidelines presented to them by state and local planning agencies. In an effort to allow for a more participatory approach to areawide health planning, the administrators of the city's hospitals²³ joined local health planners in the decision-making process. Through the tedious process of understanding "the respective interests of the other guy across the table,"²⁴ the health planning process in Baltimore began to function "in a give and take²⁵ manner." Certificate of need reviews also allowed areawide providers to review and comment on the impact of expansion or replacement projects maintained by a specific hospital. The leadership of William Hiscock

assisted the Baltimore (b) Agency, and later the CMHSA, in directing attention to such health delivery problems as distribution of technical equipment, utilization rates of existing resources, shared services
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between providers, and federal cost containment guidelines.

The administrators and planners of the inner city hospitals were particularly hard-pressed to resolve these issues given the socio-economic profile of the patient population, the more appealing environments of the newer community hospitals, and the reduction in federal grants and loans to urban facilities for modernization and improvement in quality of health services. Notification of the intent of the VA to develop a replacement facility in Baltimore City with direct affiliation with University Hospital left most providers confused as to its impact on health care in the metropolitan area.

Prior to an article in the January 10, 1976 Baltimore Sun, announcing the long-range plans of the VA to develop a replacement facility adjacent to University Hospital (in addition to seven other facilities across the country), the VA and U/M had kept all plans for

replacement, relocation, and affiliation out of the attention of the public and the Baltimore health care community. In spite of the ongoing efforts of the area's hospitals to maintain established utilization rates and reduce the total number of beds, the VA proposal "would relocate 400 beds in MetroCenter with a program for shared services and facilities with the University of Maryland Medical School." This project did not result as an outgrowth of the comprehensive plans of the CMHSA and local providers. "Totally alien to the VA had been the areawide health planning process which had proved effective in the delivery of health care in the Baltimore area." In view of the efforts of provider groups and CMHSA staff in assembling a comprehensive health plan for Baltimore, the VA proposal for the relocation and replacement of 400 beds seemed diametrically opposed to the long-range goals and objectives for cost containment and increased utilization in Baltimore City. Supported by a majority of inner city health facilities, Mr. Bowers expressed his opposition to the VA proposal as Chairman of the

Sub-Area Council representing Maryland General, Johns Hopkins, Church Home, Lutheran, Bon Secours, Mercy, and Union Memorial.

In a poorly organized media campaign, and with limited support from such health care organizations as The Maryland Hospital Association, Maryland Blue Cross and Blue Shield, and concerned consumer groups, the question was raised as to the need for the VA replacement facility in an overbedded urban area.

2. Overbedding

The main reason for opposition to the new VA facility was that Bowers and other providers contended that, in an area with empty beds, the VA could "purchase" medical care at local hospitals in need of increased utilization. Edward Boyer, Director of Certification and Review for CMHSA, was quoted in The Baltimore News American of July 31, 1977 as saying that the VA should be able to purchase medical care from non-VA hospitals or give grants to states to pay for their care as well as build its own facilities. The Sub-Area Council of CMHSA gave evidence

to the A-95 reviewers that the existing non-VA facilities could provide services more inexpensively than the VA, and still accommodate the clinical teaching programs sponsored by the VA. In public reply to the criticism of the VA replacement hospital in Baltimore, however, Adam Shuman, DM+S Director of Planning, issued a formal statement to the RPC/CMHSA in April 1977 stating that, "Federal law prohibits the VA from purchasing care except on an emergency basis." As the ongoing debate raised further questions as to the quality, effectiveness, and cost of health care in the VA system, many of the points raised by the non-VA health providers centered on the VA's disregard of the health planning guidelines and regulatory capabilities mandated under PL. 93-641.

3. Lack of Established Need

As Bowers and the members of the Sub-Area Council sought various means to impact on the planning, programming, and development of the

VA replacement facility, it became clear that forces other than legislation were hindering their success. After seeking to alter the VA proposal through the traditional means of the CMHSA review, Bowers sought to utilize OMB regulations regarding the A-95 review to forestall the relocation and replacement of the VA's 400 beds. However, Dave Jackson and Dan Babich of the joint RPC/CMHSA A-95 review indicated to Bowers that OMB regulations as of January 13, 1976 directed that regional planning groups and health systems agencies play only an advisory role in the A-95 review of direct federal development projects. OMB requires review comments to be included in project proposals for funding; however, no regulatory powers are included in the authority of the regional A-95 clearinghouses. With a clear understanding of the limited means available to challenge the feasibility of the Baltimore VA replacement hospital, the Sub-Area Council considered court action against the project as a last recourse.

However, by this point Bowers and a number of other dissidents were being pressured by a variety of local interests to allow the VA

development process to proceed unencumbered. Since the U/M Medical School stood to benefit from the development of the VA replacement facility, the activities of Bowers were challenged by the top levels of the University of Maryland administration. In addition, the Baltimore Sub-Area Council was influenced by the City of Baltimore which sought the economic stimulus of an \$80 million hospital project and increased jobs for the metropolitan area.

Although the specific in-depth questions at the A-95 review (which demanded further VA clarification) regarding shared facilities, impact on utilization of other VA facilities, project cost, etc., had in fact resulted from the investigative research and lobbying conducted by the Baltimore Sub-Area Council, their opposition to the project was ineffective. According to Bowers, the critical element that would have further challenged the VA hospital proposal would have had to come from the Baltimore city government in the form of a more rigid evaluation of the long-range impact and benefits of the project.

C. EVALUATION BY THE CITY OF BALTIMORE

Throughout the A-95 review process, the City of Baltimore maintained a position of support for the VA replacement facility in downtown Baltimore. Evans Paull, Senior Planner for the City of Baltimore, represented the Mayor's Office during the A-95 review process and served as a liaison between the city and the RPC. In an interview, Mr. Paull explained that the city's position on the VA facility consisted of two major issues:

- the positive economic impact of the project on the City of Baltimore,
and
- the positive effect of the development of the VA replacement hospital
on the MetroCenter Master Plan.

According to the economic analysis compiled by the City of Baltimore on the "dollar impact" of the VA replacement hospital, the financial benefit of the development was evaluated in terms of four major issues: employment, expenditures generated in the local economy, effect on downtown retail district, and government services and taxes (see display).

Category	Subtotal	Total
I. EMPLOYMENT	(#s of people)	
A. Operating Budget		
1. Direct - VA payroll	1638	
2. Indirect - hospital expenditures*	1147	2785
B. Capital Construction		
1. Direct - construction-related	1008	
2. Indirect - construction-related*	1512	2520
II. ANNUAL EXPENDITURES	(millions of dollars)	
A. Operating Budget		
1. Direct		
-payroll: \$21.8 million		
-goods & services: \$ 8.5 million		30.3
-58% of expenditures (\$30.3 million)	17.4	
2. Indirect*	13.0	30.4
B. Capital Construction		
1. Direct		
-payroll: \$22.4 million		
-goods & services: \$32.6 million		55.0
-60% of expenditures (\$55.0 million)	33.0	
2. Indirect*	49.5	82.5
III. EFFECT ON DOWNTOWN RETAIL DISTRICT	(thousands of dollars)	
A. Employees: Assume an average \$1.50/day/employee for goods & services in the downtown	650	
B. Visitors: Assume 0.3 visitors/patient, spending average \$4.00/day in downtown	153	
*Multiplier Effect		

Category	Subtotal	Total
IV. CITY GOVERNMENT SERVICES & TAXES	(millions of dollars)	
A. Costs/Liabilities		
1. Real estate taxes (exempt)		
-cost of facility		55.00
-50% assessment		27.50
-uncollectable taxes (\$6/\$100)		1.65
2. Municipal services**		
3. Utilities**		
B. Assets	(thousands of dollars)	
1. Piggyback tax (income tax rebated to city): Income taxes would be increased by VA employees moving to city (200 persons) & city residents (previously un-or under-employed) obtaining VA-related jobs (300 persons). Average salary: \$12,000		150
2. City property tax: Assume 100 of 1638 employees will buy homes in city averaging \$20K value		120
3. The hospital could help to raise property values in the downtown.**		
C. Balance: Increased income taxes might offset direct costs of municipal services needed by facility. However, if one considers \$1.65 million uncollectable property taxes an "opportunity cost" and therefore a liability, then the VA facility can be considered to have a detrimental effect on a city's revenues.		
**Impossible to Quantify		

The study concluded that projected economic benefits were substantial in terms of both expenditures and employment. The larger part of this economic stimulus was from facility construction. The stimulation of downtown retailing was a small part of the total economic impact and would represent a rather minor increase in retail sales. The effect on city government revenues was unclear. It could be viewed as approximately in balance or as largely negative, depending on the weight accorded to the uncollectable property taxes resulting from a tax exempt structure.

The financial impact of the VA replacement hospital was viewed by most economic advisors in the Mayor's Office as an essential component of the MetroCenter Plan for the University of Maryland professional campus. According to Anand Bhandari, the estimated employment of 1600 persons at the new facility and the additional transportation needs of patients and their visitors reinforced the need for the Plan's proposed City Boulevard, expected to be completed by 1981. This express bus route will not only link Metro Center to its outlying areas, but also will provide for a ready access point for veterans

utilizing public transportation. In addition, the City was interested in "the financial benefit of 1600+ employees in the Charles Center retail and commercial vicinity." At the time of the A-95 review, Mr. Bhandari also felt that the MetroCenter Plan pertaining to the University of Maryland campus scheme would be solidified by the presence of a new structure of "architectural quality" and relevance to the existing urban fabric.³²

The VA replacement facility was supported enthusiastically by Mayor Schaefer and members of the City Council on the main issues of the creation of employment and the bolstering of the MetroCenter Plan.

The public was presented the dilemma over federal construction dollars and future employment versus overbedding and escalating health costs in a series of articles and editorials in the city's two newspapers, The Baltimore News American and The Baltimore Sun. The only public concern that was raised throughout the review process was voiced by the citizens of the North Point area of Baltimore County, led by County Councilman John W. O'Rourke.

The citizens' group of the area wanted assurance from the VA that new rehabilitative programs at Fort Howard would utilize the majority of support and maintenance staff already employed by the VA at that station, and that Fort Howard would not be closed. At the time of the July 13 A-95 review, Mr. Rufus Wilson of VA District 7 could only state that every effort would be made to reprogram Fort Howard and keep the facility "economically viable for the community." ³³ The VA was encouraged by the RPC to make every effort to work with Councilman O'Rourke and local groups in establishing a new mission for Fort Howard, but in its advisory role could not affect its closing as an inpatient facility.

With the presentation of the VA proposal for a replacement facility and discussion on the apparent impact on health care delivery and urban development, the VA was requested to forward further information regarding shared services, project cost, and utilization to the CMHSA certification and review meeting on September 28, 1977.

D. POST A-95 REVIEWS AND COMMENT

The Executive Committee of the CMHSA adopted the recommendation passed on by the certification and review committee to endorse the general concepts of the VA proposal on September 28, 1977. The CMHSA staff report on the VA project supported the efforts of the VA to improve the system of health care for those patients who are considered its clientele. During the A-95 review and the submission of additional information by the VA to the RPC/CMHSA, the specific ability of the VA to provide services to a designated portion of the population was substantiated by the General Council of VACO. In view of VA health services being programmed for a specific population, District 7 efforts to upgrade facilities and services were judged by the CMHSA staff as consistent with the goals and objectives for effective health care delivery in the Baltimore PSA. According to Dave Jackson, however, the cost and potential effects of such improvements could not be ignored. It was the CMHSA staff opinion that the estimated cost of the VA proposal was not justified in light of expected benefits. It was the general concern of the staff that all alternatives were not explored by District 7 or DM+S/VACO. In general, the CMHSA staff was not

convinced that all efforts had been taken to reduce estimated costs without sacrificing the objectives and integrity of the project. Such issues as developing specific shared programs and establishing effective community linkages could potentially reduce the estimated capital expenditure of the project if current legislation governing the VA delivery system were amended. The final conclusions of the CMHSA report emphasized the staff concern as to whether an \$87,000,000 replacement and modernization project should be encouraged in light of national concern over rising health care expenditures.

The Executive Committee of the CMHSA recommended endorsement of the VA replacement facility; however, the committee recommended that the VA specifically address such issues as:

- shared services or programs with University Hospital;
- impact on utilization of other facilities;
- project cost.

E. VA REPLY TO THE COMBINED A-95 REVIEWS

With the presentation of the VA proposal for a replacement facility and discussion on the apparent impact and benefits of the program on health care delivery and urban development, the VA was requested to forward further information regarding shared services, project cost, and impact on utilization of other VA facilities to the CMHSA and the Maryland certification and review committee. On February 16, 1978, Nadine Jones, Coordinator of the Baltimore A-95 Metropolitan Clearinghouse, received an official VA memorandum in reply to the "three broad concerns" identified by the RPC/CMHSA review. Chief Medical Director John D. Chase, M.D., transmitted to the RPC a policy statement in regard to project cost, impact on utilization of other facilities, and shared services or programs. The following is a synopsis of the official DM+S/VACO position.

Shared Services or Programs

The VA is governed by law on shared services or programs.

Title 38, United States Code 5053 permits the VA to contract for the mutual use, or exchange of use, of specialized medical resources in a VA facility only when its own such resources are already utilized to their maximum capacity. However, an exception to this basic rule can be made when it is determined that there would be an overall gain to the government resulting from the reciprocal service or facility provided by a non-VA resource.

The latter case applies to the VA Baltimore hospital. In this case, the medical community would have to provide the VA a schedule of specialized medical resources which would be available in 1985 for possible use by the VA.

Where such determinations could be made, DM+S/VACO believed that the new VA hospital could contract for the mutual use of some specialized medical resources.

Impact on Utilization of Other Facilities

As previously explained to the joint RPC/CMHSA review, the VA does not have a reporting system that can identify the number of eligible veterans that would use the new facility, who do not now use any existing VA facilities in the Baltimore area.

Project Cost

The fiscal year 1977 budget amendment shows the total estimated cost of this project to be \$87,000,000. This includes \$6,200,000 for correction of code deficiencies at Loch Raven, and \$80,800,000 for the new facility at Baltimore. These figures include allowances for contingencies, technical services, and projected escalation, in addition to the cost of construction itself. The allowance for projected escalation was based upon a time period from the spring of 1976 (when the estimate was made) to an assumed construction contract award date of September 1978.

F. VA ADVANCED PLANNING FUND ACTIVITIES

In 1976, the VA hospital development process incorporated the activities of the Advanced Planning Fund (APF), in an effort to further contain the construction costs of projects over \$1 million. During APF activities, building estimates that have been developed at various phases of the VA development process, whether for internal use in project prioritization or for external A-95 reviews, are analyzed over a two-year evaluation period, in an effort to limit cost overruns. Site visits are made to the respective districts, and cost estimates are compiled through the efforts of outside consultants and district staff.

APF activities for the VA Baltimore replacement facilities focused on the cost of construction in approximate fiscal year 1979-1980 dollars. The allowance for projected increases in cost was based upon a time period from the spring of 1976, when the A-95 cost estimate was presented, to an assumed construction contract award date of September 1978. The APF established a revised budget of \$80,800,000 for the new facility. This figure included allowances for contingencies, technical services, and projected escalation, in addition to the cost of construction itself.

The estimated cost at Baltimore is based upon a gross area of 573,000 square feet, or an average of 1,433 square feet per bed, for the hospital. According to VACO, it also includes several unusual cost items for the VA replacement facility such as:

Reimbursement to University of Maryland for parking garage	\$ 5,000,000
Abnormal foundations	\$ 5,714,000
Substructure for underground parking under hospital	\$ 10,345,200
Connecting bridge to University Hospital	\$ 587,100

The APF cost estimate and analysis of unusual cost items for the Baltimore replacement facility reflected the total cost of the facility in comparison to preliminary estimates based on costs per bed. The use of cost per bed to determine construction costs of health facilities can be misleading, according to a 1976 report by The Health and Hospital Planning Council of Southern New York Inc.: "The specific use of the hospital bed provides a different cost factor in estimation construction budget." ³⁶ In the final cost estimate of the APF, the average cost per bed for the VA Baltimore facility was approximately \$144,200, the same as that for the beds in teaching hospitals. The VA contended that it was in fact a teaching hospital, so the high cost was justified (see display).

CONSTRUCTION COSTS OF HEALTH FACILITIES /1

Adjusted to January, 1976

For Cost Escalation after January, 1976, see Table "1a".

CATEGORY	AVERAGE COST / BED			AVERAGE COST / SQ. FT.			AVERAGE AREA / BED		
	AUG. 1971	JAN. 1975	JAN. 1976 /1	AUG. 1971	JAN. 1975	JAN. 1976 /1	AUG. 1971	JAN. 1975	JAN. 1976 /1
COMMUNITY GENERAL HOSPITALS									
Voluntary & Governmental	✓\$58,500/3	\$80,200	\$85,660 ✓	\$67.00	\$87.00	\$ 93.11	850	920	920 ✓
Proprietary	✓ 20,000	25,100	26,600 ✓	41.00	50.00	53.34	500	500	500 ✓
✓ TEACHING HOSPITALS	90,900/3	135,200	144,200 ✓	65.00	91.00	96.13	1,000	1,500	1,500 ✓
SPECIALIZED HOSPITALS									
Rehabilitation Centers /2	47,700/3	76,000	81,500	53.00	74.00	79.12	650	1,030	1,030
Ophthalmologic /2	--	167,000	178,000	--	99.00	127.14	--	1,400	1,400
NURSING HOMES /4									
Voluntary	38,000	38,400	40,950	53.00	66.00	70.60	700	580	580
Governmental	30,000	44,100	47,110	45.00	65.00	69.28	660	680	680
Proprietary	14,000	11,800	13,870	40.00	33.00	37.49	350	360	370
COMBINED NURSING HOME & HEALTH RELATED FACILITIES									
Voluntary	27,000	32,430	34,600	48.00	67.00	72.08	565	480	480
Proprietary /2	--	19,550	21,000	--	49.00	52.50	--	400	400
HEALTH RELATED FACILITIES /2/5									
Voluntary	22,000	--	--	50.00	--	--	435	--	--
Proprietary	15,000	18,860	20,200	35.00	50.00	53.15	425	380	380
NEIGHBORHOOD FAMILY CARE CENTERS /2/5	--	--	--	70.00	72.00	77.50	--	--	--
MENTAL HEALTH HOSPITALS /2	57,000	72,000	76,800	55.00	71.00	74.56	1,050	1,030	1,030

/1 Information from 109 projects, adjusted to a common base, namely construction in January, 1976, in New York City (exclusive of Manhattan) and having had 4 acceptable bidders — see "Methodology".

/2 Limited number of projects included in study; varied in scope.

/3 Costs adjusted from previous edition resulting from reclassification of certain projects.

/4 Costs adjusted to include one new project and a change in one project classification.

/5 Costs adjusted to include an escalation factor of 1.15 not included in the January, 1975 edition.

Note: Current construction costs with escalation factors for fiscal years 1978-1979 can be obtained for the VA construction budget through the Office of Construction/VACO.

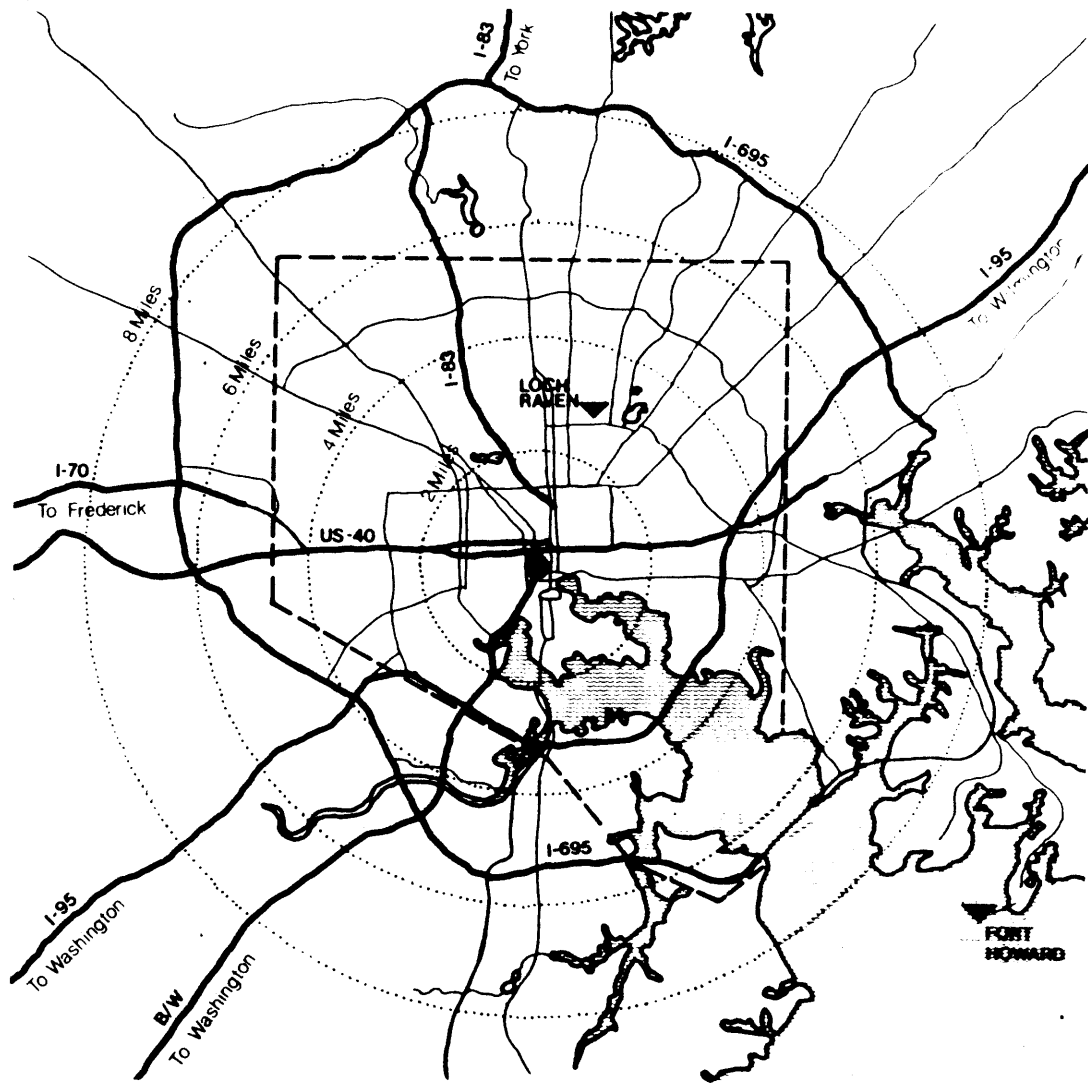
CHAPTER X
PROJECT PREPLANNING

Following the submission by the VA of qualifying statements on shared programs, utilization, and cost, the A-95 Clearinghouse was able to compile a report on the proceedings of the joint RPC/CMHSA review for OMB. With VACO's submission of a construction budget to OMB and VACO's subsequent selection of the joint venture architectural/engineering team of RTKL/CSD/Henry Adams, the project development of the VA replacement facility was begun. Site A, the downtown site adjacent to U/M Hospital which was chosen by VACO for the new facility, was one of three sites proposed earlier by RTKL in the VA Baltimore Master Plan for District 7.

Much of the planning data for the site had been compiled by RTKL in the process of assembling the Master Plan study. The development of the replacement facility was therefore a direct result of the evaluation of the planning and program alternatives that had been presented to VACO by District 7. These options were assessed as to their compatibility with established VA policy, program criteria determined by the H08-9 Manual, and innovations in building systems considered by the VA to be cost effective and beneficial for future adaptability of services. The evolution of the conceptual design from mass and configuration to a schematic "block plan" was a process which dealt first, with the optimal space/function

organization of service areas to encourage physical adjacencies between various programs; and second, with the establishment of design criteria which reflected the attitude of the designer towards architectural qualities, existing urban fabric, and previous guidelines for environmental response to the neighborhood context. The preliminary attempt at project planning, programming, and schematics was, in the opinion of RTKL Project Director, Sandor Csobaji, "a rolling design."¹ The ability of RTKL to be in constant contact with the VA and to arrange for a complete schedule of project reviews at every phase of development led to the evaluation of each major decision by the VA at a variety of levels, rather than at the final stage of product assessment.

The regional context of the downtown site adjacent to U/M Hospital, in the opinion of Anand Bhandari, City of Baltimore Office of Urban Design, is a major component of MetroCenter, and is well serviced by the major vehicular arteries in and around Baltimore.² The U/M medical complex is within eight miles of virtually all heavily populated areas of the Baltimore metropolitan region. With long-range development plans for City Boulevard to the west of the complex and a metro stop at Charles Center, the site offers optimal accessibility to both veteran and non-veteran populations (see display).



VETERANS ADMINISTRATION HOSPITALS
 BALTIMORE, MARYLAND AREA MASTER PLAN
 (PROJECT 511-001)

REGIONAL CONTEXT



The environmental assessment conducted by RTKL and Egli and Gompf Inc. describes the central zone of downtown Baltimore as comprising a number of districts in which "active redevelopment or renewal efforts are underway. Most prominent among these are the Charles Center and Inner Harbor redevelopment efforts." Charles Center is substantially completed and has provided an anchor for present and future development of the downtown portion of MetroCenter. Most of the public sector activity in Charles Center is concerned with the pedestrian environment and with the "reinforcement of existing commercial and retail facilities."

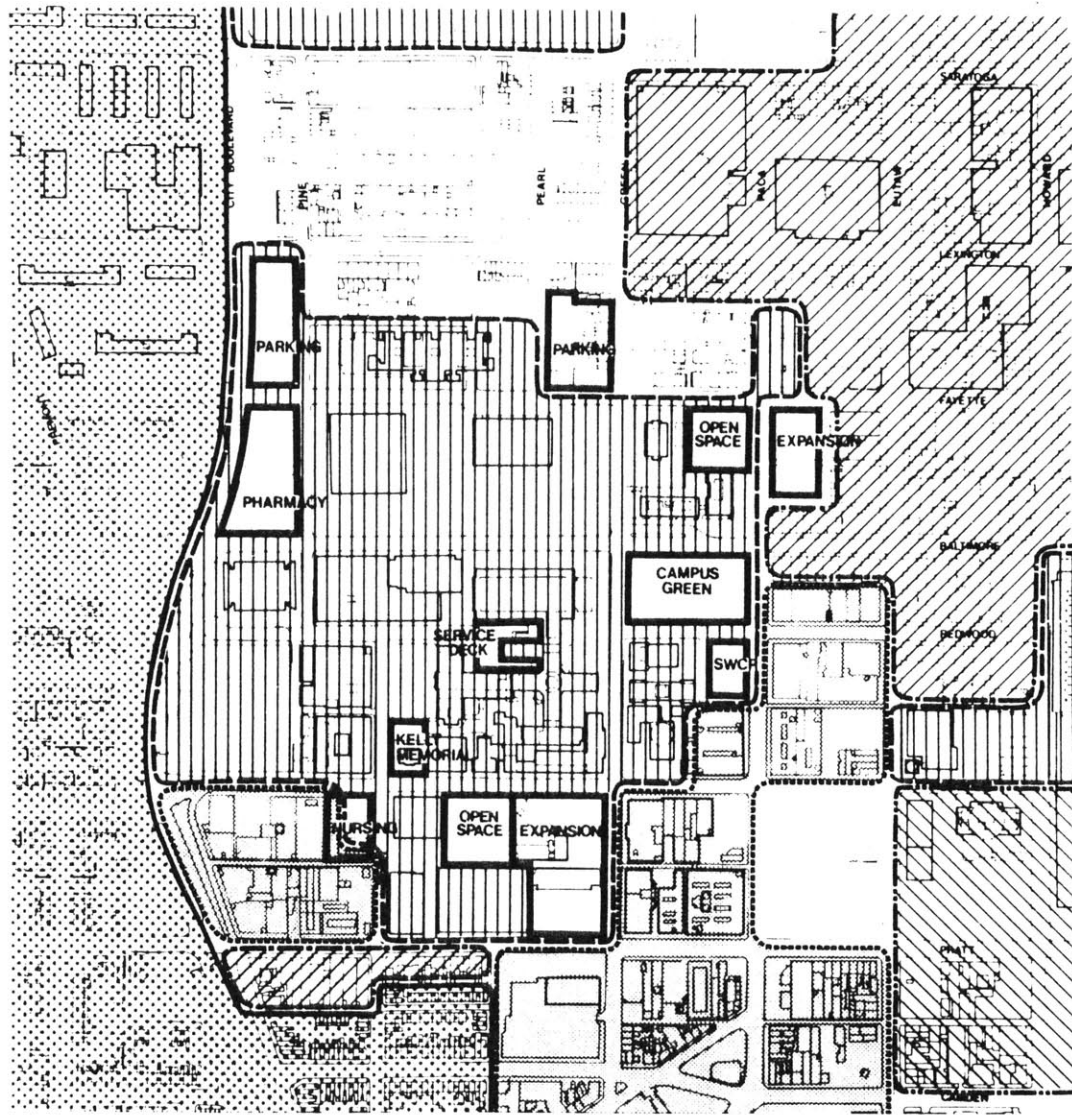
Harry Weese and Associates' "Urban Design Report for the University of Maryland Baltimore Campus" states that the viability of downtown development and residential preservation and rehabilitation in the perimeter areas of the University of Maryland campus (Little Lithuania, Lexington Terrace, Orchard-Biddle, and Ridgeley's Delight) create tremendous potential for gentrification. The perimeter areas provide a significant range of housing for urban residents and should be a strong environmental design consideration in the development of future social service facilities.

An environmental and urban design analysis, carried out first by Harry Weese and Associates and then by RTKL, points to several characteristics of the neighborhood around the U/M Hospital which are critical considerations for current and future planning and design.





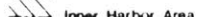

These considerations resulted in guidelines that emphasized the following needs:

- redevelopment of properties that are underutilized, either as parking lots or as vacant land;
- maintenance of major vehicular access points into the downtown area;
- coordination of new projects with individual elements of future significance for downtown design and planning;
- adherence to existing urban fabric.

Land use in the U/M neighborhood is diverse, but the area is heavily influenced by two major uses, the Lexington Market and U/M itself. The remaining area contains "vacant property, underutilized or vacant structures, spin-off uses related to the market, and a major employment source from the garment industry." (See display)⁵



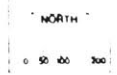
LEGEND

-  U.M. Expansion Parcel
-  Residential Uses
-  Institutional Uses
-  Commercial Retail Uses
-  Inner Harbor Area
-  Light Industrial Uses

Note: Area not designated are either mixed use areas or are largely vacant

VETERANS ADMINISTRATION HOSPITALS
BALTIMORE, MARYLAND AREA MASTER PLAN

LAND USE PATTERNS AND
U.M. EXPANSION PROGRAM (1975-1985)



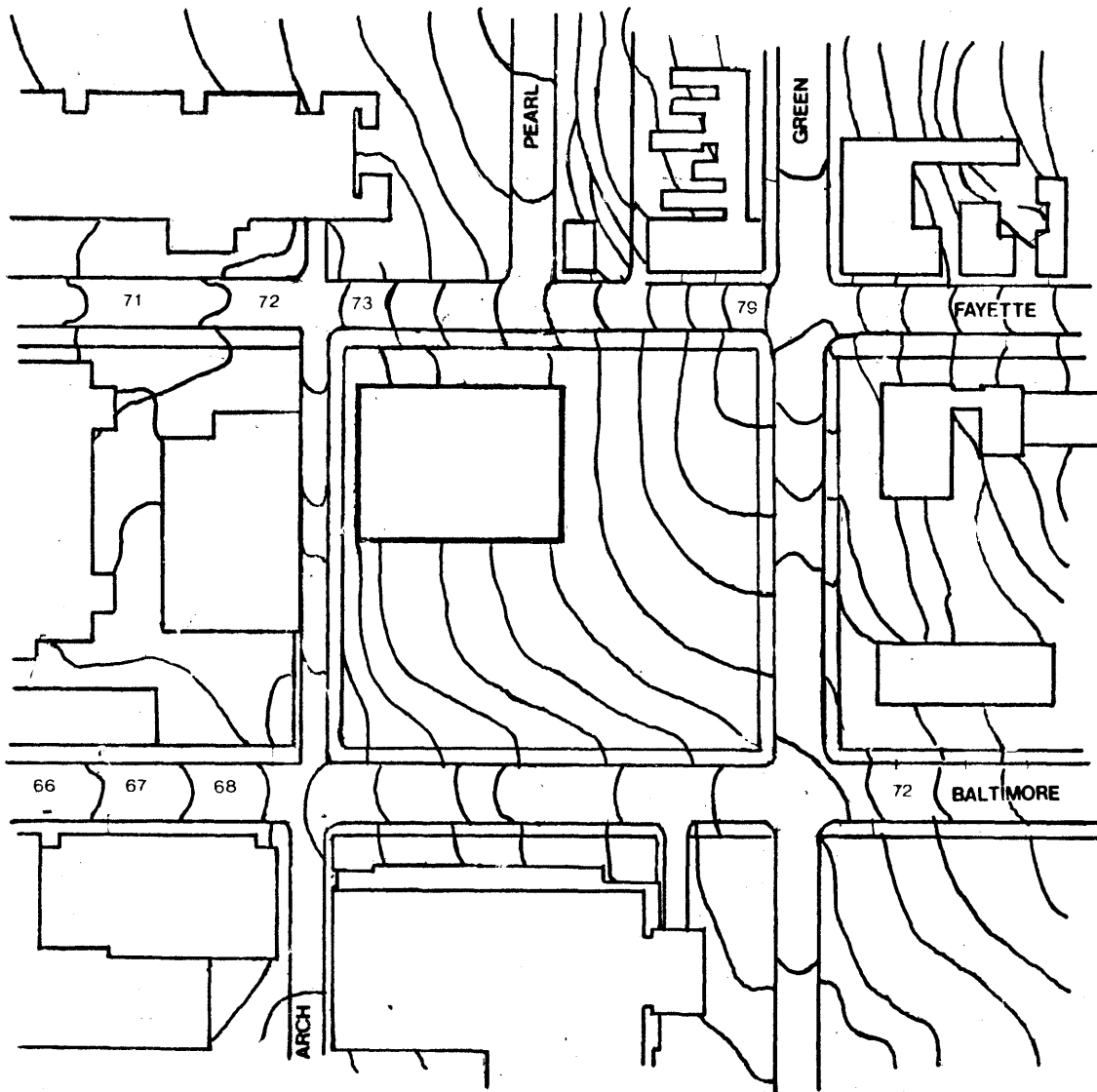
In 1975 a study based on the findings of the Planning Coordination Committee for U/M investigated the projected land use pattern and expansion program of U/M for 1975-1985, in the vicinity of U/M Hospital. The study, conducted by city and university officials, projected a broad range of land patterns, with the strongest separation of uses occurring between residential and nonresidential uses to the west and south of the hospital.

According to Anand Bhandari, the construction of the City Boulevard will further segregate these areas and effectively create a growth barrier for both residential and nonresidential uses. "The plans for expansion of the University of Maryland campus called for a number of projects, including the creation of campus open spaces as well as faculty expansion." ⁶

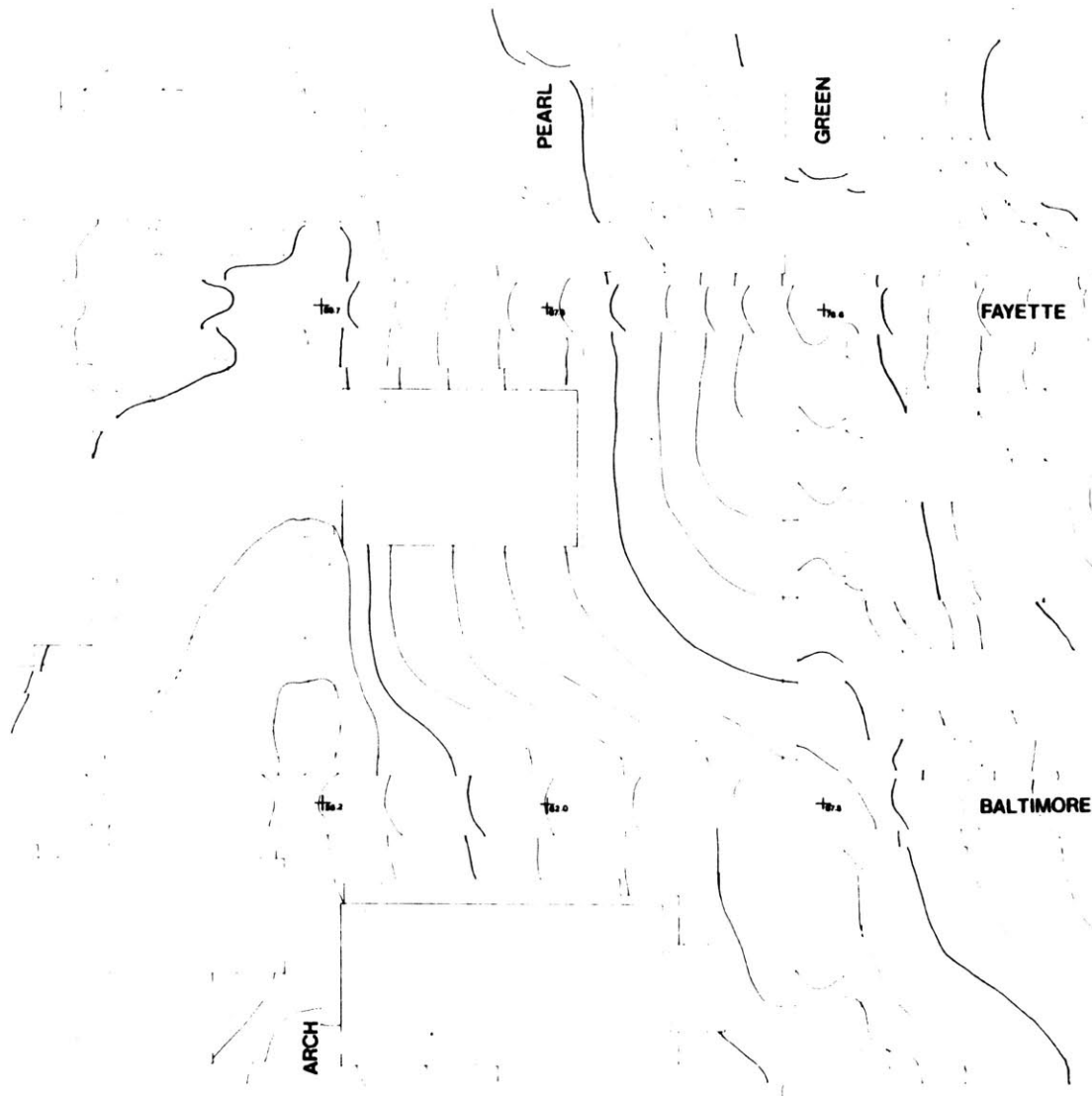
In preparing the preliminary steps towards environmental planning and design, RTKL investigated the topography, slopes, and status of the chosen site, Site A.

As presented in the topographic map, Site A slopes from a high point at its
7
northeast corner to its low point on the southwest. Three of the four edges
have grade changes of less than 20 feet but greater than 10 feet. "The
greatest cumulative slope is 9.02%, well within suitability for construction
8
and for traffic considerations." Pedestrian movement, according to the
study, is not impeded by the slopes (see display).

Site A is part of an urban renewal area and is currently zoned
"B-5", a business classification that permits hospital uses by City Council
authorization.



<p>VETERANS ADMINISTRATION HOSPITALS BALTIMORE, MARYLAND AREA MASTER PLAN <small>(PROJECT 511 001)</small></p>	<p>CANDIDATE SITE A TOPOGRAPHY AND SLOPES</p>	<p> NORTH <small>15 30 60</small></p>
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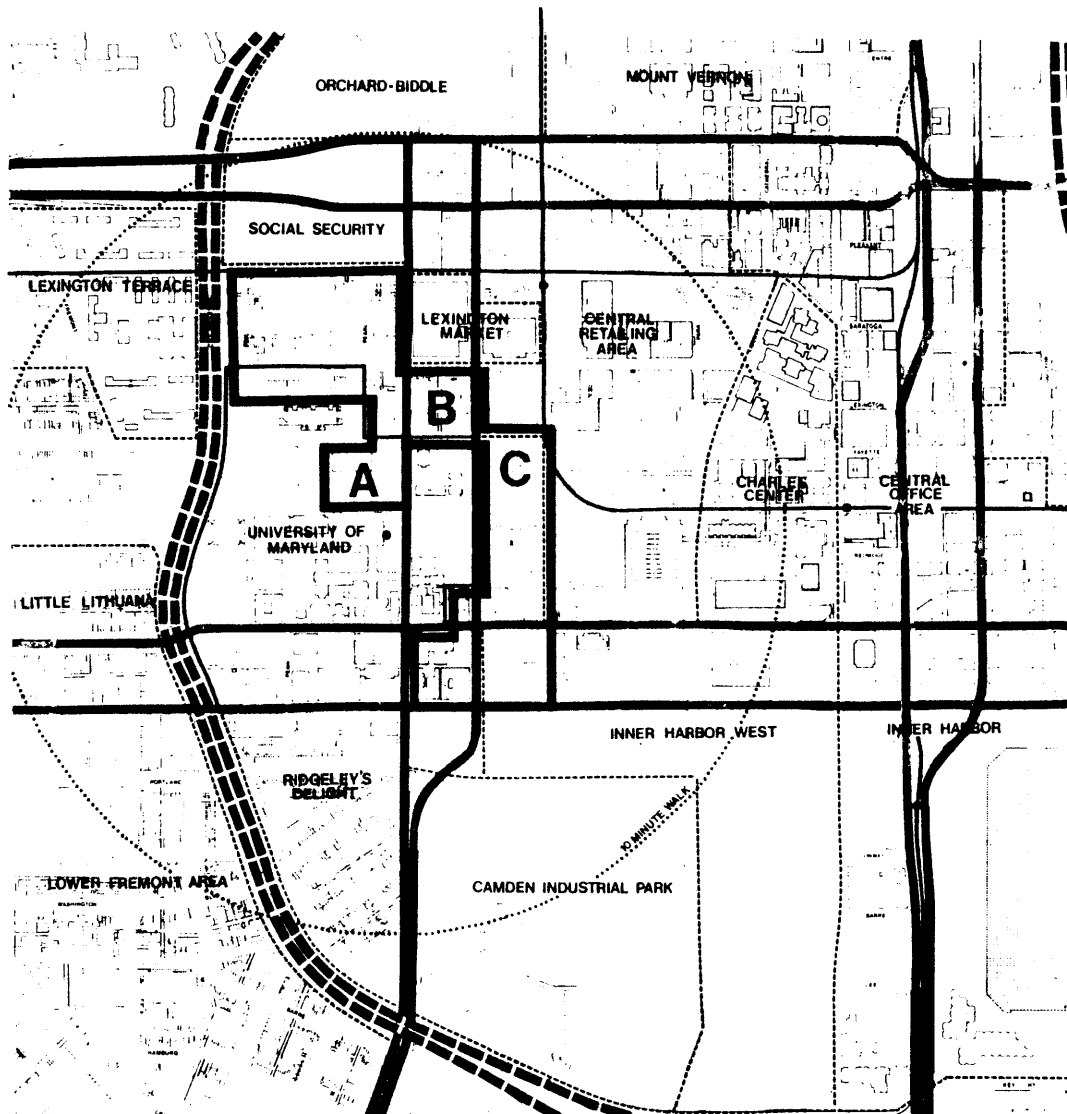


VETERANS ADMINISTRATION HOSPITALS
 BALTIMORE, MARYLAND AREA MASTER PLAN
(PROJ. E.L. 511 001)

CANDIDATE SITE A
TOPOGRAPHY AND SLOPES

NORTH
 0 15 30 60

The site is bounded by Fayette Street to the north, Greene Street to the east, Baltimore Street to the south and the U/M Dental School to the west. The eastern edge of the abandoned Arch Street provides the western edge of Site A. The site lies within the planning area of U/M, whose master plan designates the block for future use as the VA replacement hospital. The City of Baltimore has also included the development of the area as a key element in the MetroCenter plan (see display). A basic FAR of 8.0 is allowed, with variances that could allow an additional 2.5 FAR. The Detailed Guidelines for Campus Development, produced by the City and the U/M in 1975, specifies a limit at height elevation of 160 feet, with additional height up to 300 feet with a setback of 30 feet. A maximum building coverage of 90 percent is specified, as is a 10-foot setback north of Baltimore Street. The RTKL report specifies that, unlike most downtown blocks, Site A is approximately 75 percent vacant and is currently used for hospital and visitor parking. It has a total area in excess of 130,000 square feet, 40,000 of which are occupied by the U/M parking garage in the northwest corner.



LEGEND

- ELIGIBLE SITES ZONE
- UNIVERSITY OF MARYLAND
- - - PLANNING AREAS
- MAJOR ARTERIALS
- PLANNED ARTERIALS
- FUTURE RAPID TRANSIT

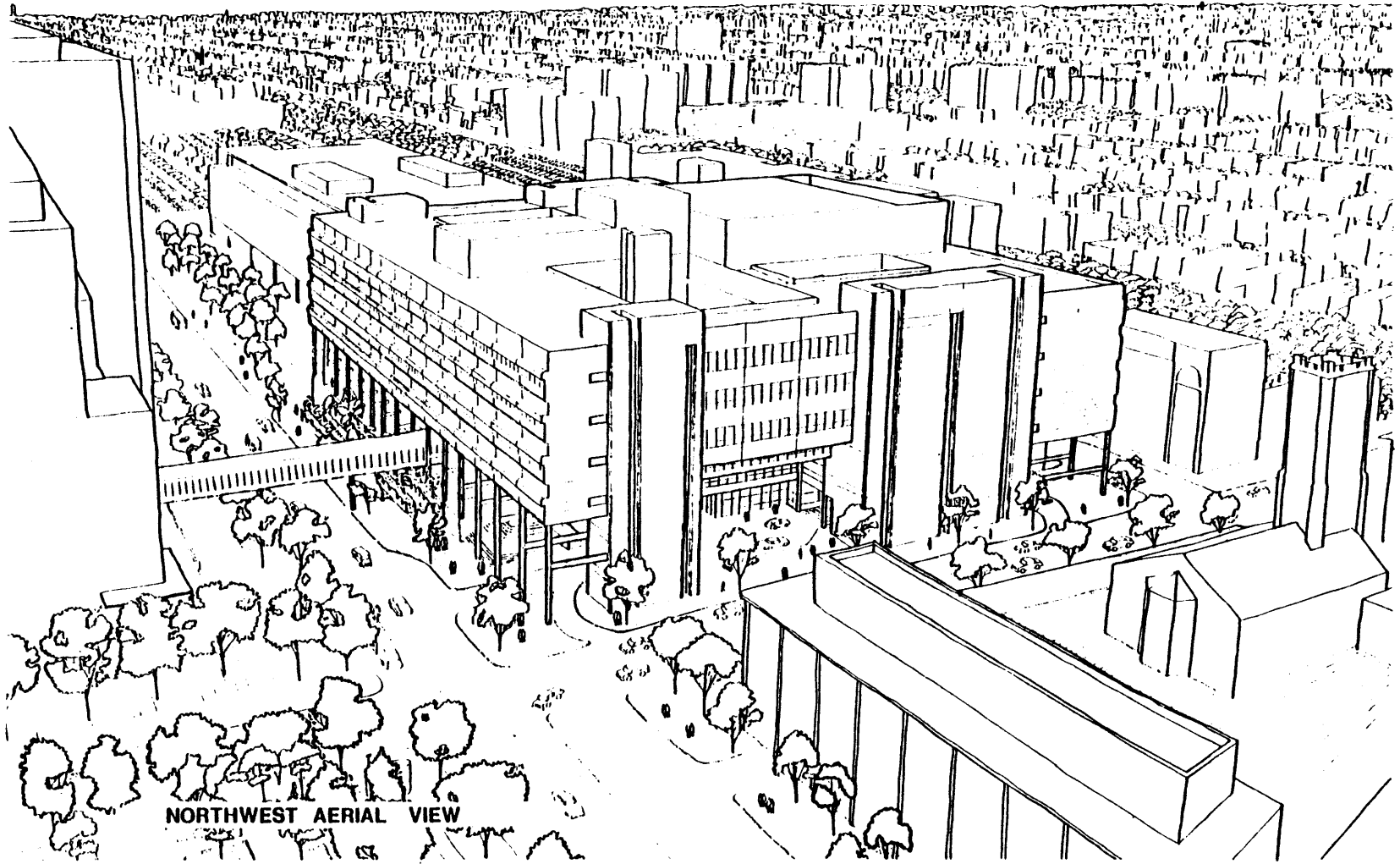
VETERANS ADMINISTRATION HOSPITALS
BALTIMORE, MARYLAND AREA MASTER PLAN
PROJECT 511-001

URBAN CONTEXT

NORTH

0 500 700 600

According to Mike Goode, Project Officer, OC/VACO, the environmental planning for the VA Baltimore replacement facility "was closely coordinated through the architect with the City of Baltimore Office of Urban Design."¹⁰ The VA was well aware of the efforts of the Mayor and the Department of Planning in developing the MetroCenter plan, and U/M was a key element in the total development. Therefore, analysis of site, its urban context, and the zoning restrictions of the neighborhood were the initial elements of project preplanning. Planning Alternative A2, which proposed the redevelopment of a systems hospital on a site unencumbered by an existing parking structure, directed a "maximum utilization of the site for medical program areas."¹¹ RTKL emphasized the need for a design that would correspond not only in image but also in treatment of the pedestrian levels with the design guidelines of the U/M master plan compiled by Harry Weese and Associates (see display).



NORTHWEST AERIAL VIEW

VAH / BALTIMORE

Note: No special zoning variance was necessary for the VA replacement hospital in view of long-range development plans established by the Urban Design Commission of the City of Baltimore.

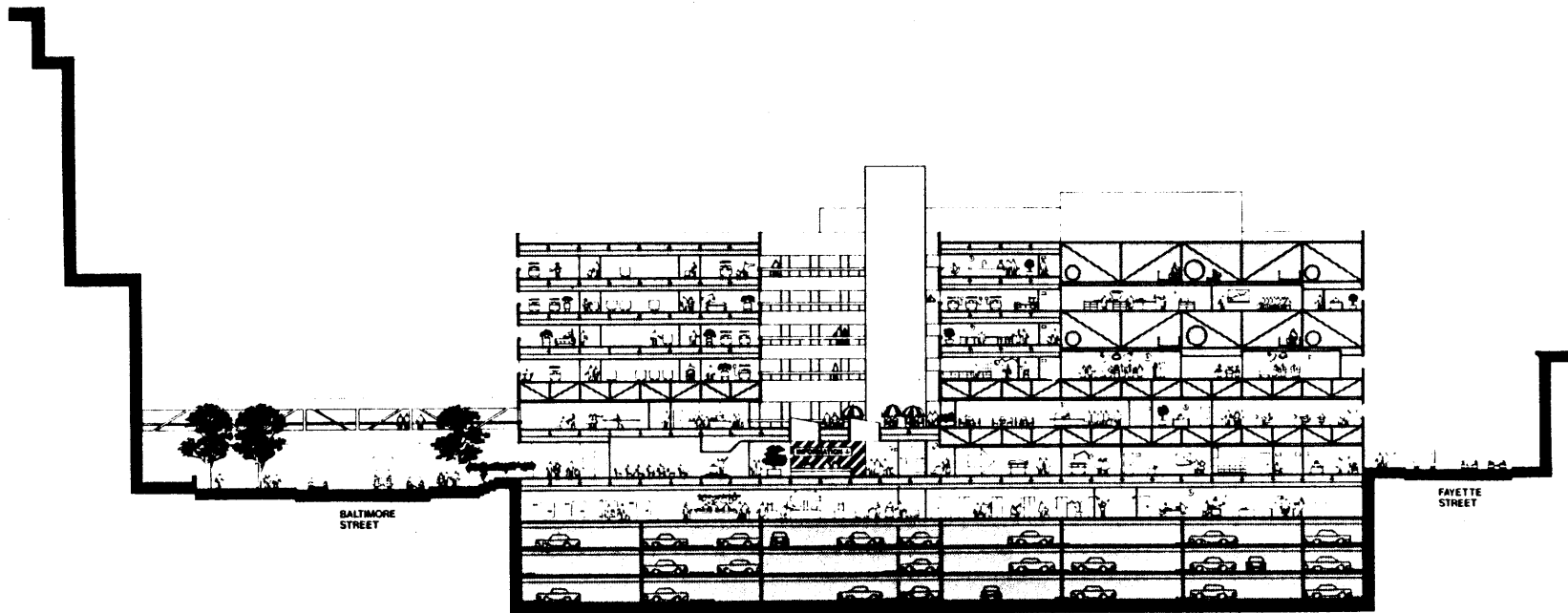
CHAPTER XI
PROGRAMMING

A. CONCEPTUAL PROGRAMMING/DESIGN

Planning Alternative A2 required the total 2.6 acres of Site A. This required the VA to negotiate with U/M for the northwestern quadrant of the site, the existing location of a six-level parking structure. U/M agreed to the demolition of the facility and reassignment of the land, if the VA would agree to replace the required hospital parking. As presented in the RTKL study, the parking required to serve staff, patients, and visitors at the facility would be provided by three levels of below-grade parking, under the hospital. Above the parking, the hospital would consist of a basement service level; a first floor ambulatory care level; a second floor administrative and research center; and four levels with both services and interstitial space (four inpatient levels in the southern portion, and, in the northern portion, two levels of diagnostic/treatment services and two levels of HVAC interstitial space corresponding in height to the four inpatient floors).

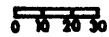
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The following description of program areas and their spatial organization represents the conceptual program which was utilized by RTKL in the formulation of schematic space/function organization. Specific program areas and the corresponding organizational diagrams will allow for the discussion to progress from the conceptual level to the schematic. (see display)



VETERANS ADMINISTRATION HOSPITALS
BALTIMORE, MARYLAND AREA MASTER PLAN
(PROJECT 811-001)

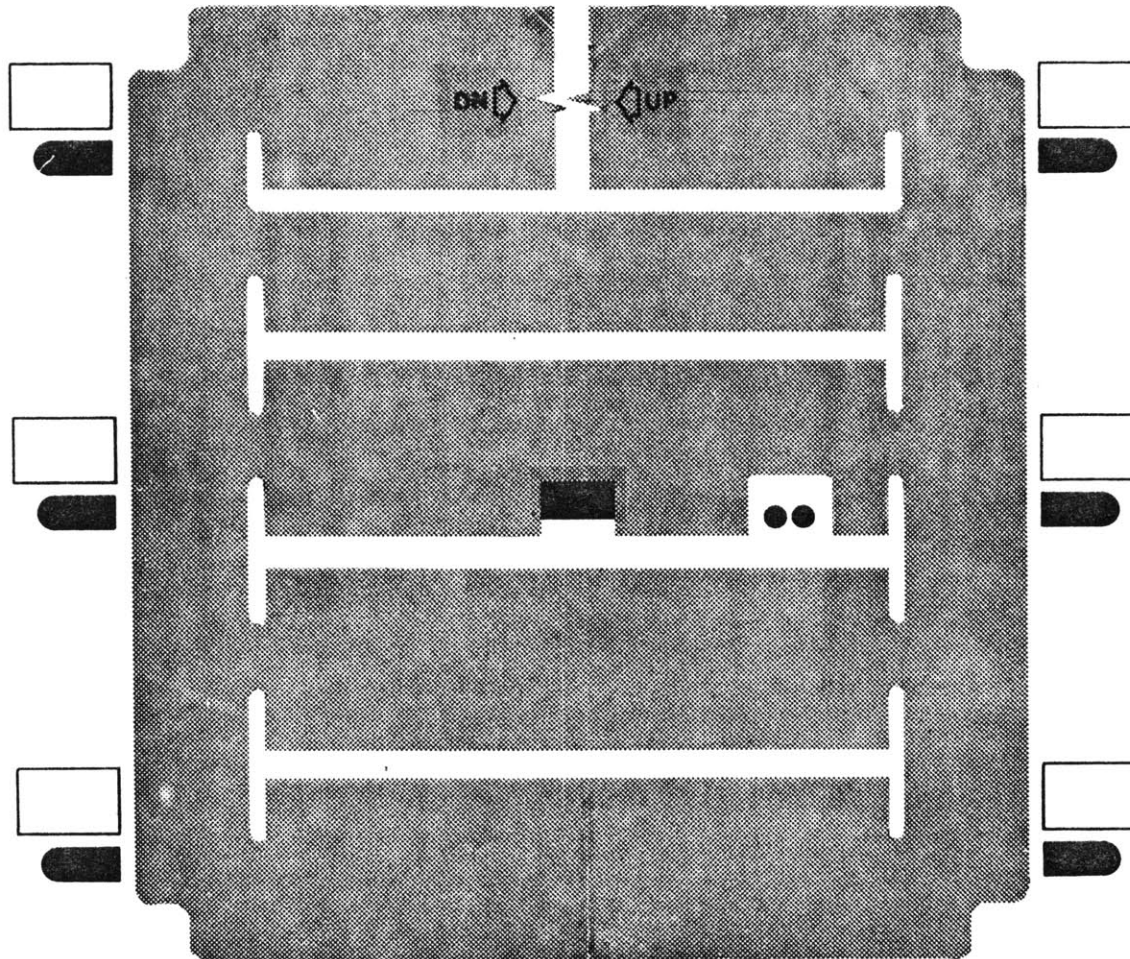
DESIGN ALTERNATIVE: A2
BUILDING SECTION



Parking Garage





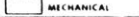
The VA replacement facility would locate its parking garage under the structure. To accommodate 680 cars, the garage would have three levels of parking. The vertical circulation connecting the garage to the hospital would provide access to the main lobby for purposes of security and control.²

(see display)

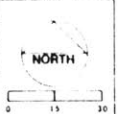


VETERANS ADMINISTRATION HOSPITALS
 BALTIMORE, MARYLAND AREA MASTER PLAN
 (PROJECT 511-001)

DESIGN ALTERNATIVE: A2
PARKING GARAGE
TYPICAL FLOOR

-  NEW CONSTRUCTION
-  RENOVATED AREA
-  EXISTING BUILDING
-  STAIRS
-  MECHANICAL

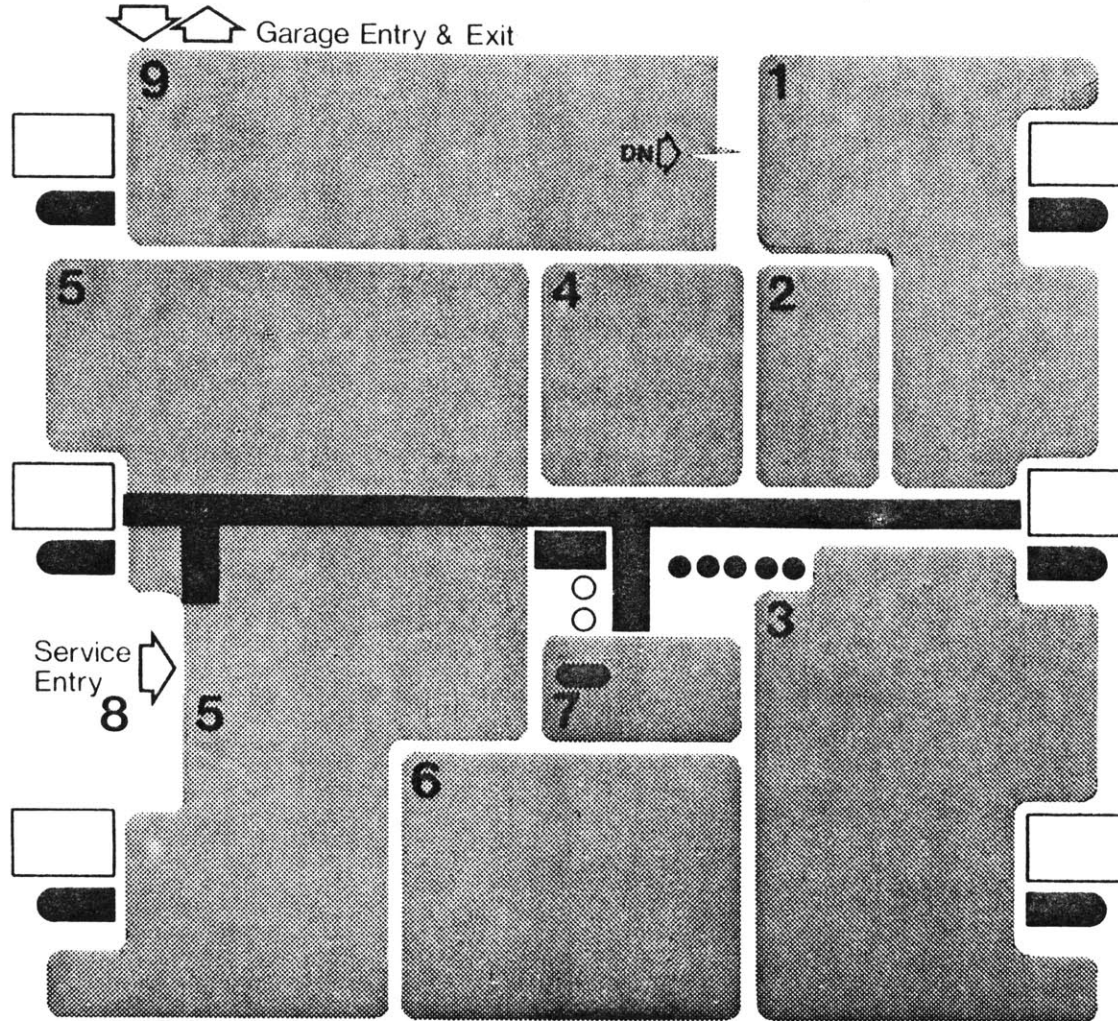
-  GENERAL USE ELEVATORS
-  INPATIENT SERVICE ELEVATORS
-  AUTOMATIC MATERIAL HANDLING ELEVATORS
-  CORRIDORS



Basement

1. Engineering Service
2. Building Management Service
3. Dietitian Service
4. Pharmacy Service
5. Supply Service
6. Supply Service (SPD)
7. Distribution Center
8. Loading Docks
9. Parking (ramp down to lower levels)

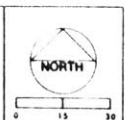
The basement would be the service level for the hospital. All items shipped to the station would be received at the loading dock and distributed to the appropriate locations. A major distribution corridor on one axis of the basement would allow items in both bulk and packaged form to be delivered to the proper service in the basement. For vertical distribution of food and supplies, an automated system with one central point for sending and receiving would be provided. All of the major levels of the station would have access at the basement level. ³ (see display)



VETERANS ADMINISTRATION HOSPITALS
 BALTIMORE, MARYLAND AREA MASTER PLAN
 (PROJECT 811-001)

DESIGN ALTERNATIVE: A2
BASEMENT

- NEW CONSTRUCTION
- RENOVATED AREA
- EXISTING BUILDING
- STAIRS
- MECHANICAL
- GENERAL USE ELEVATORS
- INPATIENT SERVICE ELEVATORS
- AUTOMATIC MATERIAL HANDLING ELEVATORS
- CORRIDORS



*NOTE: The Basement Plan represents an excess amount of space designed
for auxillary mechanical equipment required by Federal Code.

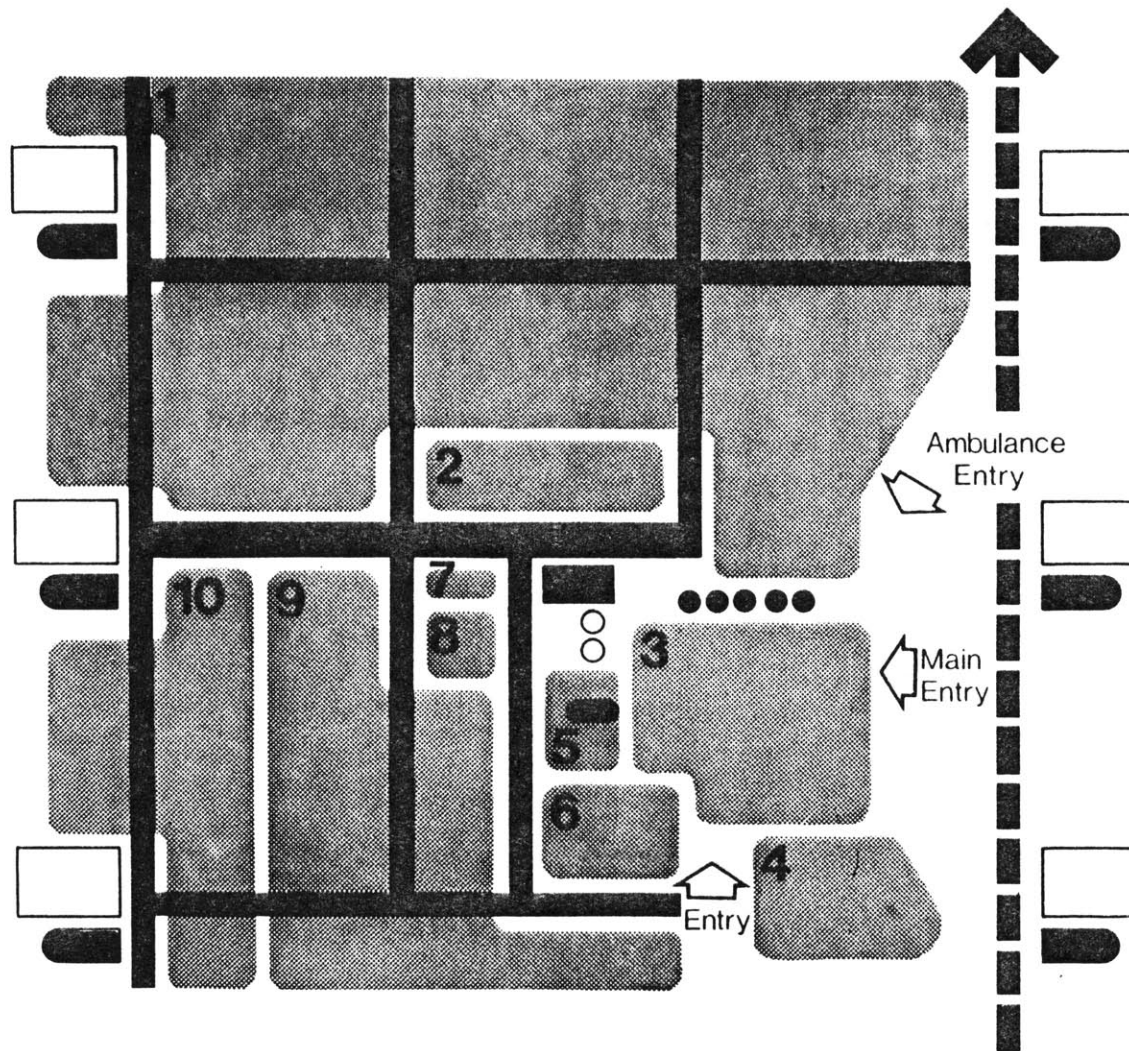
First Floor

1. Ambulatory Care Service
2. Outpatient Waiting and Cashier
3. Lobby and Information
4. Chaplain Service
5. Supply Service
6. Service Organization
Veterans Assistance Office
Voluntary Service
7. Pharmacy Service (outpatient dispensing)
8. Laboratory Service (specimen collection)
9. Eye, Ear, Nose and Throat Clinic
Genito-Urinary Clinic
Orthopedic Clinic
Dental Service
Prosthetics Service
10. Radiology Service (outpatient satellite)

In the RTKL program, the first floor would be the main entry and outpatient area for the hospital. The drop-off area for visitors and outpatients would be under cover and within the building structure. A secondary pedestrian entrance to the lobby would be created, off Baltimore Street. The conceptual program established that the Ambulatory Care Service would occupy over 50 percent of the first floor, and would have a separate ambulance entrance primarily for the transfer of patients. The Emergency Department and the










Shock/Trauma Center at University Hospital would provide emergency
4
services for VA patients.

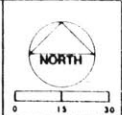
The pharmacy dispensing and laboratory collection areas would be centrally located for the clinics, with easy access to the automated vertical distribution systems for receiving and sending essential items. The outpatient radiology area would be easily accessible from the various clinics, with the heaviest user
5
of the service, the Orthopedic Clinic, adjacent. (see display)



VETERANS ADMINISTRATION HOSPITALS
 BALTIMORE, MARYLAND AREA MASTER PLAN
 (PROJECT 511-001)

DESIGN ALTERNATIVE: A2
FIRST

-  NEW CONSTRUCTION
-  RENOVATED AREA
-  EXISTING BUILDING
-  STAIRS
-  CORRIDORS
-  GENERAL USE ELEVATORS
-  INPATIENT SERVICE ELEVATORS
-  AUTOMATIC MATERIAL HANDLING ELEVATORS
-  CORRIDORS

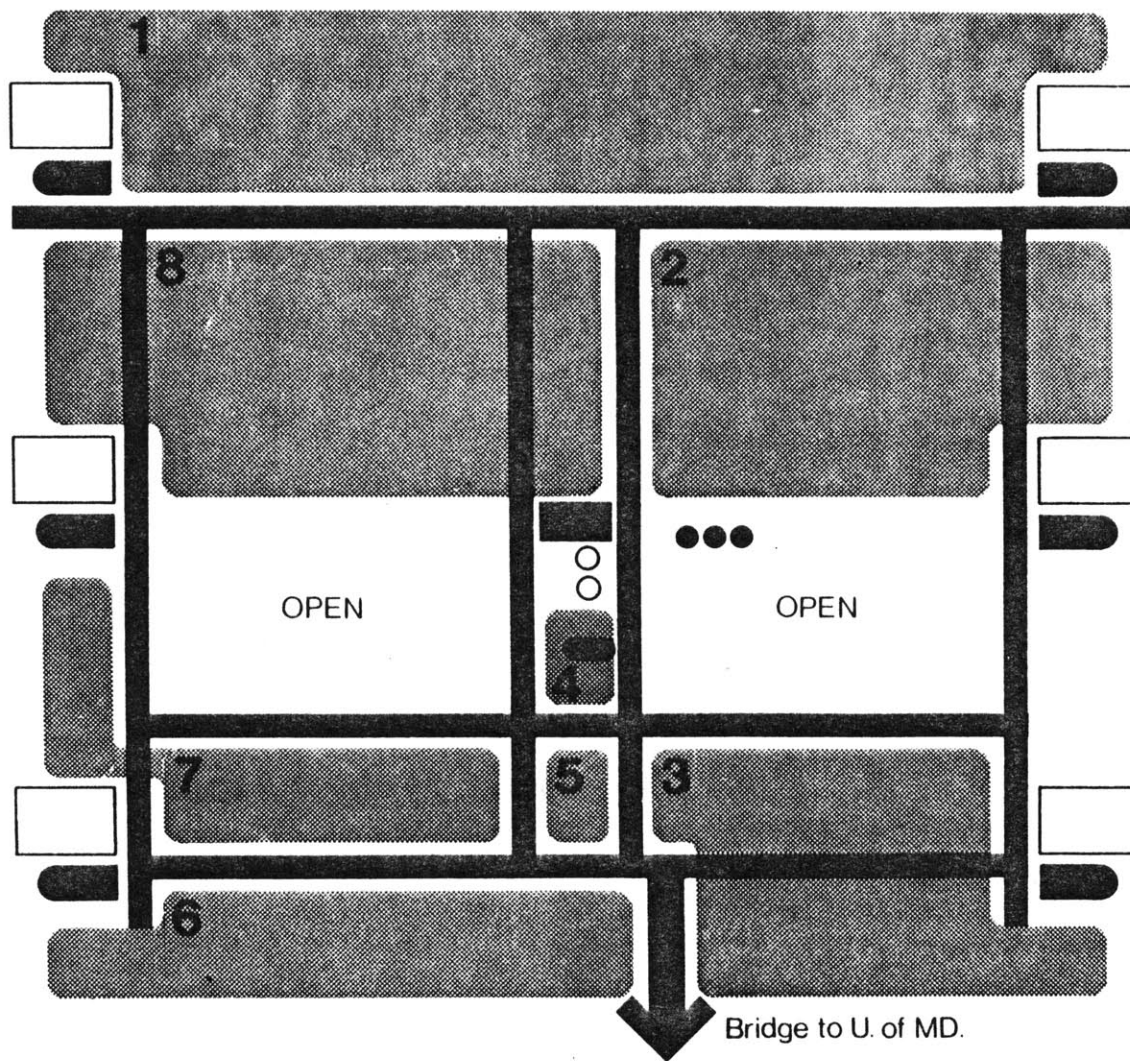


Second Floor

1. Hospital Directors' Suite
 - Fiscal Service
 - Data Processing
 - Nursing Service Administration
 - Nursing Service Education
 - Personnel Service
 - Credit Union
 - Library Service
 - Medical Illustration
2. Canteen Service
3. Medical Rehabilitation Service
4. Supply Service
5. Electroencephalography Laboratory
6. Medical Administration
7. Audiology and Speech Pathology Program
 - Psychology Service
 - Social Work
8. Research Service

The second floor would have a mixed service, ranging from administration to research. For easier access from the first floor lobby, it was proposed that an open stair or escalator be located adjacent to the public elevators in the open space. This would connect to the corridor system at the second floor leading to the Canteen Service, administrative services, and Rehabilitation Medicine Service. At this level would be a staff and patient bridge connecting at the same elevation to the third floor of U/M Hospital. This floor of the North Hospital Building at the University is currently used for outpatient clinics. The bridge connection would tie directly into the main corridor system at U/M Hospital at a location adjacent to the main elevator bank, facilitating patient and staff movement.⁶

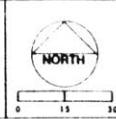
(see display)



VETERANS ADMINISTRATION HOSPITALS
 BALTIMORE, MARYLAND AREA MASTER PLAN
 (PROJECT 811-001)

DESIGN ALTERNATIVE: A2
SECOND

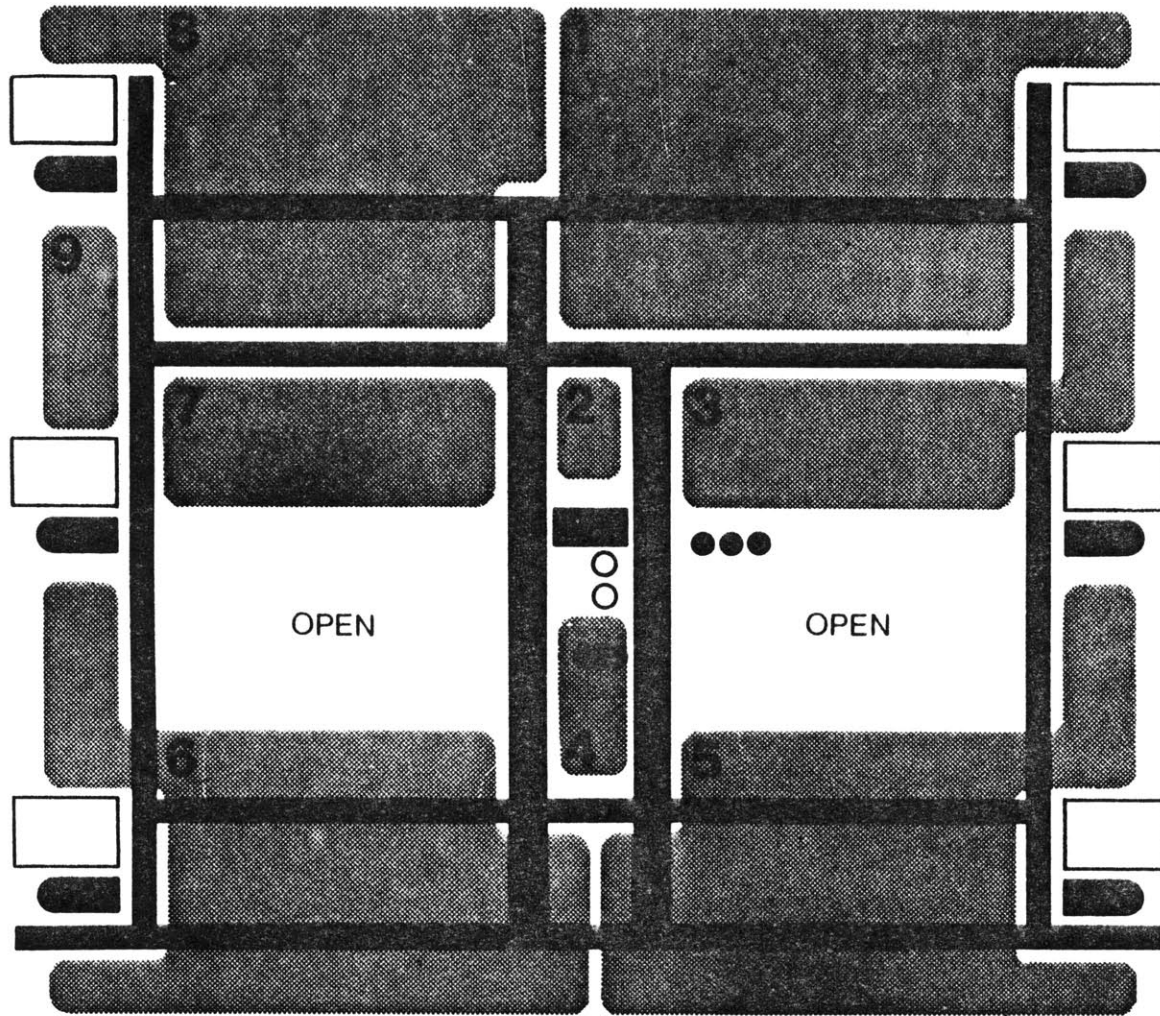
- | | | | |
|--|-------------------|--|---------------------------------------|
| | NEW CONSTRUCTION | | GENERAL USE ELEVATORS |
| | RENOVATED AREA | | INPATIENT SERVICE ELEVATORS |
| | EXISTING BUILDING | | AUTOMATIC MATERIAL HANDLING ELEVATORS |
| | STAIRS | | CORRIDORS |
| | MECHANICAL | | |



Third Floor










1. Radiology Service
2. Patient Control Center
3. Nuclear Medicine Service
4. Supply Service
5. Nursing Unit - Surgical (44 beds)
6. Nursing Unit - Surgical (44 beds)
7. Nursing Unit - SICU (10 beds)
8. Surgery Service
9. Clinical Service Administration (Surgery)

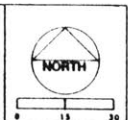
The third floor would be the surgical floor of the hospital. Service areas would include the surgical suite, 88 acute surgical beds, 10 surgical intensive care beds, and administration for the Surgical Service. A central double corridor design that would connect the nursing units to surgery and radiology would allow separation of inpatient/supply traffic from visitor/outpatient traffic. This would simplify the flow of patients, staff, and visitors, and would prevent major congestion and confusion which decrease functional efficiency. (see display)



VETERANS ADMINISTRATION HOSPITALS
 BALTIMORE, MARYLAND AREA MASTER PLAN
 (PROJECT 811-001)

DESIGN ALTERNATIVE: A2
THIRD

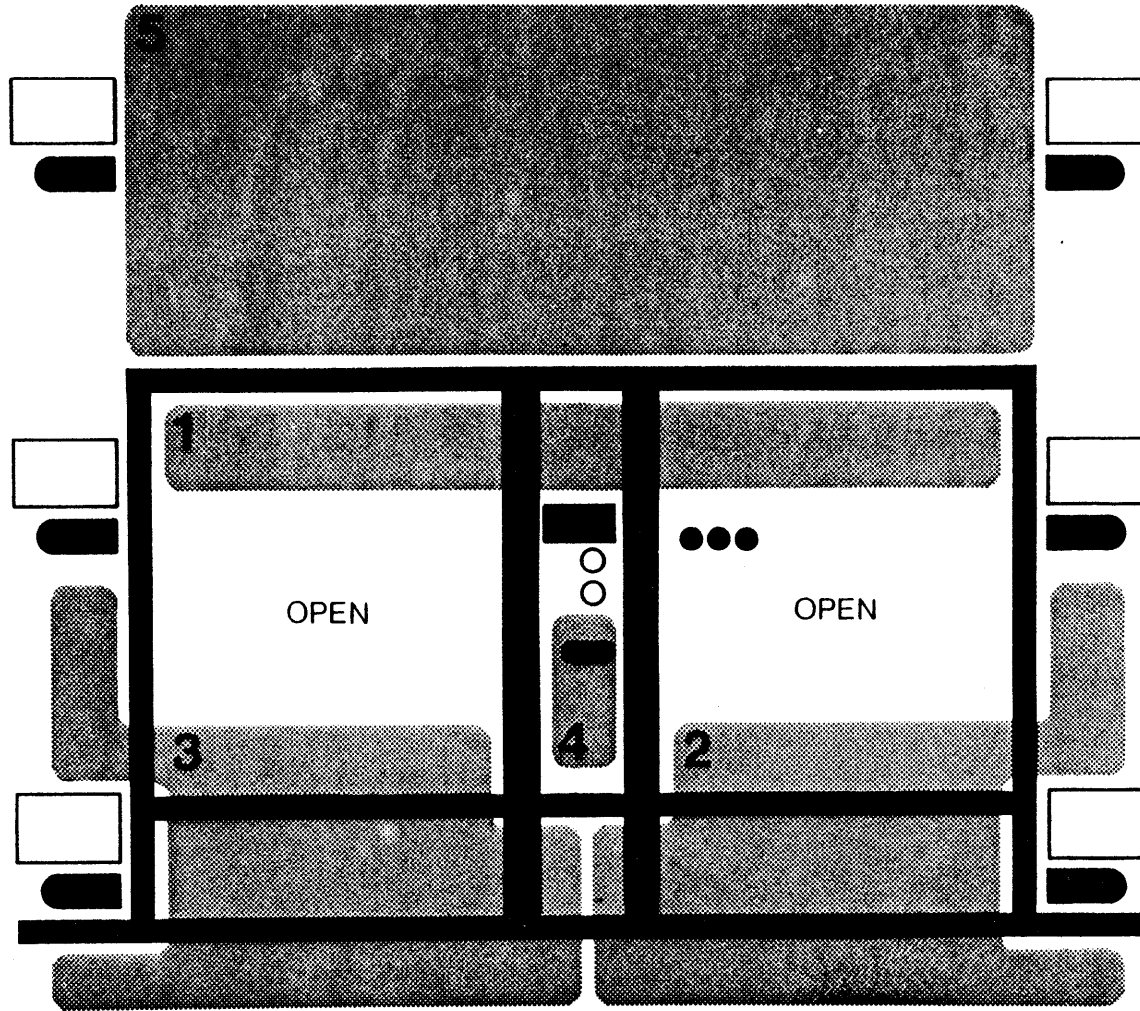
- | | | | |
|---|-------------------|---|---------------------------------------|
|  | NEW CONSTRUCTION |  | GENERAL USE ELEVATORS |
|  | RENOVATED AREA |  | INPATIENT SERVICE ELEVATORS |
|  | EXISTING BUILDING |  | AUTOMATIC MATERIAL HANDLING ELEVATORS |
|  | STAIRS |  | CORRIDORS |
|  | MECHANICAL | | |



Fourth Floor










1. Research
2. Nursing Unit - Medical/Surgical (44 beds)
3. Nursing Unit - Medical (44 beds)
4. Supply Service
5. Interstitial Space

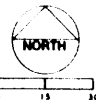
The fourth floor would house both departmental and mechanical interstitial space. One half of the area on this floor would be occupied by nursing units and Research Service. The remainder of the area would be occupied by interstitial space above radiology and surgery. (see display)



VETERANS ADMINISTRATION HOSPITALS
 BALTIMORE, MARYLAND AREA MASTER PLAN
 (PROJECT 517-001)

DESIGN ALTERNATIVE: A2
FOURTH

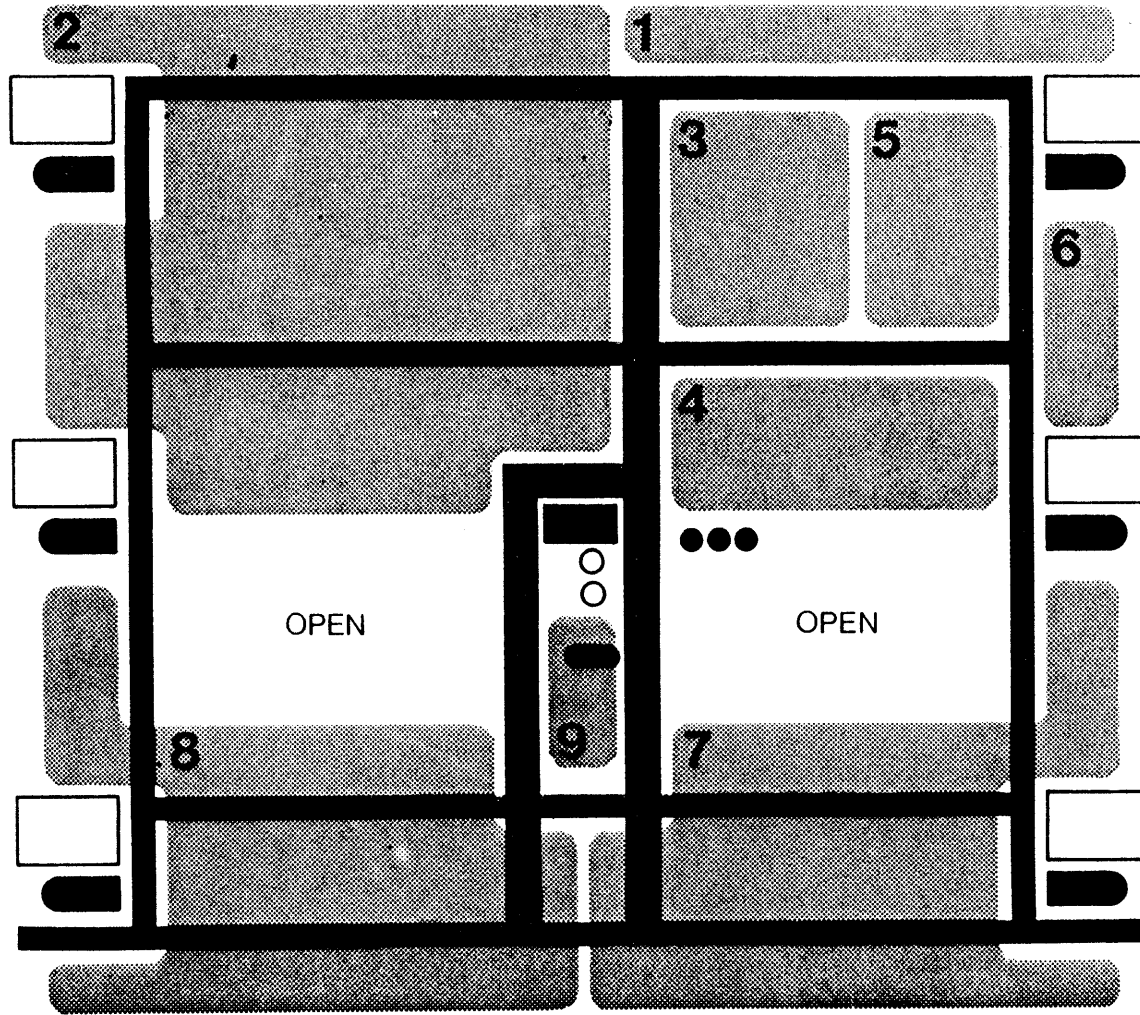
	NEW CONSTRUCTION		GENERAL USE ELEVATORS
	RENOVATED AREA		INPATIENT SERVICE ELEVATORS
	EXISTING BUILDING		AUTOMATIC MATERIAL HANDLING ELEVATORS
	STAIRS		CORRIDORS
	MECHANICAL		



Fifth Floor










1. Laboratory Service (offices)
2. Laboratory Service
3. Clinical Cardiac Laboratory
4. Nursing Unit (4 beds CCU, 8 beds MICU)
5. Respiratory Care Program
6. Clinical Service Administration (Medical)
7. Nursing Unit - Medical (44 beds)
8. Nursing Unit - Medical (44 beds)
9. Supply Service

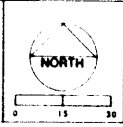
The conceptual program for the fifth floor called for 88 medical beds, laboratory service, critical care medical beds, clinical services administration (medical), and related diagnostic/treatment services. The double corridor system around the vertical transportation node would provide for the separation of visitors from patients and supplies. (see display)



VETERANS ADMINISTRATION HOSPITALS
 BALTIMORE, MARYLAND AREA MASTER PLAN
 (PROJECT 511-001)

DESIGN ALTERNATIVE: A2
FIFTH

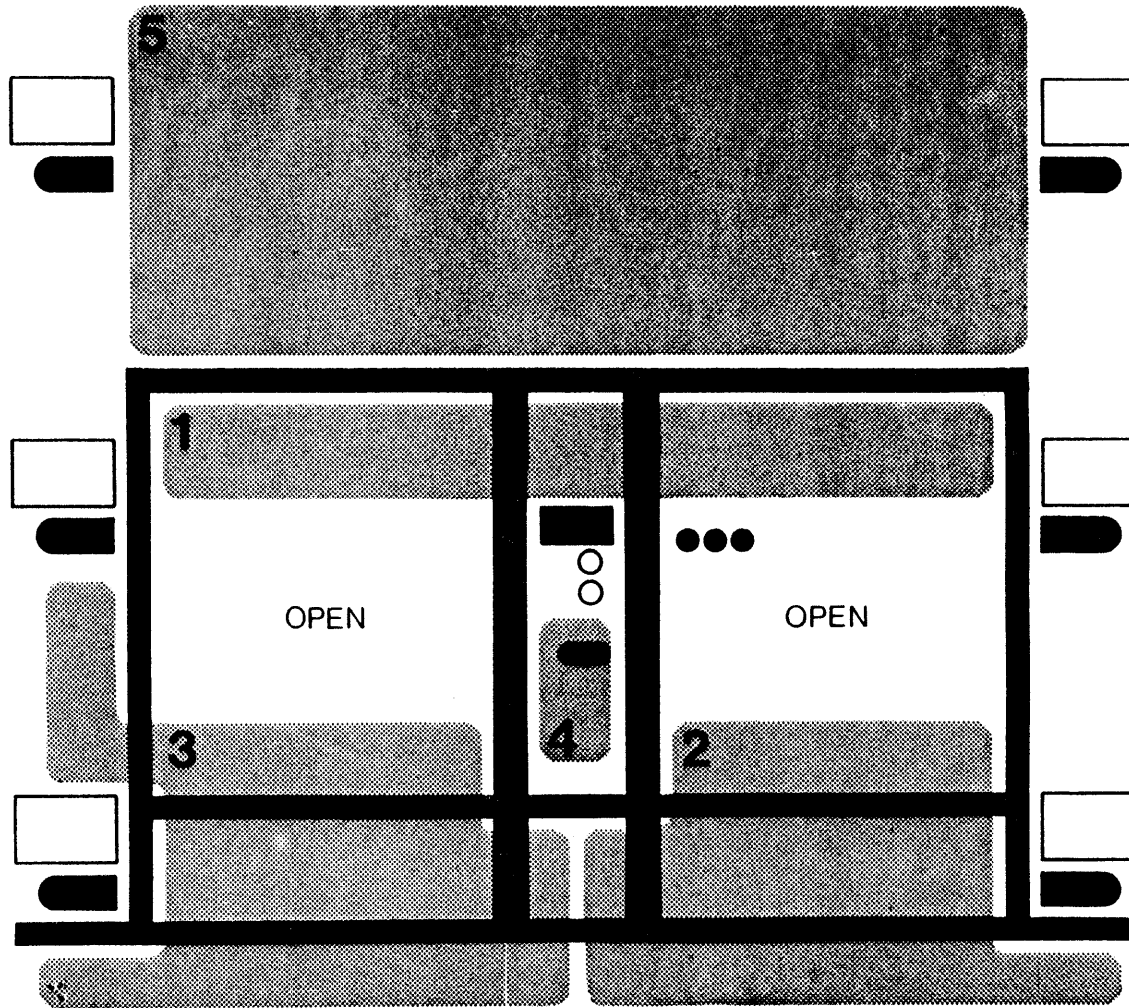
-  NEW CONSTRUCTION
-  RENOVATED AREA
-  EXISTING BUILDING
-  STAIRS
-  MECHANICAL
-  GENERAL USE ELEVATORS
-  INPATIENT SERVICE ELEVATORS
-  AUTOMATIC MATERIAL HANDLING ELEVATORS
-  CORRIDORS



Sixth Floor

1. Research
2. Nursing Unit - Medical (44 beds)
3. Nursing Unit - Medical (44 beds)
4. Supply Service
5. Interstitial Space

The sixth floor, like the fourth floor, would contain both hospital departmental space and interstitial space. Approximately one half the area on this floor would be occupied by medical nursing units and research service. The remainder of the area would be occupied by interstitial space above the
10
laboratories on the fifth floor. (see display)



<p>VETERANS ADMINISTRATION HOSPITALS BALTIMORE, MARYLAND AREA MASTER PLAN (PROJECT 511-001)</p>	<p>DESIGN ALTERNATIVE: A2 SIXTH</p>	<ul style="list-style-type: none">  NEW CONSTRUCTION  RENOVATED AREA  EXISTING BUILDING  STAIRS  MECHANICAL  GENERAL USE ELEVATORS  INPATIENT SERVICE ELEVATORS  AUTOMATIC MATERIAL HANDLING ELEVATORS  CORRIDORS 	<p style="text-align: center;">NORTH</p>  <p style="text-align: center;">0 15 30</p>
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In the evaluation of conceptual program and design, the VACO was in agreement with RTKL in the organization scheme, massing, and configuration of the facility. The bulk of the review on Alternative A2 had been conducted in the APF activities of the VA development process, where cost effectiveness and design feasibility were evaluated in terms of VA budget and program criteria. In the opinion of Mike Goode of OC/VACO, the activities of the APF were directed more toward exact cost estimation and limiting cost overruns than to the specifics of the design. The bulk of the programming was to be discussed and reviewed by the Chiefs of Service, DM+S, during the actual review of schematic program design and block plans. The OC was to work with the architect and the Office of Facilities, DM+S, to develop program areas that would correspond to the guidelines of the H08-9 Manual and the SFDI System-wide Evaluations.

B. USE OF THE VA BUILDING SYSTEM

A major concern for RTKL was the successful application of the VA building system to the conceptual alternatives in program and design. In evaluation of Alternative A1, a customized design to accommodate an existing garage on the site, and A2, a total design utilizing 90 percent of the site and free of the presence of an existing structure, the successful application of the VA building system to the design scheme was an essential criterion for judging feasibility. The VA building system allows for wide span construction techniques to permit maximum adaptability for space/function programming. The system utilizes the concept of interstitial space for the separation of the functional program area from a service zone which is 8'6" in height and contains all mechanical systems.

Over the last twenty years, a variety of building systems have been developed in Great Britain, Denmark, Canada and, most recently, by the VA. Although this thesis cannot enter into a detailed discussion on the evolution of hospital building systems, the VA hospital development process calls for the use of an "open building system," as opposed to the "British harness system," or the "Canadian salvo system," which are both "closed systems." Construction Specifier, in a May 1975 article, "The VA Building System," defines an open system as one which will allow the use of any components or hardware as long as they satisfy the stated performance requirements.

The VA building system provides a general solution to the broad problem of hospital design. The approach, therefore, has been one of developing strategies for planning and construction which establish a basic compatibility, while at the same time allowing wide latitude for different project requirements, different siting conditions, and different materials most suitable to a specific design problem.

The building system is essentially composed of three parts: data base, planning modules, and building subsystems.

1. Data Base. The data base states the user needs as functional and performance requirements which determine space allocation, arrangement, and environmental characteristics for the building system.

2. Planning Modules. Planning modules are areas of space with an assured capacity to accommodate a wide variety of hospital activities, and are used to develop the complete plan of the hospital. The modules have certain common characteristics which permit their design assembly into hospitals of widely different size, program, siting, and esthetic treatment. There are four types of planning modules: structural bay, service module, space module, and fire section.

3. Building Subsystems. The building subsystems are the components of the VA hospital building system; i. e. , the parts that transform the building from the planning stage to construction. Although the subsystems could be thought of as the "hardware" of the building system, they are described in a general nature with a requirement to meet established performance criteria. The system, therefore, is not dependent on any specific product or component, but may use any of a wide variety of materials, provided they meet the established performance requirements. The building subsystems include structural, ceiling, partitions, HVAC, plumbing, and electrical distribution (see display).

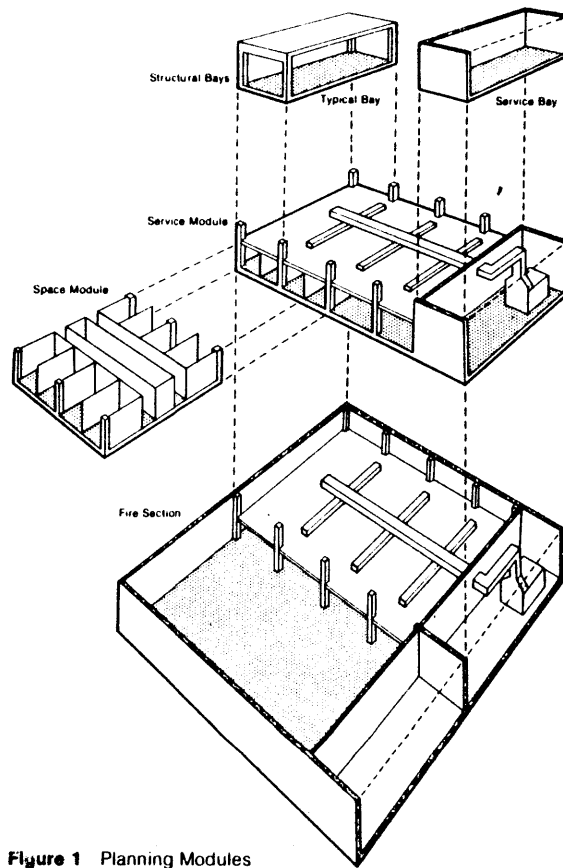


Figure 1 Planning Modules

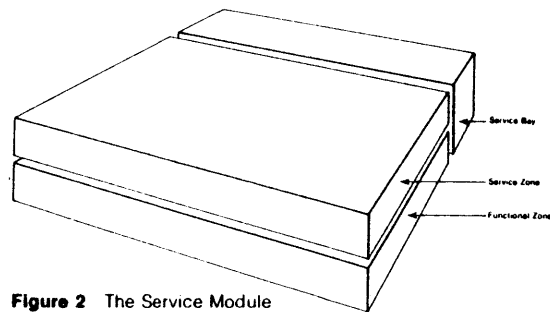


Figure 2 The Service Module

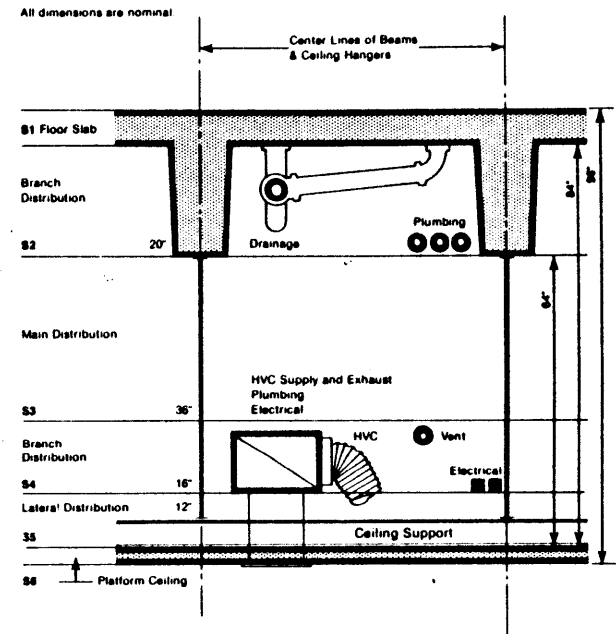


Figure 3 Service Zone - Subzones

According to George Agron, FAIA Project Coordinator for the research and development of the VA building system, there are definite advantages in using the VA building system:

1. A better response to medical program requirements is possible.

With the possibility of overall project time reduction and the capability to analyze many functional relationships through use of the planning modules, medical program response should be improved.

2. Building performance should be improved by the highly organized layout of service distribution and easier accessibility to mechanical equipment and piping.

3. Function of the building should also be improved through the planning capabilities available from the planning module concept of design.

4. Perhaps most importantly, the adaptability potential of the building should be vastly increased. Division of the building into independent service modules each containing its own service bay, the service distribution concept, a load-bearing ceiling/platform completely separating functional and service zones, partitions which stop at the ceiling/platform and contain only a minimum of utilities, and the permanent and adaptable components concept are all characteristics that should increase the adaptability of VA hospitals using the VA hospital building system.

Utilizing the knowledge and technical experience of the architectural firm of Stone, Marraccini and Patterson, RTKL was able to present conceptual and schematic designs with a working knowledge of the impact of the VA system on programming and building design. RTKL's awareness of VACO's strong emphasis on developing all eight VA replacement hospitals via the VA building system led to a higher rating of Alternative A2. The unconstrained site plan for A2 permitted a massing that would incorporate a basic "H" configuration in the building form. The customized "L" configuration of design option A1 would have necessitated a building that could not fully accommodate a building system using wide span trusses.

C. SCHEMATIC PROGRAM AND DESIGN

On September 18, 1978, the joint venture team of RTKL/CSD/Henry Adams presented the OC/VACO and the Office of Facilities, DM+S, with a schematic space/function program and block plan design. Since the time of the initial review in September 1978, RTKL has refined the schematic program and design to meet the specific requests of DM+S for improved services and efficiency. This period of development, according to Robert Bumberry, OC/DM+S, is the most difficult in which to maintain the interest of the architect in providing DM+S with innovative means of meeting the program criteria presented in the H08-9 Manual. "The constant review of program areas, functional adjacencies and square footage adjustments by the various chiefs of medical service requires the architect to constantly redesign his schematic proposals and resubmit them for review."

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The role of the facilities staff of DM+S is to mediate these reviews and discussions and translate the position of each respective participant into rational and attainable objectives within the time scheduled for block planning and design.¹⁴ Throughout the schematic development process, changes in VA policy can also affect program and space/functional organization. Mike Goode notes that the schematic design process for the Baltimore replacement hospital has encountered some difficulty as a result of the appointment of a new Chief Medical Director for DM+S.¹⁵

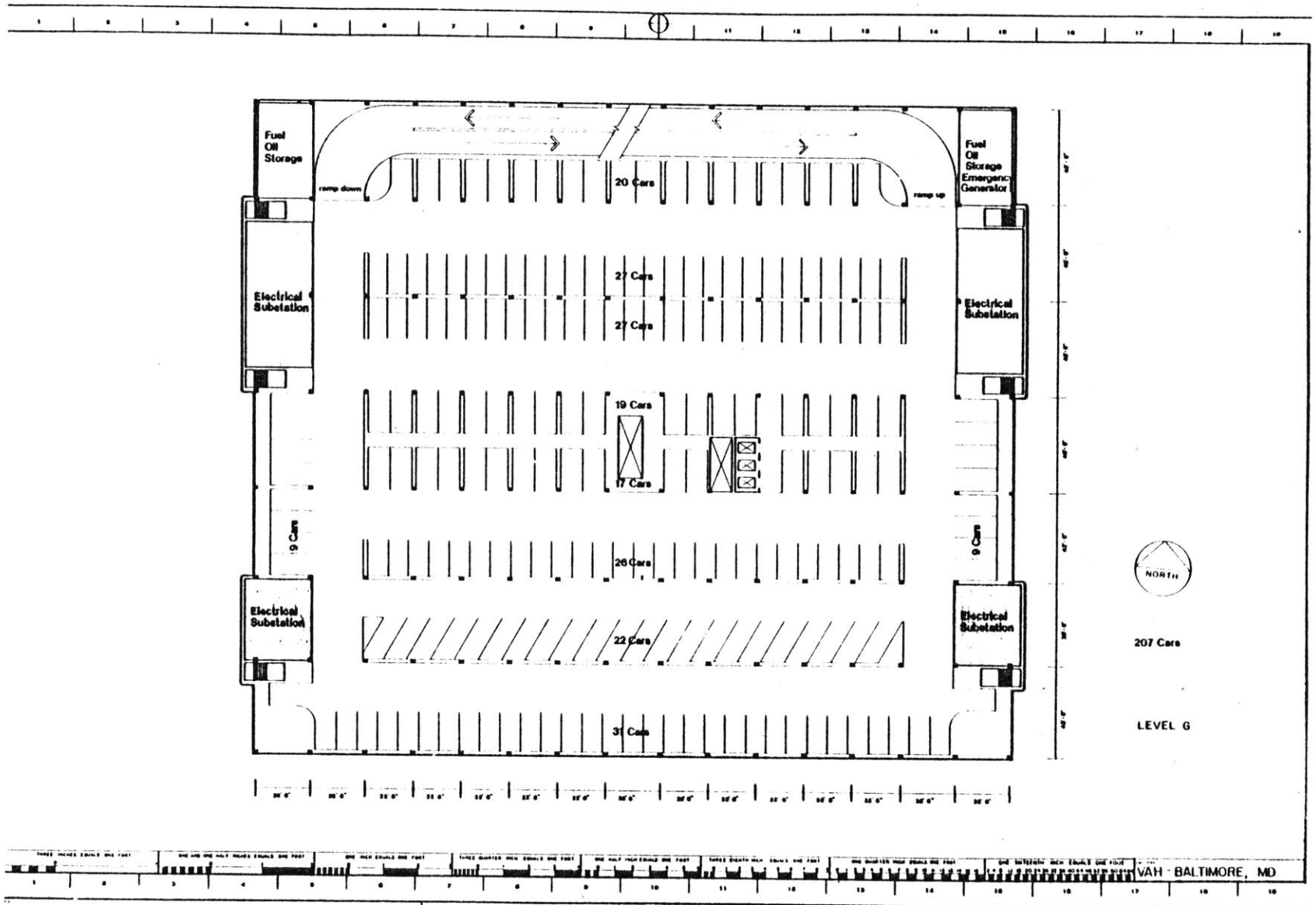
Although a review and highlights of the schematic design by RTKL will follow, it must be noted that as of the completion of research for this case study, final acceptance of the block plan was pending approval by the new Chief Medical Director of DM+S.

Further, the internal organization of the replacement facility originally called for outside courtyards to be created on levels 3, 4, 5, and 6. As of the second draft of this report, the architect, RTKL, had proposed that a clear space be developed in the areas designated courtyards, and an atrium developed.

Sandor Csobaji of RTKL explained the atrium concept as "not only esthetically pleasing, but an innovative approach to energy conservation by the maintenance of a five-story clear space kept at a constant temperature." Final contact with Mike Goode in April 1979 confirmed the fact that the atrium concept had been evaluated by VA fire/safety experts and had been approved for further refinement in design. The following presentation of schematic development deals with the September 1978 block plans--prior to the proposal for a clear-storied atrium.

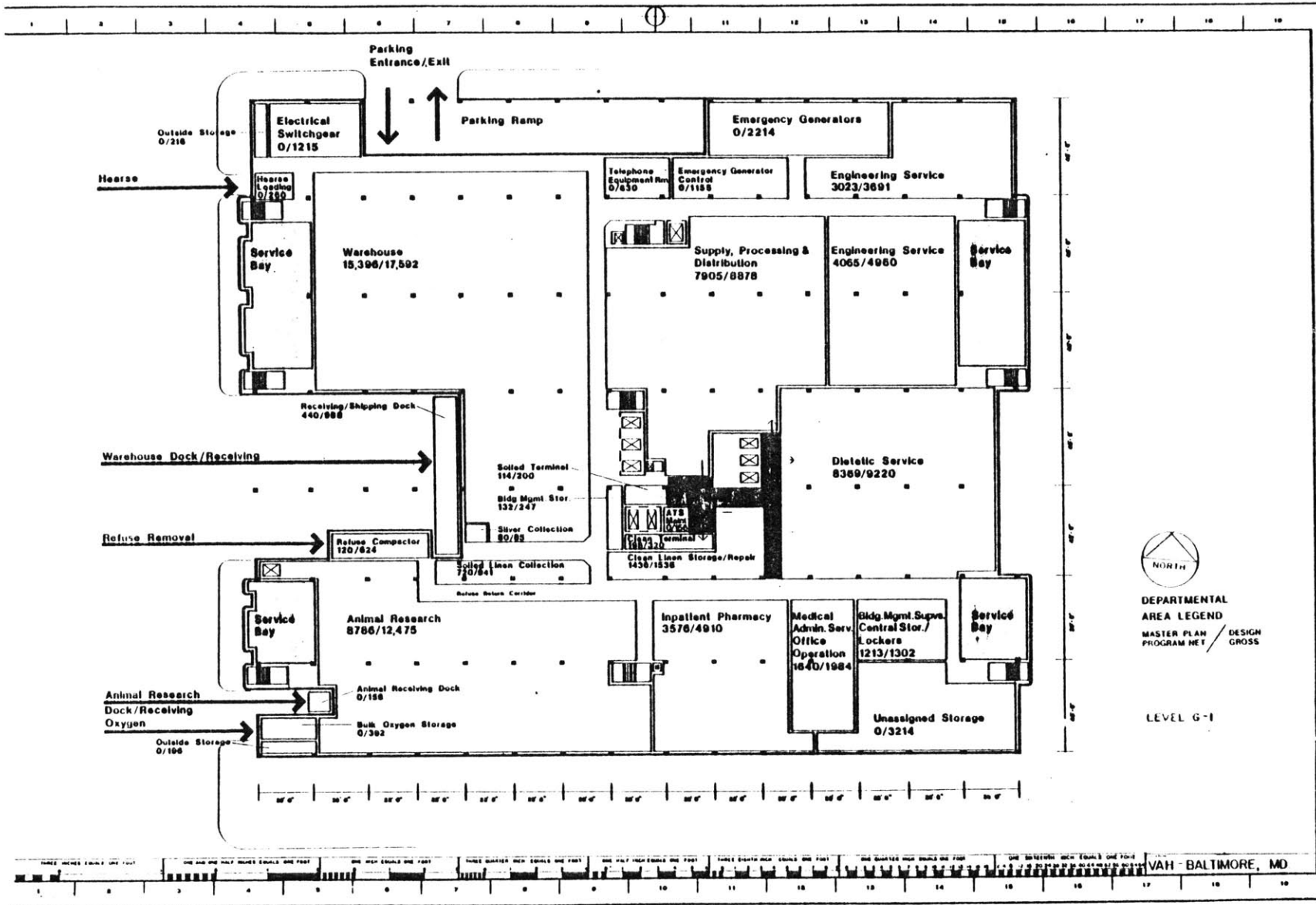
Levels G-2, -3, -4

Throughout schematic design, the replacement of the staff and visitor parking was proposed as below-grade, on three levels. The approximately 674-car parking arrangement is designed to provide the utility space necessary for an emergency generator on level G-2, electrical substations on level G-2, mechanical equipment space on levels G-3 and G-4, and fuel oil storage on levels G-2, -3, and -4. Vertical circulation will be provided to all levels of parking, with each elevator programmed to deliver passengers at Level 1 for increased security and easy access to the main patient information area. The majority of parking will be designed as 90-degree car spaces with a total of 66 spaces arranged on a 45-degree angle (see display).



Level G-1

Level G-1 is programmed for central warehousing activities; engineering services; emergency generators; animal research; inpatient pharmacy; building maintenance; crew locker area; telephone equipment room; electrical switch room; and clean and soiled linen collection, storage, and repair areas. Service bays will be arranged on the east and west sides of the structure and will house the fire stair core. Total gsf for level G-1 will be 98,316, with a total net assignable square footage of 57,570. The service/maintenance floor will be connected to outside delivery/loading areas by a series of docking areas for animal research, oxygen receiving, hearse loading, refuse removal, and warehouse receiving. A bank of three service elevators will be located adjacent to the dietetic service, central supply processing/distribution, and clean linen storage. Passenger elevators will be programmed to stop on level G-1 only when operated by key, mag card, or other control device. Central delivery is planned to be via Arch Street on the west side of the structure (see display).



Level 1

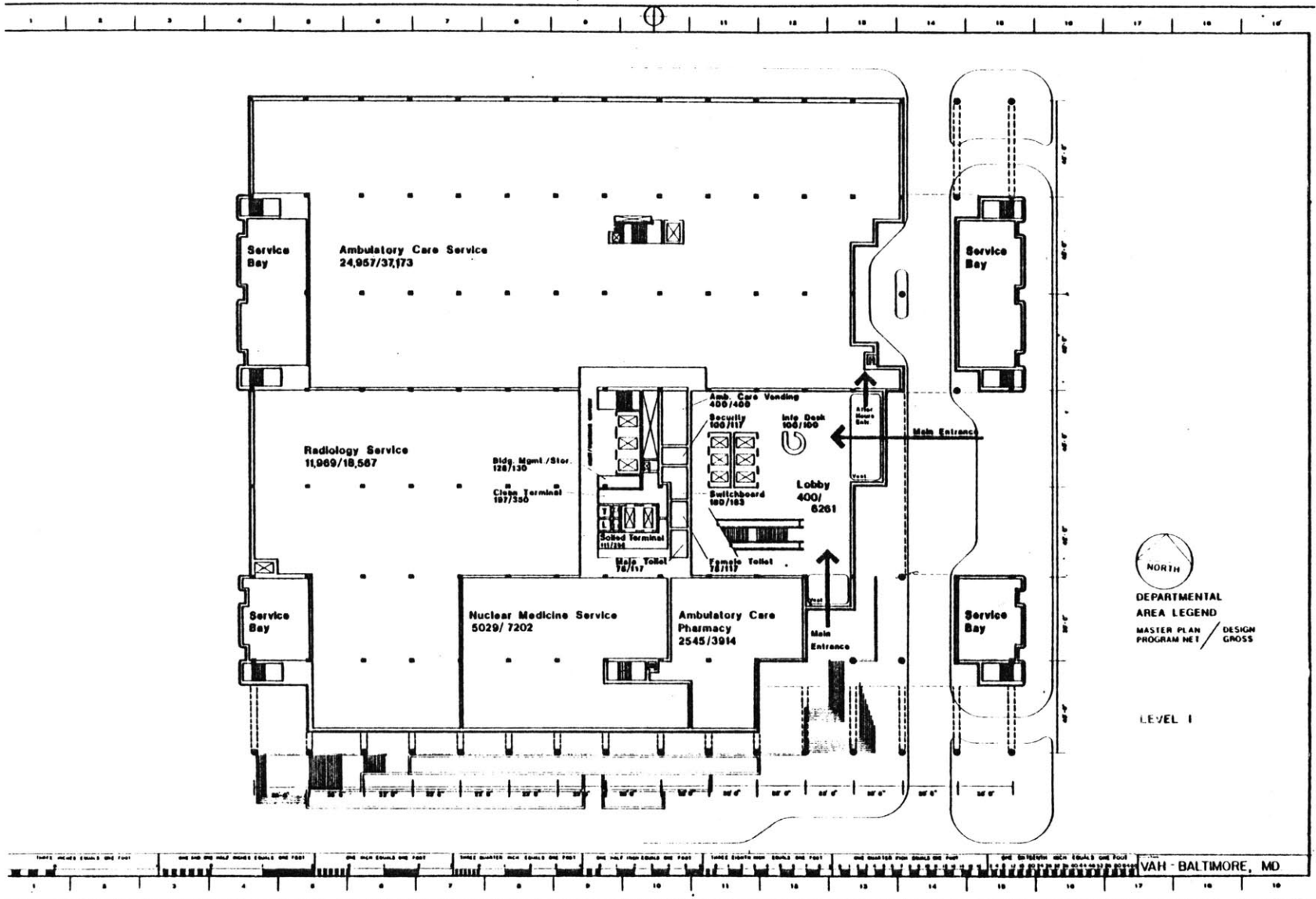
Because of its special significance to pedestrian interaction with built form, the planning of Level 1 will be discussed in the subsection dealing with environmental and urban design.

Level 1 is programmed for maximum accessibility for patients and visitors arriving by public transit or private vehicles. The organization of the floor, according to Sandor Csobaji, is directly related to outpatient activities and ancillary support services. The covered driveway, as well as architectural treatment of a "soft pedestrian edge," allows for direct access and the ability of the design to seem less institutional and sterile.

Contained in the program for Level 1 will be ambulatory care service, radiology service, nuclear medicine service, ambulatory care pharmacy, main information center, vertical circulation core, security desk, and an escalator leading from the ground floor lobby to the upper service lobby. The use of this split lobby concept was critically reviewed during schematic development by OC and DM+S. The split lobby resulted from a need to accommodate additional program areas that, according to the H08-9 Manual, should be adjacent to outpatient functions. Under prior VA programming schemes, easy access to such outpatient services as psychology, psychiatry, prosthetics, and day hospital would have been organized horizontally, along with the activities on Level 1. But: "Due to the choice of urban sites for the eight replacement hospitals, many of the preferred adjacencies for outpatient care could not be met in programming or design."

The use of an escalator system to connect the clearstoried lobby areas is also a radical approach to patient/visitor transport for the conventional acute care hospital. Sandor Csobaji recalls that the success of an escalator system in the VA Los Angeles station was the precedent used by RTKL in proposing a similar means of moving ambulatory patients.

The total gross area of Level 1 is approximately 99,031 gsf, with a net assignable space of 46,266 net square feet. In view of its reduced mass, the first level is "semipermeable" in terms of the vehicular drop-off area and the main entrance. From the east and south, the built form is subject to pedestrian circulation and activity, whereas the northern and western edges of the structure retain the mass and solidity of the total structure (see display).

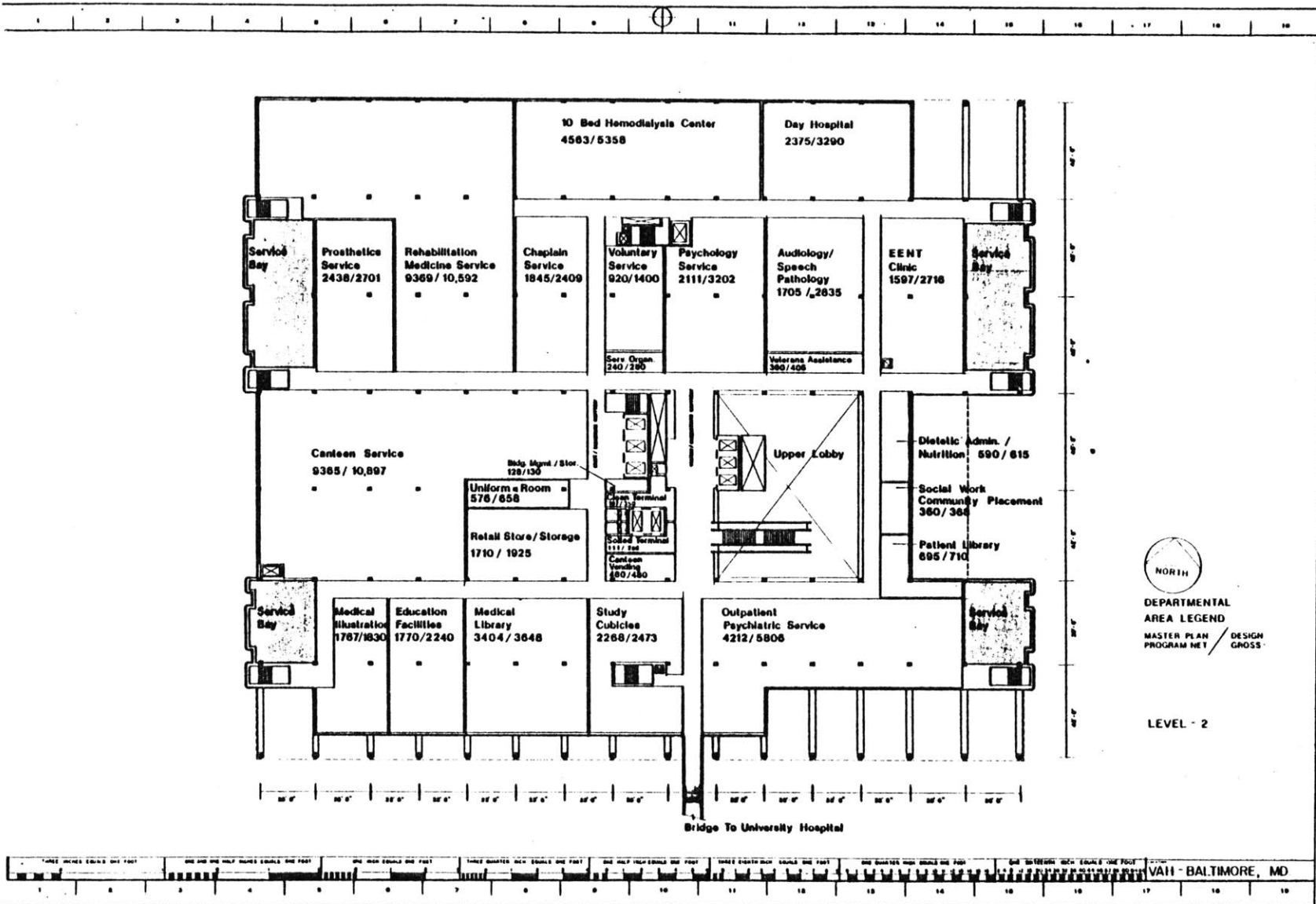


Level 2

The components of Level 2 of the VA facility are the remaining outpatient functions that could not be accommodated on Level 1. The extensive history of the VA in programming outpatient services via a horizontal organizational scheme presented RTKL with the unique opportunity to provide the VA with an innovative design alternative while maintaining preferred levels of operational efficiency. In a vertical relationship with Level 1, the second floor is an extension of ambulatory services for the veterans and their families. Programmed for this level are a variety of outpatient functions which include prosthetics service, rehabilitation medicine service, psychology service, audiology and speech pathology, hemodialysis center, EEN+T clinic, social work/community placement, canteen service, retail store, and outpatient psychiatric service. Connection to related outpatient services on Level 1 is made via two elevator cores or the escalator system in the main lobby area.

The second level will also be designed to allow for medical education areas, to be programmed in the southern edge of the facility in immediate proximity to the connecting bridge to U/M Hospital. The ability to link the new facility with U/M Hospital permits medical students and house staff to share facilities and increase contact and participation in clinical and research programs. The educational functions that will occur on Level 2 include medical library, study cubicles, medical illustration, and a multipurpose educational space. In review of the Level 2 schematic, DM+S, under the leadership of a new Medical Director, rejected the concept of a multipurpose classroom with a relatively loose program.

According to Mike Goode, the rejection is a specific example of how change in leadership in DM+S can impact on the design program areas. The current Medical Director is heavily concerned with the need for providing house staff with fixed office space rather than multipurpose classroom areas. In this case, the architects' response was to the direct request of the client, based on internal policy rather than on prescribed H08-9 criteria. The second level is the first floor of the facility that will utilize the entire 2.6 acres of the site. The total gross square footage of the second level would be 93,163, with a net assignable area of 55,156 net square feet (see display).



NORTH

DEPARTMENTAL
AREA LEGEND

MASTER PLAN / DESIGN
PROGRAM NET / GROSS

LEVEL - 2

Level 3

Inpatient areas as well as administrative and clinical research are programmed in the block plan designs proposed by RTKL. Also planned for this level are open courtyard areas in the center of the building.

Level 3 would maintain a 38-bed nursing unit, an 18-bed medical nursing unit, and a 20-bed respiratory care unit associated with the inpatient respiratory care program located on the same floor. The spatial arrangement for the medical nursing units and respiratory care unit would include a variety of room configurations for single and double occupancy and "mini wards" housing four patients.

Clinical research would maintain a net assignable space of 20,204 square feet and would provide laboratory bench areas and conference space for ongoing research. This area would be a shared VA facility with the U/M Medical School. Adjacent to the clinical research complex, a research administrative center would provide support services and offices for project directors and staff. This administrative center would be programmed as a net assignable space of 7,220 square feet.

The respiratory care program, including inhalation therapy services, would be programmed at between 4,077 and 5,200 net assignable square feet. The area would maintain stations for respiratory testing, tuberculosis and emphysema care, and support areas.

Adjacent to the respiratory care program would be medical administration for inpatient services. The program for this office complex would call for a net assignable area ranging from 7,412 to 8,348 square feet. Secretarial support areas would be called for, as well as an internal transport system for records filing and clerical work.

Level 3 would be programmed to provide 49,392 net assignable square feet. The gross total for the floor would be 89,316 gsf (see display).

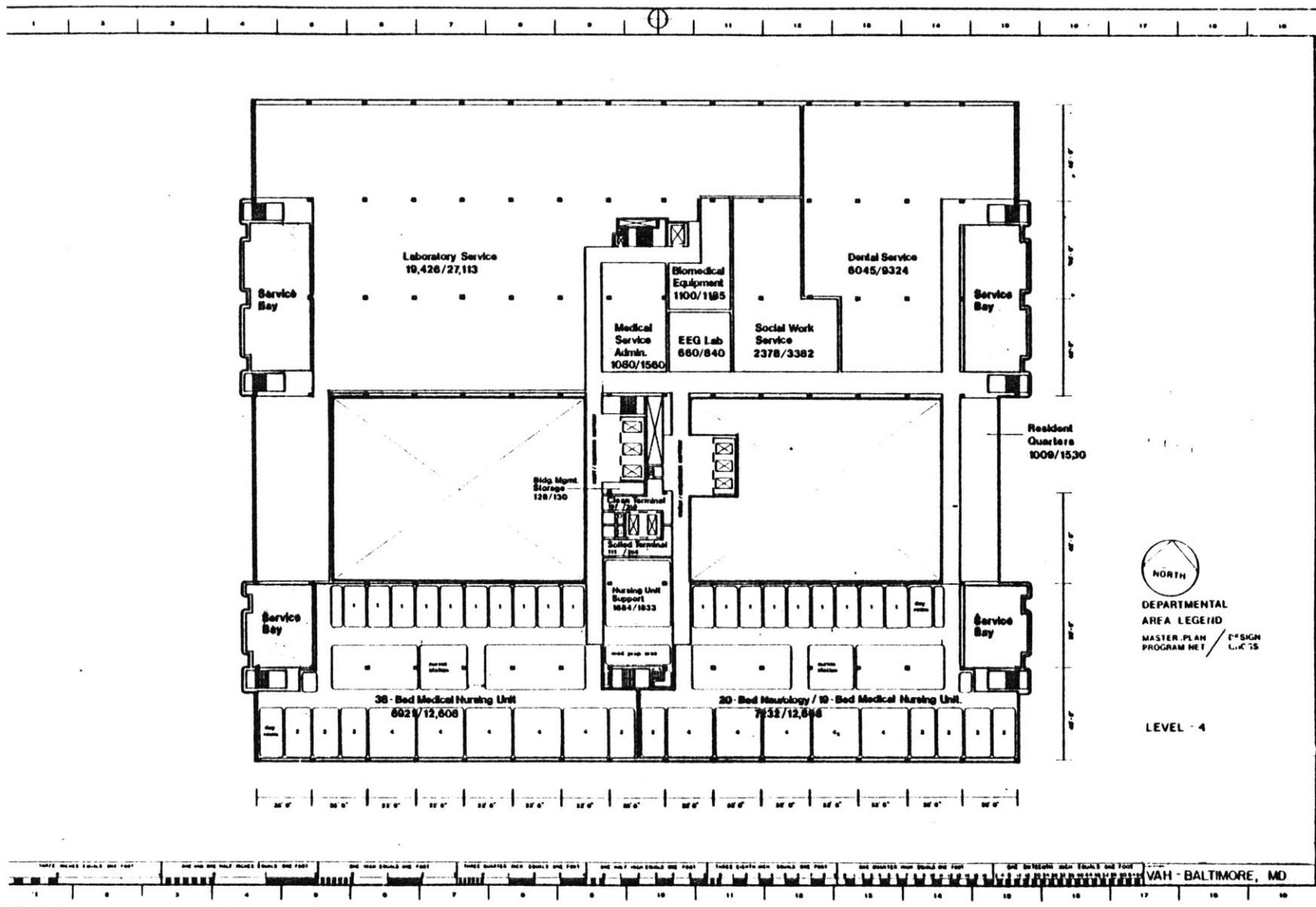
Level 4

Level 4 would house two medical nursing units of 38 beds and 19 beds, respectively. The floor would also maintain a 20-bed neurology nursing unit. The room configuration for the two types of nursing units would include "mini wards" of four beds and rooms for single and double occupancy. Adjacent to the bed areas would be a nursing unit support center of 1,884 square feet to provide ancillary service to the nursing stations on each wing. Resident quarters would also allow for the boarding of house staff on long rotations. This area would also be in close proximity to the nursing wing.

The northern portion of Level 4 would house the laboratory service for inpatient testing. The VA program calls for each facility to maintain its own laboratory service, although the majority of stations systemwide are operating at maximum output and are forced to subcontract large volumes of their workload. The schematic design proposes a net assignable spatial arrangement of from between 19,426 square feet to 26,113 square feet. Adjacent to the laboratory space would be a medical service administration station of 1,080 net assignable square feet. To complement the diagnostic and testing capabilities of the laboratory service, a biomedical equipment area would be adjacent to both the EEG lab and medical testing lab. Lab spaces would be 1,100 and 660 net assignable square feet, respectively.

Completing the combined ambulatory and inpatient services required by the H08-9 program would be an area designated for social work services of approximately 2,378 net assignable square feet. A dental clinic of 6,045 net assignable square feet would provide full dental services for veterans and allow for educational programs in clinical practice conducted through the U/M Dental School.

Level 4 would provide services in a total net assignable space of 48,171 square feet. The gross square footage for Level 4 would be 90,949 gross square feet (see display).



Level 5

Level 5 of the replacement facility would contain surgical services, coronary services, intensive care units, medical nursing units, surgical nursing units, and residents' quarters. Following the inpatient floor arrangement on levels 2 and 3, the nursing units would be located on the southern edge of the building. A patient/visitor corridor would connect the surgical area, coronary service, and ICUs with the nursing units. According to Mike Goode, the most difficult problems in review of the schematic design occurred when the Chief of Surgical Service for DM+S criticized the separation of the nursing units from surgical and coronary activities. "The debate over the space/function design proposed by RTKL was again a result of the limited square footage of the site and the traditional VA experience with closer
19
adjacencies due to horizontal organization."

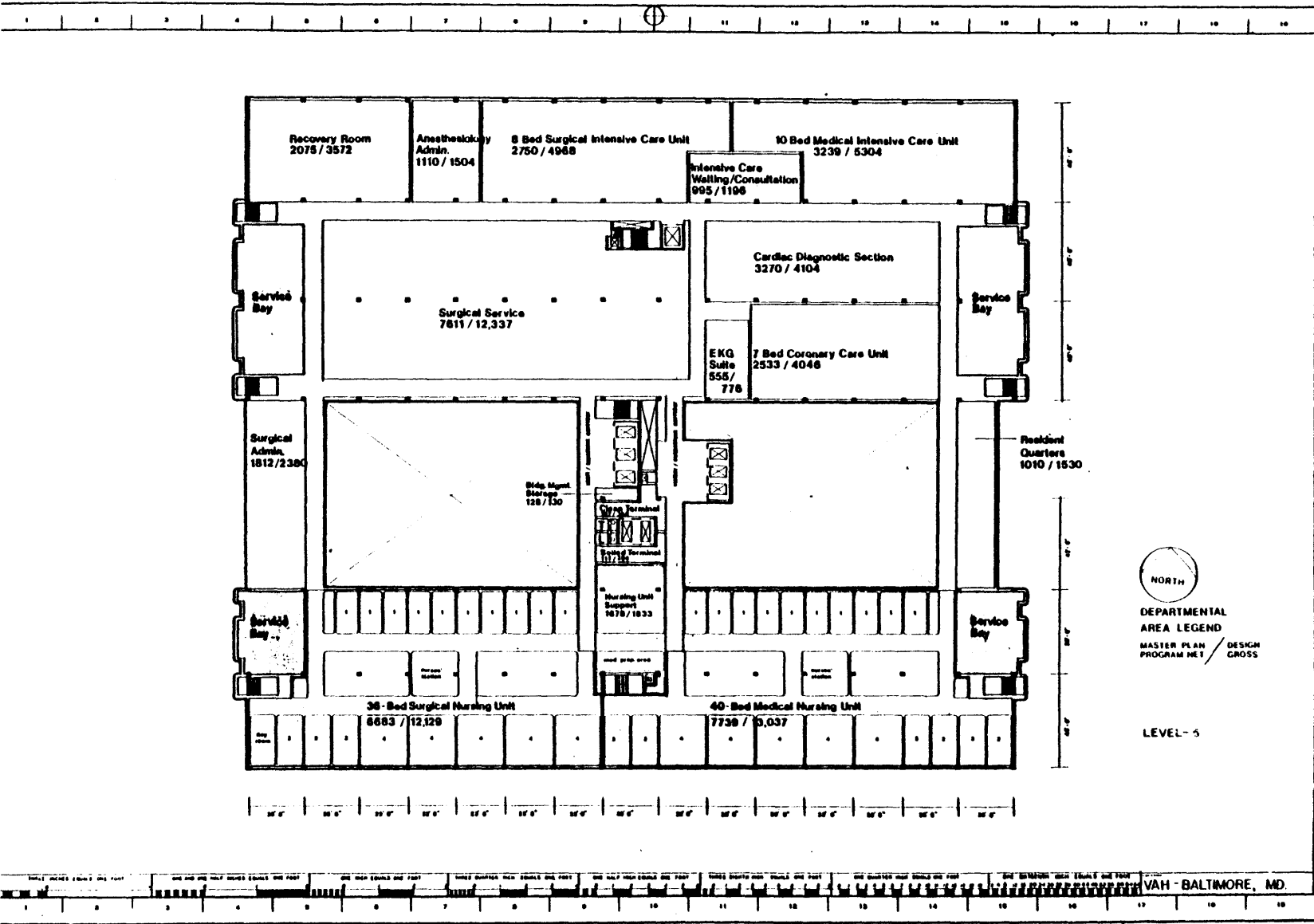
The discussion over Level 5 required extensive explanation to the Medical Service Chiefs of DM+S by the facilities staff of DM+S of the limited options available. DM+S program planners and facilities staff were essential, in the opinion of Sandor Csobaji, in negotiating design options with a conservative surgical staff within DM+S. "Innovations and the changing of set procedural patterns are always difficult to present to the more traditional of the medical services." After final discussion in November 1978, the original fifth floor schematic was approved by the DM+S Chief of Surgical Service.

The surgical suite, which would include prep areas and a special elevator system, was programmed in the range of 7,611 and 12,331 square feet. Adjacent to the surgical area would be a recovery room of 2,075 square feet and a prep area for anesthesiology of 1,110 net assignable square feet. Servicing this area would be a double-loaded corridor connecting the surgical suite with an eight-bed surgical intensive care unit, a ten-bed medical intensive care unit, and an intensive care waiting/consultation area.

The surgical ICU would contain 2,750 net square feet, and the medical ICU would provide 3,239 net square feet.

East of the surgical suite, the cardiac diagnostic section and seven-bed coronary care unit would be located adjacent to the EKG suite. As on Level 4, an area programmed for residents' quarters would be located in proximity to the nursing wing and the coronary care unit. The CCU would accommodate seven beds and would be programmed at an estimated 2,533 net assignable square feet. The cardiac diagnostic section would be approximately 3,270 square feet, with a gross design area of 4,104 gsf. The EKG suite and residents' quarters would be programmed at 555 nasf and 1,010 nasf, respectively. Completing the surgical service on Level 5 would be a designated administrative area of 1,812 net assignable square feet, which would provide clerical support space for the house staff.

The fifth level of the facility would occupy a net assignable area of 48,396 square feet. The total gross area would be 90,849 gsf (see display).



NORTH
 DEPARTMENTAL
 AREA LEGEND
 MASTER PLAN PROGRAM NET / DESIGN CROSS

LEVEL-5

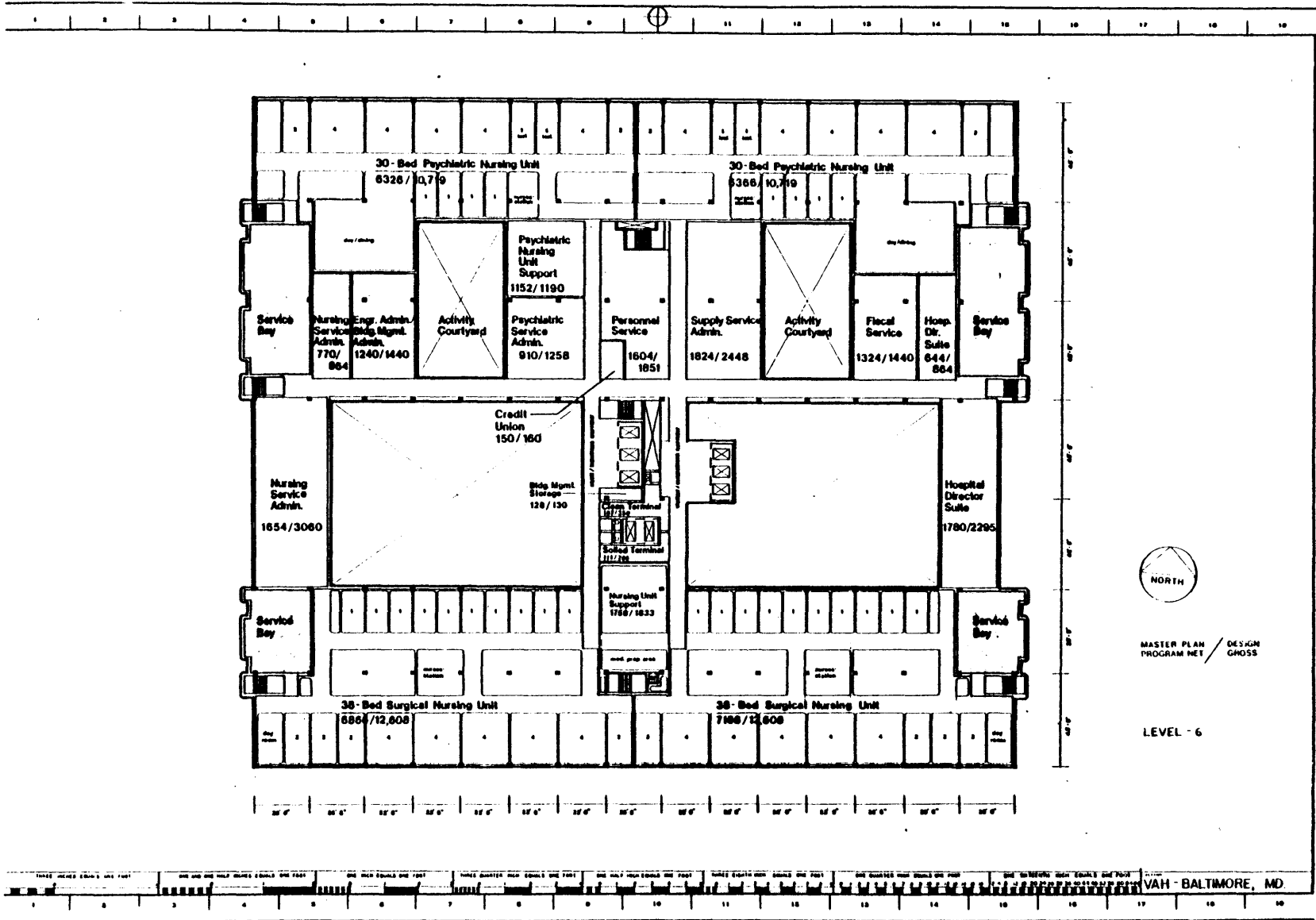
Level 6

The sixth level of the replacement facility would house the inpatient psychiatric service, hospital administration areas, the directors' suite, personnel services, nursing service administration, and two 38-bed surgical nursing units. The two psychiatric nursing units adjacent to the psychiatric nursing unit support areas would both be programmed to accommodate 30 beds for 1-, 2-, and 4-person occupancy. The support area would be assigned 1,152 gsf. The psychiatric service would be supported by an administrative area of 910 net assignable square feet.

Hospital administration areas would include personnel service, programmed at 1,604 nasf; an administrative support service area of 1,824 nasf; fiscal services planned for 1,324 nasf; and a combined hospital directors' suite of 2,444 nasf. Completing administrative functions on the floor would be a nursing service area of 1,654 nasf.

The surgical nursing wing would contain two 38-bed units of 6,866 and 7,186 nasf, respectively. The room configurations for both units would be single and double occupancy suites with "mini wards" of four beds. In support of the nursing stations would be a service area of 1,759 nasf adjacent to the bulk linen service area.

The sixth level of the replacement facility would occupy a net assignable square footage of 51,991 nasf. The total gross area for Level 6 would be 84,739 gsf, with the additional program area of two activity courtyards for the psychiatric service of 1,920 gsf (see display).



MASTER PLAN PROGRAM NET DESIGN GROSS

LEVEL - 6

VAH - BALTIMORE, MD.

*NOTE: Proposals for the development of an Atrium space would call
for a reassessment of the sixth floor scheme.

CHAPTER XII

URBAN DESIGN CONSIDERATIONS

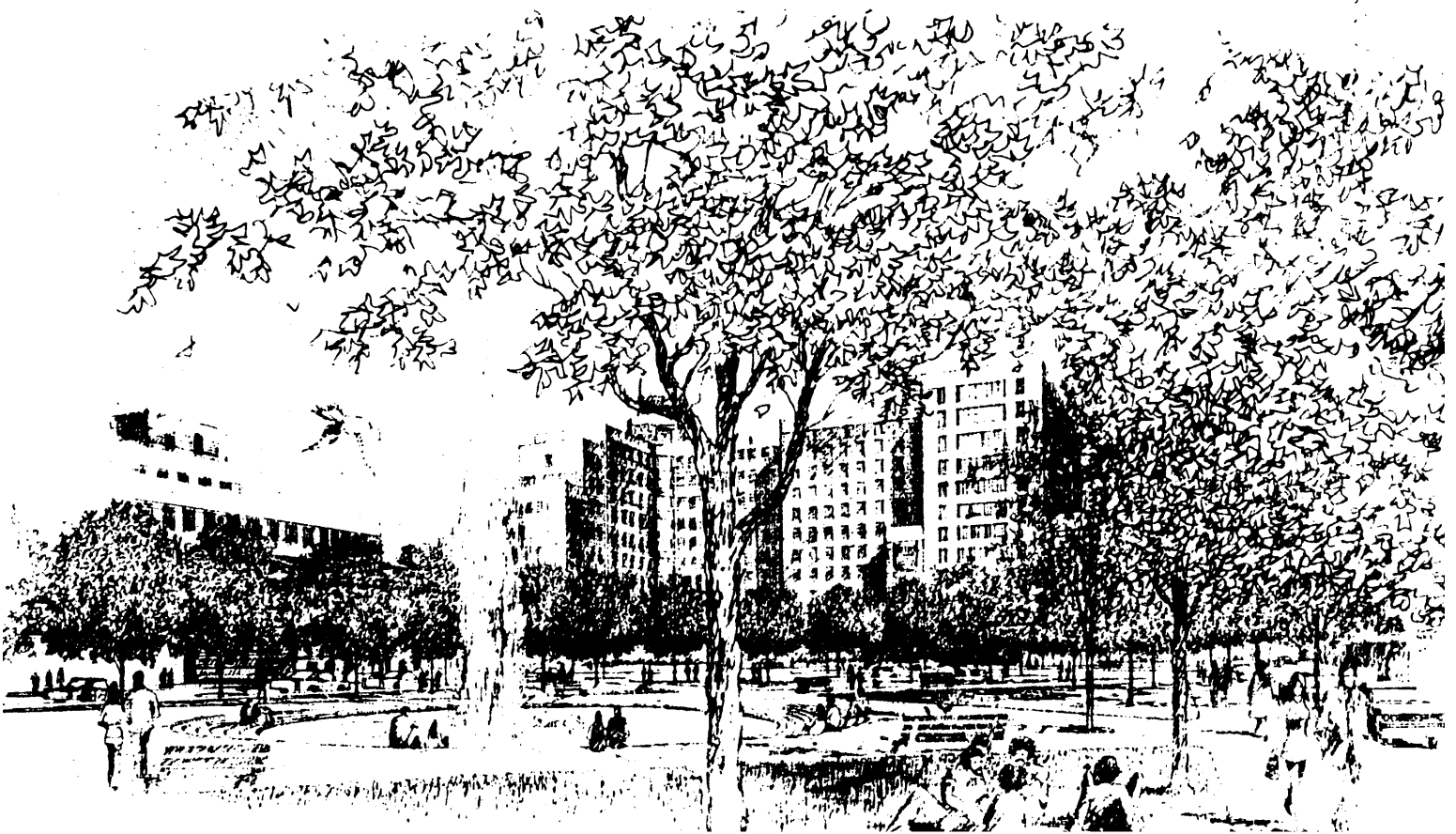
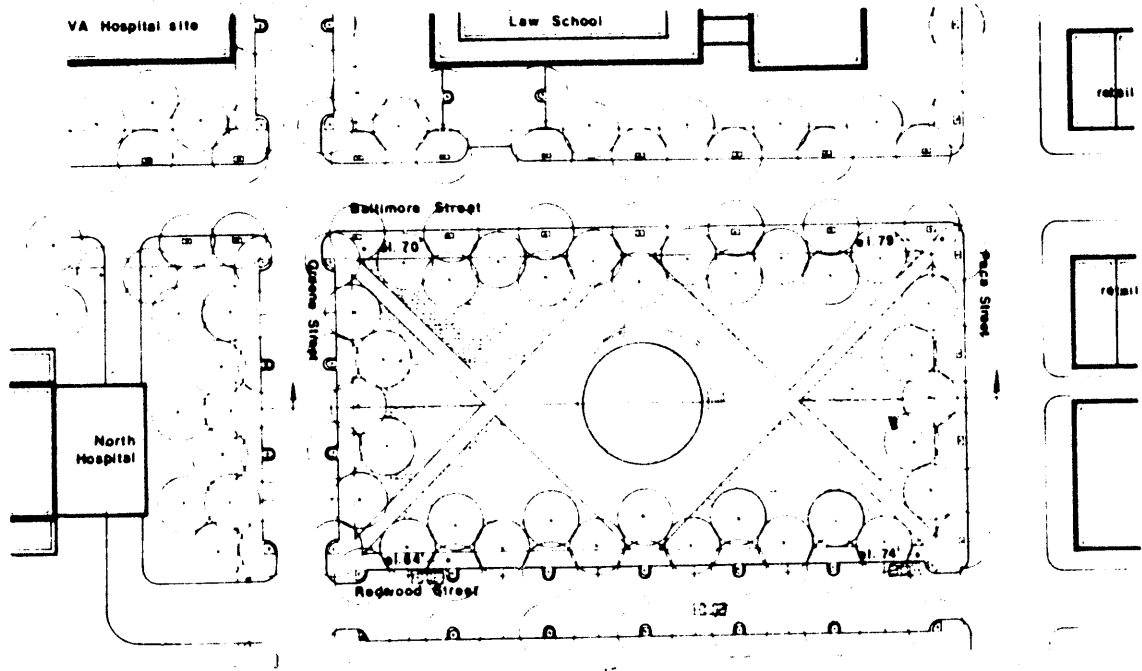
As part of the U/M campus, the VA replacement facility was considered an integral part of the master plan for Baltimore's MetroCenter. Besides its economic impact on Charles Center and its important role in the planning of City Boulevard and adjacent metro stations, the VA facility was viewed by Anand Bhandari, City of Baltimore Office of Urban Design, as a major physical element in the chaotic environment of the U/M Baltimore campus. The design of the facility, because of its proposed location and extensive program, called for a direct response to the objectives established by Harry Weese & Associates' urban design report for the U/M campus and the extensive pedestrian circulation through this professional campus. A major concern of both U/M and the VA was to respond in a sensitive manner to the urban fabric of the neighboring areas of Pascault Row, Little Lithuania, Ridgeley's Delight, and the Koester's Bakery property. In the opinion of Sandor Csobaji, RTKL, the urban image and architectural treatment of the hospital was an essential part of the complex task of

space/function programming. For the VA as well as RTKL, the challenge of combining form and function within the constraints of a tight urban site provided a major learning experience.

In developing a design process for the treatment of facades, massing, building height, and the pedestrian level, RTKL was fortunate to have prior planning knowledge of the built environment surrounding the VA replacement facility. The VA Baltimore Master Plan provided in each of its planning and design alternatives an in-depth analysis of the environmental context of each site proposed for development. Although currently the VA development process requires an environmental impact statement to be conducted by an independent consultant, to assist the architect in evaluating the impact of design on the built and social environment, RTKL was well informed as to surrounding conditions of the U/M professional campus.

Direction toward means of correcting the planning and design errors that had developed on the U/M campus over the years was provided by two separate design reports conducted by the Joint City of Baltimore and University Planning Coordination Committee. In February 1975, a University master plan was prepared by Richardson, Severns, Scheeler, Green Associates. The report was intended to serve as a guide for detailed site planning, urban design, and architectural decisions for individual building projects, and to provide the basic principles by which each new structure could be related to the total environment. In 1976, the urban design firm of Harry Weese & Associates, under Project Director Robert Karn, proposed an urban design plan for Phase II of U/M expansion. The urban design plan set forth the key objectives pertaining to the 1975-1985 period of U/M development; outlined basic patterns of use, height, and coverage controls for each site; described the overall circulation, parking, and service requirements needed by 1985; and established a process for cooperative design reviews.

The Weese plan reflected a number of major urban design concepts developed during the environmental planning process. These included the designation of a major civic open space at the heart of the campus, which will serve the needed function of "campus green." This space will occupy the site of the present visitors' parking lot. It will consist of grass and trees, following the natural contours of the site, with a large pool as the central element of the design. It will be a space where students can rest and congregate between classes or labs, and where they can meet and exchange ideas. It will also provide a setting for concerts and other appropriate entertainment of a formal or informal nature (see display). The visual relationship of building entrances and facades on the four sides of this space will be unobstructed by architectural elements. The green will serve as a civic focal point for the U/M Hospital, the VA facility, and the campus as a whole.



To enhance the visual order of the U/M Baltimore campus, which has been described by the architectural critic of The Baltimore Sun as an "architectural wasteland,"¹ the Weese Plan attempted to establish building requirements for each U/M development area. The VA replacement hospital, which was designated for Development Area 4, was to meet the following criteria in terms of height, site coverage, setbacks, access, easements, and special environmental considerations:

Height: Substantial building mass to a height of approximate elevation 160' shall be developed along the south, east, and north property lines. If the building program for this development area requires massing greater than can be achieved by maintaining this height, additional height above elevation 160' will be permitted if the higher portion is set back a distance of approximately 35', or one structural bay, whichever is greater.

Coverage: 90 percent.

Setbacks: The south building line shall be located 35' north of the north right-of-way line of Baltimore Street. (The west property line shall be defined as a line 15' east of the east building line of the existing School of Dentistry building.)

Access: Vehicular access shall be from Fayette and Green streets only. Service access may be from the former right-of-way of Arch Street.

Easements: A utility easement will be maintained in the Arch Street right-of-way. A 14-1/2' minimum clearance from grade to the underside of any structure above shall be maintained within this easement.

Special Considerations: The planning/design activities of master-planning for the U/M campus have taken the position that the City of Baltimore and the Baltimore campus are mutually dependent. An arcade 15' in width may be developed at grade level along the Baltimore and Green streets building lines. This arcade shall extend in height to at least the underside of the construction of the second story.

To enhance visual order through the principle of building out to existing building lines along most of the streets within the campus area, and by establishing reasonably uniform cornice heights.

Generally, the block-wide bands of redevelopment running east and west between Baltimore and Lombard streets, and north and south between Penn and Greene streets, shall be considered to have the maximum cornice height, in harmony with the large massing of the existing U/M Hospital complex and proposed VA hospital.

RTKL DESIGN RESPONSE

The architectural response to the design guidelines established by the Weese Plan for the U/M campus (and specifically Development Area 4) provided RTKL with a range of criteria for schematic design. The essential component for development of this urban health facility related not only to the architectural treatment and programming of the 15' arcade, but also to the relationship of built form to key landmarks, the campus green, and the materials used in adjacent structures. The configuration and mass of the building were to provide the VA facility with a definable image that would, it was hoped, enhance the U/M medical complex. In view of the size of the facility and the cost of operating a 400-bed facility, throughout the design process the architect was encouraged by VACO to seek innovative means for energy conversion and management. The VA building system was also instrumental in RTKL's choice of materials for cladding the structure and in reducing the projected time for construction.

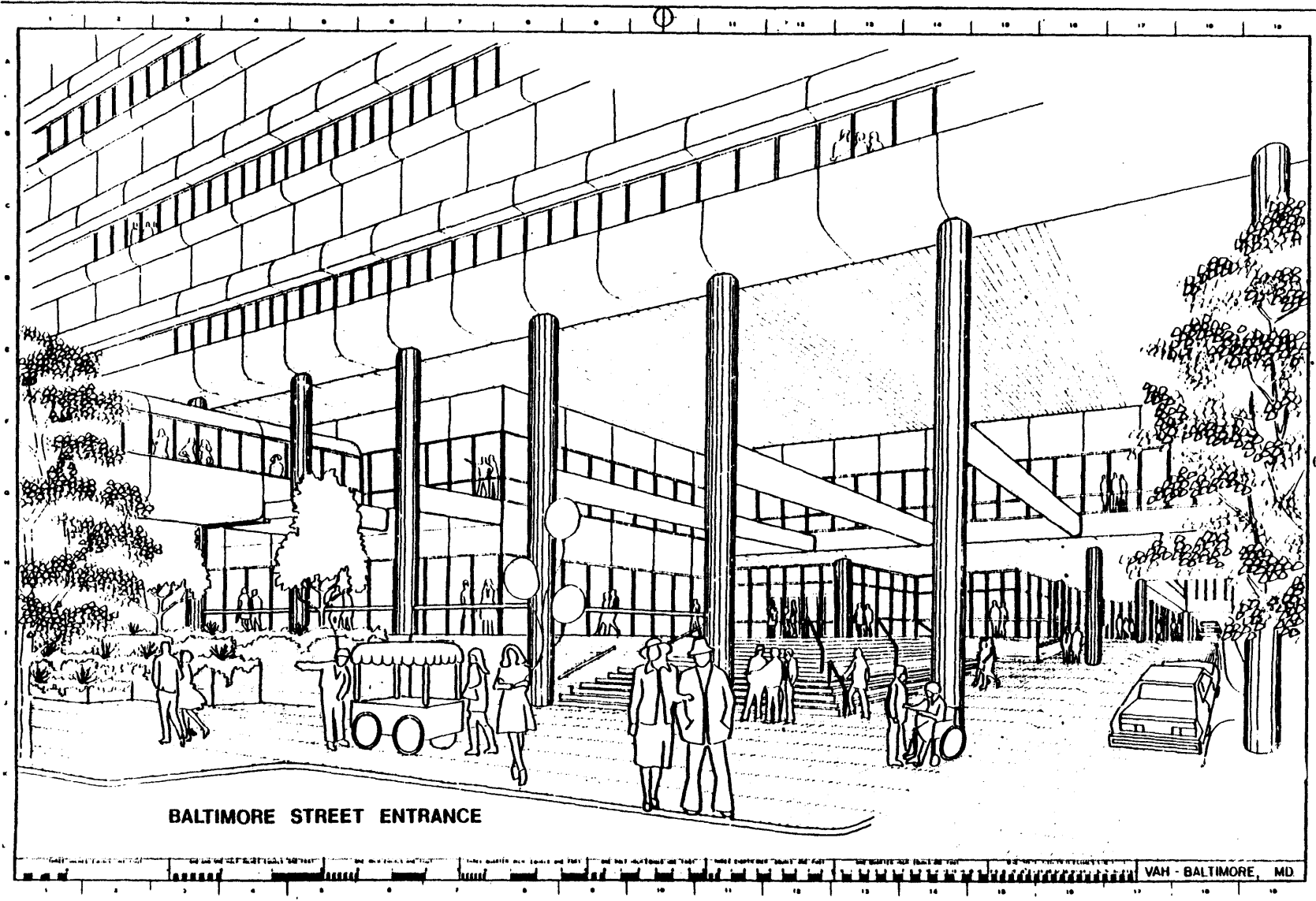
Throughout the development of the eight VA replacement hospitals, the OC/VACO has established an in-house policy regarding the environmental qualities of each facility. Schematic designs are currently reviewed by an Environmental Quality Committee that is concerned with the relationship of the facility to the surrounding community and to the existing built structures adjacent to the hospital.

In an attempt to enhance the environmental quality of the U/M Baltimore professional campus, RTKL proposed a massing that would relate directly to the cruciform configuration of the U/M Hospital. The image presented was that of a "high tech box" linked to an upper level of the U/M Hospital. The chaotic use of masonry throughout the U/M campus led RTKL to choose a metal skin that would establish a sense of identity amidst the pastiche of architectural styles and forms throughout the campus. The metal skin was described by Sandor Csobaji as a nonreflective anodized metal which would have the same visual impact as the "pewter finish of the Federal Reserve Building in Boston." The choice of a metal cladding was also strongly influenced by the requirements of the VA building system which do not allow for the use of a "pre-cast or masonry system."

The use of solar pane would improve energy conservation and reduce excessive heat loss. At the time of this case study, RTKL was still in discussion with manufacturers regarding types of cladding and glazing, and had secured OC/VACO approval for an extensive evaluation of available materials before final approval of schematic design.

The treatment of the pedestrian level is, in the opinion of the author, an excellent example of a passive link connecting built form and open space. The "arcade," as it is referred to by RTKL, allows the mass of the structure to be maintained on the upper levels. The building setback prescribed in the Weese Plan gave RTKL the opportunity to create an environment which enhanced pedestrian circulation and access for patients and visitors into the main entrance.

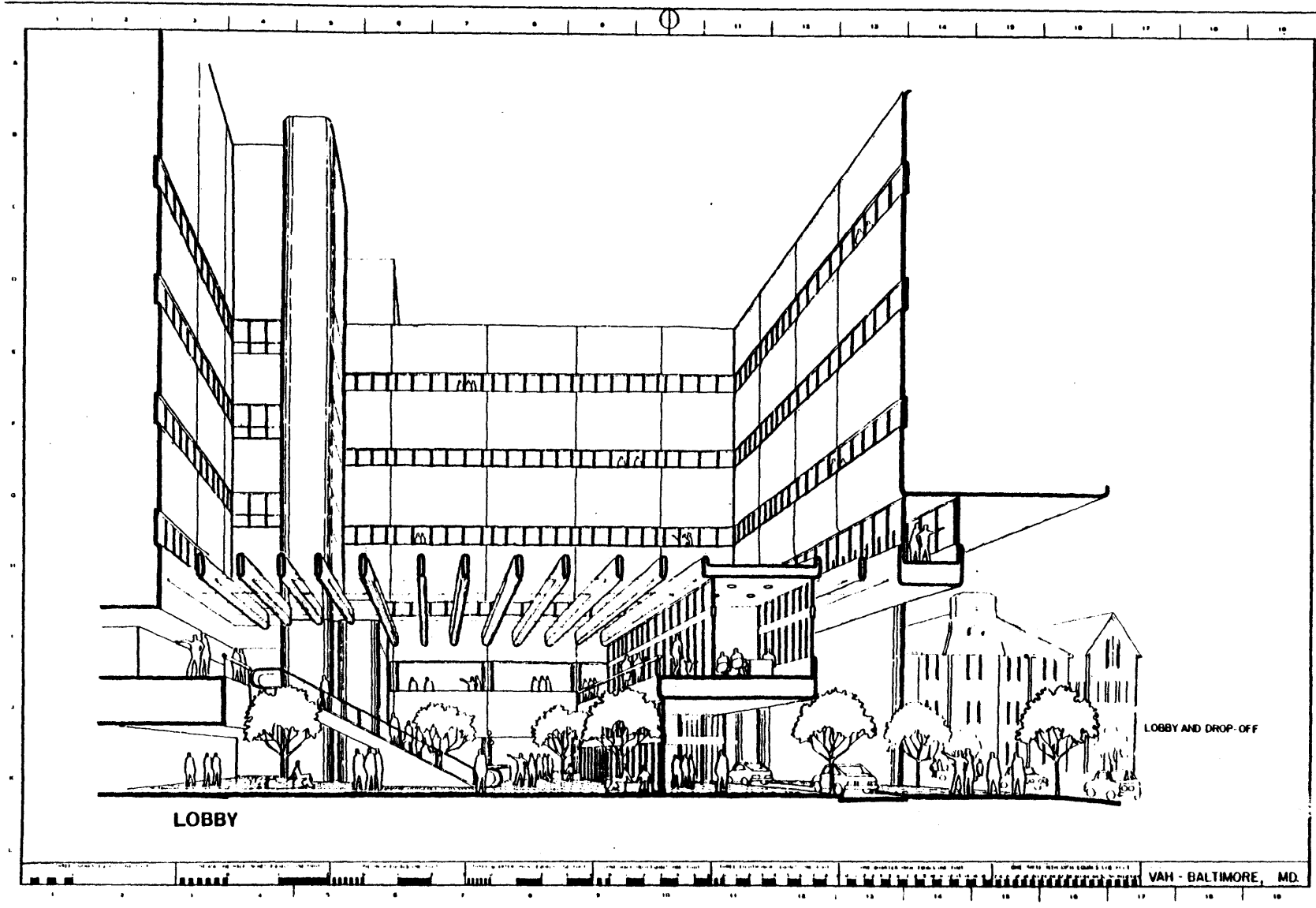
The design of the southeast edge of the facility is specifically intended to allow the open space of the campus green to penetrate into the Baltimore Street entrance area, linking open spaces and movement of pedestrians. Programming of this recessed corner entrance and the arcade will be particularly sensitive to microclimate and activities of users of the area. Paving patterns, street furniture, and planters will heighten the pedestrian experience but will avoid creating a separate zone between structure and passerby (see display).



BALTIMORE STREET ENTRANCE

VAH - BALTIMORE, MD

Although the schematic presentation of elevations does not illustrate the specific concern of the architect for neighboring structures, RTKL was in fact particularly concerned with the relation of a massive facility to small, more sensitive structures. The treatment of the Greene Street edge and the definition and articulation of the service bays of the VA building system allow for smaller formal aggregates to occur. The reduction of building mass on the eastern edge of the facility provides the scale and detail necessary to relate to Westminster Church and its courtyard. Sandor Csobaji, commenting on the process of designing the pedestrian arcade and other urban design aspects, felt that the original direction of the Weese Plan was essential in establishing precedents for the user consideration of the pedestrian level. Throughout the schematic stage, frequent reviews and "horizontal input" from the project officer and the staff of the Office of Facilities/DM+S allowed for early presentation of criticism and questions, rather than at final phases of review. The example set by RTKL in dealing with extensive medical programming and the demands of a highly sensitive urban context will, in the author's opinion, bring the state of the art of high technology medical facility design to the U/M medical complex.



LOBBY

LOBBY AND DROP-OFF

VAH - BALTIMORE, MD.

*NOTE: Proposals for the development of an Atrium space would call
for a reassessment of the sixth floor scheme.

CHAPTER XIII
ENVIRONMENTAL DESIGN REVIEW

In the last three years the VA development process has encouraged contracted A/E firms to seek review and comment from state and local agencies with regard to program and physical design. Although the A-95 process is required as part of the OMB budget cycle, new and more participatory review activities have occurred in the development of a variety of projects. Throughout the schematic design process for the VA Baltimore replacement facility, each program area was reviewed and approved by the Heads of Service within DM+S. "In-house design reviews" for architectural quality or "good looks," as it is referred to in the OC/VACO, occurred after the initial submission of block plans and the evaluation of building elevations in terms of environmental impact on the surrounding community.

At the time of the completion of this case study, the VA and RTKL had completed a successful presentation of block plans, neighborhood assessment, and a 1:8 architectural model to a joint city/state design review committee.

According to Mike Goode, OC/VACO, the review is impressive in terms of the strong support for the project expressed by both city and state officials.

The VA was concerned about the choice of a metal cladding for the structure by RTKL, on the grounds that the finish of the skin might prove too reflective for the environment. After consultation with various manufacturers, RTKL provided the joint city/state review with a proposed cladding that would have a brushed metal finish and would not be highly reflective. In presenting the schematic design for the VA facility to the joint planning group, the VACO and District 7 emphasized the strong direction which the architect had taken from the U/M Master Plan and the Weese Urban Plan for a responsive pedestrian level and a building form that would complement surrounding structures.

Phoebe Anderson, architectural critic for The Baltimore Sun, was particularly pleased with the exciting image presented by the new facility in the midst of a relatively "somber collection of brick and mortar institutions." ² The architectural quality of the VA Baltimore replacement facility will prove to be a valuable example of urban design and complex medical facility design.

States Mike Goode, ". . . it takes us [the VA] one step closer to the type of building we feel states the beginning of a new era for the planning and design of the VA hospital."³

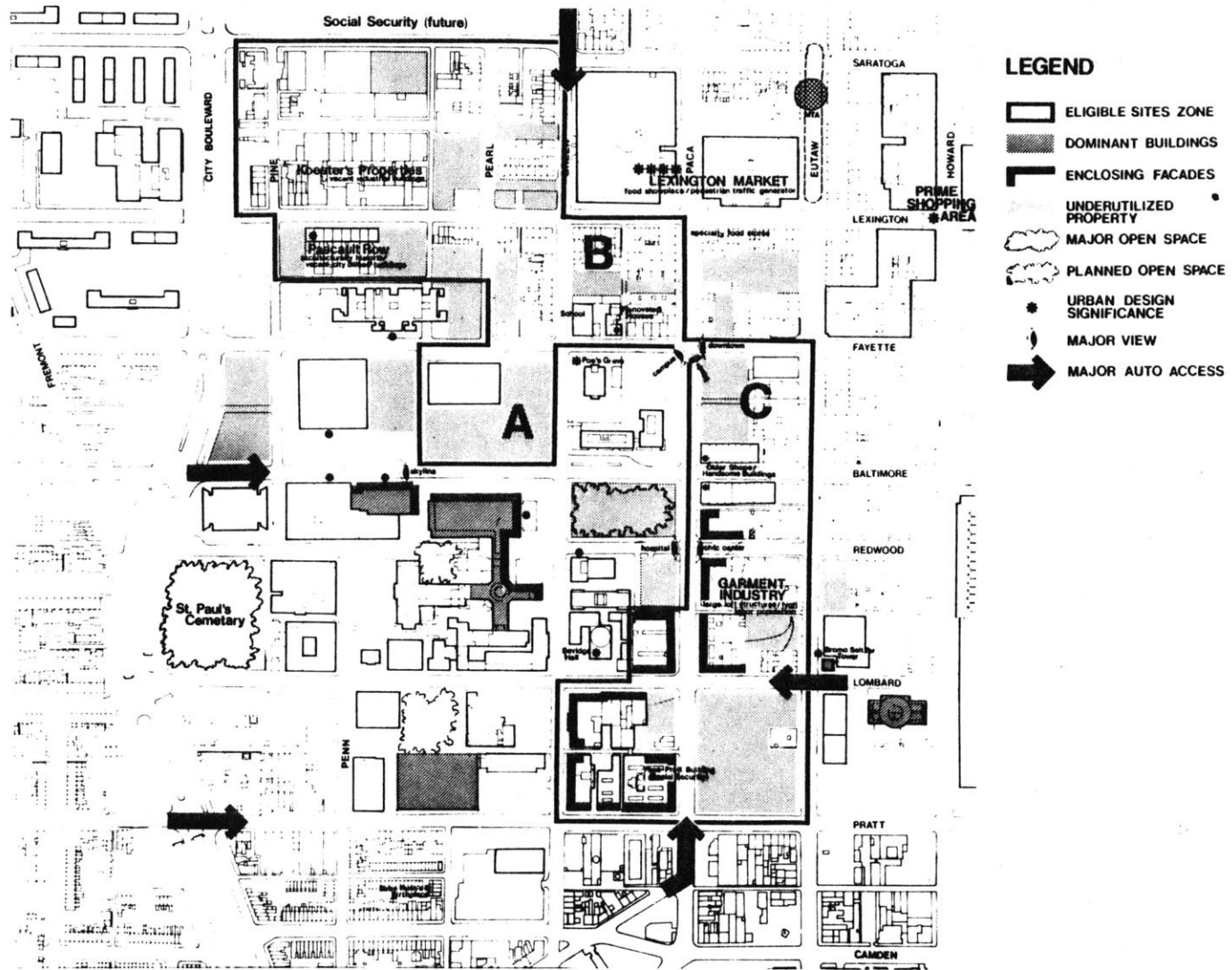
The urban design qualities of the VA Baltimore hospital were assessed in detail by the City of Baltimore Office of Urban Design for the project's impact on MetroCenter and the U/M campus. Anand Bhandari, City of Baltimore Office of Urban Design, describes the schematic proposal of RTKL as "innovative and responsive to a variety of user needs."⁴ Mr. Bhandari was a strong supporter of the VA replacement facility as a means of reinforcing Charles Center development and the adjacent communities. Specific details of the design illustrate the ability of the urban health facility to enhance the existing built form and to interact with long-range development plans for the campus. Although Mr. Bhandari questions the ultimate ability of the architect to successfully program the pedestrian level for user activities during ten months of the year, he feels that the treatment of the Baltimore Street corner is successful in "softening a hard edge"⁵ and allows for visual linkage to the proposed campus green.⁵ He believes, however, that the 15' setback on the ground level of Baltimore Street

is a dimension that limits programming possibilities and could act as a
"separate zone" is not designed with specific use areas in mind. A design
alternative for the southern and northern edges of the building would have been
to enclose the 15' building setback to "formally create an arcade." The
control of microclimate within the arcade would allow for a variety of activities
and would extend the participation of the pedestrian within the building zone.
Mr. Bhandari praised RTKL for a sensitive articulation of the building mass on
Greene Street, the location of Westminster Church and its historic courtyard,
but is anxious to evaluate the nonreflective cladding proposed for the facility.
Although presentation of schematic design to the U/M medical faculty and admin-
istration took place after the completion of research for this case study,
Dr. Murray Koppermann, Assistant to the Dean for Development at U/M Medical
School, has been actively involved with District 7 and VACO on the replacement
project for seven years. Dr. Koppermann was aware of the quality of schematic
designs presented by RTKL, and in his opinion they satisfy the medical adminis-
tration's interest in a highly technical and efficient facility with architectural
details that heighten the daily experience of "patient, staff, and student."

With the completion of local and state reviews, and with presentation of the current design scheme to the U/M medical faculty in late February, Sandor Csobaji, RTKL, summarized the VA hospital development process as difficult yet challenging work with a client that maintains "an enormous repository of hospital planning and programming knowledge, and is currently interested in packaging these services in good architecture." For Mr. Csobaji and RTKL, the conceptual and schematic design development has been a growth process and an education in systems hospital design. With the support and reinforcement of successful design reviews, and with final VA approval expected by June 1979, Mr. Csobaji evaluates the VA Baltimore replacement hospital as state-of-the-art contemporary health facility development. In his opinion, the VA Baltimore hospital has surpassed current levels of design effectiveness through successful utilization of the VA building system, advanced programming for ambulatory and inpatient services, efficient organization of functional areas with their particular medical equipment requirements, emphasis on the architectonic quality of a high-tech box of a specific mass and configuration, and extensive efforts on the part of the architect to create a built

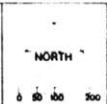
form responsive to the urban and environmental considerations surrounding the development of 1 million gross square feet.

The interaction of client and architect/planner is often an experience in tenuous decision making, requiring complete trust in the development process. The planning, programming, and design of the VA Baltimore replacement facility not only represents the successful execution of this comprehensive process, but also reflects the efforts of two concerned professionals, Mike Goode and Sandor Csobaji, in delivering a high-tech design, knowing it will be built with limited problems in construction, and hoping that their combined experience can be transferred to similar multiphase development. (see display)



VETERANS ADMINISTRATION HOSPITALS
 BALTIMORE, MARYLAND AREA MASTER PLAN
 (PROJECT 911-001)

NEIGHBORHOOD CONTEXT



CHAPTER XIV
ASSESSMENT OF THE VA
HOSPITAL DEVELOPMENT PROCESS

An assessment of the VA hospital development process must concentrate on two main issues. The first is interaction of key elements within the VA process itself. The second is interaction of the VA in area-wide health planning and urban development, and what this suggests about the future role of the VA development process. It is the intention of this assessment to highlight those areas which continue to represent the most critical aspects of the VA development process, and to outline specific concerns for future research and investigation.

Questions posed in the introduction to this report center on the operational qualities of the VA hospital development process. Initial concern was expressed as to the ability of that process to be comprehensive and innovative in the planning and design of health facilities within the unique scope and mission of the Veterans Administration health system.

The VA process is a multiphase planning, programming, and design activity which establishes development guidelines for large-scale teaching hospitals. Because long-range plans will generate both medical science and space/functional requirements for facility design, the VA hospital development process is comprehensive in its approach to problem solving.

The bureaucratic structure of VACO in organizing planning and programming activities in DM+S, allows demographic projections, service need evaluations, updating of space/function criteria, comparative system-wide inventories of VA resources, and initial estimation of construction costs to be coordinated through the comprehensive efforts of one department. An in-depth analysis by DM+S of the long-range plan for a PSA and the medical and spatial programs needed for current and future health services helps coordinate the hospital development process and calls for a unique client-professional relationship with the OC/VACO.

As technical consultant to DM+S, OC works with A/E firms in the evolution of a design response which relates directly to planning and program criteria. The comprehensive activities of the VA provide unique benefits in

developing a wide range of services for specific veteran populations, establishing spatial guidelines for the efficient organization of highly specialized program areas, reviewing preliminary and intermediate steps in the evolution of a viable design response, and limiting cost overruns through a series of evaluations based on the formulation of a construction budget. These interrelated qualities reinforce the comprehensive nature of the VA hospital development process and establish a framework in which decision making can be performed in a logical and sequential manner.

The need for a hospital development process which structures its activities on the guidelines established in previous decisions has called for a constant refinement of the methodologies and techniques which comprise the key components of the process. The VACO has been successful in terms of research and development of new innovations which have reinforced the comprehensive qualities of the planning, programming, and design of VA health facilities.

The VA has restructured its basic decision-making organization to allow for regionalization of the system and a planning process which requires

long-range development plans from both health care institutions and their respective medical districts. The ability of the VA to further improve its planning capabilities vis-a-vis bed projections and estimation of patient utilization rates depends on the ability of DM+S to adopt any or all of the suggested improvements assembled in the GAO bed formula. The VA must improve its present means of projecting needs by employing an innovative approach to the reclassification of beds and prioritization of projects for replacement, renovation, or modernization. In the future, the SFDI system will be utilized to a greater degree, not only in the review of a VA construction program, but also in the formulation of an overall DM+S management information system which will compare operational costs, energy consumption, and staffing patterns (estimated at place of assignment, not pay point).*

*Note: According to Tom Weaver, DM+S/VACO, staffing patterns are generally established on the basis of the number of staff paid by a specific department. Although staff may be temporarily reassigned, the total space allocation remains at the pay point or home department. Therefore, the number of staff in the actual place of assignment will be used to determine spatial needs.

In summary, the effectiveness of the DM+S construction planning process is dependent upon the quality and timeliness of information concerning facility deficiencies, the potential impact of planned projects, the determination of priority for correction, and funding expectations. According to Project Director Tom Weaver, DM+S/VACO, "This system has already demonstrated its usefulness as a management information and planning tool in the development of the fiscal year 1979 DM+S construction budget submission."¹

Space/functional programming, as part of the VA hospital development process, serves a variety of functions related to long-range planning for needed services and resources. The VA in recent years has gone to considerable lengths to reorganize the H08-9 Program Manual. Recent innovations have focused on improved format in order to accurately describe current, approved space planning and facility information in the form of generic standards. The standards serve as a programming tool that can be quickly and readily applied to the conceptual and schematic phases of design. The programming

criteria in the current H08-9 Manual represent innovations which are utilized:

- primarily as the basis for spatial organization and design;
- as a fiscal or budget tool for VA building programs;
- as a management tool regarding energy usage, maintenance, etc.;
- as a repository of operating concepts and current VA policy on
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functional relationships desired in VA facilities.

The H08-9 Manual requires that data such as manpower discussions, operational concepts, application of criteria, and fiscal information be organized and presented as a single body of information for each of the major services in VA facilities. As a programming/design tool, the H08-9 Manual requires that such data as area allocations, functional and service affiliations, and critical design parameters be available to architects for the conceptual and schematic phases of development.

The current problems with the use of the H08-9 Manual reflect the constant alterations because of changes in the state-of-the-art and VA policy regarding medical procedures. DM+S has only recently increased the planning

staff assigned to the operational maintenance of the H08-9 Manual. Because this assignment requires not only planning expertise but also an understanding of spatial organization, the quality of programmers hired by VACO is not always the most technical. As a result of staffing shortages and difficulties in hiring technically qualified personnel, the ability of the VA to maintain the H08-9 Manual at levels of peak efficiency has been difficult.

With future emphasis placed on modernization and conversion of many existing facilities, the VA will be required to revamp many of its space/function criteria and develop guidelines for new program areas. In spite of its current operational shortcomings, the H08-9 Manual is still the most innovative space programming tool available for health facility development. In view of the fact that it is a repository of the program experience of 172 VA health facilities, it is comprehensive both in content and in its ability to establish criteria for design. According to Bill Walker, OC/VACO, the future task before DM+S is to increase the effectiveness of the H08-9 Manual through constant and systematic revision of programming criteria.

The programming criteria in the H08-9 Manual are innovative in their ability to relate directly to the long-range objectives established in the planning phase of development. Through an analysis of the type and amount of space necessary to provide needed services or required beds, the architect is able to propose conceptual schemes based on preferred adjacencies and clustering of ancillary services. The H08-9 Manual is successful in allowing alternative conceptual designs to be proposed based on their ability to provide more innovative arrangements for spatial organization and more efficient medical procedure areas. The conceptual design process is highly successful in providing DM+S with a range of options that can be explored in terms of cost feasibility, the ability to meet VA criteria for internal flexibility, and the need for systems adaptability.

The schematic design process refines the optimal conceptual scheme and introduces block plans to represent the square footage required by each program area. The building configuration is finalized in the schematic phase of development, as is the arrangement of vertical and horizontal circulation,

mechanical systems areas, and preliminary section and elevation drawings for the building.

Although the multiphase design concepts of the VA process are innovative and beneficial for efficient hospital development, major constraints in the refinement of the schematic design process are experienced in the extensive internal review for each program area by the respective Chiefs of Service of DM+S. This aspect of the process is usually a major obstacle for the client/architect relationship since each program director will comment on the viability of the block plans according to established operational procedures, personal preference for specific spatial arrangements, or requests for increased square footage from the administration of the affiliated medical schools. The architect is often frustrated by this phase of development and must rely on the staff of the DM+S Office of Facilities to act in the capacity of mediator and negotiator for initial design concepts and current revisions. According to Sandor Csobaji, RTKL, the schematic phase of design requires the most internal and external design reviews and the most time with officials of DM+S. In his opinion, the ability to air problems early in the schematic

design phase leads to a final design that will not be challenged by the Office of
5
the Medical Director, DM+S.

Currently, in an effort to upgrade the quality of VA facilities, the OC is advocating environmental planning and design of VA hospitals located in urban areas. For this reason, the treatment of those spaces with the maximum amount of public contact will be designed to enhance the image and experiences associated with the built form. Greater emphasis is being placed by OC on the coordination of physical design of VA facilities and overall long-range development plans for a specific area. To reach a more sound conclusion as to the viability of schematic design, the current VA policy establishes that environmental impact statements be completed by outside consultants and not (as in the past) by the contracted A/E firms. The experience in developing the schematic design for the VA Baltimore replacement hospital has led DM+S and VACO to propose that future projects conduct all schematic development proposals in the Washington vicinity to assure the same amount of client/architect contact in as-
6
sessing design compatibility and effectiveness.

The current scope and mission of the Veterans Administration health system permits the VA hospital development process to remain separate and unique from the public and private sector in its methods of planning, programming, and designing medical facilities. In spite of national criticism, the VA continues to emphasize that in order for the U.S. veteran to be assured the availability of a wide variety of health services, separate and unique legislation must continue to operate throughout the fifty states.

As discussed in The National Academy of Sciences report, "A Study of Health Care for American Veterans," however, the VA cannot continue to enjoy "special treatment"⁷ when national health priorities and guidelines continue to seek more effective ways for cost containment, distribution of services, and regulation of unneeded expansion and development. In evaluating the health status and needs of the veteran population served by the VA health system, it is logical to concur with the findings of the NAS study which states that veterans could be assured quality health services regardless of whether the VA was incorporated into a national system of health planning and health care delivery. After three years of exhaustive research, the NAS report concluded that the

concept of "separate and unique" health services and facilities for veterans hindered the future development of a rational and equitable system of health care for all Americans. The future role of the VA hospital development process in assuring the quality and availability of care to the veteran, while incorporated in the public planning process, is still being debated by national policy makers. Only through a concerted federal effort to amend current laws establishing VA administrative policy for health care delivery and its effect on the VA hospital development process will "resolution of this critical question of 'separate and unique' status be reached. "

The VA hospital development process is totally independent of the reviews and regulation conducted under the National Health Planning and Development Act (PL. 93-641). Although the VA in recent years has been directed by OMB to assist in the assessment of local health status and preparation of area-wide plans, their involvement has been merely cursory and has not affected their own objectives for systemwide development. Currently the VA hospital development process is only responsible to the project reviews established by the OMB/A-95 circular, which calls for a joint HSA/RPC assessment of development proposals. If the VA is to become a key element in the planning process of an HSA, the development of VA services and facilities in coordination with the long-range plans of other providers must be required by new amendments to the federal codes.

An assessment of the interaction of the VA development process with local and state planning agencies other than those involved in health care delivery further substantiates the need for a regulatory mechanism which would have jurisdiction over a proposed VA project. Although issues regarding urban redevelopment and urban design have not been main concerns of the VA hospital development process, legislation encouraging the strengthening of medical school affiliations and the expansion of clinical and research programs has brought current development programs into urban centers. In terms of the physical development of the Baltimore replacement hospital, the VA's interaction with the City of Baltimore and the University of Maryland was voluntary and reflected current initiatives on the part of the VA to coordinate design activities with local development guidelines.

CHAPTER XV

SYNTHESIS

The synthesis of five years of research and academic training in the effective planning and design of health facilities has led me to analyze the specific problems in coordinating VA development efforts with those of area-wide health system agencies from a more global perspective. The issue at hand is not only the need to develop an appropriate regulatory mechanism to encompass the activities of the VA, but is the even greater need to conduct a reassessment of the "sub-government"¹* of health care in the United States. In spite of the enormous growth of federal health programs, there has been little fundamental change in the status of health delivery since the establishment² of HEW in 1953. The present organization no longer makes any sense.

* Note: This term has been frequently used in health policy literature to refer to the bast and redundant bureaucracy in a variety of agencies which affect the delivery or development of some system or subsystem of U.S. health care.

According to Philip R. Lee, M.D., former Assistant Secretary for Health, DHEW, "Whether or not a federal Department of Health will improve the situation is another question."³

In recent years a variety of questions have been raised and the chorus of critics has grown as federal health planning efforts and regulatory processes have expanded rapidly. Federal health programs have been described as wasteful, inefficient, ineffective, insensitive, cumbersome, and costly. Again, according to Dr. Lee, many of these criticisms are justified. In his opinion, there is an urgent need to evaluate why health programs are deficient and take prompt corrective action. The changing federal role in third party payment systems and increasing public attention to health care issues have resulted in renewed concern over the administration of the federal tax dollar in providing an efficient health delivery system. Over the course of recent years these issues have led Congressman Paul Rogers and others to propose bills for establishing a federal Department of Health.

The idea is not a new one. In 1909, the American Medical Association first went on record as favoring such a proposal. Since 1953, when the decision

was made to establish DHEW, the AMA has pressed periodically for a separate health department.

Many of the problems affecting federal involvement in health planning and development were recognized in 1949.⁴ The Commission on the Organization of the Executive Branch of the Government, under the chairmanship of former President Hoover, issued a critical report of the organization of federal medical services, noting:

More than half of the departments and agencies of the federal government conduct medical or health activities. These agencies compete for doctors and other technical personnel, and for funds for physical development. There is no central supervision of their activities, and they operate under diverse policies with respect to quality of treatment, types of beneficiaries served, types of research and areas of authority.⁵

The Commission recommended a radical and politically unpalatable solution: establishing a United Medical Administration, including the Public Health Service, the Veterans Administration, and the general and station hospitals of the Army, Navy, and Air Force within the United States. The reactions of various federal agencies and the armed forces were predictable, and the "sub-government" of health was allowed to expand in an uncontrolled fashion.

The Hoover Commission submitted a second report on federal medical services in February 1955. Again, the Commission deplored the "lack of coordination and huge waste in federal medical services." Similar comments appeared ten years later in the special study of health care development within HEW conducted under the direction of Congressman Rogers. In 1970, Senator Abraham Ribicoff conducted a series of hearings on federal planning and health delivery programs for the Senate Government Operations Committee and, except for the fact that the problems seemed larger and more complex, the lack of federal responsiveness was ever-present and similar to those reactions of 1949.

While Assistant Secretary for Health at DHEW, Dr. Lee recommended the creation of a Health Policy Coordinating Committee. This group was to be created by Presidential executive order and was to include the VA, the Defense Department, HEW, and other major departments and agencies conducting or supporting health or medical care programs. This sound recommendation, like those of the Hoover Commission, has gone unheeded because of political struggle between the diverse forms of health care delivery. The "sub-government of

health" has often been at war with itself, rather than concentrating on the
6
nation's needs and the public interest. Little attention has been paid to the
impact of this struggle on national health policy or the coordination of federal
7
health care development strategy.

In the past five years HEW has undergone four major reorganizations affecting health and medical care programs and a series of internal task forces and committees have examined its programs and organization. Although governmental reorganization hardly has the political appeal of national health insurance or the conquest of cancer, politicians exhibit increasing concern about the costs of organizational obsolescence.

Reorganization can be debilitating; it can also have a revitalizing effect on an institution. The establishment of a federal Department of Health could correct some deficiencies provided it were associated with a consolidation of legislative authority and the elimination of a number of planning and development programs. Whether or not political forces will permit a rational organization of health delivery programs within the federal government remains to be seen. The establishment of a Department of Health would do little to correct the situation unless the new department included most of the major health and medical programs of the federal government. This would not be easy to accomplish.

The priority attributed to medical care and health-related programs will ultimately determine whether or not a federal Department of Health is established. Congressman Rogers' arguments in support of this proposal stressed the importance of health in terms of national values, the growing crisis in health care, the insufficient ability to meet the needs within the present organization, and the difficulty of organizing and coordinating federal medical and health-related programs.

Obstacles in coordinating health planning and development strategy include the lack of a clear focus for national leadership in health, inadequate organization, and the present process of health policy development. Three steps are proposed to deal with these deficiencies.

First, a federal Department of Health should be established. The Department of Health should have major responsibility for health policy development and program coordination for major programs related to health resources development; environmental health; preventive medicine; health education and occupational health and safety; comprehensive facility development; organization and delivery of health services; nutrition and food stamp programs; food, drug, cosmetic and product safety; and financing of medical hospital and other health care services. Health planning programs which are now scattered in a number of departments and agencies should also be transferred to this new department. To accomplish these changes will require great political skill and energy. The forces that can be mobilized to oppose them are enormous.

Second, a federal Health Policy Coordinating Committee similar to the group proposed by then-Undersecretary Philip Lee would be established. The committee would be chaired by the Secretary of Health. Such a committee could facilitate health policy planning and program coordination, and an overall health facility strategy.

Third, a high-level Council of Health Policy Advisors should be established, as recommended by the Senate Committee on Government Operations, the National Advisory Committee on Health Manpower, and the Hoover Commission. The council should be more visible and vocal than the Health Advisory Group organized under PL. 93-641 and should be composed of nongovernment health experts who could serve on a full-time basis for terms of three to five years. The council would be responsible for formulating a national health policy and evaluating the performance of federal departments and agencies in achieving policy objectives.

The present system for national health policy formulation and the current framework for health planning and facility development have been found deficient. Formidable obstacles stand in the way of translating broad national goals into the effective delivery of health care. A major obstacle is the lack of a clear federal focus for health policy development and coordination. Until the inefficiency of U.S. health policy can be remedied, tough decisions regarding future expansion, overbedding, cost containment, and the effectiveness of area-wide planning will always be considered in hindsight. As in the case of William Donald Schaefer, Chief Executive of MetroCenter and Mayor of the City of Baltimore, "It's easier to say yes." (see display)

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WILLIAM F. SCHMICK JR. Publisher • PAUL A. BROOKER Managing Editor • J. R. L. STERNE Editorial Page Editor

It's Easier To Say Yes

It's hard to say no to construction of a \$76 million Veterans Administration hospital in downtown Baltimore. Think of the jobs that would be created, both during construction and upon completion. But the proposal came up for approval just after the president of Maryland Blue Cross had warned of a costly oversupply of hospital beds in Maryland, and just after the federal Department of Health, Education and Welfare had circulated new guidelines intended to reduce hospital beds in the nation by 10 per cent.

The approving body in this instance was the Central Maryland Health Systems Agency, which with 101 members is too cumbersome to do much decision-making. That function is delegated to a 25-member executive committee, which usually is guided by the recommendations that are channeled upward from first the staff and then a certification review committee. In the case of the VA hospital, the review committee did not have a quorum present when it came time to consider the staff recommendation, so the latter went directly to the executive committee.

The staff recommended against approval of the

VA hospital at this time. Its report pointed out that although the VA hospital was to be next door to University Hospital, the VA had submitted no plans on joint programs between the two hospitals to bring about economies. The staff also questioned whether the VA had submitted enough data on anticipated benefits to justify so large a capital investment, and the report raised what should have been a telling issue in suggesting that the impact of the new VA hospital on existing in-city hospitals might be far greater than what has been suggested.

The executive board got to the \$76 million question late in a seven-hour meeting, when those present had dwindled to 14. Four abstained, so approval of the VA hospital was by a 6-4 vote, in effect representing the carefully considered judgment of all of central Maryland. The final decision, to be sure, rests with Congress and the VA, and central Maryland's sentiments are only advisory. But the alacrity with which approval has been given to a project on which construction is not due to start until 1980 says something, far from reassuring, on the current status of comprehensive health planning in our region.

GLOSSARY OF ACRONYMS

A/E	Architectural and Engineering Firms	GAO	Government Accounting Office
A-95 Review	OMB Regional Clearinghouse Review	OC	(VA) Office of Construction
"B" Agency	CHP Agency for Metropolitan Baltimore Area	OMB	Office of Management and Budget
CHP	Comprehensive Health Planning	PSA	Primary Service Area
CMHSA	Central Maryland Health Systems Agency	RPC	Regional Planning Council
DHEW	U. S. Department of Health, Education and Welfare	RTKL	RTKL Inc., Architects/ Planners
DM: S	VA Department of Medicine and Surgery	SFDI	Space and Functional Deficiency Identification System
DOD	U. S. Department of Defense	SHCC	State Health Coordinating Councils
		U/M	University of Maryland

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