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MARKETING RESEARCH IN THE HEALTH DELIVERY SERVICES:
A PROPOSED METHODOLOGY BASED ON A CASE AT
CENTRAL MEDICAL CENTER

BY
Dyer A. Henke, B.S.

A Culminating Project Presented to the Faculty of
The Lindenwood Colleges in Partial
Fulfillment of the Requirements for the
Degree of Master of Science

1981



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ACKNOWLEDGEMENTS

Assistant Professor Anne M. Teich, Ph. D., Acting Director of Lincoln College's Individualized Education Program, Mt. Charles, Missouri, who was a consultant and motivating advisor for nine months during the research and data collection period, especially thank Dr. Teich for her patience with me during this adjusting period. She also accepted the laborious task of being the Chairperson of the Thesis Committee.

Acknowledgements

Professor John D. Bauer, M.D., F.C.I.P., Chairman of the Pathology Department, DePaul Community Health Center, Bridgeport, Missouri, colleague, author, educator, and practitioner in the field of Pathology, who graciously consented to advise me on clinical and ancillary departmental pathology. Dr. Bauer acted as a supervisor of the thesis.

Assistant Professor Jozse A. Vaislitzky, M. D., Chief of the Neurophysiology Unit, Environmental Science Laboratories, Mt. Sinai School of Medicine, Mt. Sinai Hospital, New York City, author, educator, and internationally acclaimed environmental and occupational scientist, who contributed many hours of consultation on the environmental and developmental aspects of the thesis. Dr. Vaislitzky was also a co-sponsor of this project.

Mrs. Lynn Ishihara, my Executive Secretary, who spent many hours assisting me with collating the manuscript, with

ACKNOWLEDGEMENTS

Assistant Professor Arlene V. Taich, PH. D., Acting Director of Lindenwood Colleges Individualized Education Program, St. Charles, Missouri, who was a constant and motivating advisor for nine months during the research and data collection process of this theses. I especially thank Dr. Taich for her patience with me during this exhausting period. She also accepted the laborious task of being the Chairperson of the Theses Committee.

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Assistant Professor Jose A. Valciukas, Ph. D., Chief of the Neurotoxicology Unit, Environmental Sciences Laboratories, Mt. Sinai School of Medicine, Mt. Sinai Hospital, New York City, author, educator, and internationally acclaimed environmental and occupational scientist, who contributed many hours of consultation on the environmental and demographical aspects of the theses. Dr. Valciukas was also a co-sponsor of this project.

Mrs. Lynne Schiebel, my Executive Secretary, who spent many hours assisting me with collating the manuscript, with

editing, and map making. She gave, voluntarily, well over 100 hours of her free time which was utilized with placing in to form the rough research material and statistical data, typing revisions, and completing the final draft of this theses for binding.

Abstract

ABSTRACT

The general object of this study is to provide a detailed survey for the use of a new and modern hospital and auxiliary services for North St. Louis City. The facts contained in this paper relate to the abundance of other health care facilities and the number of physicians in the area. Attempts are made to justify a new health care facility by utilizing information, statistics and projections which are intended to give evidence that social needs of the population are not being adequately met, medical and health services are not satisfactory as compared to those services offered in other areas of the city, and that there is a need for additional services and advanced technology in diagnosis and treating conditions and diseases. Assumptions are made with the aid of historical information and statistics in regard to population trend analysis, and to services which are being offered in North St. Louis City. It is twenty years, and that by providing North St. Louis with a new hospital and auxiliary technology, professional, such as physicians, nurses, and technicians, may be able to provide the human element in caring for the sick and injured.

ABSTRACT

The general intent of this study is to provide convincing testimony for the need for a new and modern hospital and ambulatory care unit for North St. Louis City. The facts contained in this paper attests to the abandonment of three health care facilities and the exodus of physicians from this section of the city. Attempts are made to justify a new health care facility by submitting information, statistics and projections which are intended to give evidence that social needs of the population are not being adequately met, medical and health services are not satisfactory as compared to those services offered to more affluent areas of the city, and that there is a need for additional services and advanced technology in diagnosing and treating conditions and diseases. Assumptions are made with the aid of historical information and statistics in regards to population trend analysis', revenues sufficient to retire the debt service of the Series 1981 Bonds in twenty years, and that by providing North St. Louis with a new hospital and advanced technology, professionals, such as physicians, nurses, and technicians may return to the area to provide the human element in caring for the sick and injured.

INTRODUCTION

The purpose of this preliminary project is to set forth a methodology for marketing research involving health care delivery; and to set a methodology to a feasibility study involving creation of a new Central Medical Center (CMC) in North St. Louis. This information will focus on a feasibility study of a health care facility to be located in the northern medically underserved area of St. Louis.

Quantitative information and statistical data will be used throughout. Great emphasis will be placed on:

- A) Forecasted statement of Revenues and Expenses.
- B) Cash Flow, Unrestricted Funds, Balance Sheet and changes in fund balances from May, 1991, through 1993.

Points stressed are:

- A) Social needs pertaining to current and future demands for inpatient and ambulatory services hospital services in Central Medical Center's service area.
- B) Provision of services as related to demographic characteristics of the hospital's service and the status of surrounding hospitals.
- C) The financial feasibility forecasts of operations of the new facility and payment of the Series 1991 bonds and interest.

The social needs will be discussed in terms of status to the lack of medical care in the North St. Louis community. References will be made to the abundance of medical care facilities and the difficulty of physician recruitment

INTRODUCTION

The purpose of this culminating project is, A) to set forth a methodology for marketing research involving health care delivery; and B) to use a methodology in a feasibility study involving creation of a new Central Medical Center (CMC) in North St. Louis. This information will focus on a feasibility study for a new and larger health care facility to be located in the northern, medically underserved area of St. Louis.

Quantitative information and statistical data will be used throughout. Great emphasis will be placed on:

- A) Forecasted statement of Revenues and Expenses.
- B) Cash Flow, Unrestricted Funds, Balance Sheets and changes in fund balances from May, 1981, through 1985.

Points stressed are:

- A) Social needs pertaining to current and future demands for inpatient and ambulatory acute-care hospital services in Central Medical Center's service area.
- B) Provision of services as related to demographic characteristics of the hospital's service and the status of surrounding hospitals.
- C) The financial feasibility forecasts of operations of the new facility and payment of the Series 1981 Bonds and interest.

The social needs will be discussed to attempt to relate to the lack of medical care in the North St. Louis community. References will be made to the abandonment of medical care facilities and the difficulty of physician recruitment

due to this situation. Statistics of the infant mortality rate will be defined. Even though this has consistently plagued North St. Louis for years, it may be considered that if a rise in infant mortality persists, it may be related to the fact that there is inadequate pre and post natal and delivery room care in this sector.

The suggestion for future plans for an ambulatory care center will be submitted. This proposition could perhaps open a new era for preventive medicine in North St. Louis if and when it is implemented. It would seem logical if patient admissions could be reduced by ambulatory care, more hospital beds could then be available for acutely ill patients and those requiring surgery. The wait for rooms may be eliminated. This plan, if successfully managed, possibly would be a major step toward cost containment where Medicaid and Medicare reimbursements are concerned.

In the planning of this service, there is a possibility that a study of the economic conditions of the population in the service area would be greatly important. The trend of the census history and projections and opinions generated from community leaders and physicians presently practicing in the service area may be searched for criteria to build a hospital.

A particular heed may be taken to map the location of the office of each practicing physician and the population he serves. This study may provide areas which are

underserved which could conceivably stimulate the necessity for physician recruitment. Provisions for this service is an important factor.

Other points of interest in providing services which very likely could stimulate physician and community interest in a new facility are studies of current services in conjunction with an anticipation of added services as the need appears it would be evident. Such services, as a primary part of the internal operation of the hospital, may include advanced treatment techniques incorporated in the ancillary departments as well as added technology in the Laboratory and Radiology Departments.

The quantitative treatment of the numerical data of this financial study, including financial forecasts, is based upon estimates, assumptions and material developed from information concerning CMC's service area. Information about the health care industry, meetings with the hospital's management team, Medical Staff interviews and the information and statistics has been accumulated at the Central Medical Center and the Hospital Association of Greater St. Louis as of April 16, 1981.

The assumptions, rationale and conclusions detailed in this paper will serve as a reasonable basis for preparation of the forecasted financial statements. These assumptions, rationale and conclusions are based on present circumstances currently available from CMC and other agencies. All the

personal and institutional resources will be properly acknowledged.

It is hoped that based on the assumptions and estimates utilized for purposes of this study, the forecasted results will demonstrate that CMC will be able to generate sufficient cash flow during the forecast period to meet its operating expenses, working capital needs, and the debt service requirements on the contemplated Series 1981 Bonds.

It is acknowledged that forecasts are based on assumptions and estimates which are inherently subject to uncertainty and variation depending upon evolving events. Since there can be no fool-proof estimates, strong and weak predictions will be indicated.

The information, facts, figures, and statistics used to compile this report will be subject to revision which could result from events, transactions, or any other occurrences subsequent to June 1, 1981. The results of this study are intended to exhibit a demonstration of:

- A) The need for expanded health and medical services in North St. Louis.
- B) The need for incentives for physicians to locate in this area.
- C) The obligation of the leaders of the community to provide equal health care to the community as is provided in more affluent areas of the city.
- D) The need to provide easy access to an adequate and reliable health care facility.

Health services tend to prevent the decay of inner-city

areas which have often laid prey to deprivation due to the lack of long range planning and revitalization. The significance of this study and compilation of this data will suggest the necessity for improved and better health services in the North St. Louis sector, which at present, has been faced with the abandonment of health facilities.

CHAPTER 1

The Problem

CHAPTER 1

Problem

The number of acute care facilities from the St. Louis area has been remarkable. In the past five years, three hospitals have closed, removing 277 hospital beds from the primary service area of Central Medical Center (CMC). This also contributed to the abandonment of primary care physicians from the area. Currently, St. Louis and Central Medical Center are the only remaining hospitals having a primary hospital service focus point for St. Louis. This leaves a large number of Medicaid and Medicare patients at risk of not being able to receive care. This causes a problem for indigent and poor patients who often require extended hospital care.

The Problem

Since Honor G. Phillips Hospital, WeVest Hospital, and St. Louis Christian Medical Center (SLCMC) have closed, there are no ambulatory care clinics in hospitals with the exception of CMC which almost exclusively cares for Medicaid and Medicare patients. In the primary service area of CMC, there are approximately 281,548 people.¹ Of those people, many are non-white families existing on an average income of \$4,100 per annum. Of non-white families, 21.9% are living in poverty.

¹East-West Gateway Population Report, prepared and distributed by George W. Kunkelmann, 1979.

CHAPTER 1

Problem

The exodus of acute care facilities from the North St. Louis area has been remarkable. In the past five years, three acute care hospitals have closed, removing 977 hospital beds from the primary service area of Central Medical Center (CMC). This also contributed to the abandonment of primary care physicians from the area. Currently, St. Lukes and Central Medical Center are the only remaining hospitals having a primary hospital service focal point for North St. Louis. St. Lukes does not cater to Medicare and Medicaid patients as exclusively as does CMC. This causes a problem for indigent and aged patients who often require extended hospital care.

Since Homer G. Phillips Hospital, DePaul Hospital, and St. Louis Christian Medical Center (SLCMC) have closed, there are no ambulatory care clinics in hospitals with the exception of CMC which almost exclusively cares for Medicaid and Medicare patients. In the primary service area of CMC, there are approximately 281,688 people.⁴ Of these people, many are non-white families existing on an average income of \$6,534 per annum. Of non-white families, 25.5% are living in poverty

⁴East/West Gateway Population Report, section contributed by George P. Kadampanat, 1979.

and 33.7% are receiving assistance from the city.⁵

Historically, inner cities have become blight areas. North St. Louis, over a ten year period from 1970 to 1980, shows a trend toward degeneration because of the closure of three hospitals, the Chevrolet plant, and the resulting unemployment.

Aside from the general economic condition of North St. Louis, CMC has major problems since it has had to open it's doors to the entire area populace. The influx of patients has caused an increase in need for acute and ambulatory care. Ancillary departments such as the Laboratory, Radiology, Electrocardiology, Physical Therapy and others have suffered greatly because of the increase of work and no space to enlarge working areas. This causes ventilation problems, limited storage and inventory space, and limited capability to treat patients. The Surgery Suites are undersized based on Federal standards. The Recovery Room is inadequate to contain the increase of patients. Nursing and the Intensive Care Units are no longer large enough to adequately care for the acutely ill patients. Bathroom facilities are lacking and medication areas are overcrowded. The single elevator has to be used for all purposes of transport to include patients, staff, visitors, maintenance, housekeeping, and stores distribution thus delaying patient transport to ancillary departments and surgery. The building, first erected

⁵Health Systems Plan, 1980-1984, pages 29 through 38.

in 1949 has since been expanded upon three occasions. CMC can expand no further either horizontally or vertically because of zoning codes and the lack of available land.

Since Homer G. Phillips was closed by City Administration, North St. Louis has been without a hospital which offers prenatal care, obstetrical inpatient care, and a delivery room adequate for the population. There appears to be a correlation between the lack of obstetrical care and the infant mortality rate which is on the increase among nonwhite residents of St. Louis as compared to that of the Caucasian race⁶ (see Tables 1 and 2).

The problems which confronts North St. Louis are becoming more and more acute. Since the closing of SLCMC in 1976, DePaul Hospital in 1978, Homer G. Phillips in 1979, and the Wohl Clinic in 1981, the need for health and medical services has become very acute. For this reason it is suggested that revitalization begin with the construction of a new, full service hospital with provisions for preventative care.

Due to the exodus of hospitals and clinics, physicians are also leaving the area. This indeed proposes a problem. Because there is an absence of facilities for which physicians can depend upon to care for their patients, there is no incentive for physicians to locate their practices there. This provides a great possibility of continued decay of this area.

⁶Vital Statistics Annual Report, 1979, Division of Health, City of St. Louis.

TABLE 1

Mortality Rate Improvements
Proposed for North St. Louis

<u>Deficiency (St. Louis City)</u>	<u>Health Systems Plan Objective</u>
1. 73.5% of 1st trimester have pre-natal care.	1. 95% of 1st trimester should have pre-natal care.
2. A 23 infant mortality rate compared to 15 for HSA region.	2. Reduce infant mortality.
3. A 13% premature birth rate comparable to 8% rate for HSA region.	3. Same as #1 above.
4. There is a 16 fetal death rate comparable to 10 for HSA region.	4. Same as #1 above.
5. 14,274 venereal contacts in St. Louis.	5. Maintain or reduce VD incidence.
6. There are 48 FTE equivalent physicians for 220,900 North St. Louis residents.	6. Primary care services should be available.

Source: Health Systems Plan, 1980-1984, Section of St. Louis Health Status.

Note : The above morbidity and mortality indicators for St. Louis reported in Health Systems Plan are in part caused by the absence of North St. Louis primary care physicians. A strong incentive for attracting more primary care physicians is a first level hospital focusing on services relating to primary care. The new CMC proposal serves this focus.

See Table 4 for trend line of infant death among black city residents.

Source: Vital Statistics Annual Report, 1979, Department of Health, City of St. Louis.

TABLE 2

Resident Infant Deaths and Death Rates(Per 1,000 Live Births)By Race and Age

St. Louis, MO, 1969 - 1979

<u>YEAR</u>	<u>ALL RACES TOTAL</u>	<u>WHITE TOTAL</u>	<u>NON-WHITE TOTAL</u>
1969	386	130	256
1970	309	87	222
1971	309*	98	211*
1972	267	72	195
1973	251	66	185
1974	230	53	177
1975	191	54	137
1976	191	68	123
1977	157	50	107
1978	166	34	132
1979	174	43	131
1969	31.7	22.5	40.0
1970	26.3	16.5	34.4
1971	26.5	20.1	31.2
1972	26.1	17.9	31.6
1973	27.4	19.1	32.5
1974	26.2	15.5	33.0
1975	22.9	16.3	27.3
1976	24.3	22.2	25.6
1977	19.2	15.7	21.5
1978	21.0	10.8	27.8
1979	21.9	14.3	26.6

*Source: Vital Statistics Annual Report, 1979, Division of Health, City of St. Louis.

Another problem is unemployment. Even though there are thirteen principle manufacturers (see Table 3) in the primary service area which employs more than five hundred persons each⁷, plus some small businesses, there is a need for more jobs. There must be adequate health and medical services for the industries as well as the residents of the community to attract industry. It is projected that by 1984 the proposed acute care facility will employ 397 managerial, technical, and non-professional persons. This figure is based on 2.5 employees per patient with an average census of 159 patients. See Table 4.

It is not intended that the projected employment potential of the Project will be taken only from the service area; however, it may be assumed that a large percentage of the non-professional labor force will come from this area. Technical and managerial personnel may have to be sought for by means of advertisement in professional periodicals and in the journals or employment services located at various universities and colleges throughout the country. Regardless of the type of staffing needed for the Project, it will be classified as a major employment facility of North St. Louis.

⁷Metropolitan St. Louis Directory of Manufacturers, 1974.

TABLE 3

Major Manufacturers in CMC Service Area

<u>Name</u>	<u>Product</u>
ITT Continental Baking Co.	Bread, cake, misc. bakery products
Krey Packing Co.	Meat Processors
Mallinckrodt, Inc.	Chemicals
Rexall Drug Co.	Drugs, pharmaceuticals and proprietary medicines
Continental Can	Metal containers
Combustion Engineering, Inc.	Sheet iron and structural steel fabricators
Kisco Co., Inc.	Sheet metal fabrication, defense products
National Vendors Fabrication	Contract manufacturers of sheet metal products and assembly
National Vendors, Division of UMC Industries	Coin-operated vending machines
Lincoln St. Louis, Division of Moneil Corp.	Automotive and industrial lubricating equipment
Carter Carburetor, Division of ACF Industries	Automotive valves - carburetor kits
Bussman Mfg., Division of McGraw Edison Company	Electronic fuses, electrical fuses, fuse holders and blocks
Emerson Electric Co.	Electric Motor parts

Source: Metropolitan St. Louis Director of Manufacturers, 1976.

Note : Each of the above listed employs more than 500 persons.

TABLE 4

Detailed CMC Personnel Schedule

	<u>Current</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
Nursing-General				
RN	39.6	52.4	46.5	46.2
LPN	31.6	48.8	43.1	42.8
Other	41.8	79.4	82.7	82.0
Nursing-ICU/CCU				
RN	7.5	9.8	15.5	16.4
LPN	1.2	10.5	5.5	5.5
Other	-	-	-	-
Nursing-OB				
RN	-	9.9	9.9	9.9
LPN	-	13.0	12.4	12.6
Other	-	-	-	-
Nursing-Nursery/L&D				
RN	-	4.2	5.2	5.2
LPN	-	7.5	9.4	10.4
Other	-	-	-	-
Surgery				
RN	11.9	12.2	12.8	13.6
LPN	3.5	3.0	4.0	4.0
Other	7.5	5.7	5.0	4.9
Emergency				
RN	5.2	10.3	9.5	10.0
LPN	4.2	2.9	4.3	4.2
Other	5.9	-	-	-
Dietary				
Dietician	1.0	2.0	2.0	2.5
Supervisors	3.0	3.5	3.5	3.5
Cooks	5.0	5.5	5.5	6.5
Other	16.9	28.6	30.3	30.1
Laboratory				
Supervisors	1.0	2.0	2.0	2.0
Special Technologists	-	1.4	1.4	1.4
Techs	8.4	7.9	7.9	7.9
Other	1.8	10.5	9.8	10.4

TABLE 4, Continued
Detailed CMC Personnel Schedule

	<u>Current</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
Radiology				
Supervisor	1.0	2.0	2.0	2.0
Techs	9.0	8.5	8.5	9.3
Other	.5	1.4	1.4	1.5
Pharmacy				
R Ph	2.3	2.3	2.3	2.3
Techs	2.0	1.1	1.2	1.3
Other	0	0	0	0
Respiratory Therapy				
Supervisor	1.0	1.0	1.0	1.0
Techs	7.8	8.4	8.8	9.1
Other	0	0	0	0
Physical Therapy				
Supervisor	1.0	1.0	1.0	1.0
PT Therapist	0	1.5	1.5	1.5
Techs	3.9	6.4	6.8	7.1
Other	0	0	0	0
Medical Records				
Supervisors	1.0	1.0	1.0	1.0
ART's	6.9	6.1	6.1	6.6
Other	1.5	4.1	4.6	4.5
Social Service				
Supervisors	1.0	1.0	1.0	1.0
SW	0	0	0	0
Other	0	.7	.7	.8
Central Supply				
Supervisors	1.0	1.0	1.0	1.0
CS Techs	3.0	3.0	3.0	3.0
Other	4.1	7.6	8.1	8.5

Balance of hospital employee schedule for additional hiring relates to non-technical personnel.

CHAPTER 2

Purpose of the Project

The Central Medical Center shall hereafter be referred to as CMC. The proposed new Central Medical Center shall

CHAPTER 2

To establish a full service primary care hospital. Accordingly, the hospital should be of sufficient size to attract a well-balanced mix of specialists and primary care physicians in order to eliminate the need of referral to any accepted hospitals. Thus, the 194 bed hospital concept was established as a primary goal.

The Purpose

Objective 1

To reuse the 114 bed Firehollow CMC which is currently located on a land - lock site of J.E. Myers and is presently housed in a four story building which cannot support vertical expansion.

Objective 2

To relocate the CMC Organization to a 194 bed facility at Howard and Carter which is capable of serving North St. Louis as a full-service community hospital. Accordingly, the hospital will re-activate an obstetrical service as a part of the 194 Bed Hospital license to provide an important aspect of community hospital services.

CHAPTER 2

Purpose of the Program

The Central Medical Center shall hereforth be referred to as CMC. The proposed New Central Medical Center shall henceforth be referred to as the Project.

Objective #1

To establish a full service primary care hospital. Accordingly, the hospital should be of sufficient size to attract a well-balanced mix of specialized and primary care physicians in order to eliminate the need of referral to more accepted diagnostic support. Thus, the 200 bed hospital concept was established as a building goal.

Objective #2

To phase out the 116 bed Kingshighway CMC which is currently located on a land - lock site of 3.2 acres and is primarily housed in a four story building which cannot support vertical expansion.

Objective #3

To relocate the CMC Organization in a 194 bed facility at Newstead and Carter which is capable of serving North St. Louis as a full-service community hospital. Accordingly, the hospital will re-activate an obstetrical service as a part of the 194 bed hospital license to provide an important aspect of community hospital services.

Objective #4

The Project is to serve as the nucleus for the redevelopment of North St. Louis. North St. Louis private sector medical needs will be met by a Community Family Practice Hospital.

Objective #5

To establish an organized outpatient department which will provide hospital-based walk-in ambulatory services.

Objective #6

To favorably impact on the rate of high infant mortality in North St. Louis by providing hospital based prenatal care in relationship to the Project Level I obstetrical service or referral to Level II and III obstetrical services on a pre-arranged basis through clinic screening and hospital referrals.

Objective #7

To provide additional pediatric health maintenance service to the high risk population of North St. Louis through outpatient clinic arrangements with appropriate inpatient transfer agreements.

CHAPTER 3

Justification

Definitions

CHAPTER 3

- EEG - Electroencephalography
- FX - Fetal Test
- SW - Synchronical
- ICU - Intensive Care Unit
- OB - Obstetrics

The Justification

There is a need for a new hospital in North St. Louis since 1970 which has contributed to the loss of primary care physicians from North St. Louis. Currently, St. Luke and SBC are the only remaining hospitals having a primary hospital service level patient care North St. Louis physicians. The balance of the central city hospitals have a specialty referral hospital status and increasingly have referral medical staffs. Thus, the proposed project will be the first effort to establish a reform inner city community hospital which has a primary concern to serve North St. Louis primary care population. It will also establish a moving force toward improving the physician status of the medically underserved North St. Louis area.

CHAPTER 3

Justification

Definitions

CCU - Critical Care Unit

EEG - Electroencephalography

EKG - Electrocardiology

FY - Fiscal Year

GYN - Gynecological

ICU - Intensive Care Unit

OB - Obstetrics

Needs For A New Hospital

There have been 977 hospital beds removed from North St. Louis since 1976 which has contributed to the exit of primary care physicians from North St. Louis. Currently, St. Lukes and CMC are the only remaining hospitals having a primary hospital service focal point for North St. Louis physicians. The balance of the center city hospitals have a specialty referral hospital mission and accordingly have referral medical staffs. Thus, the proposed Project will be the first effort to establish a modern inner city community hospital which has a primary concern to serve North St. Louis primary care physicians. It will also establish a moving force toward improving the physician status of the medically underserved North St. Louis area.

- The proposed Project is identified as the only North St. Louis hospital having a dominant role of supporting physicians who serve principally North St. Louis residents. The existence of a new community hospital will further attract new North St. Louis family practices, as reflected in the fact that CMC already has eight percent of its medical staff as family practitioners. Further, the Project also plans on offering an off-hour walk-in clinic to augment physician practices during non-physician office hours which will also entice new physician supply.
- The proposed Project will provide a part-time dental maintenance clinic for North St. Louis residents needs which will allow for the improvement of the dental health status of the community. The clinic will provide routine dental maintenance to all ages. The routine services includes filling non-complicated dental cavities.
- The development of a North St. Louis community hospital based obstetrical service will provide incentives for additional North St. Louis OB/GYN practices and in turn have a position impact on the stabilization of infant mortality with the establishment of a pre-natal clinic.
- The Project will replace CMC which has 80% of its structure within the 1949 building.
- The expansion of beds will create over 100 needed jobs

for North St. Louis residents where the unemployment rate is higher than the norm.

- The establishment of a new community hospital will be a positive force in the renewal of North St. Louis as a model community, such as already has been evidenced with five new building starts within a block of the construction site since work activity has begun. Further, a single dwelling subdivision is being developed within walking distance of the proposed hospital.
- Community Development Agency is planning multiple dwelling housing projects on two sides of the hospital.

Source: Population based and used projection using hospital service area population increases from 1979 to Projections of the East/West Gateway Coordinating Council.

Five of the nine active obstetrical physicians who wish to deliver at the proposed Project have the following obstetrical bed requirements:

Delivering	%	Est. MB	1985 Projected Patients Days	#	385	Category
ABC		3.7	2,442		6.59	OB

Source: Physicians Survey, CHC, April, 1989.

Hospital inpatient projections will be based on calendar year 1985 and hospital fiscal year ending May 1986. As previously reported there was a 97 patient census reported in calendar year 1979 which projects to the following 1985 bed need:

<u>Catagory</u>	<u>1979 Days</u>	<u>% Dist.</u>	<u>1985 Population Rate Increase</u>	<u>1985 Projected Patient Days</u>	<u>1985 Census= ÷ 365</u>
Medical/ Surgical	31,056	88	1.0151	31,525	86.37
ICU/CCU	1,827	5	1.0151	1,855	5.08
GYN	2,573	7	1.0151	2,612	7.16

Source: Population based bed need projection using hospital service area population increases from 1979 Bed Projections of the East/West Gateway Coordinating Council.

Five of the nine active obstetrical physicians who wish to deliver at the proposed Project have the following obstetrical bed requirements:

<u>Deliveries</u>	X	<u>Est. LOS</u>	=	<u>1985 Projected Patient Days</u>	÷	<u>365</u>	<u>Catagory</u>
660		3.7		2,442		6.69	OB

Source: Physician Survey, CMC, April, 1980.

Based on the physician survey returns of North St. Louis physicians who currently do not practice at CMC but wish to practice at the modernized Project, the bed need is established in Table 5.

TABLE 5
Survey of North St. Louis Physicians, 1980

<u>Category</u>	<u>Surveyed 1985 Patient Days</u>	<u>% Dist.</u>	<u>1985 Census 365</u>
Medical/ Surgical	23,579	88	64.60
ICU/CCU	1,332	5	3.65
OB/GYN (including 60 deliveries)	1,734	7	4.75
Total	26,645	100	73.00
8.2% Reduction	<u>(2,185)</u>		(5.99) for estimate variance
Total	24,460		67.01

Source: Hospital Building & Equipment Calculations.

Summarizing the previous bed need tables by adding 1985 patient days (on Table 5) and factoring consolidated bed need, the Project can justify the following bed need:

TABLE 6

Project Justification of Bed Need

<u>Catatory</u>	<u>Projected 1985 Patient Days</u>	\div	<u>1985 Census = 365</u>	\div	<u>OCC STD =</u>	<u>1985 Bed Need</u>
Medical/Surgical	55,104		150.97		.89	170
ICU/CCU	3,187		8.73		.89	10
OB/GYN	<u>6,788</u>		<u>18.59</u>		<u>.75</u>	<u>25</u>
	65,479		178.29		178.29	205

Note: 9.73 of the 25 OB/GYN bed need is for 1985 post-partum need (720 Del. X 3.7 LOS X 365 \div 75 = 9.73) and this will expand to 13.92 post-partum bed need by 1990.

Source: HBE Calculations

Method

Because of physician estimates the hospital operational projections are based on a -5.99 patient reduction to allow for an estimate variance resulting in a 172.30 adjusted census projection.

Based on a census increase from 97.1 patients in 1979 to 172.3 patients in 1985, the diagnostic and treatment activities are projected as shown on Tables 7, 8, 9, 10, and 11.

TABLE 7

CMC Physician Survey Results

<u>Zip</u>	<u>Specialty</u>	<u>Initial Average Daily Census</u>	<u>After 5 Years Average Daily Census</u>	<u>Deliveries</u>	<u>Practice Expansion Capability</u>
63103	Internal Medicine	2	9	0	Yes
63108	Family Practice	8	13	0	Yes
	Internal Medicine	10	10	0	Yes
	Oncology/ Hematology	0	0	0	Yes
63113	Family Practice	0*	0	0	Yes
63115	Family Practice	5	0	0	Yes
	Family Practice	8	12	0	Yes
	Family Practice	5	5	0	Yes
	Internal Medicine	6	4	0	Yes
	General Surgery	5	NR	0	Yes
	General Surgery	10	10	0	Yes
	General Surgery	4	NR	0	Yes
63121	OB/GYN	5	25	60	No
63136	Thoracic & General Surgery	5	8	0	Yes
	Pathology	0	0	0	Yes
	<u>Totals</u>	73	96	60	14 Yes

*Physician is over 65 years of age and listed 0-1 average daily census.

Source: CMC Physician Survey, Apr 1980

*Physician is over 65 years of age and listed 0-1 daily census.

Source: CMC Physician Survey, April, 1980.

In addition, existing CMC active* medical staff members who had a OB/GYN specialization were surveyed as to their expected deliveries if the Project is approved for obstetrical services.

TABLE 8

The New CMCAncillary Diagnostic and Treatment Projected Activity

<u>Catagory</u>	<u>1985*</u>	<u>1979</u>	<u>1985 Utilization</u>
Census	172.30	97.14	89%
Births	720	0	360/Delivery Room
Emergency Visits	9,853	5,555	1,408 Treatment Bay
EKG/EEG	8,905	5,021	5,021 Treatment Room
Laboratory Tests	173,859	98,075	NA
Operations	3,595	2,027	900/Surgery Room
X-Ray Procedures	26,547	14,967	5,000/Procedure Room
Nuclear Medicine	408	230	1,488/Procedure Room
Pharmacy Charges	150,128	84,640	NA
Respiratory Therapy Unit of Service	35,064	19,769	NA
Physical Therapy Proc.	19,949	11,247	NA
Untrasound	1,080**		1,488/Procedure Room
Newborn Days	2,664***		60%

* Represents FY ending May 31, 1986, in financials

** Projection based on 1.5 procedures of delivery volume which is the principle source.

***720 births X 3.7 LOS = 2,664 Newborn Days.

The allowance ratio is calculated by dividing the total allowance by (gross patient revenue + other revenue - operating expenses). The allowance ratio of .85 was used for forecasting deductions from revenue for all future periods.

	Fiscal Years Ending May 31,		
	1978	1979	1980*
<u>Source of Patient Payments</u>			
Medicare	27.4%	29.9%	34.9%
Medicaid	22.9	19.9	21.6
Subtotal	50.3	49.8	56.5
Blue Cross	10.2	26.8	20.5
Self-Pay		.6	1.6
Commercial	39.5	22.9	21.3
Total	100%	100%	100%

This mix of patient activity and revenue was forecasted to remain constant at the 1980 year level throughout the forecasted period

*Nine months ending February 29, 1980.

TABLE 9

Current and Projected Bed Count

<u>Service/Program Affected</u>	<u>Existing Assignment (Beds)</u>	<u>Resulting Assignment (Beds)</u>	<u>Planning* Guideline</u>
Medical/Surgical	86	160	180 NSF
ICU/CCU	7	10	180 NSF
Obstetrics/GYN	7	24	180 NSF
Beds not in Service	16	0	
Total	116	194	

*Planning Guide NSF based on Evaluation of Hill-Burton Standards, Arthur A. Little, Inc., Prepared by Bureau of Health Planning & Resources Development, September, 1973.

TABLE 10

Utilization Measures for CMC Services

<u>Service</u>	<u>At 100 Beds</u>		<u>At 194 Beds</u>	
	<u>Current Utilization</u>	<u>Census</u>	<u>High Projected Utilization</u>	<u>Census</u>
Medical/ Surgical	98.9%	85.1	90.6%	145.0
Intensive Care	71.4%	5.0	84.0%	8.4
Obstetrics/ GYN	100.0%	7.0	78.6%	18.9
Total	97.1%	97.1	88.8%	172.3

Existing Beds

Medical/Surgery	86
Intensive & Coronary Care	7
Gynecology	7
Beds Not in Service	(16)
Total	100

Proposed Beds

Medical/Surgical	160
Intensive & Coronary Care	10
Obstetrics/Gynecology	24
Total	194

TABLE 11

Areawide Hospital Utilization

Hospital	CMC Second Staff Privileges	1979 Acute Beds ^a	1979 Acute Census ^b	1979 Adjusted Occupancy
Alexian Brothers	0	173	152.76	.88
Barnes	5	1,104	860.28	.78
Bethesda	3	120	81.38	.68
Cardinal Glennon	0	153	123.07	.80
Central Medical Center	NA	116	96.60	.83
Christian NE & NW	11	540	471.42	.87
Compton Hill	1	228	84.67	.37
Deaconess	14	475	375.47	.79
DePaul	19	334	283.90	.85
Faith	14	132	82.63	.63
Incarnate Word	4	340	275.88	.81
Jewish	1	578	413.38	.72
Lindell	19	63	23.63	.38
Lutheran	2	339	218.16	.64
Missouri Baptist	0	365	318.90	.87
Normandy Osteopathic, N.	0	229	135.70	.59
Normandy Osteopathic, S.	0	162	138.35	.85
St. Anthony's	2	329	291.43	.90
St. John's Mercy	0	559	512.60	.92
St. Joseph - Kirkwood	1	332	246.08	.74
St. Louis Children's	2	152	128.59	.85
St. Louis City	0	530	260.23	.49
St. Louis County	1	137	87.40	.64
St. Louis University	4	318	220.58	.69
St. Lukes East	5	383	183.87	.48
St. Lukes West	1	300	225.00	.75
St. Marys	7	568	383.11	.68
Total		9,059	6675.07	.74

^aBed count is based on medical/surgical, obstetrics, pediatrics and closed beds listed on pages and of the Health Systems Plan.

^bInterpolated from the 1979 December report of the St. Louis Metropolitan Hospital utilization reports for medical/surgical, obstetrics and pediatrics.

CHAPTER 4

Basis of Operating Projections

Activity Forecasts

CHAPTER 4

The Basis of

Operating Projections

the Forecasted Inpatient Activities Report, Table 10, and the Forecasted Building and Equipment Capacity, including the hospital's historical activities, population and needs, demographic forecasts, new services being offered and the new institutional configuration.

Revenue

Revenue Services

Revenue is projected by: (1) relating the current gross inpatient revenue per patient day, and the gross outpatient revenue per emergency room visit, (2) adding sufficient amounts to recover inflationary salary and benefit increases, (3) estimating the gross patient revenue by the estimated volume activity for the specific periods. See Table 13.

	Fiscal Years Ending May 31,		
	1971	1972	1973
<u>Gross Inpatient Revenue/241,005 Days</u>			
Regular Service	\$ 77.33	\$ 80.33	\$120.09
Special Services-19	89.58	100.74	115.15
Total inpatient	\$166.91	\$181.07	\$235.24
Gross Outpatient Revenue/Emergency Room Visits			\$ 79.93

CHAPTER 4

Basis of Operating Projections

Activity Forecasts

The Forecasted Inpatient Activities Report, Table 12, was developed by Hospital Building and Equipment Company utilizing the hospital's historical activities, population use rates, demographic forecasts, new services being offered and the new institutional configuration.

Revenue

Patient Services

Gross revenue from patients were projected by, (1) calculating the current gross inpatient revenue per patient day, and the gross outpatient revenue per emergency room visit, (2) adding sufficient amounts to recover inflationary salary and supply cost and the additional depreciation and interest of the new capital project and, (3) extending the gross patient revenue by the estimated patient activity for the specific periods. See Table 13.

	Fiscal Years Ending May 31,		
	1977	1978	1979
<u>Gross Inpatient Revenue/Patient Day</u>			
Routine Service	\$ 77.93	\$ 92.35	\$120.25
Special Service-IP	<u>90.58</u>	<u>100.76</u>	<u>119.15</u>
Total Inpatient	\$168.51	\$193.11	\$239.40
Gross Outpatient Revenue/Emergency Room Visit			\$ 79.90

TABLE 12

New Central Medical Center
Forecasted Inpatient Activity

	Fiscal Years Ending May 31,			Forecasted Fiscal Years Ending May 31,				New Hospital		
	1977	1978	1979	1980*	1981	1982	1983	1984	1985	1986
Admissions	2,059	3,308	3,488	3,693	3,944	3,944	3,944	6,516	6,752	6,988
Patient Days										
Med/Surgical	25,261	29,273	30,171	33,629	33,654	33,654	33,654	49,436	51,188	52,937
ICU	1,046	1,673	1,637	1,827	1,846	1,846	1,846	2,854	2,963	3,073
Obstetrics/Gyn								6,353	6,616	6,879
Total	26,307	30,946	31,808	35,456	35,500	35,500	35,500	58,643	60,767	62,889
Average Daily Census	72	85	87	97	97	97	97	160	166	172
Percent Occupancy	81.9	84.8	79.9	97	97	97	97	82.8	85.8	88.8
Average Length of Stay	8.9	9.4	9.1	9.6	9.0	9.0	9.0	9.0	9.0	9.0
Beds-Central Medical Center	88	100	106	100	100	100	100	194	194	194
Christian Medical Center										
Emergency Visits			6,959	7,405	7,851	8,297	8,743	9,189	9,522	9,853
Adjusted Patient Days			34,128	38,042	38,090	38,090	38,090	62,921	65,200	67,477
Adjusted Occupied Beds			93	104	104	104	104	172	178	185

* 10 Months Projected

TABLE 13

Gross Patient Revenue Per Patient Day

<u>Gross Patient Revenue Per Patient Day</u>	Forecasted Fiscal Years Ending May 31,						
	1980*	1981	1982	1983	1984	1985	1986
Routine Service	\$122.13	\$134.34	\$147.77	\$162.55	\$177.18	\$193.13	\$210.51
* Special Service-Inpatient	171.95	189.15	208.07	228.88	249.48	271.93	296.40
Total Inpatient	\$294.08	\$323.49	\$355.84	\$391.43	\$426.66	\$465.06	\$506.92
Gross Outpatient Revenue Per Emergency Room Visit	102.75	113.03	124.33	136.76	149.07	162.49	177.11
Percent Increase		10.0%	10.0%	10.0%	9.0%	9.0%	9.0%

Other Operating Revenue

Other operating revenue were forecasted to increase 7% per annum to offset inflationary costs.

Deductions For Revenue

Medicare and Medicaid patients' charges for service are paid to the hospital based on allowable costs, as defined by these governmental programs. The difference between customary charges for services and the allowable cost are contractual allowances.

<u>Allowances</u>	Fiscal Years Ending May 31,		
	1978	1979	1980*
Contractual	\$721,691	\$1,091,181	\$1,759,218
Uncollectible & Charity Patient Accounts	220,114	245,836	381,202
Total	\$941,805	\$1,337,017	\$2,140,420
Allowance Ratio	.70	.79	.74

* 10 months projected.

Operating Expenses

Salaries

Salaries are forecasted on the basis of full-time employees per adjusted occupied bed. Adjusted occupied bed gives recognition to the outpatient activity (6.8% of gross patient revenue in 1980*) and is calculated by dividing the average occupied bed (average daily census) by the present inpatient revenue of the total gross patient revenue.

The average hourly salary is forecasted to increase 10.0% per annum. See Table 14.

Table 14
 1978-1980 Forecasted Salaries

Category	1978	1979	1980
Adjusted Occupied Bed	100	100	100
Employees per Adjusted Occupied Bed	1.0	1.0	1.0
Average Hourly Salary	\$4.00	\$4.40	\$4.84
Percent Increase		10.0%	10.0%
<u>Total Salaries</u>	\$400	\$440	\$484
Outpatient Salaries			
Outpatient Revenue			
Total Salaries			

TABLE 14

FTE Per Adjusted Occupied Bed1980 Through 1986

	Forecasted Years Ending May 31,						
	1980*	1981	1982	1983	1984	1985	1986
FTE per Adjusted Occupied Bed	3.4	3.3	3.2	3.1	3.0	2.9	2.8
FTE	353.6	343.2	332.8	322.4	516.0	516.2	518.0
Average hourly salary	4.85*	5.33	5.86	6.45	7.10	7.81	8.59
Percent Increase		10.0%	10.0%	10.0%	10.0%	10.0%	10.0%

Supplies and Other Expense

Supplies and other expense are forecasted to increase 12.0% per annum.

	1980**	1981	1982	1983	1984	1985	1986
Supplies & Other Expense/Adjusted Patient Day	92.40	103.49	115.91	129.81	145.39	162.84	182.38
Percent Increase		12.0%	12.0%	12.0%	12.0%	12.0%	12.0%

* 28 day period ending February 10, 1980

** Nine months ending February 29, 1980

Interest Expense

Financing anticipates a bond issue. This would be a 25 year, level debt service 10.0% issue. See Exhibit B for more detail on Debt Amortization.

	Forecasted Years Ending May 31, (000's Omitted)		
	1984	1985	1986
<u>Unpaid Principal Balance</u>	\$19,750	\$19,525	\$19,280
<u>Debt Service</u>			
Principal Reduction	205	225	245
Interest Expense	1,995	1,975	1,953
Debt Service	\$2,200	\$2,200	\$2,198

Depreciation

Depreciation on building and fixed equipment is forecasted on a straight line basis. An average life of 35 years was used for this forecast. (Renovated Section had remaining life of 25 years). All new movable equipment are on a lease basis with an average life of 8 years. Major movable equipment from old hospital carried \$31,000 annual depreciation. Current leased equipment in old Hospital will be moved to the Project.

Balance Sheet

Current Assets

Inventories were forecasted as representing 24.5 days of supplies and other expenses. Accounts receivables-net were forecasted to reduce to 60 days of net patient revenue by the first year after completion of construction, i.e., 1980 = 65 days, 1982 = 65 days, 1983 = 63 days, 1984 = 60 days, 1985 = 60 days, 1986 = 60 days.

Current Liabilities

Accrued liabilities were forecasted 22.5 days of salaries. Accounts payable were forecasted to reduce to 40 days of supplies and other expenses by third year after construction, i.e., 1980 = 12- days, 1981 = 100 days, 1982 = 90 days, 1983 = 80 days, 1984 = 70 days, 1985 = 50 days, 1986 = 40 days.

CHAPTER 5

Methodology

This chapter describes the methodology used in obtaining data for this project. The data collected in the most general collection methods fall into three general categories:

1. Factual
2. Statistical data (surveys, and financial)
3. Historical

The Methodology

Within this category is information collected from city and area records and actual demographics of the primary and secondary service areas of the Project. The decisions regarding these service areas were made from the general location of North St. Louis and North St. Louis County.

Statistical Data

This particular data in the form of historical, present, and forecasted information whether factual or projected is the basis for the justification and approval of the Project. With statistical data, trends were established.

CHAPTER 5

Methodology

This chapter describes the methodology used in obtaining data for this project. The data collected is the most current available. The collection methods fall into three general categories:

1. Factual
2. Statistical data (surveys, and financial)
 - A) Historical
 - B) Current
3. Assumptions

Factual

Within this category is information collected from city and area records and actual demographics of the primary and secondary service areas of CMC and the Project. The decisions regarding these service areas were made from the general location of North St. Louis and North St. Louis County.

Statistical Data

This particular data in the form of historical, current, and forecasted information whether factual or assumed is the basis for the justification and approval of the Project. With statistical data, trends were established,

forecasts were prognosticated, assumptions were made. Situations and conditions can often be misinterpreted if numbers, graphs, and scales are studied individually. The overall data collection bases for facts and statistics which describe the need for the revitalization of health and medical services in North St. Louis have been taken from:

1. The GSLHSA, local decision making body of the federally mandated Health System Agency under the jurisdiction of Health and Human Services (HHS).
2. The Planning Guide on Evaluation of Hill-Burton Standards prepared by the Bureau of Health Planning and Resources Development and specifically interpreted for the Project by the Health and Educational Facilities Authority of the State of Missouri as of June 1, 1981.
3. St. Louis County Medical Society of the American Medical Association.
4. The Hospital Association of Greater St. Louis.
5. The St. Louis Division of Health, Department of Vital Statistics, a data collection made on deaths by race and age.
6. Health Systems Plan, Section of the St. Louis Health Status, Mortality rate improvement objective.
7. The East/West Gateway Coordinating Council, A North St. Louis community planning and coordinating agency.

8. Hospital Building & Equipment Company, Inc., An international architect for health institutions contracted by CMC to construct the Project.
9. The Central Medical Center (CMC) records and statistics.
10. Ernst & Whinney, Auditor of CMC's balance sheets and related statements of revenues and expenses and changes in fund balance and financial position for the years ending May 31, 1977, through 1980.
11. Physician Surveys and Questionnaires, information collected from physicians in service area of CMC and the Project.

Assumptions

Within the process of realistic thinking, assumptions must be made in order to strategically plan for alternative measures if the Project should not proceed as anticipated. The Financial Feasibility Study for the Project is based on the assumption that payment of the principle, premium, and interest on the Series 1981 Bonds is dependant upon revenues to be derived from the operations of the Project. Certain risks are inherent in the production of such revenues; however, because the ability to pay debt services of the Series 1981 Bonds when due has been based on assumptions of future forecasts of revenue, such forecasts are subject to conditions which may change in the future that cannot be determined at the time of issuance of the Bonds.

There remains a number of assumptions associated with the completion of the Project. If any accepted delay occurs which will affect the receipt of revenues, the payment of the principle and interest on the Bonds may be adversely affected.

The Project is subject to regulatory actions by a number of governmental agencies. The most influential upon revenues are the Medicare and Medicaid programs, Blue Cross and Blue Shield of St. Louis. The Joint Commission of Accreditation of Hospitals, federal, state, and local agencies responsible for administration of programs will not affect payment of the debt service. Changes in any of these programs may warrant a change in operational management of the Project. An example is that ambulatory care and preventative medicine are emphasized to reduce patient admissions to the Project. This is not anticipated to hinder payment obligations. A total of 194 beds to serve 281,600 people is still inadequate. It is projected that such ambulatory care and preventative medicine programs will increase revenue as well as reserve the bed capacity for acutely ill patients.

It is assumed that any Medicare and Medicaid charges will be reasonable to meet expenses. To the extent that the Project's actual cost exceeds the Medicare and Medicaid reimbursements, these excessive costs, if determined to be reasonable, can be carried over from one year to another.

There are no assumptions relating to the sale of the Series 1981 Bonds. The majority of the Bonds were purchased by Merrill Lynch and the balance was purchased by other individuals and agencies prior to actual beginning of construction. In addition, a three-million dollar fund drive has been instituted and a large portion of this amount has been pledged.

The assumption that the population will continue to grow is regarded to be a safe assumption. The rate of patient admissions to CMC increased 120% from 1976 to 1977. This increase is attributed to the closing of the three hospitals in this area. Every year from 1977 to 1980, admissions have increased 5%.

Validity of Methodology

The research sites used to justify the Project were most comprehensive. Every source was explored and researched from federal agencies, to state, county, and city agencies. Also, a local North St. Louis agency was used, East/West Gateway Coordinating Council. The information gathered from these sources represent governmental agencies and those supported by federal grants. Because these agencies are the only sources with cumulative information and statistics, it may be considered that the data obtained from them is as correct as it can be and must be considered the best available.

With reference to biased information and statistics, only general figures could be bias. Sources of specific

figures are accumulated from individual sources and compiled and analyzed by agencies which are not affected by any decision, pro or con, regarding the Project.

The survey of the physicians located in the primary service area is not a great influencing factor of the decision making process. The response of each physician to the questions on the survey may be considered as personal opinions of the physicians rather than factual information.

Background Information

CHAPTER 6

Background Information

CHAPTER 6

Background Information

This section contains a brief history of Central Medical Center, Inc. (CMC), a description of CMC's existing facilities and services, a description of CMC's Project, and an analysis of CMC's staff.

History

CMC was organized in 1973 to acquire and operate an acute care hospital facility then known as Faith Hospital, which opened in 1950. In 1973, CMC was asked if it was interested in purchasing Christian Hospital of St. Louis, an acute care hospital located in the northern section of the City of St. Louis, approximately 1.5 miles from CMC. Rather than purchase the Christian the Christian Hospital of St. Louis, CMC organized St. Louis Christian Medical Center, Inc. (SLCMC), to acquire ownership of the Christian Hospital of St. Louis.

CMC and SLCMC are separate non-profit corporations. Certain members of their Boards of Directors are identical and they have identical corporate officers. In 1975, as part of the long range capital improvement programs of CMC and SLCMC, it was decided that it would ultimately be necessary to consolidate the operations of the Faith (renamed

Central Medical Center) and Christian Hospital in a new hospital facility or a modernized facility with increased capacity.

In 1976, the SLCMC closed it's health care services and was consolidated into the present CMC facility to increase efficiency by discontinuing duplicate health services and staffs. The SLCMC facility has been vacant since the consolidation. The SLCMC site is to be the site of the Project.

Upon issuance of the Series 1981 Bonds, CMC will purchase all the real property of SLCMC. On February 10, 1981, SLCMC transferred the 1122 "finding of need" issued by the Missouri State Health Planning and Development Agency to CMC as approved by the Missouri State Planning and Development Agency in a letter dated February 18, 1981.

CMC is licensed by the appropriate state agencies and was accredited by the Joint Commission of Accreditation of Hospitals for a two-year period commencing October 22, 1980, in a letter dated February 23, 1981. CMC meets all requirements for participation in the Medicare and Medicaid programs. In addition, CMC is a member of the Missouri Hospital Association and Metropolitan Hospital Association.

CMC provides internships in association with the St. Louis College of Pharmacy, for the pharmacy students of St. Louis University and Washington University in St. Louis, for social service students; and residencies in association

with St. Louis University and MeHarry Medical College of Nashville, Tennessee, for hospital administration students. CMC has established a relationship with Lincoln University in Jefferson City, Missouri for nursing students, and with MeHarry Medical College for interns and residents to gain clinical experience at the Project upon its completion. CMC also has an educational department which serves as a resource center for all education and inservice programs.

The current CMC facility consists of a four story brick structure constructed in 1949, which contains approximately 106,800 square feet and is located on 3.2 acres of land. In December of 1978, a three-story addition to the west side of the existing facility was completed. The addition added twenty-eight acute care medical/surgical beds, and provided additional space for the emergency room, laboratory, and the business office, which opened in January of 1979. Sixteen beds were taken out of service to provide for certain ancillary services including physical therapy, respiratory therapy, nursing conference rooms, and electroencephalography (EEG). The CMC facility currently has an operating capacity of 100 beds, and as of April 16, 1981, was licensed by the Missouri State Department of Health as an 116 bed acute care facility.

The operational bed compliment, patient days, and percents of occupancy by medical service for CMC for the

fiscal years ending May 31, 1978, 1979, 1980, and the ten months ending March 31, 1981, are summarized on the following page (Table 15).

Table 15
Patient Satisfaction Program

Figure	Fiscal Year		Fiscal Year		Fiscal Year		Fiscal Year		Total
	1978	1979	1980	1981	1978	1979	1980	1981	
Number of patients surveyed	100	100	100	100	100	100	100	100	400
Number of patients who responded	85	85	85	85	85	85	85	85	340
Number of patients who were satisfied	75	75	75	75	75	75	75	75	300
Number of patients who were dissatisfied	10	10	10	10	10	10	10	10	40
Percentage of patients who were satisfied	87%	87%	87%	87%	87%	87%	87%	87%	87%
Percentage of patients who were dissatisfied	13%	13%	13%	13%	13%	13%	13%	13%	13%
Total	100	100	100	100	100	100	100	100	400

Source: National Patient Satisfaction Survey, April 1981.

TABLE 15

Patient Utilization Summary

	Years ended May 31,									Ten months ended		
	1978			1979			1980			March 1981		
	Number of beds	Patient days	Percent occupancy	Number of beds	Patient days	Percent occupancy	Number of beds	Patient days	Percent occupancy	Number of beds	Patient days	Percent occupancy
Medical/ surgical	94	29,273	85.3%	94	32,015	93.3%	94	32,547	94.9%	94	25,413	88.9%
Intensive care	<u>6</u>	<u>1,673</u>	76.4	<u>6</u>	<u>1,637</u>	74.4	<u>6</u>	<u>1,687</u>	77.0	<u>6</u>	<u>1,284</u>	70.4
Total	<u>100</u>	<u>30,946</u>	<u>84.8%</u>	<u>100</u>	<u>33,652</u>	<u>92.2%</u>	<u>100</u>	<u>34,234</u>	<u>93.8%</u>	<u>100</u>	<u>26,697</u>	<u>87.8%</u>

Source: Central Medical Center, Inc. April 1981.

Project

Since the site and structure of the current CMC facility prohibits either vertical or horizontal expansion, it was decided to construct a new 154 bed acute care hospital on the site currently owned by SLCMC.

The Series 1981 Bonds are being issued primarily to provide funds for the construction of the new hospital and the reconstruction of a portion of the building currently on the Project site.

The new construction will include the construction of a new east, north, and south wing to the lower level, first and second floors, and a new north wing on the third floor. The lower level of the wings will provide space for the business office, accounting department, data processing, physical therapy, kitchen, dining room, lockers, morgue, purchasing, maintenance, and general stores. The ground floor will contain administrative offices, medical records, lobby entrance, gift shop, telephone service, utilization review office, expansion of the laboratory, four general operating suites, cystoscopy and recovery room, pharmacy, intravenous additive mixture room, admitting, employee health, EEG, ECG, and respiratory therapy. The first floor will provide space for a medical library, classrooms, nursing administration, medical director/administrative suite, a forty patient medical/surgical nursing unit, and

another forty patient medical/surgical nursing unit consisting of sixteen newly constructed beds and twenty-four renovated beds. The second floor wing will contain a ten patient intensive and coronary care unit, a "shelled-in" forty patient medical/surgical nursing unit and another forty patient medical/surgical unit consisting of sixteen newly constructed beds and twenty-four renovated beds. This unit will have some monitored beds adjacent to intensive and coronary care. The third floor wing will provide two additional labor rooms, two on-call rooms, twenty-four obstetrics/gynecology beds and a nursery. Approximately 110,650 gross square feet will be constructed. Upon completion, the total project will contain 154 newly constructed beds of which forty medical/surgical beds will be "shelled in" space, bringing the bed compliment to 194. The Project will contain 147,117 gross square feet, will be primarily of concrete and brick construction and will meet with current Federal Life Safety Codes.

The reconstruction consists of the major reconstruction of a portion of the original Christian Hospital facility which is located on approximately 5.5 acres of land. The original Christian Hospital facility was substantially demolished in 1979, and currently a wing constructed in 1962 is the remaining portion. This remaining portion of the building has been subjected to extensive vandalism and consists primarily of an exterior shell.

Upon completion of construction this area will provide space for forty-eight acute care beds, consisting of twenty-four renovated acute care beds on the first and second floors. This portion of the Project will consist of 36,500 gross square feet and certain ancillary departments, clean and soiled linen storage area, central sterile supply department, housekeeping, male employees lockers, archives storage, x-ray procedure rooms, combined nuclear medicine and ultrasound, laboratory, emergency and out-patient departments.

The present and proposed bed compliment of the Project are shown below.

	<u>Bed Compliment</u>	
	<u>Proposed Operational Capacity After Project</u>	<u>Present Operational Capacity</u>
Medical/Surgical	120 ⁽¹⁾	94
Intensive Care	10	6
Obstetrics/Gynecology	<u>24</u>	<u>-</u>
	154	100
Nursery Bassinets	<u>18</u>	<u>0</u>

(1) An additional 40 medical surgical beds will be "shelled in" space.

Construction of the Project is scheduled to commence June, 1981 and is expected to be completed in February, 1983, approximately twenty months.

In April, 1977, SLCMC received notification from the Missouri Department of Social Services, Division of Health, stating that a license would be issued to the Project provided it is constructed in accordance with plans as approved by the State of Missouri's Bureau of Health Facilities Planning and Construction, and operated in accordance with the present Missouri Hospital Licensing Law, Regulations, and Codes. CMC received a letter from the Missouri Department of Social Services, Division of Health, stating that CMC must make application for license for the Project; this letter has indicated their policy would not permit the change and subsequent transfer of current license.

On August 20, 1979, section 1122 of the Federal Social Security Act as amended became effective for the State of Missouri. In September, 1980, the Greater St. Louis Health Systems Agency (GSLHSA) recommended approval of the Project and on October 2, 1980, the Missouri State Planning and Development Agency (SHPDA) granted approval for the Project to SLCMC. CMC received a letter dated February 18, 1981, from SHPDA approving the transfer of 1122 "finding of need" from SLCMC to CMC.

The construction contract for the Project provides for the construction of a facility with a capacity of 194 beds, but to complete only 154 beds in the initial phase. When funds become available during the construction period, the



additional forty medical/surgical beds will be completed.

CMC is approved for \$17,920,273 to construct a 194 bed acute care facility or construct a 154 bed acute care facility and to "shell in" forty beds. In a letter dated April 28, 1981, the SHPDA review committee approved a cost overrun of \$500,000 for the completion of the forty "shelled in" beds with the understanding that the funds to complete these beds will be provided through fund raising by CMC.

Board of Directors

The Board of Directors of CMC is required by its Bylaws to consist of at least three members, but not more than twenty-five members, including the Chief Executive Officer; as of December 31, there were ten members. Members of the Board of Directors are elected for three year staggered terms. CMC's Board of Directors are vested with the governing powers of CMC and have the authority and responsibility to manage and control the property, business funds and affairs of CMC.

Administrative Staff

The Board of Directors choose a President to regulate the business of CMC subject at all times to the control and direction by the Board of Directors. Other key administrative positions include the Chief Executive Officer, Medical Director, Director of Finance, Director of Patient Care Services, and Director of Support Services.

Hospital Services

CMC anticipates that upon completion of the Project it will provide the following services:

Medical Services

Operating Room	Electrocardiology
Recovery Room	Pathology & Laboratory
Intensive Care Unit	Respiratory Therapy
Pharmacy	Physical Therapy
Radiology	Obstetrics & Gynecology
Nursing Service	Social Services (Home & Hospice)
Medical	Dental Services
Surgical	Podiatric Services
Intensive	Emergency Room
Electroencephalography	Gastroenterology

CMC currently offers limited diagnostic nuclear radiology. This service will be expanded in the Project to include combined nuclear medicine and ultrasound. CMC currently offers outpatient services; however, outpatient services in the Project will be an organized department. The Project will, in addition, offer home health services and obstetrical and gynecological services.

Medical Staff

CMC is an open staff hospital with every qualified physician, dentist, and podiatrist being eligible for membership on CMC's medical staff.

As of December 31, 1980, there were 87 members of the Medical Staff: 50 active members, 18 associate members, 5 courtesy members, 6 consulting members, 6 honorary members, and 2 provisional members.

CMC currently has an emergency room medical staff which has fifteen members and provides services on a contractual basis. The emergency room is operated on a 24 hour basis.

Active staff members are those who regularly admit patients to CMC. Active staff members assume all the functions and responsibilities of the active staff including, where appropriate, attending free patients in CMC, emergency service care and consultation assignments. Active staff members are appointed to a specific medical service, are eligible to vote, to hold Medical Staff office, to serve on Medical Committees, and are required to attend Medical Staff meetings.

Associate staff members are those selected from courtesy staff members who, after an initial period of one year, may advance to this position and who have expressed the desire to become an active member. One year after appointment, associate staff members are eligible to become active staff members or remain associate members. Associate staff members are appointed and assigned to departments in the same manner as active staff members, they shall attend free patient at CMC and are ineligible to hold Medical Staff office but are eligible to vote on Medical Staff matters, and may serve on all Medical Staff Committees except the Executive Committee.

Courtesy staff members are those who occasionally admit patients to CMC. One year after appointment, courtesy staff members are eligible to become associate staff members or

remain as courtesy staff members. Courtesy staff members who admit more than ten patients per Medical Staff Year must apply for membership on the associate staff. Courtesy staff members are appointed and assigned to departments in the same manner as active members, are ineligible to hold Medical Staff Office or vote on Medical Staff matters, but may be appointed to serve on Medical Staff Committees except the Executive Committee.

Consulting staff members are those of recognized professional ability who are not active at CMC and have signified willingness to accept such appointment. Consulting staff members shall give their services without charge in the care of free patients on the request of any member of the Medical Staff. In cases in which consultation is requested by the rules of CMC, these services may be given with charge. Consulting staff members are ineligible to hold Medical Staff Office or vote on Medical Staff matters, but may be appointed to serve on special Medical Staff Committees.

Honorary staff members are those who are not active in CMC and who are honored by emeritus positions. Honorary staff members are those who have retired from active hospital service or who are of outstanding reputation. Honorary staff members may apply for and be granted admission privileges, but patients so admitted by them, must be provided automatic consultation from the chief of the department in which the patient's medical diagnosis has been determined. Honorary

staff members shall not have assigned duties, shall not pay dues, are not eligible to vote on Medical Staff matters or hold Medical Staff office.

Provisional staff members are those members who have initial appointments to the Medical Staff, not including honorary or consulting staff members, and shall be for a period of not less than three months. Provisional staff members are assigned to a medical service where their performance and clinical competence are observed.

Of the members of the active staff, 36.0% are board certified. Certification by a medical specialty board is evidence that a physician has participated in programs of graduate medical education based upon high academic standards, has acquired competence in a medical specialty and has demonstrated proficiency by passing national examinations for that specialty.

The specialties of the members of the Medical Staff and the Board Certifications and eligibilities of the active staff members of CMC are shown on Tables 16 and 17.

TABLE 16
Active Staff Board Certification and Eligibility
As of December 31, 1980

	<u>Active Physicians</u>	<u>Active Board Certified</u>	<u>Active Board Eligible</u>	<u>Board Certified as a Percent of Specialty</u>
Anesthesiology	1	1		100.0%
Dentistry	2			-
Family Practice	3			-
Internal Medicine	5	1	3	20.0
Obstetrics/ Gynecology	5	1	4	20.0
Ophthalmology	2		2	-
Pathology	4	4		100.0
Radiology	2	1	1	50.0
Surgery				
General	13	9		69.2
Neurosurgery	1		1	-
Orthopedic	1			-
Thoracic	1	1		100.0
Urology	2	1	1	50.0
	<u>51</u>	<u>19</u>	<u>12</u>	
Percentage	<u>100.0%</u>	<u>36.0%</u>	<u>24.0%</u>	

Source: Central Medical Center, Inc., April, 1981.

TABLE 17

Medical Staff by Specialty as of December 31, 1980

	<u>Active</u>	<u>Associate</u>	<u>Courtesy</u>	<u>Consulting</u>	<u>Honorary</u>	<u>Provisional</u>	<u>Total</u>	<u>Average Age in Years</u>
Anesthesiology	1						1	42.0
Dentistry	2	2	1			1	6	40.2
Family Practice	3	1	2		1		7	61.5
Internal Medicine	5	4	1	1	2		13	47.9
Obstetrics/Gynecology	5	2		1			8	47.5
Ophthalmology	2	1		1		1	5	40.0
Otolaryngology					1		1	74.0
Pathology	3	1					4	51.9
Pediatrics				1			1	52.0
Podiatry	9	5					14	39.2
Psychiatry			1				1	50.0
Radiology:								
- Diagnostic	2						2	49.0
Nuclear Medicine				1			1	40.0
Surgery:								
General	13	1			2		16	56.4
Neurosurgery	1						1	50.0
Oral				1			1	74.0
Orthopedic	1						1	79.0
Thoracic	1						1	38.0
Urology	<u>2</u>	<u>1</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>3</u>	45.5
Totals	<u>50</u>	<u>18</u>	<u>5</u>	<u>6</u>	<u>6</u>	<u>2</u>	<u>87</u>	<u>49.1</u>

Source: Central Medical Center, Inc., April, 1981.

The average age of the physicians on the active staff as of December 31, 1980, was 50.3 years, as shown in the following schedule.

Average Age of Active Staff

<u>Specialty</u>	<u>Number of Active Physicians</u>	<u>Average Age (years)</u>
Anesthesiology	1	42.0
Dentistry	2	50.9
Family Practice	3	58.8
Internal Medicine	5	50.2
Obstetrics/Gynecology	5	49.5
Ophthalmology	2	38.9
Pathology	4	57.4
Podiatry	9	43.0
Radiology	2	49.3
Surgery		
General	13	53.4
Neurosurgery	1	50.0
Orthopedic	1	79.0
Thoracic	1	38.0
Urology	2	50.3
Total active physicians	<u>51</u>	<u>50.3</u>

The table on the following page sets forth the age groups and number of admissions of the active staff members for the year ended December 31, 1980, accounting for 90.1% of the admissions to CMC. (Table 18.)

TABLE 18

Age Groups and Patient Admissions of
Active Medical Staff as of December 31, 1980

<u>Age Groups</u>	<u>Active Physicians</u>			<u>Admissions</u>		
	<u>Number</u>	<u>Percent of Total</u>	<u>Cumulative Percent</u>	<u>Number</u>	<u>Percent of Total</u>	<u>Cumulative Percent</u>
26-30	2	4.0%	4.0%	31	0.9%	0.9%
31-35	3	6.0	10.0	389	10.6	11.5
36-40	7	14.0	24.0	666	18.2	29.7
41-45	7	14.0	38.0	55	1.5	31.2
46-50	7	14.0	52.0	522	14.3	45.5
51-55	6	12.0	64.0	1,158	31.7	77.2
56-60	10	20.0	84.0	407	11.1	88.3
61-65	4	8.0	92.0	55	1.5	89.8
Over 65	4	8.0	100.0	10	0.3	90.1
Total	<u>50</u>	<u>100.0%</u>		<u>3,293</u>	<u>90.1</u>	
Other Admissions by non-active physicians				<u>363</u>	<u>9.9</u>	<u>100.0</u>
Total				<u>3,656</u>	<u>100.0%</u>	

Source: Central Medical Center, Inc., April, 1981.

The table below details the specialty, age, and admissions of the major admitting physicians for the year ended December 31, 1980. These ten physicians accounted for 69.9% of the admissions to CMC.

TABLE 19
Ten Leading Admitting Physicians

<u>Age</u>	<u>Specialty</u>	<u>Year Ended December 31, 1980 Patient Admissions</u>	<u>Percent Total Admissions For Year Ended December 31, 1980</u>
53	General Surgery	396	10.9%
32	Internal Medicine	373	10.2%
54	General Surgery	344	9.4%
59	General Surgery	247	6.8%
48	General Surgery	230	6.3%
38	Obstetrics/Gynecology	228	6.2%
50	General Surgery	218	6.0%
52	Internal Medicine	206	5.6%
38	Thoracic & General Surgery	172	4.7%
38	Internal Medicine	140	3.8%
		<hr/>	<hr/>
		<u>2,554</u>	<u>69.9%</u>
	Average age (years)	<u>46.2</u>	

Source: Central Medical Center

An analysis of the composition and turnover of the total Medical Staff beginning January 1, 1976, through December 31, 1980, is presented below.

TABLE 20
Medical Staff
Composition and Turnover

	<u>Active Medical Staff</u>		<u>Total Medical Staff</u>	
January 1, 1976		50		61
Additions	8		4	
Deletions	(<u>0</u>)	<u>8</u>	(<u>2</u>)	<u>2</u>
January 1, 1977		58		63
Additions	3		4	
Deletions	(<u>0</u>)	<u>3</u>	(<u>4</u>)	<u>0</u>
January 1, 1978		61		63
Additions	7		12	
Deletions	(<u>15</u>)	(<u>8</u>)	(<u>4</u>)	<u>8</u>
January 1, 1979		53		71
Additions	4		8	
Deletions	(<u>6</u>)	(<u>2</u>)	(<u>4</u>)	<u>4</u>
January 1, 1980		51		75
Additions	0		15	
Deletions	(<u>1</u>)	(<u>1</u>)	(<u>3</u>)	<u>12</u>
December 31, 1980		<u>50</u>		<u>87</u>

Source: Central Medical Center

The Medical Staff has increased 42.6% from January 1, 1976, to December 31, 1980.

Physician Recruitment

CMC will be developing and implementing a physician recruitment program to obtain twenty-five additional physicians during the next two years. Certain specialties which will be emphasized in the recruitment program are gastroenterology, obstetrics and gynecology, orthopedics, otolaryngology and pediatrics. The recruitment program will be through a local medical association, and through nationwide direct mailing recruiting. CMC also plans to construct a medical arts building in close proximity to the Project to provide office space for newly recruited physicians.

CMC has recruited twenty-three physicians during the period December 31, 1980 through April 16, 1981. Eighteen physicians have applications which are being acted upon by the Board of Directors and have been granted provisional status. These physicians have joined the medical practices of existing CMC Medical Staff members or have their medical practices within the CMC service area. Table 21 on the following page indicates the medical specialties and age of the physicians whose applications have been approved or are pending approval of the Board of Directors.

Internal Medicine/Surgery

Granted provisional status

In addition, a general surgeon, age 33, who has no applications during 1980 resigned as of April 15, 1981.

Source: Central Medical Center

TABLE 21

Specialties and Ages of New Physicians
Recruited as of April 16, 1981

<u>Medical Specialty</u>	<u>Age</u>
General & Cardiovascular Surgery ⁽¹⁾	34
Family Practice	44
Family Practice ⁽¹⁾	29
Ophthalmology ⁽¹⁾	35
Gynecology	34
Urology	33
General Surgery	37
Podiatry	27
Family Practice & Psychiatry	38
Obstetrics/Gynecology	45
Anesthesiology	49
Radiology	34
Dentistry	26
Family Practice ⁽¹⁾	64
Neurology	39
Obstetrics/Gynecology	43
Psychiatry & Family Practice	37
Psychiatry	37
Cardiology	38
General Practice & General Surgery	54
Family Practice	31
Orthopedics	33
Internal Medicine/Nephrology	37

⁽¹⁾ Granted provisional status

In addition, a general surgeon, age 63, who has no admissions during 1980 resigned as of April 15, 1981.

Source: Central Medical Center

CHAPTER 7

Demographic Characteristics

of the Service Area

CHAPTER 7

Demographic Characteristics

of the Service Area

CHAPTER 7

Demographic Characteristics
of the Service Area

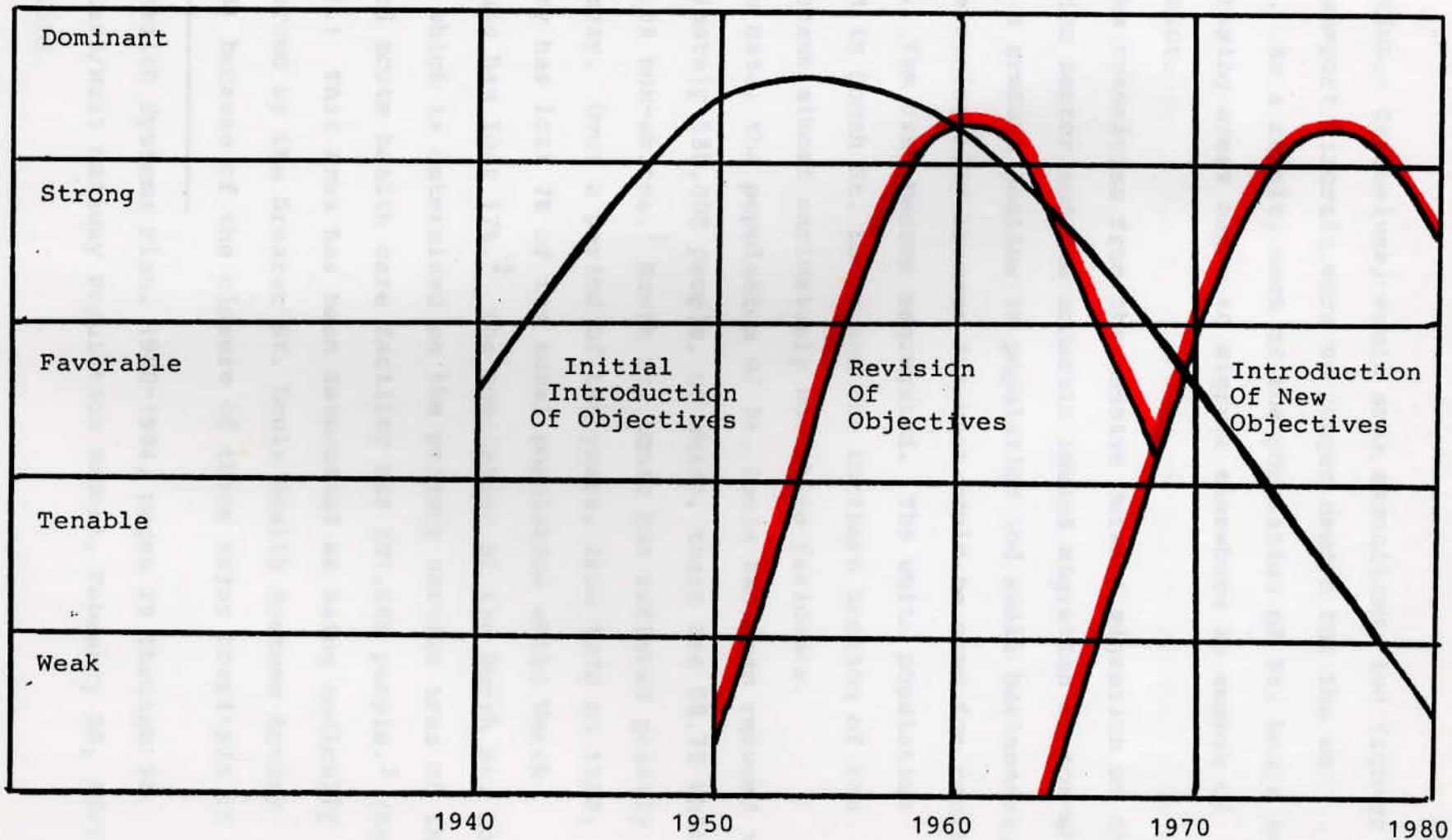
The basis for this study is to attempt to validate the need for the construction of a new acute care health facility in North St. Louis. In order to understand this need more fully, a brief history of the life cycle of St. Louis City will be presented.

The City of St. Louis reached it's maturity in the early 1940's during World War II. During this time the population of the city jumped to nearly 900,000 due to heavy influx of people seeking temporary jobs which were created by the Federal Government as a result of the war.

A munitions plant was built for the purposes of manufacturing small ammunition for rifles and small fire arms. This plant was built at Inter-State Highway 70 on Goodfellow. McDonnell Douglas at Lambert Field was issued Federal contracts to build fighter and transport aircraft. A plant was built on farm land in Weldon Spring, Missouri, to make and store explosives. Because of the urgency of the need for war materials, the job market exploded almost overnight. Many small businesses opened and existing businesses expanded to supply the personal needs and demands of this tremendous upsurge in population.

After the war, St. Louis began to slowly decline in

COMPOSITE STRATEGY OF THE LIFE CYCLE
OF ST. LOUIS BETWEEN 1940 TO 1980



— Life cycle of St. Louis between 1940 to 1980
— What may have been done to avoid present inner-city decay.

Figure 1

population. Explosives, small arms ammunition, and fighter and transport aircraft were no longer needed for the war effort. As a result, much of the population of St. Louis and the outlying areas began to migrate elsewhere in search of employment.

The transition from the massive outward migration of the caucasian sector and the moderate inward migration of non-whites caused a gradual decline in population and small businesses, thus lessening city revenue for what could be used for revitalization. The city became segregated. The white population settled in South St. Louis and the northern portion of the city became almost exclusively non-white residents.

To date, the population of St. Louis has been reduced to approximately 580,000 people, of which, there are 58.7% whites and 41.3% non-whites.¹ North St. Louis has suffered greatly from decay. Over a period of ten years, from 1970 to 1980, the city has lost 7% of its total population while North St. Louis has lost 17%.² The population of the North St. Louis sector which is determined as the primary service area of the proposed acute health care facility has 281,688 people.³ (See table 1.) This area has been determined as being medically underserved by the Greater St. Louis Health Systems Agency (GSLHSA) because of the closure of three major hospitals in

¹Health Systems Plan, 1980-1984, pages 29 through 38.

²East/West Gateway Population Report, February 20, 1979.

³ibid.

the area, in spite of the fact that the City of St. Louis, as a whole, has been determined to have an excess of hospital beds. North St. Louis, because of neglect, has shown trends of becoming a major inner-city problem. Small businesses have failed and a large percentage of the non-skilled population have joined the welfare roles. Because of the lack of municipal revenue, the North St. Louis sector has been left with two choices: one is to continue in inner-city decay and poverty and the other is to make an effort to revitalize itself through its own efforts.

Characteristics of the Service Area

This section sets forth the location of CMC and the Project site, the determination of CMC's primary and secondary service areas, and an analysis of selected demographic and economic factors relating to the service areas of CMC.

Location of the Facilities

CMC's current facility is located on North Kingshighway between Natural Bridge and St. Louis Avenues in the City of St. Louis, Missouri. The Project site is located at the intersection of North Newstead and Carter, 0.5 miles east of CMC.

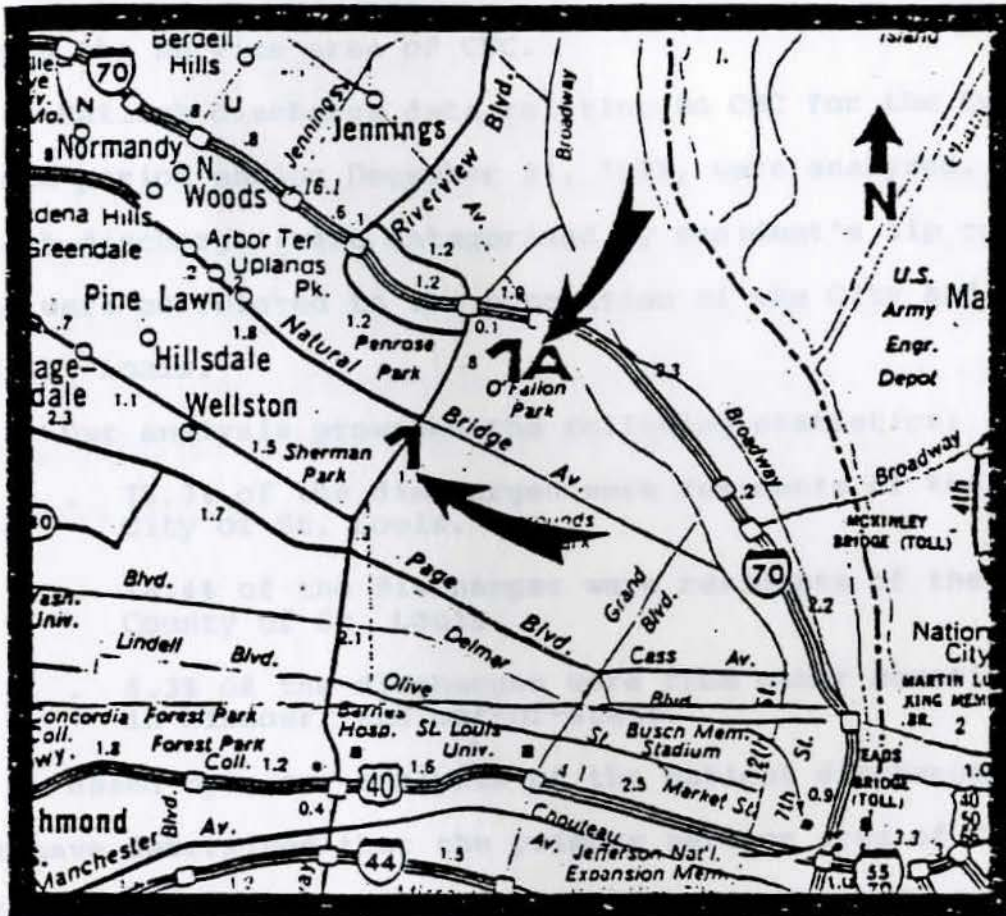
Interstate Highway 70, an east/west freeway, is located approximately 1.0 mile from CMC and 0.5 miles from the Project. The location of the two facilities is indicated on the map on the following page. See Map #1.



- I. Central Medical Center
- II. The Project

MAP 1

Location of Central Medical Center & the Project



1. Central Medical Center

1A. The Project

Determination of the Service Areas

The geographical areas to be served by the Project can be defined by an analysis of the location of the residences of the patients admitted to CMC. The map on page 79 indicates the service area of CMC.

Patient discharge data relating to CMC for the twelve month period ending December 31, 1979, were analyzed. Patient discharges were categorized by resident's zip codes and were correlated to the population of the City and County of St. Louis.

Our analysis provided the following statistics:

- . 75.3% of the discharges were residents of the City of St. Louis.
- . 18.4% of the discharges were residents of the County of St. Louis.
- . 6.3% of the discharges were from other counties in Missouri and out-of-state.

Based upon our analysis of the patient discharge data, we have determined that the primary service area of CMC consists of an area coterminous with nine designated zip code areas in the northern portion of the City of St. Louis and four adjacent zip codes in the northeast portion of the County of St. Louis. Our analysis determined that 88.3% of the patients discharged from CMC for the twelve month period ending December 31, 1979, resided in the primary service area. We have determined that the secondary service area of CMC includes an additional fourteen zip code areas located

adjacent to or near those which comprise the primary service area.

Based on the locations of the two facilities, the service areas of the Project are expected to be consistent with CMC's service area.

Population

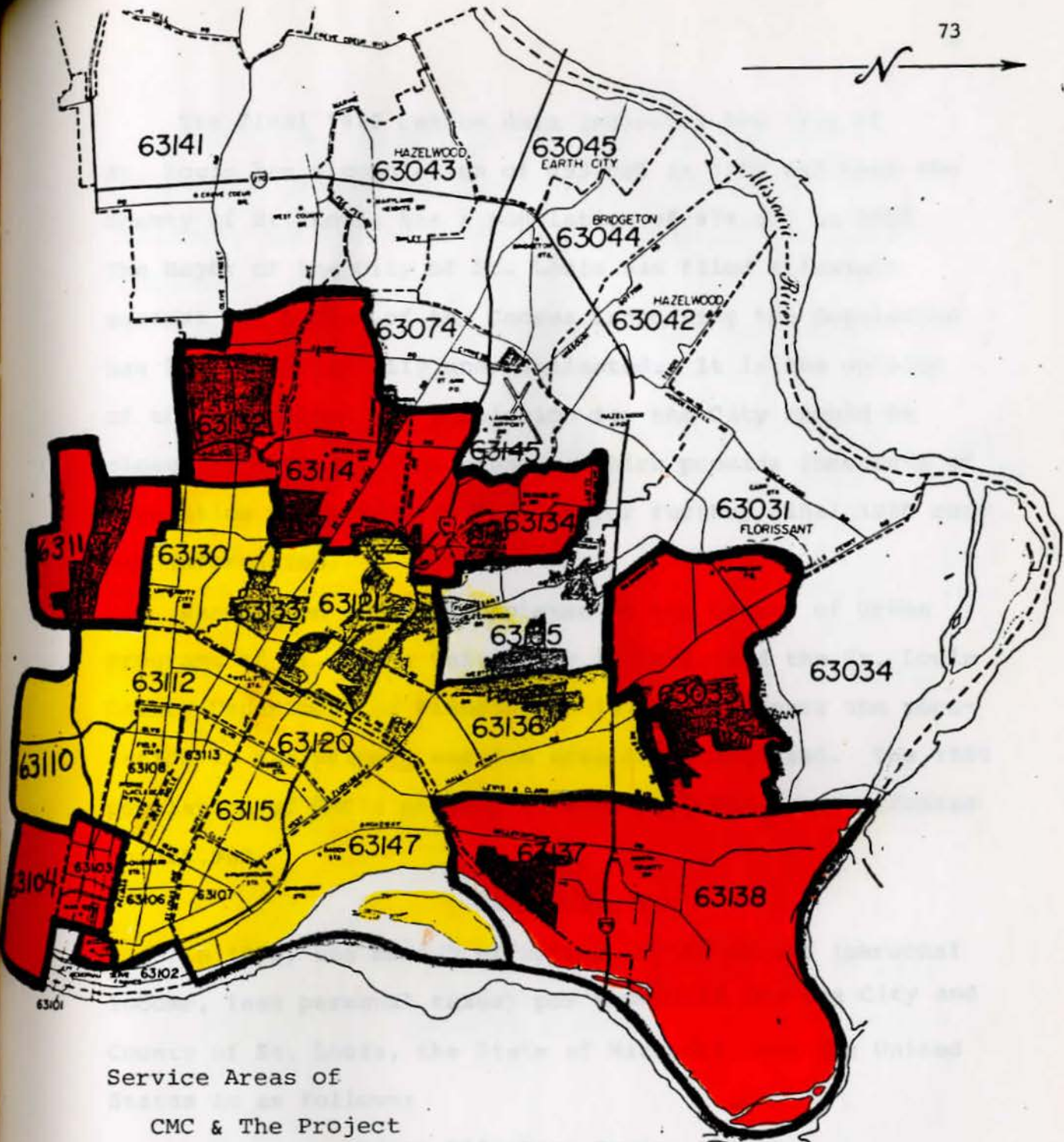
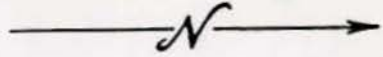
The schedule on Table 22 presents historical and forecasted population statistics for the City of St. Louis and St. Louis County. These population forecasts were prepared by the East/West Gateway Coordinating Council, the source of population information for the Greater St. Louis Health Systems Agency.

TABLE 22

Population of the City and County of St. Louis

	Estimated 1980	Forecasted		Average Annual Percentage Increase	
		1985	1990	1980/'85	1985/'90
City of St. Louis	508,000	523,400	536,800	0.60%	0.51%
County of St. Louis	<u>1,028,800</u>	<u>1,078,600</u>	<u>1,123,500</u>	0.95	0.82
City and County of St. Louis	<u>1,536,800</u>	<u>1,602,000</u>	<u>1,660,300</u>	0.83	0.72

Source: East-West Gateway Coordinating Council, 1979.



Service Areas of
 CMC & The Project

- Primary Service Area
- Secondary Service Area

The final 1980 census data indicates the City of St. Louis has a population of 453,085 in 1980 and that the County of St. Louis has a population of 974,815 in 1980. The Mayor of the City of St. Louis has filed a lawsuit against the Bureau of the Census indicating the population has been substantially underestimated. It is the opinion of the Mayor that the population for the City should be closer to 500,000. The agencies which provide forecasts of population are presently waiting for further final 1980 census information.

Based upon studies completed by the Center of Urban Programs of St. Louis University in 1980, and the St. Louis County Department of Planning in 1978, it appears the population in the primary service area has stabilized. The 1980 population of CMC's primary service area has been estimated at 380,901.

Family Income

In 1979, the median effective buying income (personal income, less personal taxes) per household for the City and County of St. Louis, the State of Missouri, and the United States is as follows:

	Median Effective Buying Income
	<u>1979</u>
City of St. Louis	\$14,843
County of St. Louis	24,494
State of Missouri	16,416
United States	17,924

Source: Sales & Marketing Management, "Survey of Buying Power". 1980.

The income distribution in 1979 for residents of the City of St. Louis, the County of St. Louis, the State of Missouri, and the United States is shown in the following schedule:

Household Income Distribution Percentage
of Households 1979

	Less than <u>\$8,000</u>	\$8,000 to <u>\$9,999</u>	\$10,000 to <u>\$14,999</u>	\$15,000 to <u>\$24,999</u>	OVER <u>\$25,000</u>
City of St. Louis	28.1%	6.5%	15.9%	28.0%	21.5%
County of St. Louis	9.7	1.8	8.8	30.5	48.2
State of Missouri	25.3	5.7	14.7	28.3	26.0
United States	21.2	5.4	14.4	29.5	29.5

Source: Sales & Marketing Management, "Survey of Buying Power", 1980.

Housing

Following is a schedule of building permit activity in the City of St. Louis.

Residential Building Permits
City of St. Louis

<u>Year</u>	<u>Number of New Single-Family Residential Building Permits</u>	<u>Number of New Multiple-Family Residential Building Permits</u>
1975	13	158
1976	9	431
1977	34	62
1978	28	311
1979	42	14
1980	37	95

Source: Building Division, City of St. Louis, April, 1981.

Employment

There are ninety-two nongovernment employers in the St. Louis Metropolitan area which employ 1,000 or more employees.

Below are unemployment rates for the City of St. Louis, the County of St. Louis, the State of Missouri, and the United States for the years 1975 through 1980.

Comparison of Average Unemployment Rates

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
City of St. Louis	8.6%	8.4%	7.7%	6.5%	6.0%	8.3%
County of St. Louis	6.3	6.2	5.5	4.5	4.2	6.4
State of Missouri	6.9	6.2	5.9	5.0	4.5	7.0
United States	8.5	7.7	7.0	6.0	5.8	7.1

Source: State of Missouri Division of Employment Security
April, 1981.

Transportation

Public bus transportation in CMC's primary and secondary service areas is provided by the Bi-State Development Agency.

CHAPTER 8

Forecasted Demand and Provisions for Utilization

This chapter describes patterns and trends in the utilization of hospitals within the service area of CHC, describes competitive hospitals, present acute care bed need forecasts, and describes health care facilities which would be competitive to CHC.

Rate of Admissions - CHC's Service Area

Inclusive of CHC, there are eight acute care hospital facilities containing 7,187 acute care beds, located in CHC's primary service area. There are also seven facilities containing 7,047 acute care beds located in CHC's secondary service area.

and Competitive Hospital Facilities

Based upon our discussions with representatives of the Greater St. Louis Health System Agency (GHSMA), the management of CHC, the location of the competitive hospitals, and our analysis of patient origin data, the seven hospitals located in CHC's primary service area were identified as directly competitive. Initially, there were eight competitive hospitals located in

¹ Average number of beds for the 12 month period ending December 31, 1980, per Hospital Commission of Metropolitan St. Louis Association, April, 1981.

CHAPTER 8

Forecasted Demand and
Provisions for Utilization

This section describes patterns and trends in the utilization of hospitals within the service area of CMC, describes facilities and services of competitive hospitals, present acute care bed need forecasts, and describes health care facilities which would be competitive to CMC.

Rate of Admissions - CMC's Service Areas

Inclusive of CMC, there are eight acute care hospital facilities containing 3,163 acute care beds, located in CMC's primary service area and six acute care hospital facilities containing 1,949 acute care beds located in CMC's secondary service area.¹

Competitive Hospital Facilities

Based upon our discussions with representatives of the Greater St. Louis Health Systems Agency (GSLHSA): the management of CMC, our interviews with the Medical Staff survey; location of the competitive hospitals; and our analysis of patient origin data, the seven hospitals located in CMC's primary service area were identified as directly competitive. Initially, there were eight competitive hospitals located in

¹Average number of beds for the 12 month period ending December 31, 1980, per Hospital Association of Metropolitan St. Louis Statistics, April, 1981.

CMC's primary service area. Homer G. Phillips, one of the eight competitive hospitals closed on August 17, 1979. The six hospitals located in the secondary service area along with two other hospitals were identified as secondarily competitive to CMC.

The two hospitals considered secondarily competitive which are not located in the secondary service area include Deaconess Hospital with 527 beds and DePaul Community Health Center with 470 beds. These hospitals were considered competitive because certain physicians on the CMC staff also have admitting privileges at these facilities.

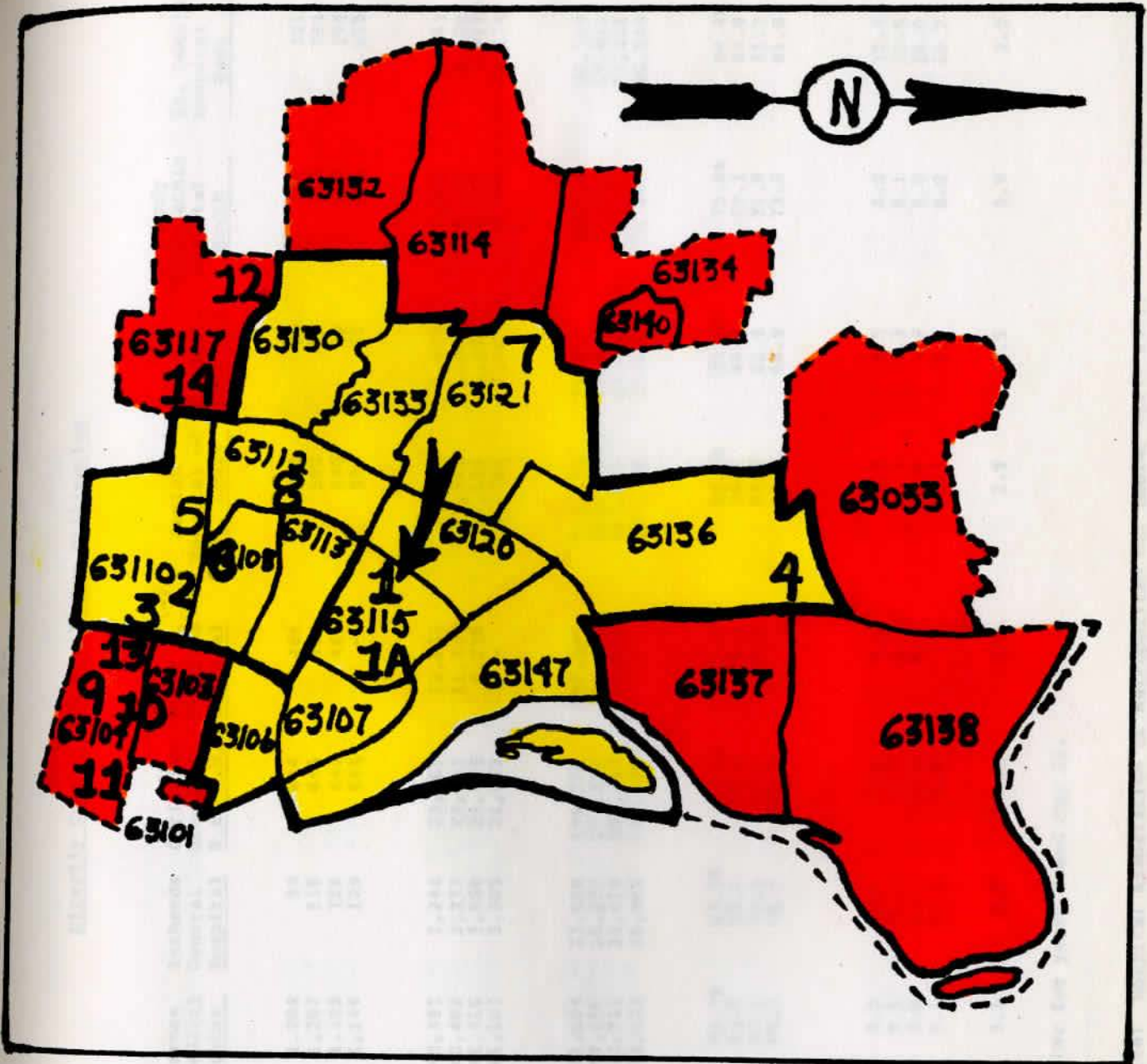
The map on the next page indicates the location of CMC, the Project, and the competitive facilities.

On Tables 23 and 24 are summaries of the bed compliments, admissions, patient days, occupancy rates, and average length of stay at CMC, and the competitive facilities for the calendar years 1977 through 1980.

Comparison of Facilities

The charts on pages 89 and 90 compare the facilities and medical services of the competitive facilities. The information in the charts was published in the 1980 American Hospital Association's "Guide to the Health Care Field".

(Tables 25 and 26.)



- 1. Central Medical Center
- 1A. The Project

Primary Competitive Hospitals

- 2. Barnes Hospital
- 3. Bethesda General Hospital
- 4. Christian Hospital-Northeast
- 5. Jewish Hospital of St. Louis
- 6. Lindell Hospital
- 7. Normandy Osteopathic Hospital (North)
- 8. St. Lukes Hospital-East

Secondarily Competitive Hospitals

- 9. Compton Hill Medical Center
- 10. Incarnate Word Hospital
- 11. St. Louis City Hospital
- 12. St. Louis County Hospital
- 13. St. Louis University Hospitals
- 14. St. Mary's Health Center

Primary Service Area
 Secondary Service Area

TABLE 23

Directly Competitive Facilities Utilization

	Central Medical Center (1)	Barnes Medical Center	Bethesda General Hospital	Christian Hospital N.E.-N.W.	Homer G. Phillips Hospital (2)	Jewish Hospital of St. Louis	Lindell Hospital	Normandy Osteopathic Hospital North	St. Luke's Hospital East
Beds:									
1977	88	1,202	99	644	466	578	75	209	301
1978	100	1,202	116	644	466	590	68	210	298
1979	100	1,193	129	644	466	590	59	200	298
1980	100	1,149	129	644	-	594	60	192	295
Admissions:									
1977	2,959	40,392	2,244	23,366	12,656	17,827	1,275	7,209	6,443
1978	3,306	40,402	2,237	23,643	11,457	17,793	1,588	6,539	6,630
1979	3,488	41,416	2,588	24,142	6,226	17,533	1,318	6,552	6,711
1980	3,646	41,063	3,005	24,463	-	18,229	1,542	6,447	6,524
Patient days:									
1977	26,307	371,604	23,560	196,275	106,306	178,270	10,841	57,672	66,369
1978	30,946	367,656	25,277	203,327	99,673	183,263	11,591	52,965	69,613
1979	33,652	372,741	34,419	205,207	54,138	185,847	13,050	52,414	67,111
1980	34,234	373,672	36,962	210,379	-	187,758	14,651	51,579	66,543
Occupancy rates:									
1977	81.9%	84.7%	65.2%	83.5%	62.5%	84.5%	39.6%	75.6%	60.4%
1978	84.8	83.8	59.7	86.5	58.6	86.1	46.7	69.1	64.0
1979	92.2	85.6	73.1	87.3	54.8	86.3	60.6	71.8	61.7
1980	93.8	89.1	78.5	89.5	-	86.6	66.9	73.6	61.8
Average length of stay (days):									
1977	8.9	9.2	10.5	8.4	8.4	10.0	8.5	8.0	10.3
1978	9.4	9.1	11.3	8.6	8.7	10.3	7.3	8.1	10.5
1979	9.7	9.0	13.3	8.5	8.7	10.6	9.9	8.0	10.0
1980	9.4	9.1	12.3	8.6	-	10.3	9.5	8.0	10.2
Approximate miles to the Hospital									
	-	3.1	4.0	7.1	1.6	2.9	2.5	3.9	2.2

(1) Data from Central Medical Center for years ended May 31.

(2) Closed August 17, 1979.

Source: Hospital Association of Metropolitan St. Louis, April 1981.

TABLE 24

Secondarily Competitive Facilities Utilization

	<u>Compton Hill Medical Center</u>	<u>Deaconess Hospital</u>	<u>DePaul Community Health Center</u>	<u>Incarnate Word Hospital</u>	<u>St. Louis City Hospital</u>	<u>St. Louis County Hospital</u>	<u>St. Louis University Hospitals</u>	<u>St. Mary's Health Center</u>
Beds:								
1977	168	505	N.A.	323	550	200	288	568
1978	168	505	537	323	550	200	302	568
1979	183	511	583	323	550	177	318	568
1980	154	527	470	323	463	129	318	562
Admissions								
1977	4,147	15,750	N.A.	9,499	10,305	4,958	9,214	19,042
1978	3,573	15,451	N.A.	9,544	9,878	5,800	9,625	18,727
1979	3,114	15,472	16,375	9,438	11,100	4,955	9,815	19,557
1980	3,158	16,479	15,762	9,930	11,438	4,405	N.A.	19,009
Patient days:								
1977	40,226	162,230	N.A.	99,739	92,747	52,560	90,298	176,185
1978	39,306	159,160	165,830	100,211	86,925	53,363	93,365	170,417
1979	33,628	151,621	167,026	97,211	98,787	49,056	95,204	177,966
1980	34,738	159,847	159,198	103,276	108,664	27,309	95,293	171,078
Occupancy rates:								
1977	65.6%	88.0%	N.A.	84.6%	46.2%	72.0%	85.9%	84.5%
1978	64.1	86.3	84.9%	85.0	43.3	73.1	84.7	82.2
1979	50.4	80.4	85.0	82.6	49.1	76.0	82.0	85.9
1980	61.8	83.1	92.8	87.6	64.3	58.0	82.1	83.4
Average length of stay (days):								
1977	9.7	10.3	N.A.	10.5	9.0	10.6	9.8	9.2
1978	11.0	10.3	N.A.	10.5	8.8	9.2	9.7	9.1
1979	10.8	9.8	12.4	10.3	8.9	9.8	9.7(1)	9.1
1980	11.0	9.7	10.1	10.4	9.5	6.2	N.A.	9.0
Approximate miles to the Hospital								
	4.5	3.9	12.4	4.6	5.2	5.7	3.9	4.7

N.A. - Not available.

(1) Calculated by Laventhol & Horwath.

Source: Hospital Association of Metropolitan St. Louis, April 1981.

TABLE 25

Directly Competitive Hospitals
Comparison of Facilities and Services

	Central Medical Center	Barnes Medical Center	Bethesda General Hospital	Christian Hospital North East/ North West	Jewish Hospital of St. Louis	Lindell Hospital	Normandy Osteopathic Hospital North	St. Luke's Hospital East
Postoperative recovery room	X	X	X	X	X	N.R.	X	X
Intensive cardiac care unit		X						X
Intensive care unit	X		X	X	X		X	X
Open-heart surgery facilities		X			X			
Pharmacy with P.T. registered pharmacist	X	X	X	X	X		X	X
Pharmacy with P.T. registered pharmacist								
X-ray radiation therapy	X	X			X		X	X
Megavolt radiation therapy		X						X
Radioactive implants		X			X			X
Diagnostic radioisotope facility		X		X	X		X	X
Therapeutic radioisotope facility		X		X	X			X
Histopathology laboratory		X	X	X	X		X	X
Organ bank		X						
Blood bank		X	X	X	X		X	X
Electroencephalography		X	X	X	X		X	X
Respiratory therapy department	X	X	X	X	X		X	X
Premature nursery		X		X	X		X	X
Self-care unit		X						
Skilled nursing or long-term care unit			X					
Hemodialysis (inpatient)		X			X			
Hemodialysis (outpatient)		X			X			
Burn care unit		X						
Physical therapy department	X	X	X	X	X		X	X
Occupational therapy department		X		X	X			X
Rehabilitation inpatient unit					X			
Rehabilitation outpatient service		X		X	X			
Psychiatric inpatient unit		X		X	X			
Psychiatric outpatient services		X			X			
Psychiatric partial hospitalization program								
Psychiatric emergency services		X		X	X			X
Psychiatric foster and/or home care								
Psychiatric consultation and education services		X		X	X			
Clinical psychology services				X	X			
Organized outpatient department	X	X			X			X
Emergency department	X	X	X	X	X		X	X
Social work department	X	X	X	X	X		X	X
Family planning service					X			
Genetic counseling service		X					X	
Abortion service (inpatient)					X		X	
Abortion service (outpatient)					X			
Home care department					X			
Dental services		X		X	X			X
Podiatric services								
Speech pathology service		X		X	X			X
Hospital auxiliary	X	X		X	X			X
Volunteer services department		X		X	X			X
Patient representative services	X		X	X	X			X
Alcoholism/chemical dependency inpatient unit				X				
Alcoholism/chemical dependency outpatient unit				X				
T.B. and other respiratory diseases unit								
Neonatal intensive care unit								
Pediatric inpatient care unit							X	
CT scanner				X				

N.R. - Non reporting.

Source: American Hospital Association "Guide to the Health Care Field," 1980 Edition.

TABLE 26
 Secondly Competitive Hospitals
 Comparison of Facilities and Services

	Compton Hill Medical Center	Deaconess Hospital	DePaul Community Health Center	Incarinate Word Hospital	St. Louis City Hospital
Postoperative recovery room	X	X	X	X	X
Intensive cardiac care unit	X		X	X	X
Intensive care unit	X		X	X	X
Open-heart surgery facilities					
Pharmacy with F.T. registered pharmacist	X	X	X	X	X
Pharmacy with P.T. registered pharmacist					
X-ray radiation therapy		X	X		
Megavolt radiation therapy		X			
Radioactive implants		X			
Diagnostic radioisotope facility	X	X	X	X	X
Therapeutic radioisotope facility		X		X	X
Histopathology laboratory		X	X	X	X
Organ bank					
Blood bank	X	X		X	X
Electroencephalography	X	X	X	X	X
Respiratory therapy department	X	X	X	X	X
Premature nursery		X	X		X
Self-care unit					
Skilled nursing or long-term care unit		X	X		
Hemodialysis (inpatient)		X			
Hemodialysis (outpatient)					
Burn care unit		X			
Physical therapy department	X	X	X	X	X
Occupational therapy department		X	X		
Rehabilitation inpatient unit		X			
Rehabilitation outpatient service		X			
Psychiatric inpatient unit		X	X		
Psychiatric outpatient services		X			
Psychiatric partial hospitalization program		X			
Psychiatric emergency services		X	X		
Psychiatric foster and/or home care					
Psychiatric consultation and education services			X		
Clinical psychology services		X	X		
Organized outpatient department	X	X			X
Emergency department		X	X	X	X
Social work department	X	X	X	X	X
Family planning service		X			X
Genetic counseling service					
Abortion service (inpatient)					
Abortion service (outpatient)					
Home care department					X
Dental services	X		X	X	X
Podiatric services	X				
Speech pathology service		X	X	X	X
Hospital auxiliary	X	X	X	X	X
Volunteer services department		X	X	X	X
Patient representative services					
Alcoholism/chemical dependency inpatient unit	X		X		
Alcoholism/chemical dependency outpatient unit		X			
T.B. and other respiratory diseases unit					
Neonatal intensive care unit			X		X
Pediatric inpatient care unit		X	X		X
CT scanner					

Source: American Hospital Association "Guide to the Health Care Field," 1980 Edition.

Future Health Care Facilities

In October, 1980, the Project as previously described was approved by the Missouri State Health Planning and Development Agency (SHPDA).

In addition to the Project, competitive hospitals have submitted applications for approval by the GSLHSA. Set forth on pages 92 and 93 is a summary as of April, 1981, of capital expenditures applications for future health care facilities submitted by competitive hospitals. (Table 27.)

Hospital	Project	Amount
Barnes Hospital	Proposed treatment parking structure	\$ 1,100,000
	Replacement of medical elevators	100,000
	Surface parking lot	200,000
	Replacement of mechanical multiple elevators with platform	100,000
Christie Hospital	Acquisition of building for parking garage for intensive care unit	10,000,000
	Facility rehabilitation laboratory	100,000
	Replacement of 12 elevators	200,000
	Replacement of existing medical equipment	100,000
Graves Hospital	Acquisition of building for laboratory complex	100,000
	Replacement of existing parking structure	200,000
	Proposed for new equipment	200,000
	Replacement of existing medical equipment	200,000
Graves Hospital	Replacement of existing medical equipment	100,000
	Replacement of existing medical equipment	100,000
	Replacement of existing medical equipment	100,000
	Replacement of existing medical equipment	100,000
Graves Hospital	Replacement of existing medical equipment	100,000
	Replacement of existing medical equipment	100,000
	Replacement of existing medical equipment	100,000
	Replacement of existing medical equipment	100,000

TABLE 27
Projects as of April 1981

<u>Applicant</u>	<u>Project</u>	<u>Cost</u>	<u>Addition or (deletion) of beds</u>	<u>HSA(1) Status</u>	<u>SHPDA(2) Status</u>
Barnes Hospital	Proposal to construct a parking structure	\$ 3,109,950	N/A	Approved 8/79	No state review
	Replacement of obsolete wiring	145,950	N/A		Approved 1/80
Bethesda General Hospital	Surface parking lot	108,000	N/A	Pending	
Christian Hospital- Northeast/Northwest	Replacement of sequential multiple analyzer with computer	758,890	N/A	Disapproved 9/80	Denied non- substantive- review
	Acquisition of bedside monitoring equipment for intensive care unit	117,190	N/A	Approved	Approved 6/80
	Cardiac catheterization laboratory	380,725	N/A	Approved 10/79	Approved 10/79
	Replacement of 78 CRT's	251,446	N/A		Approved 4/81
	Replacement of existing SMAC equipment	270,000	N/A	Approved	
	Acquisition of Pathological Laboratory computer	758,805	N/A	Approved 12/79	
Deaconess Hospital	Replacement of existing x-ray equipment	284,000	N/A	Approved	Approved 3/80
	Proposal for x-ray equipment replacement	123,483	N/A	Approved 5/79	Received waiver
	Modernization/replacement of 1,122 approved CT scanner	425,000	N/A	Approved 7/79	Received waiver
DePaul Community Health Center	Installation of a data collection/patient care system	1,880,887	N/A	N/A	Approved 8/80
Incarnate Word Hospital	Major ancillary expansion primarily radiology and ambulatory care	13,026,000	N/A	Approved 2/79	Received waiver
Jewish Hospital	Acquisition of radiographic and fluoroscopic unit	241,001	N/A	Approved	Approved 3/80
	Establishment of a secondary neonatal intensive care unit	42,488	10 secondary neonatal ICU beds	Incomplete 10/80	Remains incomplete
	Installation of liquid chilling system	397,430	N/A	Approved	Approved 6/80

TABLE 27

Projects as of April 1981

Applicant	Project	Cost	Addition or (deletion) of beds	HSA(1) Status	SHPDA(2) Status
Jewish Hospital (continued)	Installation of SW Bell Telephone communication system	\$ 500,000	N/A	Approved	Approved 5/80
	Expansion of parking garage	2,859,880	N/A	Pending	Pending
	Replacement of cardiac catheterization unit	998,697	N/A	Incomplete 1/81	Remains incomplete
	Purchase of IBM 4341 unit to integrate patient care	245,503	N/A	Pending	
	Renovation and modernization of two patient floors	1,063,195	N/A	Pending	Pending
	Proposal to replace cardiac catheterization laboratory	N.A.	N/A		Approved 3/81
Normandy Osteopathic Hospital - North	Replacement bedside and central station monitoring equipment	121,855	N/A	Disapproved 4/80	Denied non- substantive review
	Acquisition of new radiological equipment	266,825	N/A	Approved 2/80	Approved 2/80
	Revised modernization project	4,600,427	(36) Reduction of 234 to 198 beds	Approved 10/78	N/A
	Dietary renovation and construction program	640,204	N/A		Pending
St. Louis University Medical Center	Clinical laboratory renovation and air conditioning addition	29,000,000	N/A	Approved 10/78	N/A
St. Luke's Hospital- East	Proposed intensive care renovation and expansion	964,000	N.A.	Approved	Approved 9/80
	Proposed ambulatory care renovation	648,315	N.A.	Approved	Approved 7/80
	Proposed laundry construction project	1,762,500	N/A	Approved 10/80	Approved 10/80
St. Mary's Health Center	Proposal for renovation and modernization	46,670,000	N/A	Approved 4/79	Received waiver
	Replacement of cardiac catheterization radiographic equipment	390,550	N/A	Approved	Approved 8/80
	Replacement of cobalt 60 machine	173,000	N/A	Approved	Approved

N/A - Not applicable.

N.A. - Not available.

(1) Greater St. Louis Health Systems Agency.

(2) Missouri State Health Planning and Development Agency.

Source: Greater St. Louis Health Systems Agency, April 1981.

Forecasts of Utilization

General economic conditions, population trends and health care supply factors were evaluated in forecasting the demand for hospital services in the primary and secondary service areas of CMC. Opinions expressed by members of the Medical Staff who were interviewed and who responded to the physician survey regarding anticipated utilization of the facilities were taken into account in forecasting the future utilization of patient services at CMC.

This section presents an analysis of the physician office locations, results of the physician survey and interviews, the general assumptions regarding the future demand for inpatient and outpatient services, and CMC's forecasted utilization and activity levels.

Physician Office Locations

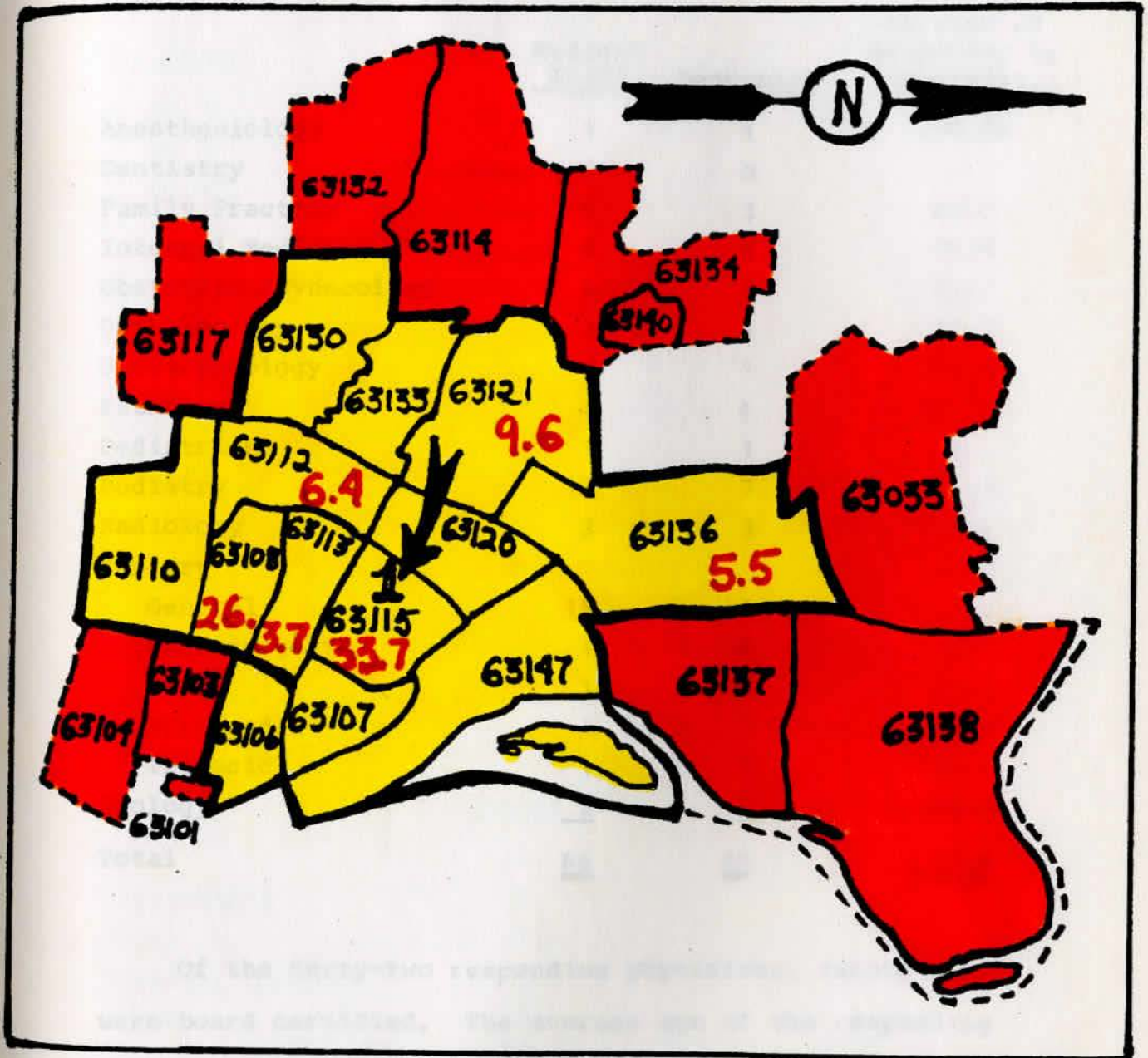
Approximately 84.9% of the admissions to CMC for the year ending May 31, 1980, were by physicians whose offices are located in CMC's primary service area, as detailed on the map on the following page.

Results of Medical Staff Survey

In November, 1978, sixty-five questionnaires were mailed to members of the Medical Staff of CMC. The response to the questionnaires were analyzed to measure attitudes towards CMC and to gauge future utilization. There was a response by forty-two physicians who accounted for 73.4% of the admissions to CMC during the year ending May 31, 1980.

Map 4

Percent of Admissions by Physicians Office Locations



- 1. Central Medical Center
- Primary Service Area
- Secondary Service Area

The clinical specialties represented by the physicians who responded to the questionnaire are listed below:

	<u>Medical Staff</u>	<u>Responses</u>	<u>Percent of Responses by Specialty</u>
Anesthesiology	1	1	100.0%
Dentistry	1	0	0
Family Practice	5	3	60.0
Internal Medicine	8	6	75.0
Obstetrics/Gynecology	5	2	40.0
Ophthalmology	3	1	33.0
Otolaryngology	1	1	100.0
Pathology	4	4	100.0
Pediatrics	1	1	0
Podiatry	13	7	53.8
Radiology	3	3	100.0
Surgery			
General	15	11	73.3
Neurosurgery	1	0	0
Oral	1	0	0
Orthopedic	1	1	100.0
Thoracic	1	1	100.0
Urology	<u>2</u>	<u>2</u>	100.0
Total	<u>66</u>	<u>43</u>	<u>64.6</u>

Of the forty-two responding physicians, twenty-two were board certified. The average age of the responding physicians as of November 1, 1978, was 50.2 years.

Age Group of Physicians Who Responded to
The Questionnaire in 1978

<u>Age Group</u>	<u>Number of Respondents</u>	<u>Percent of Total</u>
26 to 30	3	7.1%
31 to 35	2	4.8
36 to 40	7	16.7
41 to 45	2	4.8
46 to 50	8	19.0
51 to 55	6	14.3
56 to 60	5	11.9
61 to 65	3	7.1
Over 65	5	11.9
Unknown	1	2.4
	<u>42</u>	<u>100.0%</u>

The returned questionnaires indicated that the responding physicians were associated with the following types of practice:

	<u>Number</u>	<u>Percentage</u>
Solo	23	54.8%
Partnership	9	21.4
Group	7	16.6
Hospital Based	1	2.4
Other	2	4.8
	<u>42</u>	<u>100.0%</u>

Physicians Considering CMC
Their Primary Facility

	<u>Responses</u>	
	<u>Number</u>	<u>Percent</u>
Central Medical Center (CMC)	26	61.9%
DePaul Community Health Center	3	7.1
Lutheran Hospital & DePaul Community Health Center	2	4.8
Deaconess	2	4.8
Barnes Medical Center & Deaconess	1	2.4
Other	6	14.2
No Primary Hospital	2	4.8
	<hr/> 42	<hr/> 100.0%

The survey indicated that twenty-seven physicians or 64.3% of the responding physicians expected their admissions to increase during the next five years; while six physicians or 14.3% of the responding physicians expected their admissions to remain constant during the next five years.

The physicians were asked to indicate whether, in their opinion, the demand for various ancillary services at CMC would increase, decrease, or remain constant during the next five years. Their responses are shown on Table 28.

Sixteen of the Medical Staff members responding to the questionnaire indicated they anticipate adding physicians to their practice within the next one to four years.

In addition to the survey, in November, 1978, twenty-three members of the Medical Staff representing physicians who utilized CMC most frequently were interviewed. These physicians accounted for 83.3% of admissions to CMC for the

TABLE 28

Ancillary Utilization

	<u>Increase</u>		<u>Remain constant</u>		<u>No response</u>		<u>Not applicable</u>		<u>Total response</u>
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	
Surgery	<u>21</u>	<u>50%</u>	<u>6</u>	<u>14%</u>	<u>13</u>	<u>31%</u>	<u>2</u>	<u>5%</u>	<u>42</u>
Intensive care unit	<u>11</u>	<u>26%</u>	<u>3</u>	<u>7%</u>	<u>26</u>	<u>62%</u>	<u>2</u>	<u>5%</u>	<u>42</u>
Obstetrics/gynecology	<u>8</u>	<u>19%</u>	<u>1</u>	<u>2%</u>	<u>31</u>	<u>74%</u>	<u>2</u>	<u>5%</u>	<u>42</u>
Pharmacy	<u>16</u>	<u>38%</u>	<u>3</u>	<u>7%</u>	<u>21</u>	<u>50%</u>	<u>2</u>	<u>5%</u>	<u>42</u>
Laboratory	<u>17</u>	<u>40%</u>	<u>5</u>	<u>12%</u>	<u>18</u>	<u>43%</u>	<u>2</u>	<u>5%</u>	<u>42</u>
Radiology	<u>21</u>	<u>50%</u>	<u>6</u>	<u>14%</u>	<u>13</u>	<u>31%</u>	<u>2</u>	<u>5%</u>	<u>42</u>
Emergency room	<u>18</u>	<u>43%</u>	<u>6</u>	<u>14%</u>	<u>16</u>	<u>38%</u>	<u>2</u>	<u>5%</u>	<u>42</u>
Family practice	<u>7</u>	<u>17%</u>	<u>3</u>	<u>7%</u>	<u>30</u>	<u>71%</u>	<u>2</u>	<u>5%</u>	<u>42</u>

year ending February, 1979, and were interviewed to determine Medical Staff attitudes toward CMC.

In October, 1980, interviews were conducted with twenty-one members of the Medical Staff to reassess physician attitudes toward CMC and to gauge future utilization of CMC. The physicians interviewed accounted for 77.0% of the admissions to CMC during the fiscal year ending May 31, 1980.

The clinical specialties represented by the physicians who were interviewed are listed below:

<u>Clinical Specialty</u>	<u>Medical Staff</u>	<u>Physicians Interviewed</u>	<u>Percentage Of Interviews By Specialty</u>
Anesthesiology	1	0	0.0%
Dentistry	6	0	0.0
Family Practice	7	2	28.6
Internal Medicine	13	4	30.8
Obstetrics/Gynecology	8	3	37.5
Ophthalmology	5	0	0
Otolaryngology	1	0	0
Pathology	4	0	0
Pediatrics	1	0	0
Podiatry	14	3	21.4
Psychiatry	1	0	0
Radiology			
Diagnostic	2	0	0
Nuclear Medicine	1	0	0
Surgery			
General	16	5	31.3
Neurosurgery	1	0	0
Oral	1	0	0
Orthopedic	1	1	100.0
Thoracic	1	1	100.0
Urology	3	2	66.7
	<u>87</u>	<u>21</u>	<u>24.1</u>

A general summary of the key points brought out in these interviews are as follows:

- . The physicians interviewed expressed an overall positive attitude toward the Project, with twelve physicians indicating that the proposed 194 bed complement would adequately meet the needs of their practices. Six physicians felt that, while 194 beds would be initially adequate, an expansion of the bed complements would be needed within two to five years based on increased utilization by additional physicians who currently utilized admitting privileges at other area hospitals, increased utilization by additional physicians attracted by a new modern facility, and increased demand by area residents seeking medical care. Two physicians indicated that the 194 bed hospital would be inadequate to meet the initial demand upon opening of the Project.
- . Sixteen physicians interviewed anticipated utilizing the Project to a greater extent than their present utilization of CMC, while two physicians expected their use to remain constant and three physicians expressed no comment.
- . Sixteen physicians interviewed expressed the opinion that demand for hospital services in the St. Louis area would increase in the future, citing the following reasons: CMC remains as the only medical institution in the North St. Louis area; and the increasing age of the population will require additional medical care. Most of the physicians felt that the increased demand would uniformly affect all general medical services, while an anticipation of greater demand for obstetrical services was specifically cited in three interviews and outpatient and emergency room services were mentioned by two physicians. Four physicians felt the demand would remain constant while one physician made no comment.
- . When asked to comment upon the quality of CMC three physicians rated the physical plant as very good. The remaining thirteen rated it as average at best, citing the following problems: an inadequate amount of space, an inadequate number of bathroom facilities for patients, and outdated equipment.
- . Eight physicians indicated that the administration of CMC was excellent; twelve of the physicians felt it was good or very good; and one physician rated it as fair. A number of physicians mentioned that administration has been continually improving their efforts in managing the organization.

- . Three physicians of the twenty-one interviewed indicated that the quality of the nursing staff was excellent; twelve felt it was very good or good; five stated that it was average or improved quality; one physician felt the nursing staff needed improvement. Some of the problems cited were: not enough staff; lack of follow-up; not enough physical staff.
- . Thirteen of the physicians interviewed rated the quality of services provided by CMC as either good, very good, or needing no improvement. Two physicians felt the quality of services provided was average, three physicians believed there to be no need for improvement in services, and two felt that the quality of service was the best possible considering the condition of CMC. Services specifically cited as in need of improvement were general diagnostic and laboratory services. When asked which services not presently offered at CMC should be available at the Project, twelve physicians mentioned ultrasound and diagnostic radiology services while five physicians indicated a need for computerized axial tomography scanner. One physician offer no comment.
- . Eighteen physicians felt that the image of CMC had definitely improved over the past two years due to improvements in nursing and other services, public relations and the upgraded physical plant. They also felt that the community will strongly support and utilize the Project. Three physicians made no comment.
- . Six physicians mentioned a potentially greater increase in utilization of CMC should the City of St. Louis withdraw from the health care business. Four physicians believed that no particular circumstances would directly affect CMC.
- . There was a unanimous feeling among all twenty-one physicians that the Project would attract new physicians, the primary reason being that the Project will be a modern facility. Other factors mentioned as important to attracting new physicians and increasing present medical staff utilization were better bathroom facilities for patients, increased public relations and publicity, and more and improved medical services.
- . Twenty physicians felt that the Medical Staff was supportive of the Project's fund raising drive, while one physician expressed no opinion. Nineteen physicians indicated Medical Staff support for management goals, and two physicians offered no opinion. Twelve physicians believed the fund raising drive would be successful, while nine did not feel qualified to comment.

Inpatient Activity

Based on the preceeding information and the key factors listed on page 105, Table 29, the utilization for CMC was forecasted. The areas of utilization forecasted include inpatient admissions, average daily census and ancillary utilization. The average daily census represents the average number of patients hospitalized on any given day during the year. To forecast the inpatient admissions, average daily census and ancillary utilization for CMC, the trend in admissions, the Medical Staff survey responses and the forecasted population trends were reviewed and analyzed. To forecast the average length of stay for inpatients, factors taken into consideration included the medical services offered and anticipated, the historical average length of stay, the specialties represented by the physicians on the Medical Staff, and the specialties of the new physicians admitted to the Medical Staff.

The following factors were analyzed as to their potential effect upon the utilization of CMC:

- . Approximately 64 percent of the physicians responding to the physician questionnaire in 1978 expected their admissions to increase during the next five years.
- . CMC is actively recruiting additional physicians. CMC added fifteen physicians to the Medical Staff between January, 1980, and December 31, 1980, and has successfully recruited an additional twenty-three physicians as of April 16, 1981.
- . An evaluation of strong physician support of CMC and the Project.

TABLE 29

**Actual, Estimated and Forecasted Admissions,
Patient Days, Average Daily Census,
Percent of Occupancy and Average Length of Stay**

	Years ended or ending May 31,							
	Actual			Estimated	Forecasted			
	1978	1979	1980	1981	1982	1983	1984	1985
Total adult and pediatric admissions	3,306	3,488	3,646	3,758	4,044	4,492	5,344	5,647
Total obstetric admissions	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>120</u>	<u>720</u>	<u>720</u>
Total adult, obstetric and pediatric admissions	<u>3,306</u>	<u>3,488</u>	<u>3,646</u>	<u>3,758</u>	<u>4,044</u>	<u>4,612</u>	<u>6,064</u>	<u>6,367</u>
Total adult, obstetric and pediatric patient days	30,946	33,652	34,234	31,943	34,374	38,049	48,088	50,664
Adult, obstetric and pediatric average daily census	84.8	92.2	93.8	87.5	94.2	104.2	131.8	138.8
Staffed beds available	100	100	100	100	100	131	154	154
Percent of occupancy	84.8%	92.2%	93.8%	87.5%	94.2%	79.6%	85.6%	90.1%
Average length of stay (days)	9.4	9.7	9.4	8.5	8.5	8.3	7.9	8.0
Nursery admissions	N/A	N/A	N/A	N/A	N/A	120	720	720
Nursery patient days	N/A	N/A	N/A	N/A	N/A	442	2,664	2,664

N/A - Not applicable.

Table 30 on the next page summarizes the actual inpatient activity levels for the years ending May 31, 1978, through 1980, estimated inpatient activity for the year ending May 31, 1981, and has forecasted inpatient activity levels for the years ending May 31, 1982, through 1985 for CMC. These activity levels serve as the basis for financial forecasts. The factors influencing both actual and forecasted inpatient utilization were discussed with CMC's management for reasonableness.

Ancillary Activity

The major components of ancillary activity are operating room, central supply, emergency room, pharmacy, respiratory therapy, laboratory, and radiology. The preparation of the forecasts of activity levels for these and other ancillary services included the following procedures:

- . An evaluation of the statistics of CMC relating to inpatient and outpatient activity levels for the years ending May 30, 1979, 1980, and the nine months ending February 28, 1981.
- . The trends in ancillary activity levels were reviewed with CMC's Medical Staff and administration.
- . Increasing outpatient activity in the service areas was evaluated.
- . Inpatient utilization of ancillary services was forecasted, based upon the historical relationships between admissions or patient days and the ancillary activity.
- . Inpatient utilization of ancillary services for the years ending May 31, 1981, through 1985, was calculated by multiplying the projected ancillary use ratios by the appropriate inpatient admissions or patient day statistics.

TABLE 30

Actual and Forecasted Ancillary Utilization

Department	Statistical base	Years ended or ending May 31,									
		Actual					Forecasted				
		1977	1978	1979	1980	1981 (1)	1981	1982	1983	1984	1985
Blood bank	Units	N/A	838	962	1,367	972	1,208	1,485	1,644	2,077	2,189
Laboratory (3)	Procedures	49,240	54,648	93,046	107,477	83,713	112,726	119,827	130,514	160,744	168,271
Pharmacy (3)	Units dispensed	74,524	98,037	74,614	86,421	62,503	85,232	104,772	115,974	146,573	154,424
Radiology (3)	Procedures	9,286	10,933	14,628	16,022	11,962	16,555	17,353	18,542	22,118	22,963
Central supply	Units dispensed	23,203	40,515	62,644	56,710	40,987	54,361	66,823	73,968	93,484	98,491
Emergency room (3)	Visits	2,762	8,798	5,887	7,245	5,197	8,066	8,105	8,145	8,658	8,700
Electroencephalography (3)	Procedures	127	184	N.A.	69 (2)	130	168	206	228	289	304
Electrocardiology (3)	Patients	3,408	3,729	5,173	6,345	5,514	6,874	7,351	8,072	10,070	10,575
Inhalation therapy (3)	Procedures	5,053	7,893	N.A.	15,756	11,517	16,442	20,212	22,373	28,276	29,791
Physical therapy (3)	Cases	4,465	4,145	11,981	10,540	8,515	13,308	14,006	15,050	18,121	18,861
Nuclear medicine	Procedures	N/A	N/A	166	199	205	275	295	324	408	428
Operating room (3)	Procedures	30,897	33,810	2,486	2,605	1,892	2,309	2,477	2,731	3,431	3,609
Anesthesia (3)	Units administered	13,752	16,408	1,940	2,006	1,558	2,067	2,216	2,442	3,066	3,224

N/A - Not applicable.

N.A. - Not available.

(1) Nine months ended February 28, 1981.

(2) Seven months ended May 31, 1980.

(3) Method of counting ancillary utilization was changed as of June 1, 1978.

- . Outpatient activity for the ancillary departments was forecasted, based upon actual activity levels experienced during the years ending May 30, 1979, 1980, and the nine months ending February 28, 1981.
- . Forecasted inpatient and outpatient activity levels were combined to form the basis for revenue and expense forecasts.

The schedule on page 107 summarizes the historical and forecasted combined inpatient and outpatient ancillary utilization for CMC. (Table 30.)

CHAPTER 9

The Feasibility Study

Major Assumptions

CHAPTER 9

The Feasibility Study

Assessment of Existing Debt and Construction Project

The Series 1991 Bonds are being issued to provide funds for the purpose of retiring the existing debt for the... Also, these bonds will pay for the renovation and new construction of HSCM. They will pay a portion of their own accumulated interest, pay the cost of issuing these Series 1991 Bonds, and to fund the Debt Service Reserve Fund.

For the purpose of preparing the financial forecasts, the following summary of the source and allocation of funds was utilized on Table 11 on the following page.

CHAPTER 9

The Feasibility Study

Major Assumptions

The forecasts of assets, liabilities, revenues, expenses, cash flow and fund balances presented in Exhibits 1, 2, 3, and 4 of this study (found at the end of this chapter) are based on the major assumptions, as well as, the more detailed bases of forecasts to be disclosed later in this section of this study. The unrestricted funds to which the following assumptions pertain include the operating fund and the plant fund as described in the Hospital Audit Guide, prepared by the Committee on Health Care Institutions of the American Institute of Certified Public Accountants.

Retirement of Existing Debt and

Construction Project

The Series 1981 Bonds are being issued to provide funds for the purpose of retiring the existing debt for CMC. Also, these bonds will pay for the renovation and new construction of SLCMC. They will pay a portion of their own accumulated interest, pay the cost of issuing these Series 1981 Bonds, and to fund the Debt Service Reserve Fund.

For the purpose of preparing the financial forecasts, the following summary of the source and disbursement of funds was utilized on Table 31 (on the following page).

Description of the Bonds

The Series 1981 Bonds are expected to be dated May 1, 1981, with interest payable on November 1, 1981, and each May 1, and November 1, thereafter. The Series 1981 Bonds are assumed to bear interest at the coupon rates and to mature in the principle amounts per annum as set forth in the schedule on page 113, Table 32.

and available equipment	\$12,322,000
Capitalized interest on Series 1981 Bonds	\$ 1,122,000
Less: Interest earned on investment of bond proceeds	(1,122,000)
Purchase of SLIC's Assets	100,000
Pay Cost of Advances	200,000
Refinance Existing Debt	1,179,000
Debt Service Reserve Fund	<u>1,100,000</u>
Total Disbursement Fund	<u>\$25,781,000</u>

TABLE 31

CMC Series 1981 Bonds

Source of funds:

Series 1981 Bonds:

Principle	\$23,265,000	
Less Underwriter's Discount	<u>1,047,000</u>	\$22,218,000

Accrued interest to 5/31/81		<u>271,000</u>
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Total Sources of Funds		<u>\$22,489,000</u>
------------------------	--	---------------------

Disbursement of Funds:

Land		\$ 9,000
------	--	----------

Construction, architect, fixed and movable equipment		\$12,388,000
---	--	--------------

Capitalized Interest on Series 1981 Bonds	\$ 5,461,000	
--	--------------	--

Less Interest Earned on Invest- ment of Bond Proceeds	<u>(\$ 2,293,000)</u>	\$ 3,168,000
--	-----------------------	--------------

Purchase of SLCMC's Assets		850,000
----------------------------	--	---------

Pay Cost of Issuance		295,000
----------------------	--	---------

Refinance Existing Debt		2,419,000
-------------------------	--	-----------

Debt Service Reserve Fund		<u>3,360,000</u>
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Total Disbursement Fund		<u>\$22,489,000</u>
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TABLE 32

CMC Debt Service Schedule

Series 1981 Bonds

Bond Year Ending May 1	Principal Maturities	Coupon Rate	Interest	Total Debt Service
1982			\$ 3,257,100	\$ 3,257,100
1983			3,257,100	3,257,100
1984		14.00%	3,257,100	3,257,100
1985	\$ 95,000	14.00	3,257,100	3,352,100
1986	110,000	14.00	3,243,800	3,353,800
1987	125,000	14.00	3,228,400	3,353,400
1988	145,000	14.00	3,210,900	3,355,900
1989	165,000	14.00	3,190,600	3,355,600
1990	190,000	14.00	3,167,500	3,357,500
1991	215,000	14.00	3,140,900	3,355,900
1992	245,000	14.00	3,110,800	3,355,800
1993	280,000	14.00	3,076,500	3,356,500
1994	320,000	14.00	3,037,300	3,357,300
1995	360,000	14.00	2,992,500	3,352,500
1996	415,000	14.00	2,942,100	3,357,100
1997	470,000	14.00	2,884,000	3,354,000
1998	535,000	14.00	2,818,200	3,353,200
1999	610,000	14.00	2,743,300	3,353,300
2000	695,000	14.00	2,657,900	3,352,900
2001	795,000	14.00	2,560,600	3,355,600
2002	905,000	14.00	2,449,300	3,354,300
2003	1,030,000	14.00	2,322,600	3,352,600
2004	1,175,000	14.00	2,178,400	3,353,400
2005	1,340,000	14.00	2,013,900	3,353,900
2006	1,530,000	14.00	1,826,300	3,356,300
2007	1,745,000	14.00	1,612,100	3,357,100
2008	1,985,000	14.00	1,367,800	3,352,800
2009	2,265,000	14.00	1,089,900	3,354,900
2010	2,580,000	14.00	772,800	3,352,800
2011	2,940,000	14.00	411,600	3,351,600
	<u>\$23,265,000</u>		<u>\$77,078,400</u>	<u>\$100,343,400</u>

Financial Summary

It is standard procedure to calculate the debt service coverage by dividing the annual debt service requirements into forecasted income available for debt service. Forecasted service coverage for CMC is presented on Table 31, page 113.

Basis for Forecast of Revenues and Expenses - Unrestricted Funds

The general procedure followed in the preparation of these forecasts was to evaluate actual historical trends in revenues, expenses, and cost disbursement relationships experienced by CMC. Specific bases for revenues and expenses are discussed in the following paragraphs, in the order of the forecasted statement of revenues and expenses (Exhibit 1, page 134).

Pending Legislation

A number of new laws which could affect health care facilities have been proposed by members of Congress, including establishing various hospital cost containment programs, imposing limitations on payments to hospitals under Medicare and Medicaid programs, and national health insurance.

On November 15, 1979, members of the House of Representatives voted for an amendment that deleted the mandatory portions from H.R. 2626, the "Hospital Cost Containment Act of 1979", and passed out of the House the Gephardt Substitute (H.R. 3635) which authorizes the following: a National

TABLE 33

Central Medical Center, Inc.
 Forecasted Financial Summary
 For Interest and Principal Payments
 On Series 1981 Bonds
 (Thousands)

	Year ending May 31,				
	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
Total patient service revenue, net of contractual allowances, free services and other allowances	\$9,247	\$11,079	\$14,118	\$20,442	\$23,196
Other revenues, net ⁽¹⁾	153	195	420	870	974
Operating expenses ⁽²⁾	<u>9,400</u>	<u>11,274</u>	<u>14,538</u>	<u>21,312</u>	<u>24,170</u>
	0,623	9,868	11,964	16,093	18,516
Income available for debt service	777	1,406	2,574	5,219	5,654
Debt service on obligations under capitalized lease	<u>146</u>	<u>162</u>	<u>363</u>	<u>368</u>	<u>344</u>
Funds available for debt service on Series 1981 Bonds	<u>\$ 631</u>	<u>\$ 1,244</u>	<u>\$ 2,211</u>	<u>\$ 4,851</u>	<u>\$ 5,310</u>
Debt service on Series 1981 Bonds	N/A	\$ 426	\$ 626	\$ 3,257	\$ 3,352
Debt service coverage on Series 1981 Bonds	N/A	<u>2.92x</u>	<u>3.53x</u>	<u>1.49x</u>	<u>1.58x</u>

(1) Includes other operating and nonoperating revenue.

(2) Includes Trustee's expense, excludes interest, depreciation and amortization.

Note: The comments and assumptions contained in this study are an integral part of this forecasted schedule.

Commission on Hospital Costs to monitor the Voluntary Effort; grants to states to help plan, establish, and operate state voluntary and mandatory cost containment programs; establishment of the Voluntary Effort goal as a reduction in the rate of increase in total hospital expenses for 1979, and for each subsequent calendar year to four percentage points less than the rate for 1977; encouragement of philanthropic support by stipulating such income would not be deducted from the operating costs of nonprofit hospitals; and a requirement for common audits of Medicare and Medicaid; and long term care services through the use of the swing beds.

No determination can be made at this time whether any of the proposed bills will be enacted into law, or what effect, if any, accompanying limitation would have on the operations of CMC.

Nursing, Dietary, and Routine Care Services

The charges for nursing, dietary, and routine care are included in the daily room rates. Revenue from routine services is forecasted by multiplying the average daily room charge by the number of patient days for each of the forecasted years. Room charges are forecasted based on the actual room rates of CMC increased by an average of 12.0% for 1981 through 1983, and 10% for 1984 and 1985.

On Table 34 is a schedule of actual and forecasted rates to be charged by CMC.

TABLE 34

Actual and Forecasted Bed RateCharges for CMC

Year Ended or Ending May 31,

	Actual				Forecasted				
	1977	1978	1979	1980	1981	1982	1983	1984	1985
Medical/Surgical (1) (2)	\$ 70	\$ 80	\$ 90	\$114	\$141	\$158	\$177	\$195	\$215
ICU/CCU (1)	140	169	217	289	330	370	414	455	501
Obstetrics	N/A	N/A	N/A	N/A	N/A	N/A	156	172	189
Nursery	N/A	N/A	N/A	N/A	N/A	N/A	98	107	118

N/A - Not Applicable

(1) Weighted average

(2) Includes definitive Observation

Source: CMC, Inc.

Revenues were forecasted individually, based on patient days and outpatient visits for:

- Routine care for adults
- Outpatient services, and
- Inpatient and Outpatient ancillary services.

Ancillary Services Revenue

The major components of ancillary revenues are radiology, laboratory, pharmacy, central supply, surgery, labor and delivery, respiratory therapy, physical therapy, and emergency services. An average rate increase of 12.0% was forecasted for 1981 through 1983 and 10.0% for 1984 through 1985.

Contractual Allowances, Free Services

and Allowances

Deductions from revenue include contractual allowances, free services and allowances, which result from a hospital's participation in various cost reimbursements programs, medical service provided at reduced or no charge and estimates of uncollectible balances in accounts receivable.

The primary component of these deductions from revenue is the contractual allowance resulting from CMC's payers including Medicare and Medicaid. This contractual allowance represents the difference between full charges for services to covered beneficiaries and the actual reimbursement received from the third parties. In estimating the contractual allowances, the following third party relationships were

utilized:

	<u>Actual</u>			<u>Forecasted Bases</u>
	<u>1978</u>	<u>1979</u>	<u>1980</u>	
Blue Cross	10.2%	26.8%	18.0%	18.0%
Medicare	27.4	29.9	34.7	34.7
Medicaid	22.9	19.9	17.9	17.9
Commercial insurance and private payment	<u>39.5</u>	<u>23.4</u>	<u>29.4</u>	<u>29.4</u>
	100.0%	100.0%	100.0%	100.0%

No changes in the foregoing percentages have been anticipated through the forecasted period, although new legislation or Federal programs could alter the percentages.

Blue Cross reimburses CMC for medical services provided based on negotiated revenue rates. The negotiated rates are determined utilizing CMC's prior two years financial operating results. Presently, CMC's established charges are the same as the negotiated Blue Cross rates. This policy is expected to continue throughout the forecast period.

Medicare, Medicaid, and Blue Cross all provide benefits which include nursing care, room and board, diagnostic and therapeutic services, drugs, and other services necessary to provide health care to the patients. Medicare basically covers patients over 65 years of age and certain other patients including individuals who require renal dialysis and certain disabled individuals. Medicaid covers indigent patients; and Blue Cross covers patients who are insured by

one of the various Blue Cross plans.

Formulae vary for each of the third party reimbursement programs. The basic assumption regarding Medicare and Medicaid is that CMC will be reimbursed based on patient care costs or charges, whichever is less. Blue Cross reimbursements is based upon annual negotiated rates.

Under the provisions of Section 223 of P.L. 92-603, limitations affecting certain aspects of third party reimbursement for health care facilities providing services to Medicare patients have been established for routine care cost reimbursement. The Medicare inpatient routine cost limitation for CMC for the year ending May 31, 1981, is approximately \$124. It is anticipated that for fiscal years ending May 31, 1981, through 1984, routine costs will exceed the limitation. The forecasts include adjustments to the Medicare and Medicaid contractual allowances to account for the excess of routine costs.

For financial forecast purposes, it was assumed that all costs of operation will be allowable for reimbursement for Medicare and Medicaid, and for negotiation of the Blue Cross rates.

Free service, discounts, and bad debts were estimated at 9.3% of noncost reimbursed revenues, which is approximately 3.7% of gross patient revenues. This is based on the current experiences of CMC and comparable hospitals.

Commercial insurance and private payments, which are forecasted to comprise 29.4% of gross patient service revenue, are usually reimbursed on the basis of reasonable charges rather than as in cost reimbursement programs, such as Medicare and Medicaid.

Net Patient Service Revenue

Net patient service revenue represents gross patient revenue reduced by the contractual allowances, free services and other allowances described on the preceding page.

Other Operating Revenue

The new income derived from the cafeteria, medical records, telephone, sundries, and other nonpatient income sources is included in the statement of revenues and expenses (Exhibit 1) as Other Operating Revenues. Forecasts of these other operating revenues are based upon the actual historical experience of CMC and are inflated at an annual rate of 12.0%.

Operating Revenue, Net

Total net operating revenue is gross operating revenue and other operating revenue reduced by contractual allowances, free services and other allowances.

Operating Expenses

Operating expenses were forecast based on historical trends of CMC at the various inflation rates for various components of expenses, as discussed on the following page.

Salaries and Wages

Salaries and wages are estimated by reference to the actual historical experience of CMC's staffing and salaries. Staffing in the ancillary areas, where increased utilization is forecasted, was increased accordingly. These salary levels were increased at 10% per annum. Forecasted staffing ratios and wages for CMC are shown on Table 35, page 123.

Specialists Fees

Specialists' fees, consisting of contract arrangements with certain members of the Medical Staff, are computed according to the terms of the respective contracts. The fees increased at 12% per annum for those contracts with a certain fee. For those contracts based on a fixed fee per unit of service, the specialists' fee was determined in accordance with the terms of the services for laboratory, emergency room, respiratory therapy, physical therapy, and intensive care.

Dietary Expense

Food costs are forecasted by increasing the current average food cost per adult patient day at CMC 14% per annum.

Utilities

Utility costs are forecasted based upon the 1980 actual costs per square foot of CMC. Utility costs were adjusted to account for increased square footage of the new facility and were increased at the following rates per annum:

Electricity	15.0%
Gas	18.0%
Water	15.0%

TABLE 35

Central Medical Center, Inc.

Staffing Ratios and Wages

	Year ended May 31,				Year ending May 31,				
	Actual				Forecasted				
	1977	1978	1979	1980	1981	1982	1983	1984	1985
Full-time equivalent employees	208.0	251.6	358.2	394.1	362.3	379.9	415.4	513.5	532.3
Salaries and wages (thousands)	\$2,049	\$2,635	\$3,464	\$4,334	\$4,493	\$5,308	\$6,348	\$8,605	\$9,805
Average annual full-time wages	\$9,851	\$10,472	\$9,671	\$10,997	\$12,401	\$13,972	\$15,282	\$16,758	\$18,420
Full-time equivalent employees per occupied bed	2.89	2.96	3.89	4.19	4.12	4.04	3.99	3.89	3.83
Average annual occupied beds	72	85	92	94	88	94	104	132	139

The forecasted increases in costs of utilities are based upon discussions with local utility companies.

Drugs and Pharmaceuticals

The cost of the drugs and other pharmaceutical products is based upon historical cost per unit at CMC inflated at 12% annually.

Employee Benefits

Fringe benefits are forecasted annually at the following percentages of the total salaries and wages based on the current experience of CMC and a provision for forecasted increases in fringe benefits for payroll tax increases and estimated insurance increases.

1981	10.50%
1982	11.00
1983	11.50
1984	12.00
1985	12.50

Insurance

Insurance expense is forecasted based upon the actual cost of insurance policies in effect for fiscal year 1980. Insurance expense for 1981 through 1985 is forecasted to increase at 10.0% per annum.

Supplies and Other Expenses

The cost of other supplies and expenses are forecasted for each department based upon historical usage rates and forecasted activity levels. It is assumed that inflationary increases in these expenses would average 12.0%

Excess of Revenue Over Expenses Before
Fixed Charges and Nonoperating Revenue

Excess of revenues over expenses before fixed charges and nonoperating revenue represents net operating revenues reduced by operating expenses.

Fixed Charges

Fixed charges include Trustee's expense, interest, depreciation and amortization of financing costs.

Trustee's Expense

Trustee's expense is estimated to be \$5,000 per annum commencing with fiscal year 1981.

Interest Expense

Annual interest expense is estimated based upon the following assumptions:

Bond issue	\$23,265,000
Maximum bond maturity	27 years
Interest	Detailed on page 129

- Interest on the Series 1981 Bonds will be paid semi-annually by the Trustees. Principal payments will be paid once a year on May 1, by the Trustees.
- Interest expense as included in Exhibit 1 is based upon the accrual method of accounting.
- The Series 1981 Bonds will be dated May 1, 1981.

In addition to the proposed bond issue, CMC has other obligations under capitalized leases. The following schedule details the debt service requirements on these obligations:

Debt Service on Obligations

Under Capitalized Leases

(Thousands of dollars)

<u>Year</u>	<u>Principle</u>	<u>Interest</u>	<u>Total Debt Service</u>
1981	\$ 94	\$ 52	\$146
1982	105	57	162
1983	191	172	363
1984	206	162	368
1985	206	138	344

Depreciation

The total costs of the construction program including fixed and movable equipment are based on estimates provided by CMC's architect and contractor. In addition, the following capital obligations under capitalized leases have been estimated by CMC's management:

1981	\$84,000
1982	84,000
1983	84,000
1984	84,000
1985	84,000

It is also anticipated that CMC will purchase \$619,000 of equipment through an obligation under a capital lease for the Project in fiscal year ending May 31, 1983.

Depreciation on these capital expenditures is calculated based upon the straight-line method as provided by the

current Medicare regulations and is projected on Table 36, page 128.

Amortization

Amortization includes the write-off of the financing costs of the bond issue. Financing costs include the underwriter's discount and legal expenses, accounting and consulting fees and printing costs. The financing cost for Series 1981 Bonds are estimated at \$1,342,000 including the underwriter's discount and will be amortized over the remaining life of the bond issue. See Table 37 on page 129.

Nonoperating Revenue

Nonoperating revenue represents the income earned on the existing investments, the Debt Service Reserve Fund, Renewal, Replacement and Depreciation Fund, Working Capital Fund, and the Bond Fund. The income on the funds is forecasted at 12.0, 5.0, 12.0, and 6.0 percent, respectively.

Gain on Early Extinguishment of Debt

(Extraordinary Item)

The Accounting Principles Board (APB) issued Opinion Number 26 in October of 1972, relating to "Early Extinguishment of Debt". The opinion defines the gain or loss on the extinguishment of the debt as the difference between the reacquisition price and the net carrying amount of the extinguishing debt and concludes that this gain or loss should be recognized currently in the period of extinguishment. The Financial Accounting Standards Board (FASB) issued Statement

TABLE 36

Forecasted Schedule of Depreciation

(Thousands of Dollars)

	Years Ending May 31,				
	1981	1982	1983	1984	1985
On Existing Assets	\$302	\$280	\$222	\$ 54	\$ 16
On Project Related Expenditures			222	664	664
On New Assets Not Related to the Construction Project	<u>8</u>	<u>25</u>	<u>41</u>	<u>59</u>	<u>76</u>
Total Depreciation	<u>\$310</u>	<u>\$305</u>	<u>\$485</u>	<u>\$781</u>	<u>\$756</u>

The Asset Lives Used to Estimate DepreciationAssets

Buildings	40 years
Fixed Equipment	20 years
Major Movable Equipment	12 years

Source: CMC., Inc.

Totals

523,871

319,355

Source: Health and Educational Facilities Authority of the State of Missouri Health Facilities Revenue Bonds, CMC Prospectus, June 1, 1981.

TABLE 37

CMC

Bond Amortization Schedule

(000's Omitted)

Year	Bonds Outstanding	Interest	Debt Retirement	Annual Debt Service
1 1982	\$19,955	\$ 1,996	\$ ---	\$ 1,996
2 1983	19,955	1,996	---	1,996
3 1984	19,955	1,996	205	2,201
4 1985	19,750	1,975	225	2,200
5 1986	19,525	1,953	245	2,198
6 1987	19,280	1,928	270	2,198
7 1988	19,010	1,901	295	2,196
8 1989	18,715	1,872	325	2,197
9 1990	18,390	1,839	360	2,199
10 1991	18,030	1,803	395	2,198
11 1992	17,635	1,764	435	2,199
12 1993	17,200	1,720	480	2,200
13 1994	16,720	1,672	525	2,197
14 1995	16,195	1,620	580	2,200
15 1996	15,615	1,562	635	2,197
16 1997	14,980	1,498	700	2,198
17 1998	14,280	1,428	770	2,198
18 1999	13,510	1,351	845	2,196
19 2000	12,665	1,267	930	2,197
20 2001	11,735	1,174	1,025	2,199
21 2002	10,710	1,071	1,125	2,196
22 2003	9,585	959	1,240	2,199
23 2004	8,345	835	1,365	2,200
24 2005	6,980	698	1,500	2,198
25 2006	5,480	548	1,650	2,198
26 2007	3,830	383	1,815	2,198
27 2008	2,015	202	2,015	2,217
Totals		\$39,011	\$19,955	

Source: Health and Educational Facilities Authority of the State of Missouri Health Facilities Revenue Bonds, CMC Project, June 1, 1981.

Number 4 in March of 1975, "Reporting Gains and Losses From Extinguishment of Debt". The conclusion of the FASB statement is that the loss should be included in the determination of net income, and the material classified as an extraordinary item.

The net estimated gain is computed as follows on Table 38, page 131.

Portfolios of accrued interest	\$5,817,425
Carrying value of debt due to refinancing	(2,119,225)
	<u>\$3,698,200</u>
Gain on early extinguishment of debt Less: Third-party fee	205,400
	<u>\$3,903,600</u>
Gain on extinguishment of debt, net	<u>\$3,903,600</u>

TABLE 38

Net Gain on Extinguishment of Debt

Balance to refinance deferred expenses:		\$2,419,225
First Mortgage Bonds	\$32,730	
Expensed to 5/31/81	(12,220)	(20,510)
		<u>\$2,398,715</u>
Forfeiture of accrued interest		310,000
Carrying value of debt		<u>2,708,715</u>
Cost to refinance		<u>2,419,225</u>
Gain on early extinguishment of debt		289,490
Less: Third party 70.6%		<u>204,380</u>
Gain on extinguishment of debt, Net		<u>\$ 85,110</u>

Basis for Forecasts of Cash Flow
and Forecasted Balance Sheet

A forecasted statement of cash flow was prepared for the years ending May 31, 1981, through May 31, 1985, and is presented as Exhibit 2 of this study. Forecasted balance sheets as at May 31, 1981, through 1985 are presented as Exhibit 3, page 138.

Changes in the balance of assets and liabilities were estimated by forecasting the year end balances in those accounts. Forecasts are based on the following relationships.

- Cash forecasts are based upon the results of the cash flow analysis.
- Accounts receivable balances, net of allowances, are estimated at 72 days of net patient service revenue.
- Inventories are estimated at 7.5% of food, drugs, supplies, and other expenses.
- Property, plant, and equipment and accumulated depreciation are forecasted based upon the historical records for the existing capital assets, acquisition costs, estimated normal retirements and estimated annual depreciation.
- Assets held for future development represents the costs less accumulated depreciation of the current CMC facility after completion of the Project.
- Deferred expense represents the financing costs net of any amortization expense.
- Funds and accounts held by the Trustee are established under the terms of the trust indenture pursuant to which the Series 1981 Bonds are being issued. Those funds or accounts include a Construction Fund, Bond Fund, Debt Service Reserve Fund, and a Renewal Replacement and Depreciation Fund and are as described on the following page.

Construction Fund

The portion of the proceeds from the sale of the Series 1981 Bonds to be used for the payment of construction costs associated with the Project described in a previous section of this report will be deposited in the Construction Fund. The monies in the Construction Fund will be expended to complete the construction project. All funds remaining in the Construction Fund after completion of the Project will be transferred and used by the Trustee to purchase outstanding bonds unless CMC presents evidence that a contractual commitment with respect to improvements exists requiring the disbursement of such proceeds.

Bond Fund

This fund is established for the purpose of accumulating CMC's monthly interest deposits for payment of semiannual interest on the Series 1981 Bonds and to accumulate the monthly principle payments of the Series 1981 Bonds.

Debt Service Reserve Fund

The amount deposited in the Debt Service Fund was assumed to be \$3,360,000. Funds in the Debt Service Reserve Fund shall be transferred to the Debt Service Fund if any Interest Payment Date the amount then on hand in the Debt Service Fund is not sufficient to pay the principle.

Renewal, Replacement, and Depreciation Fund

Established for the purpose of accumulating CMC's annual deposits required under the Indenture of Trust.

Working Capital Fund

This fund is established to pay the costs of moving operations from the current CMC facility to the Project or as working capital subsequent to establishing operations in the Project. CMC will be required to deposit \$30,000 per month, beginning June 1, 1981, until the completion of the Project.

Debt Service Coverage

Debt service coverage is a key indicator of a hospital's ability to repay debt from revenues. The investment community uses the debt service coverage ratio as a measure of investor security. The higher the coverage the higher the perceived level of protection. The debt service equation is:

$$\frac{\text{Net Income} + \text{Depreciation Expense} + \text{Interest Expense}}{\text{Principle} + \text{Interest}}$$

= Debt Service Coverage

Forecasted Fiscal Years Ending May 31,
(000's Omitted)

	1984	1985	1986
Net Income	\$1,090	\$1,271	\$1,465
Depreciation Expense	477	477	477
Interest Expense	1,995	1,975	1,953
Total Funds Available	3,562	3,723	3,895
Principle Reduction	205	225	245
Interest Expense	1,995	1,975	1,953
Total Debt Service	\$2,200	\$2,200	\$2,298
Debt Service Coverage	1.6X	1.7X	1.8X

Investors would expect to see a 1.5X coverage as a minimum.

Long-term debt is forecasted on the basis of the schedule of debt retirement. The current portion of the long term debt represents the amount which will be paid within one year.

Accounts payable balances are forecasted at 27.2% of the operating expenses excluding payroll, specialists' fees, and related expenses.

Accrued salaries, wages, and fees are forecasted at 6.1% of salaries, wages, fees, and related expenses.

Accrued interest expense represents interest accrued but unpaid at the end of the year.

Deferred revenue represents the third-party portion of the excess interest and amortization expense.

Fund balance represents the equity accumulation of undistributed income and grants. Exhibit 4 details the changes in fund balances, page 137.

EXHIBIT 1

CENTRAL MEDICAL CENTER, INC.

FORECASTED STATEMENTS OF REVENUES AND EXPENSES
UNRESTRICTED FUNDS
(Thousands)

	Years ending May 31,				
	1981	1982	1983	1984	1985
Gross operating revenue:					
Nursing, dietary and routine care services	\$ 4,853	\$ 5,843	\$ 7,282	\$10,373	\$11,985
Ancillary services	8,381	10,027	12,354	17,400	19,898
	<u>13,234</u>	<u>15,870</u>	<u>19,636</u>	<u>27,773</u>	<u>31,883</u>
Less contractual allowances, free services and other allowances	<u>3,987</u>	<u>4,791</u>	<u>5,518</u>	<u>7,331</u>	<u>8,687</u>
Net patient service revenue	9,247	11,079	14,118	20,442	23,196
Other operating revenue	<u>152</u>	<u>183</u>	<u>227</u>	<u>321</u>	<u>379</u>
Operating revenue, net	<u>9,399</u>	<u>11,262</u>	<u>14,345</u>	<u>20,763</u>	<u>23,575</u>
Operating expenses:					
Salaries and wages	4,493	5,308	6,348	8,605	9,805
Specialists' fees	385	438	509	657	751
Dietary expense	274	336	424	611	734
Utilities	154	181	236	340	396
Drugs and pharmaceuticals	342	411	511	723	853
Employee benefits	482	596	744	1,049	1,244
Insurance	96	107	127	164	202
Supplies and other	<u>2,392</u>	<u>2,486</u>	<u>3,060</u>	<u>3,939</u>	<u>4,526</u>
	<u>8,618</u>	<u>9,863</u>	<u>11,959</u>	<u>16,088</u>	<u>18,511</u>
Excess of revenues over expenses before fixed charges, nonoperating revenue and extraordinary item	<u>781</u>	<u>1,399</u>	<u>2,386</u>	<u>4,675</u>	<u>5,064</u>
Fixed charges:					
Trustee's expense	5	5	5	5	5
Interest	275	718	1,564	3,257	3,256
Depreciation	310	305	485	781	756
Amortization	<u>12</u>	<u>12</u>	<u>28</u>	<u>61</u>	<u>61</u>
	<u>602</u>	<u>1,040</u>	<u>2,082</u>	<u>4,104</u>	<u>4,078</u>
Excess of revenues over expenses before nonoperating revenue and extraordinary item	179	359	304	571	986
Nonoperating revenue	<u>1</u>	<u>12</u>	<u>193</u>	<u>549</u>	<u>595</u>
Excess of revenues over expenses before extraordinary item	180	371	497	1,120	1,581
Extraordinary item: Gain on early extinguishment of debt	<u>85</u>				
Excess of revenues over expenses	<u>\$ 265</u>	<u>\$ 371</u>	<u>\$ 497</u>	<u>\$ 1,120</u>	<u>\$ 1,581</u>

Note: The comments and assumptions contained in this study are an integral part of this forecasted statement.

CENTRAL MEDICAL CENTER, INC.

FORECASTED STATEMENTS OF CASH FLOW
UNRESTRICTED FUNDS
(Thousands)

	Years ending May 31,				
	1981	1982	1983	1984	1985
Cash and short-term investments, beginning of year	\$ 66	\$19,571	\$11,273	\$5,683	\$6,619
Cash provided:					
Excess of revenues over expenses before nonoperating revenue	179	359	304	571	986
Depreciation	310	305	485	781	756
Amortization	12	12	28	61	61
Decrease in deferred revenue		(30)	(30)	(30)	(30)
Funds from operations	501	646	787	1,383	1,773
Nonoperating revenue	1	12	193	549	595
Increase in accounts payable and accrued expenses	714	(177)	310	552	343
Proceeds from Hospital Facility Revenue Bonds, Series 1981	23,265				
Obligation under capitalized leases	84	84	703	84	84
Interest earned on investment of bond proceeds during construction		1,376	917		
	24,565	1,941	2,910	2,568	2,795
Less increase in:					
Accounts receivable	54	361	600	1,247	544
Inventories	42	16	58	95	63
	96	377	658	1,342	607
	24,469	1,564	2,252	1,226	2,188
Total cash applied	24,535	21,135	13,525	6,909	8,807
Cash applied:					
Land	9				
Purchase Christian's assets	850				
Construction		7,133	5,255		
Refinancing of debt	2,419				
Interest during construction		2,540	1,693		
Financing costs	1,342				
Principal payments:					
Hospital Facility Revenue Bonds, Series 1981					95
Obligations under capitalized leases	94	105	191	206	206
Other	166				
Assets acquired under capitalized leases	84	84	703	84	84
	4,964	9,862	7,842	290	385
	\$19,571	\$11,273	\$ 5,683	\$6,619	\$8,422
Consisting of:					
Unrestricted Funds	\$ 926	\$ 1,159	\$1,243	\$1,317	\$2,390
Construction Fund	10,095	4,338			
Bond Fund	5,190	1,933	271	271	278
Debt Service Reserve Fund	3,360	3,360	3,360	3,360	3,360
Renewal, Replacement and Depreciation Fund				862	1,585
Working capital Fund		483	809	809	809
	\$19,571	\$11,273	\$5,683	\$6,619	\$8,422

Note: The comments and assumptions contained in this study are an integral part of this forecasted statement.

CENTRAL MEDICAL CENTER, INC.

FORECASTED BALANCE SHEETS
UNRESTRICTED FUNDS
(Thousands)

	Years ending May 31,				
	1981	1982	1983	1984	1985
ASSETS					
Current assets:					
Cash	\$ 926	\$ 1,159	\$ 1,243	\$ 1,317	\$ 2,390
Accounts receivable	1,824	2,185	2,785	4,032	4,576
Inventories	226	242	300	395	458
Total current assets	<u>2,976</u>	<u>3,586</u>	<u>4,328</u>	<u>5,744</u>	<u>7,424</u>
Property, plant and equipment, at cost	3,818	3,902	17,506	17,670	17,754
Less accumulated depreciation	<u>1,383</u>	<u>1,688</u>	<u>1,305</u>	<u>2,086</u>	<u>2,842</u>
	<u>2,435</u>	<u>2,214</u>	<u>16,201</u>	<u>15,584</u>	<u>14,912</u>
Construction in progress	859	9,156			
Other assets:					
Assets held for future development			1,249	1,249	1,249
Deferred expense	1,342	1,330	1,302	1,241	1,180
Due from affiliates	490	490	490	490	490
Due from third-party payors	109	109	109	109	109
Funds held by Trustee:					
Construction Fund	10,095	4,338			
Bond Fund	5,190	1,933	271	271	278
Debt Service Reserve Fund	3,360	3,360	3,360	3,360	3,360
Renewal, Replacement and Depreciation Fund				862	1,505
Working Capital Fund	91	483	809	809	809
	<u>20,586</u>	<u>12,043</u>	<u>7,590</u>	<u>8,391</u>	<u>9,060</u>
	<u>\$26,856</u>	<u>\$26,999</u>	<u>\$28,199</u>	<u>\$29,719</u>	<u>\$31,396</u>
LIABILITIES AND FUND BALANCES					
Current liabilities:					
Current portion of long-term debt:				\$ 95	\$ 110
Hospital Facility Revenue Bonds, Series 1981				206	219
Obligation under capitalized leases	\$ 105	\$ 191	\$ 206	1,572	1,828
Accounts payable and other accrued expenses	880	957	1,185	629	716
Accrued salaries and wages	331	387	464	271	271
Accrued interest	581	271	271	30	30
Deferred revenue	30	30	30		
Total current liabilities	<u>1,927</u>	<u>1,836</u>	<u>2,156</u>	<u>2,803</u>	<u>3,174</u>
Long-term debt:					
Hospital Facility Revenue Bonds, Series 1981	23,265	23,265	23,265	23,170	23,060
Obligations under capitalized leases	195	88	501	379	244
Deferred revenue	190	160	130	100	70
Advances from third-party payors	118	118	118	118	110
Total liabilities	<u>25,695</u>	<u>25,467</u>	<u>26,170</u>	<u>26,570</u>	<u>26,666</u>
Fund balances	<u>1,161</u>	<u>1,532</u>	<u>2,029</u>	<u>3,149</u>	<u>4,730</u>
	<u>\$26,856</u>	<u>\$26,999</u>	<u>\$28,199</u>	<u>\$29,719</u>	<u>\$31,396</u>

Note: The comments and assumptions contained in this study are an integral part of this forecasted statement.

EXHIBIT 4

CMCForecasted Statements of Changes in Fund BalancesUnrestricted Funds

(Thousands)

Balance, June 1, 1980	\$ 896
Excess of revenues over expenses	<u>265</u>
Balance, May 31, 1981	1,161
Excess of revenues over expenses	<u>371</u>
Balance, May 31, 1982	1,532
Excess of revenues over expenses	<u>497</u>
Balance, May 31, 1983	2,029
Excess of revenues over expenses	<u>1,120</u>
Balance, May 31, 1984	3,149
Excess of revenues over expenses	<u>1,581</u>
Balance, May 31, 1985	<u><u>\$4,730</u></u>

Note: The comments and assumptions contained in this study are an integral part of this forecasted statement.

Conclusions

The marketing procedures for the construction of a non-profit health care facility requires a study that is different than the procedure for marketing the construction of a profit making institution. Even though the basic law of the land is financial soundness, there is a social responsibility as well as (social responsibilities act).

The need for a new health care facility has been determined within the data and statistics gathered from the closing of three hospitals in the primary service area of the St. Louis area. In spite of the fact that 177 hospital beds were removed from North St. Louis and only a small amount of the beds will be replaced, it is concluded that the intended ambulatory care centers and preventative medicine units will be adequate for the balance of the relocated bed capacity. It may be noted, also that the three hospitals that left North St. Louis were not at any time filled to 100% capacity. Thus, it can be concluded that the 177 beds previously mentioned were not fully utilized.

Also, the need for an obstetrical unit and delivery room provides partial justification for a new hospital. This would reduce the need for the St. Louis area acting as an obstetrical unit. An objective of the St. Louis area plan of St. Louis is to reduce infant mortality in the metropolitan area. This need would assist the health care plan in achieving their objectives.

CONCLUSION

The marketing procedures for the construction of a non-profit health care facility requires a setting that is different than the procedure for marketing the construction of a profit making institution. Even though the basic bottom line is finance, there has to be a need and a social responsibility as well as federal regulations met.

The need for a new health care facility has been determined within the data and statistics gathered from the closing of three hospitals in the primary service area of CMC. In spite of the fact that 977 hospital beds have been removed from North St. Louis and only a total of 194 beds will be replaced, it is concluded that the intended ambulatory care centers and preventative medicine units will be adequate for the balance of the relocated bed capacity. It may be noted, also that the three hospitals that left North St. Louis were not at any one time filled to 100% capacity. Thus, it can be concluded that the 977 beds previously mentioned were not fully utilized.

Also, the need for an obstetrical unit and delivery room provides partial justification for a new hospital. This would reduce home deliveries and mid-wives acting as an obstetrician. An objective of the Health Systems Plan of St. Louis is to reduce infant mortality in the metropolitan area. This need would assist the Health System Plan to achieve their objective.

Other social responsibilities to the 281,688 people would be met through the Department of Social Services. If the CMC building is converted into an extended care facility, social responsibilities to the elderly may also be satisfied.

The need for a new hospital has been illustrated throughout the paper in regards to social needs. This being an important social and psychological factor, there is an adjunct to this obligation to the community--provision of services. The three primary facets which were stressed were the need for more physicians, implementation of comprehensive pre and post natal care, and advanced technology in the diagnostic testing and treatment laboratories of the hospital. It was adequately documented that these three areas of need provide for a harmonious cycle which includes physicians, patients, and services. All three are necessary to promote quality health care. It was one of the chief objectives of this entire study to successfully demonstrate that the proposed new facility would provide all three facets proportionately to achieve excellence in the operation of health care delivery.

The financial statements of CMC were conducted over a period of four years. This time period, as a rule, is inadequate to make a good trend analysis; however, CMC has illustrated with statistical data that because of good management, it has generated physician enthusiasm. This has resulted

in a steady annual increase in patient admissions thus generating excessive revenues to permit growth and to acquire expert management personnel. This basis of accounting presumes that working capital will be available to finance future operations at CMC and repay existing long-term obligations in the ordinary course of business. Furthermore, this basis does not provide for effects on financial statements of significant changes in operations which is categorized as Subsequent Events. These events concern the interest payments of the Series 1981 Bonds.

In the effort to stabilize financial interest payments, the Bond issue covers the total amount of interest payment and the debt service of SLCMC which is the site for the Project. Also, the audit made no adjustments to carrying amounts of assets and liabilities which would reflect the disposal or liquidation of assets in a manner not in the course of ordinary business. However, the revenues of CMC have already been determined as being solvent, so the financial problems from this asset has been eliminated.

The federal, state, and local responsibilities would fall in the parameter with that of any other institution. Because CMC is not acquiring Hill-Burton money, it will not be required to follow federal standards. The main responsibility will be to meet principle and interest payments.