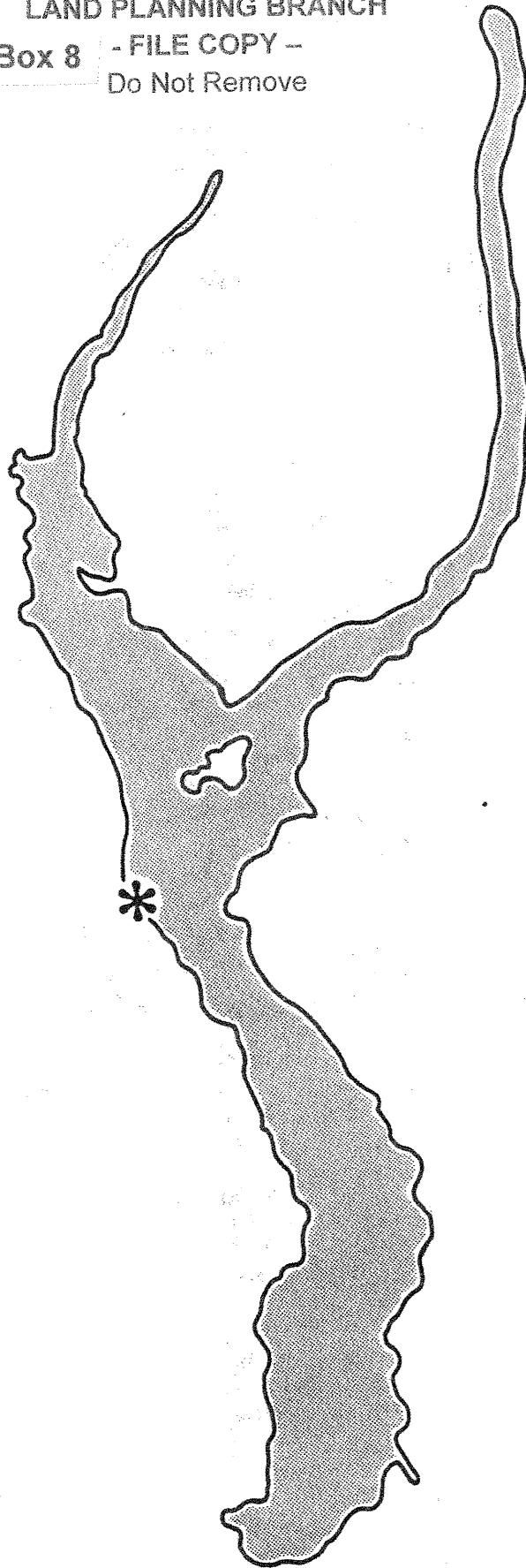


DESTRUCTION BAY YUKON

LAND PLANNING BRANCH
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Community Development Plan 1979

DESTRUCTION BAY, YUKON
COMMUNITY DEVELOPMENT PLAN

Prepared by

Underwood McLellan (1977) Ltd.

May 1979

KLUANE LAKE ATHLETIC ASSOCIATION

COMMUNITY DEVELOPMENT PLAN RESOLUTION

Whereas the Community of Destruction Bay requires a plan to guide future land use and development in the area, and

Whereas the Community Development Plan attached has been prepared in consultation with the Community residents, government advisors and other interested people and is satisfactory to them.

Now therefore, the Kluane Lake Athletic Association approves the Community Development Plan and requests the Director of Community and Municipal Affairs to adopt the Plan as a guide for future development in Destruction Bay and prepare the necessary regulations for its implementation.

Resolution passed at a meeting of the Kluane Lake Athletic Association on February 28, 1979.

ORIGINAL SIGNED BY:

J.W. Flumerfelt

Chairman

J. Ploeg

Secretary

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INTRODUCTION

INTRODUCTION

The major purpose of this Community Development Plan is to indicate the future form of development within Destruction Bay. It shows, by means of proposed land use arrangements, the manner in which the settlement might best develop. It sets forth information to be used as a guide by those people responsible for making decisions related to the future growth of the Community.

This report has been divided into two parts: a surveys and analysis part and the development plan part. The initial work is a compilation of all available data that is considered relevant to the settlements development, both past and present. The analysis which is contained throughout this part is an evaluation of the material collected and a projection of future requirements.

The Community Development Plan presents the long range proposal for land uses within the settlement area and indicates implementation procedures to be followed in the future. It has been prepared on the basis of the best information available for the Destruction Bay area. Significant Community and regional development changes are bound to occur in the future which may place new and unforeseen demand on land use requirements. For this reason, the plan should not be viewed as a static finalized document, but rather a statement of desirable land uses and forms of development. It is, therefore, important that the plan be reviewed and updated regularly, at least every five years.

This plan has been reviewed in draft form by local residents, government staff and others involved in the Community. Their comments and views have been fully considered in the preparation of this final document which sets out the recommended land uses for the Community and guidelines for future development.

Part I

SURVEYS AND ANALYSIS

GENERAL
BACKGROUND.

GENERAL BACKGROUND

Location and Regional Setting

The Community of Destruction Bay is located at Mile 1083 of the Alaska Highway on the southwest shore of Kluane Lake. It is about 265 km northwest of Whitehorse and some 225 km southeast of the Alaska-Yukon border.

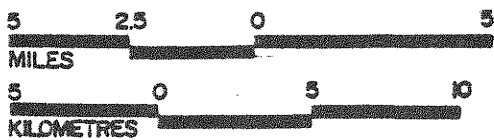
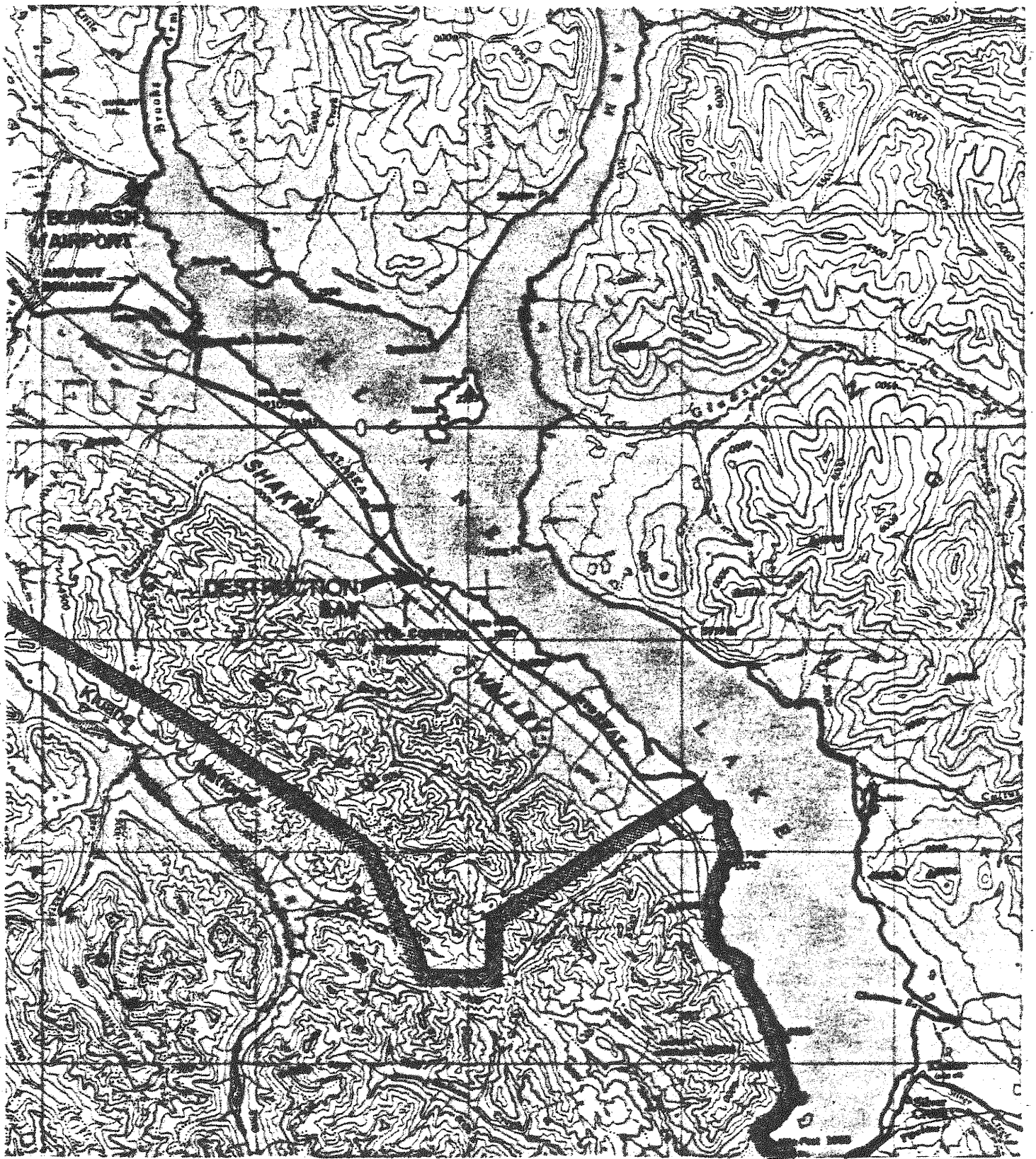
The geographical coordinates of the settlement are $61^{\circ} 15'$ north latitude and $138^{\circ} 48'$ west longitude. Plate 1 shows its position relative to other Canadian communities.

Origin of Settlement

Destruction Bay was first settled in 1942 by an American road crew working on the Alaska Highway. It was originally named Destruction Camp because their facilities had been blown down there during a storm.

The Community is a communications and transportation service centre, dependent upon the highway for its existence. It serves as a main stop-over point for tourists travelling the highway.

The present population is in the order of 85 people, most of whom are employed in Yukon or Federal Government service activities, such as highway maintenance, Canadian National Telecommunications, and airport operations. Two motel-service station complex serve the seasonal needs of the tourists and other highway travellers.



Community Development Plan
DESTRUCTION BAY, YUKON

Underwood McLellan (1977) Ltd.

Site Plan
plate 2

Destruction Bay is an unincorporated Community as defined by the Department of Municipal and Community Affairs administrative system. It is, therefore, operated entirely by the Territorial Government with local advice being provided by Community organizations. The lands under the direct control of the department cover a block land transfer area of about 2 square miles and is defined by 1975 order in Council.

Plate 2 shows the schematic location of the control area. It generally covers the area from the lake to a line 805 m southwest of the highway and a distance some 7300 m along the highway.

The Community appears to look forward to continued importance as a transportation and government service centre. Additional development in the area related to paving of the Alaska Highway, construction of the Foothills pipeline and Kluane National Park development will provide some opportunity for additional employment of a more diverse nature.

The Burwash Airport, located just north of Burwash Landing, serves both communities. Burwash Landing, at Mile 1093 of the Alaska Highway, is an Indian settlement with some 65 people. It has long been a fishing and trapping area as well as a major trading centre for coastal and southern Indians.

In 1903 a trading post was established at Burwash Landing to serve as a landing spot for the gold miners working on the northern creeks. In 1965 the government constructed an Indian village of 15 houses with retail and service outlets consisting of a gas station, lodge and combination museum and craft shop.

Natural Environment

Destruction Bay is located on the southwest shore of Kluane Lake at about its midpoint, as shown on Plate 2. This 60 km long lake lies in the Shakwak Valley. The Alaska Highway parallels the south side of the lake. The Kluane range of mountains lie to the southwest and rise to heights in the order of 2430 m.

The recently established Kluane National Park is located some 15 km to the west and south of Destruction Bay. The southerly entrance to the park is at Haines Junction about 105 km further south.

Climate

The area is subject to a broad range of climatic conditions. There are no long term weather records for Destruction Bay, however the statistics for the Burwash Airport, as set out in Table 1, are assumed to be representative of the entire valley.

The period from October to April has average monthly temperatures below freezing. The long range average monthly temperatures indicate January is the coldest month at -24°C while July is the warmest at 12°C .

The total 1975-76 precipitation was 30.8 cm. The snowfall during this yearly period was 124.5 cm, with the greatest amount falling in February.

The wind directions are generally along the valley. Those from the northwest are predominant during the winter.

The annual range of daylight is extreme in this relatively northern area. During June 21, the sun is above the horizon for about 20 hours, while it is above the horizon for only 5 hours on December 21.

TABLE 1
BURWASH AIRPORT, YUKON
TEMPERATURE AND PRECIPITATION DATA

	Average Temperature		Extreme Temperature		Precipitation
	°C		1976		Water
	1940-70	1976	Min	Max	cm
Jan.	-24	-20	-46	4	1.0
Feb.	-18	-22	-43	11	1.5
March	-12	-12	-34	8	0.3
April	- 3	- 1	-19	18	0.9
May	5	4	- 7	13	3.8
June	11	11	- 2	25	8.3
July	12	12	- 1	27	7.6
Aug.	10	11	- 4	28	3.9
Sept.	5	6	-10	19	1.4
Oct.	- 4	- 2	-16	12	1.8
Nov.	-14	- 3	-25	9	0.1
Dec.	-20	-16	-33	8	0.3
Annual	- 4	- 3			30.8

Average snowfall is 124.5 cm

Altitude 798.5 m

Data Source: Atmospheric Environment Service, Environment Canada as published by Alberta Environment for 1976.

SOCIO-ECONOMIC
FACTORS

SOCIO-ECONOMIC FACTORS

Population

The 1976 population of Destruction Bay was 72 people according to the Statistics Canada census. This was a decrease from the 82 people counted during the 1971 census. Figure 1 shows the past population figures graphically and also indicates a projection for future years.

The most recent population figures are from Yukon Health Care which indicates that 66 people now live in the community. This decrease of 6 people during the past 2 1/2 years may be in fact due to people leaving or to a differing criteria for identifying place of residence between the two agencies. There would appear to have been a general decline in population during recent years, however, in the order of 2 to 3 percent per year.

According to the Yukon Health Care data there are 34 males and 32 females living in the community. There are 5 (8%) in the preschool age group of 0 to 4 years, 7 (11%) in the school age group of 5 to 19, 49 (73%) in the working age group of 20 to 59 and 5 (8%) people over 60. The population is relatively old, with only 19% under 20 years of age. There is a dependency burden of only 1.3 for the 20 to 60 age group. That is, for every person of employable age, they have 0.3 others to support.

Data obtained from the Department of Education indicates a fall 1978 school enrollment of 24 students in the 2 room school at Destruction Bay. This includes 10 students from Burwash Landing.

Instruction is provided from Grades 1 to 8. The class sizes range from 1 student in each of grades 2 and 8 to 6 students in Grade 5.

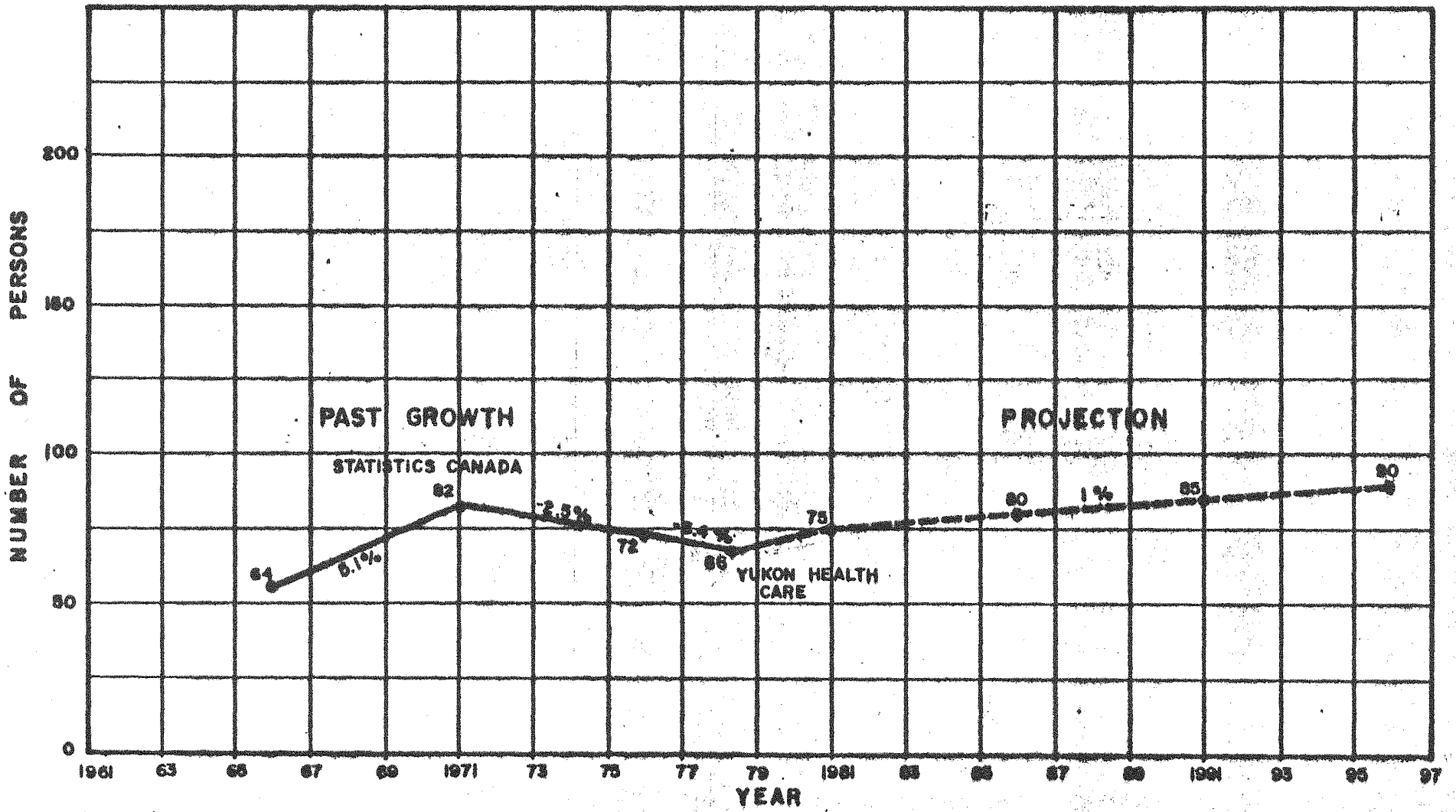
The population of Burwash Landing was 71 people in 1976. This number has not changed significantly since 1966. The 10 students attending the Destruction Bay School make up 14% of the Burwash Landing population.

Future Growth

Figure 1 shows a projection of future population for Destruction Bay. Within the next few years an addition of some 2 to 3 families may move to the communities in response to longer term employment opportunities related to the improvement of the Alaska Highway and development of the Foothills Pipeline. While the construction phases may cause more population to come to the community on a temporary basis, it is estimated that only about 5 to 10 people will remain for the longer term.

The slight increase of new residents is expected to occur within a time frame directly related to the progress made on the road and pipeline construction projects, which are intended to be developed within the next 3 to 5 year period. The longer range projection is based on a growth of 1% per year. This is a modest rate of increase which allows for some long term growth in tourism as Kluane National Park becomes better known. It also assumes a trend towards a more stable population and a higher natural increase rate than experienced in the past.

The projection should be considered to indicate a range of permanent resident population. In reality the size of the community will fluctuate in response to employment opportunities that are available. Temporary resident numbers will continue to change as it does now on a seasonal basis, when summer staff are engaged to serve the tourist industry. The figures, however, indicate the future population with sufficient accuracy for land use and other community planning purposes.



**POPULATION GROWTH AND PROJECTION
DESTRUCTION BAY**

figure 1

Economic Base

The main source of income is through service oriented wage employment. There are 2 motel-service station businesses in Destruction Bay that provide a broad range of highway commercial services. Only one is operational at this time. In response to the summer increase in tourist travel in the area, large numbers of temporary employees come to the community to supplement the local labour force. They are generally accommodated in their employer's facilities and therefore do not have an extensive impact on local land use requirements.

Transport Canada staff accommodation is provided for some 6 employees who are associated with the operation of the Burwash Airport. Although there will be increased use of the airport facility, no increase in staff is expected in the near future.

Other Federal Government agencies active in the area include Parks Canada and Health and Welfare Medical Services. Parks Canada is represented by two permanent wardens assisted by 1 temporary staff member, usually in the summer months. They have no plans for expansion except for a small increase in summer seasonal help. The nursing station at Destruction Bay is staffed by a full time nurse who also visits the communities of Beaver Creek and Burwash Landing on a regular basis.

Five full time employees are presently involved in the maintenance of the Alaska Highway. It is not expected that there will be any decrease in staff after paving of the highway, however there could be some decrease in the number of temporary summer personnel. Development of the Foothills Pipeline is not expected to create any employment opportunities for operation and maintenance of pumping stations and other related activities.

There are no natural resources in the immediate vicinity that would contribute to major growth in the area. The future of the community appears to be closely tied to tourism and operation and maintenance of transportation and communication facilities.

Social Factors

The following groups or agencies provide a broad range of services to the residents of Destruction Bay.

Local Government

The Community is within municipally unincorporated territory. The local government functions are carried out under the administration of the Yukon Department of Municipal and Community Affairs. The Kluane Lake Athletic Association provides advice in regard to development activities.

Education

The school in Destruction Bay provides classes from Grades 1 to 8 plus kindergarten. There is presently a staff of 2 with 24 students. The two classroom facility could handle double the present enrollment. About 10 students from Burwash Landing attend this school and are included in the above number. That community wishes to have a new school built in its own village. If it is developed, there would be a significant reduction in the student enrollment at Destruction Bay.

Students have to go to another community, usually Whitehorse, to attend high school. This lack of total education facilities in the region may cause some people to move from the community when their children reach high school level.

The school site is of adequate size for building development and open space purposes. Improvement of the grounds with playing fields and play equipment is generally required.

Churches

There are no church facilities in the Community. A site for at least one building is needed in the near future.

There is no cemetery within the area, and consideration should be given to a suitable location for one.

Health Services

Medical services are provided through the nursing station operated by Health and Welfare Canada. A full time nurse is resident. Service is provided from this community to Beaver Creek and Burwash Landing, however, and the nurse is often away on regular visits to these other areas.

Consideration is being given to improving the provision of health services to the region by either staffing the Beaver Creek nursing station or by upgrading the Haines Junction station by adding a full time doctor and another nurse to serve the north corridor on a travelling basis.

An ambulance is located in the Community. It is operated by a person with first aid training, generally from the staff of the Public Works Department.

Protection

Police protection is provided by the Royal Canadian Mounted Police staff operating out of the Haines Junction detachment. Consideration is being given to establishing a satellite detachment at either Destruction Bay or Burwash Landing.

Fire protection is provided by a volunteer fire brigade. There is a fire hall and fire truck located in the community. The alarm system consists of local telephones and siren, with alarm activating stations located at several points in the community.

Other

Any area having limited contact with other communities has a great need for recreational activities provided on an organized basis. The Kluane Lake Athletic Association provides facilities for dances, movies, bingos and similar activities. There is a community curling rink and outdoor skating rink for additional winter time recreation.

Radio and television service is received through the C.B.C. network. Telephone service is provided by Canadian National Telecommunications. Postal service is provided from Whitehorse on a Tuesday and Friday schedule.

There are no business outlets for specific retail sale of grocery and dry good consumer articles. Such goods can be obtained at a limited extent from the restaurant and sales outlets associated with the motel oriented services.

THE EXISTING
SETTLEMENT.

THE EXISTING SETTLEMENT

General Land Use

The general land use in the immediate vicinity of the Community is shown on Plate 3. The Alaska Highway which is the main all weather roadway access route to the area, lies within a 90 m right of way and is clearly evident.

The highway divides the Community into an easterly side where most of the people live and a westerly part where the lodges, service stations and highway maintenance yards are located. The limit of existing development on the westerly side is the Haines - Fairbanks pipe line right of way, which is now unused.

The developed residential part of the Community covers an area of some 250 m by 300 m, or about 8 hectares. The westerly strip development fronting along the highway includes also about 8 hectares.

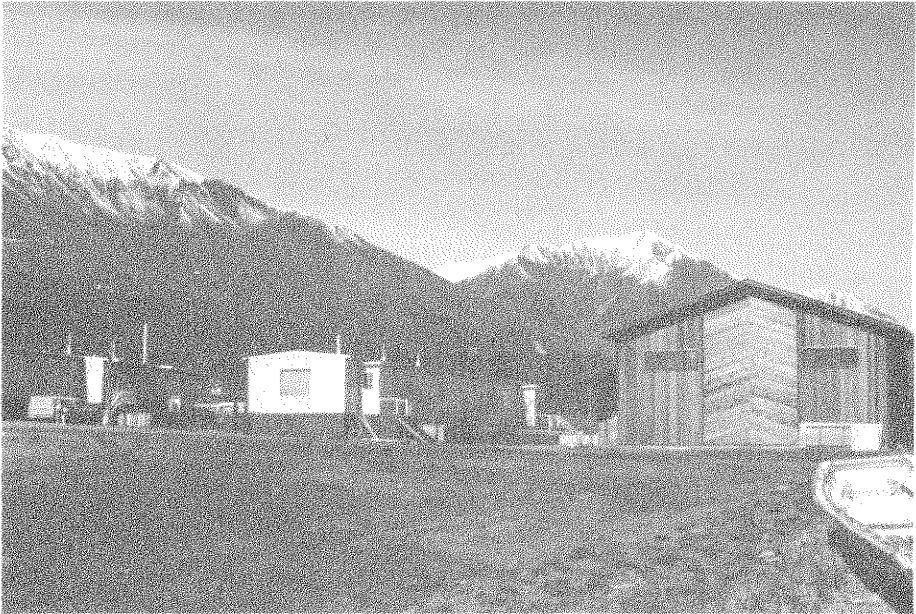
Existing Subdivision and Land Ownership

The existing subdivision pattern is shown on Plate 3. Past surveys have created a number of lots, both large and small. The large parcels, ranging up to 10 acres or more in size, generally front onto the highway. The smaller lots are created within a local road right of way system that gives direct access to them. These small lots have an average size of 23 m by 30.5 m with 18 m to 24 m roadways. Lanes of 6 m width have also been provided as part of the subdivision arrangement.

In general, the small lots are used for individual residences or offices. Only in the areas belonging to a single agency are there several structures located on a larger lot.

DESTRUCTION
BAY

RECREATION CENTRE
AND DUPLEX HOUSES



SCHOOL AND FIREHALL
AREA



VIEW TOWARDS LAKE
CNT ON LEFT



DESTRUCTION
BAY

SMALL CREEK THROUGH
SCHOOL AREA



UTILITY LINE SERVING
LODGE AREA



SEWAGE LIFT STATION



There are a number of locations in which buildings encroach on the surveyed roadways or on to adjacent lots. These buildings appear to have been sited in relation to physical features, such as roads or trails, existing at the time of construction rather than being laid out from the legal survey posts.

All lands in the Yukon are assumed to be public or crown lands unless they have been transferred to others by the Department of Indian and Northern Affairs. The lands within the community area have been turned over to the Government of the Yukon for administration and control purposes under a block land transfer. The limits of this land transfer area that fall within Plate 3 are shown on it. Leases, purchases or reservations relating to these lands are negotiated between the applicant and the Department of Local Government, but with consideration of the advice provided by the local residents and other departments.

In Destruction Bay, the motel areas are privately owned and only a small number of parcels are privately leased. The majority of land is held as crown land or as crown reservation designating its use for a specific government agency. Plate 3 indicates the current status of the land holdings in the community.

Existing Land Use

Plate 3 shows the existing land use in the community both schematically and with reference to the names of agencies owning facilities in specific areas. There are a variety of uses which are clearly zoned or arranged by use in some areas but intermixed in others.

Residential Uses

Most people live in single family houses or duplex units located near the lake shore. Eight duplexes on Lot 7, just south of the curling rink, provide accommodation for government staff. They are in poor condition and should be replaced at an early date. There are 5 single family houses and one mobile home in the vicinity of the nursing station. Two houses are on the C.N.T. property. Only 2 residential areas lie to the west of the highway; one near the Talbot Arms Motel and the other near the Yukon Electric power plant.

The majority of homes are owned by government agencies and are occupied by their employees on a lease basis.

Commercial Use

The only commercial facilities relate to the motel-service station units which essentially cater to the tourists and to other highway related services. There is no local retail outlet specifically for consumer food and dry goods although some consumer items can be obtained from the restaurant operated as part of the service commercial businesses.

Education, Parks and Open Space

The existing elementary school is located on a 6 acre parcel adjoining the highway and near the entrance to the residential subdivision. Only a small portion of the site is actively used at this time. An outdoor skating rink area is provided adjacent to the school grounds.

There are no extensively developed park areas within the community. A part of the subdivided area in the vicinity of Lots 26 to 46, is not suitable for other economical development and has been used for open space purposes.

The shore areas within 30 m of the water is deemed to be reserve or public lands and is available to all users. There are unlimited inland areas which provide open space for passive or active recreational uses. The lake is also an extensive recreational amenity area that is directly available to both the residents and tourists that are in the Community.

Good access must be provided and maintained to the reserve areas. Two roadways presently lead to the shore. One is in the vicinity of the water pumphouse and the other is some 400 m further north.

Institutional Uses

Institutional uses are defined as those associated with specific government office functions or other semi public uses such as churches and community halls. The institutional areas in Destruction Bay are all within the general residential part of the Community and include the Parks Canada office, the fire hall, the old community hall, the health service centre and the curling rink-recreation centre.

These facilities are all in good physical condition except for the old community hall which is not presently used. A new addition was made to the curling rink complex, near the shore, which now also functions as a community hall-recreation centre.

Industrial

The main industrial areas are associated with the Territorial Government Public Works yard on Lot 10 and the Yukon Electric power plant on Lot 78. These developed sites both front the westerly side of the highway.

The Public Works Yard contains a number of warehouses, garages and outdoor storage space for heavy equipment. Some materials for maintenance of the highway are also stored on-site.

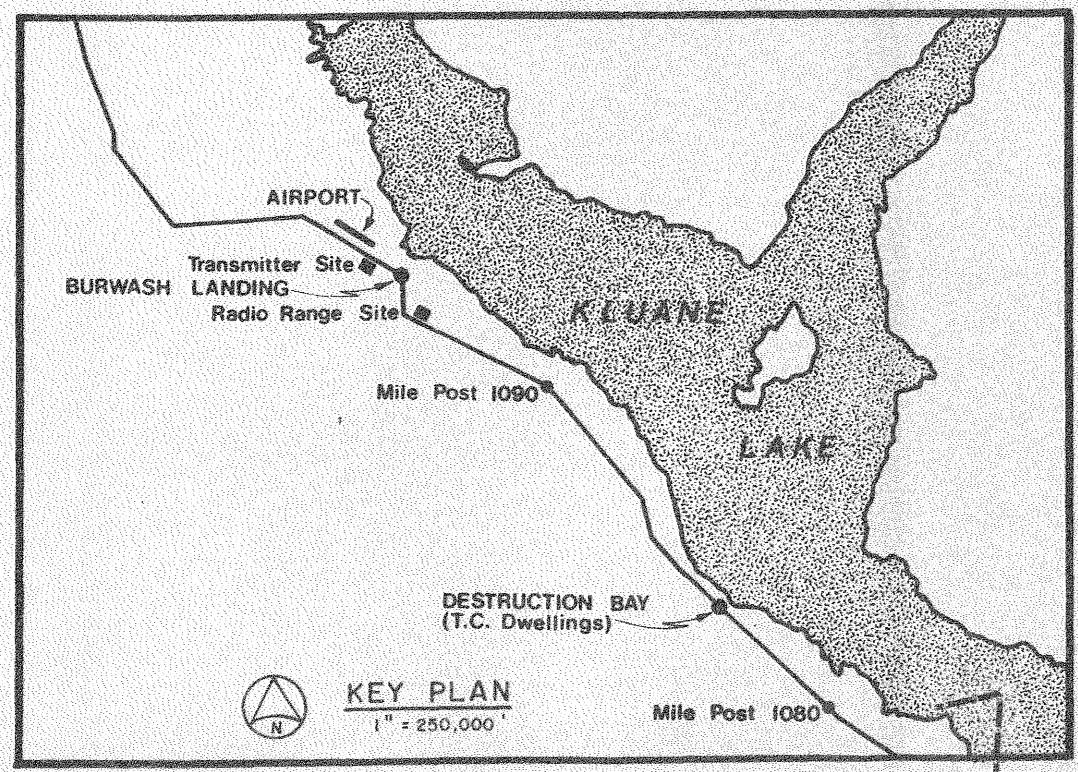
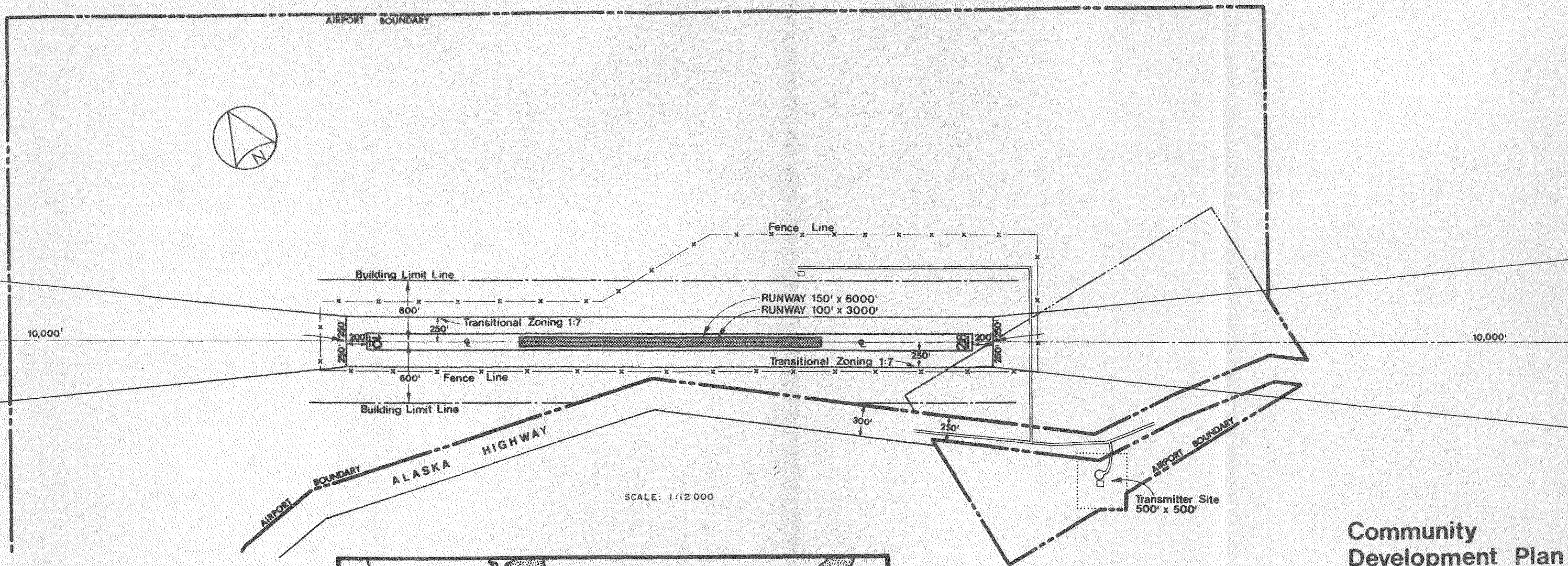
The power plant lies to the south of the Public Works yard. It contains the diesel generators and other equipment for supply of electrical power to both Destruction Bay and Burwash Landing.

The old Haines-Alaska Pipeline right of way is located southwest of the highway and is at the southerly limit of the Public Works yard. The final location of the new Foothills pipeline is not known at this time. Preliminary plans indicate that it will be constructed about 300 m west of the Community. This relative closeness is of concern to local residents who feel that it may unduly restrict long term Community growth and land uses in the area and be a potential hazard to the existing development. Further discussion with the pipeline company is required to determine the most appropriate location of this major facility.

It is proposed that a gas compressor station will be located some 13 km south of Destruction Bay. Staff located in Hanes Junction or Beaver Creek would service and operate this facility.

Burwash Airport

The Burwash Airport provides air service facilities to both Destruction Bay and Burwash Landing. The airport is situated at about Mile 1095 of the Alaska Highway, some 2 km west of Burwash. Plate 4 shows the general location of the airport and the lands required for its operation.



Community
Development Plan
DESTRUCTION BAY
YUKON

**Burwash Airport
Zoning & Land
Requirements**

Provision is made for an 1830 m runway at this location. Existing development, in addition to the airstrip, is a Transport Canada operations building, weather recording equipment, aircraft parking area and navigational aids.

Existing Utilities

Water Supply and Distribution

A recirculating water distribution system serves the eastern part of the Community. The system consists of pipes ranging in size from 25 to 100 mm in diameter. Source of water is a well located in the pumphouse.

It is reported by Hydrogeological Consultants Ltd., who undertook a well exploration program in March, 1978, that the existing well yields approximately 45 litres per minute.

A new well drilled in 1977 adjacent to the existing pumphouse is reported to be capable of supplying 136 m³ per day (20 l/gpm) on a long-term basis. Chemical quality of the water from this well is acceptable for potable use except for iron and hardness which were slightly in excess of recommended values (Canadian Drinking Water Standards). Some form of iron removal may be necessary if further samples indicate a similar content of iron.

Sewage Collection and Disposal

The eastern part of the Community is served with a piped collection system which drains into a lift station. The sewage is then pumped to a lagoon situated southeast of the community. The lagoon has a storage capacity of 10,457 m³. The lagoon effluent is drained into Kluane Lake. The lagoon is expandable to the southeast.

It has been reported that individual sewage disposal systems consisting of septic tanks and subsurface tile fields have not functioned properly in the past. Previous studies have recommended replacement of this type of sewage disposal with a piped collection system and disposal of sewage at the existing lagoon.

Solid Waste Disposal

Garbage is disposed of at a site approximately 8 km northwest of the community. The Government buildings are serviced on a regular pick-up basis provided by a private contractor. The remainder of the community does not have any pickup service and thus haul their own refuse to the disposal site.

Streets and Drainage

The gravel surfaced Alaska Highway passes through the community in a northwest-southeast direction. Local roads in the community are gravelled and properly drained.

The overall drainage pattern within the Community is toward Kluane Lake. No significant improvements are necessary.

Surface and Subsurface Soils

On the basis of test pits dug at the proposed acreage subdivision, subsurface material consists of clay silt underlain by alluvial silty sands and gravels near the lake shore and clay silt and silty clay till in areas away from the lake.

Test pits indicated that permafrost is present in the area.

Part II

COMMUNITY
DEVELOPMENT PLAN

DEVELOPMENT PLAN

DEVELOPMENT PLAN

This section contains land use proposals for the guidance of future development in Destruction Bay. The plan shown on Plate 5 has been formulated on the basis of physical, social, economic and environmental factors as revealed by on-site surveys and evaluation of other background reports. Full consideration has been given to existing problems arising from both physiographic and micro-climatic features of the area and an attempt has been made to amend these conditions insofar as they adversely affect present and future community development.

The plan is flexible in order to accommodate a full range of alternative development possibilities. Land use areas sufficient for more than an estimated 10 year requirement are indicated on the plan in some detail for purposes of staging.

The segregation of like uses into separately defined areas, or zoning, forms the basis of the development plan. This method of development control is recognized as being acceptable since it is allowed under the Territorial Government Ordinances that affect the Community. It also forms the basis for establishing an efficient Community and reduces the chance of noise, visual or environmental conflict that might otherwise occur.

The plan recognizes the existing buildings and retains them where they do not conflict or where it is uneconomical to move them. The existing boundaries have not been used to define all future property limits as this would be too restrictive. It is assumed that if a good plan is achieved, the various land holders will renegotiate their property requirements. The approval of the plan will not automatically change the boundaries of any lands. This can be accomplished only through further detail negotiations and specific agreements with the land holders.

The limitations to development in certain areas are clearly evident. They include:

- The lake, in which 30 m of the shoreline should be retained for public use with good public access to all parts of it.
- The Alaska Highway which will continue to bisect the community in its present location.
- The Haines Alaska pipeline right of way which along with low wet terrain forms a westerly barrier to development at this time.

Land Uses

The plan is developed within the concept of having the industrial and highway commercial activities separated by the highway from the residential and related uses. A small central service and institutional core is surrounded by the living and recreation areas.

Residential expansion has been directed to locations that are readily and economically developable, have good views and other amenities and have a desirable attraction for future residents.

A further description of the basic land use categories, as indicated on the development plan, is outlined below. Reference is to be made to Plate 5, the proposed development plan.

Residential

Compact or low density housing sites include those lots upon which the single family units have already been built plus areas for expansion. The southerly limit for this type of land use is the row of existing houses adjacent the health service centre.

Expansion is proposed to the north of the government duplex housing area. Some 42 new lots can be created within a convenient circulation pattern. This layout is shown schematically on the plan and would allow for future extension of a piped servicing system if this is desirable. The layout proposes that lots back onto the lakeshore reserve strip.

It is assumed that the majority of housing in the community will be single or duplex units. However certain reduction in dwelling unit costs might be achieved by building row houses or small apartment units. In anticipation of such a possibility a site for multiple family use is indicated. It is in the central part of the existing development allowing the greatest number of people to be closest to the community facilities.

Acreage residential lots are provided in a site to the south of the sewage lagoon and near the lake shore. These lots, about 1.5 to 2.5 acres in size are proposed for single family use. They are of sufficient size to provide area for small gardening activities and assure privacy to the residents. Utilities would be provided on an individual basis by the owner of the lot to be developed. Only a minimal amount of tree clearing should be carried out during building construction.

A site providing 21 new lots is indicated within a subdivision pattern on Plate 5. Mobile homes of suitable standards might be allowed within any part of the area or alternatively restricted to one location. This matter should be considered in further detail at the time of detail site design and development.

The proposed location of some 65 new residential lots within Destruction Bay will meet the housing location requirements of the community for many years into the future. The provision of 3

categories of living areas will give a good choice in alternative life style for those people wishing to develop new homes.

Commercial

The highway commercial uses on the westerly side of the highway will remain. Expansion can occur further to the north.

A small local commercial site is proposed on the east of the highway at the existing entrance to the industrial area. These lots, in the vicinity of the CNT property, would be for a local retail store and additional office uses that may be proposed in the future.

An additional tourist commercial site is proposed between the highway and the lake and northerly of the residential area. This could be developed for camping and similar use with major emphasis on tourist access to the lake and water oriented activities. Boat rentals, fishing equipment sales, guiding and similar commercial projects might be developed. The increased availability of these facilities could encourage tourists to stay in the community for longer periods and give them a greater opportunity to enjoy the amenities of the area.

Institutional

The development plan incorporates the existing institutional facilities. These include the government offices and recreation complex. There appears to be adequate area for future expansion of these uses. New requirements such as Community office building, fire hall and similar uses could be accommodated within the central commercial core area.

Educational and Reserve Areas

The existing school grounds should be sufficient for both the school and open space play area within the community. Site improvement is required to make more of the land useable.

Except for the housing lots presently developed, the subdivided area between the school grounds and the lake are not suitable for intensive uses. This area is presently used for sports and picnic activities. These active and passive recreation uses are most suitable for the lands. It has therefore been designated for recreation and open space purposes for use by the Community residents.

Additional area is needed for public campground development for tourist use on a day basis. A suitable site is proposed to the northwest of the tourist commercial site. It would be used as a rest stop and picnic site but no overnight camping would be allowed. A boat launch site could be developed so that it can be jointly used by the public and commercial areas.

Open space buffers are proposed between the highway and residential lots to limit direct access to them. Other open spaces would be included within the residential areas.

The shore is considered to be reserve or public lands for a distance of at least 30 m from the water. The area surrounding the Community provides unlimited open space for passive or active recreational use.

No other uses in the vicinity of the Community should be allowed without specific approval and amendment to the plan.

Industrial

Industrial land is well identified as the Public Works yard and the power house. Future industrial activities are to be located in this area. Expansion can take place to the south or, in the long range future, further west across the Haines Fairbanks pipeline right of way.

An internal roadway system should be provided to serve the area once demand and parcel sizes are identified. A new subdivision layout should be planned for the area with the existing plans being cancelled and resurveyed.

Subdivision Pattern

The development plan sets out a system of right of way for vehicular and pedestrian circulation within the settlement, with some major revision to the existing development. The Alaska Highway is the primary access route to the community. It is assumed that individual roadways from the highway can serve those developments fronting it at this time. A future system of service roadways may be required if the volume of traffic grows to warrant them. Full consideration of this requirement should be made at the time of planning the future improvements and paving of the highway.

Two direct accesses are provided to the compact residential area. The local roadway system, with 18 m rights of way, provides access to individual lots. The main access to the acreage residential site is from a point on the highway some 900 m southerly. A secondary access to the community could be provided by a lake frontage road if required in the future.

Individual lots are provided for each single family house and other separate buildings within the settlement. The lots are shown schematically at a size of 24 m by 30 m in the compact residential area. The acreage lots are some 90 m by 100 m. The minimum size needed should be related to the dimensions of the building to be constructed on it and the fire separation or other requirements and standards set for the area.

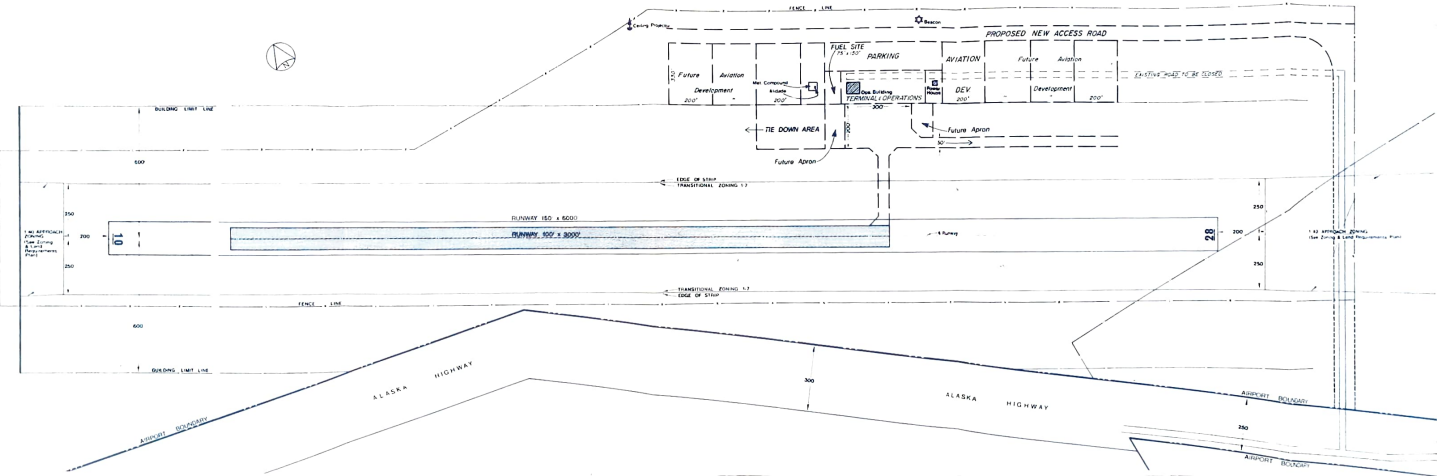
The buildings, and particularly the houses which make up the majority of the units, should be sited within the lot in a manner that given a pleasing appearance to the street and area. There should be a variety of orientation related to the view, sun direction and other amenity aspects.

Airport Development

Plate 6 shows the future development proposed for the Burwash Airport. The main access from the highway is by the existing road around the east and north sides of the airstrip. The existing facilities include the operations building and associated parking, and the power house. The main apron area is in front of the operations building and can be expanded as required.

Aviation development sites to the east of the power house are limited in depth to some 30 m because the existing roadway is relatively close to the building limit line. Consideration should be given to relocating this road further north to provide deeper lots and more area for parking, buildings and storage requirements.

Larger aviation development lots could be provided to the north of the weather instrument site. Both road and taxiway extensions would be needed to serve them, however.



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Burwash Airport
Development Plan
Scale: 1" = 2400'

Airport planning is carried out by Transport Canada from their regional headquarters in Edmonton. Any developments or land use requests for this area would require their approval prior to being constructed.

Proposed Utilities

This section considers the various utilities and the levels of service that could be provided at Destruction Bay. Order of magnitude costs for major facilities are included in this section.

The level of service for water and sewer utilities is often dictated by financial considerations. A high level of service is generally high in capital costs and low in operating and maintenance costs as compared to a minimal level of service which is generally low in capital costs but high in operating and maintenance costs.

Water

The highest level of service which could be provided consists of a central water source, heating system, storage tanks with associated pumping facilities and a recirculating piped water distribution network including fire hydrants. Water usage for a system of this type is higher in capital cost as compared to one where individual wells are used.

For purposes of this report, a water usage of 364 litres per capita per day is assumed if the highest level of service is provided. For the present population, the average day requirement would then be approximately 25,500 litres (3.9 gallons per minute). The supply capacity is normally sized to provide sufficient water to meet the maximum day demand which is approximately 2 to 3 times the average day demand.

Thus for Destruction Bay a central water source producing 35 to 54 litres per minute would be required to meet demands of the present population. This central water source would be one well or a combination of wells. As an initial step in development of a central water system, utilization of the existing wells as a source is recommended.

Water storage tanks are provided to serve three purposes, namely: (1) to equalize pressure, (2) to meet peak hourly demand, and (3) for fire fighting and emergency uses.

Generally it is found that construction costs of a water storage tank to meet the preceding requirements are beyond the financial capabilities of the community. Thus, a smaller capacity tank is provided which in part attempts to satisfy the preceding requirements. For Destruction Bay, a storage capacity of 100 m³ is recommended.

The recirculating distribution system would involve continuous circulation of heated water through the system and reservoir to prevent freezing of mains because of permafrost conditions.

Development of the water system in two stages is recommended. The stages of development are shown in Plate 5.

An order of magnitude costs for the water system based on a well source and on 1979 dollars is presented below:

Stage One

1. Water pumphouse c/w heating and circulation facilities	\$ 250,000
2. Water distribution mains	
- 1550 l.m. (includes replacement of existing)	\$ 186,000
- Appurtenances	\$ 40,000
- Services - Approximately 25	\$ 48,000
- Miscellaneous	<u>\$ 50,000</u>
Sub Total	\$ 574,000
Engineering & Contingencies 25%	\$ 143,500
<u>TOTAL STAGE ONE</u>	<u>\$ 717,500</u>

Stage Two

1. Water distribution mains	
- 1440 l.m.	\$ 165,000
- Appurtenances	\$ 36,000
- Services - Approximately 20	\$ 38,400
- Miscellaneous	<u>\$ 45,000</u>
Sub Total	<u>\$ 284,400</u>
Engineering & Contingencies 25%	<u>\$ 71,100</u>
<u>TOTAL STAGE TWO</u>	<u>\$ 355,500</u>

Kluane Lake merits consideration as another source of water. On the basis of a chemical analysis of the sample taken in the summer of 1977, the water is suitable for domestic purposes. Other than for disinfection, no other form of treatment is necessary. An intake from the lake and a pumphouse are required for this alternative. Preliminary cost estimate based on a 500 foot intake is in the order of \$190,000. For comparison purposes with the well course, this figure should be added to the cost of Stage One.

Sewage

The highest level of service that could be provided for Destruction Bay is a piped collection system and treatment in a sewage lagoon. Since the existing sewage lagoon is reaching its capacity, expansion of this facility is necessary to service future growth. Expansion of the lagoon to the southeast appears possible.

The major components of the pipe collection consist of 200 mm buried insulated sewers and insulated manholes. The topography of any new development slope towards the existing collection system, thus gravity flow is possible which eliminates the use of lift stations.

This type of collection system would do away with existing septic tanks in areas where the collection system is installed. Buildings would be connected to the main sewer by a 100 mm diameter insulated sewer.

Development of the sewage collection system in two stages is recommended. Expansion of the lagoon as well as upgrading of the existing sewage lagoon should be undertaken during the first stage.

The stages of development for the sewage collection system are shown on Plate 5.

Order of magnitude costs for the sewer system is outlined below:

Stage One

1. Sewage Lagoon Expansion	
- Excavation	\$ 75,000
- Structures	\$ 15,000
- Fence, Miscellaneous	<u>\$ 25,000</u>
Sub Total	\$115,000
2. Collection System - 200 mm	
- 590 l.m.	\$ 45,000
- 5 manholes	\$ 13,000
- 12 services	\$ 19,000
- Miscellaneous	\$ 10,000
- Lift station upgrading	<u>\$ 20,000</u>
Sub Total	\$107,000
Engineering & Contingencies 25%	<u>\$ 55,500</u>
<u>TOTAL STAGE ONE</u>	<u>\$277,500</u>

Stage Two

1. Collection System - 200 mm	
- 1175 l.m.	\$ 90,000
- 8 manholes	\$ 21,000
- 20 services	\$ 32,000
- Miscellaneous	<u>\$ 25,000</u>
Sub Total	\$168,000
Engineering & Contingencies 25%	<u>\$ 42,000</u>
<u>TOTAL STAGE TWO</u>	<u>\$210,000</u>

IMPLEMENTATION

IMPLEMENTATION

Development Plan Procedures

The development plan as proposed in this report can be implemented only within the content of powers vested in the various levels of government.

As part of the municipally unorganized area within the Yukon, the responsibility for development control and regulation rests with the Government of the Yukon Territory and in some instances with the Government of Canada. The Department of Municipal and Community Affairs has major responsibility in approving development applications and implementing measures to create a satisfactory living environment within the Beaver Creek Community. These legal requirements are, however, applied in a practical manner by seeking and receiving advice from local residents and Community groups on the variety of matters that arise.

L.I.D.

The first level of local municipal authority is provided by the Board of a formally organized Local Improvement District. With authority, however, comes the responsibility for providing municipal services and for the costs involved.

In a small Community with only limited services and facilities available, the costs of improvements needed to provide a better living environment or to meet the demands of growth could be beyond the reach of the residents. A population level in the order of 300 people is probably needed before more reasonable economies of scale can be achieved in construction projects that need to be locally funded.

Similarly special grants based on population size become a more meaningful source of revenue. Many other matters related to the need for a L.I.D. would have to be evaluated prior to having it established.

It would therefore appear that Destruction Bay will continue to function as an unincorporated Community for the immediate future. The Community Development Plan will be brought into effect through acceptance by the local residents with formal implementation procedures carried out by the Department of Municipal Community Affairs.

The Community Development Plan is intended as a guide to assist in co-ordinating development in the Community and its surrounding area whether they are initiated at a local, territorial or national level. The plan should be adopted by the Territorial Government under terms of the Area Development Ordinance after it receives approval by the local residents. It would then be used as the basis for reviewing all future applications for development in the area.

The plan does not set out in complete detail all aspects of development which are likely to occur in the forecast period. Flexibility in sizing of lots, final street alignments and drainage patterns and other matters relating to specific site conditions are allowed for. Their final sizing and survey on the ground will form an important part of the implementation process.

The currently proposed capital construction projects in the region are not expected to have a large long term impact on the community. The population increases will be modest and the level of services to be provided will not immediately increase to any great extent. Burwash Landing will similarly not receive any large growth incentives.

The regional distribution of services are projected to remain at the existing level. The only major change currently proposed is for a school in Burwash, which if established, would reduce the number of pupils attending the Destruction Bay school by nearly one half.

Capital Expenditure Program

The programming of capital expenditures is a most positive means of implementing the plan in the physical sense. In affect, it is based on the establishment of costs and priorities for capital improvements using information set out in the plan document and applying these effectively in terms of the program over the next five year period.

Since a capital expenditure program is predicated on a fairly detailed plan, it can be implemented only following approval of the Community Development Plan by the groups and agencies affected. In addition, since there is always some uncertainty regarding future growth patterns in the area, a budget can be specific with respect to only a two to three year period and more general with respect to the balance. It should be reviewed and amended as required on a yearly basis and take into full account the maintenance and operations costs of the facilities provided.

The cost items set out in the utility services section of the plan indicate estimated amounts for various portions of development. Although further analysis may change the implementation phases, the figures can be used directly or adjusted as necessary for budget preparation purposes.

Regulatory Measures

Regulations setting out development controls, specifically those relating to removal of soil and gravel or other surface disturbances, must cover an area greater than just the present built-up portion of the community so that all activities within a reasonable distance can be subject to approval procedures through local representatives. The area within the Block Land Transfer area should be the minimum for regulatory purposes within the jurisdiction available to the government. Consideration should be given to expanding this area to include lands within a radius of 8 to 10 km from the centre of the Community. The boundary of the area should be clearly defined when the regulations are prepared.

Additional regulations in the form of zoning or subdivision controls will be required to give further guidance for approving developments within the land use categories set out in the plan. These will ensure that the intent of the plan will be carried out and will form the basis upon which to consider each development proposal.

These regulations should be prepared as soon as possible after the Community Development Plan is approved.

APPENDIX A

FOOTHILLS PIPELINE

CONSIDERATIONS

AT

DESTRUCTION BAY

FOOTHILLS PIPELINE

The Foothills gas pipeline is still in the planning stage with initial construction to be undertaken in the 1980's. As previously indicated, only preliminary route location plans are available at this time. Plate 8 shows this proposed pipeline location in relation to the Community of Destruction Bay and the surrounding area.

It would appear that the pipeline will follow closely the existing right of way of the Haines-Alaska pipeline. This will have it practically adjoining the south western edge of the Public Works area. This relative closeness is of concern to local residents. It is felt that it may unduly restrict long term Community growth and land uses in the area and be a potential hazard to the existing development.

Residents must be assured that the line is built an adequate distance away from their living and working areas to ensure safety. It must also be far enough away so that there is minimal impact on the amenity of the Community.

Design standard for pipelines require that the maximum operational pressures be reduced (or wall strength be increased) in accordance with a formula that takes into account the land uses adjacent to the line. While the effects of existing development patterns can be easily calculated, the constraints on future uses are difficult to determine. The standards required that if, at the time of planning a new pipeline, the possible future development appears to be sufficient to change the location class, then it be taken into consideration in the design and testing of the proposed pipeline.

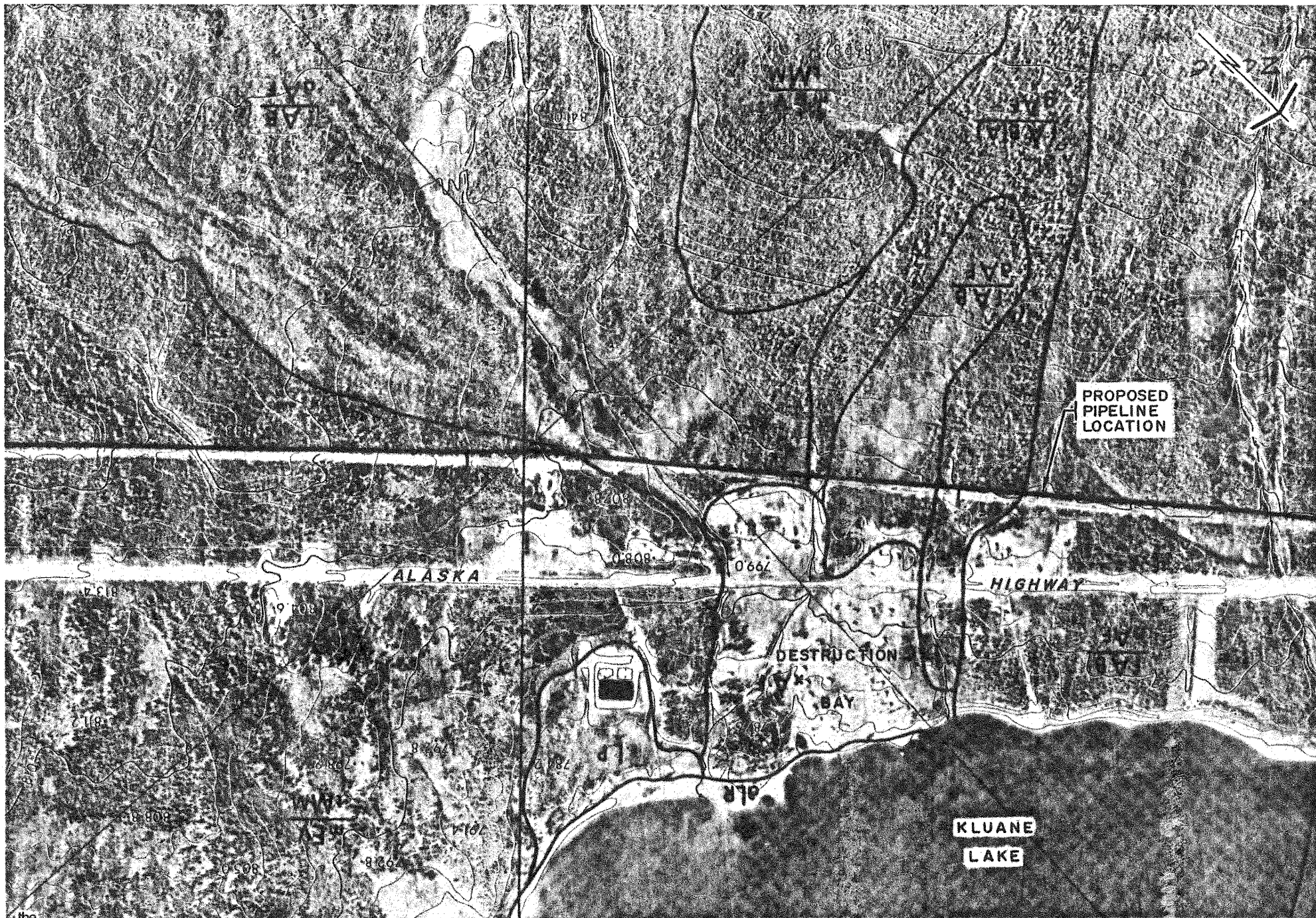
The best alternative would be to place the pipeline far enough from development land that there will be no present or future land use conflicts. In the Destruction Bay situation, the line should not cross the block land transfer area or other potential

use areas that may be defined in future development control regulations.

There may be other physical constraints however that require it to pass closer to the Community. In this situation, the highest class location standards should apply to the length of pipe within the block land transfer area.

Consideration should also be given to providing more cover over the pipeline, than normally required in unsettled area, in the vicinity of existing or possible future development. Heavy construction equipment is normally operated in these populated areas and the hazards of inadvertently damaging the pipe could be greatest near these activity centres. An additional depth of cover would provide a greater factor of safety for the areas involved.

These and other concerns that may be further expressed by the residents should be reviewed by the pipeline planners when defining the final route for the line. Good planning at this initial phase of development will ensure long term safety for the operation of this major project, with a minimum of adverse impact on the local Community.











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Proposed
Development
Plan

LEGEND

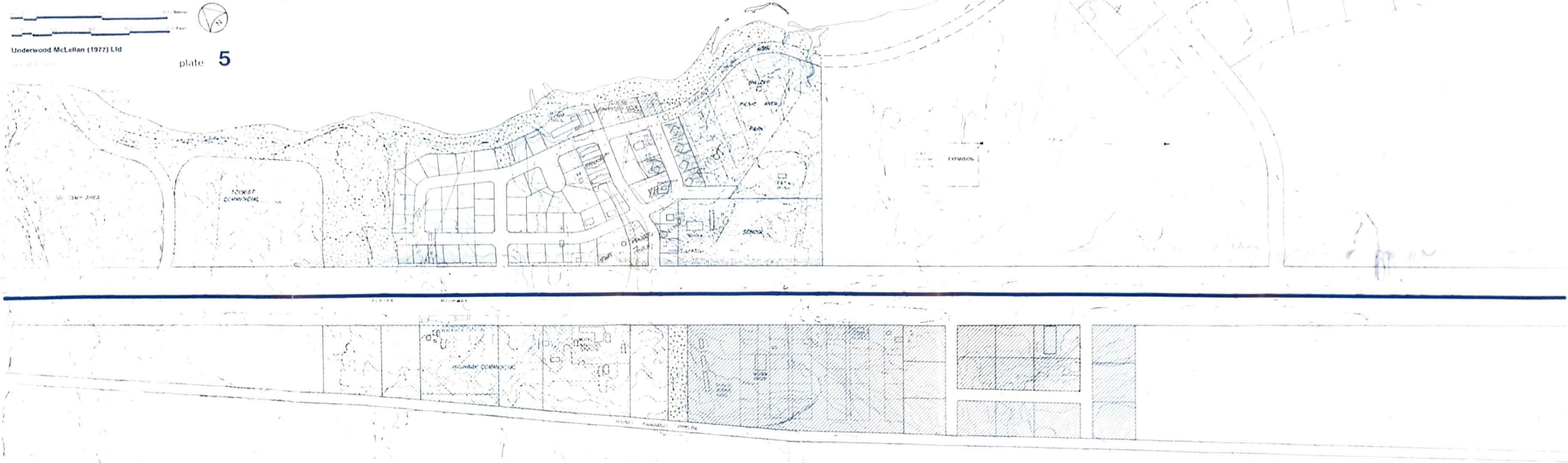
-  RESIDENTIAL (ACREAGE)
-  RESIDENTIAL (COMPACT)
-  MULTIPLE FAMILY
-  INSTITUTIONAL
-  COMMERCIAL
-  INDUSTRIAL
-  RECREATIONAL & SCHOOLS
-  OPEN SPACE

KLUANE LAKE



Underwood McLellan (1977) Ltd

plate 5



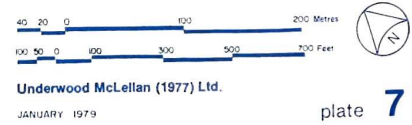
Community Development Plan

DESTRUCTION BAY YUKON

Proposed Utilities

LEGEND

- WATERMAIN :
- PROPOSED STAGE 1 (INCLUDES REPLACEMENT OF EXISTING MAINS)
 - PROPOSED STAGE 2
- SANITARY SEWER :
- EXISTING
 - PROPOSED STAGE 1
 - PROPOSED STAGE 2
 - FUTURE
- STAGE BOUNDARY



KLUANE LAKE

