

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 074-0188	
The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YYYY) 09-04-2004		2. REPORT TYPE Final Report		3. DATES COVERED (From – To) July 2003 to July 2004	
4. TITLE AND SUBTITLE The Perspective of the Staff Regarding Facility Revitalization at Walter Reed Army Medical Center				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Jimmy G. Baker, Captain, Medical Service Corps, U.S. Army				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAMES(S) AND ADDRESS(S) U.S. Army Medical Materiel Agency 1423 Sultan Drive Fort Detrick, MD 21702				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Medical Department Center and School BLDG 2841 MCCC-HRA (Army-Baylor Program in Healthcare Administration) 3151 Scott Road, Suite 1411 Fort Sam Houston, TX 78234-6135				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S) 35-03	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT The purpose of this study was to investigate and measure the attitudes of the staff of Walter Reed Army Medical Center (WRAMC) regarding the organization's Master Facility Plan, renovation plans, and the physical condition of the facility. Data was collected through the use of a questionnaire developed and administered to a sample that included all department and service chiefs, as well as randomly selected other employees (n=204). The response rate for the questionnaire was 40.69%. Analysis of collected data revealed that most respondents believe major facility revitalization must occur at WRAMC, staff awareness of the Master Facility Plan is lacking, and staff education on the Master Facility Plan is necessary. The utility of the findings of this study are threefold. First, it provides WRAMC's command and senior leadership with information about their subordinates' perspectives and attitudes regarding the current facility status and degree of awareness of the Master Facility Plan. Second, it serves to put the staff on notice that major facility revitalization is on the horizon. Third, the results may be used as a starting point for developing information, marketing, education, expectation management, and strategic investment plans. Recommendations for further research and programs are discussed.					
15. SUBJECT TERMS Military Medical Facilities; Master Facility Planning; Staff Perspective					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			Jimmy G. Baker, CPT, MS, USA
U	U	U	UU	78	19b. TELEPHONE NUMBER (Include area code) (301) 619-7477; e-mail: jimmy.baker@us.army.mil

Running head: STAFF PERSPECTIVE ON FACILITY REVITALIZATION

The Perspective of the Staff Regarding Facility
Revitalization at Walter Reed Army Medical Center

Captain Jimmy G. Baker

U.S. Army - Baylor University Graduate Program in Health
Care Administration

9 April 2004

Disclaimer Notice

"The views expressed in this paper are those of the author and do not reflect the official policy of the Department of the Army, Department of Defense, or the U.S. Government."

Acknowledgements

I would like to extend my personal thanks to the following individuals for their support and assistance throughout my graduate studies:

COL Rick Bond, my preceptor and Commander, U.S. Army Health Facility Planning Agency

COL James Greenwood, the Deputy Commander for Administration at Walter Reed Army Medical Center

CH (MAJ) Jon Hollenbeck, my faculty reader at the U.S. Army Medical Department Center & School

LTC Brett Walker, who provided invaluable advice at key times

Most importantly, a heartfelt thanks goes to my wife and daughter for their unwavering support during both the didactic and residency phases of my graduate studies.

Abstract

The purpose of this study was to investigate and measure the attitudes of the staff of Walter Reed Army Medical Center (WRAMC) regarding the organization's Master Facility Plan, renovation plans, and the physical condition of the facility. Data was collected through the use of a questionnaire developed and administered to a sample that included all department and service chiefs, as well as randomly selected other employees (n=204). The response rate for the questionnaire was 40.69%. Analysis of collected data revealed that most respondents believe major facility revitalization must occur at WRAMC, staff awareness of the Master Facility Plan is lacking, and staff education on the Master Facility Plan is necessary. The utility of the findings of this study are threefold. First, it provides WRAMC's command and senior leadership with information about their subordinates' perspectives and attitudes regarding the current facility status and degree of awareness of the Master Facility Plan. Second, it serves to put the staff on notice that major facility revitalization is on the horizon. Third, the results may be used as a starting point for developing information, marketing, education, expectation management, and strategic

investment plans. Recommendations for further research and programs are discussed.

Table of Contents

Introduction	
Conditions Which Prompted the Study	14
Statement of the Management Question	22
Literature Review	23
Statement of Purpose	33
Methods and Procedures	
Beings, Objects, and Events	34
Sampling Procedures and Means of Data Gathering	34
Validity and Reliability	37
Ethical Considerations	39
Data Collection	40
Results	
Sample Size and Response Rate	43
Questionnaire Results	44
Written Comments	48
Discussion	49
Conclusions and Recommendations	51
References	56
Appendices	61

List of Tables

Table 1. Master Facility Plan Team Composition

Table 2. Recommended Projects by Priority

Table 3. Descriptive Statistics

List of Figures

Figure 1. Bar chart depicting responses to questionnaire item #7, "Major facility revitalization must occur for WRAMC to maintain its long-term viability."

Figure 2. Bar chart depicting responses to questionnaire item #8, "In general, the staff is aware of the Master Facility Plan."

Figure 3. Bar chart depicting responses to questionnaire item #9, "The staff needs to be educated about the Master Facility Plan."

Figure 4. Bar chart depicting responses to questionnaire item #11, "I have a very good idea how long renovation of my areas will take."

The Perspective of the Staff Regarding Facility
Revitalization at Walter Reed Army Medical Center

Introduction

Walter Reed Army Medical Center (WRAMC) is the largest and perhaps best-known military medical center in the world. It stands as a monument to a long tradition of patient care, medical research, and educational development. WRAMC's mission and vision statements, which are important elements of its strategic plan, convey its reason for being, goals, and aspirations.

"Mission

- Develop leadership in clinical readiness for combat and contingency missions
- Exploit advances in wellness, prevention, and disease outcomes management for maximum quality of life and health
- Serve as the Army's center of gravity for complex care, clinical education, and clinical research
- Become the national leader in outcomes-focused integration of primary and specialty care
- Partner with other services and agencies to promote excellence in military health care with prudent

stewardship of resources" (Walter Reed Health Care System Strategic Plan, 2001, p. 1).

"Vision

Provides the nation's most effective population-based primary and specialty military health care for Soldiers, other service members, families, and retirees in the National Capital Area. Includes the preeminent federal medical center for worldwide referral care, clinical education, and clinical research" (Walter Reed Health Care System, 2001, p. 1).

Many consider the mission and vision as keys to success in any organization (Ginter, Swayne, & Duncan, 2002).

Through clarification and exploration, they serve as a framework for evaluating the organization's facility related decisions, to include its Master Facility Plan. In order to serve as a meaningful facility roadmap, the Master Facility Plan must tie-in with the organization's strategic plan. Using the organization's strategic plan, which includes its mission and vision statements, as an overall guide, the master planning team is able to identify critical planning issues to help define criteria for the evaluation of possible plan alternatives. According to the WRAMC Master Facility Plan (2002), the five criteria are:

- 1) Consumer-focused
 - a. Infrastructure
 - b. Image
 - c. Recruiting staff and students
 - d. Implement ideas (valet parking and drive-thru pharmacy)
- 2) Patient-focused care
 - a. Team oriented care
 - b. Consult rooms
 - c. Larger exam rooms
- 3) Staff/students
 - a. Security
 - b. Classrooms (with technology)
 - c. On-call rooms
 - d. Additional areas for support staff
- 4) Ability to integrate advances and expansion of mission
 - a. Ability to support new technologies, missions, and changes in health care delivery
 - b. Telemedicine
 - c. Up-to-date computers and network
 - d. Unforeseen missions such as research of trauma level 1

5) Clarity in mission

- a. Focused care versus being "all things to all people"
- b. Mobilization mission
- c. Education

These five criteria are derived from and linked to WRAMC's mission and vision statements. For example, the vision statement calls for WRAMC to provide primary and specialty military health care and serve as the preeminent medical center for worldwide referral care, as well as clinical education and research. The Master Facility Plan serves as the "roadmap" for achieving this vision from a facilities perspective. The Plan additionally outlines the physical plant necessary for the organization to perform its mission now and in the future.

WRAMC also provides extensive support to members of the other military services; to certain civilians, such as members of Congress, Presidents, and Vice Presidents; to the Public Health Service; and to foreign dignitaries designated by the U.S. State Department. Including all persons who receive treatment and those who are eligible to be referred, WRAMC serves a potential worldwide patient population of more than eight million. Approximately 25% of the National Capital Area's eligible beneficiaries are

enrolled in primary care at WRAMC. WRAMC serves an important role as referral center for the majority of specialty services delivered to military beneficiaries in the area.

WRAMC admits approximately 40 patients each day, nearly half of which are referrals from other hospitals. Since the mid 1990s, the average number of in-patients at WRAMC has dropped from almost 700 to around 200 as it followed the model of care in civilian medicine. This model emphasizes more pre-admission tests, exams, and processing; more same-day surgery; and more ambulatory diagnostic care. The Global War on Terrorism, including Operations Iraqi Freedom and Enduring Freedom, has caused a recent substantial increase in the number of patients treated at WRAMC. Even with such a surge, the overall drop in inpatients over the past 15 years is due primarily to medicine's shift to outpatient care. The 60 clinics at WRAMC offer the full range of medical specialties and sub-specialties. About half the clinics are on the first three floors of the hospital. In recent years, WRAMC has combined some categories of care such as obstetrics, pediatrics, neurology, and psychiatry inpatient care, with the National Naval Medical Center in nearby Bethesda, Maryland. The coordination with the U.S. Navy's flagship military

treatment facility is likely to continue. This has come about primarily at the urging of the U.S. Congress and is based on the market management concept included in the soon-to-be-implemented next generation of Tricare contracts. This concept will place WRAMC's commanding general in the position of being the multi-service market manager for the military treatment facilities (MTFs) in the National Capital Area. The primary function of the market manager will be to ensure each facility in the area operates according to a business plan coordinated with all MTF business plans in the market area. The market management office will analyze and distribute performance data for all MTFs, and will coordinate short term operational adjustments in staffing or other resource allocations consistent with mission requirements.

In all, the WRAMC installation has 8,700 employees, about half of whom are Department of the Army civilian or contractor employees. Nearly half of the total civilian employees and two-thirds of the military personnel work in the main WRAMC hospital facility on a daily basis. To support this diverse group, the installation functions in the same way a small city would operate. It has its own fire department, police force, and other units. The main installation sits on 113 acres of land in the northwest

portion of the District of Columbia. The Armed Forces Institute of Pathology, including its National Museum of Health and Medicine, also has its headquarters on the installation, as well as a few other small tenants.

WRAMC began operations in 1909 as an 80-bed facility called Walter Reed General Hospital. The original hospital, also known as Building 1, is used today as an administration building. The current medical center opened its doors in 1978. The hospital itself stands 125 feet, as tall as a ten-story building. It is a 13-floor facility, counting the interstitial floors between each actual floor. The interstitial floors were included to allow for maintenance and repairs to the building's systems while minimizing the impact on patient care. When designed in the 1970s, it met the standard at the time for high-quality patient care and comfort. There are 5,500 rooms covering some 28 acres of floor space. The distance around the top three floors stretches the length of six football fields. It offers accommodations for approximately 250 inpatients, admitting more than 14,000 per year. The outpatient treatment facilities serve thousands of patients each day.

Conditions that prompted the study

The main hospital building at WRAMC is in urgent need of modernization (Olson & Castle, 2002). Failing utility systems, life safety issues, and the inability to effectively house modern healthcare technologies and procedures prompted the U.S. Army Health Facility Planning Agency (USAHFPA) in 2000 to organize a team tasked with completing the WRAMC Master Facility Plan. Formulation of the architect-developed Master Plan was completed in December 2002. Throughout the master planning process, WRAMC's mission and vision statements were explored for their potential impact on operational and facility issues.

Recommendations related to operational changes and future healthcare delivery scenarios, to include project space requirements, were based on anticipated changes in population, workload, and staffing forecasts (WRAMC, 2002). The proposed options were based on guidance from the command, as well as opportunities or constraints related to the existing facility. The USAHFPA organized the master plan team based on the expertise required to complete the WRAMC Master Facility Plan. The team's composition is outlined in table 1 below.

Table 1

Master Facility Plan Team Composition

Team Member	Role
USAHFPA	Master planning integration; Contract management and support
BMAR	Project management
Smith Group	Facility assessment; Health facility planning
The Innova Group	Health care analysis; Space planning
VFA	Engineering assessment
STI	Central data pull

The team, along with the organization's executive leadership, identified initiatives to promote staffing efficiency, improve business practices, and enhance care delivery. The plan made several proposals, which included a recommendation for space utilization and access. The plan called for the filling in of the fifth floor, thus raising the courtyard for sixth floor access. This concept adds approximately 85,000 square feet of floor space. The construction cost at the time of the finalizing of the plan was estimated at over \$204 million. The plan calls for construction to be done in five lengthy phases, along with shorter sub-phases, beginning with the renovations of two nearby buildings. These two buildings would then be

utilized as transition space so that the work in the main hospital building could then begin.

This recommendation addressed the evaluation criteria established by the mission statement of the hospital. These criteria included: patient and consumer focus, staff and student retention, functional efficiency, program efficiency, constructability, contingency mission, and renewal cost. Patient and consumer focus implies the ability to accommodate team oriented care in a patient-friendly environment. The plans call for the reconfiguration and addition of classrooms, on-call areas, and additional support spaces. All three address staff and student retention. The floor concept collocates department assets to the maximum extent possible and improves existing spatial relationships between departments. The concept also ensures flexibility because it redesigns areas to support changes in patient population, technological advances, and new missions. Finally, the floor concept limits impact to the hospital's infrastructure and can be completed in several possible phasing scenarios.

During the planning process, efforts were made to identify and address individual requirements. This was done in the hope of creating a plan that ensured the most desirable solutions for each department in the organization

are addressed within the context of the entire hospital's needs.

In the execution portion of the plan, the master planning team recommended nine projects for renovation and reorganization. These projects were developed during the planning process and identified as having the highest potential for the greatest initial impact under limited funding constraints. Table 2 lists the nine projects in order of priority. The inpatient wards project actually constitutes three total projects, explaining why only seven priorities are listed.

Table 2

Recommended Projects by Priority

Priority	Project
1	Emergency Department – better patient flow, staff observation, and pedestrian entrance
2	Children's Hospital – group Pediatric functions together, including Hematology Oncology and Inpatient Ward, creating a family-friendly environment
3	Intensive Care Units (ICUs) – each room needs an exterior window, quick response capability, and room for proper clearances around the patient

- 4 Inpatient Wards (3 test-fits total) -
renovation of ward core, handicapped
accessible toilets, and patient rooms
- 5 Outpatient Surgery Center - consolidate the
conscious sedation procedures currently
performed in clinics throughout the hospital
- 6 Typical Clinic - demonstrates how a clinic
could be laid out with a contingency mission
support spine
- 7 Rehabilitation and Orthopedic Center -
collocating orthopedic, physical medicine,
occupational therapy, and physical therapy

The Master Facility Plan includes a cost estimate in 2001 dollars. The estimate serves as a guide for budgeting, funding requests, as well as construction impact. The primary facility cost estimate for the recommended floor concept master plan is \$204.425 million. It is important to note that the estimate does not include contingency fees, design fees, transition costs, supervision costs, and overhead costs.

The USAHFPA has a Project Office at WRAMC. The Project Office is working closely with the Hospital Revitalization Committee to document an Engineering and Operational Realization Plan to achieve the Master Facility Plan. They

are in need of a campaign plan that links the facility sustainment (near-term) plans with the Master (long-term) Plan. The campaign plan would serve to persuade not only the hospital staff, but also North Atlantic Regional Medical Command, U.S. Army Medical Command, the Assistant Secretary of Defense (Health Affairs), and ultimately Congress to commit to the substantial challenges and costs WRAMC faces in achieving the Master Facility Plan. A perception exists among both the command leadership and the facility management employees that the WRAMC staff does not have a long-term view of the magnitude of the work and sacrifices required within each activity to complete the revitalization necessary to achieve the Master Facility Plan. There continues to be active work throughout the clinical community to accept new research missions and new technology requiring more space and more utility support that WRAMC does not currently possess.

The primary building utilities and services at WRAMC's main hospital building are failing at an increasing rate. In the last three years, more than 20 major floods have occurred throughout the facility, which caused decreased productivity and expensive repairs in portions of the laboratory, radiology, and various clinics and wards. Failures in the hospital's heating, ventilation, and air

conditioning system have caused unbearable temperatures, computer system downtime, and the inability to maintain appropriate ventilation. In August 2001, aging utilities and infrastructure were to blame for an installation-wide power failure that temporarily shut down the hospital. Numerous electrical failures in operating rooms, intensive care units, and other critical areas have degraded patient safety, quality of care, and medical readiness (Olson & Castle, 2002). There are many theories as to why the facility has so many problems. Some suggestions include; the past lack of a viable preventive maintenance program, personnel turbulence in the organization's facility management branch, a possible lack of concern on the part of many employees, and no past guidance from a Master Facility Plan.

Facilities are a health care delivery system's largest capital asset (U.S. Army Health Facility Planning Agency, 2002). The use of a Master Facility Plan for WRAMC gets it on track with facility life cycle management. The renewal phase of facility life cycle management encompasses Operations and Maintenance (O&M) funded major facility renovation programs that provide an economic, cost-effective means for extending a facility's life and improving its functional use. The use of the organization's

master facility plan ties in well with facility life cycle management (USAHFPA, 2002).

“Facility life cycle management is a new philosophy designed to ensure cost effective use of the Army’s \$8 billion [sic] health facility infrastructure. Life cycle management integrates previously disparate funding sources for all maintenance, repair, renovation, and new construction under a single program. The execution of the program is then intensively managed to optimize facility capital investments, based on strategic and health care business plans and resultant facility master plans” (USAHFPA, 2002, p. 4).

Statement of the Management Question

Senior leadership at WRAMC is currently uncertain what the staff’s attitudes are regarding the Facility Master Plan and other facility-related issues. Questions exist concerning whether or not employees are truly aware of the long-term commitment and sacrifices necessary to revitalize the facility. The management questions contained in the questionnaire utilized in this study are designed to:

- 1) measure the current attitudes of the department and service chiefs, as well as randomly selected other employees, regarding Facility Master Plan awareness

and education, facility renovations, and revitalization;

- 2) identify the staff's current most important facility issues, problems, and concerns; and
- 3) provide recommendations for utilizing the input gained from the questionnaire to develop and orchestrate a facility revitalization campaign plan that considers the staff's perspectives.

This study's results are intended to provide the senior leadership at WRAMC with valuable insight into the perspectives of their employees concerning renovation. The potential exists for the results of this study to provide the basis for additional, and more extensive, research at other military treatment facilities that are facing facilities challenges similar to those of WRAMC.

Literature Review

Inadequate funding for maintenance and repair programs in the federal government is a long-standing problem (National Research Council, 1998). Plans and programs for maintenance have historically received very limited, if any, support from executive or legislative decision-makers. The National Research Council's (1998) committee to assess techniques for developing maintenance and repair budgets for federal facilities stated that "properly

maintained facilities are not a luxury, but critical to the provision of providing government services to the public” (National Research Council, 1998, p. 2). The committee further stated that simply throwing cash at maintenance projects for repair of federal facilities is not the answer. Rather, it recommended a strategy for facility management, maintenance, and accountability for stewardship that requires long-term vision, commitment, leadership, and vigilance by both decision-makers and managers (National Research Council, 1998).

According to Capps (1994), the ability to define and implement a coherent facility strategy may be the difference between survival and failure for evolving health care delivery systems. There are two interdependent sources of guidelines for developing a facility strategy. These are the organization’s strategic plan and its facility master plan. Traditionally, the physical plant, technology, and capital investment required to support new services or product lines were considered secondary to the ideas and innovations that differentiated among and created advantages for business opportunities. In times of increasingly tight budgets, however, the condition of the physical plant is becoming more important. Organizations continually monitor, evaluate, and respond to their

external environments. By its very definition, the strategic planning process is proactive and continually responsive to a changing environment (Ginter, Swayne, & Duncan, 2002).

In his article on the impact of aging on-site infrastructure on facility planning, Capps (1993) stresses that infrastructure analysis must be a basic component of the facility master plan and that specific information concerning the site and facility must be collected, evaluated, and analyzed at each phase of development of the master plan. An engineering systems analysis must include a thorough look at the hospital's electrical power systems, telecommunications, mechanical systems, medical gas systems, plumbing, and medical waste disposal processes. Although these systems may be hidden from patients, their proper functioning is critical to all patient care operations.

Hospitals and health systems can no longer look to the traditional 50-year hospital physical plant (Lanser, 2003). At today's rate of change, even the most flexible new building designs are unlikely to sustain 50 years of change. The healthcare industry is now anticipating a building cycle of 25 years or less. This is in line with current trends in the hospitality industry. It is

important, however, to note that the Military Health System (MHS) is not funded to replace its military treatment facilities after only 25 years of use. Due to such limited funding, it is extremely important that the MHS do an outstanding job of properly maintaining its facilities. Given the current state of affairs, healthcare planners and strategists must make wise facility investment decisions in an evolving environment filled with uncertainty (Lanser, 2003) .

Souhrada (1990) states that one unpleasant surprise during renovation is that a project often costs more than anticipated. Many hospitals choose to renovate because it is perceived to cost less than new construction. Hospitals that begin renovations with well-developed plans and consider input from employees often reap their rewards in the form of saved costs. Without a viable master facility plan, hospitals often aimlessly jump from project to project. Souhrada (1990) further argues that a renovation plan requires a comprehensive system for implementation, with commitment from all the people in the organization. Because hospitals have many committees with many different needs, they often fail to look at projects holistically. One person should have total authority over the plan because decisions must be made quickly to keep the process

moving. It is, however, important for that chosen person to consider the input from employees at all levels within the organization. Some hospitals place their facility manager or an administrator in this important position (Souhrada, 1990) .

Facility development consumes one of the largest portions of many hospital budgets (Debord, 2002) . For that reason, it is essential for healthcare organizations to investigate ways that design can have a positive impact on both cost and quality of care provided to patients.

Tremendous advances in technology have been made over the last decades that have transformed medicine from a science focused on disease treatment to one that also encompasses overall health management. Debord (2002) states that the most successful hospital leaders will be the ones who use their facilities' physical environment to respond to the major issues facing hospitals today, which include a shortage of nurses and other providers, consumer-driven health care, and the availability of high-tech care.

Due to lack of strategic planning, many health care organizations make short-term decisions that are driven by a project's initial cost. Taking a long-term approach is much more likely to improve the organization's financial and operational performance (Schmida & Sullivan, 2002) .

Long-term or life-cycle approaches that can improve performance include creating a master facilities plan, forming outcome-based agreements with suppliers, shifting risk to the service provider, and implementing self-funding projects when possible (Schmida & Sullivan, 2002).

To ensure success, any revitalization or renovation project will require the long-term commitment of all people in the organization. Some organizations have found that the inconvenience accompanying renovation often pays off in the long run (Lanser, 2003). Lawrence & Memorial Hospital in New London, Connecticut recently modernized its 80-year-old building. Lawrence's leadership often found it difficult to keep employees' spirits high, bright, and cheerful during construction. Patients were often re-routed and some hallways were closed for extended periods of time. In the end, however, the design was found by all to be much more efficient and fresh. Surveys of patients and staff revealed that everyone was extremely enthusiastic about and appreciative of the final product. The renovation was ultimately deemed worthwhile. One of the many lessons hospitals have learned through experience in large renovation projects is that support from the organization's leadership, to include both administrative and clinical leaders at all levels, is critical. Having the commitment

from the medical staff to support and stand by the senior leadership's efforts is crucial (Lanser, 2003).

An organization's master facility plan must reflect the goals and objectives outlined in the organization's strategic plan. Should the organization decide to prepare a facility master plan before completing its strategic plan, it would be making capital decisions without benefit of the institution's input (Capps, 1994). According to Capps (1994), this occurs in roughly one-third of all facility planning situations. The most efficient mechanism for soliciting input from all departments within the organization is a perceptions survey (Capps, 1994). Unfortunately, such a survey was not administered at WRAMC. The organization's most recent strategic plan was used as a guide by the team that developed the Master Facility Plan. This graduate management project (GMP) is aimed toward learning the perceptions of employees from all departments within WRAMC.

Griffith and White (2002) state that the objective of a maintenance and repair program is to keep the facility and its equipment as "like new" as possible so that patients, visitors, and staff perceive the environment positively or at least neutrally. They further state that this goal is achieved by emphasizing preventive maintenance, because it

is preferable to fix or replace equipment before it completely breaks down. In some cases, the result of a complete break down can be loss of life. The cost of failure is very high. Well-managed plant systems schedule preventive maintenance for all the mechanical services and specific building areas. A significant portion of time must be devoted to preventive maintenance, which includes regular inspection of general use equipment such as elevators and air handling units, as well as plant conditions such as floor and wall coverings, plumbing, roofs, and structural members. Repairs and routine maintenance are then performed as needed (Griffith & White, 2002) .

Griffith and White (2002) also point out that utilities for most outpatient areas are no different from other commercial buildings. However, inpatient hospitals such as WRAMC operate sophisticated utility systems that provide air, steam, and water at several temperatures and pressures and filter some air to reduce bacterial contamination. The cost of failure is so high that water and power systems are built with substantial redundancy in mind. They also provide multiple safeguards against failure because of the extreme consequences. Many hospitals supply high-pressure steam for sterilizing and laundry equipment. This use of

higher pressures requires continuous surveillance by licensed boiler operators. Operating rooms use specially filtered air. For these reasons, utilities are more elaborate in hospitals than those usually found in public buildings (Griffith & White, 2002).

Hospital electrical systems are complex. The hospital must have on-site generating capability to sustain emergency surgery, respirators, safety lights, and communications in the event of a power outage. When power disruptions occur, several areas must switch to the emergency supply automatically, requiring them to be separable from other, less-critical uses. Several other problems complicate the hospital's utility supply. At WRAMC, oxygen and suction are piped to all patient care areas. Additionally, nitrous oxide is piped to surgical areas.

All parts of healthcare facilities are subject to certain safety regulations, with patient care areas having the highest standards. Most of the regulations are contained in the Life Safety Code and other codes developed by the National Fire Protection Association. State and local licensure, Joint Commission on the Accreditation of Healthcare Organizations inspections, and Medicare certification requirements enforce compliance. Numerous

regulations require routine inspection and maintenance, and often dictate important specifications of new construction. The length of time allowed to bring an existing building into compliance usually depends on the severity of the hazard. Of particular importance is the fact that all violations of current code must be corrected when a renovation is made to an area. An old building such as the main hospital building at WRAMC will likely contain many violations and will be costly to renovate.

According to Griffith and White (2002), any project to change the use of space should be carefully planned in advance and closely managed as it evolves. Each space should be used in the way that optimizes achievement of the organization's mission. This can often be difficult to manage. Departments within healthcare organizations tend to expand to fill the available space, and WRAMC is no exception. As a result, there is always at least a perception of space shortages and an agenda for possible reallocations or expansions. When activities get smaller, the space is often difficult to recover and reuse. Space is highly prized and often implies prestige and symbolic rewards. As a result, space allocation decisions within hospitals are often hotly contested (Griffith & White, 2002). Well-run healthcare organizations address this

challenge by incorporating space use and facility needs into their long-range planning and developing a type of master facilities plan that translates decisions to specific available or needed space. The plan should describe necessary additions or reductions in the space inventory. Departments seeking substantial additional space or renovation must gain approval from the space office before submitting a new program or capital proposal (Griffith & White, 2002).

Purpose

The purpose of this study is to investigate and measure the attitudes of WRAMC's staff regarding the Facility Master Plan, renovation plans, and the physical condition of the facility. The study also hopes to provide results to assist in confirming or denying the existing perception that the WRAMC staff is not aware of the Facility Master Plan, and does not have a long-term view of the magnitude of the work and sacrifices required of them in order to renovate and ultimately revitalize the hospital. This study will also provide information to be utilized as background for a subsequent information marketing and expectations management plan. Additionally, this study will serve as a starting point for improving staff awareness of the need

for facility revitalization even though renovations may be temporarily disruptive to their operations.

Methods and Procedures

Beings, objects, and events

The method and procedures portion of this management project answers the questions of who (the subjects, objects or events measured), what (the study design, the types of data and variables), how (the type of analysis to be employed), when, and where. To begin with, this GMP measures questionnaire participants' attitudes regarding the Facility Master Plan, facility condition, and facility revitalization. The subjects are department and service chiefs, as well as a random sample of other employees. The study design consists of a questionnaire used in answering the research questions. Data received by participants is analyzed by utilizing several statistical methods, including descriptive statistics such as mean and standard deviation, cross tabulations, and other applicable statistics. The study was conducted exclusively at WRAMC during the late 2003 and early 2004 timeframe.

Sampling procedures and means of data gathering

The sample size for the study was $n=204$. This number represents the total number of department and service chiefs at WRAMC, plus 150 randomly selected employees other

than department and service chiefs. The participants were emailed a link to a questionnaire, along with a brief description of the purpose of the study and instructions for completing the questionnaire. A cover letter explaining the importance of the study, instructions for its completion, as well as procedures for receiving feedback was attached to the email. Participants were given approximately ten days to complete and return the questionnaire. Follow-up inquiries were executed via email one week after dissemination of the questionnaire in the hope of gaining the maximum response rate possible.

The questionnaire was designed to gain staff perspectives and attitudes and is an example of a descriptive, cross-sectional study. The variable measured was staff attitudes. Cross-sectional studies are conducted to represent a snapshot at one particular point in time (Vancosky, 1998). In this study, the results should reflect the attitudes of employees at WRAMC.

Questionnaires are the most widely used method for collecting information about people's attitudes and behavior (Sudman & Bradburn, 1982). Questionnaires are an inexpensive way to gather data from a potentially large number of respondents (American Statistical Association, 1999). Often they are the only feasible way to reach a

number of reviewers large enough to allow for statistical analysis of the results. According to the American Statistical Association (1999), there are five steps required to design and administer a questionnaire:

- 1) Defining the objectives of the survey,
- 2) Determining the sampling group,
- 3) Writing the questionnaire,
- 4) Administering the questionnaire, and
- 5) Interpretation of the results

Steps one, two, and three were completed in the preparation of the GMP proposal. Steps four and five commenced immediately upon approval of the proposal.

Permission to conduct this study was obtained from the chain of command at WRAMC as well as the Commander of USAHFPA. Initial assistance and background, as well as a copy of the actual Master Facility Plan, was received from the Health Facility Project Office - Northeast located at WRAMC. Demographic and background information, as well as data pertinent to WRAMC, was obtained from the organization's official web site, the Walter Reed Health Care System Strategic Plan, and personal communications with specific employees. Additional information and data necessary for completion of the study was acquired from

applicable Department of Defense medical databases and repositories.

Validity and reliability

"Validity is the extent to which a test measures what we actually wish it to measure" (Cooper & Schindler, 2001, p 210). In order to ensure there is validity in this study, an expert in the field of facility planning, the commander of USAHFPA, the U.S. Army's consultant for health facility planning, and key WRAMC staff members reviewed the questionnaire prior to its administration. Further, a pilot administration of the questionnaire was initially administered on a small test group whose attitudes were already known.

"A measure is reliable to the degree that it supplies consistent results" (Cooper & Schindler, 2001, p. 215). Reliability is recognized as a potential limitation of this study. Establishing and maintaining all documents, notes, and articles utilized in the study ensured reliability to the maximum extent possible. A common test to measure questionnaire reliability is Cronbach's alpha, which measures the stability or internal consistency of the instrument (Cronbach, 1951). Reliability is critical in social science measurements. In the social sciences, a Cronbach's alpha of above 0.80 indicates exceptionally high

reliability. The Cronbach's alpha for this study was 0.57, indicating that reliability may be viewed as a limitation of the study. The concluding section of this study outlines recommendations for improving inter-item reliability.

Questionnaire design involves developing wording that is clear, unambiguous, and which permits respondents to answer the questions that are being asked (Drennan, 2003). Nonresponse or noncompletion of questionnaires is a major problem in survey research, and may lead to the collection of incomplete data. This may then affect the ability to generalize the findings to the population as a whole. Drennan (2003) mentions several reasons why questionnaire completion may fail, which include participant nonresponse, irrelevance of questions or the questionnaire itself to respondents, inability to complete questions requiring memory, and the use of sensitive or intrusive questions.

Drennan (2003) further points out that utilizing a method to pretest questionnaires prior to their distribution can help ensure high response rates from a sample of the population. Pretest methods can include focus groups, content validity, alternate forms comparison, pilot studies, or cognitive interviews.

Ethical considerations

Questionnaire participant confidentiality was a very important consideration. The survey cover letter and instructions stressed the importance of maintaining anonymity for the respondents and confidentiality of their responses. The fact that participation was voluntary was clearly stated. Additionally, the person's name was not required on the completed questionnaire. To further ensure confidentiality, no individually identifiable results were made known. Only consolidated data was presented. The methods used to collect and analyze the data for the study ensured anonymity of the respondents. Responses were "de-linked," meaning that data sets and any identifiers were separated. This ensured that it was impossible to identify those participating in the study by name.

This researcher anticipated that the questionnaire results would likely confirm some perceptions that currently exist among command and facilities management leadership concerning the staff's awareness of the Master Facility Plan and commitment to facility revitalization. Employees at all levels within WRAMC are very passionate about providing the highest quality care to patients, and this researcher expected responses to reflect that fact. Further, one should expect the responses to the open-ended

questions concerning major facility issues to center around such infrastructure elements as heating, ventilation, and air conditioning, leaks, and electrical problems. The results may also reveal the need for WRAMC staff to be better educated regarding the long-term facility plan and associated future facility improvements and be included in future master facility planning processes.

Data Collection

As previously mentioned, a pilot administration of the questionnaire commenced immediately upon approval of the GMP proposal. This was done in the hope of eliminating any ambiguous, negative, or unduly leading statements. Minor modifications and corrections were made as necessary from the feedback of the pilot administration. The questionnaire was then administered to the intended participants.

The Internet was utilized to administer the questionnaire. The website www.createsurvey.com was chosen as the host for the questionnaire based on user friendliness and its ability to collect and graphically display the results. The website made it relatively simple to set up a questionnaire, collect respondents' answers, and view the results as an MS Excel-based data set if desired. The web-based questionnaire (Appendix B) was distributed via email to WRAMC's department chiefs,

service chiefs, and 150 randomly selected other employees on December 9, 2003. Included in the email was a brief statement outlining the purpose and importance of the questionnaire, a link to the questionnaire, and a cover memorandum (see Appendix A) as an attached MS Word Document signed by the Deputy Commander for Administration. The intention was to encourage respondents to complete the survey and to assure them that their opinions mattered and would be held in confidence. On the cover memorandum a request was made of them to complete the questionnaire by December 18, 2003.

As completed questionnaires were submitted, the data associated with the responses was compiled in the website's database. Data outputs were reviewed daily to ensure it was being posted properly and respondents were not reporting any problems completing the questionnaire. Questionnaires were submitted as late as January 27, 2004. On this date the decision was made to consider the responses submitted to that point as the complete data set for purposes of this study. The data set was then saved as a Microsoft Excel worksheet and re-verified to ensure no errors were made. A statistical analysis of the data was then conducted utilizing version 12.0 of the Statistical Package for the Social Sciences. The

descriptive statistics were then reported and interpreted.

The questionnaire used for this study was developed after substantial input from those closely associated with the issue as well as other experts, which included those with experience in questionnaire development. No previous Master Facility Plan studies exactly like this one could be found in the literature, making it necessary for a new questionnaire to be created. Appendix B contains a copy of the web-based questionnaire instrument utilized in this study.

Questions 1 and 2 of the questionnaire were demographic in nature. They were included to provide information for analysis of responses from persons of different statuses and positions. Question 3 asked respondents how long they have served in their current position. Question 4 asked respondents whether they have been involved, in any capacity, in a major facility renovation project. Respondents were not required to answer question 6 if their answer to question 5 was "no", which indicated that the respondent was not aware of WRAMC's Master Facility Plan. Question 7 was intended to serve as an over-arching opinion-based statement. Question 8 asked for the respondents' opinion on whether the staff is aware that the

Plan exists. Question 9 intended to determine if a need exists for staff education regarding the Plan. Question 10 sought to identify the areas of most concern to staff regarding facility revitalization. The five concerns listed are often associated with facility revitalization and/or renovation projects in health care facilities (Lanser, 2003). The five areas included in the questionnaire were the impact on ongoing medical research, impact on patient care, timeframes and timing of moves, adequacy of temporary facilities, and parking availability for staff and patients. Question 11 intended to measure whether respondents have a good idea how long renovations will take in their specific work areas. Question 12 asked respondents to list their top three current facilities-related concerns. Finally, the last question was included to allow for respondents to offer any relevant comments or suggestions on how the questionnaire could be improved for future use.

Results

Sample Size and Response Rate

A total of 204 questionnaires were distributed via email; 54 of the email addresses belonged to department or service chiefs, while 150 email addresses were those of randomly selected other employees. A total of 83

questionnaires were completed for an overall response rate of 40.69%. The response rate for chiefs was 55.56%.

Randomly selected employees responded at a 35.33% rate. See Table 1 below for the applicable descriptive statistics.

Questionnaire Results

Results revealed that the average respondent has served in his or her position for 2.79 years, with a range of five months to ten years. Only 38.55% of respondents reported having been involved in a major construction and/or renovation project in the past. Nearly half of the respondents (48.19%) reported that they were aware of WRAMC's Master Facility Plan. Among those aware of the Plan, 21 respondents (25.3%) reported having at least a minimal amount of input in the development of it. Of those 21 respondents, only five reported contributing a significant amount of input.

As previously noted, a Likert scale of 1 to 5 (1=Strongly Disagree and 5=Strongly Agree, with 0=Does not Apply or Do Not Know) was utilized for questions 7, 8, 9, and 11. See Table 3 for descriptive statistics for these questions.

Table 3

Descriptive Statistics

Question (#)	N	Mean	Std. Dev.
Years in current position (Q3)	83	2.90	1.19
Previous involvement (Q4)	83	1.45	0.50
Awareness of Plan (Q5)	83	1.52	0.50
Input into Plan (Q6)	47	2.45	0.69
Major revitalization (Q7)	83	3.98	1.61
Staff awareness of Plan (Q8)	83	1.96	1.32
Staff education needed (Q9)	83	4.02	1.36
Renovations length (Q11)	83	1.71	1.38

On the statement that major facility revitalization must occur for WRAMC to maintain its long-term viability, 66 of the 83 respondents (79.5%) reported "strongly agree" or "agree," while three respondents disagreed and 9 (10.8%) replied with "does not apply or do not know."

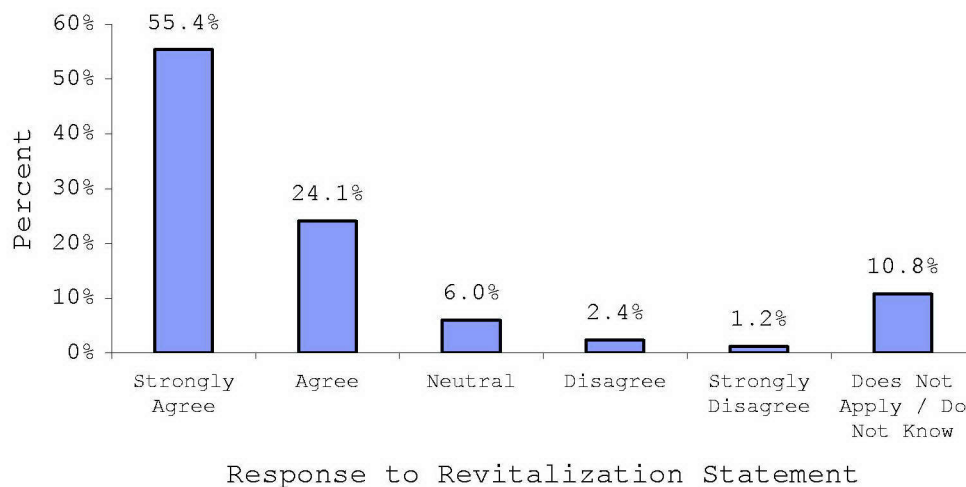


Figure 1. Bar chart depicting responses to questionnaire item #7, "Major facility revitalization must occur for WRAMC to maintain its long-term viability."

Only one respondent strongly agreed that the staff is aware of the Plan, while 18.1% agreed. Over half of the respondents, 57.8%, disagreed or strongly disagreed that staff is aware of the Plan, and 12.1% reported that they did not know.

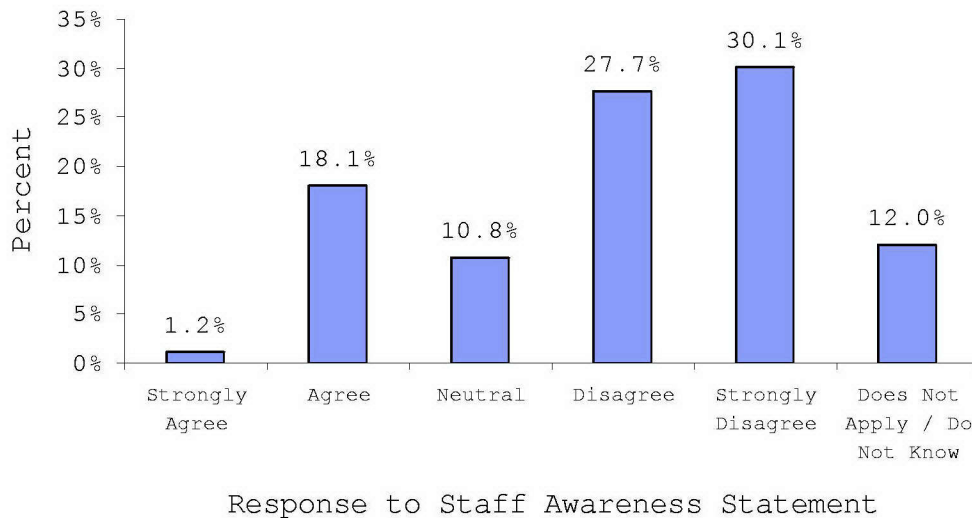


Figure 2. Bar chart depicting responses to questionnaire item #8, "In general, the staff is aware of the Master Facility Plan."

On the issue of staff education, 85.5% reported that they strongly agreed or agreed that the staff needs to be educated about the Plan. Significantly, not a single respondent disagreed or strongly disagreed with the

statement that the staff needs to be educated about the Plan.

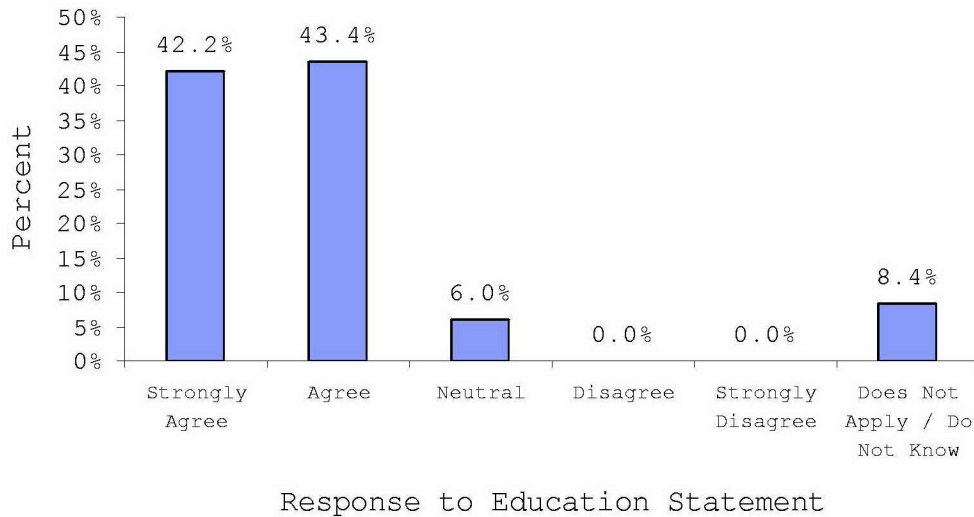


Figure 3. Bar chart depicting responses to questionnaire item #9, "The staff needs to be educated about the Master Facility Plan."

In question 10, respondents were asked to indicate areas they were most concerned about regarding facility renovation. Thirty two point one percent of respondents identified the impact on patient care as their largest concern, followed by parking availability for patients and staff (22.5%), then timeframes and timing of moves (17.4%). Of the five areas, impact on ongoing medical research was chosen the fewest times as the area of most concern, though it was selected by 13.3% of respondents.

In response to the question concerning respondents' awareness to the length of time renovations will be complete in their areas, nearly half (47%) disagreed or strongly disagreed with the statement "I have a very good idea how long renovation of my areas will take." Twenty five point three percent more responded with "does not apply or do not know." Only 13.3% of respondents agreed or strongly agreed with the statement, and 14.5% were neutral.

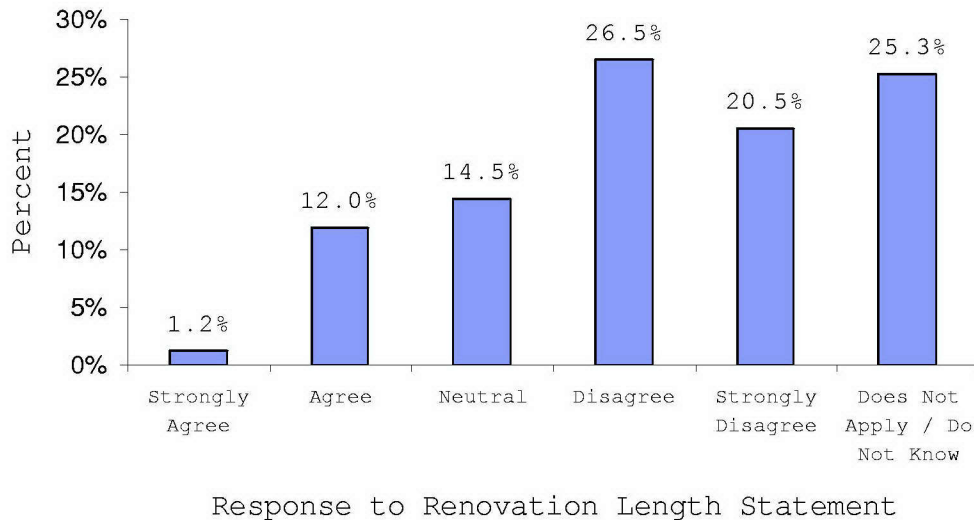


Figure 4. Bar chart depicting responses to questionnaire item #11, "I have a very good idea how long renovation of my areas will take."

Written comments

Well over half of the respondents chose to make written comments to the two questions asked of them. The responses to the question asking respondents to list their top three

facilities issues, problems, and/or concerns (Q12) allowed for the identification of several issues. Recurring concerns identified several times included: not enough office space, inadequate parking, cleanliness of the facility, housekeeping support, temperature control, and water leaks. The last item on the questionnaire (Q13) invited respondents to provide any additional comments. Though little feedback was given on how to improve the questionnaire for future use, several respondents made general comments. See Appendices D and E for a complete list of the written comments received from respondents.

Discussion

This study questioned personnel assigned to WRAMC on their perspective regarding the Master Facility Plan. As noted earlier, the overall response rate for the questionnaire was 40.69%. One may have expected a higher response rate given the fact that the questionnaire was web-based and therefore easy to complete, and had the support of the command. However, the timing of the administration of the questionnaire, which was approximately one week prior to a major holiday break, may have adversely affected the response rate. Additionally, it is possible that several email addresses were invalid or that some randomly selected individuals did not regularly

check their email. The higher response rate among department and service or branch chiefs and their candid written comments may have been indicative of their high level of interest in the Plan.

Overall, the responses by employees at WRAMC were aligned with the expectations held by this researcher. Slightly over half of those questioned had previous experience in a major project and are aware of the Master Facility Plan. More than 80% of respondents agreed that major facility revitalization must occur. These results may indicate that some employees are at least aware of what is involved, which include challenges associated with major facility renovations. It is apparent that staff awareness and education about the Plan is not present. This may be due to a lack of communication from all levels throughout the organization or possibly apathy. Regardless of the reasons, this study revealed that 86% of respondents believe that staff members need to be educated about the Plan.

The written comments tended to focus on topics not only related to facilities improvement but also overall work conditions. The command is well aware of such problems as the serious lack of parking space on the installation. A project to build an employee-parking garage with spaces for

250 automobiles should serve to at least partially eliminate parking problems. Many respondents also expressed concern about the cleanliness of the facility, and housekeeping support in general. Although not within the scope of this study, further research in this area could serve to identify trends and possible long-term solutions.

Conclusions and Recommendations

This study attempted to measure the perspective of employees regarding the Master Facility Plan at WRAMC. The utility of the findings of this study are threefold. First, it provides the commander and the senior staff of the organization with information regarding their subordinates' perspectives and attitudes about the current facility status and provides a gauge to measure their awareness of the Master Facility Plan and provides an understanding of their attitudes regarding facility revitalization. Second, it allows the organization's service and department chiefs, as well as the other employees participating in the study, to become more aware of the fact that major facility revitalization is on the horizon. Third, the results of this study have the potential to enable WRAMC leadership to utilize the findings when developing its overall information marketing campaign and strategic investment plans.

The results of this study indicate that the staff may require further education about the Plan. This could serve to increase the likelihood of staff cooperation as renovation projects that are necessary to achieve the Master Facility Plan progress. The study also revealed that the staff is most concerned about the impact renovations may have on patient care. This is important, since patient care is at the very heart of WRAMC's mission. A campaign plan that clearly explains to staff how facility improvements will incrementally improve the ability and capability of the staff to provide quality care to patients will likely meet with success at WRAMC. To the extent possible, employees must be told when and for how long their daily work will be affected. As renovations necessary to complete the different phases of the Master Facility Plan are initiated, newsletters or town meetings may be effective means to inform employees of progress and address their concerns (Canfield, 1998).

Additionally, short-term gains may be achieved by working on the concerns identified in the written comments, especially areas that are relatively simple to address. Parking was mentioned repeatedly as a problem. Fortunately, plans are being made to construct a new parking garage.

Attempts should be made to ensure that staff is made aware of the solution to the parking problem.

It is common knowledge that maintaining facilities consumes a large portion of any healthcare organization's budget. Preventive maintenance and upkeep of current facilities has never been more important. This is due primarily to the fact that the MHS is simply not funded to replace each military treatment facility as it reaches obsolescence. Construction of a brand new facility at WRAMC is not an option. Although often hidden from patients, the importance of the hospital's infrastructure cannot be overstated. The proper functioning of all utilities is critical to all aspects of patient care. Funding of projects necessary to achieve the Master Facility Plan is not guaranteed and may not be available when needed. With the existence of the Master Facility Plan as a roadmap, WRAMC can now look at projects holistically rather than moving without direction from one project to another. The Master Facility Plan is based on valuable guidance that creates a potential for increased cost savings. The Plan serves as a realistic starting point for future decision makers and has the flexibility to evolve as criteria changes. It creates a framework for coping with changes.

Since this study was exploratory in nature, its results are meant to be descriptive rather than conclusive. The findings from this study represent a set of employees' perspectives at one point in time. With this in mind, further research would be required to identify trends or changes in employees' opinions and perspectives. Further research should include an analysis of the data-gathering instrument. Further, a follow-up study could focus on specific areas addressed in this study.

Reliability is recognized as a limitation of this study. Establishing and maintaining all data, notes and references used in this study ensured a degree of reliability. A true test for reliability of the questionnaire cannot be achieved until a follow-up study is conducted using the same questionnaire. A recommendation for improving reliability would be to employ a different scale than the 5-point Likert scale used in the questionnaire. The use of a smaller scale, and thus fewer options for answers, may lead to more consistent responses.

The sample size used for this study is also recognized as a limitation of the study. This is especially true given the limited response rate for the questionnaire. This study was directed toward sampling the organization's department and service chiefs, as well as 10% of other employees.

Future studies may obtain more meaningful results by surveying a larger sample of the population. Additionally, future research may focus on achieving a better cross-section of employees at all levels within the organization. A more complete view of the perceptions throughout the entire organization, including low-, middle-, and high-ranking employees, may offer even more meaningful and valuable feedback.

Successful organizations consider the thoughts and opinions of their employees when planning for the future (Capps, 1994). By having information on how the staff perceives the Master Facility Plan, medical center leaders can better determine the concerns and needs of the organization as a whole. Future revisions of the Plan feature ongoing dialogue with staff members at all levels. A planned treatment facility allows patients and staff to carry out their activities more easily and efficiently. Providing information on how the staff can assist in easing the facility revitalization process may allow employees to assume a more long-term perspective. Continued support from leadership at all levels within the organization is also critical. This can all assist in improving management and policy decisions, and ultimately the quality of care provided to patients at WRAMC.

References

- American Psychological Association (2001). *Publication manual of the American Psychological Association* (5th ed.). Washington, DC: American Psychological Association.
- American Statistical Association. (1999). *Designing a questionnaire* [Brochure]. Alexandria, VA: Author.
- Canfield, B. T. (1998). Hospital transition planning at Womack Army Medical Center, Fort Bragg, North Carolina. *Graduate Management Project, Baylor University, Waco, TX.*
- Capps, D. M. (1994, May). *Developing a facility strategy*: American Society for Healthcare Engineering.
- Capps, D. M., & Kerr, J. (1993, February). *The impact of aging infrastructure and site on facility planning*: American Society for Healthcare Engineering.
- Cooper, D. R., & Schindler, P. S. (2001). *Business Research Methods* (7th ed.). Boston: McGraw-Hill Irwin.
- Cutter, R. C. (1990). New dimensions in hospital architecture. *Hospital Materiel Management Quarterly*, 11(4), 82-85.
- Debord, D. R. (2002). Facility planning. *Trustee*, 55(5), 18-21.

Drennan, J. (2003). Cognitive interviewing: verbal data in the design and pretesting of questionnaires. *Journal of Advanced Nursing*, 42(1), 57-63.

Ginter, P. M., Swayne, L. E., & Duncan, W. J. (2002). *Strategic management of health care organizations* (4th ed.). Malden, MA: Blackwell Publishers, Inc.

Goldsmith, J. C. (2002). The capital conundrum: balancing needs under pressure. *Trustee*, 55(9), 10-15.

Griffith, J. R., White, K. R. (2002). The well-managed healthcare organization (5th ed.). Chicago, IL: Health Administration Press

Hazlett, S. O. (2000). Mining hospitals for space. *Health Care Strategic Management*, 18(11), 18-23.

Health Care Strategic Management (2002, August). Hospital construction boom looms, changes to affect facilities' design. *Health Care Strategic Management*, 20, 12-14.

Hospital construction boom looms, changes to affect facilities' design (2002). *Health Care Strategic Management*, 20(8), 12-14.

Kasan, N., & Shkrab, S. (1999). How to mobilize an organization with commitment, not cash. *Nursing Management*, 30(12), 16-18.

- Lanser, E. G. (2003). Maximizing the value of your facilities projects. *Healthcare Executive*, 18(1), 48-50.
- Lanser, E. G. (2003). To build or not to build: new construction or renovation. *Healthcare Executive*, 18(4), 10-18.
- Murphy, E. (2000). The patient room of the future. *Nursing Management*, 31(3), 38-40.
- National Research Council (1998). *Stewardship of federal facilities: a proactive strategy for managing the nation's public assets* (). Retrieved October 9, 2003 from <http://books.nap.edu/html/stewardship>
- Olson, J., & Castle, C. M. (2002). Information paper: Walter Reed Army Medical Center Recapitalization Plan. *Unpublished manuscript*.
- Page, D. (1997). A study of transition planning requirements for the occupancy of the new acute care facility at Naval Medical Center, Portsmouth, Virginia. *Graduate Management Project, Baylor University, Waco, TX*.
- Salant, P., & Dillman, D. A. (Eds.). (1994). *How to conduct your own survey*. New York: John Wiley & Sons, Inc.
- Sanders, D. H., & Smidt, R. K. (2000). *Statistics: a first course* (6th ed.). Boston: McGraw-Hill.

- Schmida, J. T., & Sullivan, R. (2002). Avoiding pitfalls in hospital planning. *Health Care Strategic Management*, 20(7), 14-17.
- Selvam, A. (2002). Thinking ahead. *Hospitals & Health Networks*, 76(1), 52-54.
- Souhrada, L. (1990). Renovation: planning for the future. *Hospitals & Health Networks*, 64(4), 58-63.
- Sudman, S., & Bradburn, N. N. (1982). *Asking questions: a practical guide to questionnaire design*. San Francisco: Jossey-Bass.
- Vancosky, J. J. (1998). Physician Satisfaction at Keller Army Community Hospital. *Graduate Management Project, Baylor University, Waco, TX*.
- Walter Reed Army Medical Center (2002). Master facility plan final: December 2002. Washington, DC
- Walter Reed Health Care System (2001). Strategic Plan. September 2001. Washington, DC
- Whelan, C. (2002). Redesign with customers in mind. *Healthcare Executive*, 17(5), 64-66.
- Wolf, E. J. (2003). Promoting patient safety through facility design. *Healthcare Executive*, 18(4), 16-22.
- Woolridge, S. C. (2003)). Infrastructure systems development research. *Unpublished manuscript, Massachusetts Institute of Technology*.

Woolridge, S. C., Garvin, M. J., & Miller, J. B. (2001).

Effects of accounting and budgeting on infrastructure capital allocation. *Journal of Management in Engineering*, 17(2), 86-94.

Appendix A

Cover Memorandum

Fellow WRAMC Employee:

In an effort to analyze staff perspectives on our facility's current and future status, one of our current Administrative Residents is conducting a random survey of WRAMC Employees. As most of you know, renovations necessary to achieve our Master Facility Plan are coming soon. Obtaining information about how you perceive facilities in your work areas is critical toward guiding our campaign and strategic investment plans.

Enclosed is a link to a questionnaire that has been sent to senior leaders and randomly selected individuals working at the medical center. I am asking that you invest the 2 to 3 minutes it will take to complete the questionnaire. The results from the survey will provide valuable information that will be used to help guide our overall facility investment strategy.

Providing information in this questionnaire is voluntary. However, maximum participation is encouraged to ensure the data are complete as possible and accurately reflect the opinions of our employees as a whole. Your responses will be treated as confidential and at no time will you be asked to personally identify yourself. Only group statistics will be reported in findings from this questionnaire. Written comments are also encouraged.

Please complete the web-based questionnaire by December 18, 2003. Thank you for taking the time to participate in this important project.

James R. Greenwood
Colonel, U.S. Army
Deputy Commander for Administration

Enclosure

Appendix B

Questionnaire Instrument

Walter Reed Army Medical Center Master Facility Plan Questionnaire

This is an anonymous and completely voluntary questionnaire designed to obtain answers to questions regarding Walter Reed Army Medical Center's Master Facility Plan. It takes about 2 to 3 minutes to complete.

The purpose of this study is to capture respondents' perceptions and utilize the results in developing a campaign plan designed to adequately inform employees about the Master Facility Plan.

Thank you for taking time out of your busy day to complete this questionnaire.

1. * Please indicate your status:

- ☐ Civilian (federal government employee)
- ☐ Military - enlisted
- ☐ Military - officer
- ☐ Contractor
- ☐ Other

2. * What is your present position?

- ☐ Department Chief
- ☐ Service / Branch / Section Chief

☐ Administrator

☐ Other

3. * How long (in years) have you served in your current position?

4. * Have you previously been involved (in any capacity) in a major construction and/ or renovation project?

☐ Yes

☐ No

5. * Are you aware of WRAMC's Master Facility Plan?

☐ Yes

☐ No

6. If you answered YES to question 5, did you have input on the development of the Master Facility Plan?

☐ Yes, a significant amount of input

☐ Yes, a minimal amount of input

☐ No

7. * Major facility revitalization must occur for WRAMC to maintain its long-term viability

☐ Strongly Agree

☐ Agree

☐ Neutral

- ☐ Disagree
- ☐ Strongly Disagree
- ☐ Does Not Apply or Do Not Know

8. * In general, the staff is aware of the Master Facility Plan.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree
- ☐ Does Not Apply or Do Not Know

9. * The staff needs to be educated about the Master Facility Plan.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree
- ☐ Does Not Apply or Do Not Know

10. * Please indicate areas you are MOST concerned about regarding facility renovation (check all that apply):

- ☐ impact on ongoing medical research
- ☐ impact on patient care
- ☐ timeframes / timing of moves

- ☐ adequacy of temporary facilities
- ☐ parking availability

11. * I have a very good idea how long renovation of my areas will take.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neutral
- ☐ Disagree
- ☐ Strongly Disagree
- ☐ Does Not Apply or Do Not Know

12. * Please list your top 3 current facilities issues/ problems/ concerns:

13. * Please provide any comments or additional information you wish to include. You may also use this space to make suggestions on how this questionnaire may be improved for future use:

* * * THANK YOU FOR COMPLETING THIS QUESTIONNAIRE * * *

Appendix C

Descriptive Statistics and Frequencies

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q1_status	83	1	4	2.53	.992
Q2_position	83	1	4	2.90	1.185
Q3_timeinpostn	83	.3	10.0	2.787	2.0581
Q4_prevsinvlmt	83	1	2	1.45	.500
Q5_awareness	83	1	2	1.52	.503
Q6_input	47	1	3	2.45	.686
Q7_majorrevitlzt	74	1	5	4.46	.847
Q8_staffaware	73	1	5	2.23	1.173
Q9_educneeded	76	3	5	4.39	.613
Q11_renvtnlength	62	1	5	2.29	1.092
Valid N (listwise)	40				

Q1_status

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	17	20.5	20.5	20.5
2	18	21.7	21.7	42.2
3	35	42.2	42.2	84.3
4	13	15.7	15.7	100.0
Total	83	100.0	100.0	

Q2_position

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	16	19.3	19.3	19.3
2	14	16.9	16.9	36.1
3	15	18.1	18.1	54.2
4	38	45.8	45.8	100.0
Total	83	100.0	100.0	

Q3_timeinpostn

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid .3	1	1.2	1.2	1.2
.4	1	1.2	1.2	2.4
1.0	15	18.1	18.1	20.5
1.5	11	13.3	13.3	33.7
2.0	15	18.1	18.1	51.8
2.4	1	1.2	1.2	53.0
2.5	7	8.4	8.4	61.4
2.7	1	1.2	1.2	62.7
3.0	12	14.5	14.5	77.1
3.5	1	1.2	1.2	78.3
4.0	7	8.4	8.4	86.7
5.0	2	2.4	2.4	89.2
6.0	4	4.8	4.8	94.0
8.0	2	2.4	2.4	96.4
9.0	1	1.2	1.2	97.6
10.0	2	2.4	2.4	100.0
Total	83	100.0	100.0	

Q4_prevsinvlmt

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	46	55.4	55.4	55.4
2	37	44.6	44.6	100.0
Total	83	100.0	100.0	

Q5_awareness

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	40	48.2	48.2	48.2
2	43	51.8	51.8	100.0
Total	83	100.0	100.0	

Q6_input

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	5	6.0	10.6	10.6
2	16	19.3	34.0	44.7
3	26	31.3	55.3	100.0
Total	47	56.6	100.0	
Missing System	36	43.4		
Total	83	100.0		

Q7_majorrevitlzn

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1.2	1.4	1.4
	2	2	2.4	2.7	4.1
	3	5	6.0	6.8	10.8
	4	20	24.1	27.0	37.8
	5	46	55.4	62.2	100.0
	Total	74	89.2	100.0	
Missing	System	9	10.8		
Total		83	100.0		

Q8_staffaware

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	25	30.1	34.2	34.2
	2	23	27.7	31.5	65.8
	3	9	10.8	12.3	78.1
	4	15	18.1	20.5	98.6
	5	1	1.2	1.4	100.0
	Total	73	88.0	100.0	
Missing	System	10	12.0		
Total		83	100.0		

Q9_educneeded

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	5	6.0	6.6	6.6
	4	36	43.4	47.4	53.9
	5	35	42.2	46.1	100.0
	Total	76	91.6	100.0	
Missing	System	7	8.4		
Total		83	100.0		

Q11_renvtnlength

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	17	20.5	27.4	27.4
	2	22	26.5	35.5	62.9
	3	12	14.5	19.4	82.3
	4	10	12.0	16.1	98.4
	5	1	1.2	1.6	100.0
	Total	62	74.7	100.0	
Missing	System	21	25.3		
Total		83	100.0		

Appendix D

Responses to Questionnaire Item #12

- Ventilation, heating, and not enough space
- DPALS renovation delays, no adequate pneumatic tube, and no funding to maintain infrastructure
- Inadequate "swing space" + use of less than adequate clinical and admin areas during the move. No coordination with NNMCM or other outlying WRHCS sites to consider temporary (vs. permanent) shift of current outpatient capacity to those sites during the remodeling. No clear & approved long-term parking plan to match expanded facility clinical throughput.
- Storage for archival pathologic materials as required by law (currently very inadequate and inconvenient); Office space for residents (issue with last RRC visit); Leaks!
- Adequate space to see patients; adequate staff; adequate computer support
- Steam outages; electrical outages; temperature control
- The Clinical Lab needs to be renovated as soon as possible; need more parking space; heating and air conditioning in parts of Building 2 are very poor.

- Building 6 issues: flooding of offices on the 4th floor
 - repeatedly; lack of dedicated power with temporary generator unreliable in performance with multiple failures of generator due to lack of fuel; unreliable network connections compromising the quality of work due to loss productivity.
- Physical plant deterioration - including heat / cool control; re-design of space for outpatient care; coordination between departments over turf/space.
- The entire infrastructure needs to be replaced. This hospital is almost 30 years old and needs a lot of work. The cleanliness of the hospital is atrocious and after remodeling should help.
- Space; automation
- Areas are built with adequate air handling to ensure negative pressure for wards if we were to have to deal with major bioterrorism; create a workable hospital with patient care units' ability to access everything easily; more sinks and hand washing facilities, which are state of the art.
- Converting an inpatient-designed facility to accommodate increasing ambulatory requirements; inadequate parking; building infrastructure health, such as power, elevators, etc.
- Total infrastructure renovation; lack of storage space; departmental fragmentation

- Patient comfort and continuity of care, ease of continuing business as usual; environmental "construction" pollution and its effects on staff and patients.
- Controlling room temperature; water quality; building of outside area
- Timing of Clinic moves and renovations
- Security Office; space; parking
- Parking availability - if I am required to go off-site for a meeting and then return to post
- Plumbing, electrical, power, emergency lighting parking for staff; layout of the facility is cumbersome
- Cleanliness; parking; timely response to repairs
- Parking; computer/communications; technology access
- Parking; computer/communications; technology access
- Lower enlisted parking
- Parking, DFAC, Allergy Clinic
- Leaks that flood areas and destroy equipment; possibility of a power outage or med gas outage
- Parking; Family Patient Lounge/Privacy rooms for grieving for family
- BLDG 2 HVAC, electrical and plumbing failures and inadequacies; Bldg 2 overcrowding of departments; temporary work spaces during renovation
- Parking, parking, parking

- By the time renovations are done, they are outdated and in need of being re-done; we need a new building; we need significant increase in number of parking places
- Cleanliness of facility is terrible, furniture in many rooms is old and in very poor shape, signage on post is poor and cause people to get lost often--especially those driving to sites
- Filthy restrooms, parking, general cleanliness
- Latrines
- Funding for meaningful facility upgrades, renovated latrines, updated exam rooms
- Cleanliness of entire facility
- Parking is a nightmare for lower ranking employees and patients; facility is generally filthy
- Space is a big problem here; access to clean bathrooms; plumbing problems
- The fire alarm is unpredictable
- Latrines are bad, not enough storage areas, rooms are small
- Poor housekeeping, fire alarm, temperature control
- Facility is old; plumbing; housekeeping
- Cramped work areas, unstable infrastructure, climate control
- Space, storage areas, housekeeping/cleanliness
- All major problems are infrastructure problems
- Poor for patient flow, suspect emergency power plumbing
- I am new here, so I don't know anything about this

- None
- None
- Negative impact on GME
- Design not consistent with good patient flow, faulty elevators space
- Space, small exam rooms, lack of adequate housekeeping support
- Parking, generator reliability
- Temperature is too hot or cold, not enough storage space for equipment, not enough parking
- Work order response time, leaks, temperature control
- The hospital needs a good cleaning
- Restrooms are generally filthy, room temperatures can't be controlled, fire alarm is annoying
- Work orders, cleanliness, space
- I'm not sure

Appendix E

Responses to Questionnaire Item #13

- Lack of space for staff and also patient exam rooms; because of this privacy is an issue
- I'm sure there is a master plan, but nobody at dept level is familiar with it. We have been in renovation discussions for a long time and I have not heard the master plan mentioned at all.
- Explore above "moves". For instance, there has been a recommendation that a number of docs move outpatient services to DeWitt so those services are more convenient to patients. Should some of the funds targeted at staging space be used at these outlying sites to shift care.... No NCA coordination.
- Preventive maintenance and better housekeeping would really help- things don't seem to get cleaned or fixed until they become a problem.
- None at this point
- Don't undertake any new projects until a new parking garage has been built!
- Questionnaire is fine.
- Recommend that we look at quality of work in addition to bid price. Lowest bidder is not always the best due to spotty support services to contracted work.

- It has been incredibly difficult to get a minor renovation performed through FMD. Therefore, my concern is that renovation will take long and be completed improperly.
- None.
- NA
- We need to be sure that outpatient clinics have adequate and accessible bathrooms.
- None
- Why not have the renovation contractor's work under incentives for target projections. Example, if the construction is completed early they would have incentives written into the contract.....for every day they come in behind schedule they're (contractor) penalized.
- N/A
- Provide suggestions on how the staff can help ease the process. If employees feel they have some input, they may be more willing to cooperate with the process.
Thanks!!
- N/A
- No comments
- I think (only a thought) there could be a little more security with-in Bldg #2
- When I can here from the private sector, I was surprised at the poor state of repair of the structures & walkways on campus

- It seems to be more costly to renovate than to just build a new WRAMC near Ft Belvoir.
- None
- Thanks for asking
- Thanks for asking
- Use the parking lot area next to the firehouse and build a parking garage for the lower enlisted and other techs.
- No improvement needed
- None at this time
- NA
- X
- The parking situation here at WRAMC is abominable. It is hard to imagine another workplace in which you must arrive no later than 0700 in the morning to make sure there is a parking place available. Furthermore, it hard to imagine that anyone and everyone in charge here at WRAMC can overlook such an issue (for both patients and employees). How is it that parking for patients and employees of the hospital does not supercede the building of a gymnasium? This lack of concern regarding parking at this post is careless and insensitive on the part of those whose job it is to be vigilant of such matters.
- We should consider that the majority of our patient population comes from south of the river and seriously consider building a new Walter Reed at Fort Belvior.

- A better parking plan needs to be devised--people park illegally in the garage all the time and is dangerous when they park on corners with other cars trying to get around them.
- None
- None
- None
- When is the project scheduled to begin?
- None
- I am not sure employees know very much about the plan
- None
- We need another parking garage for staff
- No
- Nothing
- The facility is falling apart!
- None
- No comments
- None
- None
- Nothing
- I don't know anything about the Master Plan
- It will take millions to "revitalize" WRAMC....where is the money coming from??
- Nothing
- None
- I have no comments
- No