

YUKON 2000

HOUSING INFRASTRUCTURE

Draft Discussion Paper

Prepared for the

Yukon Economic Development Strategy

Fall Conference

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Table of Contents

Introduction.....	p. 1
Housing Need and Market.....	p.2
Diagram 1 - Core Need Households.....	p.3
Diagram 2 - Housing Types.....	p.5
Diagram 3 - Housing Values.....	p.7
Diagram 4 - Community Rents.....	p.8
Diagram 5 - Community Vacancy Rates.....	p.9
Projecting the 15 Year Need.....	p.10
Table 1 - Forecasted Housing.....	p.11
Diagram 6 - Population and Housing.....	p.12
Major Concerns and Issues for the Next 15 Years.....	p.13
Solutions to Housing Needs.....	p.14
Diagram 7 - Residential Densities.....	p.17
Alternate Financing Techniques.....	p.19
Associated Business Development.....	p.21
Table 2 - Values of Goods-Producing Industries.....	p.22
Table 3 - Community Unemployment.....	p.23
Yukon Material in Housing.....	p.24
Alternate Private/Public Roles.....	p.25
Bibliography.....	p.26

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Introduction

Shelter is an essential element for any society because it supports all other aspects of health, education and general welfare. In the cold climate of the Yukon and other parts of the north, quality housing is comparatively more critical to human existence than elsewhere in Canada. Inadequately sheltered people suffer from a variety of health afflictions, and their children find it difficult to learn well, so they are less able to acquire the skills to extract themselves from a similar situation. There is a tendency for poor housing conditions to be repeated across generations.

The fact that virtually every citizen spends between one- and two-fifths of their income on shelter strongly suggests that this activity is a major component of the national economy. The Government of Canada has for some time recognized that housing construction is a major indicator of economic growth. As such, housing starts and completions have traditionally been monitored closely by the federal government. Since the conclusion of the Second World War, various governments have used the Canada Mortgage and Housing Corporation and its forerunners as a direct lever in the speed-up or slowdown of the national economy.

While mining has been the traditional mainstay, shelter has been a constant element of the overall Yukon economy. In the context of resource extraction development, housing is often seen as a peripheral item of the economy. But in reality, it is an activity which is necessarily functioning at all times, during boom and bust, during the good and the bad years.

Housing Need and Market

The July 1986 Yukon Housing Corporation Needs Study examined a random sample of Yukon households for aspects of crowding, adequacy, affordability, and suitability. The findings indicated that a higher proportion of Yukoners live in crowded conditions than for the Canadian average. Not surprisingly, crowding is more common among renters, native households and low income households. About 50% of Yukon dwellings have some inadequacy, usually for lack of basic facilities of running water, electrical service or a heating system other than wood. With many Yukoners now utilizing wood as a source of heating, there will be some discussion to what extent wood heat constitutes a sub-standard condition. Over 5% of all households have multiple problems: lack of facilities, poor interior condition and poor exterior condition. Inadequacy is most prevalent amongst renters and those who are living in older, single detached housing. Over 20% of Yukon households pay 30% or more of their income for shelter. This is comparable to the Canadian average experience. Affordability is more of a problem for renters and native households.

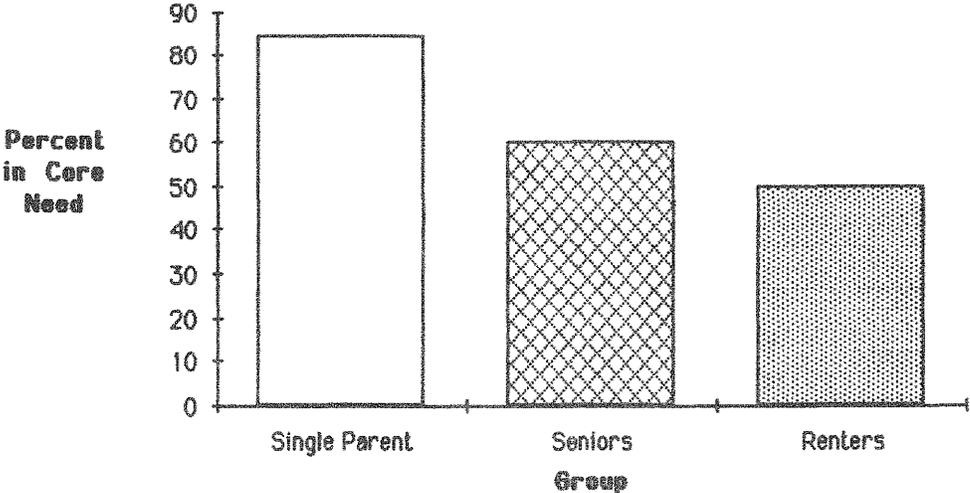
The YHC Study concluded that there was a "core need", as defined in the study, for 2,200 households, or 29% of Yukon households. This is considerably higher than the Canadian average of 13%. Core need would appear to be greatest in the smaller communities and rural areas. Over 50% of the households in need are renters, and over 50% of the households in need are native households.

The Needs Study indicates that there is a severe housing adequacy problem in rural Yukon. When considering this information, it is important to remember that some Yukoners may be living in a log home with a privy by choice, and do not consider the lack of indoor plumbing to be a particular hardship. On the other hand we have to be careful that the southern white person's image of the "frontiersman" does not lead to housing programs which assume a lower standard for people who live in remote communities.

It may be that the Standard calling for electricity, hot and cold running water, an indoor shower and toilet needs to be modified here. On the other hand, southern definitions of what is an adequately heated house will probably fall short in the Yukon. Similarly in the area of affordability, the Federal and some provincial governments are arguing that Canadians can afford to pay 30% of their gross income for heat and shelter, even though the earlier Standard had been set at 25% or less. It can be argued that 70% of income remaining after such a charge for housing may be adequate for low income people in Vancouver or Toronto, but that in the north food, transportation, and services are all more expensive. Thus at least 75% of gross income is required by low income households to pay for these non-housing expenses.

Overall, housing conditions are much better in Whitehorse, but this is perhaps offset by the fact that over 50% of the households pay 30% or more of their income to cover housing costs. The affordability issue is therefore most evident in Whitehorse, especially for single people, single parents and disabled people. The supply of YHC units is not adequate to meet this need and there is virtually no other source of such housing - there are no non-profit housing societies or co-ops outside of a few urban native units. Over 80% of all single parent households fall into the core need category, as do 60% of all senior citizen households. Diagram 1 illustrates these situations in graphic form.

Yukon Households



Source: 1986 YHC Needs Study

It is probably inappropriate to apply the term "Housing Market" to the Yukon as a whole. The Yukon is not like mainstream Canada, but more similar to the Northwest Territories and other areas along the northern margin of development in the provinces. In these regions, the cost of building a house does not necessarily relate to the price it will command on the open market. The value of housing is in its use to the present owner, not in any potential resale value. In this context, it is probably more appropriate to speak of the Yukon housing "sector" which is made up of three components: market housing, social housing, and non-market area housing.

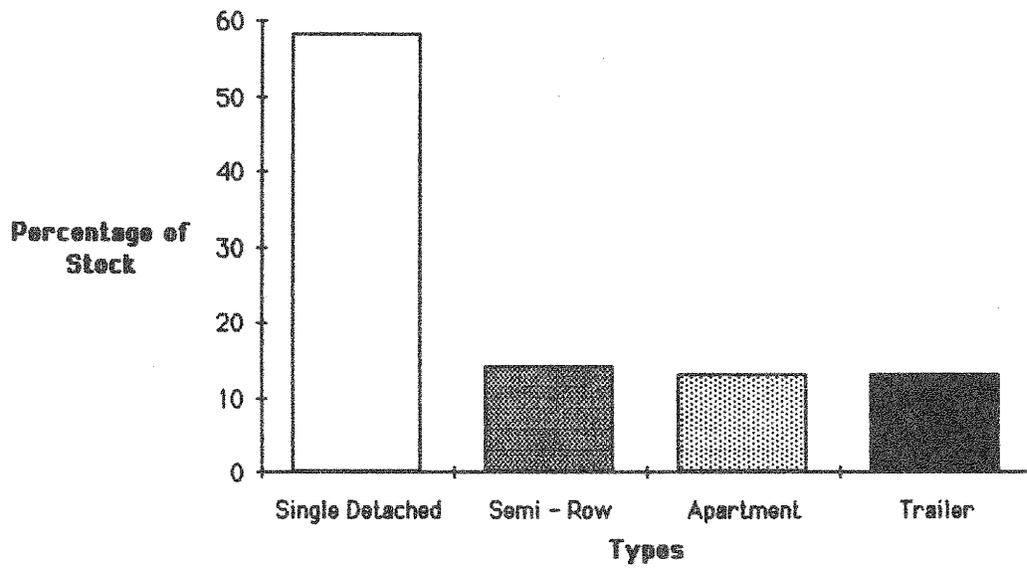
There is only a "market" for housing in Whitehorse, although some housing sales are recorded in Dawson City and Watson Lake. In the other communities such as Mayo, Faro, Carcross, and Haines Junction there are very few sales each year. Outside Whitehorse there tend to be fewer market rental units, although Faro does have some apartments for rent. In the very small communities, the private market is completely overwhelmed by the supply of Y.T.O. staff housing, social housing units, Federal staff housing, and Band housing. Even in Whitehorse a very high proportion of the rental housing stock is controlled by various public agencies.

Aside from Band owned housing, of which there are a couple of hundred units in Whitehorse, and which comprise 20 to 90% of the stock of smaller communities, there is very little non-profit housing in the Yukon. There are two "urban native" non-profit societies, one in Watson Lake with approximately 5 units, and one in Whitehorse with 19 units.

The main Yukon housing situations are probably best described as follows:

1. Rural and Remote Housing - As in many other areas of Canada, a significant amount of the housing stock has very limited resale value due to its remoteness and lack of demand for resale. This would include some of the smaller communities where there is no population growth, many homesteaders, and much of the housing on reserves. It is difficult to say if there is a market for these houses. Symptoms indicating the lack of an established housing market can be found in the difficulty of obtaining first mortgage financing and in high insurance premiums. However, while there is a very limited resale market for rural and remote houses, this is not to say that there is no demand for housing in these rural areas. Most of the construction would seem to be done by the owners themselves or by small contractors.
2. Single industry communities - these communities are susceptible to cyclical transformations from extremely tight markets to virtually no market at all. These cycles can be seasonal, as in the case of Dawson. In Faro, the housing market may not suffer too drastically, so long as economic alternatives to the mining industry can be found.
3. Market Housing - The majority of homes in the Yukon are part of the market housing sector. This follows because Whitehorse makes up over 70% of the entire Yukon population. When Watson Lake, Dawson and Haines Junction are added in, it constitutes over 85% of the Yukon population and housing stock. Within these communities there is a dominant housing and land market. While the housing markets are fragile, they exist nonetheless. Construction is dominated by contractors who build for the market. Only Whitehorse has a credible rental market after social housing is accounted for. With low vacancy rates, it is thought that perhaps the potential market is underdeveloped.
4. Social Housing - There is a small but growing stock of social housing. The stock is distributed through the communities of the Yukon, including most of the native bands. Much of the housing in smaller settlements is in the ambiguous category, with the Band having nominal ownership. Most settlement social housing is made up of single family dwellings and townhouses whereas in Whitehorse it is comprised of three story walk-ups.

Yukon Housing Types



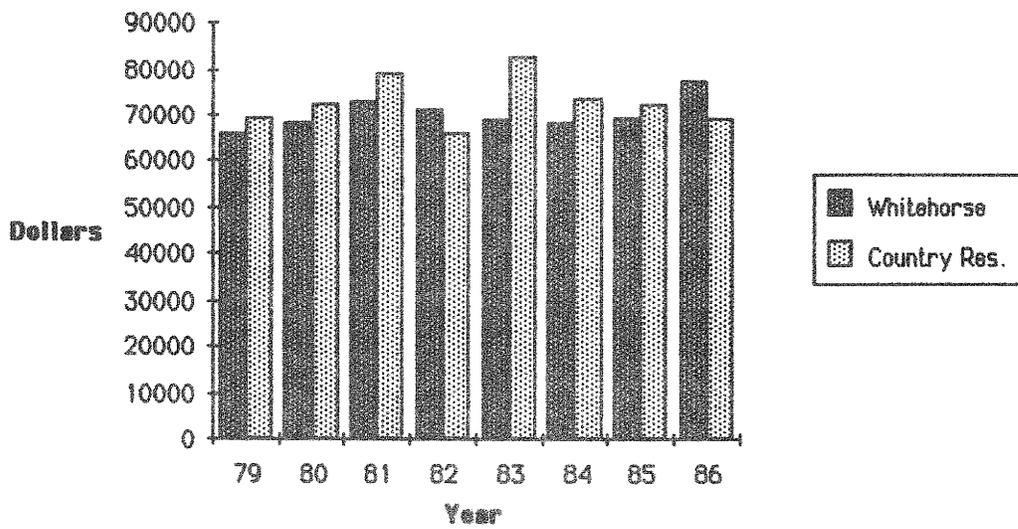
Source: 1986 YHC Needs Study

The 1986 YHC Needs Study, quoting the 1981 Census data indicates that physical housing types in the Yukon are principally single detached units (58%), followed by semi-detached/duplex/townhouse (14%), apartment (13%), and trailers (13%). Diagram 2 is a visual depiction of the same information. The type of housing style is reasonably consistent, with a rancher or split rancher as the preferred housing style. A popular type with the native community and some homesteaders is a log house. Much of the little rental accommodation available is of a single family dwelling type. In Whitehorse, there are some three story multiple unit dwellings and row houses.

Price can be reflected in two ways, as house sale price or rent. Prices seem to vary greatly. Prices in Whitehorse range from \$30,000 for a poor condition house to \$90,000 for a typical new home, and \$120,000 for a deluxe 4-5 bedroom split level rancher. Construction cost per new square foot of housing in Whitehorse is in the \$75-80 range. The value of house sales is not readily available for areas outside the Greater Whitehorse Region, but Yukon Statistical Review provides values over a multi-year period, and these are summarized in Diagram 3. Values in Whitehorse proper have generally tracked upward over the eight year period depicted. In contrast, country residential values have peaked and are now exhibiting a trend downwards. Recent rents are also represented in the Yukon Statistical Review for a variety of communities, and these are illustrated in Diagram 4. Not surprisingly, Dawson has the highest average rent, followed by Watson Lake and Whitehorse. The Haines Junction low is probably a reflection of depressed housing conditions in the community.

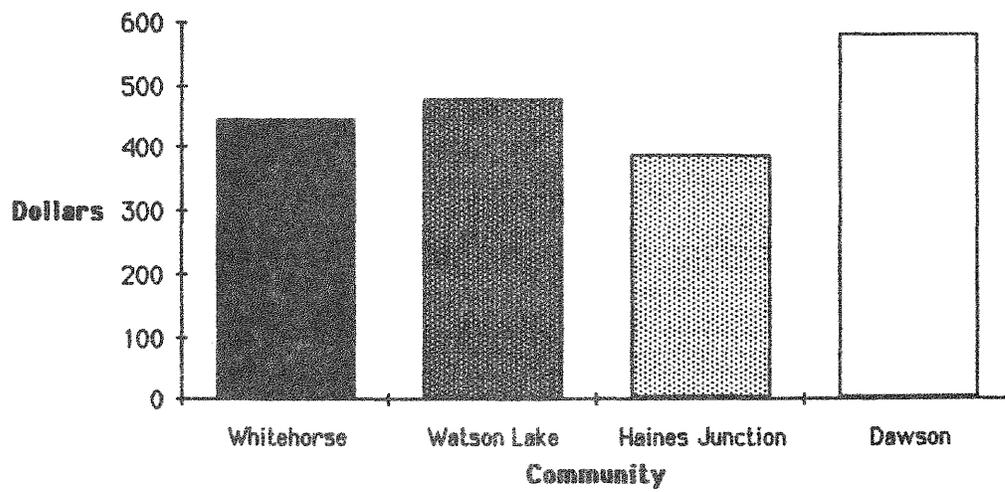
For a summarized picture of Yukon 1985/6 vacancy rates, see Diagram 5. Whitehorse exhibits the lowest vacancy rate. According to the source of statistical information, Dawson has the highest vacancy rate. This probably represents a seasonal variation as it is known that the summer tourist season brings considerable pressure to bear on all housing.

Average House Values Whitehorse & Environs



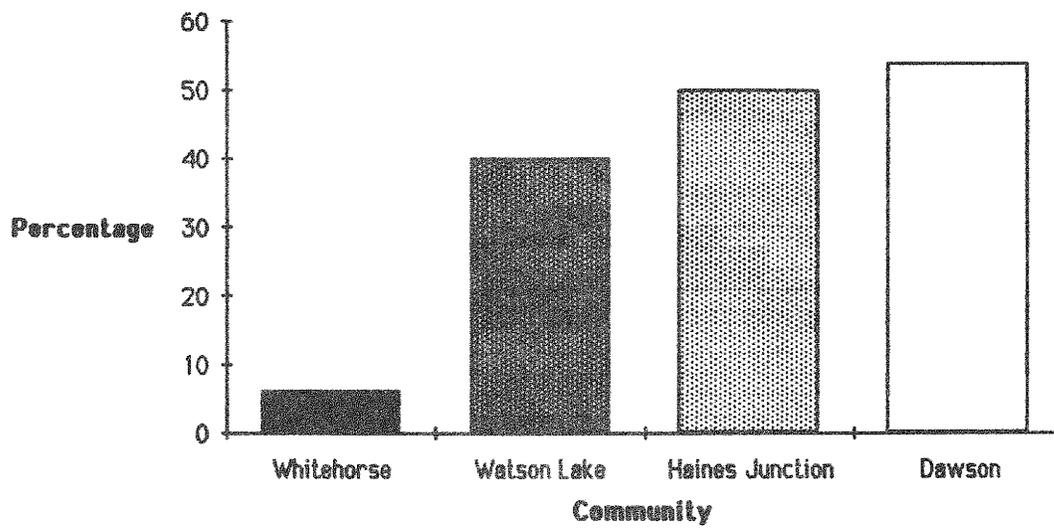
Source: 1st Qtr. 1986 Yukon Statistical Review

1985/6 Yukon Average Rent



Source: 1st Qtr. 1986 Yukon Statistical Review

1985/6 Yukon Vacancy Rate



Source: 1st Qtr. 1986 Yukon Statistical Review

Projecting the 15 Year Need

Currently, so much is dependent upon the economy. The Yukon economy is heavily dependent upon Federal transfer payments. Given the size of the Federal deficit, the state of international and national economies, and the mood of the country, it is unlikely that recent levels of transfer payments will continue indefinitely. Renegotiation of the current Federal/Territorial financial agreement, due to run out in two years, may be the decision point where transfer payments could be reduced.

No population projections are currently available from Yukon sources. However, by basing calculations on territorial population projections originating with Statistics Canada and assuming a constant household size, it is possible to generate a forecast of the requirement for 1,204 housing units (See Table 1), or an average of about 90 units a year that will be needed over the time period to the turn of the century. While the base figure does not agree with 1986 Yukon population estimate of 25,403 (the Yukon Statistical Review for March 1986), it is felt that the growth rate in numbers of housing units is still representative. Understanding that projections are always made with a measure of uncertainty, it seems unlikely that there will be a sudden rise in population in the next fifteen years unless there is a major resource project startup. As a result, the number of new dwellings units that will have to be created will be modest (See Diagram 6). Prior to dealing with the increased housing requirement for larger populations over the next 15 years, Yukoners will have to grapple with the catch-up job of renovating several hundred units of existing sub-standard units.

The overall Canadian trend is towards smaller household sizes, and indications are that the Yukon will be no exception to the national trend. Assuming the Yukon follows the national pattern, it is likely that there will be increased pressure to create housing units somewhat beyond the numbers suggested in Table 1. With a decreasing household size, however, there is a further likelihood that the most useful kind of new housing will be the smaller, multiple type of rowhousing, fourplex and apartment units in the major communities, especially in Whitehorse. Smaller outlying communities, with larger household sizes and longer term residents, may be able to shelter their occupants with more conventional detached housing

**Forecasted Housing levels
based upon population projection No.3.-***

<i>Year</i>	<i>Yukon Population</i>	<i>@ Yukon housing units</i>	<i># New Housing Units Required</i>
86	21200	8233	n.a.
87	21300	8272	38.8
88	21400	8311	38.8
89	21600	8388	77.7
90	21800	8466	77.7
91	22000	8544	77.7
92	22300	8660	116.5
93	22600	8777	116.5
94	22900	8893	116.5
95	23200	9010	116.5
96	23500	9126	116.5
97	23800	9243	116.5
98	24100	9359	116.5
99	24300	9437	77.7
Total			1203.9

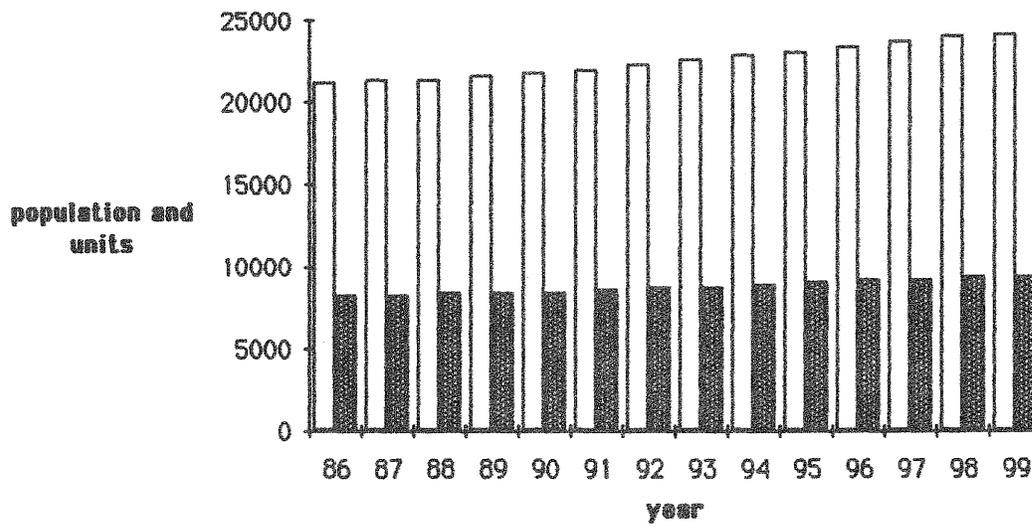
* - Sourced from Statistics Canada Publication No.91-520,
Population Projections for Canada, Provinces and Territories

@ - assuming base levels in Table 1 of Yukon Housing Needs Study, 1986

* - does not include current core need housing

Table 1

Yukon Population & Housing



Source: Table 1

Major Concerns and Issues of the Next 15 Years

In order for housing policy makers to arrive at informed decisions in future, there will be a requirement for information systems which will deliver factual and measured statistics on the status of Yukon housing at regular intervals. This requirement could perhaps be integrated with the current Yukon Bureau of Statistics. These regular observations may take the form of the 1986 YHC Housing Needs Study, or some other similar style. Whatever method is selected must deliver appropriate information on the actual conditions of Yukon housing. If no such system exists, the debate on housing is left to the vagaries of the political arena. With respect, it is suggested that housing is probably too important to be kicked around as a political football.

Decentralization or devolution of authority and responsibility is a stated direction for government in the Yukon. While these moves are fraught with practical problems of implementation, if they are properly done they will ultimately yield greater efficiency of operation and appropriateness of services in housing. The roles of the Bands and the Council of Yukon Indians (CYI) will be enhanced by these moves, and those organizations that have expressed an interest will become deliverers of quality housing programs. Decentralization will bolster the roles of the local Housing Associations/Authorities, who have had very limited powers and responsibilities in the past.

There is considerable support for homeownership right across the North, in both urban and rural situations, because it is seen by many as a means of rationalizing the present rather differentiated, ineffectual and costly delivery system. Rental housing, on the other hand, is often seen as a stop-gap measure for those unable to afford home ownership.

Local housing markets are very fragile and many people in smaller communities are concerned that a government housing program could undermine local housing prices. To make matters worse, there is a noticeable lack of confidence in the future of housing markets. However, on the positive side, although the economic history of the Yukon has been characterized by dramatic swings accompanied by major in and out flows of people and wealth, an increase in community stability may be beginning to take place. More people now look upon the Yukon as their long term home and their community as a permanent one. The exceptions to this, of course, are single industry towns such as Faro, where there may be a tendency for a higher proportion of "boomers" to settle while times are prosperous.

Local economic development is a major platform of the present government. This policy is well supported in the communities as there is a move towards local initiative and use of local manpower. This takes time to develop, particularly as Whitehorse tends to be a source of attraction to skilled individuals from the communities.

Energy efficiency is a topic of interest on two counts. Effective moves in this direction could lessen the considerable financial burden of spaceheating in housing, as the Yukon spends a great deal on importing hydrocarbon fuels. Assuming that the considerable forest resources of the Yukon could be brought to bear in providing fuel, there could be an interesting amount of employment created in the process. There is little danger that consumption of wood in small quantities could outstrip the ability of the forests to produce. There is also the prospect of starting a small intercommunity commerce in wood fuels.

Solutions to Housing Issues

Self-sufficiency: In an effort to reduce vulnerability to the boom and bust economic variations of the northern economy, Yukoners wishing to minimize housing outlay requirements would probably want to exercise a high degree of self-sufficiency and ingenuity in the provision of their own shelter. In the process, they will also be trying to create much useful employment. While the Canadian system is usually ready to provide over the shorter term for those in need by delivering temporary assistance, all governments in the 1980's in Canada are acutely aware of the need to control their longer-term spending levels. To the authors of this paper, a high degree of personal involvement, probably through homeownership, augmented with degrees of government co-operation and assistance, is seen as the key to community self-reliance and control. With the communities, bands, co-operatives, families and individuals themselves taking primary responsibility for the provision and maintenance of shelter, reliance on outside forces will be reduced and an important facet of local control enhanced.

Carefully Considered Government Assistance: It is suggested that Government intervention should be limited primarily to assisting those who cannot find adequate and affordable housing in the private market. Homeownership assistance programs can provide an incentive for people to leave their sub-standard or social housing unit and take hold of their own destiny with a self-operated unit, thereby maximizing the efficiency of the housing system. Ownership assistance programs, properly done, also prevent the possibility of social housing becoming the overwhelmingly dominant type of housing in certain communities. In the N.W.T., there are communities where only social housing and government staff housing are represented. Government can assist in the extension of homeownership by keeping projects small and well integrated with existing neighbourhoods. In addition, government-sponsored community planning can provide for a range of housing densities, including single family homes, townhouses, apartments, and rural lots.

Experiments in northern social housing have been expensive to the public purse, and not always totally satisfying. In the N.W.T., the Northwest Territories Housing Corporation operates a social housing stock of over 4,000 units, and ownership assistance programs with a total budget of \$120,000,000 in 1986/7, or in the order of \$2,400 per person in the population. This high budgetary level reflects in part the poor quality of housing inherited by the Corporation at its inception in 1974, the deterioration of housing built since that time, and a rapidly growing population with expectations of living in social housing. On the same per capita basis, the Yukon Housing Corporation would require a total budget of approximately \$60,000,000. A large-scale government supported social housing program is something that should be approached with caution because it tends to breed dependency rather than promoting self-sufficiency.

Housing Research: In spite of the excellent manuals that have been prepared on the subject, it is felt that a Northern Housing Design Institute, perhaps shared with the Northwest Territories, might provide a meeting ground for resolution of some of the more difficult problems of Northern housing. Since many Yukoners and other northerners work on fixed-term resource extraction sites, a Northern Housing Design Institute could also research the feasibility of topics such as low cost temporary housing services or an energy efficient mobile home.

Training: An emphasis should be placed upon the training of resident Yukoners in the various building trades, in order to provide the basis of an indigenous industry. A resident workforce slows the leakage of capital construction monies occurring with nonresident labour and achieves beneficial multiplier effects with the circulation of cash in the territorial economy. It further furnishes a resident pool of skilled people for ongoing territorial projects, promotes residency stability and dampens the boom-bust tidal movements of population in connection with future developments.

Planning for projects and products, particularly in the small communities, should attempt to integrate training opportunities for local people, although care must be taken to train a suitable mix of skills for local needs. Part-time educational opportunities could be created to give basic information which will allow ordinary people to find the solutions to their own housing problems. The subjects could be as ordinary as efficient wood-burning safety, or as specialized as chimney fire extinguishment for a volunteer fire department. In this context, programs providing mobile educational clinics in maintenance, renovation, retrofit and upgrading in small communities could be particularly useful. Entrepreneurial skills of project management and housing administration could also be valid training topics which could yield benefits to the Yukon economy. They could eventually be exportable from the Yukon to other parts of the North.

Co-operatives: Housing co-operatives offer considerable potential to exercise increased local control over the shelter issue by giving individuals a stake in their own housing. Continuing non-profit co-operatives build and manage housing for their members, but do so with little chance of capital gain for their members in the process. They might be also considered as an ideal initial exercise in homeownership. This co-operative type is encouraged and actively supported with Proposal Development Funding and advice by the Canada Mortgage and Housing Corporation, and is an excellent vehicle for families to obtain adequate housing.

There are also less-structured shorter-term building co-operatives of households who wish to co-operate in all aspects of the construction, expansion or upgrading of homes from joint purchasing of materials and sub-contracted services, to on-site sweat labour contributed by members. Outright ownership of a housing unit with minimum cash outlay is the reward at the conclusion of the exercise.

Finally, there are informal community-based maintenance co-operatives which are established by homeowners to provide mutual support in the operation and upkeep of their respective real properties. Specialized co-operatives could look to the gathering and preparation of wood fuel, and the consequent servicing of wood-burning appliances. While all co-operatives place a certain burden on their membership, they will usually deliver more to the member than the effort they will require.

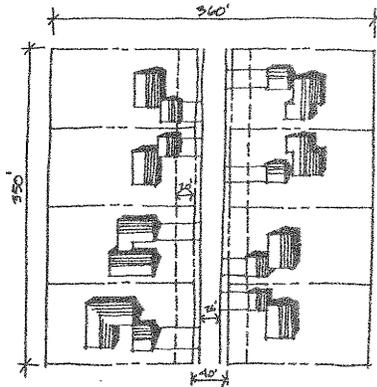
Life-Cycle Cost: One key to better local control is the management of life-cycle cost factors which currently keep shelter prices in the Yukon comparatively high. The life-cycle cost concept is based upon the notion of linking housing design and operating decisions to achieve the lowest combination of short-term capital construction costs and longer-haul operational costs. A close attention to overall efficiency in housing will help prevent waste and will free cash resources of individuals and/or governments for other worthwhile projects.

Super-insulation: With energy as a major component of shelter cost in the Yukon, there are sound economic reasons to move to heavier insulation in homes than has been the practice in past decades. The Federal Energy Mines and Resources Department has been promoting the R2000 super-insulation program for a few years now, and they have achieved considerable progress in this time. The degree to which the investor would wish to insulate would be determined by the cost of the energy that will be purchased for the building, and the amount of effort the owner/occupant is interested in investing over the life of the structure.

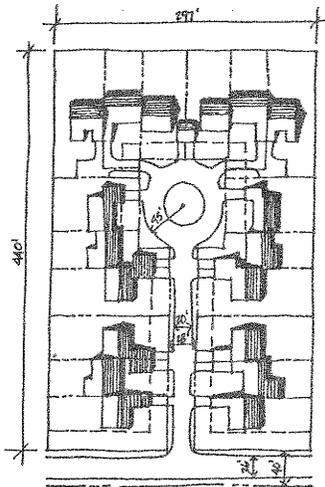
Space Heating: Coupling this rationale to wood heat, the Yukon has a natural advantage of being able to use a plentiful local resource to achieve a low-cost heating solution, while helping to create useful employment in an economy at a low ebb of the economic cycle. In Whitehorse, or wherever there is some possibility of medium density housing, the potential of using wood-fired district heating should not be forgotten because these installations contribute to efficiency and lower air pollution levels.

A recent study done for the Federal Energy Mines and Resources Department concluded that Yukon residential space heating represents the most significant end-use for oil. While wood is already used by some households, especially in the smaller communities, the potential for further wood use is significant. Many communities in the Yukon have good access to large areas of fire-killed wood fuel.

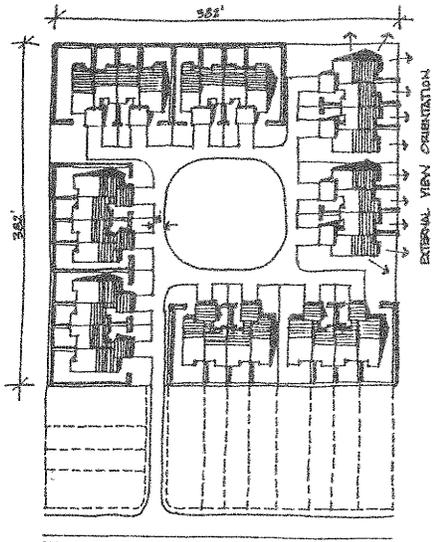
Residential Densities: Another action which offers potential for improving the affordability of housing is by increasing residential densities to reduce the overall capital cost of building new housing, and the longer-term space heating requirement. Studies indicate that site development costs can be reduced by one-third for an equivalent sized home via this technique of building medium-density row housing versus detached single family dwellings. See Diagram 7 for a visual comparison. In these examples, site development costs per dwelling unit fall from \$6,652 to \$2,918 due to efficiencies in layout and scale. In addition to this, there should be significant long-term savings in space-heating energy costs because of common walls between units. Beyond these immediate savings, wood-fired district heating could become more feasible with a number of neighbouring medium density projects to serve. Developers should be encouraged to consider the building and marketing of four or five unit row housing, suitable for single family ownership, rather than producing single family units, or semi-detached units. These units could be sold individually, or possibly as a share of a condominium or co-operative.



PUBLIC STREET	2.75 DU/AC	
Net Density	8 units on 2.90 acres = 2.75 DU/AC	
Gross Density	"	
Average Lot Size	14,000 S.F.	
Site Development Costs/DU	\$6652	
Subcollector Street		
Pavement Width	28'	9,100 S.F. 1,138 S.F./DU
R.O.W. Width	40'	14,000 S.F. 1,750 S.F./DU
Setbacks		
Front Yard	20'	
Side Yard	10'	
Building Coverage		
Average	1,250 S.F.	
Garage	440 S.F.	
Total Coverage	1,690 S.F. x 8 = 13,520 S.F.	
Driveway Coverage		
Average	800 S.F.	
Total Coverage	800 S.F. x 8 = 6,400 S.F.	



TRIPLEX/PUBLIC CUL-DE-SAC	8 DU/AC	
Net Density	18 units on 3.0 acres = 6.0 DU/AC	
Gross Density	18 units on 3.14 acres = 5.73 DU/AC	
Average Lot Size	6,375 S.F. (min. 4,700 S.F.)	
Site Development Costs/DU	\$3864	
Cul-de-sac		
Total Street	8,999 S.F.	500 S.F./DU
Total R.O.W.	15,764 S.F.	876 S.F./DU
Pavement Width	20'	
R.O.W. Width	28'	
Turnaround Radius	45'	
Turnaround R.O.W.	99' x 96'	
Subcollector Street	(1/2 street and R.O.W.)	
Pavement Width	28'	3,861 S.F. 215 S.F./DU
R.O.W. Width	40'	5,940 S.F. 330 S.F./DU
Setbacks		
Front Yard	20'	
Side Yard	10' On Subcollector Street 20'	
Building Coverage		
Average	900 S.F.	
Garage	240 S.F.	
Total Coverage	1,140 S.F. x 18 = 20,520 S.F.	
Driveway Coverage		
Average	320 S.F.	
Total Coverage	320 S.F. x 18 = 5,760 S.F.	



QUADPLEX/PRIVATE COURT	9.55 DU/AC	
Net Density	32 units on 3.35 acres = 9.55 DU/AC	
Gross Density	44 units on 4.66 acres = 9.44 DU/AC	
Average Lot Size	3,465 S.F. (min. 2,640 S.F.)	
Site Development Costs/DU	\$2918	
Court		
Total Street	20,700 S.F.	471 S.F./DU
Total R.O.W.	38,220 S.F.	869 S.F./DU
Pavement Width	18'	
R.O.W. Dimension	20', 170' x 170'	
Subcollector Street	(1/2 street and R.O.W.)	
Pavement Width	28'	4,966 S.F. 113 S.F./DU
R.O.W. Width	40'	7,640 S.F. 174 S.F./DU
Setbacks		
Front Yard	20'	
Side Yard	10' or 20' On Subcollector Street 20'	
Building Coverage		
Average	940 S.F.	
Garage	180 S.F.	
Total Coverage	1,120 S.F. x 44 = 49,280 S.F.	
Driveway Coverage		
Average	220 S.F.	
Total Coverage	220 S.F. x 44 = 9,680 S.F.	

Diagram 7

Solutions Appropriate to Community Sizes: Not all the above suggestions are equally applicable to every community. It is proposed that the creative solution mix for any housing situation should vary according to the circumstances of a community's size and life style, as follows:

Larger Communities in the Wage Economy: (Whitehorse, Dawson, and Watson Lake):

The use of co-operatives, and the increase in residential densities should be considered here, where population is relatively transient, where fire protection is good, and where the cost of serviced land is comparatively expensive. With a higher proportion of indoor and office workers, it is probable that the principal fuel used will be hydrocarbon-based. The peculiar topographic circumstances creating the notorious wood smoke pollution problem in the Riverdale suburb of Whitehorse will limit an otherwise logical trend to increased wood-burning. On the other hand, wood-burning may be a beneficial alternative in Dawson and Watson Lake, by way of bringing more economy to home heating.

Median Size Communities with mixed wage/renewable resources economy: (Haines Junction and Mayo):

In communities with high levels of unemployment, and with a fairly modern infrastructure as well as good fire protection services, there may be an opportunity to substitute wood fuel for oil. Haines Junction may have more in common with the smaller communities.

Small Communities dominated by a Subsistence Economy: (all remaining communities):

Given the lack of quality fire protection in the smaller communities and the general availability of building lots, it is unlikely that they would wish to develop anything other than the detached style of building. But with high costs for fuel oil, and with their higher than average unemployment rate, the harvesting of wood and the servicing of wood-burning appliances could provide welcome relief to the local unemployment while effectively substituting for an expensive imported fuel oil commodity. A 1985 study done for Mackenzie Valley communities of the Northwest Territories concluded that substantial community benefits in fuel savings and local employment could result from a major space-heating switch from oil to wood.

Alternate Financing Techniques

Financing for the individual intending to build his own home can be extremely frustrating and complex. Often managed from outside the territory, the chartered banks traditionally have not endured much risk in conventional mortgage lending. It is often difficult to find financing for those who would build their own home, or for those who would wish to build on their own in a smaller community. In Whitehorse, there is probably less need for government intervention in the financing arena, but in the smallest communities occupied by 15% of the population, government may wish to consider offering both first and second mortgages.

Assuming it is the intention of the Government to encourage individuals to take hold of their own housing destiny, and to promote stability of residency in the Yukon, it is suggested that a series of alternative financing techniques be created for communities, especially for those outside the major population center. Not to provide assistance would see small communities continuing to struggle with very difficult financial circumstances in home building or renovation, and would relegate them to continued reliance on social housing and other "social net" programs.

The Northwest Territories Housing Corporation, has created a Homeownership Assistance Program (1986/7 program value of \$10 Million, jointly funded by the Federal and Territorial governments) which will deliver 177 homes in various communities across the Territories. The program basically provides one-time financial assistance to N.W.T. residents who want to build their own homes in communities where no private housing market exists. Housing construction costs are not funded in the larger centers of Yellowknife, Hay River, or Fort Smith. Financial assistance is provided as a "forgivable loan" to cover the costs of a material package plus freight and site preparation work where required. In addition, electrical work done to code standards by a licenced electrician is funded. The applicant is expected to provide labour, tools and materials not included in the material package. Eligible applicants must have tenure to the land on which the house will be built, and initiative and resources to build the house and must assume all operation and maintenance costs when it is built. Applicants must meet minimum income criteria and be at least five-year residents of the N.W.T.. Applications are approved on a "greatest need" basis. Loans are forgiven at a rate of 20% for five years as long as there is no breach of contract. The loan is secured by a mortgage, mortgage of lease or equitable mortgage as appropriate.

The extent to which a similar Homeownership Assistance Program scheme might be useful in the Yukon is unknown, but the larger private market evident here may well work against a parallel program being smoothly implemented. As a program of this type could promote ownership in the most difficult conditions, it may be best to reserve it for only the smallest and most remote communities in the Yukon.

Alternatively, a government second mortgage scheme with repayment subsidization geared-to-income for homebuyers may offer more equitable assistance towards homeownership in the Yukon high cost environment, while being fair with current homeowners who have already achieved homeownership through their own considerable efforts.

In the Whitehorse area, the promotion of the newest type of non-profit co-operative through the Canada Mortgage and Housing Corporation might be an ideal way of providing security of tenure for moderate- and middle-income households. Other income groups are not ignored however, as those households in "core need", as defined by CMHC, are also eligible and are to represent a minimum of 15% of each project built under this program. Rent geared-to-income assistance will be provided through the Rent Supplement Program. Where practicable, there is a further 5% of project units that may be devoted to individuals with disabilities. The unique feature of the program is the Index-linked financing, in which annual increases in mortgage payments are limited to 2% less than the actual inflation which occurs. Such a project would marshal government assistance for the creation and operation of affordable housing in which the community has a direct stake and some measure of control. It could also have the desired effect of restraining the transiency of Yukon residents.

The earlier version of the CMHC co-operative program enjoyed a successful northern implementation with the creation of the Borealis multiple-family (R2000 row units) development in Yellowknife, N.W.T., but this national program was phased out in the face of increasing pressure to reduce government expenditures. A second co-operative of the more current type is presently in formation in the N.W.T. capital.

Associated Business Development

Housing construction and renovation can create useful employment, especially if it is parceled out in small projects within the range of local contractors, combined with a local employment preference, and/or with some kind of bidding differential which favours the Northern entrepreneurs. The positive effects of this kind of contracting can be enhanced by ensuring that the projects are spread evenly across time, avoiding large periodic projects requiring surges of equipment, specialized skills and business cashflow. Small northern-based business ventures need a stable volume of potential projects in order to be able to trim their overhead costs to a minimum. Small-scale projects do not immediately attract the attention of larger southern firms searching to increase their share of the northern market, or simply trying to stay solvent during lean periods in the South.

Home-grown professional consulting skills associated with building construction activity in northern circumstances would eventually be exportable from the Yukon into other parts of the Canadian North (the N.W.T. and northern parts of the provinces), and possibly into Alaska.

Economic benefits to the communities can be maximized by using stick-built construction, but planners must always be careful to ensure that pure educational and employment objectives do not overshadow project economics too much.

Beyond the benefits to small contractors in the housing industry, there is also a significant benefit to the wholesale and retail trade which supplies them.

In addition, with sufficient volumes and economies, opportunities begin to open up for the creation of small-scale northern-based housing component prefabrication plants, especially for items which meet northern standards, such as doors, windows or laminated wood beams. Benefits can be multiplied further if Yukon content material can be substituted for materials formerly imported from outside.

Capital residential construction represents an average of 3.2% of the total value of goods produced in the Yukon (See Table 2). These value levels will probably vary little in spite of different delivery scenarios. However, a move towards operating Yukon homes through the harvesting of 15,000 cords of fuelwood described in the next section of this paper could yield a considerable 5,000 man-days (at 3 cords per man-day) of employment annually, or about 23 full-time jobs. If one considers the labour-intensive maintenance required to support safe residential wood-burning, and considers that for every harvesting job there might be 2.5 service-related jobs, then overall employment generated by a partial switch to fuelwood would yield 80 full-time jobs in the depressed Yukon economy. Some relief could be provided to the 2,430 claimants requiring unemployment assistance in the month of March 1986 (See Table 3). The aggressive use of wood fuels in the smaller communities could create opportunities for small-scale wood harvesters and heating appliance service entrepreneurs.

**Estimated Value of Output for the Goods-Producing Industries
Yukon, 1981-85 (in 000's of \$) ***

	1981	1982	1983	1984	1985	Average
Agriculture	17,501	333,289	200,250	211,729	220,000	196,554
Forestry	897	1,581	1,529	1,764	2,907	1,736
Fishing	366	261	307	259	328	304
Trapping	1,298	1,577	1,179	737	1,280	1,214
Mining	235,575	169,120	60,275	66,586	56,691	117,649
Manufacturing	10,400	15,400	9,800	8,000	11,000	10,920
Construction	168,965	145,350	127,160	133,983	n.a.	143,865
Residential	27,353	12,312	9,564	10,810	n.a.	15,010
Non-Resid.	141,612	133,038	117,596	123,173	n.a.	128,855
% contribution by Residential	6.29	1.85	2.39	2.56	n.a.	3.18

* - Source: Yukon Government Services

Table 2

Unemployment Claims compared to Community Populations

Community	@ Mar-86 U.I.C. Claims	* Mar-86 Population	% U.I.C. Claimants as % of population
Old Crow	14	1264	1.1
Elsa	10	376	2.7
Mayo	30	493	6.1
Ross River	26	381	6.8
Faro	25	319	7.8
Watson Lake	129	1585	8.1
Pelly Crossing	18	212	8.5
Whitehorse	1804	18515	9.7
Destruction Bay	8	80	10.0
Dawson Creek	180	1541	11.7
Other	12	102	11.8
Haines Junction	63	527	12.0
Carcross	41	302	13.6
Beaver Creek	12	88	13.6
Teslin	58	407	14.3
Total	2430	26192	9.3

@ - Source: 1st Qtr. Yukon Statistical Review, p.24

* - Source: 1st Qtr. Yukon Statistical Review, p.4

% - calculated: $(\text{col.}@/\text{col.}^*) * 100 = \text{col.}\%$

Table 3

Yukon Materials in Housing

Frame construction is ideal for low to medium density residential development. Existence of construction grade harvestable timber and at least one mill in the Yukon (currently inactive but located at Watson Lake) means that there may be an opportunity to stimulate northern industry and the renewable resources sector. Some marketing work may have to be done with Yukon contractors to convince them of the good value and assured supply of the northern product. Quality control of lumber is always a concern for small northern production plants of this kind. Depending upon the outcome of current negotiations with regard to international barriers against Canada's softwood lumber exports, the immediate future may be quite competitive for a Yukon mill.

There may be greater opportunity for Yukon materials in the building of log homes. These are popular in rural areas and smaller communities because they maximize the use of a readily available local material. They are ideal because they permit a family to build a house for a minimum dollar outlay. The owner-builder often has an opportunity to invest considerable sweat equity, and this can be a positive channel to absorb community labour productively. A Northern Design institute could assist in the production of specifications for an energy efficient log structure.

Finally, there is a considerable opportunity for the use of Yukon wood for space heating fuel in homes, especially in smaller communities, or via a district heating arrangement in the larger communities. By doing so, a certain portion of energy dollars could be circulated in the territorial economy, rather than being sent directly out with fuel oil suppliers to the south. For example, substitution of one half of the 13,462 cubic meters of stove oil purchased in 1985, by 15,000 cords of fuelwood, would represent a value of \$1,125,000 of potential new business, based upon a retail value of \$75 a cord.

Alternate Private/Public Roles

Success in future Yukon housing will be based upon the proper balance of these two roles. Too much emphasis on either will lead to inadequacy on one hand, or inefficiency on the other. Where incomes are sufficient, and especially in Whitehorse and the larger communities, it is suggested that the private sector can probably best provide the most efficient delivery of housing. With its bottom-line profit motive, the private sector can usefully find the appropriate innovations in home building and use which will appeal to the needs of Yukoners.

If incomes are insufficient for portions of the population, and needs studies confirm serious housing deficiencies, a public effort may have to be mounted to deliver social housing through the Yukon Housing Corporation and the Canada Mortgage and Housing Corporation. Government should actively seek to form and work with community-based groups in these efforts, and only be involved in direct delivery if there is no other legitimate group to deliver the program or service.

The non-profit co-operative style of housing has not been utilized in the Yukon, although it is quite successful in other parts of the country. This blending of private and public efforts should probably receive much greater support from government if the communities are prepared to use it.

In the smaller communities, the public sector has traditionally played an important role in the creation and maintenance of shelter. In these communities, the Government might consider the selling of government-owned housing to individuals in an effort to create the fairest of housing markets for all Yukoners. However, this policy could only be pursued at a rate complementary with the government's need for housing to attract qualified outsiders to the northern civil service. Community-based and not-for-profit co-operatives may be a useful vehicle for fostering independence and enhancing the concept of ownership in the small communities.

Land claims may offer some considerable potential for quasi-public action in housing via native development corporations. Utilizing cash benefits from the claim, bands could increase their current activities in designing, building, and managing appropriate housing needed by their own people. This may be a particularly useful vehicle in the smaller communities where there is the greatest shortage of employment opportunities, and speculative entrepreneurs may not be ready to build.

Bibliography

- ; Population Projections for Canada Provinces and Territories, 1984-2006; Statistics Canada Publication # 91-520
- ; Yukon and Canada, A Comparative Analysis, Vol2.; Yukon Government Bureau of Statistics; June 1985, 44 p.
- ; Yukon Economic Outlook; Yukon Government Dept. of Economic Development, Mines and Small Business, January 1986, 28 p. and Appendices
- ; Yukon Government Annual Report, April 1984-March 1985; Yukon Government, 28 p.
- ; Yukon Housing Needs Study; the Institute of Urban Studies, University of Winnipeg, July 1986, 41 p. and Appendices
- ; Yukon Statistical Review, First Quarter 1986; Yukon Government Bureau of Statistics; 106 p.
- ; Yukon 2000: Building the Future, A Discussion Paper; Yukon Government Dept. of Economic Development, Mines and Small Business, September 1986, 66 p.
- ; Yukon 2000: Yukon Training Strategy, A Discussion Paper; Yukon Government Dept. of Education, 1986, 16 p.
- Acres Consulting/ Archtech Associates; Yukon Remote Community Energy Study Overview Study; Energy Mines and Resources Canada, January 1984, 249 p. and Appendices
- DPA Group; Assessment of Import Substitution Opportunities; Yukon Government Dept. of Economic Development, Mines and Small Business, March 1986, 39 p.
- Jossa and Associates; Planning and Architectural Considerations for Northern Housing (Draft); Canada Mortgage and Housing Corporation, 1986, 68 p.
- Land Design Research Inc.; Cost-Effective Site Planning, Single Family Development; National Association of Homebuilders, Washington, D.C., 1976, 144 p.
- Treeline Planning Services; A Fuelwood Study for Mackenzie Region Communities of the Northwest Territories; N.W.T. Association of Municipalities/ Energy Mines and Resources Canada, March 1985, 74 p.