HEALTHCARE FACILITIES FOR THE FUTURE IN BUILDINGS FROM THE PAST

TOM GORMLEY
VICE PRESIDENT
DESIGN, CONSTRUCTION, EQUIPMENT, AND ENGINEERING
HCA—THE HEALTHCARE COMPANY

We would all probably welcome the opportunity to go to a green pasture to develop a brand new hospital designed for the future of health care. We would not be constrained by an existing facility that forces us to tie in or add on, limiting our ingenious design ideas. Also, we wouldn't have to worry about keeping the hospital in operation during the construction phase. There would be no issues with staff and physicians concerning noise, dust, or cramped quarters.

Regrettably, this "green field" site is often not an option. There are many reasons that may lead a health-care provider to add on. These reasons include:

- Lack of capital to replace the entire facility
- Lack of available land for a new facility
- Required adjacency to other existing clinical services, teaching facilities, or medical offices
- Need for a particular geographic location
- Restrictions concerning demolition of existing buildings
  - –Zoning
  - –Protected buildings.

In our case, at the Harley Street Oncology Center in London, England, we were faced with several of these issues.

- There was no land available
- We needed to build adjacent to the hospital so that other clinical services would be accessible to the physicians. **(PICTURES 1 & 2)**
- The facility had to be located on Harley Street, as it is the "Mecca" of private health care in London
- The only available buildings were two 200-plus-year-old Georgian mansions that were listed or protected by the English Heritage Commission. **(PICTURE 3)**

While the English-heritage factor and the need to maintain a budget, which are diametrically at odds, might have led us to the conclusion not to build, there is nonetheless a tremendous need for oncology services in England.

Cancer rates are significant there, and the survival rates are not as high as in the U.S. One in every three people in England will be diagnosed with cancer at some time during their life, as compared to one in four in the U.S. As you can see below from the survival rates for several cancer sites in the U.S. and the greater London area, the U.S. outcomes are much better.

Five-Year Cancer Survival Rates

Cancer site	Southeast England	United States
Prostate	54%	92%
Breast	69%	85%
Lung	9%	14%
Colorectal	41%	61%

Access to the appropriate clinical equipment in England is limited, which may impact survival rates. There are significantly fewer linear accelerators per person in England (1 per 250,000) than there are in the U.S. (1 per 109,000).

Clearly there was a need for improved oncology services, and they had to be located adjacent to the Harley Street Clinic. This meant maintaining the integrity of these historic buildings while providing a state-of-the-art health-care facility.

Some of the challenges we faced in the design and construction of this project were:

- The concrete vaults, due to their weight, had to be on grade, which meant they had to be in the basement. With the existing floor-to-floor height, we had to use a combination of dense concrete and steel plates for radiation protection.
- A skylight was included on the first-floor roof so we could install and, albeit at some expense, potentially remove the linear accelerators in the future.
- The HVAC equipment was installed on the roof behind screens to maintain the façade while providing central heating and cooling in place of the existing radiators and windows.
- The walls were wood laths and plaster, so adding outlets or switches meant channeling out the walls and replastering. The English had an interesting term for the replastering, "making it good."

The contractor and trade subcontractors *did* make it good while maintaining many of the classic features of these old "Mary Poppins"-style residences. These included:

- Robert Adams fireplaces, featuring ornate plaster sculpture, as may be seen in the Education Center. Adams was a Georgian architect, and his fireplaces are well known in England. Due to their value, there have been instances in which the fireplaces were actually stolen during renovations. **(PICTURE 4)**
- Adjacent to the main entrance is a lovely space that was once used for entertaining guests, which is now used as the main waiting room. **(PICTURES 5 & 6)**
- One of my favorites is the so-called "Romeo and Juliet" balcony with a skylight at the top of ornamental stairs. **(PICTURE 7)**

But don't let these pretty pictures fool you into thinking it is just another lovely old building. In the vaults below, we have two state-of-the-art Varian linear accelerators that are effectively treating the dreaded disease of cancer. We have received several comments from patients that this pleasant and interesting environment has also helped relieve their anxiety during this difficult time. **(PICTURES 8 & 9)**

Although not as dramatic as Harley Street, we have done several other projects where additions and renovations have brought designs for the future and efficient operational models to tired old buildings.

A few examples include:

- A new addition at Aventura Medical Center in South Florida, where we are adding a new entrance and lobby in conjunction with new OR's, an ICU, and an emergency department. There was no land for a replacement, and it would have cost $200 million to replace the entire facility piecemeal, so we are instead designing a $35 million addition to provide a new look and key clinical services. This will allow for expansion of outpatient services for diagnostics and surgery and create capacity to accommodate additional beds in the future as the community need develops and the capital becomes available. Our plans are to eventually convert the old facility to nonacute services such as rehab, labs, offices, etc. **(PICTURES 10 & 11)**
- We are doing a project in a facility in Anchorage, Alaska, that does not involve much clinical space, but the lobby renovation will greatly improve the appearance, patient/family flow, and outpatient admitting, as well as provide access to parking. This was done by redirecting the main entrance to the rear while keeping the old entrance open. It also provides visibility and accessibility for the women's services area, a growing market in Alaska. **(PICTURES 12, 13 & 14**)
- A common theme in many of our additions/renovations is the need to adapt to more outpatient services. There is much more being done in diagnostics and surgery on an outpatient basis today than in the past. Most older buildings were inpatient facilities, as that was traditionally the practice. That was the case at the Grand Strand Regional Medical Center, in Myrtle Beach, S.C. **(PICTURE 15)** Our current project there involves reworking the lobby, adding outpatient admissions, providing easy access for testing and outpatient surgery, and adding more critical-care beds. **(PICTURE 16)** This addresses one of the other trends in the health-care industry, which is the increasing acuity level of patients and the corresponding need for ICUs and "step-down" beds. It seems contradictory that more is being done on an outpatient basis, while at the same time there are more critically ill patients; however, this is the reality of managed care, the Balanced Budget Act, and an aging population.

We sometimes have learned the hard way about additions and renovations. Below are a few thoughts and suggestions to consider to help ensure a project is a success.

- Spend the time and cost for thorough due diligence
- Budget for the worst-case scenario
- Develop a well-defined design and construction schedule addressing phasing and interim life safety measures
- Keep in mind that the hospital must continue operating during the work
- Hire design and construction professionals with experience in health-care renovations and aligned goals
- Communicate regularly to hospital staff and physicians about progress and potential disruptions
- Have regular on-site meetings involving the architect, engineers, contractor/construction manager, and hospital administration.

From our experience, the future will hold more additions and renovations than new-facility construction.

In 1998 and 1999 HCA completed 118 projects totaling $1.17 billion in capital expenditures. As you can see in the table below, the number of renovations—106—greatly outnumbered the 12 new hospitals, while the dollar volumes were somewhat closer due to the enormous cost of new facilities. In these two years, we spent over $439 million on new hospitals versus over $733 million on additions and renovations.

HCA Health-Care Projects

	Number of projects	Percent of total	Construction cost ($)	Percent of total
1998				
New hospitals	4	8	139,505	33
Addition/ renovations	47	92	281,412	67
Total	51	100	420,917	100
1999				
New hospitals	8	12	300,835	40
Additions/ renovations	59	88	452,492	60
Total	67	100	753,327	100

1998 and 1999

Additions and renovations	106 projects Over $733 million
New hospitals	12 projects Over $439 million

In speaking to other health-care owners, such as Quorum and Tenet, I found similar results. A much larger proportion of their projects, 90+ percent, is in additions and renovations, while the dollar volume that such projects represent is in the 60–80 percent range.

A recent article in *Modern Healthcare* had data that also indicate that the majority of projects are additions/renovations. The figures below are for 1999.

	Completed			Broke ground			Designed		
	No. of	No. of	Const.	No. of	No. of	Const.	No. of	No. of	Const.

	projs.	beds	cost (x1,000)	projs.	beds	cost (x1,000)	projs.	beds	cost (x1,000)
New or replacement hospitals	87	7,845	$3,481	77	9,341	$3,279.2	162	13,467	$5,550.6
New or replacement rehabilitation hospitals	26	638	$167.8	14	497	$160.1	42	1,247	$242.5
Other new or replacement specialty hospitals	55	1,911	$841.8	44	2,055	$1,111.5	100	4,407	$1,761.9
Hospital expansions	678	5,514	$3,280.1	555	4,344	$3,581.2	874	11,724	$6,508.5
Hospital renovations	1,470	6,282	$3,119.2	728	4,085	$2,085.2	1,149	7,198	$2,838

In closing, we enjoyed building a “new” modern, futuristic health-care facility such as this one (pictured) in Texas, which included robotic surgery equipment. **(PICTURES 17&18)** However, we also need to carry out additions and renovations that may be more difficult, such as the Shriners Hospital replacement in Boston, which required the construction of new floors on columns, the removal of existing floors beneath, and filling in the resulting space with floors and underground parking. **(PICTURE 19)**

While there are many challenges in working on old buildings, there is a great deal of satisfaction in completing a project such as the Harley Street Oncology Center, which Princess Margaret came to for the dedication. **(PICTURE 20)**

Whether a project is high profile or behind the scenes, all are important, as they can positively impact the life of someone’s family member or loved one. With the aging of our population, there will be a tremendous need for the health-care design-construction community to develop facilities that meet future requirements by transforming buildings from the past.

Picture 1

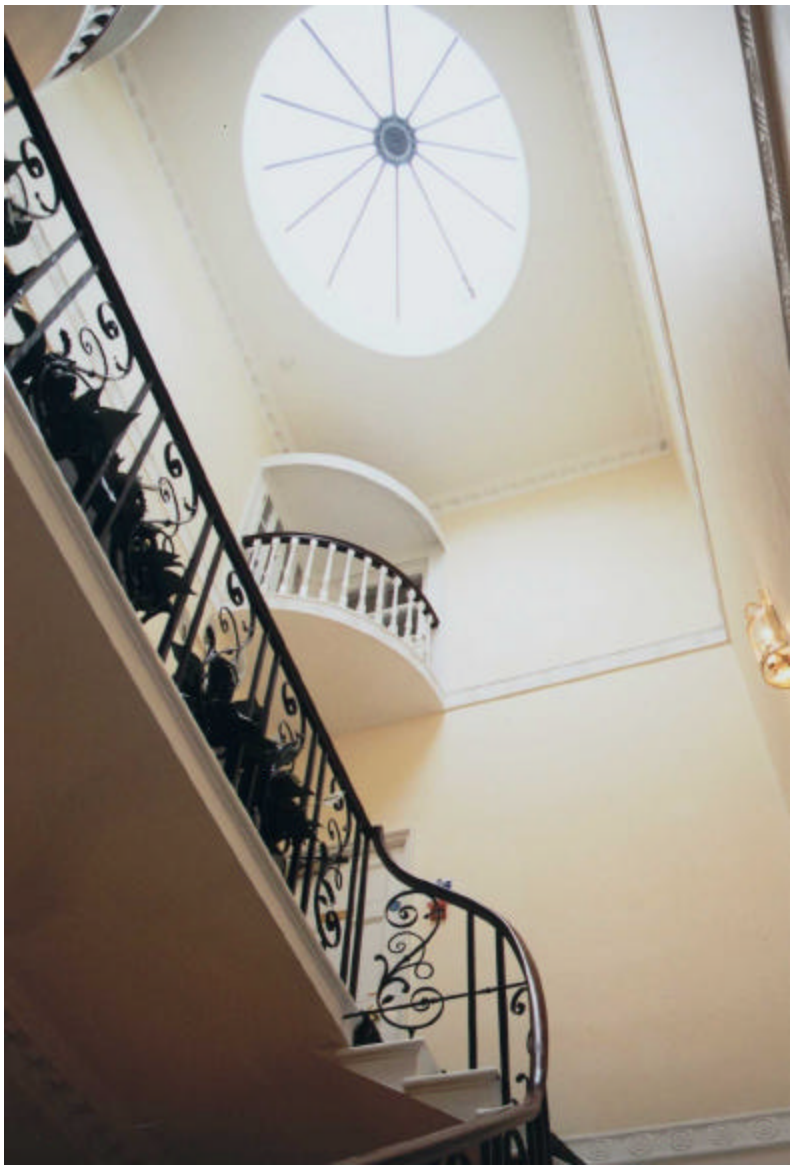
Picture 2

Picture 3

Picture 4

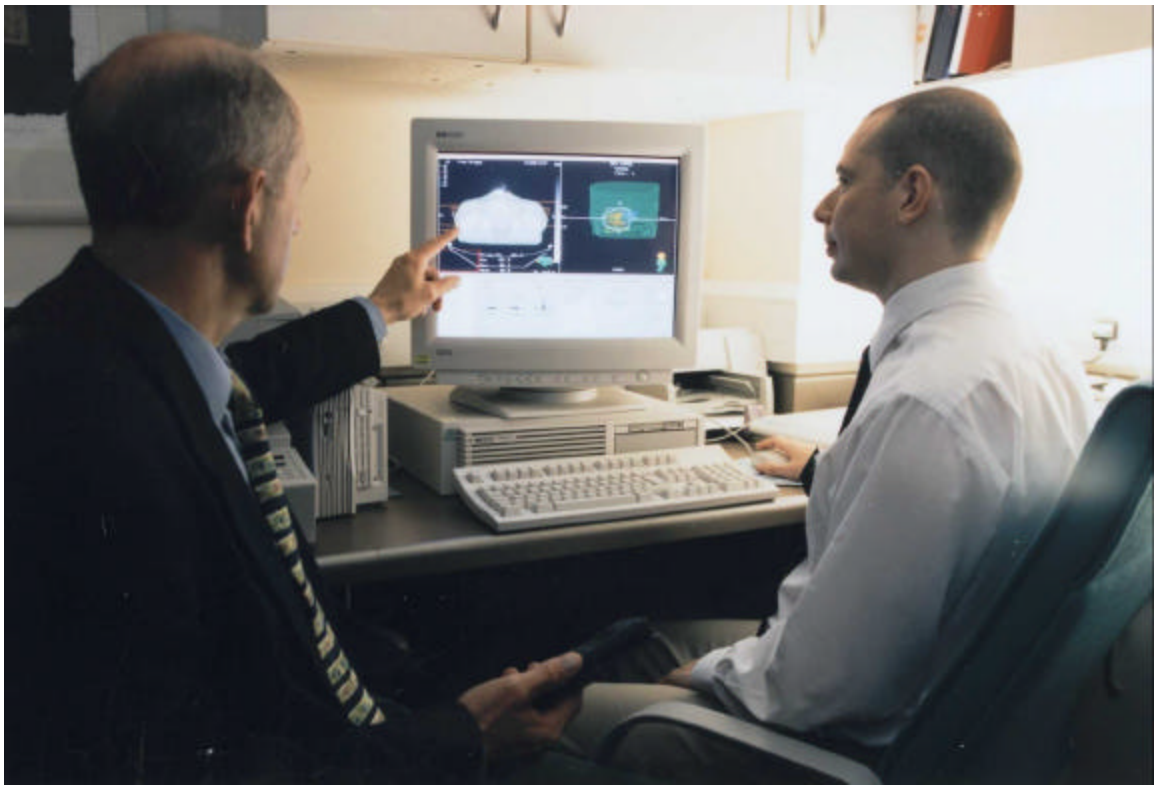
Picture 05

Picture 6



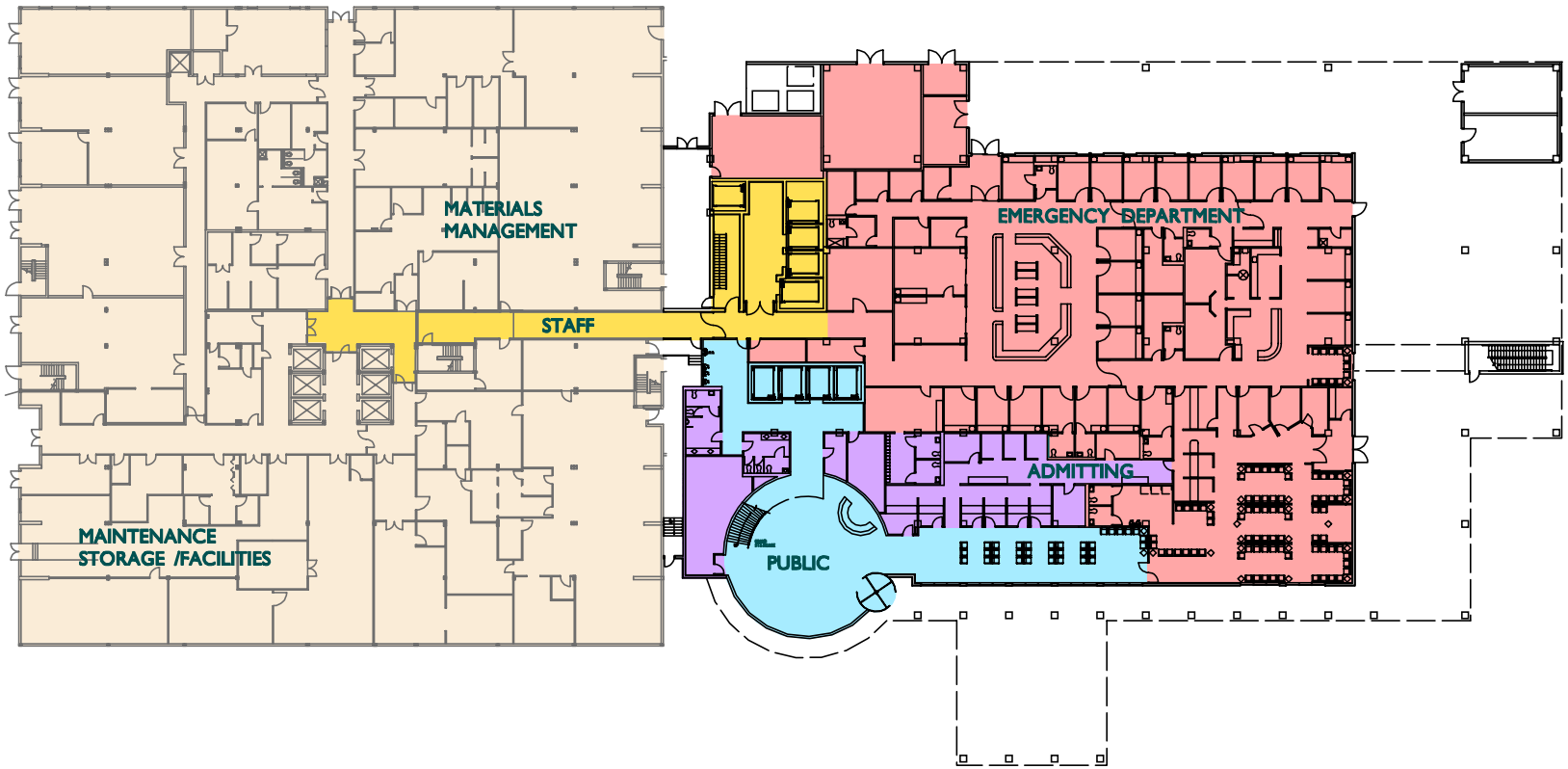
Picture 7

Picture 8



Picture 9

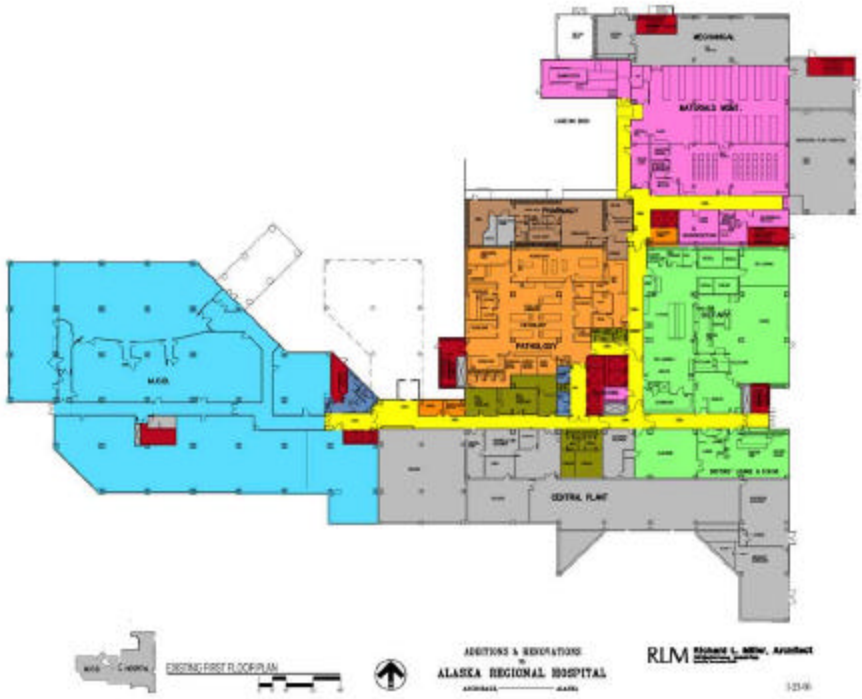
Picture 10



GS&P
GRESHAM SMITH AND PARTNERS

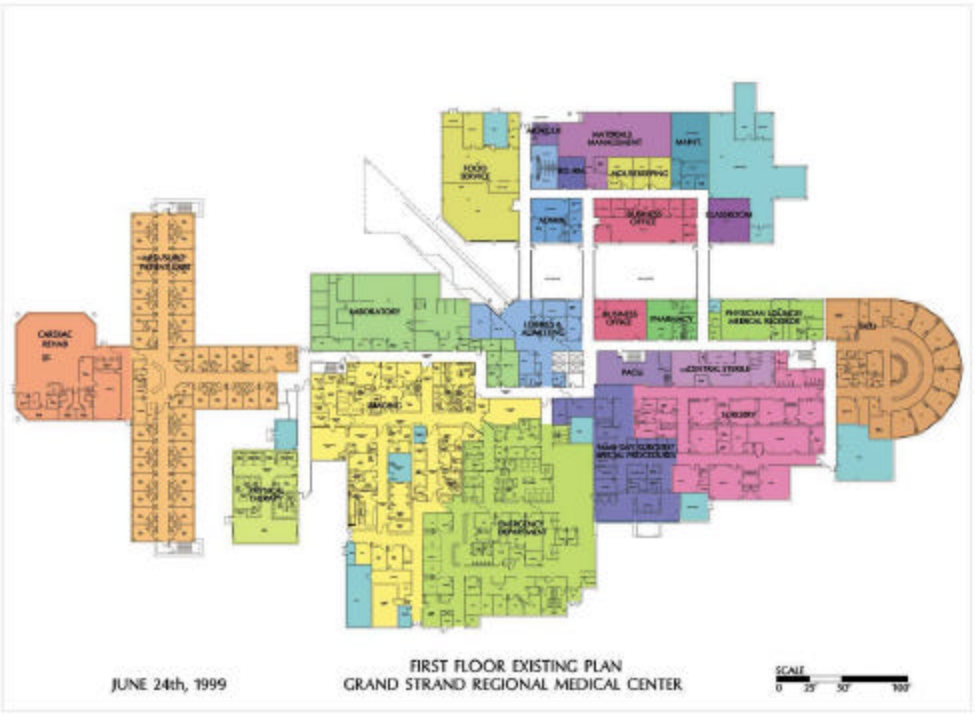
Aventura Hospital & Medical Center
OR /ED /ICU Addition

FIRST FLOOR PLAN

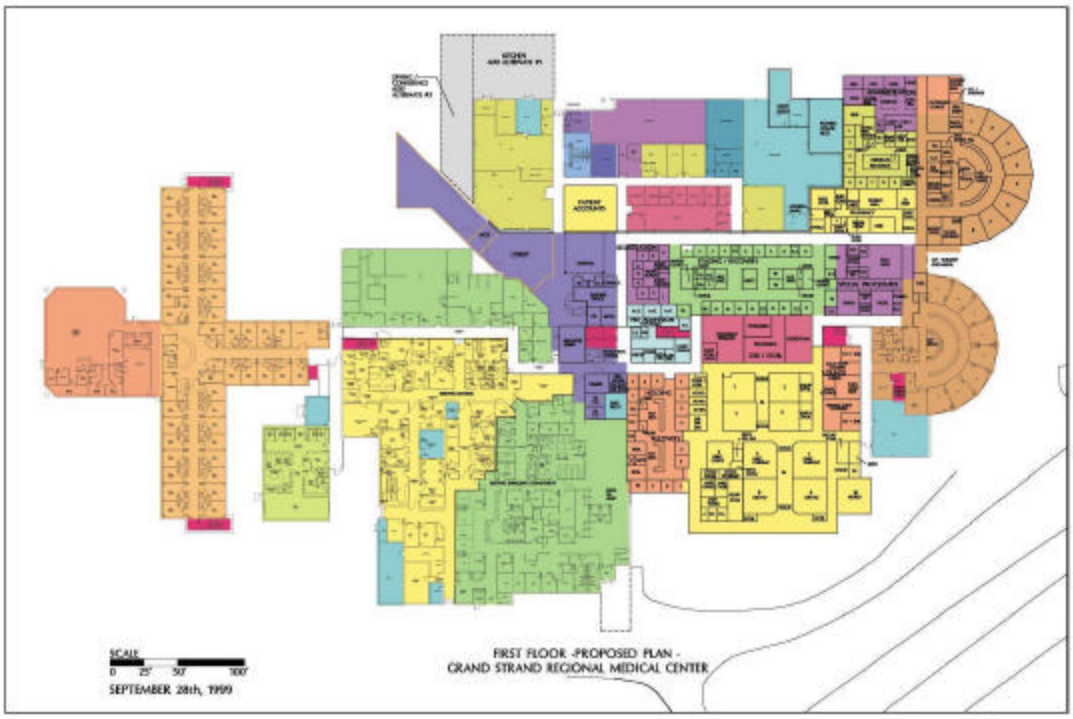

EXISTING FIRST FLOOR PLAN
ADDITIONS & RENOVATIONS
TO
ALASKA REGIONAL HOSPITAL
RLM

Picture 13

Picture 14


JUNE 24th, 1999
FIRST FLOOR EXISTING PLAN
GRAND STRAND REGIONAL MEDICAL CENTER
SCALE
0 25' 50' 100'

Picture 15


SCALE
0 25' 50' 100'
SEPTEMBER 28th, 1999
FIRST FLOOR -PROPOSED PLAN -
GRAND STRAND REGIONAL MEDICAL CENTER

Picture 16

Picture 17

Picture 18

Picture 19

Picture 20

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