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AN ASSESSMENT OF HOSPITAL SERVICES IN YELLOWKNIFE INCLUDING OBSERVATIONS ON HEALTH SERVICES IN THE NORTHWEST TERRITORIES

by

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with the assistance of
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October 20, 1978

Mr. Bruce Rawson
Deputy Minister
Department of National Health
and Welfare
OTTAWA, Ontario
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Dear Mr. Rawson:

I am pleased to submit my report on the assessment of hospital services in Yellowknife including observations on health services in the Northwest Territories. In general I was impressed with the health services and the health facilities both of which are of a high standard. I know you and Mr. Hodgson, the Commissioner of the Northwest Territories, will want to have an opportunity of reviewing the report in detail and discussing it with me. I would be pleased to meet with you and the Commissioner at your convenience for this purpose.

The problems in the north are indeed complex. The issues that the Government of Canada has to face in its decision to make inroads into the north are substantial. After this review, and knowing the pitiful situation of some of the Indian communities in the south I am of the opinion that the well-being and health of these indigenous people in the north are at stake. While the proposals put forward in this report should help to advance the efforts that have already been made by the Government of Canada and the Government of the Northwest Territories, much will depend ultimately on how broader political issues are resolved.

In carrying out this work I was reminded of the words of Alexander Solzhenitsyn:

> "We do not err because truth is difficult to see. It is visible at a glance. We err because it is more comfortable."

Mr. Booth and I wish to thank you and Dr. Black and his staff for the cooperation we received. We were warmly welcomed in the north by Mr. Hodgson and his officials and the members of the health care community whom we had the opportunity to meet.

Sincerely,

Graham Clarkson

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INTRODUCTION

The Deputy Minister of National Health and Welfare approached me early in March, 1978 to discuss with me the possibility of my undertaking a review of the proposals put forward by the Government of the Northwest Territories for the further development of the Stanton Yellowknife Hospital. Medical Services Branch of the Department of National Health and Welfare had thought it desirable to carry out a full scale study of health services in the Northwest Territories and had drawn up draft terms of reference with this in mind.

I suggested that in the first instance I should visit Yellowknife to meet with officials of the Government of the Northwest Territories and the Stanton Yellowknife Hospital and visit Ottawa to meet with officials of the Department of National Health and Welfare and the Department of Indian Affairs and Northern Development. I came to the conclusion that a full scale study of health services in the Northwest Territories would be inappropriate at this time. I was of the opinion that in the course of a few months I could carry out a review of the situation which, in essence, would be part of the planning process and would be of assistance in the further development of hospital services in Yellowknife. My work, accordingly, involved carrying out an assessment of the proposals put forward by the Government of the Northwest Territories concerning the extension of the Stanton Yellowknife Hospital within the context of the development of hospital services in the Northwest Territories and in keeping with the development of effective health programs for the Northwest Territories. In addition to making recommendations concerning the Stanton Yellowknife Hospital I was also asked to make other observations concerning the development of effective health programs to meet the needs of the

METHOD OF PROCEEDING

After my initial visit to Yellowknife and in order to get things into perspective and get a feel for distance and the remarkable differences between the various populations inhabiting the north, I visited some of the settlements and towns in the Fort Smith and Inuvik regions. My visit extended to Gjoa Haven in the north and Fort Smith in the south and included Cambridge Bay, Inuvik, Hay River, Detah (a small settlement close by Yellowknife) and Snowdrift as well as Yellowknife. (See Map on Page 4).

In each of these places I had an opportunity to meet with some of the health workers and visit the health facilities. I was also able to visit a few homes in each community to see what arrangements had been made to care for persons who were living in these communities and who were chronically ill or frail or disabled. In some of the communities I also met with other community workers (e.g., school principal, social worker, social service worker). I made six visits to Yellowknife in all. During these visits I met with officials of the Government of the Northwest Territories and had several meetings with the Stanton Yellowknife Hospital Board and members of the medical staff. I also was able to meet on an individual basis with the medical specialists in Yellowknife as well as several family practitioners. I visited the Mary Murphy Senior Citizen Lodge. I also met with staff members of the Department of National Health and Welfare and had one brief meeting with the Workers' Compensation Board chairman and his senior staff members.

Concerning the Stanton Yellowknife Hospital, it quickly

became evident to me that the constraints of the site coupled with the layout of the existing Stanton Yellowknife Hospital presented difficulties in developing plans for the longer term. Accordingly Mr. Geoffrey Booth, an experienced facility planner, joined me to explore alternate solutions to the expansion of the Stanton Yellowknife facilities to allow the hospital to continue to grow and meet the needs of an expanding population for the foreseeable future. In the process of this work meetings were held with the various department heads in the hospital. We also met with Minsos Vaitkunas Jamieson Architects Ltd. and Yewchuck Engineering Ltd., since their firms had been engaged by the hospital to carry out preliminary planning work.

During the course of my work I also met with regional staff members of the Northwest Territories region, Medical Services Branch, Department of National Health and Welfare which has its headquarters in Edmonton. I visited Ottawa on two occasions to meet with officials of the Department of National Health and Welfare and the Department of Indian Affairs and Norther Development. I also met with Mr. C. M. Drury, who last year was appointed the Special Representative of the Prime Minister for the Constitutional Development in the Northwest Territories.

In Edmonton I met with Dr. C. H. Harley of the University of Alberta's Faculty of Medicine, who coordinates the supply of visiting consultants and physicians in residency training to the Northwest Territories and with Dr. Pearce of the Ophthalmology Department, and Dr. McCoy and Dr. Schiff of the Paediatric Department.

A review of the patterns of hospital utilization by the

various populations in the Northwest Territories was carried out since this information is an important component in assessing the need for hospital services and for their effective management. The ground work for this review, which was undertaken by Statistics Canada, took much longer to complete than anticipated. Though this delay was regrettable, it proved invaluable since it allowed me to meet with a larger number of people in the Northwest Territories than I thought possible when I started my work.

In the course of my work I reviewed reports and files provided to me by the various agencies and individuals with whom I met.

GENERAL REVIEW OF THE POPULATIONS INHABITING THE NORTHWEST TERRITORIES

It is important to know the characteristics of the populations that health programs are intended to serve, e.g., ethnic background and culture, age and sex and morbidity patterns and how the populations are distributed in the northwest Territories for these factors have an important bearing on the type and deployment of health programs.

Less than fifty thousand people inhabit the vast land mass of the Northwest Territories. There are three distinct population groups--the Indians who live in the western Arctic, the Inuit who live above the tree line and in the eastern Arctic and the "Other" population which is mainly comprised of persons from southern Canada whose cultural roots are those of Europe. The fact that there are more men amongst the "Other" population reflects the frontier nature of the country, for most of the "Other" population has migrated into the north and more men come than women. The "Other" population is still characterized by its high turnover yet rapid increase in numbers. (It was interesting to see that almost all of the residents of Mary Murphy Lodge, a sheltered home for older citizens in Yellowknife, are single men.)

On the other hand the Indian and Inuit are as "Permanent" a population as found anywhere and they are distinctly different from the "Other" population in terms of their culture and their aspirations.

A group that is quite distinct from the majority of the "Other" population but who are usually included in the "Other"

population count are the Metis. While it seems difficult to put an exact figure on their numbers the Metis Association in a survey yet to be completed say they number over four thousand.

Compared to Canada as a whole the age of the population in the Northwest Territories is young. Table 1 below clearly shows that there are more children and younger adults and very few older citizens compared to Canada as a whole.

Table 1

Comparison Between the Age Distribution of the Population of the Northwest Territories with the Total Canadian Population--1976

Age Group	Northwest Territories	Canada	Ratio NWT/Canada
0 - 14	38.6	25.6	1.5/1
15 - 44	48.4	46.5	1.3/1
45 - 64	10.4	19.1	0.5/1
65 & Over	2.7	8.7	0.3/1
Total	100.0	100.0	

Source: 1976 Census
Totals may not add exactly due to rounding.

In 1976 the percentage distribution of the age mix of the various ethnic groups was:

	0-14	15-44	45-64	65 & Over	Totals
Indian	40.5	42.5	11.6	5.4	100
Inuit	47.4	41.4	9.0	2.2	100
Other	32.0	55.3	10.8	1.9	100

Clearly children comprise a larger proportion of the Indian and Inuit populations compared to the "Other" population and the Indians have a larger proportion of persons over 64 years of age than either the Inuit or "Other" populations.

Geographic Distribution

The population is scattered widely throughout the North-west Territories. Table 2 below shows that close to half the population still live in settlements of less than 1,500 population.

Table 2

The Percentage Distribution of the Population in the Northwest Territories by Size of Settlement--1977

Size of Settlement	Number of Settlements	Percentage Distribution of Population
Up to 750	99	28
750 - 1,500	10	21
1,500 - 3,000	3	14
3,000 - 6,000	2	15
over 6,000	1	22
Total	115	100

Source: Data provided through the Department of Planning and Program Evaluation, Government of the Northwest Territories.

The vast majority of Indian and Inuit populations live in small settlements whereas the large bulk of the "Other" population live in Yellowknife, Frobisher Bay, Hay River, Inuvik, Fort Smith and Fort Simpson and are proportionately more numerous in the sub-Arctic areas than the Arctic area.

The Northwest Territories have been divided for administrative purposes into four regions--Inuvik, Fort Smith, Keewatin and Baffin. These are the regions referred to in this report (see Map, page 4).

The western portion of the mainland of the Northwest Territories (Mackenzie Valley) has been settled more intensively by the "Other" population and for a longer period of time than the rest of the Northwest Territories.

Population Counts

Much debate seems to go on concerning the population count in the Northwest Territories. The population count for 1976 with a breakdown for the combined western regions and the combined eastern regions by ethnic origin is shown in Table 3, opposite. The populatime in this table represents the "Permanent" population. The population at any point in time seems to be larger because of the presence of persons who come to the Northwest Territories on a temporary basis and are not ordinarily domiciled there. The breakdown by ethnic group of the population of the City of Yellowknife is shown below:

Indian	825
Metis	620
Inuit	82
White	6,728
Total	8,255

The breakdown of the population in Yellowknife into Indian, Inuit and "Other" groups was based on information obtained from the Government of the Northwest Territories. Because of the major influx of whites anticipated to take place into Yellowknife, it was important

Table 3

Population of the Northwest Territories by Selected Geographic Areas
by Age Group and Ethnic Origin – 1976

Area	Ethnic Origin	Age Group 0-14	15-44	45-64	65 & Over	Total
Fort Smith	Indian	3,322	3,503	954	444	8,233
and Inuvik	Inuit	2,207	1,928	419	103	4,657
Regions	Other	5,741	10,364	2,052	378	18,570
	Sub-Total	11,270	15,795	3,425	925	31,450
Baffin and	Indian	0	0	0	0	0
Keewatin	Inuit	4,338	3,789	823	201	9,151
Regions*	Other	822	1,021	182	0	2,009
	Sub Total	5,160	4,810	1,005	195	11,160
Total	Indian	3,322	3,503	954	444	8,223
Northwest	Inuit	6,524	5,698	1,239	303	13,763
Territories	Other	6,594	11,414	2,232	388	20,624
	Total	16,440	20,615	4,425	1,135	42,610

Source: See Footnote on page 12.

Footnote to Table 3

The population figures were derived as follows:

The total population for the Northwest Territories by age group and the populations for the combined Fort Smith and Inuvik Regions and the combined Baffin and Keewatin regions were derived from the 1976 census. The number of people in each ethnic group provided through the Department of Planning and Program Evaluation, Government of the Northwest Territories. Likewise the number of Indians and Inuit in each age group were also derived from figures on the percentage distribution by age and ethnic origin provided through the same source since the last time a count was made of persons by ethnic origin was in the 1971 census. (These figures had been calculated for the year end 1976. Data for the mid-years 1976 and 1977 from the same source were not readily available.) The "Other" population in each age group for the whole of the Northwest Territories was calculated by subtracting the Indian and Inuit counts from the total population count for each group. The total population for the combined Baffin and Keewatin regions was split 82% Inuit and 18% "Other" on the basis of the percentage distribution for 1976 as supplied by the Department of Planning and Program Evaluation. The count of "Others" in each age group was calculated as a residual. For the combined Fort Smith and Inuvik regions the Inuit population was derived by subtracting the total Inuit population in the combined Baffin and Keewatin regions from the total Inuit population for the whole of the Northwest Territories. The total Indian population was the same as the total for the whole of the Northwest Territories since Indians do not inhabit the Baffin and Keewatin regions. The "Other" population was arrived at by subtracting the total number of Indians and Inuit from the total population. The same percentage distribution by age group for the Indians and Inuit were used as above. The count by age group for the "Other" population was calculated as a residual.

The numbers in this table do not add exactly because of the rounding in the census figures.

to estimate the number of Metis in Yellowknife. While the survey being carried out by the Metis Federation has unfortunately not yet been completed, they estimate the number of Metis to be over four thousand in the Territories as a whole. Assuming few if any live in the eastern or central Arctic an estimate of 620 (approximately 75 percent of the Indians in Yellowknife) seemed a reasonable figure.

These population figures formed the population base upon which hospitalization rates have been calculated in this review.

Population Projections

Table 4 on page 14 sets out the population count that will probably be reached sometime in the mid-eighties. The increase in the population counts of the Indian and the Inuit populations is more certain than those of the "Other" population for it is based entirely on natural increase. Net migration which has a major effect on the increase in the "Other" population is less predictable and subject to the dictates of forces outside of the Northwest Territories. Whether the in-migration patterns will speed up or slow down on average over the next several years will be a major determining factor in the growth rate of Yellowknife. It is estimated that the population of Yellowknife may reach 14,000 "Permanent" population by the mid-eighties with the following breakdown:

Indian	1,000
Metis	750
Inuit	110
White	12,140
Total	14,000

Table 4

Population Projection of the Northwest Territories by Selected Geographic Areas by Age Group and Ethnic Origins--Mid 1980s

	Ethnic Origin	0-14	15-44	45-64	65 & Over	Total
Fort Smith	Indian	3,300	4,800	1,200	600	9,900
and Inuvik	Inuit	2,500	2,700	600	200	6,000
Regions	Other	7,900	12,700	3,900	1,100	25,600
	Sub-Total	13,700	20,200	5,700	1,900	41,500
Baffin and	Indian	0	0	0	0	0
Keewatin	Inuit	5,200	5,600	1,300	400	12,500
Regions	Other	1,000	1,600	500	100	3,200
	Sub-Total	6,200	7,200	1,800	500	15,700
Total	Indian	3,300	4,800	1,200	600	9,900
Northwest	Inuit	7,300	8,300	1,900	600	18,500
Territories	Other	8,900	14,300	4,400	1,200	28,800
	Total	19,900	27,400	7,500	2,400	57,200

Source: This table was derived from the Population Projection by age group and ethnic origin for the Northwest Territories as a whole at December 1985, supplied through the Department of Planning and Program Evaluation, Government of the Northwest Territories. In dividing the projected populations into the combined Inuvik and Fort Smith regions and the combined Keewatin and Frobisher regions it was assumed that the distribution of the Inuit and Indian populations was the same as in Table 3 , page 11. The "Other" population was calculated for each of the combined regions by applying the natural increase for this group (2.13%) to the "Other" population in each of the combined regions in Table 3 , page 11. The net migration increase for the "Other" population was calculated as a residual and distributed on the ratio of 4/1 between the combined Inuvik and Fort Smith regions and the combined Keewatin and Frobisher regions respectively. This ratio was derived from information provided by the Department of Planning and Program Evaluation. All figures were rounded to the nearest hundred.

The projection supplied through the Department of Planning and Program Evaluation for 1985 assumed that similar birth rates would apply as the rates between 1973 and 1976 for each of the various ethnic groups. It was also assumed that there would be a slight increase in mortality rates due to aging and the rate of in-migration was assumed to be that of the average over the past ten years.

The number of births projected for the mid-eighties is as follows:[1]

	Rate/1000 Population
Indian	24
Inuit	35
Other	24

From these rates the approximate number of births in Yellowknife and the remaining populations in the Fort Smith region and the Inuvik region in the mid-eighties is:

				Fort Smith and Inuvik Regions Excluding Yellowknife	
Ethnic Group	Estimated Birth rate per 1000 Popln.	Projected Population Yellowknife	Projected Births Yellowknife	Projected Population	Projected Births
Indian	24	1,000	24	8,900	214
Inuit	35	110	4	5,890	206
Other	24	12,890	309	12,710	305
Totals		14,000	337	27,500	725

The population figures and estimates together with the projected number of births set out in this section forms the demographic basis upon which hospital bed supply in this review is calculated.

It is obviously important to develop more accurate methods of determining the various populations at each census and of updating these counts between each census. It is essential for this work to be undertaken locally with expert demographic support from outside. Hopefully population updates can be linked to the hospital registration system which has been used for this purpose in several provinces. This is of particular importance

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1 Preliminary figures from Statictics Canada project a high of 25.6 in a range of birth rates for the population of the Northwest Territories as a whole for 1984/85 and and their high for 1985/86 is a rate of 25.2.

in the Northwest Territories where swings in the "Other" population can occur so quickly and in addition to get to grips with the migration patterns within the Northwest Territories themselves.

GENERAL OBSERVATIONS ON HEALTH SERVICES

In order to pass observations on the Stanton Yellowknife Hospital it was important for me to visit samples of communities that it seems natural for the Stanton Yellowknife Hospital to serve as Yellowknife expands and its resources grow. I confined my vists to the Inuvik and Fort Smith regions since most communities in the region have reasonable access by plane to Yellowknife. It was hard to imagine, however, even if a daily air service were developed between Frobisher Bay and Yellowknife, for patients to go to Yellowknife rather than Montreal because of the vast differences in the spectrum of hospital and medical services available in Montreal compared to Yellowknife even though the distance in air miles is little different. Again, the same applies to the population of the Keewatin region even though the distance to Yellowknife from Rankin Inlet is approximately 740 miles compared to 955 miles to Winnipeg via Churchill. While it would have been of considerable interest to me to visit these regions I could not justify it.

While, unlike southern Canada, primary care is within five minutes reach of almost all inhabitants of the Territories around the clock, secondary care (i.e., care provided by general specialists) is a variable time away for all persons who do not live in the large communities and depends on the time of scheduled flights and the availability and speed of chartered aircraft. Weather in the north can also be a concern and the shut down of flying because of adverse weather for up to several days at a time is not uncommon in the smaller settlements. In the western Arctic general surgeons are resident in Hay River (1) and Inuvik (1) as well as Yellowknife (2). Only Yellowknife has single-handed specialists in the following fields--Internal Medicine, Paediatrics, Obstetrics and Gynaecology,

Otolaryngology and Ophthalmology.

The Settlements

I visited Gjoa Haven, Cambridge Bay and Snowdrift. In these other settlements nurses provide primary care services. The good nurse who has obstetrical training as well as additional training in diagnosis and treatment adequately copes from a technical standpoint. Unfortunately, while most of the nurses in isolated settlements are appropriately trained, not all are. These nurses who lack appropriate training cause concern. They are obviously tense and nervous about their ability to perform. The tendency--and it is a wise one under the circumstances--is for them to be safe rather than sorry. This means that more patients will be flown out than would have been the case if the nurse had had adequate training. Some expectant mothers also quite unnecessarily have to leave their settlements for several weeks to have their babies when the nurse has no obstetrical training. The orientation of the nurse to the major cultural differences between the Indian and Inuit population and the "Other" population is also of major importance. The importance of involving indigenous workers in health programs has also to be appreciated by the nurse and she should have a full understanding of the training and role of the community health representative so she can advise and support her as required. While much has been done to equip nurses to fulfill this role adequately, more still has to be done. All nurses posted to nursing stations should have obstetrical and clinical training. Orientation programs should be developed that allow nurses to develop a better understanding of cultural differences and the need for and role of the indigenous health workers. It may seem unduly costly to suggest orientation

postings to settlements for nurses who are interested in this work. Nurses who are found suitable--and the local population should start to have a say in this--should receive full training before permanent posting. This in the long run will see benefits accrue that will pay off. I am told that nurses with clinical training stay in the north on an average of eighteen months compared to their colleagues without clinical training who stay only twelve months. Approximately fifty nurses will require clinical training each year to maintain the supply of adequately trained nurses in the settlements. This number of training slots are not now available to meet the need. Quite clearly steps should be taken to rectify this.

It is clear that the settlements benefit from visits by appropriate specialists and other staff, e.g., Ophthalmology services, Otolarygology services, paediatricians. It would be difficult to see some of these services being provided in any other way and in some instances extension of services would be desirable. Ideally the physicians who visit the settlements should be the physicians to whom the nurses refer patients who require evacuation. It is desirable to establish this type of continuity for it also keeps the physician in touch with the settlements where many of his patients live and allows him to provide the nurse with more effective advice concerning the desirability of air evacuation. The routine rule should be for her to phone the physician whom she regards as the appropriate

physician to consult and to whom the patient would probably be transferred for care if evacuation is required. The nursing station facilities in the settlements I visited were adequate for the volume and type of work being provided.

The Larger Centres

I visited Inuvik, Hay River and Fort Smith as well as Yellowknife. The hospital at Inuvik unfortunately is a much larger facility than required as a result of the anticipated boom fizzling out. This in itself must be depressing for the staff where retention of the staff is more difficult than in the sub-Arctic. This applies to the "Other" population as a whole who are more transient than those who reside in the southern settlements within the Northwest Territories. Some seven thousand people in the Inuvik area, the majority of whom are Indian and Inuit, should continue to be provided with general surgical services at Inuvik because of the remoteness of the region and the size of the population served.

The hospital facilities at Inuvik, Hay River and the one under construction at Fort Smith are more than adequate and have ample laboratory and radiological equipment to support any clinical investigation that it would be reasonable to provide for the isolated populations these hospitals serve. It is important to provide adequate well equipped facilities in the north and the standards that have been reached are commendable.

Physician Supply in the Inuvik and Fort Smith Regions

It is difficult to compare the supply of physician services in the Northwest Territories to that elsewhere on the basis of the

ratio of physicians to population because of the major geographic and population differences and the special role played by the nurses in the settlements as nurse practitioners.

The large majority of medical services in the Northwest Territories is provided by nurses and physicians who reside in the Northwest Territories. A significant amount of special services, however, is provided by visiting specialists from Edmonton. Also a significant proportion of patients travel to Edmonton and elsewhere in Canada for medical and hospital services.

In general the supply of physician services seems to be adequate. As the population increases a gradual increase in health personnel would be expected to keep pace with the population growth.

The question which is presently being raised in the context of the expansion of the Stanton Yellowknife Hospital is whether or not a larger proportion of visiting specialty services could more appropriately be rendered by specialists who are or would be located in Yellowknife and more specialist hospital care provided in the hospital at Yellowknife.

Table 5 page 22 shows the distribution of physicians by specialty in the western portions of the Northwest Territories. Of the eight specialists in Yellowknife, the general surgeons and the obstetrician have been in practice for some years. The five others have been in Yellowknife for two or less years and only recently has the specialist in Internal Medicine elected to practice his specialty on a full-time basis. Prior to the arrival of the present internist and paediatrician another internist had practiced in Yellowknife on a part-time basis and one of the other physicians, though he did not

telephone advice and specialist services at Yellowknife and Edmonton respectively for patients who have to be evacuated for emergencies or elective procedures. While urgent consultations and emergency evacuation during the absence of the ophthalmologist at Yellowknife have to be routed to Edmonton, Yellowknife has the advantage of having an ophthalmologist resident in the city and a remarkably well equipped eye department which is capable of serving most of the needs of the community in this specialty.

With the recent departure from Yellowknife after eight years of Dr. Rose, a temporary hiatus has occurred. This of course is not an argument to discontinue such a service out of Yellowknife. The intention to recruit an additional ophthalmologist so that there will be two ophthalmologists resident in Yellowknife should provide more continuity on a round-the-years basis and in time permit the service out of Yellowknife to serve a larger catchment area. Obviously close cooperation between the ophthalmologists in Yellowknife and the University of Alberta is desirable in terms of continuing education, coverage during holidays and assistance in recruiting. I would think this has to be developed on a corporate basis with the University to assure continuity of services and maximum benefit to the population of the Northwest Territories as well as on an individual colleague basis. Similar collaboration would be helpful in the other approp-riate specialties.

Little or no complaints about the visiting consultant service came from the central Arctic or the Inuvik region apart from lack of continuity in some of the services provided. Complaints in the Fort Smith regions essentially revolved around insufficient notice being given to allow appropriate preparation for the visits of consultants.

I also got the impression during my visits in the north that some rethinking through of the consultant service provided out of Edmonton would be appropriate as more field visits can be carried out by specialists based in Yellowknife. The development of specialist services in Yellowknife, however, will have some growing pains and some ups and downs for a variety of reasons. Some of these are set out in the following paragraphs.

- Continuity and dependability of service. The more community visiting the single-handed specialist does out of Yellowknife obviously the more he leaves his shop unattended. Accordingly a careful balance has to be struck. (The users of his service have to be alerted when he is going to be out of Yellowknife.) It should be noted that, even though the visiting consulting services from Edmonton have been reduced in the Fort Smith area by approximately forty percent in the last three years, the time spent by consultants and their residents from Edmonton in western and central Arctic last year was the equivalent of one and a half full-time specialists. It is hard to see this volume of service being fully replaced out of Yellowknife for some years to come for it is only reasonable to expect the number of specialists to build up as the population increases substantially. In the meantime the specialists in Yellowknife have to be careful that they do not over-extend themselves. Again, during vacation and educational leave--and the latter is particularly important for specialists who practice single-handed--arrangements have to be made to continue to have specialist coverage in Yellowknife when they are absent. One way to effect this is through arrangements with the Faculty of Medicine, University of Alberta, for a senior resident or staff consultant to provide such relief. In paediatrics it is particularly important to provide around-the-clock service, especially if services are provided for sick babies. Because of the disproportionately large number of children and the high incidence of infection amongst the Indian and Inuit children it would seem that a second paediatrician is warranted now. Recruiting is going to be difficult. Not only is it important to recruit specialists who are above average but it is important to recruit on the understanding that the

specialist will remain in the community for several years and provide both the local physicians and in particular the patients who will be referred to them, with the same sort of continuity that is available in Edmonton. As recruitment of specialists takes place in Yellowknife the role of the family practitioners will change and due attention should be paid to this.

- Physician patient choice. This cannot be overlooked or disregarded. Hay River for example is a well established community on the southern shore of Great Slave Lake. It has a stable supply of physicians who are in private practice and who have established their own referral patterns to Edmonton over the years. Obviously they cannot be expected to change overnight. In addition there is the question of physician and patient preference. Convenience added to the much wider range of services available in Edmonton certainly have to weigh heavily in communities in the south. For example, at the present, flying time by scheduled airline from Fort Smith to Edmonton takes one hour and ten minutes compared to one hour and forty minutes to Yellowknife. Under these circumstances it is difficult to argue from the doctor's or patient's point of view that the Yellowknife alternative is the preferable one.

- Alteration in the use of hospital facilities in Yellowknife. As the number of specialists grow the patterns within the hospital will change and the role of the general practitioners and some of the other specialists will also change. An example of this is the reduction in orthopaedic work carried out by the general surgeons during the period that an orthopaedic surgeon was in practice at Yellowknife.

Some freedom to test the most appropriate way to go has to be given to the specialists who are going to undertake this work. I have in general been impressed with the interest and dedication of these specialists. They should be encouraged to assess how best they can utilize their time. There is little doubt as experience is accumulated that patterns will change to suit their evolving role.

If possible the acquisition of a consultant in orthopaedics would round out the range of specialist services that is reasonable

to supply from Yellowknife at this time. This would make available visiting orthopaedic services to be provided to some of the other communities within the Northwest Territories from Yellowknife. While specialist anaesthetist services would be desirable, the population base will have to grow very considerably before it will be practical for Yellowknife to support a specialist in anaesthesia. As far as back-up diagnostic services are concerned the acquisition of a consultant radiologist centred at Yellowknife who would also provide regular visits to the other hospitals in the Inuvik and Fort Smith regions would provide some more substance to the services that are provided in the north and particularly at the Stanton Yellowknife Hospital.

The development of these consulting services in the Northwest Territories will have their ups and downs. The population of Yellowknife, even though it continues to grow, will still be largely transient in nature and medical specialist positions will still be difficult to fill with above average specialists who are prepared to remain in Yellowknife for several years.

Public Health Laboratory services should be strengthened locally because of their importance in the north. Nurses are conscientious in taking swabs for bacteriological culture, but the time taken for these specimens to be reported on is often too long to be of much help. Clearly to help speed up the process the bacteriology laboratory in the Stanton Yellowknife Hospital should do as much of this work as possible as well as the work required by the hospital itself. To see that this is effected and at the same time maintain the high standards essential it would seem desirable for the bacteriology laboratory to come under the professional direction of the Alberta Public Health Laboratory Service.

The Distribution of Hospitals

Distance has to vie with the size of population in determining the number and location of hospitals in areas like the Northwest Territories that are so sparsely settled. Other relative

factors are cultural and language barriers. Yardsticks can be developed which allow policies to be formulated and applied with equity. In reviewing the distribution of hospital facilities in the Inuvik and Fort Smith regions it would seem desirable to develop a hospital at Cambridge Bay which would serve most of the population of the Cambridge Bay area in a similar way and with the same range of services and similar staffing patterns that the Fort Smith hospital serves the Fort Smith area. The population in the Cambridge Bay area numbers over three thousand. Air transport links for nearly all the settlements to the south are through Cambridge Bay itself where the patient is either transferred to another aircraft or a refueling stop is made. If a patient is hospitalized in Cambridge Bay, travel time will be significantly reduced. It will also save patients from being unnecessarily removed from their own cultural setting for the large majority of the inhabitants of the Cambridge Bay area are Inuit. A comparison with Fort Smith where a new hospital is being built to replace the old one shows this hospital serving a population of over two thousand. Fort Smith itself is better situated as far as accessibility to other hospital services compared to most other communities. Again, in Fort Smith most of the population fall into the "Other" category and do not suffer the same hardships when they have to be moved to larger hospital centres.

It would seem that as good a case, if not a better one, could be made for the establishment of a hospital at Cambridge Bay. I would have thought that this should have preceded the construction of a new facility at Fort Smith. The additional costs of operating a hospital at Cambridge Bay will largely be offset by reduction in transportation costs and the reduction in hospital services required to be provided in other hospitals for patients from the Cambridge Bay area. Substantial capital resources already exist in Cambridge Bay and the initial capital outlay to establish a small hospital would not need to be substantial. From my visit to Cambridge Bay I have little doubt that the friction evident at the health centre would quickly dissipate with a clearer and more appropriate delineation of staff duties when a hospital is established.

Special Target Groups

In my visits to the various towns and settlements I was particularly interested to see the chronically ill, disabled and frail members of the community and how they were coping and what programs have been provided for them. I was able to visit eleven homes where one or more members of the family were chronically ill, frail or disabled. I emphasized that I wanted to see persons or families who were regarded by the nurse as needing as much support as any in the community and where difficulties or problems caused more concern than the other persons in need of support services in the community. I visited the senior citizen lodges at Inuvik, Fort Smith and Yellowknife and also reviewed the patients who were in the chronic care units at the hospitals in Inuvik, Hay River and Fort Smith.

Of all the homes I visited I saw no person who would have been more appropriately located in a continuing treatment unit of a hospital or in a home for the frail or disabled elderly (nursing home). On the other hand a significant number of patients in the chronic care units of the hospitals were misplaced.

In Gjoa Haven, for example, excellent home care was being provided for an elderly Inuit man who had suffered a stroke which had left him with considerable residual disability. Active steps had been taken after he returned to his community from the hospital to continue his rehabilitation. The same high quality of home care was being provided to another elderly Inuit who had severe chronic bronchitis and emphysema. It was interesting to note that the Inuit members of the staff of the nursing station (janitor and the community health representative) as well as the families were fully involved. The care that these two elderly men were receiving was indeed most appropriate. They were in their own home community with their relatives and friends. The quality of care could not have been improved if they had been institutionalized and,

of course, if they were to be removed from the community they grew up in and the only one they had known for their entire life, they would be stripped of everything that made life worth living.

In Yellowknife I was most impressed with the understanding and dedication of the director of the home care program. The Mary Murphy Lodge built as a senior citizens' lodge, had been converted into sheltered accommodation for the frail and disabled and worked well, thanks in large measure to the tolerance, and understanding of the director, Mrs. Bromley. Most frail elderly people are no different than anyone else inasmuch as they want to continue to be meaningfully involved in community activities to the extent possible and cherish their independence. They want to continue to live in dignity and die in dignity.

The development in Yellowknife of a seven day a week meals on wheels program and the wheels to meals program are impressive and would be the envy of some larger communities in other parts of Canada.

Community services such as this one cannot run on a shoe-string and there may be some reappraisal required in the future as to how best to distribute the health dollar.

Concerning the chronic care units I visited in the hospitals at Inuvik, Fort Smith and Hay River, I was surprised to find that all were being funded through the Social Welfare Division of the Department of Health and Social Services, Government of the Northwest Territories as opposed to the Territorial Hospital Insurance Service. The patients in these units fell into three categories:

- Persons who were mentally handicapped. These were mainly children
- Persons who were frail or disabled
- Persons who were chronically ill and in need of active nursing and medical care.

In reviewing the seven patients who were in the chronic care unit in St. Anne's Hospital, Fort Smith, four were older citizens, three of whom required in their present status hospital care in a continuing care or extended care unit. The fourth required help with activities of daily living and could have been accommodated in a foster home or nursing home. The remaining three patients were handicapped and foster home or group home accommodations would have been a more appropriate arrangement. In the interests of the mentally handicapped and their families it cannot be stressed sufficiently that their primary needs are educational and social. This applies even to the severely mentally handicapped. Hospital care is only required when they become ill or need intensive medical investigation.

It is important to differentiate between the chronically ill and the frail or disabled. Their needs are different and this should be recognized if programs are going to be developed as effectively for them as possible. I got the impression that at the government level too much emphasis might be put on administrative efficiency at the expense of program effectiveness.

I would want to add to two points more. I was impressed with the dedication of the nurses in these chronic care units. Secondly, many chronically ill or disabled persons in other parts of Canada fail to get the detailed assessments that they should. I do not know if this is the case in the Northwest Territories but it has been shown elsewhere that persons with chronic disabilities, if adequately assessed and programs mapped out for them, their level of independence can often be improved. The outcome becomes a much happier one for the patient and his family and lessens the burden on the community. This may call for readmission to hospital from time to time sometimes to give the family relief. The present pattern in other parts of Canada is that hospitalization of the ill elderly is a one-way street and to

repeat this pattern would be unfortunate.

A great deal can be done even in rural areas for the mentally handicapped and the need to institutionalize these persons on a continuing basis should not be necessary. It may be appropriate to provide visiting advice on this for expert guidance can be of great assistance in getting programs started and pointed in the right direction. Some programs in certain parts of Canada are recognized internationally and advice should not be difficult to obtain.

A number of mentally handicapped residents of the Northwest Territories are in institutions in the south. Fort Smith and Inuvik region residents and their days of care in these institutions for the fiscal year 1976/77 was as follows:[1]

Ethnic Group	Patients	Days
Indian	9	3,285
Inuit	7	2,555
Other	4	1,437
Total	20	7,277

These patients are mostly children and young adults. It should no longer be necessary to incarcerate persons in institutions in the south. (It should be remembered that indigenous children who are mentally handicapped may have acquired no ability to understand English. This poses additional difficulties if they are removed from their environment on top of their existing handicaps.) Obviously the possibility of repatriating those presently there has to be explored.

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1 Data supplied by the Department of National Health and Welfare

Mental illness - presents particular difficulties in the north. The disruption of the traditional lifestyle of the indigenous groups coupled with the stresses of the white man's way of life are omens that suggest some rise in incidence will occur depending on the extent of waves of further disruptions. On the other hand because of cross cultural difficulties and geography treatment presents more than its fair share of problems. It is also to be remembered that the definition of mental illness varies between cultures and is influenced by the tolerance, religious beliefs and other mores of various peoples. Respect has to be paid to how indigenous people look after their mentally ill. To remove the mentally ill from their local setting, particularly for lengthy periods, may carry in its wake difficulties when they return.

Much mental illness among the indigenous peoples of the north will be symptomatic of more fundamental changes. Prevention is not a medical question, it is a political one.

The further development of mental health services has to be community orientated. Psychiatrists are required to assess, diagnose and prescribe in conjunction with psychologists, psychiatric nurses and social workers. Their use should be limited to their areas of unique competence and as part of a team. It is important to train indigenous persons to participate in these treatment programs.

Mentally ill patients still require to be hospitalized in the Alberta Hospital, Edmonton (a mental hospital administered by the Province of Alberta). These hospital services are not insured services and accordingly are not included in the hospital statistics elsewhere in this report. The following figures quantify the number of cases and patient days of Fort Smith and Inuvik region

residents in the Alberta Hospital, Edmonton:[1]

Ethnic Group	Cases	Days
Indian	12	1,913
Inuit	5	843
Other	23	2,502
Total	40	5,258

Another group of patients from the north are housed at Claresholm in an institution for the chronically ill run by the Province of Alberta. The number of patients and volume of care in 1976/77 in that institution was:[1]

	Patients	Days
Inuit	1	365
Other	2	700
Total	3	1,065

The definitive treatment of some particular disease categories when carried out in the south are not covered by the hospital insurance program but are paid for out of public funds. These programs are for the treatment of Cystic Fibrosis, Cleft Palate and Cancer. Tuberculosis also fell into this category but has been dealt with elsewhere in the report. No funds were disbursed in the period reviewed for Cystic Fibrosis or Cleft palate and it appears that hospitalization for Cancer outside the Northwest Territories was included in the hospital insurance plan payments. Clearly while special programs have to continue

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1 Data supplied by the Department of National Health and Welfare

for some discreet diseases it would be desirable to have hospital care documented in Admission and Separation Forms and form part of the overall hospital records of residents in the Northwest Territories.

Tuberculosis

The indigenous population are still particularly susceptible to contracting tuberculosis and the incidence of the disease continues in epidemic proportion. Table 6 below shows that the volume of hospital care required is still high.

Table 6

Volume of Hospital Care[1] Provided to the Population of the Fort Smith and Inuvik Regions by Ethnic Group in Edmonton for the Years 1976 and 1977

Ethnic Group	1976 Separations	Days	1977 Separations	Days
Indian	19	1,084	44	5,048
Inuit	3	60	0	0
Other	6	414	6	351
Totals	28	1,558	50	5,399

This table also shows that marked variations can occur in the volume of hospitalization. The reason for the much higher volume of hospital care in the treatment of patients with tuberculosis

1 Data supplied by the Department of National Health and Welfare

in 1977 was a particularly explosive outbreak of the disease in Fort Rae (about seventy miles northwest of Yellowknife).

Practically all the care of the patients from Fort Smith and Inuvik regions who require hospitalization for the treatment of tuberculosis takes place in Edmonton. This is essentially because the staff is located in Edmonton and up until recently the facilities of the Charles Camsell Hospital were available. Patients continue to be treated in the Aberhart unit at the University of Alberta Hospital in Edmonton. From a technical standpoint base hospital clinical resources are not required to investigate and treat the vast majority of these patients. Better liaison would result if these services were provided from two or three centres in the two regions, though it is important that the program still be professionally supervised and managed by a unit whose only responsibility continues to be tuberculosis control.

Discussions have commenced concerning the provision of in-patient facilities for the care of patients suffering from tuberculosis in the Fort Smith and Inuvik regions centered at Yellowknife, Hay River and Inuvik.

Quite clearly the management and control of tuberculosis still remains a major public health function and while much of the surveillance will be carried out by the public health nurses in the community it is essential that a core of health workers be maintained whose primary responsibility is providing the necessary leadership, discipline

and protocols to insure this disease is kept under control. This requires prompt diagnosis and treatment and the surveillance of contacts and other selective screening as well as BCG immunization of the newborn. To do this effectively requires the careful maintenance of records to insure that all persons requiring surveillance are followed up appropriately. One of the major problems of tuberculosis is that if treatment is to be effective and spread of the disease contained drug therapy has to be adhered to strictly over a period of many months. Compliance in the taking of medication can readily breakdown for in some instances early disease gives rise to little in the way of symptoms and even in those persons who have advanced disease good treatment makes them feel well after several weeks. For these reasons the control and treatment of tuberculosis has to be carried out on an organized basis with treatment regimes standardized and the surveillance of patients persistently followed through.

Hospitalization is generally required for several reasons. The first is to remove infectious patients from the community to safeguard the other members of the community from becoming infected. After a few weeks of intensive treatment the majority of patients are no longer infectious. While hospitalization may not be always necessary to provide an initial period of rest and good diet it is important in some cases where the patient has advanced disease for complications requiring immediate intervention may occur. Another reason is to establish a treatment regime and provide the patient with a sufficient understanding of the disease and the need for drug therapy so that he will continue to take treatment on his own when he is discharged. Other reasons of course come into play such as concomitant disease, e.g. alcoholism, and poor social conditions at home. Accordingly for the first few weeks it is advisable for

patients to be treated in hospital. It is satisfactory to treat such patients on general wards provided adequate care is taken to control the spread of infection just as other infectious cases can now be safely treated on general wards. After the infectious stage has passed, if it is regarded as important that the patient needs to stay under close surveillance and cannot be discharged home, clearly an active treatment hospital ward is not appropriate. Hostel type accommodation is more appropriate with arrangements for diversional therapy or other appropriate activities to occupy the patient's time during the day.

With swings in the size and number of outbreaks of the disease from year to year the demands put on hospital facilities will vary greatly. The greater efforts at surveillance and early detection of the disease of course lessens the likelihood of the number and size of the outbreaks and the disruption this creates in the community. Clearly provisions cannot be made in each area to cope with all circumstances, and in instances where a large outbreak may occur local resources may have to be supplemented to deal satisfactorily with the situation.

Bed requirements have already been worked out based on experience by area over the past several years. This provided for six beds at Yellowknife.

If a "depot" form of the drugs for the treatment of tuberculosis could be invented and implanted in the patient and the active ingredients slowly released into his system over many months this would see the need to hospitalize patients reduced dramatically and assist appreciably in the control of this major public health problem.

HOSPITAL UTILIZATION PATTERNS OF THE NORTHWEST TERRITORIES INCLUDING COMMENTS ON INSTITUTIONAL SERVICES FOR THE CHRONIC SICK

Many factors influence the need for hospital facilities. And so in arriving at responsible projections for hospital needs, the more important factors influencing in-patient use have to be assessed and weighed. Some of these factors are discussed below:

- The make-up of the population being served. This includes the age distribution of the population for we know that in general younger people tend to be healthier and require less hospital care than older people. The difference in the amount of care that various age groups require is quite remarkable and can have a profound effect on the need for hospital beds. Again, the general economic level of the population can have a major bearing. We know that there is a higher incidence of infection and malnutrition amongst the poor. We also know that the stress of "modern" living carries in its wake an increased incidence of disease of the heart and blood vessels, certain disorders of the digestive tract and, even more important, mental illness including alcoholism. The incidence of these disorders is higher in the older age groups. Ethnic origin may also have a bearing on the incidence of certain illnesses. For example, the Inuit seem to be unusually predisposed to middle ear infections and the Indian to a disease of the eye known as "uveitis". Also the late introduction of tuberculosis into the Indian and Inuit communities have allowed less time for immunity to build up and is a factor in the higher incidence of tuberculosis in these ethnic groups. Despite the fact that there seems to be distinct differences in the incidence of particular illnesses between different ethnic groups, the major factors that predominate are socio-economic and lifestyle factors.

- Provision for other health and social services. The need for hospital beds cannot be looked at in isolation for they are largely dependent on the range of other services, both within the hospital and outside the hospital. For example, in recent years there has been major trends away from hospitalizing people unnecessarily through the development of more extensive out-patient services for their investigation and treatment and the

development of supportive community services that enable some patients to be looked after in their own homes. Where the standard of service is high and the patient's condition allows investigation or treatment to be done on an out-patient basis it is usually regarded as being the preferable course to follow even in instances where patients have to travel long distances to receive this type of service. This of course may require the provision of hostel accommodations or foster homes. The development within the community of home care programs providing home nursing services, home help, meals on wheels, etc. can often provide a more appropriate type of care for people suffering from acute or chronic illness who would otherwise require hospitalization.

- Climate. It is known that certain diseases occur in some climates and not in others. Even climate-associated disease can in large measure be controlled by modifying the environment. Many more Canadians in the northern parts of several of the provinces are exposed to a similar type of climate as those inhabiting the lower reaches of the Northwest Territories. Apart from the psychological toll the long winters have on some, the effects of northern climates on health are not unusual. In fact, swinging weather conditions in winter seem to wreak more havoc as far as virus infections are concerned than more constant, though colder, weather conditions.

- Availability of Hospital Services. This is as important a factor as any influencing the number of people in the community who are hospitalized and the length of time they spend in hospital. Comparisons across the country show wide variation in the numbers of hospital beds. These variations do not seem to bear any relationship to the difference in prevalence of illness or injury in the community. Overbuilding hospital in-patient facilities not only is costly but also diminishes the incentive to introduce other programs that are known to be more appropriate. The ability to pay for health services in the past was a major deterrent to many. There is some evidence to suggest, however, that the use of hospital facilities is influenced by the way health services are financed and how physicians are paid. Ready access to hospital facilities also has an influence on hospital use.

Because of the uniqueness of many of the circumstances in the north it seemed important to examine in greater detail some of the patterns of hospital utilization to gain a better understanding of the situation. One of the by-products of the hospital insurance program in Canada was the setting up of a reporting system by all hospitals that provided information on the age, sex, diagnosis and length of stay of all persons discharged from hospital to the provincial or territorial government agency operating the hospital plan. The information which had been collected by the Territorial Hospital Insurance Service was analysed further during this study. An attempt was made to establish 1971 as a base year so that present patterns in the use of hospitals could be compared to that year. Unfortunately, because of practical difficulties, it seemed that it would not have been possible to collect data on all hospital separations and accordingly this was abandoned. Data was collected on all persons who had been discharged from nursing stations and hospitals in the Northwest Territories (whether they were resident of the Northwest Territories or not) and of all persons treated in hospitals outside of the Northwest Territories where the payment of the hospital care they received was the responsibility of the Territorial Hospital Insurance Service for the calendar years 1976 and 1977. The count of separations was compared with the records kept by the Territorial Hospital Insurance Service and discrepancies rectified to guard against undercounting. The data included all hospitalization in active treatment hospitals in Canada except for the treatment of tuberculosis in hospitals outside of the Northwest Territories hospital plan. Since a census had been carried out in 1976 hospital data for this year was used in the main since it was assumed that the population counts in that year would be more accurate than those projected for 1977.

Table 7 , page 42 was prepared to see what differences there were, if any, in the use of hospitals by the various ethnic groups. It

Table 7

Total Patient Days of Residents of the Northwest Territories in Active Treatment Hospitals
Expressed as Rates per Thousand Population by Age Group and Ethnic Origin
Excluding Obstetrics and for Obstetrics - 1976

	Ethnic Origin			
Age Group	Indian	Inuit	Other	All Ethnic Groups
0 - 14	2,129	1,604	875	1,418
15 - 44	1,159	1,012	1,134	1,104
45 - 64	1,993	1,652	2,526	2,166
Over 64	4,399	3,634	5,000	4,400
Obstetrics	162	237	172	191
All Age Groups	1,985	1,645	1,447	1,615

Notes: Includes all in-patient care (except newborn) in any active treatment hospital regardless of location.
Excludes care provided to residents in chronic care units of hospitals in the Northwest Territories.
Excludes care for tuberculosis in hospitals outside of the Northwest Territories.
Definition of resident based on address recorded on Admission Separation Form.
Obstetrical days include diagnoses 136 to 139 and 141 to 144 on the Canadian Lists.

Source: Admission and Separation Forms supplied by the Territorial Hospital Insurance Service. Data on patients hospitalized outside of the Northwest Territories for tuberculosis supplied by the Department of National Health and Welfare. Population data from Table 3 , page 11 .

Table 8

Patient Days and Separations in Active Treatment Hospitals Excluding Obstetrics Expressed as Rates per Thousand Population of Residents of the Northwest Territories by Ethnic Group, Age Standardized to the Total Population of the Northwest Territories - 1976

	Ethnic Origin			
	Indian	Inuit	Other	All Ethnic Groups
Separations per 1000 Population	227	188	209	208
Days per 1000 Population	1,709	1,397	1,285	1,425

Notes and Sources see Table 7 opposite

can be seen from this table that:

- Indian and Inuit children use much more hospital care than children in the "Other" population group. This is particularly marked in the Indian group. The volume of care provided to Indian children is two and a half times that for the "Other" population. Hospital rates for Indian and Inuit children are higher than for the younger adult in the same ethnic group. This is unusual. In Canada as a whole the hospital rates for children are much lower than for adults (e.g. the volume of care per 1000 population in eight large Canadian cities was 540 for children compared to 850 for adults 15-44 years of age).

- Amongst the adult population hospital use increases as the population ages. While the use of hospitals increases in the older age groups, hospital use by the older Inuit is considerably less than for either the Indian or "Other" populations.

Table 8 , page 43 , compares the rates of admission and volume of stay in hospitals between the various ethnic groups eliminating the differences that might be attributable solely to the differences in the age-mix between the various ethnic groups by age standardizing the populations.

The comparison between ethnic groups, of course, cannot be completed for it is not possible with the data available to distinguish between the Metis population and the white population. If this could be done it would show an even greater difference as compared to whites than compared to "Other".

The volume of care provided for obstetrics between the various ethnic groups is directly related to the birth rates since practically all births in the Northwest Territories occur either in nursing stations or in hospitals. The birth rate is considerably higher in the Inuit population compared to the other populations.

Table 9, page 46 shows the wide variation in the percentage of patient days spent in hospitals outside the Northwest Territories by patients from the Inuvik region and the various areas of the Fort Smith region. It is surprising to see that so many patient days are spent by residents of the Inuvik region and the Cambridge Bay area in hospitals outside the Territories since they are situated further north than the other areas and have a higher percentage of indigenous population than these other areas. The "Other" population in each of the various localities spend a higher proportion of their patient days in hospitals outside the Northwest Territories than the indigenous population. Comparisons between locations has to take this into account, since the population mixes are not the same. For instance, in the Yellowknife area excluding the City itself half of the hospital days of the "Other" population were spent in hospitals outside the Northwest Territories compared to a quarter for the Indians. In the City of Yellowknife itself thirty-four percent of the patient days of the "Other" population were spent in hospitals outside of the Territories. It is clear that a large percentage of the volume of care received by the "Other" population is spent in hospitals in the south compared to the indigenous populations. This in part might well be due to the proportionately larger volume of hospital care provided to the Indian and Inuit ethnic groups for the additional volume of care is largely due to infections, the vast majority of which can be treated adequately in the hospital facilities in the Northwest Territories.

A Comparison of Patterns of Hospital Use in the Northwest Territories With Other Areas

The situation in the Northwest Territories with three distinct and large population groups, all of whom are relatively young, with settlements and communities vast distances apart indeed makes a unique situation which cannot be compared in a general way with any other part of Canada.

Table 9

Patient Days in Active Treatment Hospitals Outside the Northwest Territories
by Residents of Fort Smith and Inuvik Regions by Area
Excluding Obstetrics and for Obstetrics
Expressed as a Percentage of Total Days - 1976

Region and Area	Percentage of Patient Days in Hospitals Outside the Northwest Territories	
	Adult & Children	Obstetrics
Inuvik Region	42	16
Cambridge Bay Area	41	16
Fort Simpson Area	51	38
Yellowknife City	30	8
Yellowknife Area less Yellowknife City	29	8
Hay River Area	41	8
Fort Smith Area	48	31
All Areas Fort Smith Region	38	15

Note: Days spent in hospitals outside the Northwest Territories for the treatment of tuberculosis are excluded.
Newborns are excluded.
Definition of resident based on address recorded on admission separation form.
Obstetrical days include diagnoses 136 to 139 and 141 to 144 on Canadian List.

Source: Admission Separation Forms supplied by the Territorial Hospital Insurance Service.

A comparison of the rates of hospital use of the Indians in the Northwest Territories with those of the Indians in Saskatchewan show that the latter receive far more hospital care. For example, the total days of care per thousand Indians in Saskatchewan was 4,011 in 1976 compared to 2,172[1] for the Indians in the Northwest Territories. The generally uniform high standard of health services provided to the Indians in the Northwest Territories in my opinion compared favorably with that received by Indians in at least one area of Saskatchewan where I had carried out a study. In none of the communities I visited were there any general complaints about inadequacy of hospital care or long waiting periods for admission to hospital nor did there appear to be other evidence of this.

While there may be no single answer to explain away the remarkable differences in the volume of hospital care it seemed clear to me that through circumstance the majority of Indians in Saskatchewan had been forced to abandon their traditional way of life and as a result had become almost totally dependent. They had lost their former aspirations and pride. In general, despite measures aimed at assimilation, these had failed. Many of these Indians are not able to fill their day with useful activity and accordingly and inevitably, their heritage abandoned, they had gone downhill. If these higher rates of hospitalization are a symptom of dependency surely the writing is on the wall.

We have previously compared the higher rate of hospitalization of the Indians in the Northwest Territories to the Inuit. A comparison of the volume of care in hospitals and nursing stations received by the Inuit in the combined Fort Smith and Inuvik regions and the Inuit in the combined Keewatin and Baffin regions also show a considerable difference. The Inuit in the combined

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[1] This figure includes all hospital care including care for tuberculsosis received outside the Northwest Territories so that the one figure is comparable with the other.

Keewatin and Baffin regions use some thirty to forty percent less hospital care than their counterparts in the central and western Arctic. It is indeed important to see if these differences are just chance differences. This seems unlikely and the cause or causes should be determined to see what these reasons are.

To see how the rate of referrals to base hospitals from the Northwest Territories compared to patterns elsewhere in Canada that might be reasonably comparable in terms of local hospital resources and travel times, a review was carried out comparing referral rates from the population in Saskatchewan, excluding the populations of Regina and Saskatoon, to the base hospitals in these cities. This review showed the following:

Population	Volume of Services Provided by Base Hospitals Expressed in Days Per 1000 Popln. Age Standardized to Population of Northwest Territories - 1976
Northwest Territories	504
Saskatchewan - Excluding Regina and Saskatoon	275

Populations in the larger centres such as Moose Jaw, Swift Current and Yorkton had rates of referral to base hospitals significantly lower than the average. The differences in the rates of referral between the various ethnic groups in the Northwest Territories showed the differences not to be too remarkable. The 1970 rates by ethnic group are listed as follows:

Ethnic Group	Volume of Service Provided by Base Hospitals Expressed as Rates per 1000 Population
Indian	561
Inuit	523
Other	470
All Groups	504

Note: These figures are not age standardized.

It would seem that referral to base centres from the Keewatin and Baffin regions were remarkably less in 1976 for the Inuit than for the Inuit from the Inuvik and Fort Smith regions despite the fact that the services available to the latter group would have seemed to have favored a lower referral rate.

In Yellowknife itself base hospital referral patterns seemed to be higher than what would have been the case from centres in Saskatchewan providing similar services, e.g. 433 and 269 days per thousand population for Indians and "Other" respectively. The factors that understandably explain this for the white population--their mobility and the temporary nature of the stay of many of them in the Northwest Territories, the natural tendency of those living out of regional centres to tend to bypass these centres and go directly to the larger centres is a common phenomenon in Canada. It is not surprising to see the white residents of the Northwest Territories continue this practice when they move there. Subsidization of travel clearly is another factor influencing the scene. In addition it has to be considered that for some whites hospitalization in the south represents a transient escape from the north and gives them an opportunity to reunite with other family members also.

Institutional Services for the Care of Patients Suffering from Chronic Illness and Disability

Programs in Canada providing health services for the elderly suffering from chronic illness as well as the young chronically sick have generally been poorly developed. Recent thrusts emphasize the need to build up programs in the community themselves and through such services as home nursing, home help, meals on wheels, meals to wheels, day centres, friendly visiting etc. it has been shown that many people who formerly were institutionalized can remain at home provided they get the necessary support. This, of course, assumes that active surveillance measures are taken so that the elderly who are getting into difficulties can be spotted early and appropriate medical assessments carried out. A satisfactory transport system is an essential part of the community services so that the disabled can be taken to services and services can be taken to them.

Some patients will still require institutional care. This may well be on a temporary basis because of an exacerbation of their condition or for definitive treatment or for the relief of caring relatives. A small number may require continuing care in hospital for medical and nursing reasons or in a nursing home because they need a major amount of support in the activities of daily living which for one reason or other may not be possible for them to receive in the community.

In Canada, until recently, there has been no concentrated aggressive attack on chronic illness in the elderly. Little also has been done for the chronically ill young adult. Not surprisingly a large number of custodial care beds have been built which have been

practically the only resource for the care of these people.

It has been pointed out earlier that if a person requires continuing care this is best carried out in his local community and there would seem to be no impediment given the will for this to be done. Accordingly in estimating the need for continuing care beds in the City of Yellowknife it was assumed that these would be required to serve only the local population. Bed requirements as has been noted are dependent upon the number of older citizens in the community and the bed supply has to be based on this. For example, it is not possible to take the number of continuing care beds provided say in Saskatoon per 1000 total population and apply this figure to Yellowknife since the elderly make up about 11 percent of the population in Saskatoon (over twice as many as in Yellowknife), and these older citizens are on average very much older than the older citizens in Yellowknife. The number of beds required for continuing hospital care for the elderly chronically ill is not only related to the number of older citizens in the community but to the proportion of those older citizens who fall into the "older, older" category since chronic illness and disability tends to increase as the older citizen himself ages. Again, as has been pointed out, the balance of services for the elderly have been unduly skewed to institutional care so copying other parts of Canada in terms of how the elderly have been cared for in the past will see too many chronic care beds when the money they cost should have been invested in other services for the elderly. In the interests of the older citizen, it cannot be emphasized enough that too many continuing care beds will depress any incentive to develop more appropriate community services.

The two relevant questions to be asked are:

- where can we get an indication of appropriate institutional requirements for the chronically ill elderly citizen?

- What will be the proportion of older citizens in Yellowknife in the eighties?

Sir Ferguson Anderson suggests that 20 to 23 continuing care beds per 1000 population over 64 years are required to support a well-balanced community service based on effective screening and appropriate thorough medical assessment.[1] These numbers are for a much older, older population. By the mid-eighties the number of people over 64 years in Yellowknife will perhaps have reached the 300 mark.[2] It will be a relatively young old population and so a unit of 8 continuing care beds should be ample and should also cope with the very few young chronic sick who may require continuing care in hospital. The requirements for the young chronic sick were the subject of a detailed review by Williams et. al. who estimated bed need at 0.2 beds per thousand total population.[3]

On the number of older citizens in Yellowknife, it can be assumed that this will continue to remain small compared to older citizens in the various populations in the Northwest Territories as a whole. Yellowknife as the major urban centre of the north will be the focus for in-migration of the largest number of whites. As has been mentioned earlier the stay of many of them will continue to be short and it seems unlikely that few will continue to stay on in Yellowknife after retirement. In fact most will have moved on to other job opportunities before retirement time comes round. Concerning the younger adult, those who require intensive rehabilitation will continue to receive this in the special centres in the south. It would be impractical to see rehabilitation services developed in the north for the intensive treatment of major disabilities though clearly it is

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1 Anderson, W. Ferguson, Operating an Area Geriatric Service: The Elderly Mind: 1973. pp. 17-19.

2 The 1976 census count of people in the City of Yellowknife over 64 years of age numbered 125.

3 Williams, B.T. and Lambourne, A., The Young Chronic Sick: How Many Beds?: British Journal prev. soc. Med.: 1973, 27, pp. 129-136.

desirable to build up strong physical therapy and occupational therapy departments in the hospital. Concerning the young chronic sick, for a variety of reasons one would not anticipate the incidence of chronic disability in the young white population in Yellowknife to be excessive. If anything it may be less than found in the south. These requirements can be accommodated in the number of continuing care beds provided for the elderly.

With a small population base large swings may occur in demand which tend to flatten out as the population grows. Accordingly the need to work flexibility into the use of resources has to be recognized.

As far as nursing home accommodation is concerned I have already emphasized the desirability of separating this from the hospital setting for the aims of the program are quite different. It is important to avoid the "hospital" atmosphere in arranging accommodation for the mentally and physically frail elderly. The numbers suggested by Anderson would see facility requirements for less than elderly. In housing developments in Yellowknife some houses or suites should be designated for the frail elderly (sheltered housing) and a small number specifically designed for the use of the disabled. The start that has already been made in the development of community services in Yellowknife is impressive.

HOSPITAL BED REQUIREMENTS - STANTON YELLOWKNIFE HOSPITAL

The bed supply for hospital facilities in Yellowknife should take into account the needs not only of the residents of the City but of the catchment area which it serves. Obviously the extent to which this can be done is partly a factor of size, for the larger the population base the greater range of services it is possible to provide. Other factors come into play such as quality and choice. Even in the larger cities where hospitals can supply the total gamut of hospital services not all residents seek care from hospitals in their own city. A few perchance require to be hospitalized when they are out of the city on holiday or for other reasons and another small percentage may prefer to obtain care elsewhere.

The supply of hospital beds in Yellowknife has been looked at separately from the point of view of:

- the population of Yellowknife who receive primary and secondary hospital care from the hospital in Yellowknife.

- The population in the rest of the Fort Smith region and the Inuvik region, most of whom receive primary hospital care in hospitals or nursing stations in their own area, and, in some instances, limited secondary care also and for whom Yellowknife is generally within easier reach than other centres for secondary hospital care.

In carrying out this review it has been assumed impractical for the range of hospital services at Yellowknife to be expanded other than in orthopaedic surgery, though it is considered desirable and possible to augment the bench strength of some of the specialists e.g. paediatrics and ophthalmology. It is also desirable to

provide specialist radiological services as a necessary support to enable the clinical specialty services to grow. It would be quite impractical to expect to develop a rehabilitation department with a specialist in physical medicine and back up brace and prosthetic services. Again the potential population base is too small to support a psychiatric unit and attract the necessary staff, but it is desirable to build on the present service largely provided by family practitioners and supported by a consultant psychiatrist with a small section of beds on the medical ward to treat patients with mental illness by providing additional community support.

It has also been assumed, where possible, the patient should have the opportunity of being cared for in his own community or as close to it as is possible. This is particularly important for the indigenous groups since combatting sickness is difficult enough in itself without the added strains of a strange environment removed from relatives and friends and with language and cultural difficulties.

Concerning maternity services, expectant mothers will want to have their babies born in familiar surroundings as close to the family as possible. It is a natural event and preference of the mother and family should be respected if at all possible. Certain mothers, however, and/or their newborn babies run a particularly high risk of developing difficulties during pregnancy or at delivery or during the first few days following delivery. Through the assessment of the mother and her unborn baby during pregnancy, it is possible to predict the majority of those pregnancies that are at "high risk". It has also been shown that if they are cared for in special centres (perinatal centres) staffed by persons specially trained to be able to manage the

mother and the newborn baby effectively, mortality and morbidity of the mother, the unborn child or the baby is significantly reduced. Of equal importance, the baby who receives expert care who is premature, underweight or suffering from some other complication is less likely to be left with serious residual brain damage. For these reasons it is important to detect the "high risk" pregnancy to insure that the woman is afforded the opportunity of having her delivery take place in such a specially equipped centre. In a few instances it may not be possible to predict difficulties. In such circumstances if the expectant mother is not at a special centre it is desirable to air evacuate her if trouble sets in before the child is born if this is possible. Transportation of a sick baby carries risks and while this can be reduced through reducing travel time to a minimum and having qualified staff accompany the child definitive treatment has inevitably to be delayed. In a small number of cases delivery by Caesarian section may be appropriate, but if the baby is suspected to be at risk, this should only be performed in a centre with adequate neonatal specialist services.

While it has been pointed out that considerable disruption and suffering occurs when the Indian or Inuit mother has to leave her settlement for several weeks to have her baby the situation appears to be quite different in the case of some white mothers, for it would seem that a number may prefer to have their babies in hospitals outside of the Northwest Territories since such practice is common. Some 16 percent of "Other" mothers had their babies delivered in the south. Less than half of these deliveries were in Edmonton hospitals.

A start has already been made at the Stanton Yellowknife Hospital to provide expert services for "intermediate" risk babies.

Expertly trained staff is all important. It requires the services of an obstetrician and a paediatrician who has had post-graduate training in neonatology (this training is now routinely included in the training program for paediatricians.) Some may argue that the number of births are marginal to justify such a service at Yellowknife. It is estimated that there will be fewer than 400 births to Yellowknife residents and under 1,100 births in all the western and central Arctic by the mid-eighties. However the unique situation of a widely scattered population many of whom are indigenous would seem to justify an intermediate centre for high risk babies. This means the ability to provide round-the-clock service which calls for a second paediatrician also with training in neonatology and, in addition, relief help for holidays and study leave. The precise proportion of high risk pregnancies that such a unit will be able to handle cannot be stated in categorical terms at this time. Much depends on the experience still being gained in Canada and other countries and will also be influenced by further scientific advances in this relatively new field and how simply these can be applied. Such an "intermediate" centre for high risk babies has to be developed in conjunction with the base services in Edmonton. A most important factor at the present time is to endorse the principle and to plan in as substantive a way as possible so that staff resources can be built up and continuity of service established.

The development of special centres for high risk pregnancies will only have maximum benefit if carried out in conjunction with good antenatal services. New assessment techniques, which at present have to be carried out at base centres, can be of assistance in determining which mothers run risk and are helpful in deciding whether the mother needs hospital care during pregnancy and care in a special centre during labour. (These assessments can be carried out on an out-patient basis.)

It is within this framework that bed requirements are examined. They fall into four main categories:

- short-term beds for adults and children excluding obstetrics
- obstetrics
- continuing treatment beds for the elderly suffering from chronic illness
- continuing treatment beds for the young chronic sick.
- beds for the treatment of tuberculosis.

Bed Requirements for the Population of Yellowknife

Adult and Children's Beds - Table 10, opposite sets out the bases used for the calculation of adult and children's beds for the residents of Yellowknife at the Stanton Yellowknife Hospital for the mid-eighties. Separate calculations are made for the various ethnic groups comprising the population because of the differences exhibited by each group in its use of hospital services. The table shows the present volume of care received in hospitals in major centres in Canada (essentially in Edmonton) and the volume of care received elsewhere (both inside and outside of the Territories). It was noted earlier (page 48) that the flow of patients to Edmonton is presently higher than would be expected solely on medical need and it is suggested that this can be reduced as the hospital's services develop further. The volume of service received in Edmonton by the indigenous groups is higher than for the whites. The reduction suggested is greater for it would seem reasonable that the indigenous population even in Yellowknife will find it more convenient to stay in Yellowknife for care. However the "pull of the south" will be a more difficult

Table 10

The Calculation of Hospital Bed Requirements for Adults and Children, Excluding Obstetrics, for Residents of the City of Yellowknife in the Stanton Yellowknife Hospital by the Mid-Eighties

		Ethnic Group				
		Indian	Metis	Inuit	White	Total
(1)	Total Days of Care All Hospitals Expressed as Rate per 1000 Population	2,456	2,456	2,451	1,008	
	Distribution of (1) by Hospital Location:					
1976	Stanton Yellowknife	1,993	1,993	2,037	626	
	Base Hospitals	433	433	366	274	
	Other Hospitals	30	30	49	108	
Mid-80s	Stanton Yellowknife[1]	2,156	2,156	2,203	700	
	Base Hospitals	200	200	200	200	
	Other Hospitals	30	30	49	108	
	Projected Population Yellowknife Mid-Eighties	1,000	750	110	12,140	14,000
	Number of Beds Required for Residents of Yellowknife by Mid-eighties	7.29	5.47	0.82	27.72	41.30

Notes: Number of beds calculated by assuming occupancy rates are 70% for children and 90% for adults. Combined occupancies are 81% for indigenous populations and 84% for whites because of different age-mix of populations. The calculation of bed requirements is as follows: days of care per 1000 population x population in thousands ÷ 365 occupancy rate.

1 The volume of hospital days in Yellowknife would have been increased to 2,226 per 1000 Indian and Metis. However length of stay of Indians and Metis who are hospitalized in Yellowknife are expected to drop from 14.3 days to 10 days on average and accordingly the days transferred (233) have been reduced by 30% to 163.

Source: Admission Separation Forms, Territorial Hospital Insurance Services. Population Projection, Page 13.

pattern to alter among the whites many of whom will be new to the scene. These shifts increase bed requirements because residents will receive proportionately more care in Yellowknife than elsewhere. More beds are also required because of the increase in population. It has been assumed that the Metis have a similar pattern of hospital use. The rates of hospital utilization used in the calculations were the rates of the City of Yellowknife experienced by each of these groups in 1976. Some reduction in the overall length of stay should be expected among the Indian and Metis groups who formerly received care in Edmonton. Allowances where appropriate have been made for this and noted in Table 10.

There may be some speculation as to whether the Metis number as many as 75 percent of the Indian population and for that matter if they use the same volume of care. It is important to ensure that the resulting days of care apportioned to the white population seem reasonable. The calculated rate of hospitalization for the white population was compared to the 1977 Northern Ontario guidelines. The rates for the white population ran at similar levels to the Ontario 1977 Northern Ontario guidelines. These guidelines have since been reissued and are considerably more stringent.

Obstetrical beds - it is assumed that the number of births in the white population that will take place in hospitals outside Yellowknife and the base hospitals in Edmonton will decline to 10 percent and the number for the other ethnic groups will continue at 3 percent. The following volume of hospital care and number of beds required for obstetrics in Yellowknife for Yellowknife residents in the mid-eighties is shown on Table 11, opposite.

Table 11

Projected Number of Deliveries in Yellowknife to Mothers Resident in Yellowknife and Number of Hospital Days and Bed Requirements - Mid 1980s

	Number of Deliveries Stanton Yellowknife Hospital	Average Days for Obstetrical Care	Number of Hospital Days
Indian / Metis	41	7.2	295
Inuit	4	8.0	32
Whites	262	6.8	1,782
Totals	307		2,109

2,109 Days at 70% occupancy $= \frac{2,109}{365 \times .70} =$ 8.25 Beds

Note: The average days for obstetrical care is the average length of stay in hospital for delivery plus a loading factor to provide for an adequate number of days for care of some expectant mothers hospitalized for complications of pregnancy (Canadian List 136-139). In 1976 there were 202 separations of mothers from Yellowknife in total for all obstetrical care in the Stanton Yellowknife Hospital (Canadian List 136-139 and 141-144) which accounted for 1,201 days. There were 175 separations of mothers delivered accounting for 1,090 days. To allow for sufficient hospital days for the in-patient treatment of the complications of pregnancy, the average days for obstetrical care for deliveries was computed as $\frac{1201}{175}$ (= 6.9 days). Since patterns vary between ethnic groups averages were worked out for each group.

Source: Admission Separation Forms, Territorial Hospital Insurance Service. Number of births see page 15.

Bed Requirements for the Population of the Fort Smith Region Excluding Yellowknife and of the Inuvik Region

Adult and Children's Beds - Provision has to be made for additional beds that will be required to accommodate a significant proportion of the patients who will be able to receive services in the Stanton Yellowknife Hospital and who presently receive these services in Edmonton by the mid-eighties. Table 12 , opposite, shows the present volume of hospital services supplied to patients from the catchment areas in base hospitals in the south (mainly Edmonton). Table 13, opposite, shows the redistribution of this volume of care presently provided between hospitals in Yellowknife and Edmonton.

Since the average length of stay in base hospital facilities in 1976 for Indians from these areas was 17.3 days, for Inuits 16.5 days and for "Others" 11.1 days, it seems reasonable to anticipate a marked reduction in the stay of patients who are treated in the Stanton Yellowknife Hospital compared to the average length of stay in Edmonton hospitals. It might be argued that the time required for investigation and treatment on an average may be even shorter than the reduction projected. While this may be the case there is little doubt, because of the difficulties encountered in managing cases that come to base centres from relatively inaccessible settlements, together with the difficulties encountered in arranging transportation, that the length of stay amongst the indigenous groups will continue to be somewhat longer than for the "Other" patients. Table 14 , page 64 shows how these bed requirements are calculated based on the projected population for the Fort Smith and Inuvik regions excluding Yellowknife.

Table 12

Volume of Active Treatment Hospital Care Received by Adults and Children (Excluding Obstetrics) from Base Hospitals Outside the Northwest Territories Received by the Population of Fort Smith and Inuvik Regions Excluding Yellowknife by Ethnic Group - 1976

Ethnic Group	Population 1976	Patient Days in Base Hospitals	Days Expressed Rates per 1000
Indian	7,408	4,077	550
Inuit	4,575	2,948	644
Other	11,223	6,566	585
Total	23,206	13,591	586

Source: Admission Separation Forms; Territorial Hospital Insurance Service. Population, Table 3, page 11.

Table 13

Projected Redistribution and Reduction in Volume of Active Treatment Hospital Care (Excluding Obstetrics) Received by the Population of the Fort Smith and Inuvik Regions Excluding Yellowknife by Ethnic Group - mid 80s

Ethnic Group	(1) Base Hospital Days/1000 Popln. 1976	(2) Projected Base Hospital Days /1000 Popln. Mid 80s	(3) Balance (1)-(2)	(4) Reduction Factor Applied to (3)	(5) Base Hospital Days /1000 Popln. Allocated to Yellowknife (3) x (4)
Indian	550	350	200	30%	140
Inuit	644	350	294	30%	206
Other	584	275	310	10%	279

Table 14

Calculation of Active Treatment Hospital Beds (Excluding Obstetrics) Required at Stanton Yellowknife Hospital to Serve the Population of the Fort Smith and Inuvik Regions Excluding Yellowknife Projected to be Reallocated from Base Hospitals Outside of the Northwest Territories to Yellowknife - mid 1980s

Ethnic Group	Projected Popln. Mid 80s	Base Hospital Days /1000 Popln. Allocated to Yellowknife	Occupancy	Bed Requirements Yellowknife
Indian	8,900	120	81%	4.21
Inuit	5,890	176	81%	4.10
Other	12,710	290	84%	11.57
Total	27,500			19.88

Source: See Table 13 , page 63 . Population page 15.

Table 15

Days of Care Expressed in Days per 1000 Popln. (Excluding Obstetrics) Provided in Yellowknife to the Population of the Fort Smith and Inuvik Regions Excluding Yellowknife in 1976 and Projected Days of Care Required by the Mid 1980s

	Days of Care per 1000 Popln. in Yellowknife	Percentage of Total Hospital Days of Population Provided in Yellowknife 1976	Projected Percentage of Total Hospital Days of Population Provided in Yellowknife mid 1980s	Projected Days of Care per 1000 Popln. in Yellowknife mid 1980s
Indian	275	17	17	275
Inuit	519	32	10	158
Other	88	6	6	88

Note: Days of Care in Stanton Yellowknife Hospital 1976 for Inuit from Fort Smith and Inuvik Regions Excluding Yellowknife — 2,373

Less 40% of Total Days Inuit from Cambridge Bay — 1,649

Net Days — 723

In the reduction from 32% of total days to 10%:
No adjustments were made for "Other" population in Cambridge Bay area.

Source: Admission Separation Forms, Territorial Hospital Insurance Service.

Table 16

Calculation of Bed Requirements in Yellowknife to Meet Hospital Care (Excluding Obstetrics) Being Provided in 1976 in Yellowknife for the Population of the Fort Smith and Inuvik Regions Excluding Yellowknife by the Mid 1980s

	Projected Popln. in Thousands Mid 1980s	x	Days per 1000 Popln. in Yellowknife	Projected Hospital Days in Yellowknife	Beds
Indians	8.90		275	2,448	8.28
Inuit	5.89		158	931	3.15
Other	12.71		88	1,118	3.65
Total	27.50				15.08

Note: Beds were calculated for Indian and Inuit groups assuming an 81% occupancy and for the "Other" group assuming an 84% occupancy.

Source: Table 15 , page 65 .

Provision also has to be made for bed requirements for the Fort Smith and Inuvik catchment areas to meet the needs of the projected population in these catchment areas and also to take into account projected changes in patterns of care. The opening of the hospital at Cambridge Bay will see approximately 40 percent of hospital care presently provided to the Inuits of that area in Yellowknife provided instead at the Cambridge Bay Hospital.[1] Provisions have been made for these changes. No allowance, however, has been made for the possibility of a further reduction in the use of the Stanton Yellowknife Hospital by patients from the Fort Simpson area. It is visualized with an increasing population in that area it might be possible to build up services locally that will see more patients cared for in Fort Simpson. Table 15 , page 65 sets out the present volume of care being provided in the Stanton Yellowknife Hospital for the various ethnic groups of the catchment areas. It also notes the change that will occur by the mid-eighties as a result of the opening of the Cambridge Bay Hospital.

Table 16 , page 66 shows the bed requirements in the mid-eighties to provide this care. As well as allowing for beds to meet the present demands placed on the Stanton Yellowknife Hospital by the catchment areas.

<u>Obstetrical beds</u> - Present patterns were reviewed and probable changes assessed in projecting requirements at the Stanton Yellowknife Hospital to provide a sufficient bed supply in obstetrics for it to provide intermediate care for the wider catchment area it serves.

Table 17 , page 68 shows the percentage distribution of births to residents of the Fort Smith region excluding Yellowknife residents and the Inuvik region in 1976. The establishment of a

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1 From a cultural standpoint the logical flow of the Inuit from the Cambridge Bay area (central Artic) for secondary and tertiary hospital care would be east. At present air transport routes coupled with distance rules this out.

hospital at Cambridge Bay will see a much larger percentage of normal obstetrics carried out in that area. It is anticipated that the number of deliveries in Yellowknife from the Cambridge Bay area will drop from approximately 60 percent to between 15 and 20 percent.

Table 17

Percentage Distribution of Deliveries by Ethnic Group and by Hospital Location of Residents of the Fort Smith and Inuvik Regions Excluding Residents of the City of Yellowknife - 1976

Ethnic Group	Yellow-knife	All Other Hospitals in N.W.T.	Nursing Stations	Hospitals in Edmonton, Winnipeg and Montreal	Other Hospitals Outside N.W.T.	Total
Indian	32	55	6	3	4	100
Inuit	34	33	28	4	1	100
Other	7	72	2	8	11	100
All Groups	19	60	8	6	7	100

Source: Admission Separation Forms, Territorial Hospital Insurance Service.

With emphasis placed on providing care locally to the extent that it is possible with the increase in population anticipated in the next decade at Fort Simpson amongst the indigenous populations it is quite conceivable that a higher percentage of maternity care could be carried out locally. At present about one-third of the mothers in Fort Simpson area have their babies in the Stanton Yellowknife Hospital and the same number in hospitals outside of the Territories. While no allowance has been made for this possible change at Fort Simpson,

allowances have been made for the change in pattern in the Cambridge Bay area and it is anticipated that a change in pattern in the Inuvik region could also be expected which would see approximately 7 percent of deliveries of Indian and Inuit mothers take place in the Stanton Yellowknife Hospital and 3 percent of the "Other" group.

The revised percentage of births projected to take place at the Stanton Yellowknife Hospital in the mid-eighties by ethnic group for the populations outside of the City of Yellowknife is as follows:

	Percent
Indian	34
Inuit	13
Other	8

Applying these percentages to the projected number of births in the mid-eighties that will occur in the population of Fort Smith and Inuvik regions excluding the residents of Yellowknife shows the anticipated obstetrical load as follows:

Ethnic Group	Number of Births in Fort Smith Region and Inuvik Region Excluding Yellowknife	Projected % of Deliveries in Stanton Ylk. Hospital	Number of Deliveries in Stanton Ylk. Hospital
Indian	214	34%	73
Inuit	206	13%	27
Other	305	8%	24
Total	725		124

Source: Births page 15.

Table 18 , below projects the bed requirements for the provision of obstetrical services to the population in the Fort Smith and Inuvik regions excluding Yellowknife.

Table 18

Number of Deliveries in Yellowknife to Mothers from Fort Smith and Inuvik Regions Excluding Yellowknife and the Number of Hospital Days and Bed Requirements - Mid 1980s

	Number of Deliveries Stanton Yellowknife Hospital	Average Days for Obstetrical Care	Number of Hospital Days
Indian	73	7.6	555
Inuit	27	9.2	248
Other	24	9.1	218
Totals	124		1,021

1,021 days at 70% occupancy $= \frac{1021}{365 \times .70} =$ 3.99 beds

Note: The method of calculating Average Days for Obstetrical Care was applied as described in the footnote to Table , page .

Source: Figures on page 69 .

Summary

An assessment has been made of the bed requirements for adults and children and for obstetrics as a result of the projected

population increase and the projected shifts in pattern of referrals. In addition consideration has been given to requirements for continuing treatment beds for the chronically ill and for persons requiring hospitalization because of tuberculosis. In the latter instance it has been noted that the amount of care required will vary from year to year depending upon the number and severity of outbreaks of this infection. Accordingly it would seem that it is not practical for each area to meet particularly high demands because of sporadic outbreaks. Again some of the patients who require to be kept under surveillance for a long period of time would be better housed in hostel accommodation with programs arranged to keep them occupied for their waking day. The six active treatment beds have been provided for the treatment of tuberculosis and have been allocated as follows: four to the adult wards and two to paediatrics. It is also assumed that hostel accommodation will be used as noted above for at least some adult longer term patients. The table below sets out the bed requirements for the Stanton Yellowknife Hospital to serve the City of Yellowknife and the catchment areas by category of bed:

Table 19

Projected Hospital Bed Requirements by the Mid 1980s at Stanton Yellowknife Hospital by Category of Bed

Category	Beds
Adult and Children	76.26
Provision for non-residents	3.25
Obstetrics	12.24
Provision for non-residents	0.24
Tuberculosis	6
Continuing Treatment	8
Total	105.99

The requirements for the residents of the Fort Smith and Fort Inuvik regions have to be augmented to provide for non-residents. The same proportion of beds that were used by non-residents in 1976 (3.6 percent) has been allocated for non-residents.

With the enlargement of out-patient facilities and the augmenting of accommodation for patients from outside the City of Yellowknife through the addition of a hostel facility and the increasing use of home nursing services for residents of the City, there will be a considerable shift in emphasis to ambulatory care with a consequent reduction in the use of in-patient facilities. It has to be remembered however that the population though a very young one is aging and as this change takes place proportionately more hospital beds will be required. (It is interesting to note that because of the very high hospital utilization rates among Indian children aging in that ethnic group at least for some time to come will not result in the need for additional hospital care.) This factor has to be borne in mind in assessing the effects of the shift in emphasis to ambulatory care. Over the next decade the one may well balance off the other and for this reason no reduction has been made in beds as a result of the shift in emphasis to ambulatory care.

The schedule on page 73 sets out the bed requirements by broad service category recommended in this report.

All data on the utilization of children's service was defined as children between 0 to 14 years, excluding newborn admissions, the bed allocation under paediatrics should accommodate

the age group 0-16 since this is a more appropriate cutoff age on paediatric wards. It obviously has to vary depending upon the individual situation.

Schedule of Bed Requirements Stanton Yellowknife Hospital by Broad Service Categories Mid 1980s

	Number of Beds
Adult - Medical, Surgical, Psychiatry, Tuberculosis	58
Obstetrics	12
Paediatrics Including Tuberculosis (9-16 years)	28
Continuing Treatment Beds	8
Total	106

On the physical relationship between beds it would be desirable to have a portion of the medical and surgical beds juxtaposed to the obstetrical beds so that swings can take place to accommodate any unusual peaking of deliveries that occasionally occur. It also allows some flexibility on an ongoing basis since patterns in fertility may change.

On paediatrics it is assumed that this unit will be designed to allow for mother nursing. This is a particularly important facet of paediatric care that has not been encouraged in Canada to the extent that it might. Mother nursing is the practice of encouraging mothers to come into hospital with younger children and stay with them and participate in their nursing care. There are several spinoffs to this. The first is that it reduces

cross infection, a hazard on any paediatric ward. It also allows the mother to become more confident in the care of her own child and to be given advice on this and other matters by the nursing staff. It has also been shown that length of stay is reduced and, of course, most important of all the emotional well being of the child preserved. While it is not always possible for the mother to come into hospital with her child every encouragement should be given to the principle. In some countries this is regarded as a legitimate cost against the hospital insurance plan.

Continuing treatment beds should be planned as such for more space is needed per bed than for a general hospital bed. These units are too often planned with the object in mind of their eventual use as active treatment beds. It would be useful to get special advice on the planning of services to the elderly generally as well as in the planning of continuing treatment facilities.

It is also recommended that a nursing home be built to accommodate five to ten persons to start with. It should be a free-standing unit separate from the hospital. It should be capable of being enlarged as the need arises and should provide accommodation for married couples as well as the single elderly.

Clearly hostel accommodation is a particular asset in Yellowknife where a large volume of care is provided to persons from outside the City itself. The function of a hostel should be clearly defined and criteria for admission and discharge set out. As a hostel, it will really serve as a substitute home for persons who require to remain in the City of Yellowknife for investigation and treatment but who do not require to be admitted to an active hospital bed. Accordingly, while it should be situated on the hospital grounds it would seem advisable for it to be free-standing.

And because of weather conditions there would be some advantage if it were tied into the hospital by an enclosed concourse. Being free-standing it can be constructed at a lower unit cost than if it were part of the hospital proper. It is suggested that there are advantages in it being administered by a voluntary agency perhaps linked to, but not part of, the hospital authority. It would seem more appropriate to start with a small unit with the capabilities of expansion so that experience both in utilization and design can be made use of in the further development of the facility. It is recommended to start with that a unit capable of accommodating ten persons be operated. Provision should be made for accommodating more than one family member in the hostel. Accommodation does not need to be new or custom built and there may be some advantage in using existing property close by the present hospital as a starting point. This type of facility will not replace the present foster home arrangements for some children who come to Yellowknife for care.

ASSESSMENT OF EXISTING STANTON YELLOWKNIFE HOSPITAL SITE AND FACILITIES AND THE PROPOSAL FOR THE EXPANSION OF THESE FACILITIES

The diagram opposite shows the site boundaries and the location of the existing hospital buildings on the site.

Site - the site consists of 8.8 acres of land, half the area of which is a level area of gravel with the bedrock below sloping rapidly to a depth of 20 - 30 feet. Perma-frost lies at varying depths below the surface of the level area. Surface drainage problems are experienced in the northeast part of the site where, under certain conditions, spring run-off enters the buildings. The level ground is partly ringed by rocky outcrop which makes up the rest of the area.

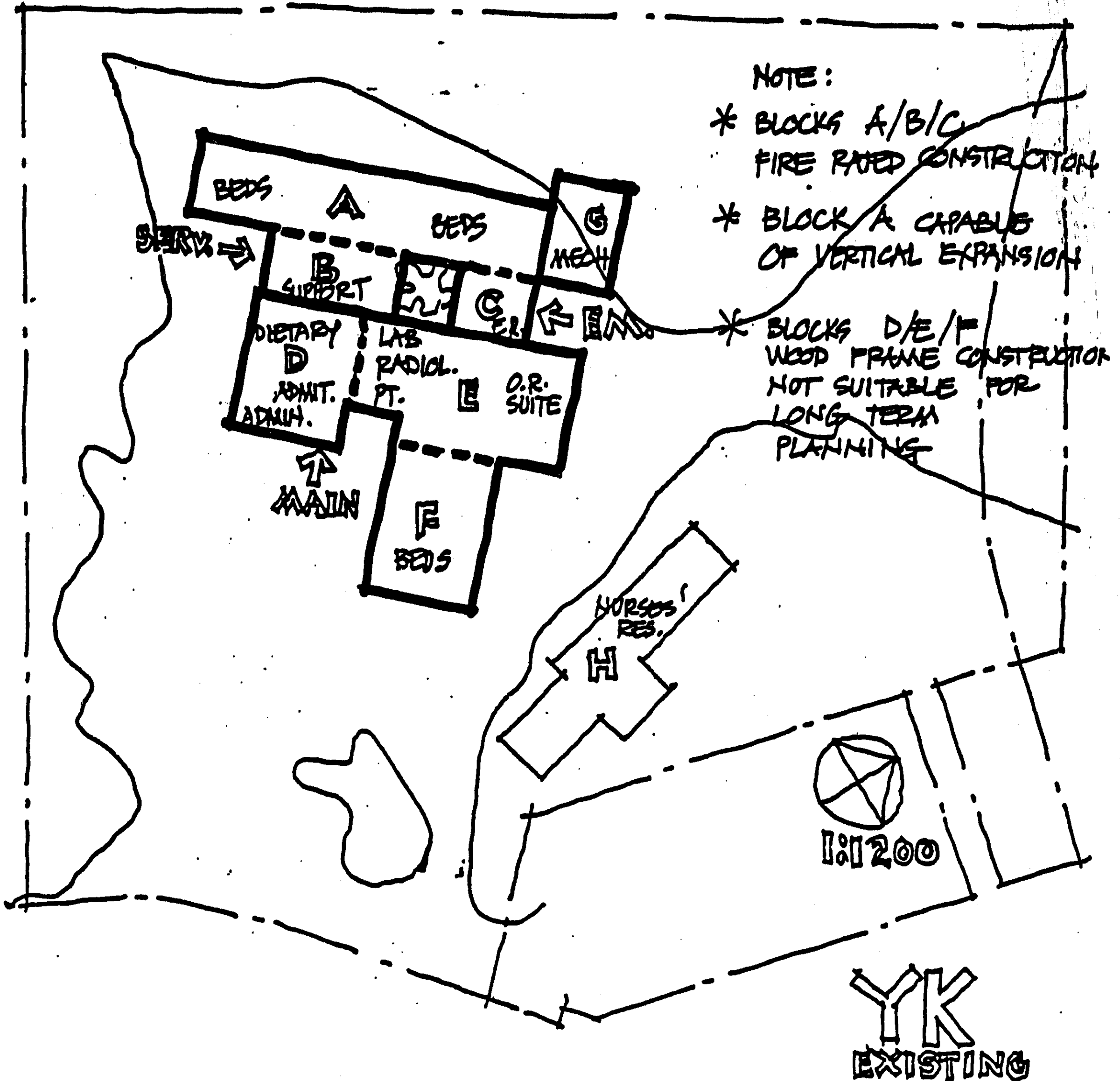
Adjacent plots (1.1 acres) situated to the rear of the nurses residence are owned by the Hospital Society and could be added to the site at a later date to increase its total area. The adjacent plots have a level surface and at the present time contain two houses, an apartment block and the Addiction Centre. They are, however, separated from the principle level area of the site by a rocky outcrop projecting at some points, 10 feet above the surface.

The main entrance to the site is from Franklin Avenue to the south-east. Utility services also enter the site from this quarter.

Buildings - The original building (approximately 24,000 g.s.f.) was constructed in 1967 in the centre of the site and is of timber frame construction. It contains diagnostic and treatment facilities (including radiology and the surgical suite), support services and surgical and maternity beds (E and F on diagram).

Diagram

Stanton Yellowknife Site and Hospital Facilities



The 1974 fire resistive addition (A, B, C and G on diagram p.77) was added to the original building. It contains adult and paediatric beds, emergency department, bulk storage and boiler room. At the same time another extension of timber-framed construction (D) was added to the original building and houses admitting and administration. The laundry was added later to the north-west corner of the 1974 fire resistive addition (not shown in diagram). The ward area only of the fire resistive building has the potential for vertical expansion of two floors.

The timber-frame two-storey nurses residence sits on a concrete foundation on a rocky outcrop on the east of the building.

Current Problems - Constraints of the existing building design have led to problems of space deficiency particularly in diagnostic and treatment areas, notably Radiology, Laboratory, Physiotherapy and Ambulatory/Emergency Departments. It is impractical to expand these areas. The pre-operative space is inadequate and the recovery area is poorly located. No consolidated supply department exists and record storage is inadequate. The laundry is cramped and the flow of soiled articles and clean, finished laundry are not properly separated.

Evidence of structural problems is appearing in the 1967 building (e.g. area of wall in the surgical suite is reported to be separating from the floor and drainage is causing problems at a number of points on the roof.) Mechanical services generally are in a sorry state partly due to lack of maintenance, although steps have been taken to rectify this, and by what appears to have been faulty and deficient installation in the original building. The 1974 Nursing Unit although better than the original building also has mechanical

defects and deficiencies such as the lack of oxygen to all the beds in Paediatrics and lack of an isolation area in both the Adult and Paediatric Unit.

The serious state of the building's mechanical systems has been documented in a report prepared by Yewchuk Engineering Limited. The building systems need to be put into safe working condition irrespective of future plans.

Potential of the Site and Existing Buildings - The 1967 wood-frame facility and the wood-framed portion of the 1974 extension, because of the materials used in construction, have limited potential life.

The 1974 addition to the physical plant, although deficient in certain respects, on the whole provides satisfactory accommodation for nursing units and its fabric must be regarded as having a potential life of over 30 years. The ward area of this addition also has the potential for vertical expansion. This, however, could only be carried out with disruption to present services.

The nurses residence is not suitable because of its design, structure and location for conversion to active treatment patient accommodation.

The site itself with an area of 8.8 acres has, under the present planning by-law, the potential for buildings with a ground coverage of approximately 230,000 s.f.

Adequacy of the Present Site in the Long Term

The hospital buildings at present located on the site represent a considerable investment--particularly the 1974 addition

which has a potential life span of 30 years or more (and whose replacement cost would be in the order of 2.4 million dollars). The proposals by the Territorial Government envisage a capital expenditure of $18,000,000. The resultant new building should have a potential life span of 50 years. It would seem probable that a facility of over 200 beds with appropriate support services will be needed in Yellowknife within the next 30 years and changes in the types of service and the nature of the techniques used can also be expected in that time span. To realize maximum value for this capital investment, it follows that the new buildings should be in useful service for over 50 years and, accordingly, incorporate into the design the potential for flexibility and expansion to meet the needs of the future beyond the mid-eighties.

In terms of area, the present site is adequate for a hospital of approximately 200 beds. However, the location of the existing buildings in relation to the geological features of the site are such that the options for further development are severely restricted. This should come as no surprise since a long range master plan had not been prepared prior to the design and building of the present facilities.

Our examination of the plans for future expansion of the facilities revealed the same defect, namely the lack of a long range master plan. The proposed building program essentially sees a new hospital built on the existing site glued to the existing facility, which despite its relatively young age was to be converted to serve auxiliary functions. While the proposed new hospital would adequately serve the community for the next decade, little thought had been given to the potential for future change and growth. For example, while provision had been made for the addition of more beds through upward extension, solutions would be difficult to meet

the expansion of services which are required when a significant number of beds have to be added. (An excellent example of this is the quandry that is faced with the present facility). Again little thought had been given to the adequacy of car parking facilities to meet an expanding population with a higher rate of car usage that will accompany population growth.

Any development on the present site should meet the following criteria:

1. Maximize the use of existing investments in a way compatible with long-term growth.
2. Provide a functional solution to the short term needs.
3. Provide the means for ready and differential expansion and change beyond the short term.
4. Allow the hospital to function at all times with a minimum of disruption.

To test further the feasibility of developing a facility on the present site which would respect the criteria listed, a number of alternative solutions were prepared. Three of these are illustrated in the Appendix (page 107). All three solutions rely on a series of construction, decanting and demolition moves. Although the final result in each case would be an acceptable hospital plant with proper departmental functional relationships and circulation systems, the future expansion of diagnostic, treatment and support departments would still present problems. Furthermore, the time required to complete the development--7 to 8 years in each case--and the degree of disruption to the continuing operation of the hospital would seem to make this approach impractical.

In view of the serious constraints of the present site and the need to provide for further expansion of the Stanton Yellowknife Hospital in the long term, it is recommended that:

- a new site be acquired for the development of new hospital facilities.

- a master plan be prepared which will ensure adequate facilities for the mid-eighties, and which will have the potential for future expansion.

The detailing of some other concerns in design development are unnecessary for they relate directly to the lack of a master plan and will be corrected when this is rectified.

Concerning departmental space allowances, these appear to be within the range expected assuming a major shift in emphasis to ambulatory care. It is realized that as detailed functional programs and layouts are developed adjustments in areas will be made which will also be partly dependent upon bed complement. The actual bed complement is set out in the schedule on page 73.

Some more fundamental questions are raised here for we think further consideration should be given to them:

- Space for health and social education programs, for example would seem to be more appropriately incorporated in a community college setting other than the space required for clinical instruction.

- While the location of the public health facilities in the hospitals in smaller towns may be an appropriate arrangement, this may in the long run not be as functionally appropriate in a growing city. The major medical links with the public health nurses are through family practitioners. The public health clinic(s) would be more conveniently located close to their offices. In Yellowknife public health space and social service space, if located in the hospital, will inevitably be encroached upon by the hospital for hospital functions as growth continues.

- It is difficult to comment on the amount of educational space requirements when detailed functional programs have not been developed for them.

- The ophthalmic technician training program seems to be a fragile and expensive one and should be examined more closely.

THE STANTON YELLOWKNIFE HOSPITAL AUTHORITY

With the development of the Stanton Yellowknife Hospital as a regional centre the regional functions of the hospital should be reflected in the composition and mandate of the governing board. It is my understanding that the present local hospital authority is aware of this and has been actively engaged in reviewing this.

Clearly, the board should not only be composed of whites. There is need for representation from Indian, Inuit and Metis as well as whites and this representation should come from the areas which the hospital is intended to serve as well as the City of Yellowknife. If representation were to be on a proportional basis, approximately one-third of the members would be Indian, Inuit and Metis.

Because of the need for close ties with the University of Alberta, it would seem desirable that one of the members of the board be a representative of that University.

It would seem desirable for the Council of the Territories to pass an ordinance establishing the hospital as a regional facility. This ordinance should set out the purpose of the hospital and the composition and responsibilities of the governing board to insure proportionate representation on a cultural and regional basis.

Clearly, such a multi-cultural board will have its growing pains. It has been my experience that the Indians in the south find it difficult to cope as board representatives. Accordingly it will be important to allow these members to orientate themselves so that they can perform their new role in the interests of the community

at large as well as to their own people more effectively. As an interim measure it may be desirable to have an advocate or advocates assist in their representation at board meetings. The transition is going to be a difficult one. The running of the Stanton Yellowknife Hospital has been entirely a white matter up to the present. My inquiries of the board as to whether indigenous people were represented on the present board seemed to come as a surprise to some of the members who wondered what that had to do with the plans to expand the hospital. In a city where the whites far outnumber the other cultural groups it is not surprising that this is the case. As the city increases in size largely through in-migration, the proportion of whites is going to increase further and this will further promote their dominance. Coupled with this is the large proportion of whites who are in the Territorial or Federal service. This is presently reflected in the board composition which, not surprisingly, seems to be unduly weighted with civil servants.

THE FRAMEWORK FOR THE FUTURE ADMINISTRATION OF HEALTH SERVICES IN THE NORTHWEST TERRITORIES

I was asked by both the government of the Northwest Territories and the Department of National Health and Welfare after my study had commenced to address myself to this question. The Government of the Northwest Territories have been pressing for some years for the responsibility of all health services to be transferred to it so that planning, coordination and integration could be undertaken by a single authority. The Government of the Northwest Territories sees this of paramount importance. The Federal Government, in principle, does not seem to be opposed to such a transfer. Based on the transfer of other services to the jurisdiction of the Government of the Northwest Territories the complete transfer of health services would seem a logical step. This, of course, begs the question as to whether it is right.

In recent years, not surprisingly, tensions have developed between the Government of the Northwest Territories and the Department of National Health and Welfare over this situation. Certain things have not helped. For example the fact that the Regional Office for the Northwest Territories of Medical Services Branch of the Department of National Health and Welfare is still located in Edmonton perpetuates the "absentee landlord" syndrome and, rather than encouraging cooperation and a change in authority, it seems to me to tend to thwart it. The resolve that the present system cannot work also does not help the situation or its resolution. The inertia in the Federal Service and the apparent fractionation of the decision making process also is a continuing source of irritation.

It seems clear that the Regional Office should be transferred

from Edmonton to the Northwest Territories straight away. Irrespective of what happens the Federal Department of National Health and Welfare will still have responsibilities and functions to perform in the north and this should be done from Yellowknife, not Edmonton. Also the Assistant Deputy Minister, Medical Services, should personally consult with the Commissioner of the Northwest Territories on future appointments of Regional Directors.

The transfer of health services is a more complex business than simply transfer of staff and facilities from one bureaucracy to another. If the only population in the Northwest Territories were the white population transfer of health services should have been carried out a long time ago. The Federal Government's responsibilities to the indigenous populations, however, is unique and continuing. There is no doubt that the aspirations of these populations are distinctly different from other Canadians and, if full recognition is not given to this, the Federal Government will fall short of its responsibility to these people.

The state of health and well being of a population only in small part depends on the sophistication of health services that are developed and used by them. Of far greater importance is the preservation of a population's self-esteem and independence. Clearly the situation on many Indian reserves in other parts of Canada is a reflection of their loss of self-esteem and worth. While the health services of the north appear to have been more appropriately developed in the Northwest Territories for the indigenous population than in the south, the general well being among these people is reflected by the degree to which their lifestyles have been disrupted. As I have suggested it may be possible to measure this through increased rates of hospitalization which in itself is a further disruptive influence.

Quality of life is one of the essential yardsticks that has to be used in measuring the health of the population.

Health orientated activities in the settlements themselves will have greater impact on the health status of the indigenous populations than any amount of proliferation of hospital services. To be effective, the communities must decide the measures themselves, for most measures involve changes in living habits. They should help to carry these measures out and evaluate their success.

I cannot see any of the indigenous peoples seeing any fundamental difference to a transfer of the administration of health services that would see the Northwest Territories government staff (many of whom would be former National Health and Welfare employees) perpetuate what has been the less than voluntary intrusion of services originally started by the Federal Government. It still would have the hallmark of a colonial service allbeit a decentralized one.

Perhaps a more appropriate issue for discussion should be the devolution of local health services rather than their transfer. The indigenous peoples should be in on these discussions from the start.

Institutions developed and run by indigenous peoples obviously have to be interwoven with resources developed for the use of the population as a whole. Hospital services seem to me to fall into the latter category and it would seem appropriate that the unification of the hospital system in the Mackenzie Valley would be appropriate. This should be administered by the Government of the Northwest Territories and would lead to more effective coordination of hospital services. Likewise the coordination of consulting services should be coordinated with those provided locally.

Any revision of responsibility for health services should reflect in a practical way the policy commitments of the Federal Government. The development of these commitments into initiatives has been set out in the background paper, "Political Development in the Northwest Territories", Prime Minister's Office, August 3, 1977. Full discussion with the Indian and Inuit populations on the question of change and the new initiatives that such change could bring about is essential. Since responsibility and full use of health programs requires involvement of the people for whom they are established, these discussions have to take place at the local and regional level. This will provide a base for change to take place that can be understood by all concerned and consistent with the aspirations of the communities concerned. It is certainly appropriate for this to be done within the context of some of the issues which the Prime Minister has asked his special representative, the Honorable Charles M. Drury, to explore with the government and the peoples of the Northwest Territories and which could conceivably result in far reaching changes.

FINANCIAL IMPLICATIONS

Obviously as the population grows the services that are required will also increase. The question is whether or not capital funds are being wisely invested and operating funds are seeing a reasonable return. If it were possible to construct an equation we should be able to show that the return in the investment of dollars in the health field results in an appreciable reduction in time lost from work, schooling, etc. to which a dollar figure could be attached. Unfortunately this is not possible. We do know that there is a positive relationship between health and productivity but this relationship is more dependent upon general standards of living including educational levels, sanitation, housing, nutrition, etc.

Funds invested in the public sector are limited. Accordingly one area has to vie with another. In the end the decision is a political one largely influenced by what the taxpayer is prepared to bear. The situation in the Northwest Territories is more complex than elsewhere for a variety of reasons:

- the mix of the various population groups
- the rights of the indigenous people
- the significant effects on the well-being of indigenous peoples of measures which the white population term "advances"
- the dependence of the Northwest Territories Government for most of its revenues on the Government of Canada (in this regard the Northwest Territories has to submit proposals to the Federal Treasury Board like the other Agencies of the Federal Government.)

Clearly the expenditures in the health field have to be weighed and balanced against expenditures in the other fields. In my assessment of the need for the expansion of the Stanton Yellowknife Hospital and the size of this expansion I have been generous in my allowances for population growths (e.g. I have not attempted to reallocate in-migrants to other areas of the Fort Smith and Inuvik regions. I have provided a generous allowance for projected birth rates.) These factors should clearly be monitored and the system for the management of hospital services sophisticated to the point of making payments to hospitals for operating budgets to cover rates of hospital utilization that are regarded as sufficient and in the light of the allocation of monies to ambulatory care services and additional hostel services.

From the point of view of capital budget it might be assumed that this will see a net reduction of some 20 percent compared to the proposal put forward by the Government of the Northwest Territories. Clearly a master plan and functional programs have to be developed in greater detail before more precise costs can be put on the project.

Assessing operating costs, the effect that changes in patterns that have been projected will have as a result of the increased use of local services and the reduction in the cost of transportation is a more difficult one to be sure of. The risk even with a limited shift in patterns of hospital care from the south to the Northwest Territories that has been projected is that this may not even be achieved. Accordingly, with the provision of a potentially bigger bed base in the north and the

difficulty in controlling effectively the use of hospitals, particularly in the south, higher utilization rates may occur than warranted.

In summary, the increase in funds to operate hospital services will largely be determined by population growth. It should, however, occur at a slower rate than the population grows since the population growth will see a larger increase in the white group who, because of their higher standards of living, use less hospital care. The more patients that use the Stanton Yellowknife Hospital where appropriate rather than going south will also assist in slowing the climb of hospital costs. The key to operating expenditures will rest with the effective management of the hospital plan which will require the monitoring of utilization rates in a similar way but in a greater detail than has been done in this report. An essential requirement for this is a much better developed demographic base.

Conclusions - the recommendations put forward in this report see the need for the building of a new hospital in Yellowknife on a new site. The size of the project (considering all aspects and including Cambridge Bay) is smaller and accordingly will require proportionately less capital funds (approximate reduction 20 percent). The operating costs will increase at a slower rate than the increase in the population, largely because of the differential higher rate of increase in the white population who consume less hospital care. It is difficult to predict with certainty how much patterns of hospital care will changed. It has to be encouraged but cannot be mandated. The need to develop further the monitoring systems as a tool to aid in the management of hospital services is important to ensure that costs are kept at reasonable levels. The need for a better developed population base is a basic requirement for this.

SUMMARY AND RECOMMENDATIONS

To start with a warning. One or two white settlers who have been in the north for some years tell me they have seen the tragic decline of some native settlements which have materially altered the well-being of the indigenous peoples. These declines have been the result of external factors. While health, preventive measures and appropriate health care can improve quality of life they will only reap their full effectiveness if done with the full involvement of the persons for whom they are intended and within the context of their way of life. Health services cannot immunize indigenous people against the havocs wreaked by the disturbance of a way of life which has developed in delicate balance with the environment. There may well be some correlation between the increased use of health services in some areas of the north which may reflect this disturbance of lifestyle with the consequent dependency that comes in its wake. In our impatience we have taken little time and made little effort to develop the yardsticks to measure the effectiveness of services, even in our own terms, let alone in the terms of the indigenous people. If the experience of the south is any indication of what is in store for the indigenous people of the north, the writing is indeed on the wall.

In advising on the distribution and use of health services in the Northwest Territories one tenant underlying this is the desirability of providing services as close to the homes of the people served as possible. Clearly "home" to the indigenous people has got a different meaning to "home" for many whites in the north a large portion of whom come to the north to make a stake rather than a home. The recommendations in the report are made within this

context. The principle recommendations are listed here with additional comments as deemed appropriate. There are other recommendations explicitly or implicitly contained in the body of the report. The recommendations listed here should be interpreted within the context of the report.

Health Services in the Settlements

From the technical standpoint the standard of health services on the settlements is high. Not all nurses, however, have obstetrical and clinical training. This should be a basic requirement and accordingly it is recommended that:

- all nurses posted on nursing stations in the settlements should be required to undergo appropriate obstetrical and clinical training beforehand.

This will require the reappraisal and extension of training facilities for these nurses. Approximately fifty places will be required each year.

Other recommendations are made in the body of the report on the recruitment of nurses to help ensure that candidates are suitable for this work before they embark on formal training (page 18).

It is also recommended that:

- visits of specialists to settlements should be encouraged and in some instances expanded. The specialists based in Yellowknife should participate to the extent possible in these visits in conjunction with, rather than apart from the visits made by consultant specialists from the University of Alberta.

It will be necessary for some visiting specialist services from Edmonton to continue for the foreseeable future. They also serve to link the north with Edmonton, an important factor for patients who require to go to Edmonton for care.

Physician Supply

Physician supply has to be measured in the context of the unique features of the Northwest Territories including the services provided by other health personnel. In general the supply of physician services seems to be adequate but will require to be increased to keep pace with the growing population. Concerning medical specialists it is recommended that:

- a second paediatrician be recruited to work in conjunction with and assist the paediatrician now practicing in Yellowknife.

It is also recommended:

- that the hospital authority continue its efforts to recruit a diagnostic radiologist and an orthopaedic surgeon as well as an additional ophthalmologist.

In order for the Stanton Yellowknife Hospital to develop as a referral centre it has to be capable of providing specialist services on a continuing basis. Accordingly steps have to be taken to make provision for holiday and study relief. Hopefully in most instances it will be possible to make arrangements with the Faculty of Medicine in Edmonton for such relief and it would represent a continuing but changing role for the Medical School in its involvement in the north. This will have the added advantage of informally auditing services in the hospital and will help to establish the hospital's reputation and, accordingly, encourage its appropriate use. (The best way

that I know of getting the point across that competent services are available at Yellowknife is for consultant specialists in Edmonton to be able to tell patients who come to Edmonton that these same services can be provided satisfactorily in Yellowknife.)

It is accordingly recommended that:

- to foster the development of the Stanton Yellowknife Hospital as a regional centre, it is important to obtain continuing support from the University of Alberta and, to this end, a corporate understanding should be developed between the Hospital Authority and the University.

(This is no way implies that ties with other Universities should not be fostered where appropriate, e.g. rotation of residents in family practice through Stanton Yellowknife Hospital from the University of Calgary that was established last year.)

As a further measure to improve services and to augment important back-up specialist services it is recommended that:

- steps be taken to extend the Public Health Laboratory Service program out of the Stanton Yellowknife Hospital to help reduce the time it takes to report on specimens and to ensure high quality is maintained to explore the possibility of the Public Health Laboratory Service of Alberta undertaking professional supervision of the bacteriological laboratory at the Stanton Yellowknife Hospital.

Clearly if continuity of specialist services is to be achieved special efforts have to be taken to help assure success. In anticipation that suitably chosen specialists will be required for relief work appropriate accommodation should be made available. Because of the need for such services on a continuing basis--three to four months in the year for paediatrics for example, assuming two permanent paediatricians--it would be appropriate to see that suitable accommodation is made available. Accordingly it is recommended that:

- two houses be acquired by the Hospital Authority for the use of locum specialists invited to Yellowknife to relieve resident specialists to allow them to take vacation and study leave in the knowledge that continuity of service will be maintained.

Special Target Groups

Mention has been made in the report of the impressive start that has been made in the development of community services for the care of the chronically ill and the elderly. The recommendations in this report emphasize that this should be continued. This calls for decisions concerning the appropriate allocation of funds for community services as opposed to institutional services. In the south the latter has inevitably won out. It is much easier to comprehend an institution for it is clearly visible. It is neater and tidier and institutional services are easier to operate. These are irrelevances. The criteria of appropriateness and effectiveness has to take precedence in the provision of services for the mentally handicapped, mentally ill, the frail or disabled or chronically ill elderly and the young chronic sick. In this regard the north has to be particularly careful and discriminating in looking at facilities and services in the south.

An added advantage in placing emphasis on community services not only for these special target groups but in the development of health services in general is that it helps to mobilize interest and involvement--for volunteers are an essential component of community services--and this is invaluable particularly in places such as Yellowknife in helping create a cohesiveness within the community.

Tuberculosis

This disease still ranks at the top of the list as potentially the most hazardous infection in the Northwest Territories amongst the indigenous groups. They have been exposed to the disease for a much shorter time than the white population and accordingly immunity acquired by whites over many generations has not had time to develop. In addition poor living standards lower resistance and predispose to infection or flare-up of quiescent disease.

There seems to be no obstacle preventing the move of the control and treatment program to the Northwest Territories. In fact as long as the principles underlying the control of the disease are meticulously followed nothing but advantage should accrue.

Just as special provisions were made in other parts of Canada to control tuberculosis when it was a scourge there and special provision is made for other diseases now (e.g. Cancer) special provision has to continue for tuberculosis in the north. Accordingly it is recommended when the Headquarters of the Northwest Territories Region is moved to Yellowknife that:

- special provision be made to ensure that the tuberculosis control and treatment unit be maintained and surveillance measures strengthened. To the extent possible the service should be decentralized to operate out of Inuvik and Hay River as well as Yellowknife.

The Distribution of Hospitals in the Fort Smith and Inuvik Regions

It is recommended that:

- a hospital be developed at Cambridge Bay to serve the population of the Cambridge Bay area in a similar way and with the same range of services that the Fort Smith Hospital serves the Fort Smith area.

The population in the Cambridge Bay area is almost entirely Inuit and it is remotely situated. On these grounds and within the context of the present distribution of hospital facilities in the north, a hospital facility at Cambridge Bay is clearly a priority.

The establishment of a hospital at Cambridge Bay will see a reduction in the flow of patients to the Stanton Yellowknife Hospital. This has been taken into account in estimating the facility and service requirements at the Stanton Yellowknife Hospital and accordingly it will represent a transfer of operating funds rather than an absolute increase in funds. Modern health facilities already exist in Cambridge Bay which, with additional staff, could readily be used to provide hospital services. The health centre activities should be set up as a distinct function sharing expanded facilities with the hospital.

Hospital Bed Requirements in Yellowknife

Projected bed needs have been based on a review of present patterns of hospital use by the various ethnic groups, projected changes in these patterns due to differential population growth and the projection of changes in the pattern of use of

hospitals through the firming up of the bench strength of the specialists in Yellowknife and also in part through the establishment of a hospital facility in Cambridge Bay. Comparisons have been made to the extent possible with the use of regional hospital centres (consciously built up over the past few decades) in Saskatchewan by the populations in these centres and the surrounding areas. Experience shows that these regional centres have not been used to the extent anticipated. Because of the mobility of the white population of the Northwest Territories, the present pattern of utilization of hospital services outside of the Northwest Territories by this group can only be expected to show a moderate reduction. The indigenous population, on the other hand, will generally prefer to receive care within their own community or, if the appropriate care is not available there, as close to their own community as possible. For this reason it is anticipated that a proportionately larger reduction will occur in the volume of care indigenous patients receive in the south.

The basis for determining bed need has been set out in detail in the text of the report (pages 54 to 75). Careful examination will see that the demographic data used if anything was on the optimistic side. For instance the demographic projections that were used confined in-migration of the white population to Yellowknife (close to 4,000). In the light of the decentralization program of the Government of the Northwest Territories it might be appropriate to assume that a reasonable proportion of these in-migrants would go to other communities. Again, the birth rates projected are higher than those used by Statistics Canada. I am optimistic, however, that given good will all round and provided the services that can be built up at the Stanton Yellowknife Hospital are superior that patterns of flow of patients will change to the extent predicted. Accordingly, it is recommended that:

- the schedule of bed requirements set out below be adopted to form the base for proper planning of hospital facilities in Yellowknife.

Schedule of Bed Requirements Stanton Yellowknife Hospital by Broad Service Categories - Mid 1980s

	Number of Beds
Adult - Medical, Surgical, Psychiatry, Tuberculosis	58
Obstetrics	12
Paediatrics including Tuberculosis (0-16 years)	28
Continuing Treatment Beds	8
Total	106

It may be asked why an increase of only 19 beds (excluding the increase for tuberculosis and continuing treatment beds) if the population of Yellowknife is expected to increase to 14,000 by the mid-eighties. The following remarks will assist in appreciating this:

- the volume of hospital care in Yellowknife at present (first half of 1978) shows an occupancy rate of approximately 70 percent. At this volume a hospital of only 63 beds is required. In other words there is still a reserve capacity of 14 percent in the Yellowknife Hospital (counting the reserve beds the increase is from 63 to 91 or 44 percent).

- by far the largest increase in population will occur in Yellowknife through in-migration of whites. The white population will rise from approximately 6,700 to approximately 12,100.

- The whites are comparatively low users of hospital beds compared to the indigenous groups (see Table10, page 59). Accordingly the additional number of beds needed will be proportionately less than the actual growth of the population.

- The opening of the hospital at Cambridge Bay will substantially decrease patient flow from that area to

Yellowknife. (As the population grows in Fort Simpson it may also become less dependent on outside hospitals for hospital care through strengthening of the local staff.)

- The amount of hospital care that is projected to be diverted from Edmonton, while significant, will only constitute a small percentage of total care (10 percent).

The Expansion of Hospital Facilities in Yellowknife[1]

The existing facilities and site were carefully reviewed together with the functional programming and site development work that had been carried out to date. In addition other solutions were tested to see the practicability of continuing on the present site that would not jeopardize the development of hospital facilities in the longer term. As a result of this review the serious constraints of the present site aggravated by the configuration of the present buildings on the site and bearing in mind the need to provide for further expansion of the Stanton Yellowknife Hospital in the long term, it is recommended that:

- a new site be acquired for the development of new hospital facilities

and

- a master plan be prepared to ensure adequate facilities for the mid-eighties and which will have the potential for future expansion.

It is desirable to start work on the master plan soon. This will include revisions to and the detailed development of functional programs and layouts. While the functional programming that has been carried out to date has to be commended some fundamental questions are raised which we recommend should be explored further (see page 82).

On nursing home facilities it is recommended that plans

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1 It should be noted that on page 79 mention was made of the serious state of the building's mechanical systems and that these need to be put into safe working condition irrespective of future plans.

be developed for the construction of a free-standing facility to accommodate some five to ten frail and/or disabled elderly who are unable to continue to live in the community even with the support of well developed community services. This facility should be designed so that it can be expanded.

It is also recommended that:

- the Northwest Territories Government draw up a set of principles for the development of services for the elderly and place major emphasis on the development of community services for the well elderly, as well as the frail, disabled and chronically ill elderly. These principles should include measures for surveillance of the elderly at risk.

The establishment of hostel accommodation, the principle behind which is presently being practiced through the use of foster homes is important. Criteria should be developed further and tested to ensure the most effective and appropriate use of this type of accommodation. Provision should also be made to house more than one family member. It would seem appropriate in the first instance to start a hostel service on a small scale enlarging it as evaluation of its use suggests. It is accordingly recommended that:

- plans be drawn up for the implementation of a hostel service. Such facilities should not form an integral part of the hospital but ideally should be close by and because of the adverse climate in Yellowknife, linked to the hospital by covered concourse.

It is also recommended that:

- a voluntary association be given the responsibility of running the hostel.

The Stanton Yellowknife Hospital Authority

With the development of the Stanton Yellowknife Hospital as a regional centre the regional functions of the hospital should

be reflected in the composition and mandate of the governing board. It is accordingly recommended that:

- the Council of the Territories pass an ordinance establishing the Stanton Yellowknife Hospital as a regional facility setting out its purpose and establishing a governing board. The ordinance would also outline the composition of the board and manner of appointment and tenure of its members to ensure proportional representation on a cultural and geographic basis.

In order to foster as much coordination as possible between the University of Alberta and the Northwest Territories not only to encourage interest on the part of the Faculty of Medicine but of related faculties it is suggested that this has to be done through formal channels as well as on a less formal colleague basis. Accordingly it is recommended that:

- special provision be made in the ordinance of the Council of the Territories, establishing the Stanton Yellowknife Hospital as a regional facility, for one of the Board members to be a member of the faculty of the University of Alberta, to be appointed to the Board by the Commissioner in Council from names submitted from the University of Alberta.

Administration of Health Services in the Northwest Territories

This subject cannot be dealt with in summary fashion nor can it be dealt with in isolation from other relevant factors concerning the future political responsibilities of the Northwest Territories. A resolution satisfactory to one party may not be satisfactory to the others. It appears that answers have to be found to many questions in the first place before substantial and appropriate understandings can be reached.

It is abundantly evident that immediate steps have to be taken to overcome the "absentee landlord" syndrome caused through the headquarters of the Northwest Territories Region, Medical Services Branch, Department of National Health and Welfare remaining in Edmonton. It is accordingly recommended that:

- the Headquarters of the Northwest Territories Region, Medical Services Branch of the Department of National Health and Welfare be moved from Edmonton to Yellowknife. This move should be effected as promptly as possible.

Because of the importance of the involvement of the local communities themselves in the development of effective health programs in the settlements, it seems appropriate that the indigenous peoples be involved in discussions concerning how local health programs should evolve. Accordingly it is recommended that:

- discussions be commenced between the Government of Canada, the Government of the Northwest Territories and the indigenous groups on desirable changes in the evolution of health services at the local level and that this include for consideration the devolution of local health services on a local or regional basis.

It should be emphasized that the indigenous peoples should be in at the start of these discussions to allow their views and ideas to be understood.

While on the one hand it is clear that health services at the local level have to be tailored to the needs of the local populations, on the other hand, certain resources have to be developed for the use of the population as a whole. Hospital services fall into this category and it is accordingly recommended that:

- immediate steps be implemented to unify the hospital system in the Fort Smith and Inuvik regions and that the system be administered by the Government of the Northwest Territories.

Again, consultation with local groups is important and the hospitals that are transferred should have boards fully representative of the communities they serve.

Financial Implications

The recommendations put forward in this report see the need for the building of a new hospital in Yellowknife on a new site. The size of the project (considering all aspects and including Cambridge Bay) is smaller and accordingly will require proportionately less capital funds (approximately 20 percent less in relationship to the proposal put forward by the Government of the Northwest Territories). The operating costs will increase at a slower rate than the increase in population, largely because of the differentially higher rate of increase in the white population who consume less hospital care. It is difficult to predict with certainty how patterns of hospital care will change. These should be encouraged though cannot be mandated. The need to develop further the monitoring systems for the effective management of hospital services is important to ensure that costs are kept at reasonable levels. The need for a better developed population base is a basic requirement for this. Accordingly it is recommended that:

- the data gathered as a by-product of the Territorial Hospital Insurance Services administrative processes by analysed in greater detail on a continuing basis and that this be shared with the hospitals and their medical staffs to allow a better understanding of patterns of hospital care and changes in these to assist in the management of the hospital program.

It is also recommended that:

- because of the importance of a reliable detailed demographic base, efforts be made to improve this base and that methods be developed to keep the demographic data current.

ACKNOWLEDGEMENTS

I wish to express my thanks to all persons who assisted Mr. Booth and myself in this work. This includes the Board, the hospital staff and the medical staff of the Stanton Yellowknife Hospital, the staff members of the nursing stations, health centres and the other hospitals I visited in the Northwest Territories and the physicians in these communities, as well as the staffs at the Zone Offices, Department of National Health and Welfare in Inuvik and Yellowknife. I also wish to thank the other members of these communities with whom I met.

Special mention has to be made for the help I received from the Reverend Jim Ormiston, Chairman of the Board, Mr. Nelson McClelland and Ms. Rusty Stewart, Stanton Yellowknife Hospital, Mr. Paul Jarvis, Ms. Janet Lindquist, Mr. Bob McDermit and Mr. Michael Pontus of the Government of the Northwest Territories, Mr. E. Cotterill, Dr. F. J. Covill, Mr. Don Harkness, Mr. Cyril Nair and Mr. Bob Tompkins of the Federal Government, the Honourable Mr. C. M. Drury and Professor Louis-Edmond Hamelin.

In particular I wish to thank the families I visited in the various communities who so graciously welcomed me into their homes.

The Saskatchewan Department of Health, the Manitoba Health Services Commission and the Ontario Ministry of Health were most helpful in providing me with information on this study. I also appreciated the help received from Drs. Harley, McCoy, Pearce, Schiff and Wyatt of the Faculty of Medicine, University of Alberta.

APPENDIX

Three Solutions for the Testing of the Feasibility of Further Developing The Hospital Facility on the Present Site

ALTERNATIVE ONE

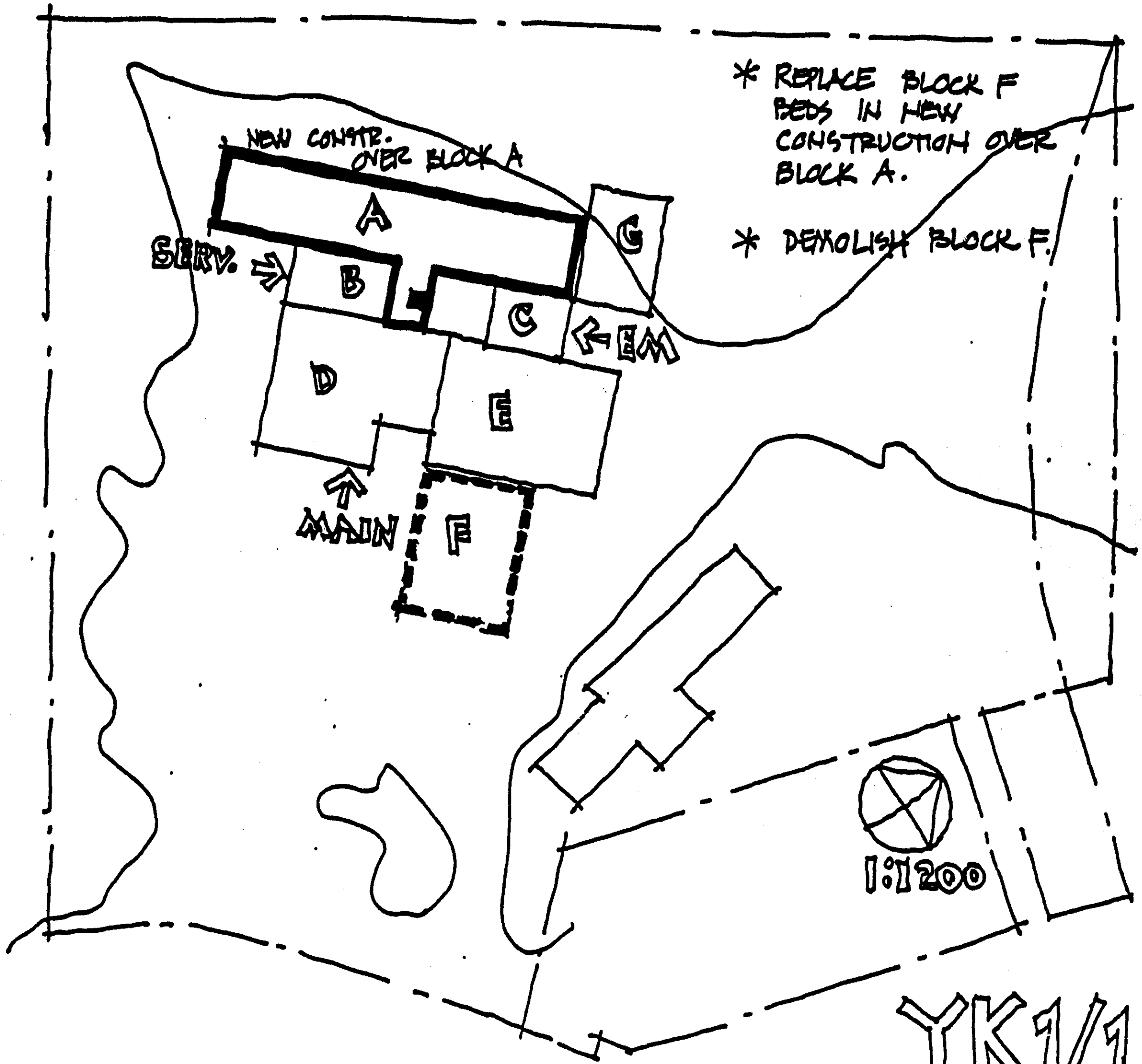
Stage 1 Construct new floor at Level 2, Block A (with interstitial service space below).
Decant beds from Block F to new Level 2, Block A.
Demolish Block F.

Stage 2 Construct new block of two floors.
Decant to new block from Blocks B and D:
Level 1 - Main entrance, admitting, medical records, administration, SPD, CSR, laundry, receiving dock.
Level 2 - Dietary and cafeteria.
Decant Physiotherapy/Occupational Therapy to Block B.
Demolish Block D.

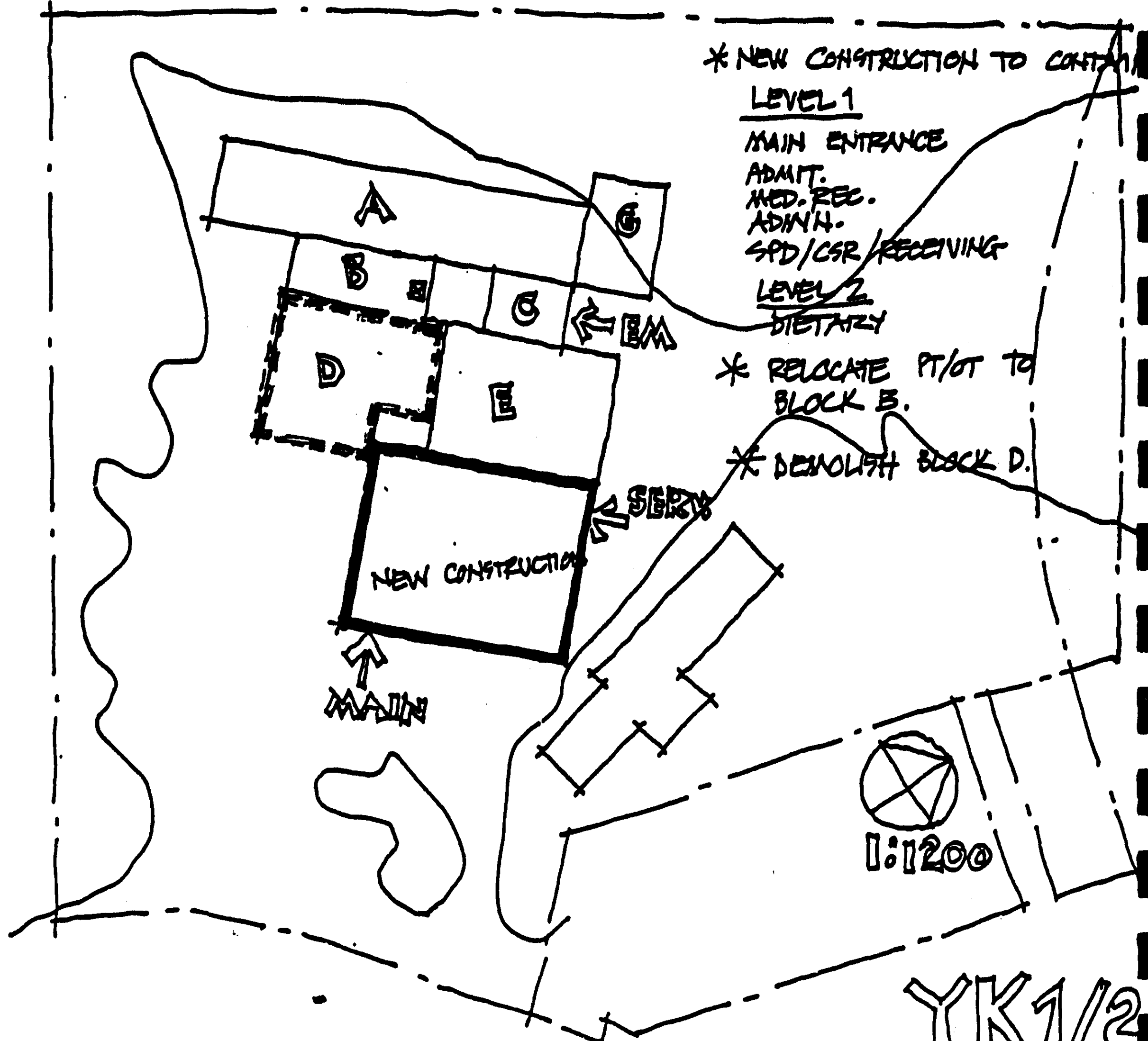
Stage 3 Construct new block of three floors.
Decant to new block from Blocks C and E:
Level 1 - Emergency, radiology, laboratory.
Level 2 - O.R. suite, OBS beds.
Level 3 - Nursing unit (new beds).
Demolish Block E.

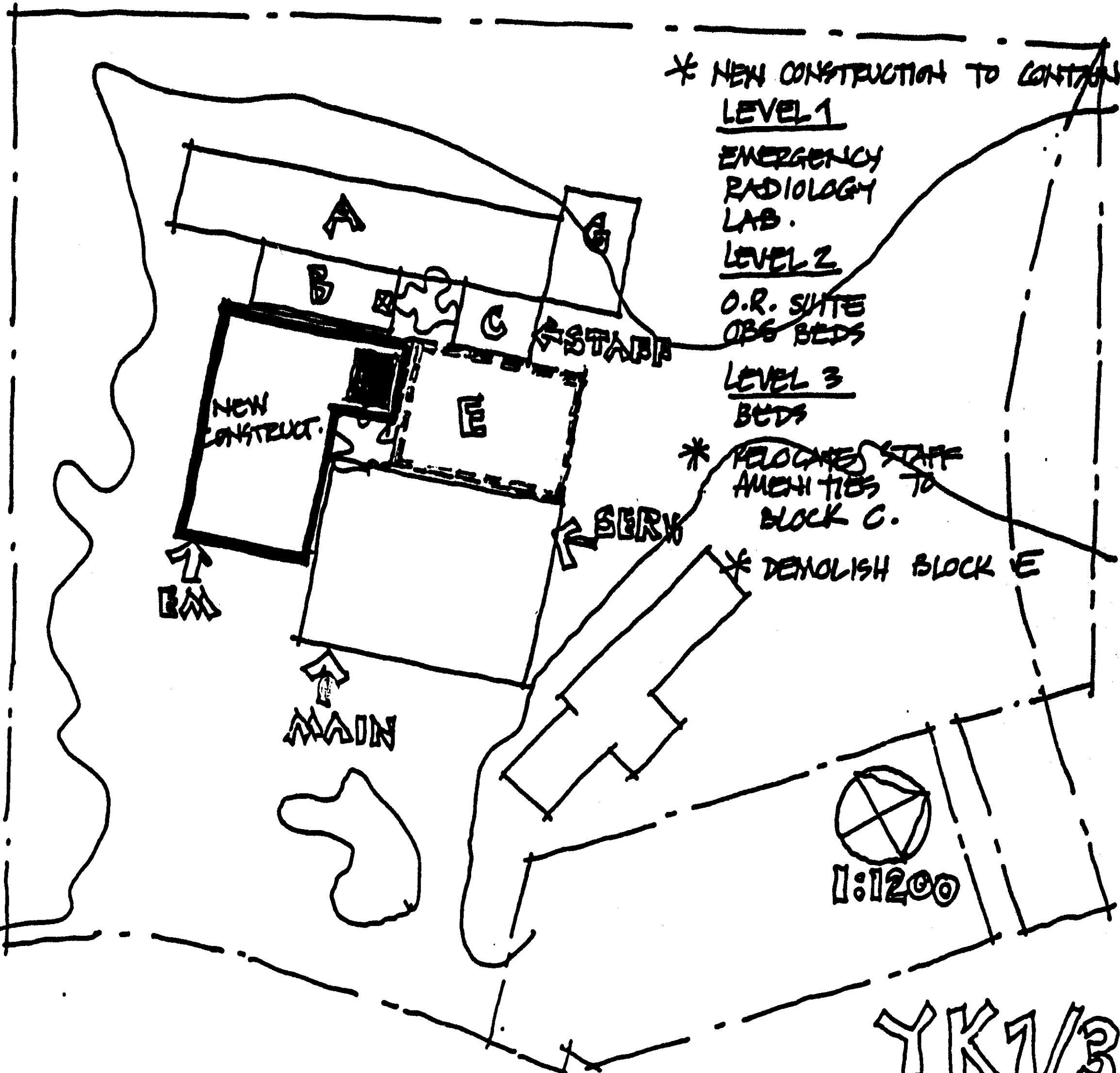
Stage 4 Construct new block of two floors with provision for an additional floor.
Move into new block:
Level 1 - Out-patient clinics
Level 2 - Learning resources
Level 3 - Future beds (expansion)

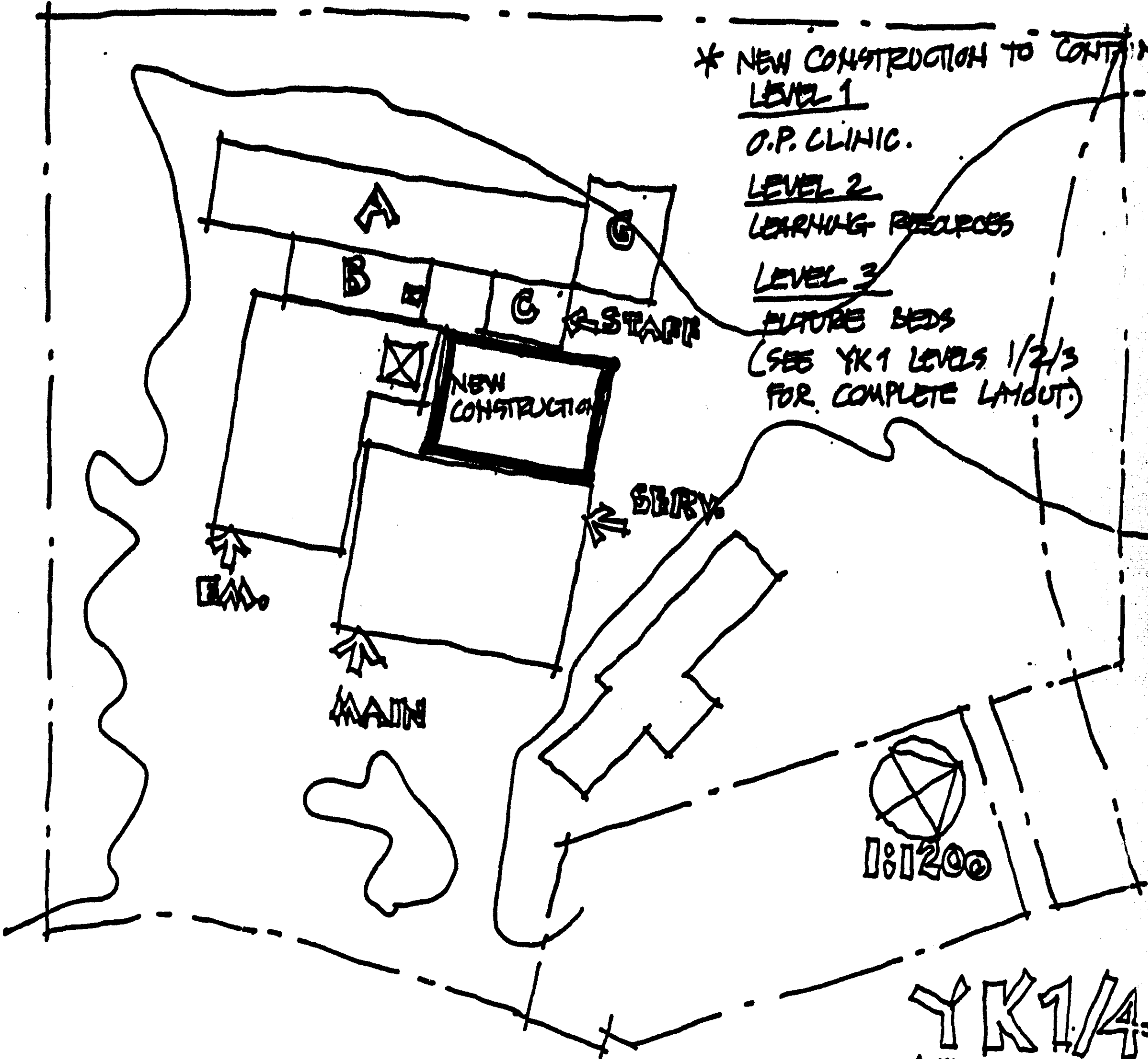
ESTIMATED TIME REQUIRED: 7 to 8 years.

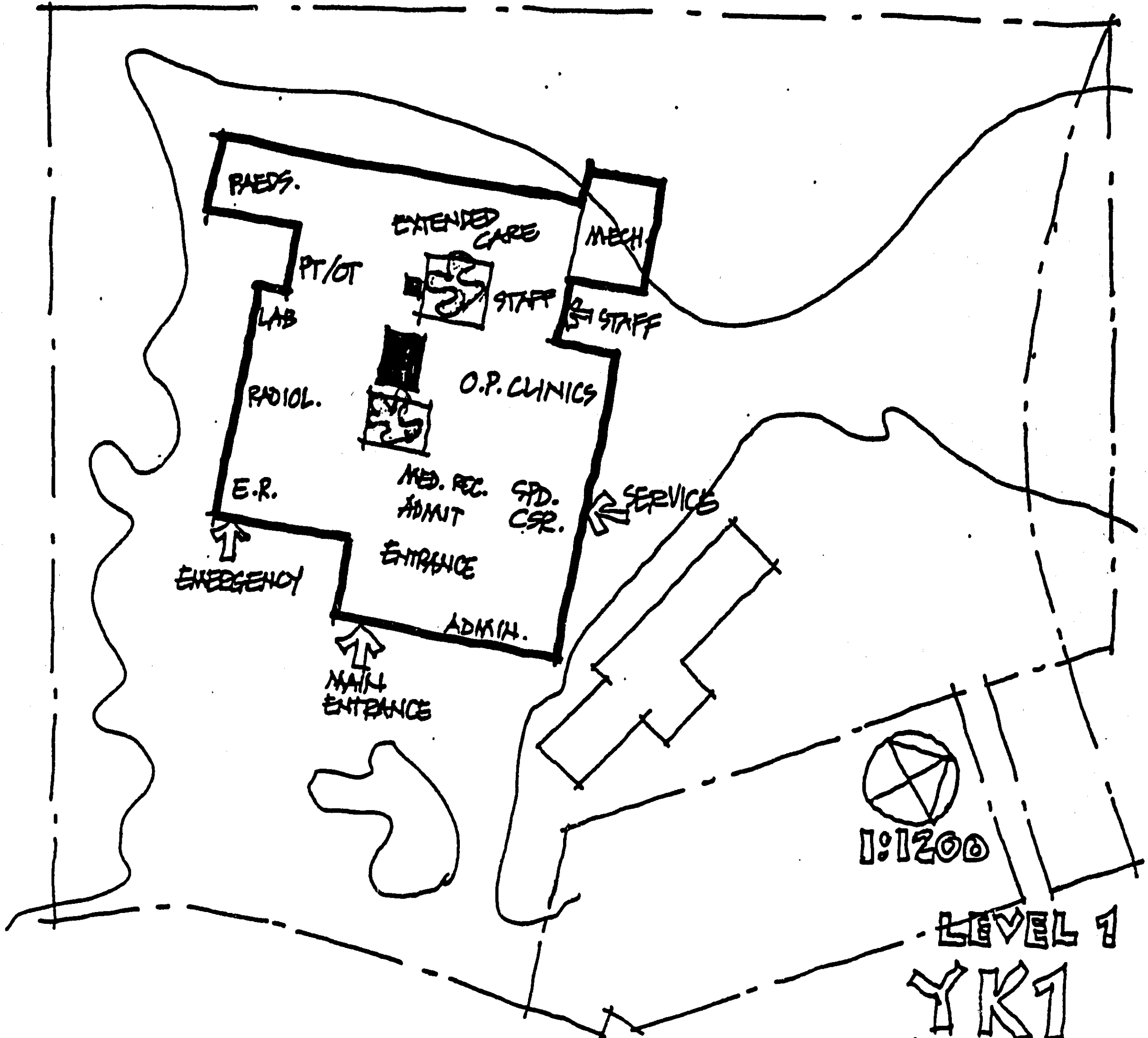


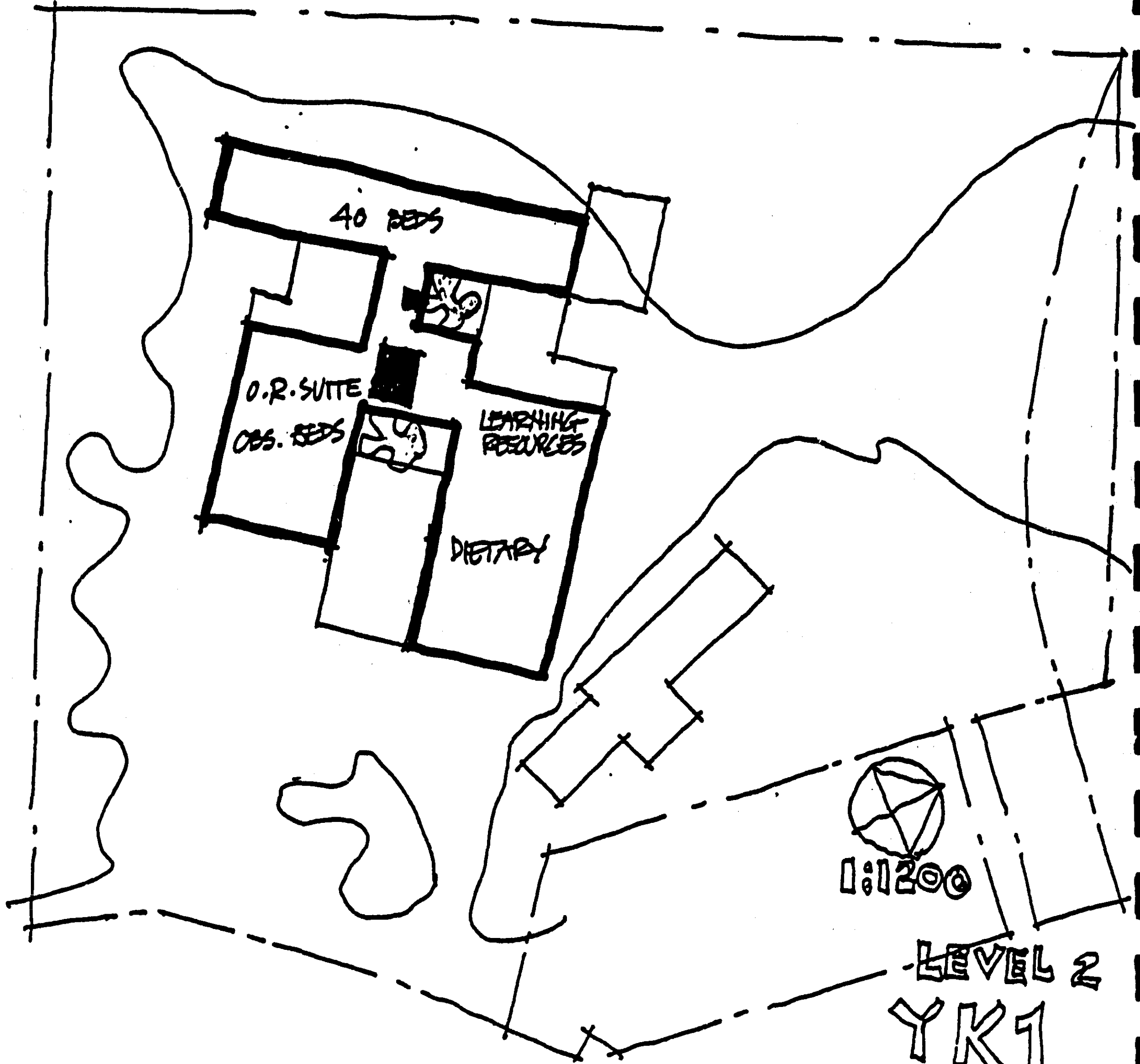
YK1/1
ALTERNATIVE

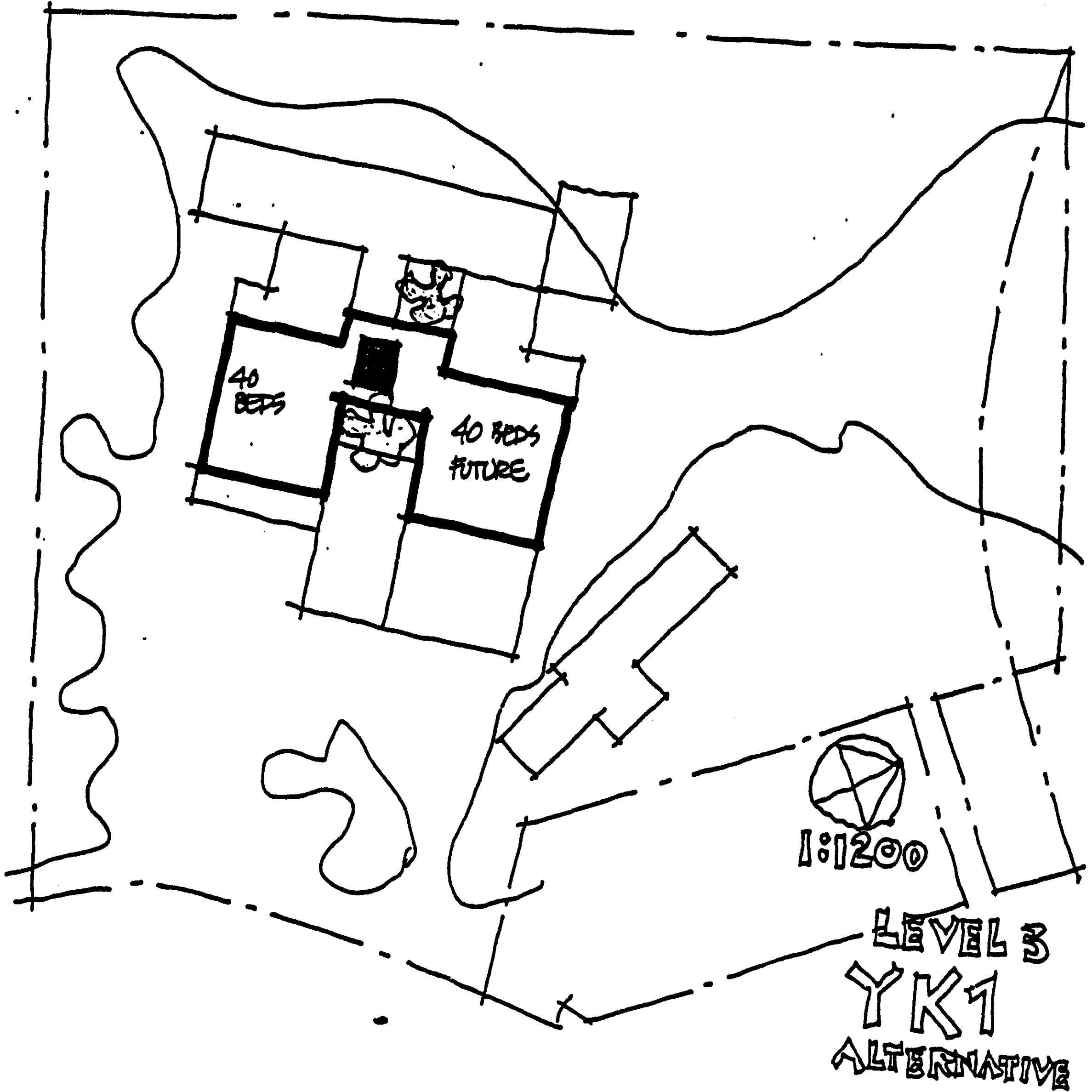

* NEW CONSTRUCTION TO CONTAIN
LEVEL 1
MAIN ENTRANCE
ADMIT.
MED. REC.
ADMIN.
SPD/CSR/RECEIVING
LEVEL 2
DIETARY
* RELOCATE PT/OT TO BLOCK B.
* DEMOLISH BLOCK D.
A
B
C
D
E
G
EM
SERV.
NEW CONSTRUCTION
MAIN
1:1200
YK1/2
ALTERNATIVE


* NEW CONSTRUCTION TO CONTAIN-
LEVEL 1
EMERGENCY
RADIOLOGY
LAB.
LEVEL 2
O.R. SUITE
OBS BEDS
LEVEL 3
BEDS
* RELOCATES STAFF
AMENITIES TO
BLOCK C.
* DEMOLISH BLOCK E
A
B
C
G
E
NEW
CONSTRUCT.
STAFF
SERV
EM
MAIN
1:1200
YK1/3
ALTERNATIVE


* NEW CONSTRUCTION TO CONTAIN:
LEVEL 1
O.P. CLINIC.
LEVEL 2
LEARNING RESOURCES
LEVEL 3
FUTURE BEDS
(SEE YK1 LEVELS 1/2/3
FOR COMPLETE LAYOUT)
A
B
C
G
STAFF
NEW
CONSTRUCTION
SERV.
EM.
MAIN
1:1200
YK1/4
ALTERNATIVE


PAEDS.
EXTENDED CARE
MECH.
PT/OT
STAFF
STAFF
LAB
RADIOL.
O.P. CLINICS
E.R.
MED. REC.
ADMIT
SPD.
CSR.
SERVICE
ENTRANCE
EMERGENCY
ADMIN.
MAIN ENTRANCE
1:1200
LEVEL 1
YK1
ALTERNATIVE


40 BEDS
O.R. SUITE
OBS. BEDS
LEARNING RESOURCES
DIETARY
1:1200
LEVEL 2
YK1
ALTERNATIVE


40
BEDS
40 BEDS
FUTURE
1:1200
LEVEL 3
YK1
ALTERNATIVE

ALTERNATIVE TWO

Stage 1 Construct new floor at Level 2, Block A.
(with interstitial service space below).
Decant beds from Block F to new Level 2, Block A.
Utilize Block F temporarily for main entrance, admitting, medical records and administration.

Stage 2 Construct new block of one floor.
Decant to new block from Blocks D and G:
- Level 1 - Dietary and cafeteria, SPD, receiving dock, laundry
- Level 2 - (roof) - staff car parking with ramp access

Demolish Blocks D and G.

Stage 3 Construct new block of four floors.
Decant into new block from Block A and E:
- Level 1 - Radiology, physical therapy, occupational therapy, medical records
- Level 2 - O.R. suite, OBS beds
- Levels 3 & 4 - Nursing units

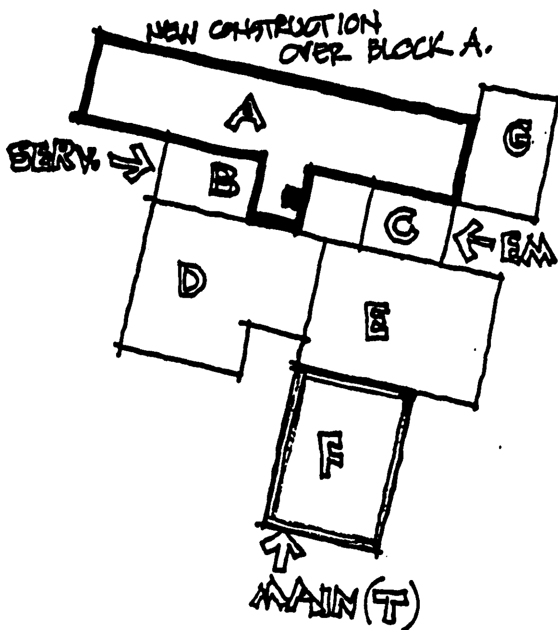
Upgrade Level 1, Block A to accommodate laboratory and emergency
Demolish Block E.

Stage 4 Construct new block of four floors.
Decant into new block:
- Level 1 - Main entrance, admitting
- Level 2 - Administration, staff amenities
- Levels 3 & 4 - Nursing units

Demolish Block F.

Stage 5 Construct new block to accommodate out-patient clinics.

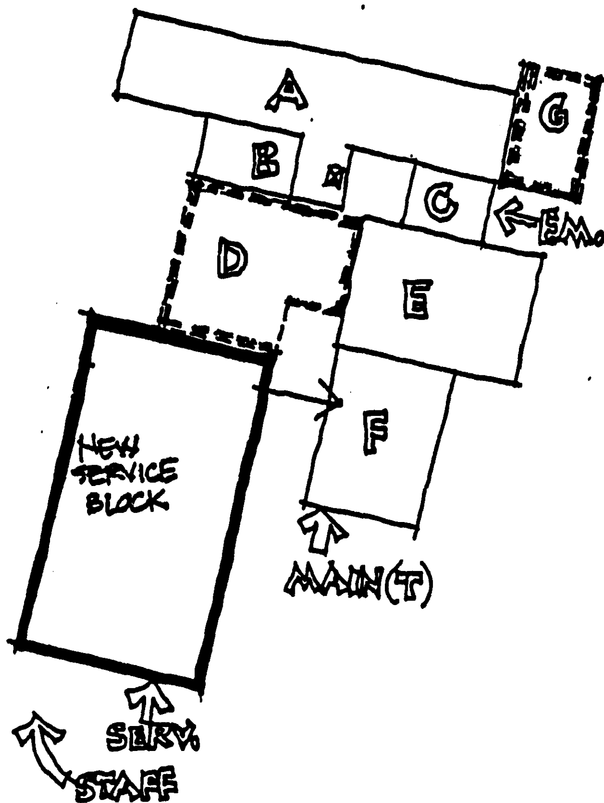
ESTIMATED TIME REQUIRED: 7 to 8 years



REPLACE BLOCK F
BEDS IN NEW
CONSTRUCTION OVER
BLOCK A

UTILIZE BLOCK F
TEMPORARILY
FOR MAIN ENTRANCE/
ADMITTING/ MED. REC/
ADMINISTRATION

YK 2/1



BUILD NEW SERVICE BLOCK TO INCLUDE:

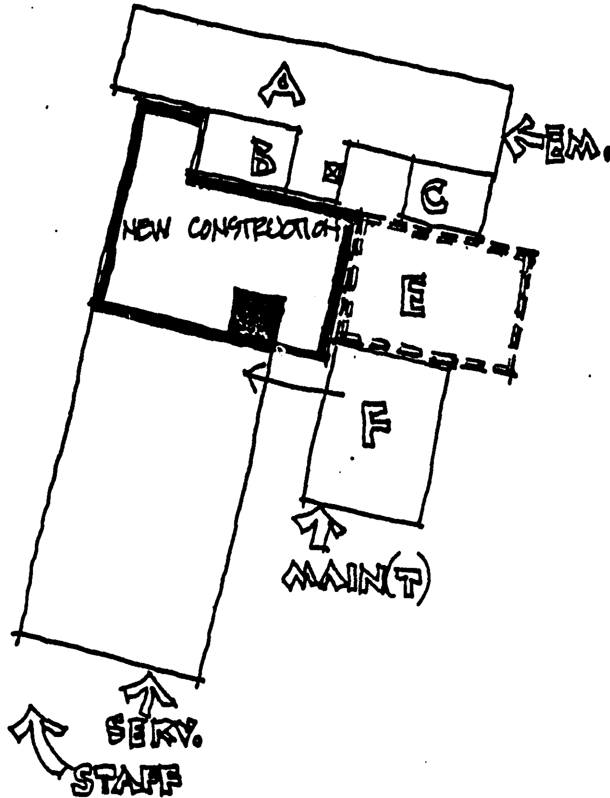
DIETARY
SPD
STORES
SERVICE ENTRY
LAUNDRY
MECHANICAL

STAFF PARKING ON ROOF.

DEMOLISH BLOCK D

DEMOLISH BLOCK G

YK 2/2



* NEW CONSTRUCTION TO INCLUDE:

LEVEL 1.
RADIOLOGY
PT/OT
MED. REC.

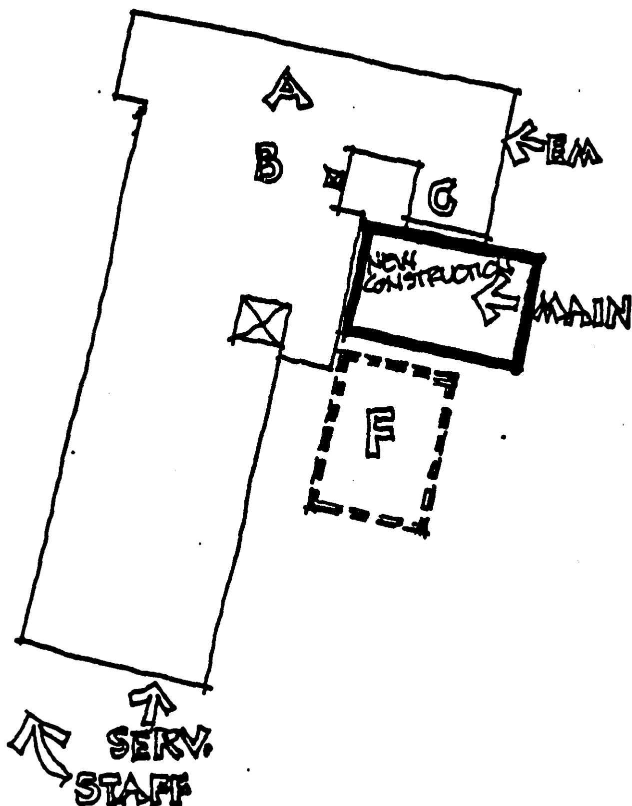
LEVEL 2
O.R. SUITE/OBS BEDS

LEVELS 3/4
BEDS

* DECANT BLOCK A/LEVEL 1 BEDS AND RENOVATE TO INCLUDE:
EMERGENCY/LAB.

* DEMOLISH BLOCK E

YK2/3



* NEW CONSTRUCTION TO INCLUDE:

LEVEL 1

MAIN ENTRANCE
ADMITTING

LEVEL 2

ADMINISTRATION
STAFF AMENITIES

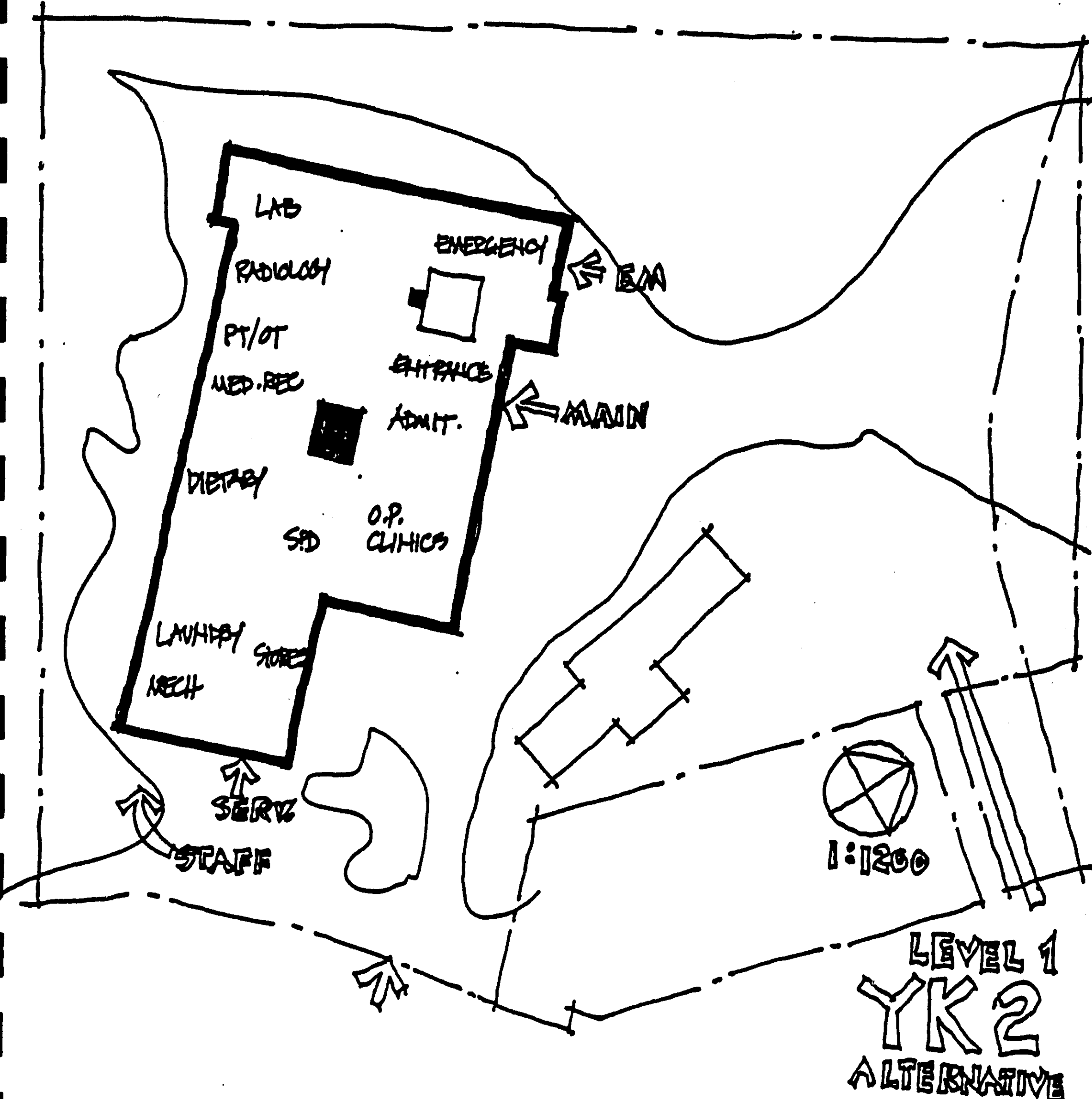
LEVEL 3/4

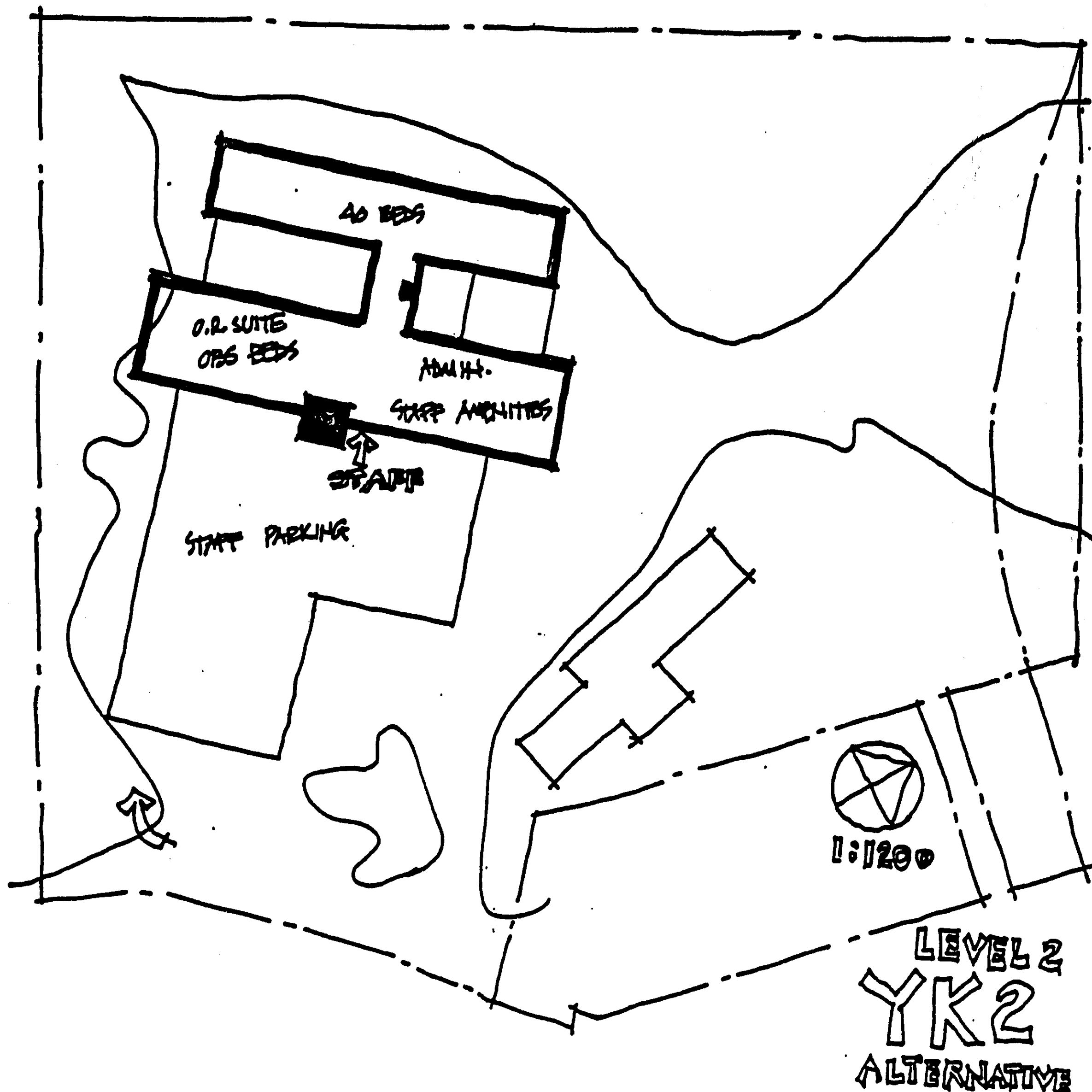
BEDS

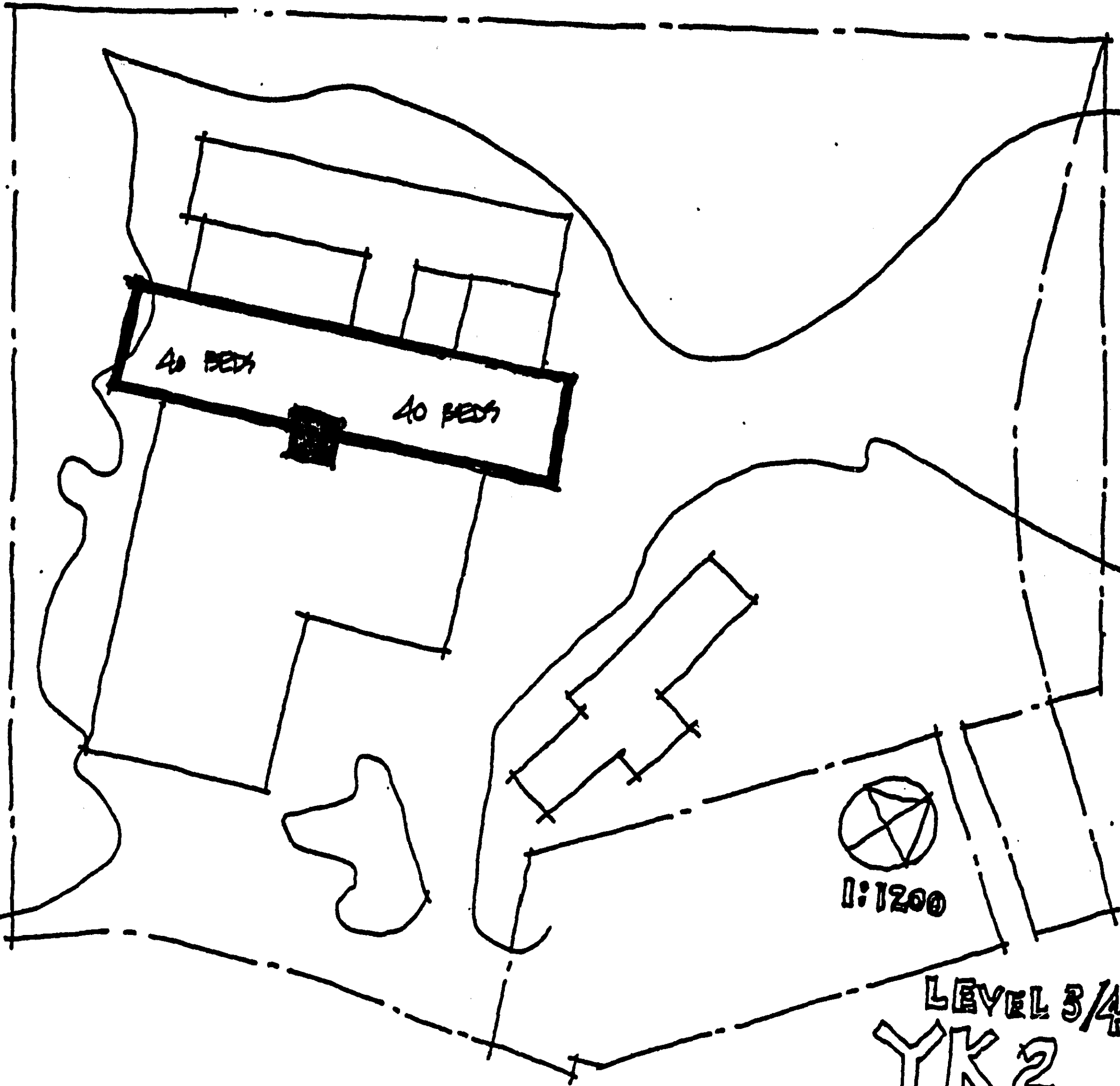
* DEMOLISH BLOCK F.

* BUILD O.P. CLINIC BLOCK
(SEE YK 2/LEVEL 1 FOR LOCATION)

YK 2/4


LAB
EMERGENCY
RADIOLOGY
EM
PT/OT
ENTRANCE
MED. REC
ADMIT.
MAIN
DIETARY
O.P.
CLINICS
SPD
LAUNDRY
STORES
MECH
SERV
STAFF
1:1200
LEVEL 1
YK2
ALTERNATIVE


40 BEDS
O.R. SUITE
OBS BEDS
ADMIN.
STAFF AMENITIES
STAFF
STAFF PARKING
1:1200
LEVEL 2
YK2
ALTERNATIVE


40 BEDS
40 BEDS
1:1200
LEVEL 3/4
YK2
ALTERNATIVE

ALTERNATIVE THREE

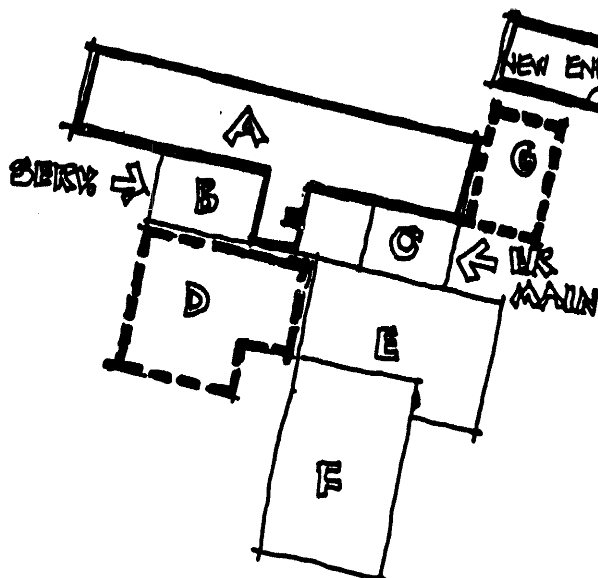
Stage 1 Construct new floor at Level 2, Block A.
Decant Dietary and Administration from Block D into new Level 2, Block A.
Demolish Block D.
Construct new energy centre.
Demolish existing boilerhouse.

Stage 2 Construct new block of four floors.
Decant to new block:
Level 1 - Main entrance, admitting, out-patient clinics
Level 2 - O.R. suite, OBS beds
Levels 3 & 4 - Nursing units.
Upgrade Level 1, Block A to accommodate receiving dock, SPD, CSR, laundry.
Demolish Block F

Stage 3 Construct two new blocks of four floors.
Decant to new blocks:
Level 1 - Radiology, laboratory, physiotherapy, occupational therapy
Level 2 - Nursing unit, learning resources
Levels 3 & 4 - Nursing units.
Demolish Block E

Stage 4 Construct new block to accommodate emergency

ESTIMATED TIME REQUIRED: 7 to 8 years



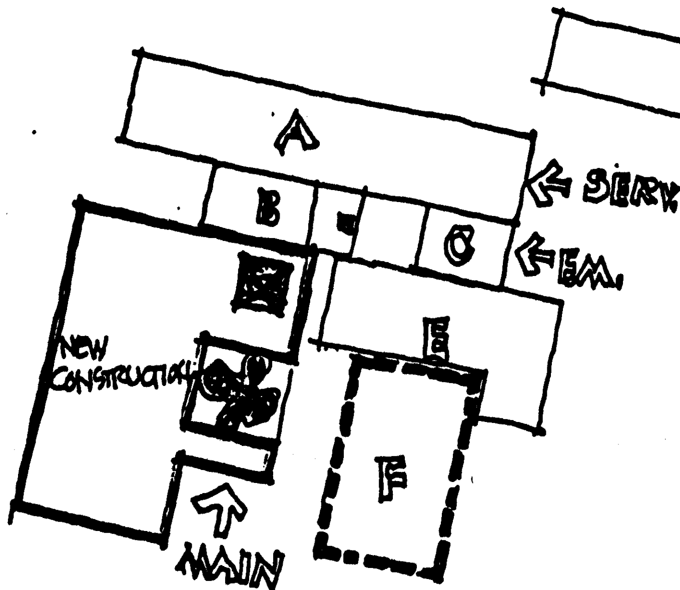
* BUILD NEW ENERGY CENTRE

* DEMOLISH EXISTING BOILER HOUSE BL.G

* REPLACE EXISTING DIETARY AND ADMINISTRATION IN NEW CONSTRUCTION OVER BLOCK A

* DEMOLISH BLOCK D.

YK 3/4



* NEW CONSTRUCTION TO INCLUDE:

LEVEL 1

MAIN ENTRANCE
ADMITTING

O.P. CLINICS
(TEMPORARILY USED AS DECANT SPACE. EG. PT/OT)

LEVEL 2

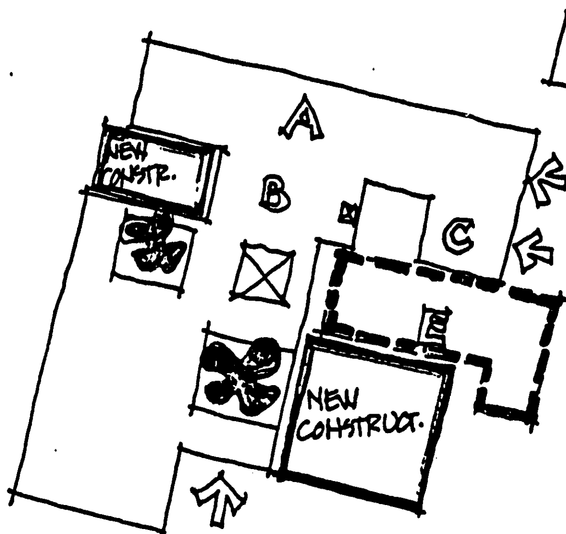
O.R. SUITE
OBS BEDS

LEVEL 3/4

BEDS

* DECANT BLOCK A/F BEDS
* RENOVATE BLOCK A FOR RECEIVING/STOR CSD/LAUNDRY
* DEMOLISH BLOCK F

YK 3/



*NEW CONSTRUCTION TO INCLUDE:

LEVEL 1

RADIOLOGY/LAB/PT/OT

LEVEL 2

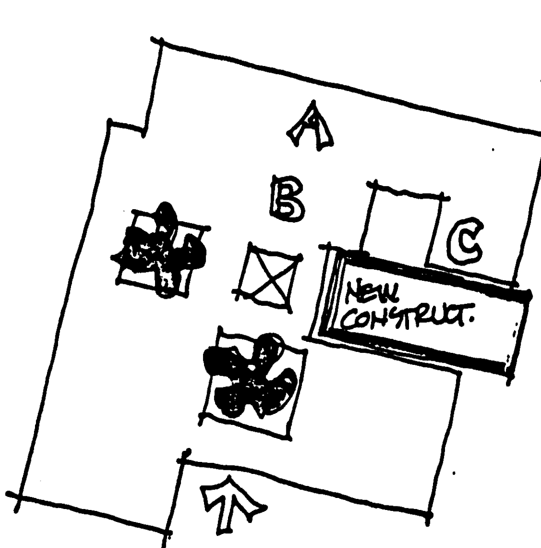
BEDS/ LEARNING RESOURCES

LEVEL 3/4

BEDS

* DEMOLISH BLOCK E

YK 3/E



*NEW CONSTRUCTION TO INCLUDE:

LEVEL 1

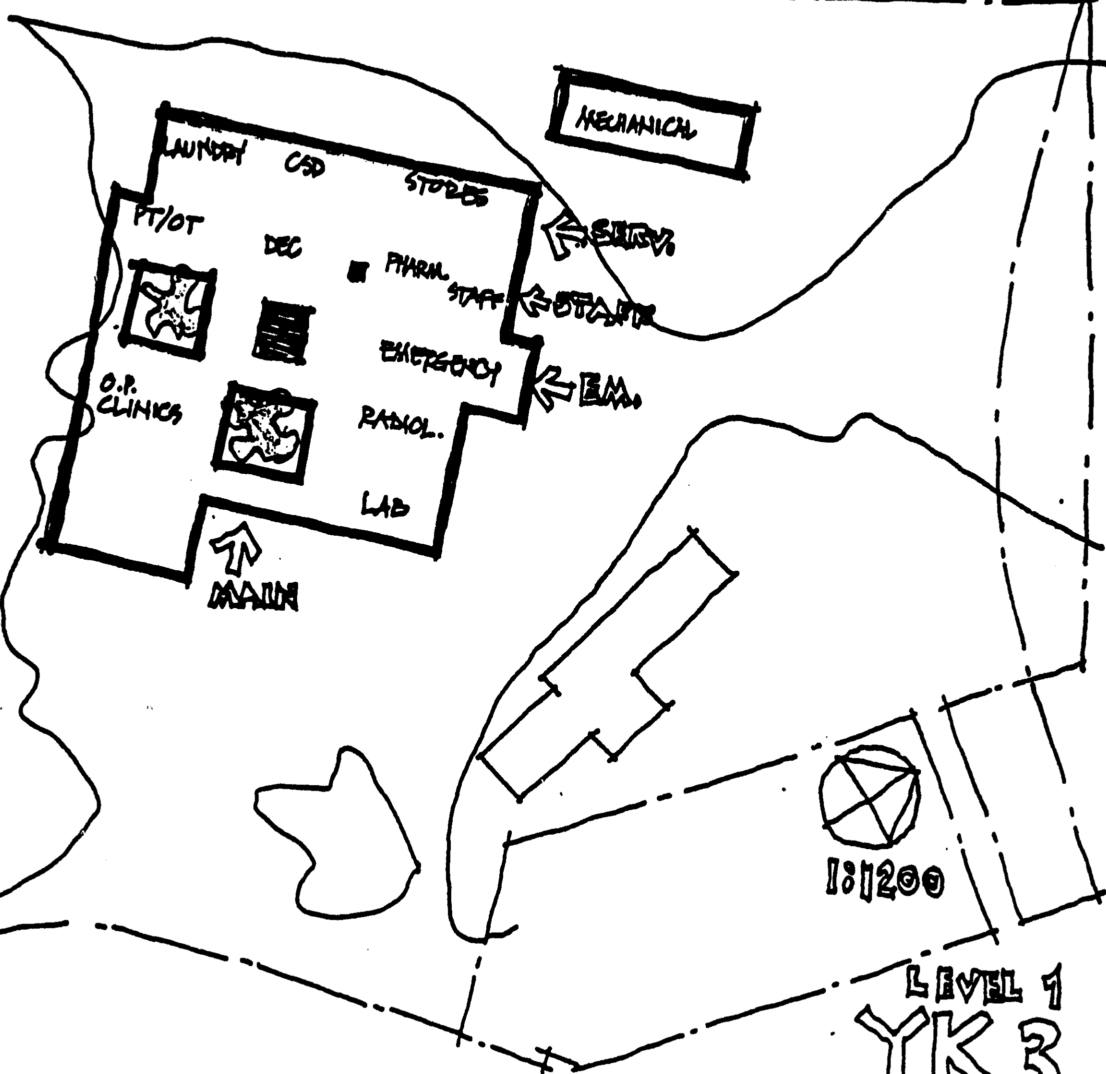
EMERGENCY

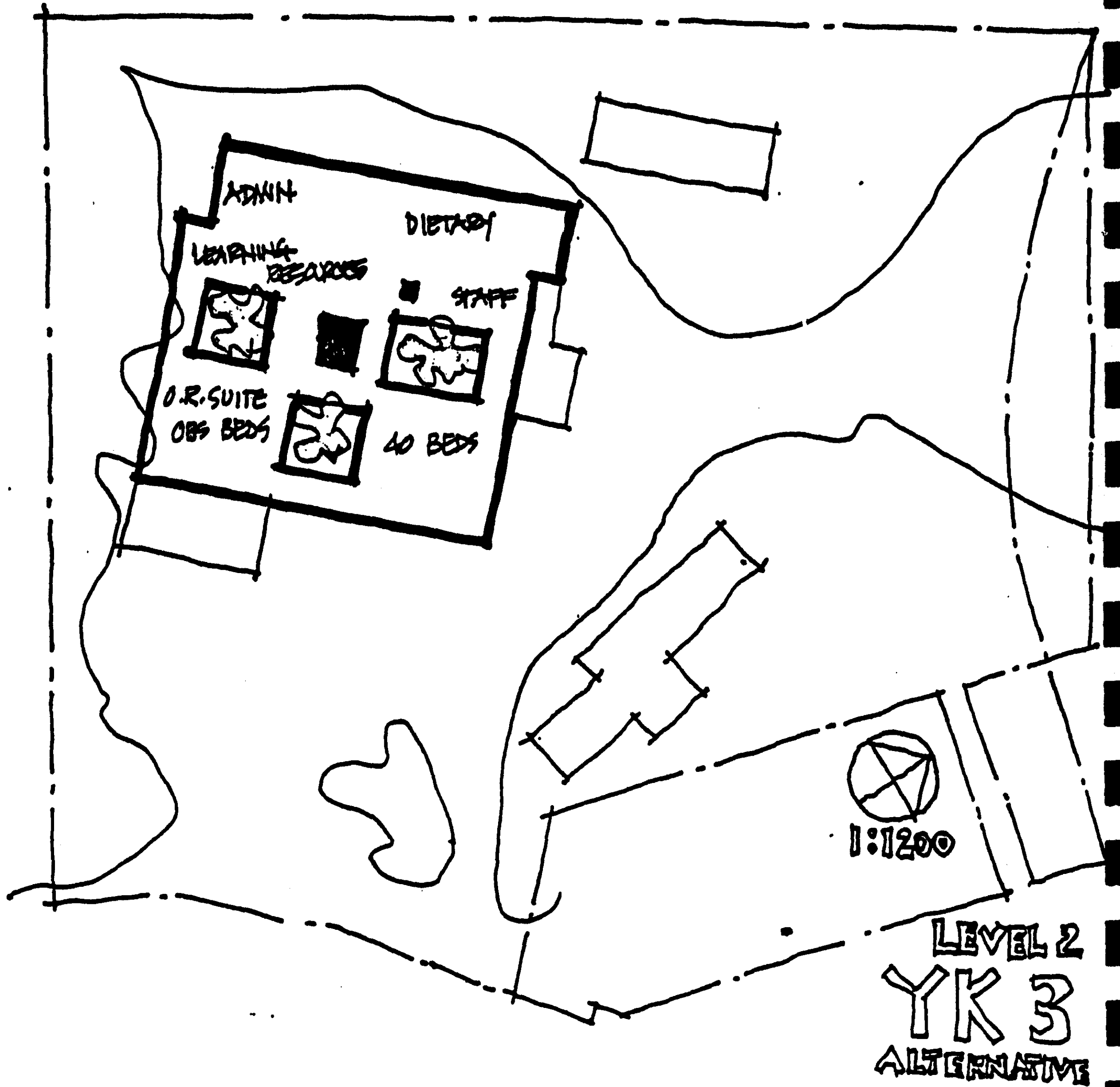
LEVEL 2

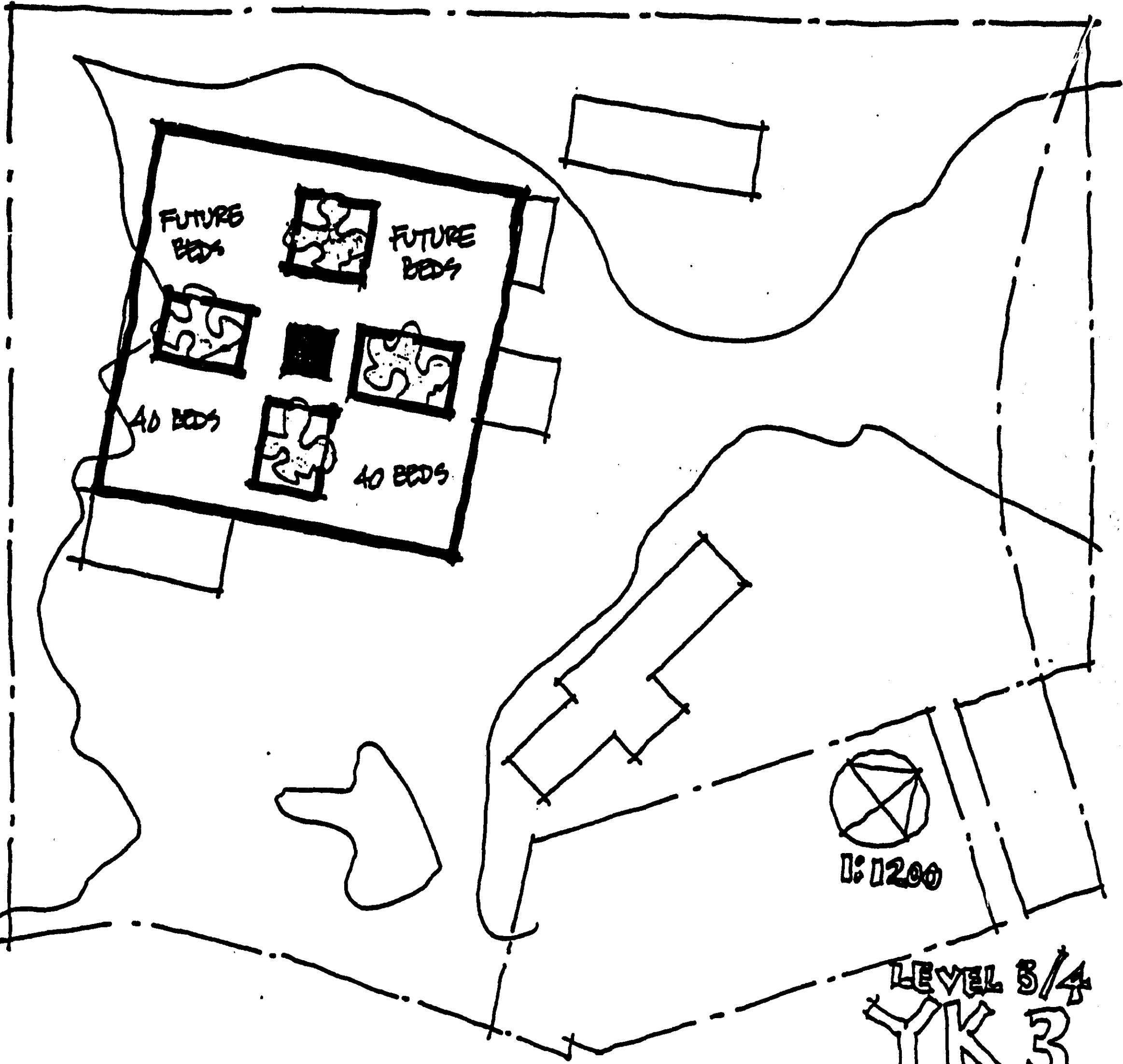
STAFF AMENITIES

(SEE YK 3 LEVELS 1/2 FOR COMPLETE LAYOUT)

YK 3/


MECHANICAL
LAUNDRY
CSD
STORES
PT/OT
DEC
PHARM.
STAFF
SERV.
STAFF
EMERGENCY
EM.
O.P.
CLINICS
RADIOL.
LAB
MAIN
1:1200
LEVEL 1
YK3
ALTERNATIVE


ADMIN
DIETARY
LEARNING RESOURCES
STAFF
O.R. SUITE
OBS BEDS
40 BEDS
1:1200
LEVEL 2
YK 3
ALTERNATIVE


FUTURE BEDS
FUTURE BEDS
40 BEDS
40 BEDS
1:1200
LEVEL 3/4
YK 3
ALTERNATIVE