

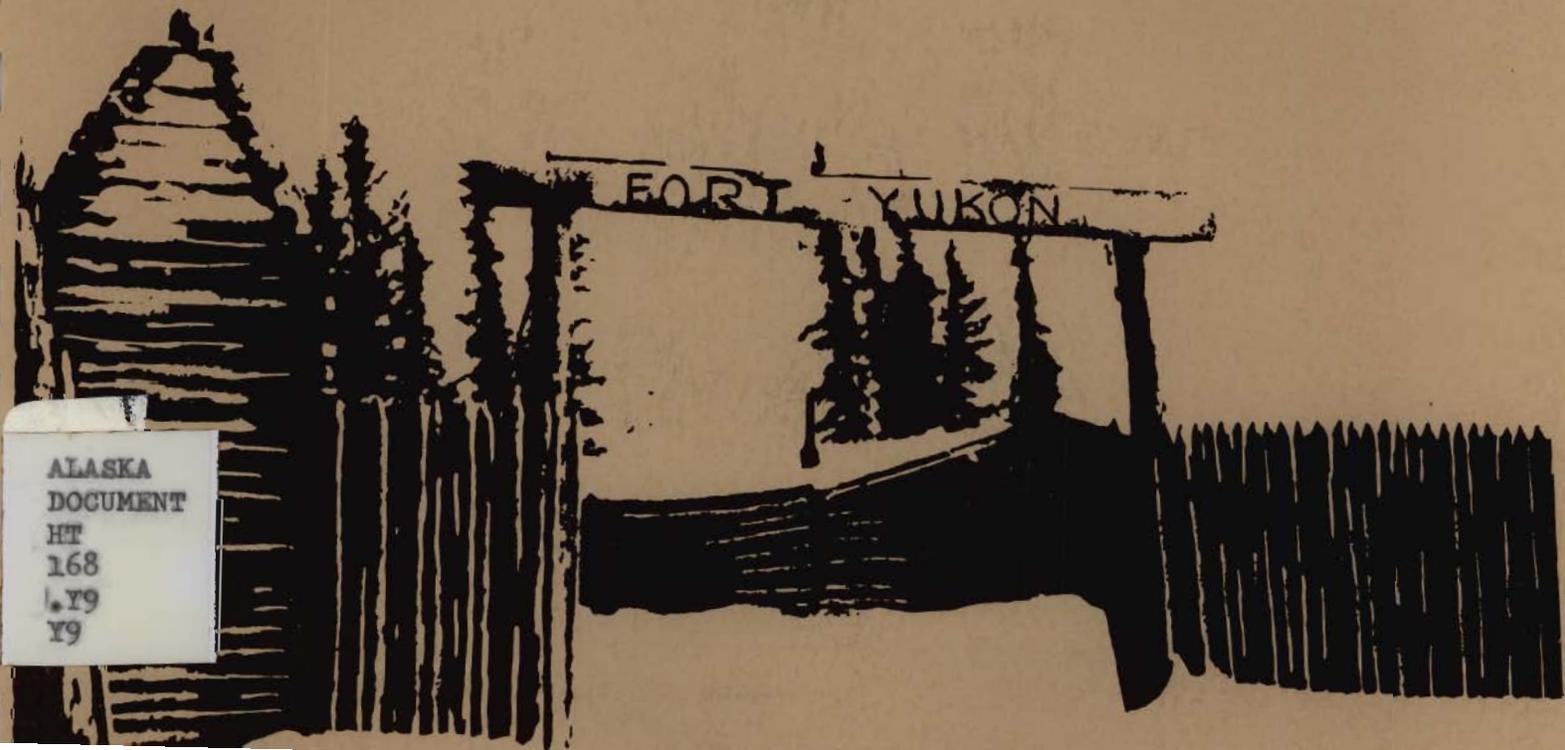
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Fort Yukon

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Comprehensive Plan



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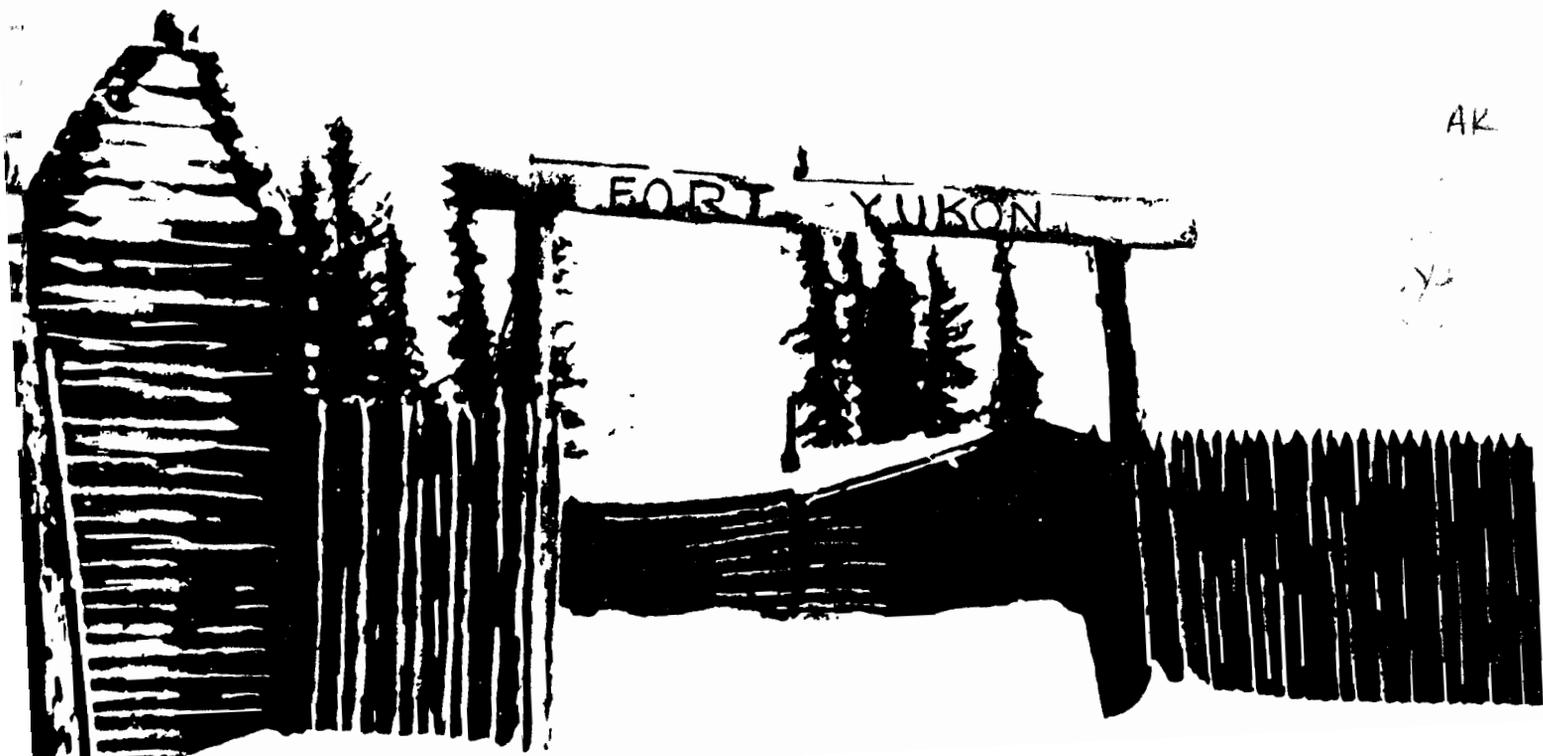


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Fort Yukon

Comprehensive Plan

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PREFACE

The *Fort Yukon Comprehensive Plan* is submitted to the city by CH2M HILL, Inc. Work was authorized by a contract dated 11 October 1976.

Report preparation was financed in part through a Comprehensive Planning Grant from the Department of Housing and Urban Development under the provisions of Section 701 of the Housing Act of 1954, as amended, and the Division of Community Planning, Department of Community and Regional Affairs, State of Alaska.

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SUMMARY

This comprehensive plan is a guide for making decisions about the future development of Fort Yukon. Major features of the plan are described below and shown on the following page.

NEW HOUSING AREAS

In the plan, areas for new housing are identified immediately northeast of Crow Town, accessible by an extension of Spruce Street. There is enough buildable land in this location to accommodate the demand for new housing that is expected in the foreseeable future.

To conserve scarce buildable land, the plan proposes that housing be developed at densities of not more than approximately 10,000 feet. Any new streets will be platted to adapt to the uneven topography rather than in the grid pattern of the present streets.

COMMERCIAL AND INDUSTRIAL AREAS

The plan encourages a compatible grouping of commercial and public uses in a "town center," located around the school, city hall, and stores. New commercial facilities that might be attracted to Fort Yukon include a bank, bakery, and additional tourist accommodations.

Locations for industrial-related activities near the airport and barge landing are also shown in the plan.

STREETS

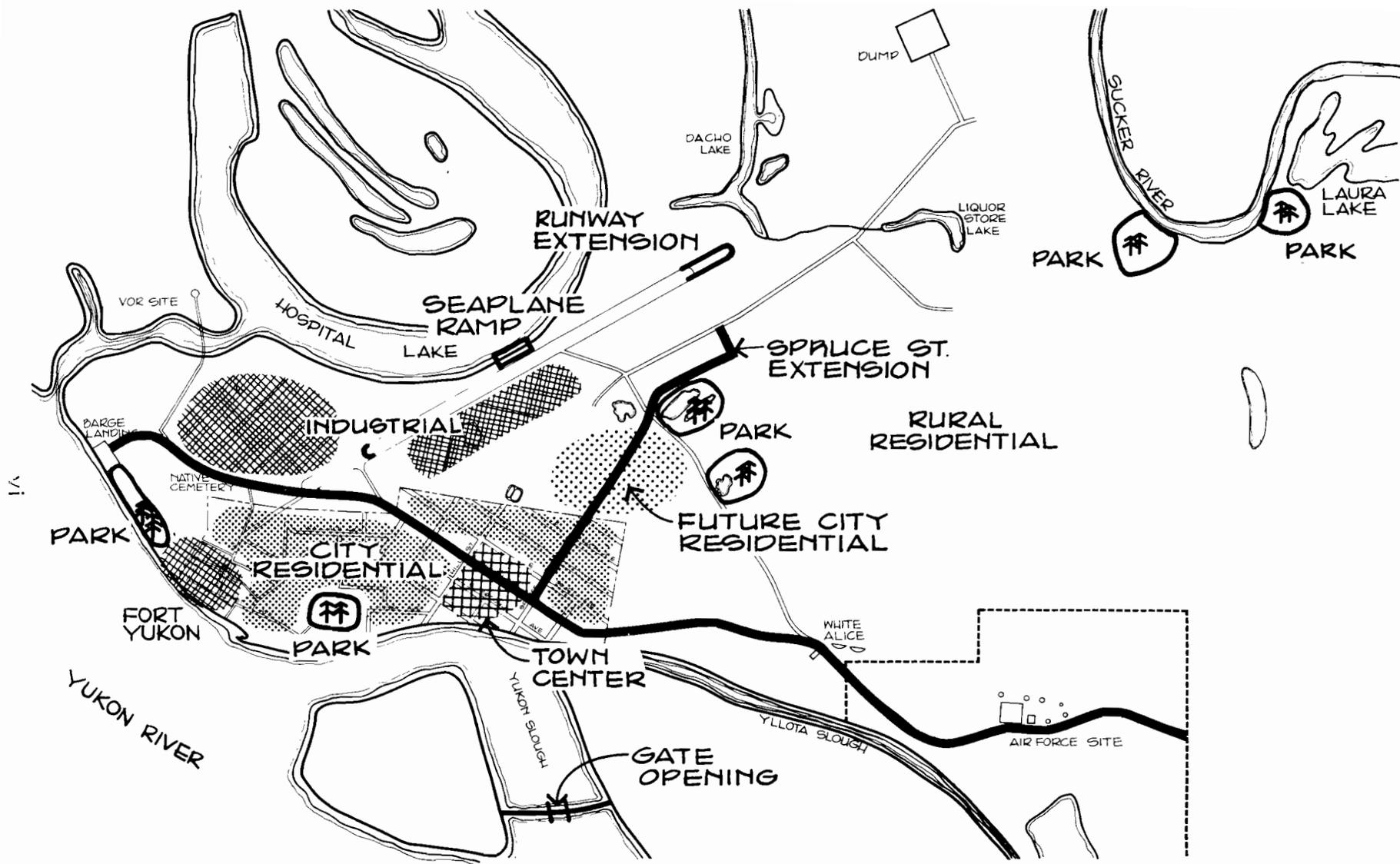
The plan distinguishes between major arterials, which serve the city's heaviest traffic needs, and minor streets. There are only two arterials: East Third Avenue and Spruce Street. Minor streets are divided into collector streets that route traffic to the arterials and local streets that primarily provide access to residences. The plan establishes design standards for each type of street.

A program to acquire uniform rights-of-way for all streets will assure access to private property and permit the city to make street improvements in the future.

No road connections to other towns are proposed.

AIRPORT

The plan proposes to extend the airport runway approximately 1,100 feet to the northeast. This will solve the clear zone problem at the southeast end of the runway and will avoid the need for acquiring structures or property in the present clear zone.



visual summary

SEWERAGE AND WATER SUPPLY

The plan assumes continuation of present waste disposal practices in the immediate future because of limited financial resources available to the town. However, it encourages the city to continue to investigate the feasibility of improving the present system.

The plan recommends continuing with the present water supply system until such time as the city develops a community sewage collection system. Meanwhile, several additional water distribution points should be made available for convenience.

HOSPITAL LAKE POLLUTION

Potential contributors of pollution in Hospital Lake should be investigated, including the Air Force site, sewage disposal, the state sewage lagoon, and city dump.

The plan suggests that the Bureau of Land Management eliminate discharge of fire-suppressant chemicals to the lake and that the Federal Aviation Administration correct the lake flushing problem caused by construction of the VOR access road.

PARKS AND RECREATION

In addition to cleaning up Hospital Lake for recreation use, the plan assumes completion of Lion's Club Park, establishment of a trail system and several outlying parks and picnic areas, and improvement of indoor recreation facilities.

COMMUNITY FACILITIES

When staff and space requirements justify the expense, a combined city hall and fire and police station is proposed. The plan also identifies a site for the new Public Health Service clinic.

SEDIMENTATION

Sedimentation caused by the Yukon Slough levee can be corrected by providing a gate opening in the levee and opening Ylotta Slough.

ALASKA NATIVE CLAIMS SETTLEMENT ACT 14(c) (3) RECONVEYANCES

The plan identifies general areas desired by the city and eligible under ANCSA 14(c) (3) Reconveyances. Specific areas are not identified because the city and the village corporation are still in the early stages of negotiation.

Areas generally desired by the city include lands needed for physical expansion, public recreation lands, public facilities (such as the city dump and barge landing site), and other resource areas or sites with public value.

APPEARANCE AND CULTURAL HERITAGE

The plan calls for grouping new public buildings to present a more unified appearance, encouraging log cabin construction, retaining trees and vegetation, and preserving native culture.

IMPLEMENTATION

The plan will be implemented by relying on a zoning ordinance to control land uses; a subdivision ordinance to establish basic land development and road patterns; a capital improvement plan; and a land management plan to establish procedures for purchasing, using, and selling city-owned property.

EMPLOYMENT

Additional employment opportunities are encouraged, but only those consistent with the interests and way of life valued by Fort Yukon residents. Examples are continued governmental and Native Corporation employment, particularly in resource management; increased visitor (but not tour group) facilities; marketing service for furs; and craft association for designing and marketing locally produced crafts.

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ACKNOWLEDGMENTS

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INTRODUCTION

PURPOSE

A *comprehensive plan* is a guide for making decisions that affect the future development of a community. The plan identifies community goals and sets policies and development standards to achieve the goals. Thus, when issues arise about development or capital expenditures, they can be evaluated on the basis of established policy. This helps assure that development and expenditures will be consistent with community goals.

The *Fort Yukon Comprehensive Plan* is the result of a year-long effort by the Planning Commission, City Council, city staff, and consultants. The plan was formalized after careful analysis of present and potential problems and a consideration of alternative solutions. As adopted by the city, this plan becomes the official framework for future development.

The plan primarily addresses physical elements--land use, transportation, community facilities. Social programs that do not require specific facilities, such as bilingual education and alcohol abuse are not addressed in this plan.

Four key terms are used throughout this document:

Plan Element. A major category or subject area, such as land use, circulation/transportation, or community facilities.

Objective. A desired condition or situation to be achieved, a goal.

Policy. A course of action selected to reach an objective.

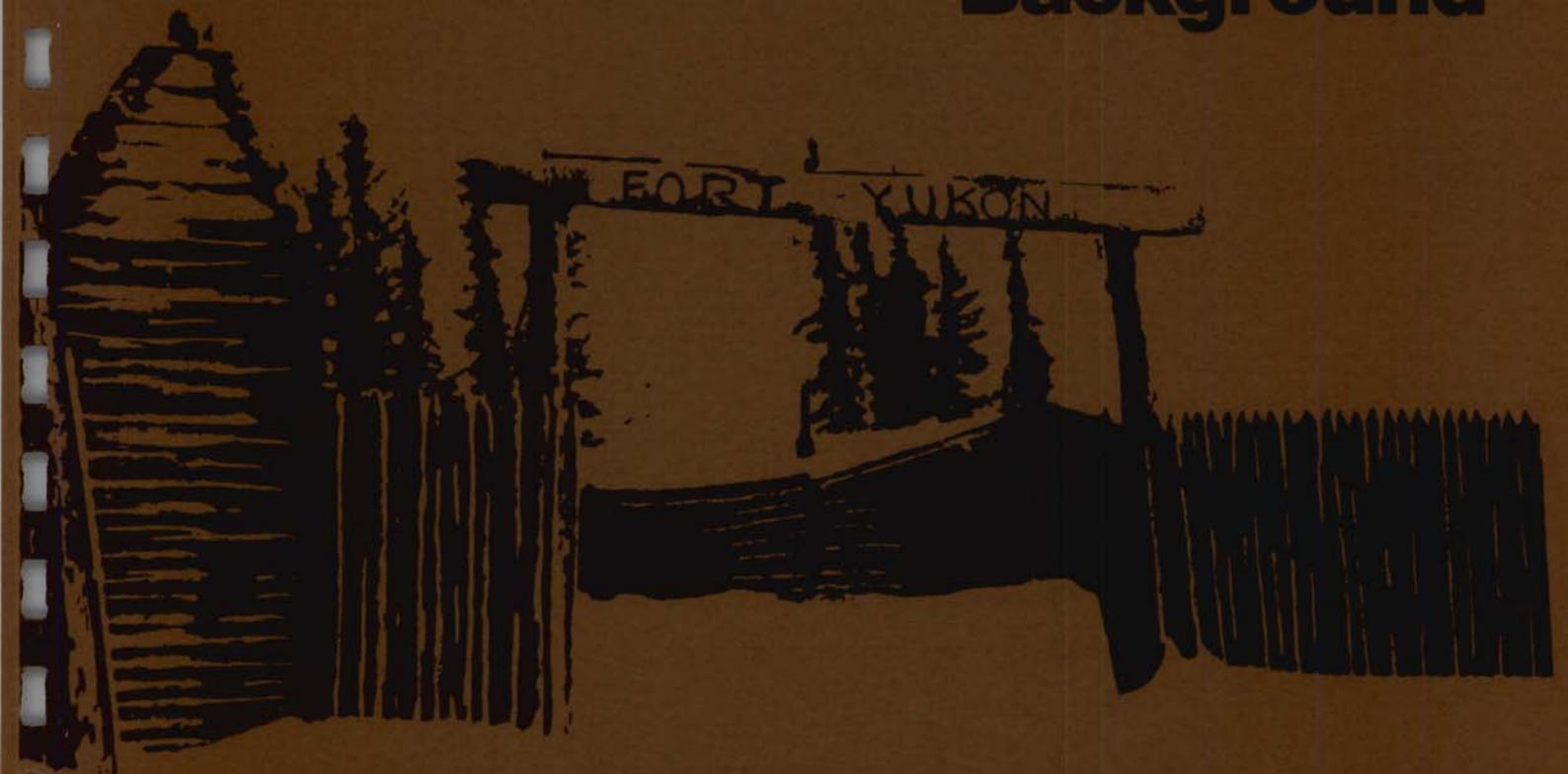
Program. A specific proposal to carry out a policy.

UPDATING THE PLAN

A comprehensive plan is based on the best information available. As conditions change, it will need to be revised. Each year when the city budget is prepared, the Planning Commission will write a brief addendum to the plan. It should include a description of events during the past year that have affected the plan, how the plan was affected, and, if appropriate, recommendations for changes in the plan.

When the plan needs to be revised, the Alaska Department of Community and Regional Affairs can arrange for professional assistance.

Background





HISTORICAL SETTING

The Hudson's Bay Company built the original Fort Yukon on Russian Territory in 1847. When the United States purchased Alaska in 1867 the Hudson's Bay Company withdrew, to be followed at Fort Yukon by American missionaries and trappers. These were followed in turn by prospectors when small quantities of gold were found between Fort Selkirk and Fort Yukon in 1873.

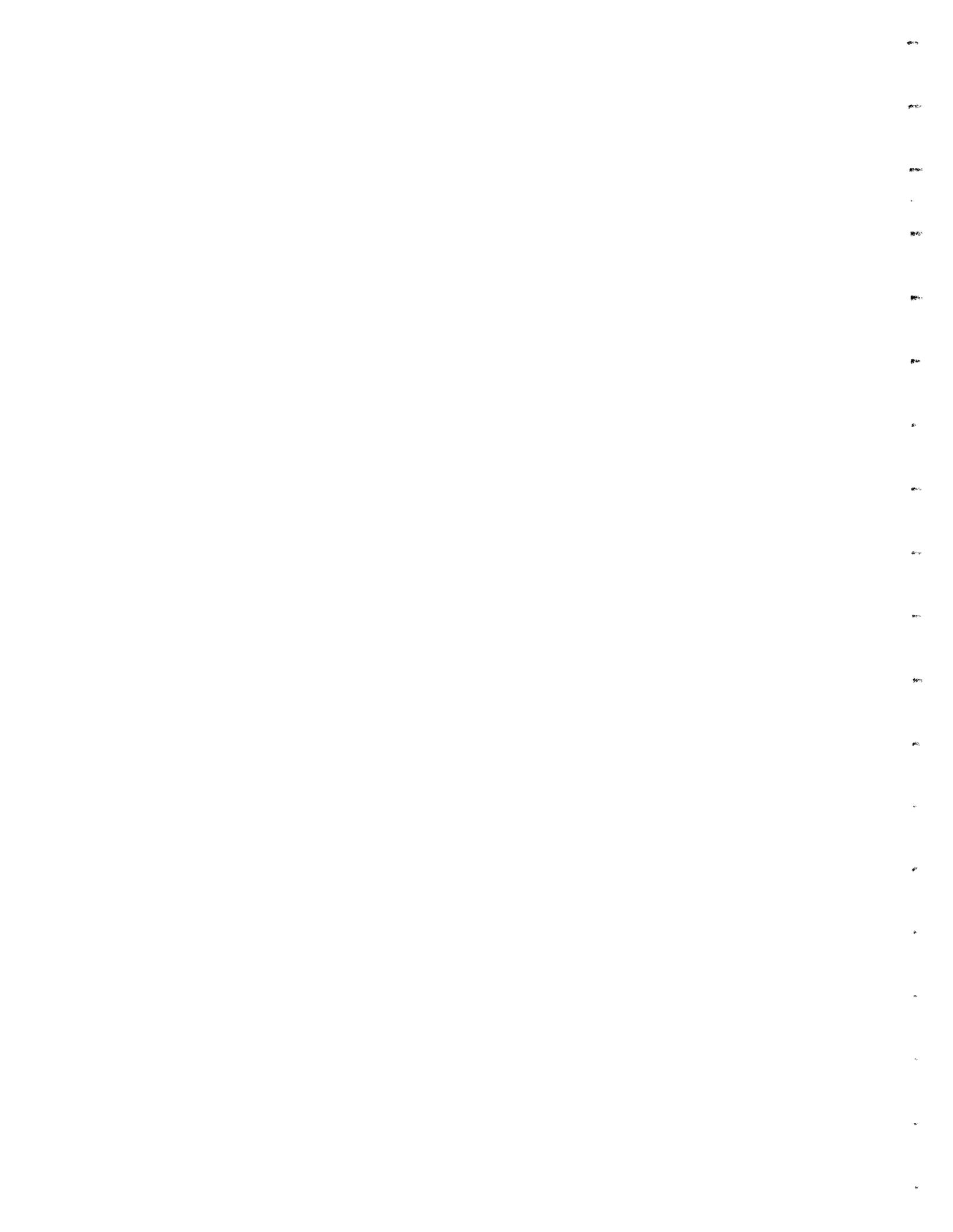
Over the years Fort Yukon has continued to serve as a mission and trading center. Archdeacon Hudson Stuck, who made the first ascent of Mt. McKinley in 1913, made Fort Yukon his headquarters and is buried in the native cemetery. In 1914 the Episcopal Church established a hospital, which served the community until the clinic was opened in 1955.

The first plane landed in Fort Yukon in 1921. In 1945 filling and grading was begun for the system of city streets that is in use today.

A major flood in 1949 destroyed much of the settlement, and many of the residents moved their homes to the higher ground east of the original townsite. The stores, school, post office, public offices, and the community center are now located there. The present school was built in 1958 after the state closed the old Territorial School and the Native School.

Also in 1949, the Fort Yukon Utility Company, a private system, was established to provide electricity. In 1955 the U.S. Air Force built an aircraft control and warning site and has since extended the White Alice Communications Network to the village.

Fort Yukon was incorporated as a "second class city" in 1959, with a council-manager form of government. It is an unorganized borough, and is within the village boundary of the Gwitchyaa Zhee Corporation, a part of the Doyon Native Corporation region.



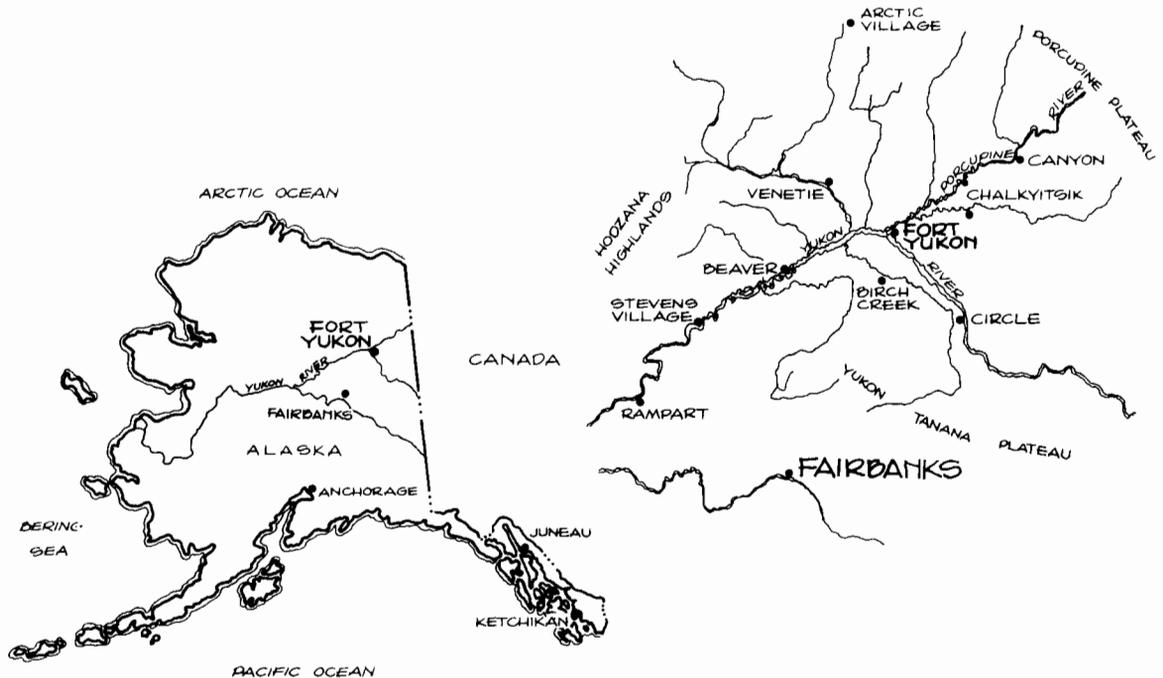


PLANNING AREA

Fort Yukon lies on the north bank of the Yukon River at its confluence with the Porcupine River, 8 miles north of the Arctic Circle and 140 miles northeast of Fairbanks (see the map below). The community is at the approximate center of a broad alluvial plain known as the Yukon Flats, an area of lakes and meandering streams.

The city has a permanent population of 637, and serves as a trading center for the villages of Chalkyitsik, Canyon, Venetie, Arctic Village, Beaver, Birch Creek, and Circle, some of which are a hundred or more miles away. These villages have a combined population of approximately 1,125. The 1970 census reported a total population of 1,684 in the Upper Yukon Census Division, which roughly approximates the trading area of Fort Yukon. Land use acreage and ownership in Fort Yukon are shown in figures 1 and 2, respectively, and table 1, at the end of this document.

This comprehensive plan is for the incorporated area of the city and takes into account related areas immediately outside the city.



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ENVIRONMENTAL PLANNING CONSIDERATIONS

The arctic environment, at once harsh and fragile, plays a singular role in planning the future of Fort Yukon. This section of the comprehensive plan describes important environmental considerations that bear on planning decisions.

CLIMATE

Fort Yukon winters are long and harsh, and the summers, surprisingly warm at times, are short. There is very little precipitation. The Yukon-Tanana Plateau, south of the Yukon Basin, forms a normally effective barrier to the maritime air flow from the North Pacific Ocean. After rivers and marshes freeze, the plateau is a source for cold, continental arctic air. Extended periods of -50°F to -60°F are common, and -75°F has been recorded. Daily minimum temperatures from November to March are usually below 0°F .

Summer temperatures reach 80°F each year, and a high of 100°F has been recorded. The daily maximum average during July and August each year is 70°F to 75°F . Despite these high summer temperatures, daily variations can be extreme; freezing temperatures have been recorded in every month of the year.

Most of the rain in the study area is in the form of convection showers. Total annual precipitation averages 7 inches and is normally heaviest during the summer.

Average winter snowfall is about 45 inches. Because of the extremely cold winter temperature, ground accumulation also averages 45 inches.

Approximately 90 days each year are frost-free. The last freeze in the spring occurs around the end of May, the first fall freeze around the end of August.

A climatological summary is presented in table 2.

PHYSICAL GEOLOGY

The Yukon Flats has an area of 13,700 square miles characterized by meandering channels, oxbow lakes, sloughs, swamps, alluvial fans, thaw lakes, sink holes, and sand dunes. Permafrost is present throughout the region.

This alluvial lowland is bounded on the south by the Yukon-Tanana Upland Plateau, on the east by the Porcupine Plateau, on the north by the southern foothills of the Brooks Range, and on the northwest by the Hodzana Highland.

The Yukon Flats are underlain by more than 300 feet of silt and silty sand deposited when the area was formed. These deposits are overlain by alluvial deposits (clay, silt, sand, and gravel).

SOILS AND VEGETATION

The dominant soils in the area are water-deposited silts and fine sands. In some areas, the sediments are covered by a windblown layer of silty loam ranging in depth from a few inches to several feet.

This well-drained silt loam over sand is good soil for aspen, paper birch, and white spruce. The permafrost tables here are usually 4 or more feet below the surface and may be absent close to the river. These well-drained soils also have the best potential for construction if the particular area is not subject to flooding.

A secondary soil type in the Yukon Flats is found in the many shallow slough and old stream channels. It is mostly poorly drained and is perennially frozen at shallow depths; permafrost tables are within 2 feet of the surface. Soil with these characteristics presents severe construction limitations. Dominant vegetation is mosses, stunted black spruce, dwarf birch, sedge tussocks, and lichens.

Maintaining vegetation in these areas is important in keeping the permafrost tables at existing levels. If vegetation is removed, the permafrost tables lower, resulting in settling of the ground surface, and erosion along the streams.

There are no published soil data for the Fort Yukon area; unpublished soil data from the Soil Conservation Service are in figure 4.

PERMAFROST AND GROUNDWATER

Permafrost is discontinuous in the Yukon Flats, but in poorly drained areas it may occur to a considerable depth. At Fort Yukon, the depth of permafrost was found to exceed 320 feet. Beneath water bodies and well-drained sites, the ground is frozen; layers of unfrozen deposits can be found within zones of permafrost.

Ground ice is common in the permafrost areas; in some locations where it has melted and left depressions, lakes have formed. These are known as "thaw" or "cave-in" lakes.

Because of permafrost, there is little groundwater except near streams. Aquifers apparently do not exist and the yield from wells is low. Springs exist in the area, and the best known is Circle Hot Springs.

All water in the area appears to be of the calcium bicarbonate type, which is categorized as hard water.

The existing information about groundwater is poor; however, it is possible that groundwater can be used to a greater degree in the future.

EROSION AND SEDIMENTATION

Riverbank erosion has always been a problem, especially since 1955 when a large amount of gravel was removed from the river for construction of the

Air Force site. The increased velocity of the river added to the erosion caused by periodic flooding and permafrost thaw. Along some stretches of the river through Fort Yukon the bank has been eroded away to a depth of several hundred feet (figure 3).

The Corps of Engineers completed a slough closure dike upstream from the town in 1967. This dike diverted slough flow through the main channel and alleviated the major erosion problem. It has also caused an undesirable buildup of sediment adjacent to the townsite, moving the channel outward several hundred feet.

In the summer of 1976, the barge bringing supplies to Fort Yukon was not able to unload until a new loading site was prepared further downstream. In time, the new site will also be threatened with sedimentation.

The town faces the immediate problem of piping home heating fuel from the new barge landing to the Standard Oil storage tank facility, and of having to haul boats and supplies over the sandbar to reach the river.

HYDROLOGY

The Yukon ranks as the fifth largest river system in North America in terms of drainage area and runoff. It drains a total area of 330,000 square miles, one-third of which is in Canada. The Alaska portion of the drainage area constitutes roughly 40 percent of the state's land area. The average annual flow of the Yukon through Rampart Canyon has been estimated at 81 million acre-feet.

The Yukon Flats are dotted with lakes, ponds, and swamps and covered by a network of rivers, tributaries, and streams. The Yukon River flows through the flats as an intricately braided stream with many channels. At high water, the river overflows from the main channels into hundreds of high sloughs. The major tributaries include Beaver and Birch Creeks, emerging from the Yukon-Tanana highlands; the Black and Porcupine Rivers from the Porcupine Plateau; and the Sheehjek, Christian, Chandalar, Hadweegic, and Hodgana Rivers from the Brooks Range.

The flow characteristics in the Yukon and Porcupine basins are typical of snow-melt streams. The flow rises gradually in the spring to a peak discharge, usually within about 2 weeks of breakup, which occurs in mid-May.

Spring is normally a time of the year with low precipitation; rain does not contribute significantly to the spring peak. Summer rains throughout the basin serve to maintain flows at a near-average rate. These summer rains have never produced a flood at Fort Yukon.

FLOODING

Almost all of the Fort Yukon townsite is subject to flooding except the eastern portion called Crow Town and the Air Force AC&W and communication sites (figure 3).

The floods resulting from spring runoff usually are aggravated by ice jams. They are characterized by a rapid rise in the water level and velocity. Floods last from a few hours to several days.

Most of the town's older structures are built of logs and are not affected significantly by flood waters. However, considerable damage is caused by ice carried into the village by high waters. Flood damage is usually slight from a monetary standpoint, but is a hardship to residents and a deterrent to development.

The flood history is not well documented. Most available information is in newspaper accounts and in the memories of older residents. Several lesser floods in the first half of the century caused extensive flooding of the town as it existed at that time and spurred residents to relocate to the higher ground of Crow Town.

The most damaging flood in recent times occurred in 1949 as a result of ice jams on the Porcupine River north of Fort Yukon. In 1969 the Corps of Engineers drew up plans for levees around the town. These have not been constructed because the benefits have not been considered high enough to justify the cost.

Relocation of the townsite has also been proposed. Residents have resisted moving because the river is a lifeline for supplies and important to their subsistence hunting and fishing and because there is no available high ground within a reasonable distance.

WILDLIFE

The Yukon Flats is one of the great waterfowl breeding areas in North America. Each spring millions of migrating birds from four continents set their course for Alaska's Yukon Flats. The ponds and oxbow lakes of the meandering Yukon become summer nurseries for ducks and 18 other species of waterfowl.

Salmon from the Bering Sea also depend on the water areas of the flats. Every year they ascend the Yukon River to spawn in the freshwater streams of their birth, nearly 2,000 miles from the sea. Runs of king, coho, and chum salmon reach the flats each summer to help maintain the Bering Sea and Yukon Delta fisheries.

Caribou, moose, and black, grizzly, and brown bear are common throughout the forested areas of the Yukon Flats. Many furbearing animals are found in the region. Beaver, mink, and muskrat are particularly abundant where there are lakes and stream habitats. Wolves, fox, weasel, ground squirrels, and showshoe hares are common throughout most of the region.

The wildlife habitats of this region are of significant national interest. The annual flight of 1.5 million ducks and geese produces many days of recreation for hunters in the lower states and Canada. Continuing loss of prairie wetlands by drainage and fill will increase the importance of the unspoiled waters of the Yukon Flats.



ECONOMIC BASE ANALYSIS

POPULATION

The 1970 census reported a population of 448 at Fort Yukon and a total population of 1,170 in the Upper Yukon Census Division. City leaders estimate that the 1970 population at Fort Yukon was closer to 600 and that the present population is close to 650. About 90 percent are Alaska natives.

In 1970 almost half the native population was under 24 years of age. The birth rate is reportedly declining, but is likely to remain somewhat higher than the average rate for the U.S. as a whole. Infant mortality rates are now the same as for other rural communities in the United States.

While the population of Fort Yukon has remained fairly stable or has grown modestly in recent years, the population of the Upper Yukon Census Division has increased sharply as a result of pipeline construction and related activity. While this increase is temporary, some permanent increase can be expected because of continuing pipeline-related activities.

It is difficult to predict the growth of any small community. This is especially true for Fort Yukon because of its isolation and limited economic base. A decision to locate a new government installation at or near Fort Yukon could have a significant effect on the local economy and the population. Assuming no such intervention, continuing growth is likely to be modest, based on the economic considerations discussed below. For planning purposes, it is perhaps enough to assume the addition of 10 persons per year.

THE ECONOMY

The economy of Fort Yukon is based mainly on subsistence resource harvesting and government employment. The people hunt, fish, and trap as they have in the past. They find employment in connection with various government-sponsored activities. In addition, many families receive some amount of financial assistance from state and Federal social programs.

Employment

Most of the jobs in Fort Yukon are government-related. People work at the post office, school, city hall, Air Force base, and for such agencies as the Bureau of Land Management. In the nonpublic sector, the utility company, the stores, and the two inns also offer jobs. Intermittent employment is found in construction. A few residents earn income from the sale of arts and crafts.

Trapping is seasonal. The work is difficult and cold, and trapping is no longer considered a full-time occupation. Still, the quality of the furs is excellent and the market has recently improved. A joint study by Doyon Ltd. and the U.S. Fish and Wildlife Service estimated the wholesale value of furs from the Yukon Flats region in 1973 to be around \$900,000.

Cash Income

Median family income for the Upper Yukon Census Division was \$6,500 per year in 1970. Of the 252 families in the Fort Yukon census tract, 60 families had incomes below the official Federal poverty level, then defined as \$3,745 per year for a family of four.

Transfer payments from the state and Federal government supplement the incomes of Fort Yukon residents. It is estimated that some 40 to 60 percent of the Alaska native population receives some form of assistance. In 1975, Fort Yukon residents received approximately \$139,188 from the Alaska Department of Health and Welfare in Old Age Assistance, Aid to the Disabled, and Aid to Families with Dependent Children.

A total of 104 households received food stamps, valued at \$15,641. From the Federal government some 43 beneficiaries in the Fort Yukon zip code area received Social Security payments totaling approximately \$4,200 a month (\$50,400 total for the year). Supplemental Security Income payments to 16 beneficiaries in the area totaled approximately \$2,523 per month (\$30,278 total for the year). This totals \$235,507 in state and Federal aid for 1975.

Noncash Income

Subsistence harvesting of natural resources adds significantly to income. Doyon Corporation estimated that harvested food resources in Fort Yukon totaled 611,000 pounds in 1973, or 1,130 pounds per capita. Moose, caribou, and salmon are the principal wildlife food sources. Wild berries are harvested in the summer and early fall. Doyon estimates that the subsistence harvest adds the equivalent of \$2,000 to \$3,000 to the average native family income.

In years past timber was used for fuel and construction. In its report, Doyon estimated that 100 cords of wood and 3,000 logs were harvested in 1973. This use has been declining in recent years as good timber has become scarce and more people have started to use oil heat.

The subsistence economy is important and needs to be protected. Food brought in from outside by air or barge costs a third more than in Fairbanks or Anchorage, where costs are already high. Protecting the continued opportunities for subsistence harvesting will be important to the local economy for years to come unless sufficient additional cash income can be generated from sources that do not presently exist.

FUTURE DEVELOPMENT

A planned and managed economic development program can assist in moving from a semi-subsistence, semi-cash economy (one highly dependent upon government jobs and assistance) to a more broadly based economy that provides greater job opportunities, higher cash incomes, and a generally higher standard of living.

This section is a discussion of some of the ways in which the local economy might be strengthened while still recognizing and protecting cherished cultural values and maintaining local decisionmaking and control.

Trapping

Furs from the Fort Yukon area are of high quality, and the market price is currently excellent. Such work, hard but skilled, affords employment opportunities while still allowing independence. With good wildlife management, the people can obtain all the furs they need for their own use and export the surplus at a good price.

There is presently no central agent to facilitate this trade. One possibility is to establish an organization that would act as liaison between fur buyers and sellers. Developing such a service could increase the productivity of trapping while maintaining local control.

Tourism

Development of a tourist industry is one of the more promising alternatives available to Fort Yukon. The surrounding countryside offers seasonal opportunities for photography, boating, birdwatching, backpacking, and hunting. As a base camp for such activities, Fort Yukon would benefit from providing visitors with equipment and supplies, food, lodging, and local guide service. Tourism would also provide a market for locally produced art, crafts, and clothing. However, tourism will need to be managed with regard for local concerns about excessive tourist traffic.

Visitors do not necessarily have to come in tour groups. It may be desirable to encourage individual or small groups of tourists interested in activities such as photography or riverboating that would require a base camp and possibly a guide, which Fort Yukon could provide. Because of its isolation, Fort Yukon can control the amount of tourism by limiting the amount of advertising, and by limiting lodging and guide services.

Arts and Crafts

The demand for quality native arts and crafts is high throughout the United States and Canada. The crafts industry within Fort Yukon is another potential source of employment. Markets in Anchorage, Seattle, San Francisco, and elsewhere could probably absorb at a good price all of the high-quality arts and crafts items that Fort Yukon could produce. This activity is also controllable, allowing expansion as desired while at the same time improving skill and retaining cultural heritage.

To improve the demand for Fort Yukon crafts and to facilitate their sale, a local craft association could be organized to aid in production and marketing. As with trapping, this would increase the efficiency of the industry while allowing more control over such factors as markets, quality, and volume of production. A native educated in art and design could be employed to show local artists how to combine color, designs, and motifs to increase the marketability of their crafts.

Regional Center

As the largest village in the Yukon Flats, Fort Yukon already serves as a regional service and community center. Expanding this role would bring added business and income. Programs could be established to provide legal aid and counselling. Improved medical care provided by the proposed new clinic at Fort Yukon would attract people from outlying areas who would also use other services. Establishing adult educational programs would draw more people to the village and also allow training opportunities to enable them to compete more effectively in the job market.

To encourage an interest in business, programs need to be developed that will introduce the residents of Fort Yukon to the activities, satisfactions, and problems associated with commerce. Programs could be introduced in the school to familiarize the students with all phases of business, such as product design, marketing, material buying, and bookkeeping.

Fort Yukon needs a bank. City leaders have sought to establish a bank in the past, and these efforts should be renewed. A bank would not only serve Fort Yukon and the surrounding villages, but would aid in support of tourism and business development. The United Bank of Alaska is a native-owned bank in which the Doyon Native Regional Corporation has an interest.

Forest Service Employment

Fort Yukon is located on the edge of the proposed Yukon Delta National Wildlife Preserve to the east and the proposed Porcupine National Forest to the west. With the adoption of either or both proposals, the residents of Fort Yukon should find a variety of employment opportunities with the U.S. Forest Service. This would also allow residents of the area to exercise some direct control over the management of the surrounding land. The Forest Service and Fish and Wildlife Service need to be aware of local concerns for the management of natural resources.

Agriculture

Potential exists for selected agricultural activities. Some 5.5 million acres of land are considered suitable for agriculture in the Upper Yukon region. A quarter of this land is marginal because of cold air drainage. The growing season is relatively short (90 days), but the long, hot days make the area suitable for certain grain and vegetable crops. If agricultural development were to take place, cooperation and coordination with the village and regional corporations would be required for land use and management.

Consideration must be given to local wishes, attitudes, and beliefs. Few have been involved in farming. Grain farms attract wildfowl that in turn attract hunters, potentially creating problems. There is presently little desire to develop agriculture for more than local consumption.

Limiting agricultural development to local use would at least provide residents with fresh grain and vegetable sources. Residents would save

money through purchasing locally grown staples rather than those flown or barged from Fairbanks. Local truck farms could provide employment and a source of high-quality food.

Wild rice, one valuable commercial crop that is well suited to the marshy areas of the Yukon Flats, is easy to grow and harvest, and the demand for it is high. Currently, a pound of wild rice retails for \$5 to \$6. Small-scale production of wild rice would offer local business, employment, and profit possibilities.

Timber

Some of the forested areas of the Upper Yukon have stands of timber of commercial value. Considering the short growing season, the distances to market, and the environmental sensitivity of logging, chances are that there is little opportunity for significant commercial use of the region's timber.

Mineral Resources

The potential for oil and gas deposits in the area is thought to be high. Exploration for oil and the subsequent drilling would bring money and employment into Fort Yukon. It would also bring in numbers of outside people to work on the oil rigs; however, after the work is completed and wells capped, most would move to other oil fields. This is one of the least controllable of the possible development opportunities. Before encouraging further exploration, both positive and negative aspects of such development should be considered.

This does not present an immediate problem, however, as all leases for mineral exploration are currently closed until the native corporations have settled their claims. Thus, oil development is unlikely to occur within the next 5 years. Further, mineral rights to the land chosen by village corporations are retained by Doyon Ltd., and any development of the land would require a cooperative agreement among the parties involved.

There is relatively little definite information on the mineral resources of the area. The city and village should encourage Doyon to conduct a mineral survey of village lands. Such a study would provide valuable information upon which to build mineral-related enterprises, perhaps under lease or franchise from Doyon Ltd. Local employment opportunities could then be found in mining and extraction of mineral resources such as limestone, coal, and gravel.

For these resources to be developed, it is not necessary that the mineral rights be owned by the city; however, cooperation with the Doyon Corporation will be necessary.

Business

The city government is presently conducting a number of activities that might be transferred to private enterprise. The potential advantages to

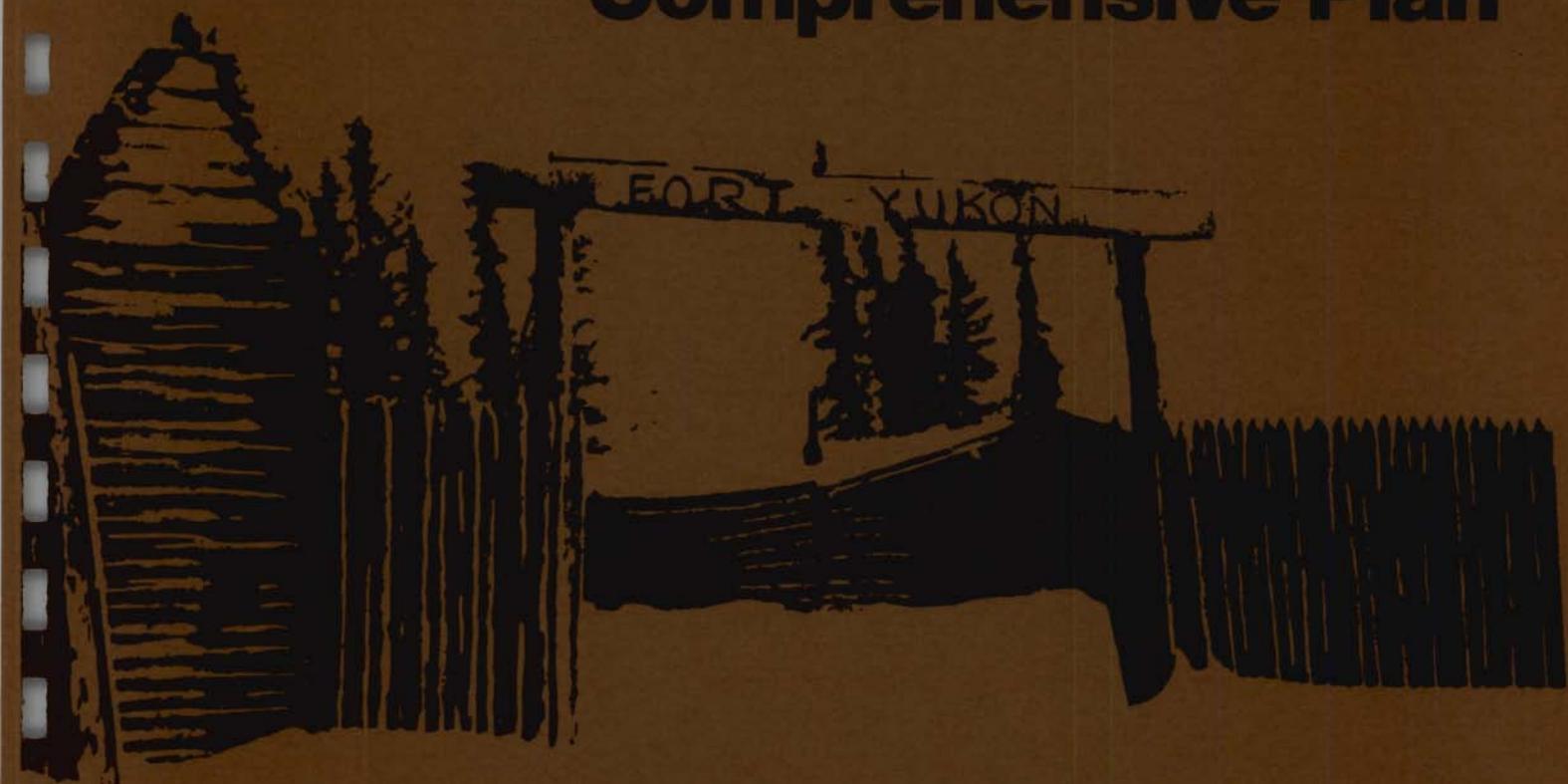
the city of private ownership of economic activities include the release of public money otherwise tied up in business operation and capital investment; receipt of taxes and licensing revenues; creation by the private sector of additional flows of goods and cash; overall reduction in city costs and facilities; and the transfer of operating costs from the city to the private sector .

CONCLUSION

Continued strong, positive leadership is needed to assure the way of life desired by the people while implementing the development of Fort Yukon's economy. At the same time a comfortable, cooperative relationship needs to be established with the local and regional native corporations in attaining individual and common goals.

Through creation of an atmosphere that encourages private enterprise yet maintains the degree of control desired by the people of Fort Yukon, community leaders can lay the groundwork for future economic development.

Comprehensive Plan





GENERAL GOALS

The Planning Commission and City Council have set the following general goals for the future development of Fort Yukon:

1. Provide for orderly development according to a comprehensive plan.
2. Develop and use resource management policies and regulations that recognize the critical role of the natural resource base in sustaining the local economy and way of life.
3. Assure every family safe, decent housing, according to its individual needs and appropriate to the arctic environment.
4. Provide public services and facilities that will help to promote a healthful, satisfying way of life.
5. Strengthen the role of Fort Yukon as a regional service and supply center for the outlying villages of the Upper Yukon Flats.
6. Improve employment opportunities for local residents.
7. Maintain the present rustic appearance that has long characterized Fort Yukon.
8. Control the sedimentation and erosion problems affecting access to the Yukon River.

The comprehensive development plan addresses these general goals.



LAND USE ELEMENT

BACKGROUND

The land use element identifies suitable land areas for the orderly growth of the community. The need for this results from the lack of vacant residential lots within the townsite; the future conveyance to the city of a minimum of 1,280 acres by the Gwitchyaa Zhee Village Corporation; and increased resource development pressure.

While residential sites are most needed, expansion areas for commercial and public service facilities must also be planned. Designating specific areas for future development will help to assure that public expenditures for roads and other services are made wisely, and will provide needed guidelines for specific private and public projects.

OBJECTIVES

Major objectives are:

1. Designate expansion areas for new housing.
2. Reserve adequate space for the expansion of public service facilities and businesses.
3. Provide for the gradual elimination of incompatible land uses.
4. Encourage new development to locate near existing development to minimize dependence on vehicles and reduce utility costs.

PRESENT CONDITIONS

The townsite (figure 1), recognized as the City of Fort Yukon, is platted in 45 blocks, laid out in a grid system in the newer (east) portion and randomly in the older (west) portion. Fort Yukon's land is used principally for residential and public purposes since there is no major industry or commercial center. Within the townsite, there are approximately 158 acres of land in residential use.

Because Fort Yukon serves as a regional center for the outlying villages, an unusually high percentage of land is devoted to public service facilities (school, clinic, and state and Federal offices). Excluding the airport (510 acres) and the Air Force site, public facilities occupy 23 acres.

Commercial development, which includes the Native Store, Alaska Commercial Store, Sourdough Inn, and Kutchin Inn, totals 4 acres.

Fort Yukon was originally concentrated in the western portion of the townsite, but the flood of 1949 forced relocation of much of the town to the higher ground of Crow Town--that portion presently occupied by the school, community center, post office, Alaska Commercial and Native Stores,

and the majority of newer residences. The western portion of the townsite is still occupied by the Fort Yukon Electric Utility Company, Standard Oil storage facility, Sourdough and Kutchin Inns, U.S. Public Health Service clinic, and fire and police facilities.

To the southeast of the townsite is the U.S. Air Force Aircraft Control and Warning site, and the related communication network facility operated by RCA. This is one of the few areas above the 100-year flood plain* (elevation 437).

Virtually all of the high ground of Crow Town has now been developed. The new HUD housing has been built on slightly lower ground just within the northern boundary of the townsite. Few platted sites remain and future residential growth will require additional surveys and platting. The most serious limitation on expansion is the relative lack of high ground (see figure 3).

Two general high-ground corridors exist for residential expansion: one north along Spruce Street (extended) and one east toward the Air Force site. The Spruce Street corridor offers the advantage of providing reasonably high ground close to the newest housing area. The Air Force site corridor does not have equally desirable building sites until a point east of the site. Use of this corridor would result in a more spread-out community. The topography of both corridors is more uneven than the developed area and will require clustering of houses and a departure from the grid system of streets (figure 3).

Within the central portion of Crow Town, stores and offices have been developed among some of the homesites. This results in more traffic around the homes and causes uncertainty in terms of the expansion potential for commercial and public uses.

The locations of the Alaska Commercial Store and Native Store are satisfactory. They are close enough to each other to allow comparison shopping and are convenient to the schools, community center, post office, and other places where residents have business.

The city-owned liquor store is not conveniently located; however, state law requires that it be located away from the school. In view of the city's investment in the present building, no change in location is suggested at this time. A site near the airport should eventually be considered.

LAND STATUS

The land status of the region is changing. The U.S. Department of the Interior is proposing a large area east of Fort Yukon as the Porcupine National Forest. The objective is to protect and preserve this area for the enjoyment and use of future generations.

* The 100-year flood plain is the area that would be inundated by water under the worst flood conditions anticipated during a 100-year period.

To the west of Fort Yukon, a large area of the Yukon Flats is proposed as a wildlife refuge by the U.S. Fish and Wildlife Service to assure an undisturbed sanctuary for wildlife, especially the ducks and geese that depend on these wetlands for nesting.

Fort Yukon is surrounded by potential oil lease application land. It is also within the boundary of Gwitchyaa Zhee Native Village Corporation, which in turn is part of the Doyon Limited Regional Native Corporation. In the recent village land selection, the village claimed 161,280 acres and enrolled 757 people in the village corporation. The village corporation is required to reconvey a minimum of 1,280 of these acres to the City of Fort Yukon under section 14(c) (3) (Reconveyances) of Alaska Native Claims Settlement Act (see figure 5). At present, the city and village are negotiating the reconveyance.

FUTURE LAND USE

The appearance and functioning of the town center would be improved by consolidating uses and reserving needed public and commercial expansion area. In addition to the new clinic, some expansion of other public uses such as governmental offices (city, village, state, Federal) is expected over the next 5 to 10 years. It is desirable to keep the developed area of the city concentrated, to maintain a situation in which residents can walk to most of their destinations (or at least to reduce dependency on vehicles), and to reduce the cost of installing and maintaining utilities.

GENERAL LAND USE POLICIES

Policy 1

When the Air Force site is no longer needed by the Federal Government, conduct a study to determine the best use and disposition of the site and buildings. The probability of this occurring within the next 5 to 10 years does not appear great enough to warrant a study at this time.

Policy 2

Continue efforts to gain municipal control of the leased lands adjacent to the airport runway. This land is a key to the city's control over activities relating to air transportation, and should be under city ownership or control.

Policy 3

Obtain aerial photographs and maps of all areas within the city corporate boundary. (Topographic mapping exists only for the area generally in the vicinity of the townsite and the airport.)

Policy 4

Determine reconveyance lands based on needs for new homes, businesses, and industries; recreation sites, and public facilities (such as the city dump and barge landing).

Policy 5

Build on the highest ground available. These lands also provide the most stable building foundation and present the least potential permafrost problems. The best-drained and most desirable soils can be identified by young stands of aspen, paper birch, and white spruce. Avoid swales and other lowlying areas, which are distinguished by mosses, low-growing shrubs, and scattered stands of stunted black spruce.

Policy 6

Preserve all vegetation in old streambeds, swales, and other lowlying areas. Removal or destruction of the vegetation mat will thaw the "ice-rich" materials, lower the permafrost table, and result in uneven settling of the soil surface.

Policy 7

Concentrate development to the maximum degree possible, but leave adequate open space between buildings.

Policy 8

Consistent with the availability of high ground, encourage new development contiguous with existing development.

Policy 9

Assure adequate access to all developable parcels of land.

RESIDENTIAL LAND USE POLICIES

Policy 1

Survey additional residential lots along the Spruce Street extension. Expansion areas, shown generally in the comprehensive plan map, should be selected on the highest ground adjacent to the street corridor. Filling should be minimized, and old streambeds should be left essentially intact to channel floodwaters away from housing areas. Retention of streambeds will also provide desirable separation of housing clusters and provide a corridor for public trails.

Program 1. Continue efforts to obtain state or Federal funds for surveying. Alternately, budget city funds for surveying.

Program 2. After surveying is complete, grade and finish lots as needed to accommodate housing and related services. Initially, develop 5 to 6 lots annually to accommodate anticipated need.

Policy 2

Maintain new lot sizes adjacent to the existing townsite at about 10,000 square feet. This will provide an adequate area for building and will retain some screening trees and other vegetation while conserving the limited high ground and concentrating development to the maximum extent possible. The comprehensive plan map shows the area recommended for this 10,000-square-foot limitation. Larger lots can be permitted on the outskirts of the village.

Program. Incorporate the 10,000-square-foot lot standard into the city zoning ordinance.

Policy 3

Encourage "filling in" the few vacant lots remaining in the developed portion of the town.

COMMERCIAL LAND USE POLICIES

Policy 1

Discourage commercial activity outside of areas designated for this purpose in the comprehensive plan map. In general, any expansion of commercial uses should occur where they already exist.

Policy 2

Locate any new hotel at a site convenient both to the airport and the town center, as shown in the comprehensive plan map. This policy must be flexible enough to allow expansion of either of the existing hotels. The main concerns are convenience to the airport and town, and having an attractive site. Ownership and cost will also be factors in determining the actual site.

Policy 3

Encourage needed retail facilities to expand or locate in the town center.

Program 1. Continue efforts to establish a bank.

Program 2. Promote the establishment of a small bakery.

Program 3. Promote the establishment of a coffee shop at the airport.

Policy 4

Design commercial structures in keeping with the rustic character and scenic quality of Fort Yukon.

Policy 5

Locate commercial development in a manner that will not conflict with other uses of land, such as residential or recreational.

Policy 6

Give priority to commercial development that will provide employment, business training, and investment opportunity for residents.

Policy 7

Avoid locating commercial development where a traffic hazard could be created.

PUBLIC LAND USE POLICIES

Policy 1

Locate new public office buildings in or near the town center

Policy 2

Locate the proposed Public Health Service clinic in or near the town center.

Policy 3

Endeavor to move the sewage lagoon at the northern end of Hill Street to permit extension of the road at some future date. (Also see the following discussion of utilities.) The present location prevents extension of the street, which could provide access to high ground adjacent to the townsite. The lagoon probably contributes to the pollution of Hospital Lake and should be moved for this reason also.

Policy 4

Endeavor to relocate the city dump. At the present dump site, leachate-contaminated liquid (caused by rain or snowmelt draining through the waste products and entering the soil) is carried into Hospital Lake by floodwaters. While the present site is new and is one of the few sites available with sufficient soil to provide cover, an attempt should nevertheless be made to find a different site. (This subject is discussed further in the Utilities Element.)

Program. Identify potential dump sites and evaluate in terms of (1) access; (2) flood hazard; (3) distance and direction from Hospital Lake or other recreational lake or city water supply; (4) availability of soil for landfill coverage; (5) availability for acquisition; and (6) cost.



UTILITIES ELEMENT

OBJECTIVES

1. Provide a sanitary waste disposal system to protect human health and that residents can afford.
2. Provide a safe, convenient water system that residents can afford.
3. Assure that adequate electric power is available at a reasonable cost.
4. Provide a convenient, safe landfill site for solid waste disposal.

PRESENT CONDITIONS

Sewerage

A buried 6-inch wood stave pipe sewer serves the school, community building, and state office building. Wastewater is discharged to a half-acre aerated sewage lagoon, approximately 1,000 feet northeast of the buildings. According to the U.S. Public Health Service, this lagoon system is used to capacity. Treated wastewater is discharged through bottom infiltration and a surface ditch draining to Hospital Lake.

Disposal of all other wastewater is in individual seepage pits, pit privies, and cesspools. Solids are periodically pumped from septic tanks and disposed of at the city dump. In the western part of the city, these individual systems work satisfactorily throughout the year. In the eastern higher areas, however, drainage is sporadic because of thick, perennially frozen silt deposits.

Water

A central supply of treated water is available to Fort Yukon residents, although distribution methods vary. Two 8-inch drilled wells at the southeast edge of the city on the lower end of the Yllota Slough provide a water source for the only piped system in Fort Yukon. The wells are cased to 30 feet; each is equipped with a 60-gpm pump and has a sustained capacity of 60 gpm with a drawdown of 38 inches. Static water level was at 13 feet at the time of drilling (November 1974).*

Water is pumped from the well to a water treatment building located a short distance from the well. The water is chlorinated, filtered, and stored in two 5,000-gallon storage tanks enclosed within the treatment building. Water is circulated from the treatment building through an 8-inch supply line and a 4-inch return line routed through a 1,500-foot buried wooden walk-through utilidor. Heat is added to the loop by two boilers and a heat exchanger. Service lines connect the school, Fort Yukon community building,

* Information obtained from U.S. Public Health Service.

and state office building to the water supply loop. A watering point at the treatment building serves the rest of the community. A local purveyor provides a water hauling service.

Electric Power

Electric power for Fort Yukon is provided by Fort Yukon Utilities, a privately owned company.* It comprises four divisions: the electric utility division, which generates power for the area, excluding the Air Force site; the construction division, which supports the electric utility division's construction needs and engages in other construction work as a private contractor; the shop and service division, which maintains equipment operated by the other divisions and provides repair services for the community; and the rentals division, which handles equipment, facilities, and property rentals.

Generating equipment consists of four diesel generators with a capacity of 1,070 kW, and a 170-kW emergency generator. Distribution is provided by 4.9 miles of primary distribution line and 2.5 miles of secondary line.

The number of customers served on 1 November 1976 was 242. During 1975, these customers paid \$232,470 for 1,305,383 kWh. Average annual residential service cost during this period was \$225.

The most common customer complaint is voltage fluctuation; no other serious problems have been identified.

Solid Waste

Solid waste is disposed of at a dump site constructed in 1975 approximately 2 miles north of town along the FAA road (figure 1). No collection service is provided, and disposal is an individual responsibility. This is not considered to be a significant problem in Fort Yukon; the rate of solid waste generation is low (estimated at about 1 pound per person per day). Combustibles (paper, wood, cardboard) are typically burned in barrels, and the dump is used mostly for metals such as tin cans, auto parts, and discarded appliances.

The major problem with the current system and site is danger from leachate (rain or snowmelt passing through waste and picking up contaminants such as chemicals or other pollutants) entering and contaminating the spring runoff, particularly since the drainage pattern from the site leads into Hospital Lake. Trash from the dump was observed floating into Hospital Lake during the spring 1977 breakup.

SANITARY DISPOSAL POLICIES

The combination of permafrost, extreme winter cold, and a relatively low per-capita income places serious limitations upon any community sewage disposal system for Fort Yukon. A recent plan by the U.S. Public Health

* An inventory and appraisal of the facilities owned by Fort Yukon Utilities was completed in November 1976 by CH2M HILL.

Service for a complete sewer and water service proved unfeasible because of high maintenance costs. A less complicated and less expensive system is more appropriate for Fort Yukon.

Policy 1

Encourage individual waste disposal systems (pit privies, composting toilets) for single residences.

Policy 2

Seek the assistance of the Public Health Service to investigate the feasibility of constructing a community cesspool system or expanding the present sewage lagoon system.

Policy 3

Reevaluate ultimate disposal of sewage effluent and solids to assure that Hospital Lake is not being polluted. The Public Health Service should be requested to investigate this problem with the sewage lagoon at the northern end of Hill Street and the solids disposal site at the dump. A specific alternative that should be investigated is lining the sewage lagoon and pumping from the lagoon to an outfall in the Yukon River.

Policy 4

Move the sewage lagoon at the end of Hill Street to a different site to allow eventual extension of the street. If the lagoon is also to be lined, the new site could be adjacent to the old one; otherwise, such a site would still pollute Hospital Lake. The cost of moving the lagoon a considerable distance may not be economically feasible.

DRINKING WATER POLICIES

Without a sewer system to handle wastewater flows, a pressurized, piped water system to every home does not appear warranted. Therefore, the following policies are appropriate.

Policy 1

Continue the present system of a centralized water collection, treatment, and distribution-point system, with a private purveyor system of delivery. The purveyor should be licensed by the city, which should inspect his facilities periodically to ensure that the public health is protected.

Policy 2

Investigate the feasibility of pumping water to several more pickup points near the center of town.

ELECTRICAL POWER POLICIES

Electric power in Fort Yukon appears adequate and is provided at reasonable rates. Voltage fluctuations constitute a nuisance rather than a serious problem. However, the system appears to be at or near its present capacity and will require some expansion as Fort Yukon grows.

Policy 1

Continue to work closely with Fort Yukon Utilities to ensure that the current level of service is maintained and that timely provision is made for system expansion.

Policy 2

Encourage residents to practice power conservation to reduce peak demand, maintain lowest possible rates, and conserve fuel.

SOLID WASTE POLICIES

Because of the low rate of solid waste generation, neither collection nor recycling of materials is feasible.

Policy 1

Determine (with Public Health Service assistance) extent of the pollution problem at the current landfill site. If dangerous to public health, locate a replacement site where no surface runoff is likely. The site should be downstream or as far removed as possible from the water supply point.

Policy 2

Encourage residents to reduce the amount of burnable material to be placed in the dump.

Policy 3

Periodically burn combustible material at the dump during the spring and fall. The septic tank solids should be dumped in a separate location and periodically covered with soil.



CIRCULATION/TRANSPORTATION ELEMENT

Fort Yukon depends for access on air and river transportation. No roads connect the village to other population centers, and none is seriously proposed. Unpaved roads within the town provide access to stores, governmental facilities, recreation sites, and homes.

OBJECTIVES

City Road System

1. To provide a safe and efficient road system.
2. To provide access to all developable parcels within the town as needed.

Air Service

1. To provide increased air service at reasonable fares.
2. To resolve the clear-zone problem at the west end of the runway.

Barge Service

1. To provide for seasonal opening of the Yllota Slough levee to flush accumulated sediments that threaten the new barge landing.
2. To protect the new barge landing from erosion.

PRESENT CONDITIONS

There are 7-1/2 miles of dedicated rights-of-way within the city. Rights-of-way vary in width, and in some cases contain structures. None of the streets is paved, but the grading is adequate. New streets will be needed to open up more properties for home construction.

Roads and paths do not always follow a right-of-way, and vacant private property is commonly used by foot traffic and in some cases by cars. Property lines are not often visible in Fort Yukon.

The road and path system is in transition. More people are driving vehicles each year, and there is a growing need to upgrade the street system.

Air service is provided from Fairbanks four times daily by Air North, under contract from Wien Alaska. At times, this level of service is inadequate because of the limited seating available on the aircraft and heavy demand for both passenger and freight service. Fort Yukon residents depend almost totally on air travel for contact with Fairbanks, Anchorage, and other communities, and the present situation is unsatisfactory.

The clear zone at the southwest end of the airport runway is inadequate, and the Division of Aviation has suggested acquisition or control of development that violates the clear zone (figure 6). A more desirable alternative would be to extend the runway approximately 1,100 feet in the opposite direction, terminating the used portion of the runway at a point opposite the airport building. Zoning restrictions would still be required to maintain an adequate clear zone at the end of the runway.

ROAD SYSTEM POLICIES

The concept of the planned circulation system (street system) is to develop a strong east-west spine on relatively high ground, linking the barge landing site, airport, town center, and Air Force site. East Third Avenue and its extensions provide this "arterial" through Fort Yukon. A second "arterial," or major street, is Spruce Street and its extension north into the area proposed for new homesites (figure 7). These are the only "major streets" in the plan. The other streets are considered "minor streets." Several of these, however, serve to "collect" traffic from other properties, and therefore have higher traffic volumes (figure 8). Other minor streets simply provide access to individual properties along them.

East Third Avenue and Spruce Street are proposed to have 60-foot rights-of-way. This is wide enough to allow for the development of two 14-foot travel lanes, with adequate space on either side for drainage, walks, and a buffer strip to protect adjacent private property. Where appropriate, the buffer area can be graded for parking, although in general parking should be on private property.

Minor streets that serve as collectors should have a 50-foot right-of-way width. Other less traveled minor streets are planned with 40-foot rights-of-way. The travel lanes (roadway) of minor streets can be graded to a width of 10 to 12 feet each, leaving room for ditches, walks, and a buffer between the roadway and private property.

To protect the right-of-way from encroachment and to provide on-street parking, zoning regulations should require all buildings to be located at least 20 feet from the right-of-way line.

Policy 1

Establish a system of obtaining standard dedicated rights-of-way for roadways and pathways to assure public access to private property.

Policy 2

Provide adequate right-of-way for public facilities based on projected use.

Program 1. A 60-foot right-of-way should be obtained along the edge of the airport property to provide for the extension of East Third Avenue. This would provide for continuous road access connecting the general area of the Air Force site east of town with the airport and the barge landing area. This will require displacing the threshold of

the airport runway approximately 1,100 feet to the northeast. Without this displacement, adequate high-ground access cannot be maintained to the barge landing area. This road must not intrude far enough into the clear zone that automobile traffic would present an obstruction to aircraft.

Program 2. The State Division of Aviation should be requested to provide an access roadway parallel to the runway. This roadway is a state responsibility and is of interest to the city only because the present arrangement represents a hazardous condition for residents.

Program 3. A future alignment should be established for an East First Avenue-William Loola-Fourth Avenue connection between Airport Street and Hill Street.

Program 4. When the sewage lagoon is moved, a 60-foot right-of-way should be obtained for the extension of Hill Street to provide for additional residential expansion.

Program 5. Reserve and acquire a 50-foot right-of-way on Airport Street.

Policy 3

Provide roadways for travel only, with parking space supplied by the property owners. Other uses of the roadway should be provided only where the demand exists. The city need not incur the expense of providing the extra roadway width to accommodate parking or pedestrians safely at all locations. Parking should be provided by those who desire it adjacent to the right-of-way.

Policy 4

Eliminate irregular street patterns, such as oblique intersections, jogs in alignment, and irregular right-of-way widths where financially feasible.

Policy 5

Extend Spruce Street to the north to provide for residential development.

Program. A 60-foot right-of-way should be obtained for the extension of Spruce Street. This will permit access to the FAA area and points northeast of there without depending on driving on the runway. Additionally, this will provide for development of the high ground in a direction in which the town should grow.

Policy 6

Provide for safe pedestrian travel. As the number of cars, snowgos, and ATV's increases, this may become an increasing problem. Pedestrian paths could be accommodated in heavily traveled portions of town by requiring sufficient building setbacks and encouraging property owners to develop

continuous pathways or sidewalks. A graded road does not lend itself to separated roadway and pathway, especially when allowances must be made for snow removal. Pathways separated from the road by a ditch would be desirable, so that the depression of the ditch would be visible under a new snowfall.

Policy 7

Seek urban Mass Transportation Agency support and funding for a demonstration minibus service to reduce the need for private vehicles.

AIR SERVICE POLICIES

Policy 1

Continue to press for upgraded aircraft and improved frequency of air service.

Policy 2

Monitor the regulation of air fares to ensure that they are kept as low as possible.

Policy 3

Assist the state in extending the airport runway approximately 1,100 feet to the northeast to resolve the clear zone problem.

Policy 4

Request transfer of control of the leased lands adjacent to the airport from the Division of Aviation to control the use for those lands.

BARGE SERVICE POLICIES

Policy 1

Seek assistance from the Army Corps of Engineers for construction of a gate opening in the Yllota Slough levee.

Policy 2

Minimize beach erosion at the new barge landing by preserving all possible riverbank vegetation. All handling and storage should be conducted away from the riverbank.



COMMUNITY FACILITIES ELEMENT

OBJECTIVE

Provide the maximum public services possible, consistent with the ability of the city to pay for or otherwise obtain such services.

PRESENT CONDITIONS

Community facilities include the city hall, fire station, police station, clinic, post office, school, and community center, including a mini-TV station.

School enrollment has been relatively constant over the past 5 years (in 1972-1973 it was 202, in 1976-1977, 190). The school offers a broad curriculum, including bilingual language skills and manual arts education. It also offers its shop facilities for use by the town.

The city hall occupies space leased from the Gwitchyaa Zhee Corporation. Space is adequate at the present time, and the arrangement permits sharing of the reproduction machine, conference room, restrooms, and telephones. The community center is operated by Gwitcha-Gwitchen-Ginkhye, but with substantial support from the city (for general support and for the mini-TV station) and by the school, which contributes the use of the gym facilities. The level of community services is about as high as the city can afford. In fact, city officers believe the city may be somewhat overextended in this regard.

Present locations of the city hall, school, post office, and community center are good; they are convenient to the majority of residents, and are grouped together. The clinic, fire station, and police station are not as suitably located.

A new Public Health Service clinic has been approved for construction in Fort Yukon and is tentatively sited on BIA property on Hill Street (figure 9).

The city's jail is inadequate, but providing an adequate jail facility is considered a state responsibility. There is no city ordinance requiring a jail.

POLICIES

Policy 1

Site the new Public Health Service clinic in a location convenient to the school, airport, industrial area, and population center.

Policy 2

Relocate the fire and police stations in a combined structure when the city can afford it.

Consideration should be given to a new city hall that could incorporate the police and fire functions. The need for a separate city building is not clear at this time, and would depend upon increased space needs of both the city and Gwitchyaa Zhee Corporation. The feasibility of this alternative should receive additional study, including comparative analysis of capital and maintenance costs, insurance costs, and noneconomic costs and benefits. In any new public buildings, preference should be given to log construction and use of local craftsmen.

An alternative location for the fire station, if it is not in a combined facilities building, would be at the airport. This would be reasonably close to the core area; funding assistance from the Department of Aviation for aviation-related fire protection might be a possibility.

Policy 3

Request the state to provide an improved jail facility.

Policy 4

Encourage the state to continue improving the "bush justice" system that serves Fort Yukon.

Policy 5

Seek state and other assistance to expand the size and services of the public library (located in the school).



HOUSING ELEMENT

OBJECTIVE

To provide an adequate dwelling for every household in the city.

PRESENT CONDITIONS

In 1971, there were approximately 160 housing units in Fort Yukon. By 1977, this had increased to 217. Occupancy is slightly over three persons per unit.

Although the 1970 census for Fort Yukon was incomplete, it represents the most recent statistical data and permits limited analysis. In 1970, most of the units were owner-occupied. Only one unit was vacant. Nearly all (102 of the 106 counted) were single-family units. The number of persons per unit was fairly evenly spread; a relatively large number of units were occupied by 8 or more persons.

Most of the homes had one or two rooms; nearly half of the units had over 1-1/2 persons per room, which indicates some overcrowding. Most of the units would ordinarily be considered substandard because of the lack of plumbing facilities, but this criterion has no meaning in an arctic environment.

Most of these conditions are assumed to exist today. Owner occupancy has probably increased, but vacancies are still extremely low. Virtually all homes are single-family units, and overcrowding is still a problem.

Forty new homes were constructed by the local labor force in Fort Yukon in 1976 as part of the special HUD/BIA Alaskan Native Housing program, but this only partially relieved the overcrowding. Other family members generally took over the older units after the new units were completed, with few units remaining vacant.

The current HUD homes (delivered in 1976) were not well suited to the needs of Fort Yukon, and it is hoped that future programs will avoid these shortcomings. Generally, they are not adequately designed for the extreme cold of the arctic, capital costs were high, maintenance and operating costs are expected to be high, and durability is expected to be low. The exteriors of the homes were designed without consideration for local conditions, and seriously detract from the natural, rough-hewn character of the remainder of the town.

The two major housing needs today in Fort Yukon are the relief of overcrowding and replacement units with greater living areas. It is estimated that five to six new homes a year are required to meet these needs plus the needs of new residents moving into Fort Yukon.

POLICIES

Policy 1

Continue efforts through the Tanana Chiefs Regional Housing Authority to obtain additional housing construction assistance.

Policy 2

Encourage log cabin construction (such as BIA's HIP program), private construction, or get HUD to modify its current policies regarding log cabin construction requirements.

Policy 3

Seek assistance for individuals wishing to build their own homes by facilitating group purchase of logs, stoves, and other equipment; and by providing tool rental and similar services.

Policy 4

Encourage adequate insulation of all new homes to aid in energy conservation.

Policy 5

Locate new housing on sites in a manner that will not encroach on adjacent roads or properties. In general, structures on small lots (10,000 square feet) should be located at least 20 feet from a road or street boundary and 10 feet from other property lines. In rural areas, structures should be located at least 30 feet from a road right-of-way and 20 feet from other property lines.

The purpose of these standards is to protect against noise, dust, and the hazard of vehicle traffic and to provide enough space among structures to assure privacy, reduce the potential for fire spreading from one structure to another, and avoid conflicts between different family and land use activities.

Policy 6

Discourage the construction of further housing for public agency employees in agency compounds.



PARKS AND RECREATION ELEMENT

OBJECTIVES

1. Provide recreational opportunities for all age groups and all major interest groups within the city.
2. Correct the Hospital Lake pollution problem.
3. Protect the natural beauty and scenic qualities of recreation areas, in recognition of their increasing importance to the economic base of the city.

PRESENT CONDITIONS

The city offers many recreational opportunities--boating, canoeing and fishing in the rivers and lakes, hunting (although for the Fort Yukon resident this is more of a subsistence necessity than recreation), and picnicking at Hospital Lake, Liquor Store Lake, and Laura Lake. The 5-acre Lion's Club Park, when complete, will be an excellent facility for ball sports and group activities.

The major problem is the pollution of Hospital Lake, which forces the closure of the city's only swimming beach each summer. The causes appear to be primarily underground drainage of sewage effluent from the Air Force and state sewage lagoons, and flushing of fertilizer and fire suppressant chemicals into the lake at the airport by the Bureau of Land Management. The problem was compounded when the FAA built its access road to the VOR site and failed to install an adequate culvert system, thereby degrading the ability of the lake to flush itself.

A system of trails does not exist. Residents have no problem today in using shortcuts across vacant property, but this will become an increasing problem as property is developed.

There is no public boat launching or storage area at the river. Unfortunately, the extensive sedimentation that has resulted from dike construction has moved the river channel so far away from the old shoreline that such a facility is not feasible at this time.

During the preparation of the comprehensive plan, it was initially considered desirable for the city to acquire riverfront lots as they became available to assure permanent public access to the shoreline. As with the public boat launching concept, severe sedimentation of the river channel effectively eliminates this opportunity. When the sedimentation problem is controlled to the point that the riverbank is restored as a shoreline, this concept can be considered.

POLICIES

Policy 1

Complete development of the Lion's Club Park as funds become available (figure 10) .

Policy 2

Identify sources of pollution in Hospital Lake .

Program 1. If pollution is primarily from the sewage lagoons, investigate alternative effluent disposal such as discharge to the Yukon River downstream of drinking water intakes .

Program 2. Request the Bureau of Land Management to develop a different system for handling fertilizer and fire suppressant chemicals that will avoid runoff into the lake .

Program 3. Request FAA to improve the culvert under the access road to the VOR site to increase flushing of the lake .

Policy 4

Acquire desired trail rights-of-way as part of "1280" selections .

Policy 5

Expand indoor recreational opportunities such as those provided by the community center .



APPEARANCE ELEMENT

OBJECTIVE

Improve the appearance and strengthen the community image of Fort Yukon.

PRESENT CONDITIONS

In years past, Fort Yukon possessed an identifiable community image related to its small size and uniform log cabin construction. More recently, this image has weakened as the town spread out, land use became mixed, native culture lost, and metal and wood frame construction introduced. The 40 new HUD homes built in 1976 constituted a major departure from the traditional type of Fort Yukon housing. Adequate housing is important, but so is the way in which the residents view their community. A strong community image can provide residents with a sense of order, belonging, and pride.

Some areas have been overly cleared of vegetation, which has contributed to erosion, dust, and lack of shade during the summer. It has also resulted in a less attractive appearance for the city.

POLICIES

Policy 1

Group public buildings to create an organized appearance.

Policy 2

Encourage log cabin construction for new residences, public buildings, and any new hotel or tourist facilities.

Policy 3

Require that new public buildings fit in with existing buildings or set a new standard for future development of adjacent parcels.

Policy 4

Use the street system to connect related activity areas. New structures or new use areas should be located with regard to their visual impact. Good community design should be inspirational as well as utilitarian.

Policy 5

Encourage retention of maximum native vegetation. Promote revegetation of streambanks suffering from erosion, and landscape public areas. Create awareness of this need by participating in Arbor Day or school conservation projects.

Policy 6

Facilitate cleaning (junk cars, appliances) of city streets and private property.

Program. Establish a citywide cleanup day in the spring; provide trash pickup and removal to dump.

Policy 7

Encourage preservation of native culture and heritage as a part of the community image by providing historical photographs and cultural exhibits in public buildings.

Implementation





IMPLEMENTATION

Following the adoption of the plan, several planning programs can be employed for its implementation:

- Zoning
- Subdivision regulations
- Capital improvement program
- Land management plan

The city can request assistance in setting up these programs from the state's Division of Community Planning, Department of Community and Regional Affairs.

ZONING

Zoning implements the comprehensive plan by regulating the use of land. Zoning is established by adopting a zoning ordinance. The ordinance divides the city into zones for different kinds of land uses--residential, commercial, and industrial. Within each zone, certain kinds of public uses are allowed in addition to the primary use. For example, parks and schools are allowed in residential zones, while city offices are restricted to the commercial zone, and city shops, or public works yards, are allowed in the industrial zone.

In a small community like Fort Yukon, these distinctions may not seem so important as in a larger, rapidly growing city. Still, some uses are simply not compatible with others. A store or warehouse in a residential neighborhood can create traffic or noise problems for its neighbors. It can also affect property values because many people would rather not live next door to a store or warehouse. Also, a residence remaining between two commercial uses could present a fire hazard, or prevent needed expansion.

Zoning also regulates the way buildings are located on a lot. The ordinance requires buildings to be set back a certain distance from the property line to reduce fire hazard and to allow for light and air. A zoning ordinance may also require space on each lot for off-street parking, depending on how the property is used. The ordinance may require two parking spaces for each home, but eight or ten spaces or more for a store.

In a small community, the form of a zoning ordinance can be simple. There is no need in Fort Yukon for the number of different zones or the degree of regulation needed in larger cities. The ordinance can provide for two residential zones (one for the "city" and one rural areas), a commercial zone, and an industrial zone. Or the ordinance might even have only a single zone, in which all uses except a single-family dwelling would be allowed only after a special permit was issued by the city council.

The council would issue the permit only if the proposed use was compatible with the comprehensive plan and met certain standards for things like lot size, yard space, and parking, that were set down in the ordinance. In any

case, the ordinance should be simple to administer and the regulations should closely reflect the special conditions in Fort Yukon.

Special regulations should be included to protect the site of the fort, the two cemeteries, and any other locations that have historical or archeological value, and to control the height of buildings within the airport clear zone.

Suggested development standards that might be established in a zoning ordinance are in table 3.

SUBDIVISION DESIGN STANDARDS

A subdivision ordinance is used to regulate the platting of land into streets, blocks, and lots. The ordinance establishes standards for the width of street right-of-way and the configuration of blocks and lots, and imposes requirements for public improvements such as street grading and utilities that are necessary when the properties are sold and developed. When a subdivision plat is recorded, necessary rights-of-way for streets and utilities are dedicated to the city, and a legal description of the lots in the subdivision provided so that they can be sold.

In Fort Yukon, most of the raw land is owned either by the city or the village corporation rather than by a number of private property owners. Even so, it is useful to establish uniform standards for streets and improvements. Plats will be needed to convey building sites to private owners.

The pattern of streets in Fort Yukon generally follows a gridiron pattern. The streets are straight and the block size is uniform. When Spruce Street is extended north, the pattern of minor streets can be curved and discontinuous, or looped, to avoid natural drainageways and other natural features that should be undisturbed. The resulting patterns can also limit the amount of traffic on the street.

CAPITAL IMPROVEMENT PROGRAM

The following list of capital improvements is in approximate order of priority. Dates for completion have not been set because of the uncertainty of funding.

1. Extend Spruce Street and survey new lots.
2. Inventory and evaluate city-owned and native corporation properties (see the section titled Land Management Plan, below) .
3. Extend airport runway and resolve clear zone.*
4. Provide tide gate in the Yukon Slough levee and open Ylotta Slough.*
5. Construct the new Public Health Service clinic.*

* Not a responsibility of Fort Yukon, but should be actively pursued for implementation by the appropriate agency.

6. Complete Lion's Club Park.
7. Provide new road parallel to runway.*
8. Acquire land within proposed street rights-of-way.
9. When justified by need, construct new joint-use building for city offices, police, and fire stations.

LAND MANAGEMENT PLAN

The land management plan will provide systematic guidelines for purchasing, using, and selling city property. The objectives of such a program are to assure that:

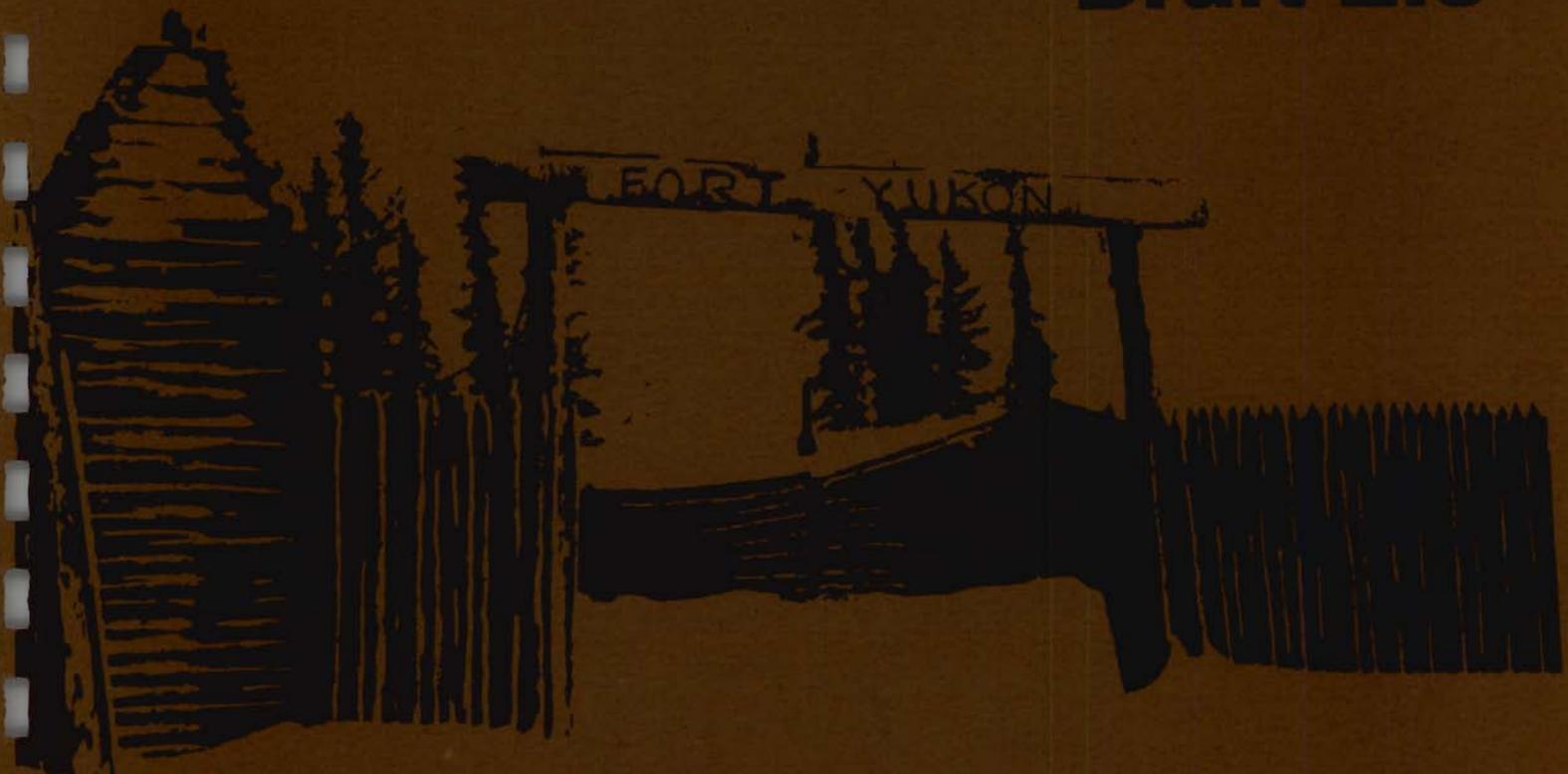
- Property needed for city facilities is acquired at a fair price when needed
- Resources on city property are managed properly
- Surplus city property is sold promptly at a fair price
- Temporarily unused city property is leased or rented at a fair price

The major steps to implement these objectives are:

- Inventory all city-owned property and note detailed characteristics (size, location, topography, vegetation, structures, access, easements, resources)
- Identify needs for city property over the next 5 to 10 years
- Evaluate presently owned property to determine if any parcels match up with identified needs
- Budget funds, if necessary, to acquire needed property
- Sell or trade properties for which no foreseeable public need is identified (the procedure for this should allow for public advertisement and bidding)
- Lease or rent temporarily surplus property (that property for which some possible future need is seen)
- Set up procedures to manage resources on city properties (including conservation, protection, harvesting, as appropriate)

* Not a responsibility of Fort Yukon, but should be actively pursued for implementation by the appropriate agency.

Draft EIS





DRAFT ENVIRONMENTAL IMPACT STATEMENT

Action Sponsor and Lead Agency: Fort Yukon, Alaska

Nature of Proposal: Comprehensive Plan for Future Development of Fort Yukon

Responsible Official: Walter Peter, Fort Yukon

Authors and Principal Contributors to EIS:

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Denise Bieker, Graphics

Date of Issue: 15 July 1977

Date by Which Comments Must Be Received to be Incorporated into Final EIS:
1 August 1977

Description of Proposal and Existing Environment Setting: Refer to Comprehensive Plan Text

Distribution List

Federal Agencies

Department of Housing and Urban Development
Bureau of Indian Affairs
Bureau of Land Management
Federal Aviation Agency
U.S. Air Force (709 AC&W Squadron Commander, Fort Yukon AFS)
Public Health Service

State Agencies

Department of Community and Regional Affairs
Department of Health and Social Services

Upper Yukon Regional Schools
Gwitchyaa Zhee Corporation
Tanana Chiefs Conference, Inc.
Tanana Chiefs Regional Housing Authority

City Businesses

Alaska Commercial Company
Air North
Arctic Circle Air Service
Assembly of God Mission
Fort Yukon Utilities
ITT Arctic Services
Interior Telephone
Kutchin Inn
Sourdough Inn
Standard Oil Company

POTENTIAL ENVIRONMENTAL IMPACTS

The potential impacts upon the environment--both beneficial and adverse--are discussed below.

Land Use

The plan will not change the basic land use pattern of the community, but will encourage the concentration of future development in patterns that will respect topographic and other physical constraints.

The beneficial impacts associated with "clustering" future housing include minimizing walking distances, minimum reliance on vehicles, and reducing costs for utility extensions.

Mixed land uses that present a potential for conflict could eventually be eliminated. Residential property owners may realize some monetary gain from this in areas designated for commercial, industrial, or public uses. No areas will be changed from a "higher" use (such as commercial) to a "lower" use (such as residential).

Despite possible beneficial monetary impacts, some property owners may consider a required change in land use to be an adverse impact. The zoning ordinance that will implement any land use change will allow existing nonconforming uses to remain under certain conditions. Moreover, the comprehensive plan is general in nature, and only indicates a desired land use pattern in the future.

Reserving adequate area for expansion of commercial, public, and residential uses will thereby prevent future, more serious land use conflicts.

New residential development will be directed along one corridor of high ground, which will reduce flood hazards, lower development costs, and minimize changes in natural drainage patterns.

Slightly reduced lot sizes are recommended to conserve scarce high ground.

Transportation/Circulation

Implementing the proposed plan will make it easier to drive around town but should not, by itself, generate additional traffic. Fort Yukon is not connected by road to any other community. The major impacts on the existing road system will be to standardize road rights-of-way and to provide categories of roads based upon their intended functions. Realignment and widening of some streets are proposed, and Spruce Street will be extended. All associated impacts will be beneficial except for clearing of vegetation and filling for roadways. The plan encourages on-site (rather than on-street) parking.

Plan proposals to upgrade air service and extend the runway to the northeast will provide beneficial impacts in terms of having expanded service and eliminating the need to acquire property in the existing clear zone. Property owners within the clear zone will have some building height restrictions, but these should be minimal.

Providing a gate in the Yukon Slough levee and opening Ylotta Slough will restore the use of the town's waterfront, and allow reuse of the former barge landing, which has silted in. All of these impacts will be beneficial providing the flow is controlled.

The potential traffic hazard that exists for pedestrians will be reduced by providing separated paths within the right-of-way.

Water

No significant change in the absorption rate, drainage patterns, or the rate or amount of surface water runoff is expected. Old streambeds and other drainageways are preserved.

No change in the direction or quantity of groundwater will occur. The plan proposes to correct possible leachate and other pollution of ground or surface waters; this will have a beneficial impact on the water resource.

The plan does not change the amount of water available for the public water supply.

Air Quality

No significant degradation of air quality will occur. No alteration of air movement, moisture, or temperature is expected. Increases in pollutants will be limited to vehicle operation, home heating, and similar activities. Since the rate of population growth is expected to be slow, no significant adverse impacts are expected.

Population Growth

The proposed plan will not significantly change the distribution, density, or growth rate of the population. Population projections are consistent with past trends and with future employment opportunities and show a steady but low rate of growth.

Housing

The plan provides for increased housing to reduce the present overcrowding and to accommodate modest population growth. No adverse effect on existing housing is expected.

Vegetation

Proposed development will not significantly alter vegetation patterns except in areas actually used for development. The plan calls for maximum retention of vegetation for erosion control, shade, and appearance. Old streambeds and other drainageways are to be retained. Because of the scale of development, no significant change in the diversity of species of vegetation is anticipated. No known unique, rare, or endangered species are involved. No new plant species are to be introduced.

Fauna

No significant impacts in the diversity or numbers of species of fauna (birds, land animals, reptiles, fish, benthic organisms, insects, or microfauna) are anticipated. No unique, rare, or endangered species are involved, and no new species will be introduced. No barriers to migration are proposed. Loss of habitat will be limited to that actually needed for structures or agricultural development. In view of the proposed scale of development and the presence of comparable habitat surrounding the town, this impact is not considered significant.

Permafrost

Owing to the small growth rate and the limited development anticipated, no significant adverse effects upon permafrost are expected. New structures will be built on pilings or gravel pads to provide maximum flood protection and insulation against permafrost melting.

Public Services

Because of the low projected growth rate, impacts upon fire and police protection, schools, recreational facilities, maintenance of public facilities, and other governmental services will be minimal.

Energy

Energy impacts will be limited to those unavoidably associated with any population growth: increased fuel for heating, vehicle operation, and electrical power generation. The plan encourages energy conservation through the land use pattern, official city policies relating to home insulation, and other voluntary conservation measures.

Utilities

No new utility system will be required. The amount and type of growth anticipated can be accommodated by modest expansion of existing systems. Water and sewer systems and solid waste disposal will continue to be principally individual responsibilities.

Human Health

The proposed correction of the Hospital Lake pollution problem will provide health benefits. Other proposals relating to present systems for sewage and solid waste disposal will benefit health.

Aesthetics

Plan proposals will provide positive aesthetic impacts by establishing policies relating to the appearance of structures, retention of vegetation, community cleanup, and maintenance of the rural appearance and lifestyle that residents desire.

Noise, Light, and Glare

No adverse impacts in these areas are anticipated other than those normally associated with residential growth.

Natural Resources

The plan does not involve any increase in the rate of use of any natural resources. Depletion of nonrenewable natural resources is limited to home heating and other fuel needs.

Recreation

All recreation impacts are beneficial. Better access to recreation sites is proposed, and the cleanup of Hospital Lake will restore the use of the lake for fishing and swimming.

Archeology//History

There will be no adverse impacts to known archeological or historical sites. The plan envisions the identification and preservation of such sites as an important part of the community's heritage.

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Long-term productivity of the Fort Yukon area applies principally to natural resources: waterfowl habitat and other vegetation, wildlife, possible mineral resources, the river, stream and pond system, and pure air. The comprehensive plan proposes the development of a relatively few marginally productive natural areas. This loss of natural resources will be balanced by social benefits related to increased employment opportunities and the provision of adequate housing for residents.

IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES

The principal resources irretrievably committed by the proposed project will be land and vegetation cleared in the process of development. Some commitment of air and water resources will be made in the sense of degradation typical

of urbanization. Implementation of the plan will result in the commitment of construction materials and capital necessary for development, and the commitment of fuel, power, and other similar services.

ADVERSE ENVIRONMENTAL IMPACTS THAT MAY BE MITIGATED

The impacts of development can be mitigated by:

1. Retaining as much native vegetation as possible on-site during any construction.
2. Continuing communication with property owners to assure that they understand the comprehensive plan.

ALTERNATIVES TO THE PROPOSAL

Alternatives to the comprehensive plan consist of a "no plan" alternative, which would essentially be a continuation of the present situation; or an infinite combination of alternative policies or configurations. The elements in the plan were selected to respond most directly to community goals, physical constraints, and economic potential. They represent an effort to accommodate some continued growth for the community, with the minimum adverse effect upon the environment.

UNAVOIDABLE ADVERSE IMPACTS

1. Conversion of land to urban use.
2. Loss of some wildlife habitat.
3. Soil erosion, principally during construction.
4. Perceived loss of the opportunity by some property owners to use property for any desired activity.
5. A slight increase in traffic and noise.
6. A slightly increased demand for public facilities, utilities, and other urban services.
7. A slight degradation of air quality caused by vehicular emissions.

Tables and Figures



Table 1. LAND USE ACREAGE

	<u>Acres</u>
Public	541.70 ^a
State	
Airport	510.00 ^a
School	2.44
Other	0.92
Federal	
Fish & Wildlife	0.83
BIA	1.02
FAA	141.13 ^a
BLM	398.00 ^a
Post Office	0.23
City	
Firehouse	4.76 ^a
Clinics	5.23 ^a
Other	3.71
Churches	5.26
Utilities	2.27
GZ Village Corporation	6.05
Commercial	
Inns	3.01
Alaska Comm.	0.28
AC Native Store	0.26
Warehouse	0.55
Other	0.28
Residential	158.00±
Above 50-year Floodline	36.17
Vacant	6.31
Federal	0.55
City	5.76
Industrial	
Standard Oil	0.46
Other	2.16

^a Outside townsite area

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Table 2. FORT YUKON CLIMATOLOGICAL SUMMARY

	Precipitation (inches)			Snowfall (inches)		Temperature (°F)				
	Max (year)	Min (year)	24-hour Max (year)	Average Snowfall	Maximum (year)	Ave Max	Ave Min	Ave	Record High	Record Low
January	1.32 (1960)	T (1936)	0.44 (1937)	6.9	20.2 (1937)	-11.7	-28.9	-19.7	40	-69
February	1.43 (1923)	.00 (1936)	0.33 (1923)	6.2	25.0 (1923)	-4.4	-22.4	-15.1	41	-70
March	1.14 (1944)	T (1940)	0.22 (1955)	4.8	15.1 (1944)	13.0	-13.3	0.6	50	-51
April	0.92 (1948)	T (1945)	0.43 (1948)	2.4	10.6 (1952)	34.3	8.0	21.3	65	-41
May	1.07 (1956)	T (1960)	0.66 (1931)	1.0	8.3 (1948)	55.3	31.3	43.5	85	-3
June	2.69 (1945)	.08 (1922)	1.25 (1928)	0	0 -	69.9	47.2	58.8	100	25
July	2.85 (1960)	.06 (1950)	1.40 (1960)	0	0 -	72.2	50.4	61.4	97	25
August	2.96 (1930)	.06 (1949)	1.06 (1936)	0	T -	65.9	44.4	55.0	88	22
September	1.98 (1945)	.14 (1936)	0.60 (1960)	1.9	15.6 (1946)	50.7	32.0	41.1	79	4
October	1.87 (1924)	.07 (1928)	0.65 (1924)	7.7	18.0 (1948)	28.0	13.0	20.7	61	-37
November	1.36 (1939)	.03 (1927)	0.65 (1939)	8.0	22.8 (1939)	3.3	-11.5	-3.8	40	-61
December	0.89 (1944)	T (1932)	0.46 (1940)	5.9	13.7 (1954)	-11.9	-28.1	-19.5	37	-71
Annual	10.72 (1944)	2.84 (1933)	1.40 (1960)	44.7	72.6 (1948)	30.4	10.2	20.4	100	-71

T = Trace

Source: U.S. Weather Bureau

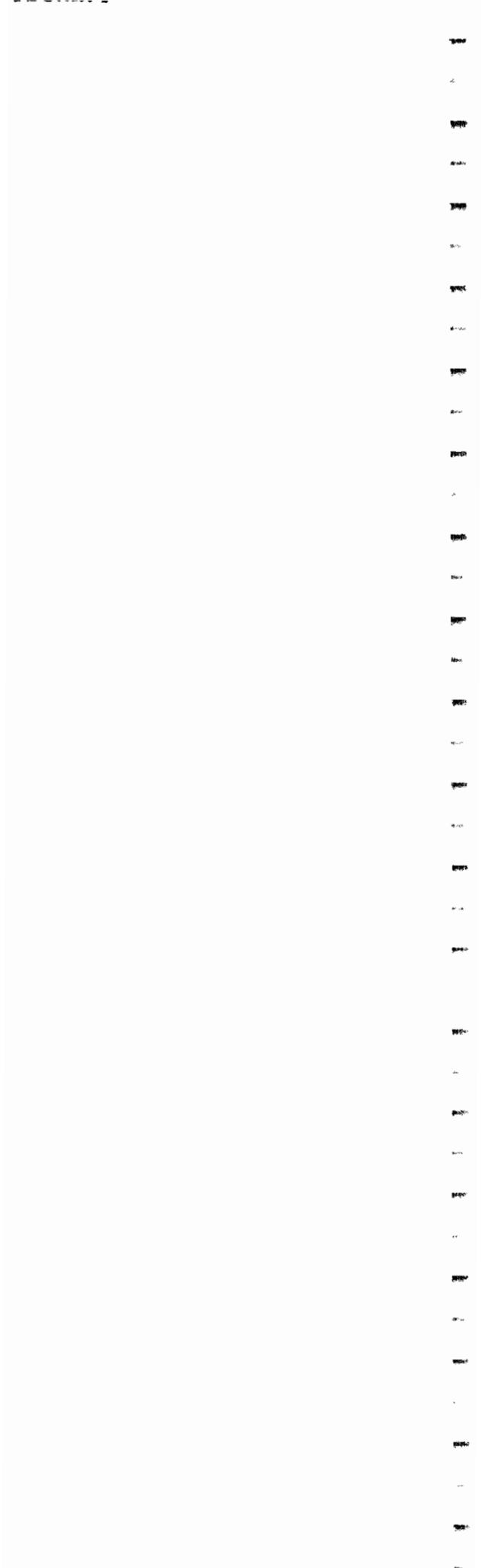


Table 3. TYPICAL ZONING REGULATIONS

	<u>Rural</u> <u>Residential</u>	<u>City</u> <u>Residential</u>	<u>Commercial</u>	<u>Industrial</u>
Lot Size				
Minimum (sq ft)	20,000	9,000	10,000	10,000
Maximum (sq ft)	None	12,000	None	None
Minimum Lot Width (ft)	70	70	70	70
Maximum Building				
Height (ft)	35	35	40	50
Minimum Front Yard (ft)	25	25	10	10
Minimum Side Yard (ft)	15	15	20	20
Minimum Rear Yard (ft)	15	15	10	20

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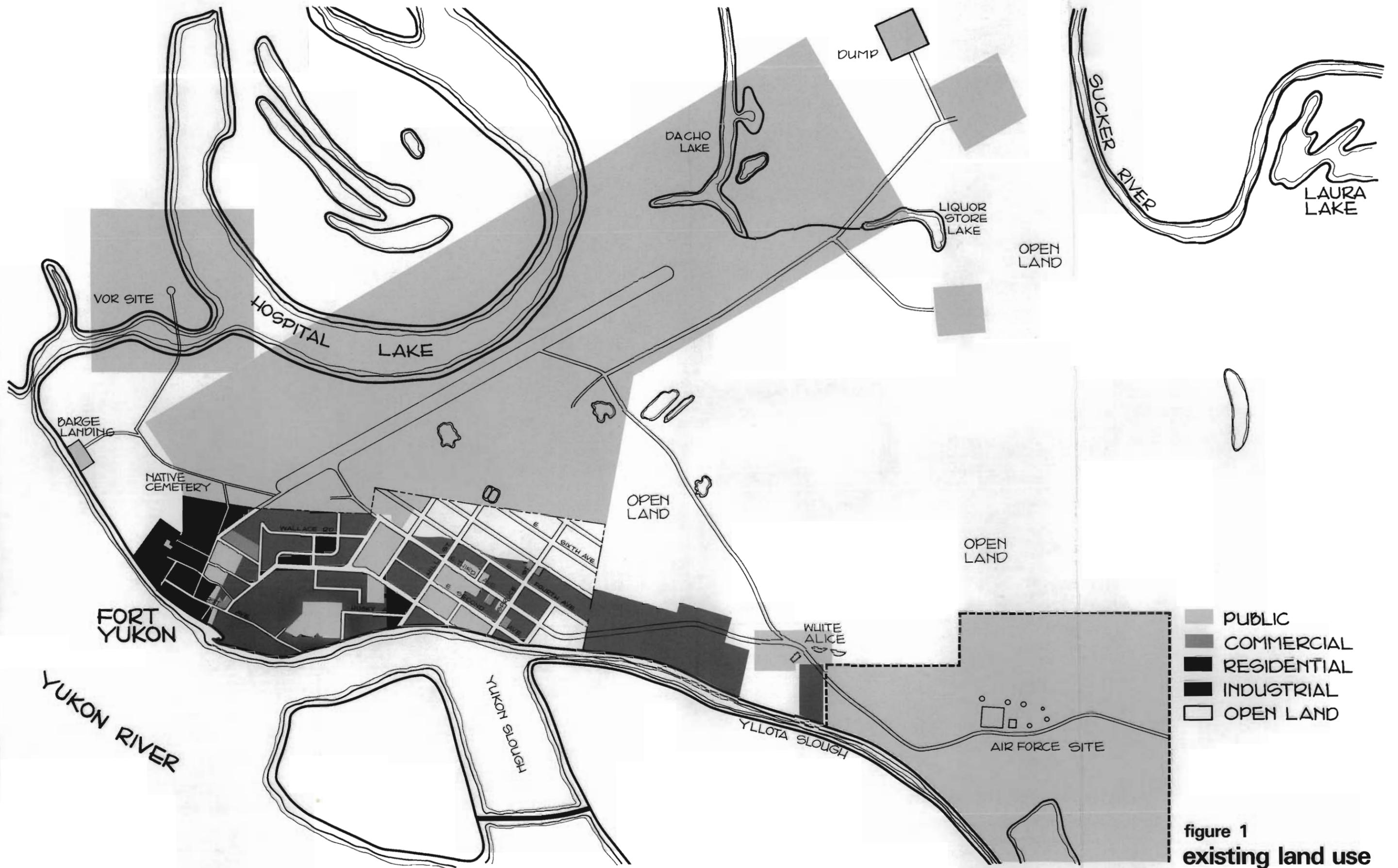


figure 1
existing land use

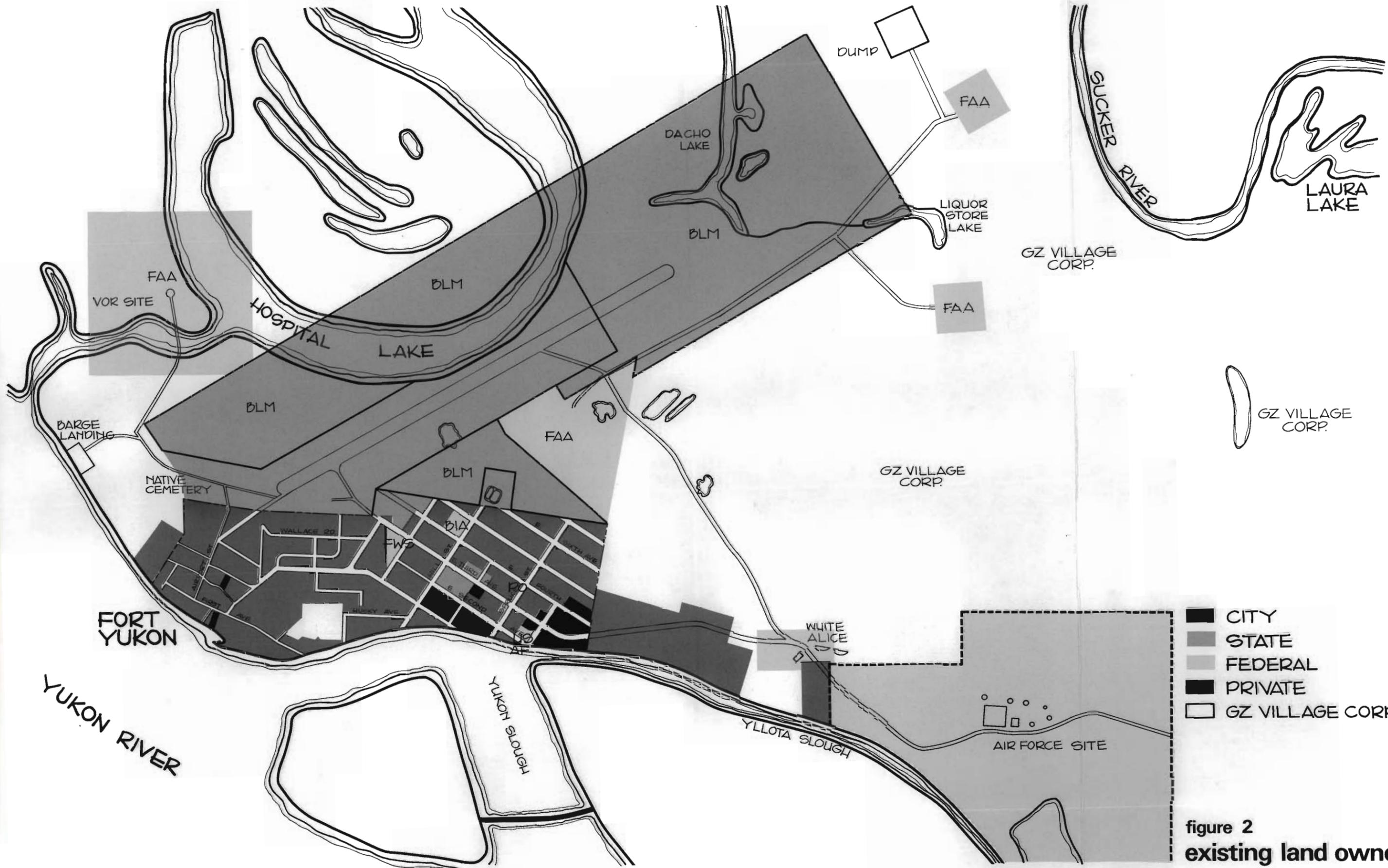


figure 2
existing land ownership

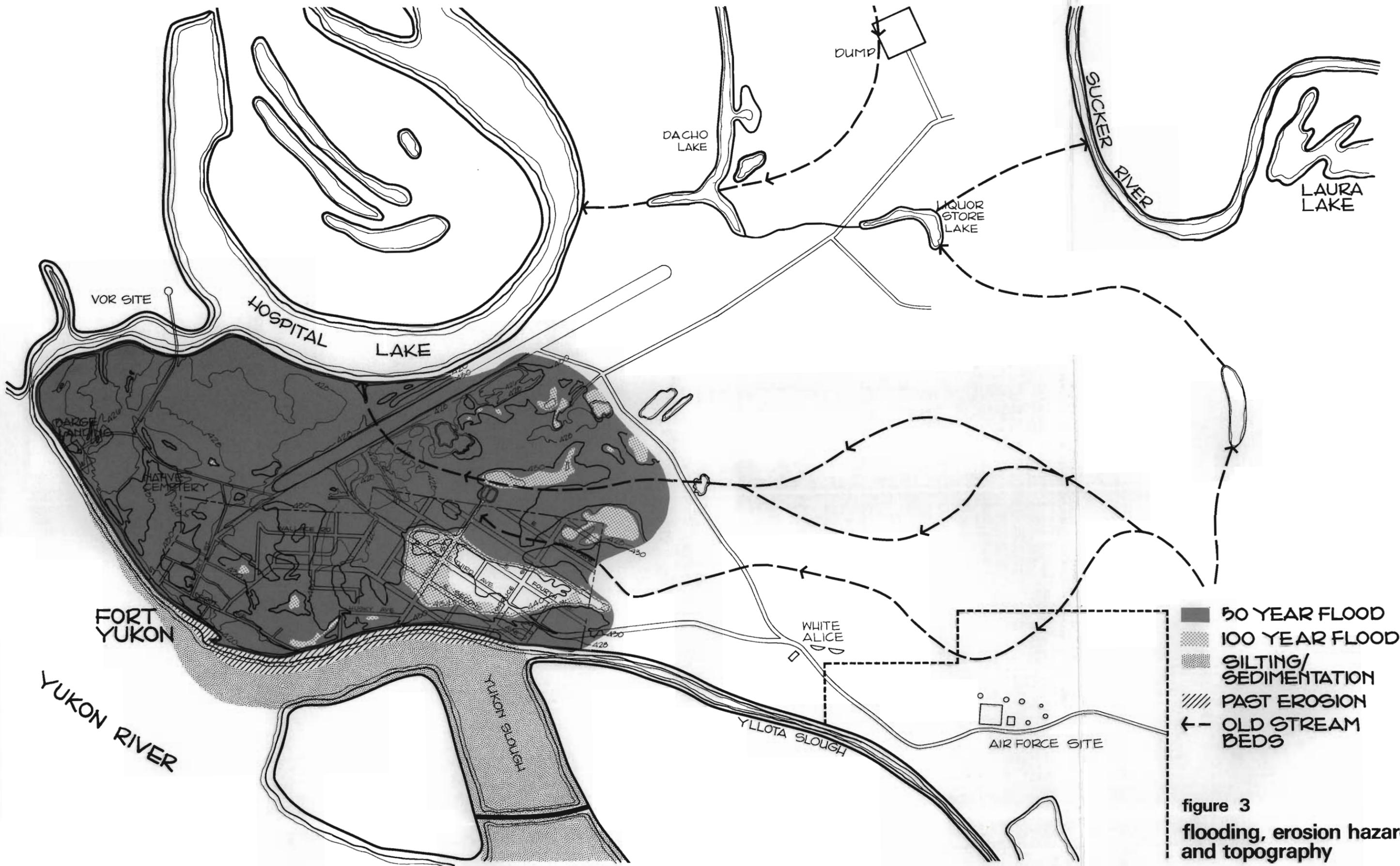
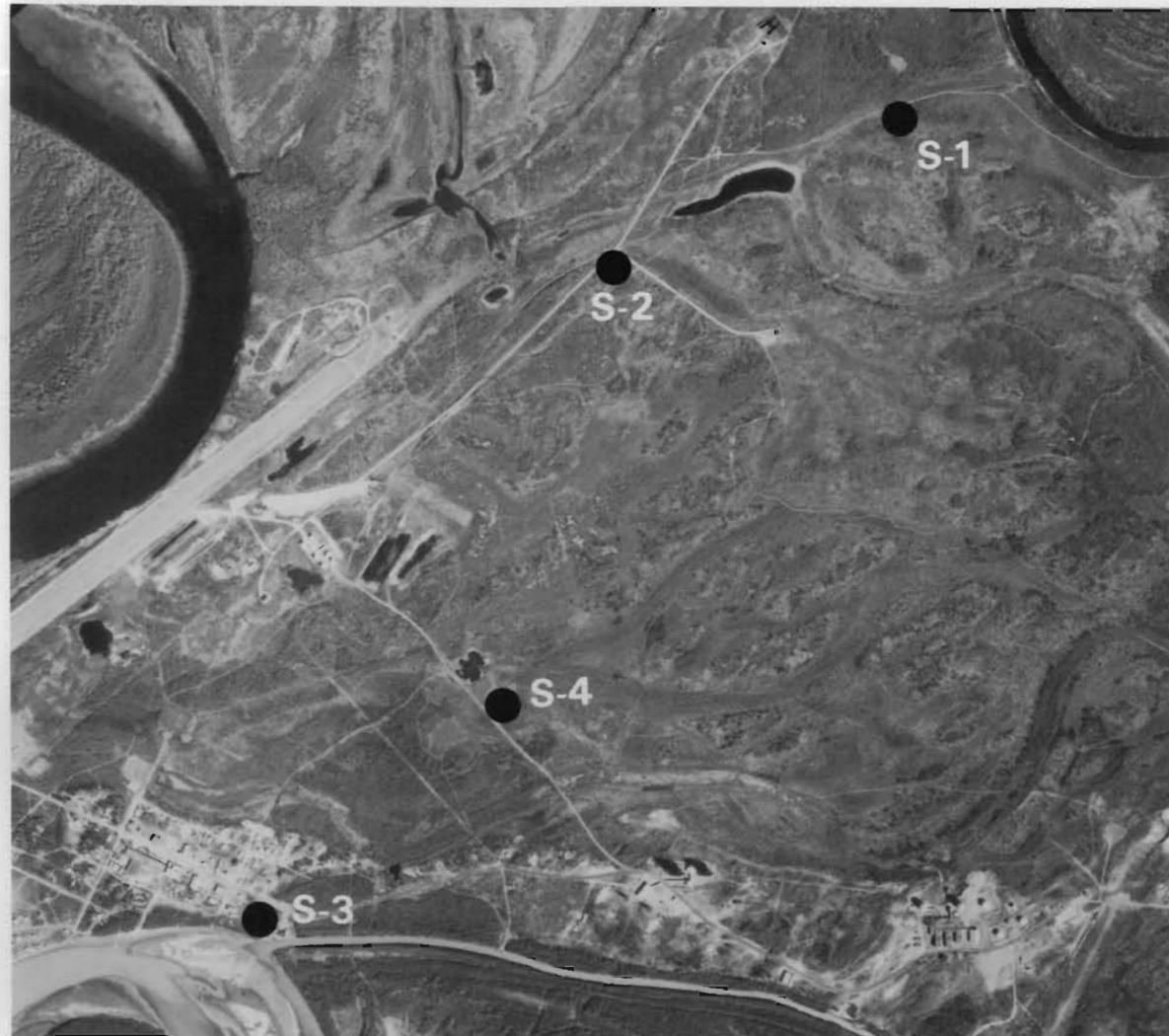


figure 3
 flooding, erosion hazards,
 and topography



SOIL PROFILE DESCRIPTIONS*

Site S-1

Location: Approximately 1 mile north of the north end of the airport runway.

Physiography: Nearly level "remnant" terrace.

Vegetation: Dominantly aspen, white spruce, and willow with an understory of lab. tea, blueberry, and mosses.

The soil is well-drained, moderately permeable, and depth to permafrost is more than 52 inches. The parent materials appear to be silt loam loess about 28 inches thick over stratified loamy water-laid sediments.

Site S-2

Location: Approximately ½ mile north of the north end of the airport runway.

The soil profile at Site S-2 is essentially the same as Site S-1.

Site S-3

Location: Approximately ½ mile east of the airport; about 150 feet north of the bank of a slough of the Yukon River.

Physiography: Nearly level terrace slightly above normal flood levels.

Vegetation: Dominantly willow brush and young white spruce.

The soil is moderately well-drained and consists of stratified silty and sandy water-laid sediments. Depth to permafrost is unknown.

Site S-4

Location: Approximately ½ mile east of the airport; 100 feet north of the road to the Air Force site.

Physiography: Shallow depression in nearly level terrace.

Vegetation: Dominantly willow and black spruce with a ground cover of moss and sedges.

The soil is poorly drained and consists of silty water-laid sediments. Permafrost table is at 24 inches below the surface mat of organic material.

*These descriptions are summaries of unpublished soil data from a Soil Conservation Service letter dated November 24, 1976, to CH2M HILL. This letter, along with detailed data, is in the appendix.

figure 4
soil data

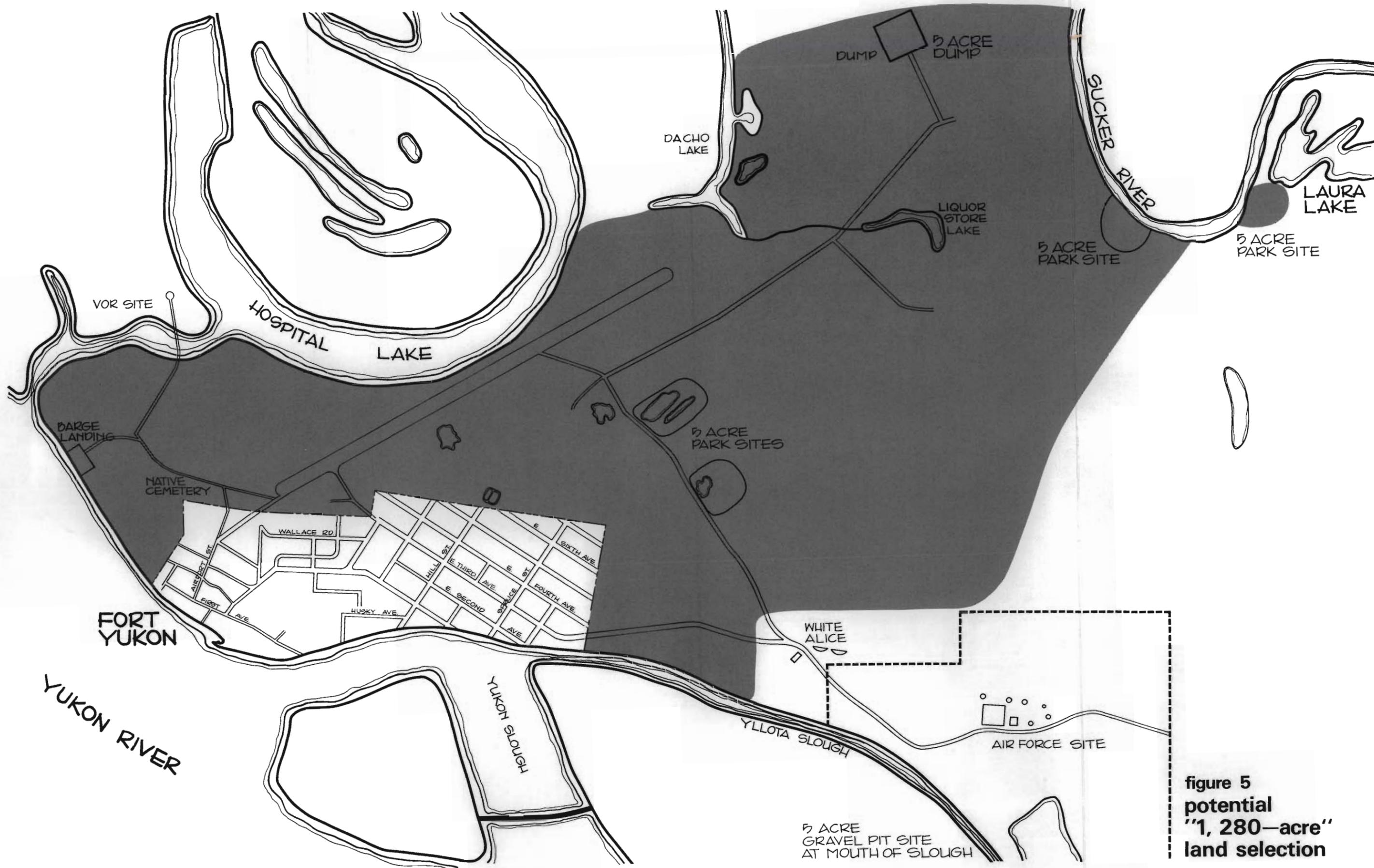


figure 5
 potential
 "1,280-acre"
 land selection

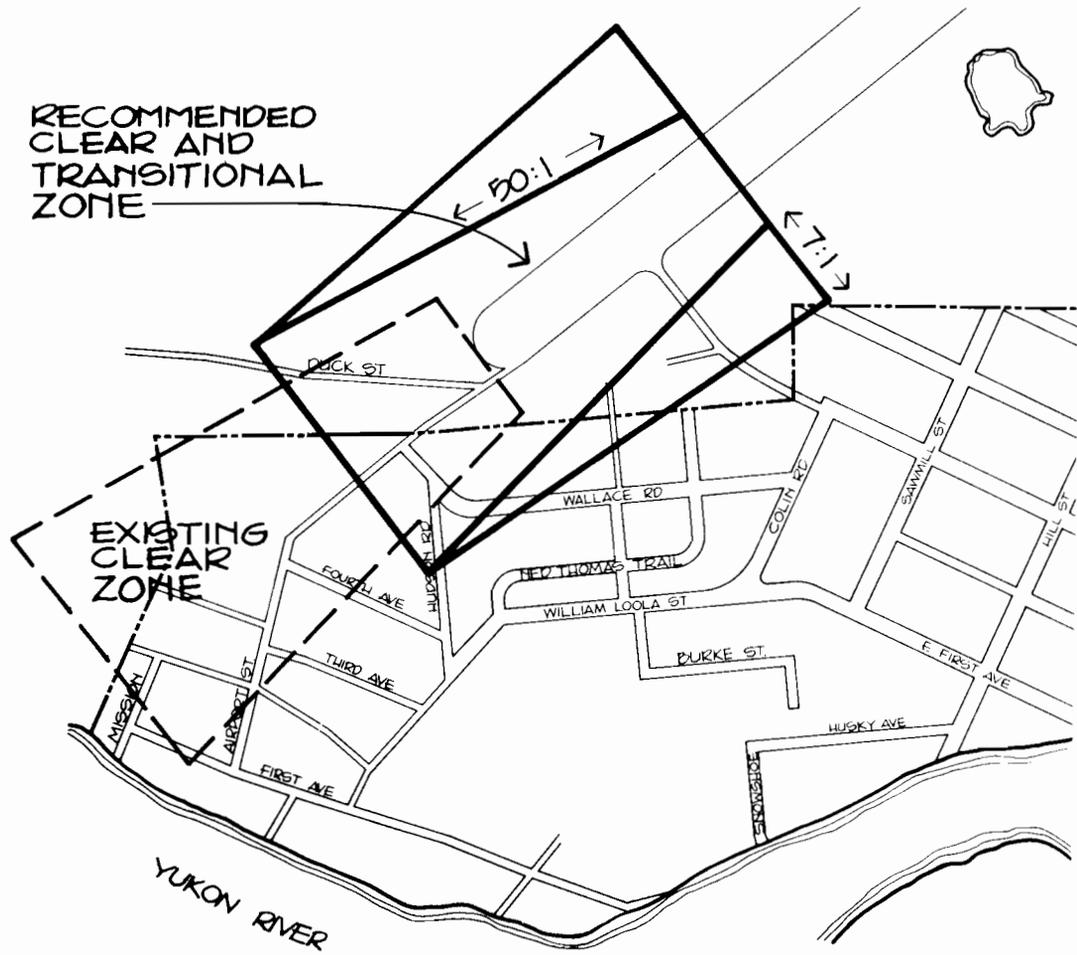


figure 6
airport runway clear zone

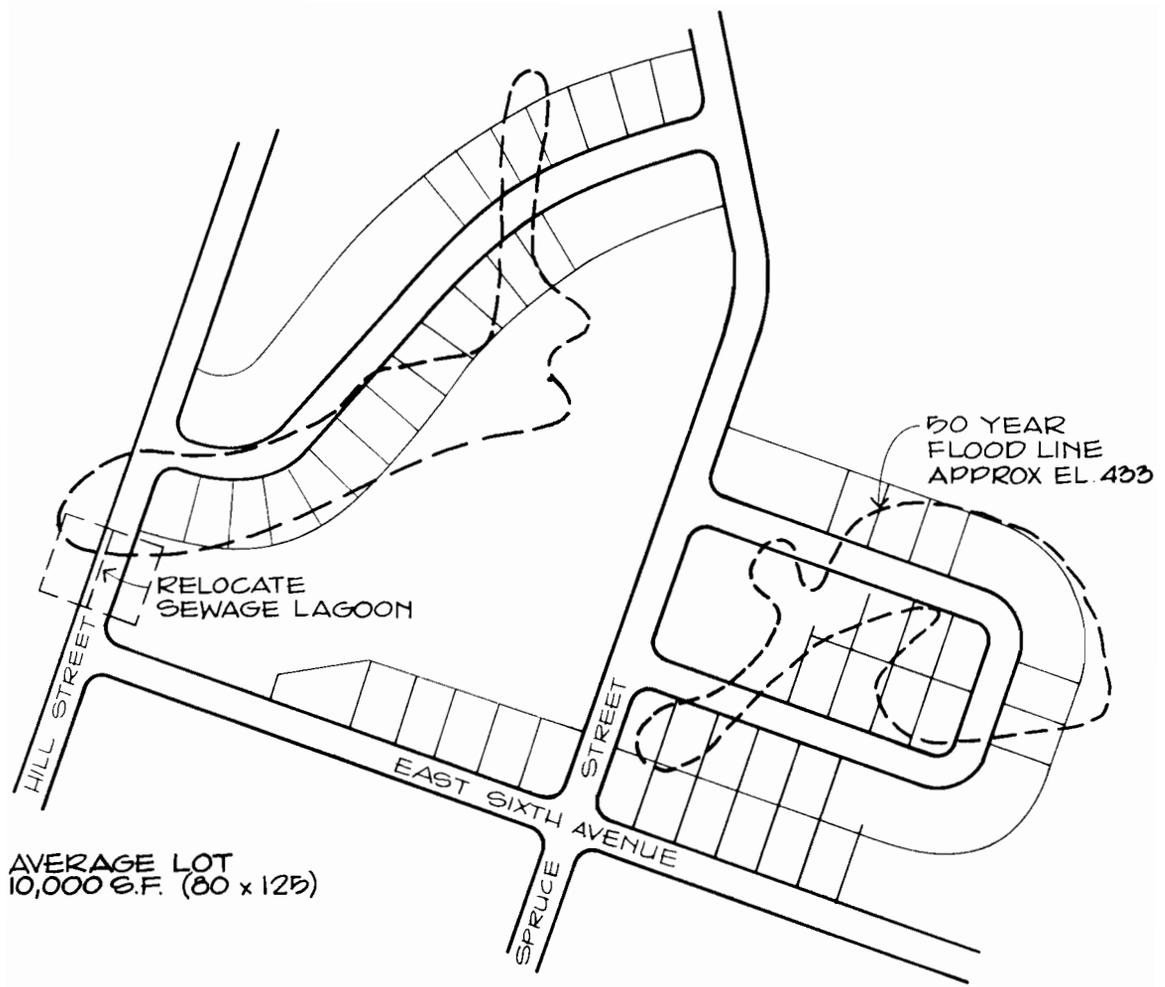
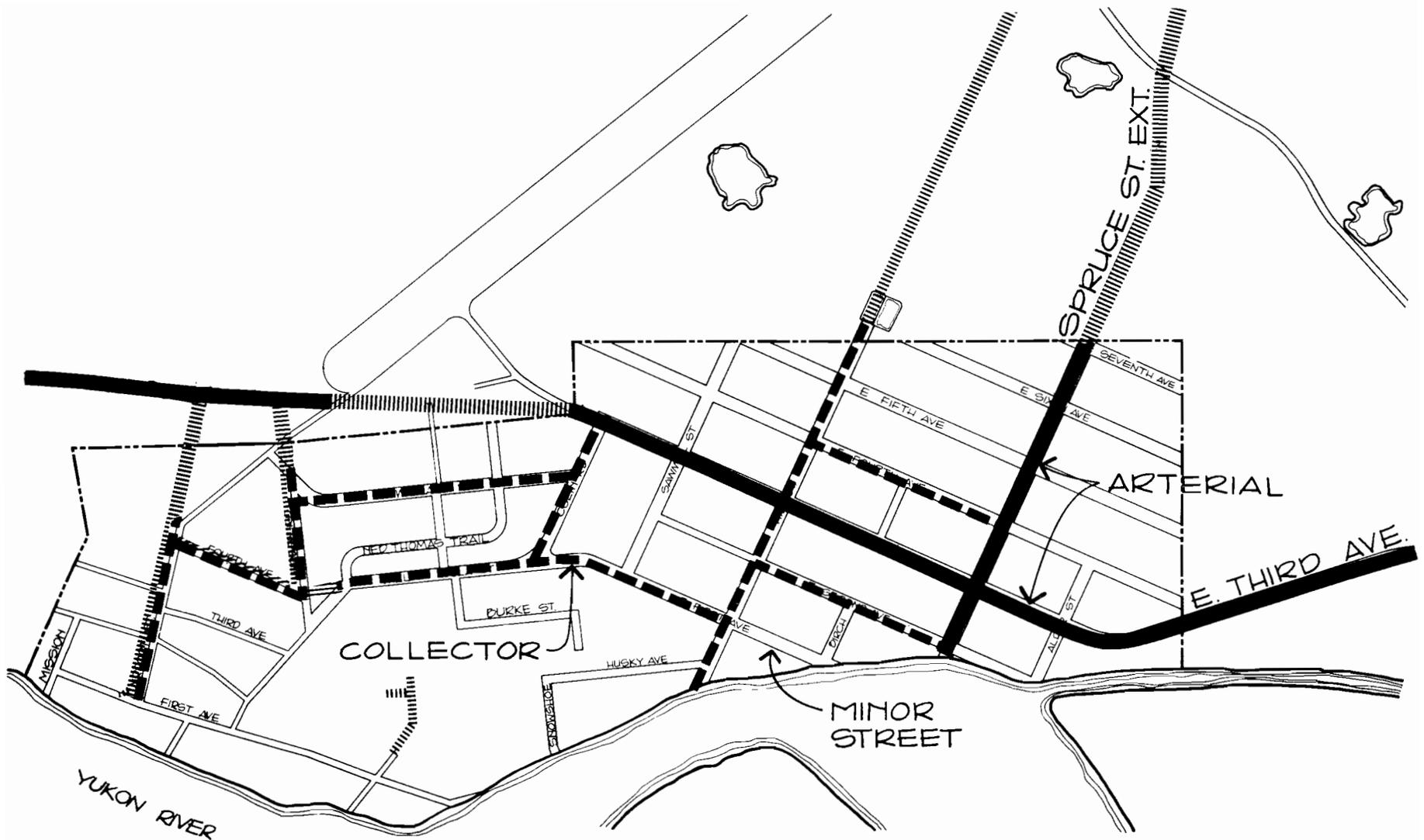


figure 7
potential subdivision pattern,
spruce street extension



≡ NEW STREET RIGHT-OF-WAY ACQUISITION

figure 8
circulation plan

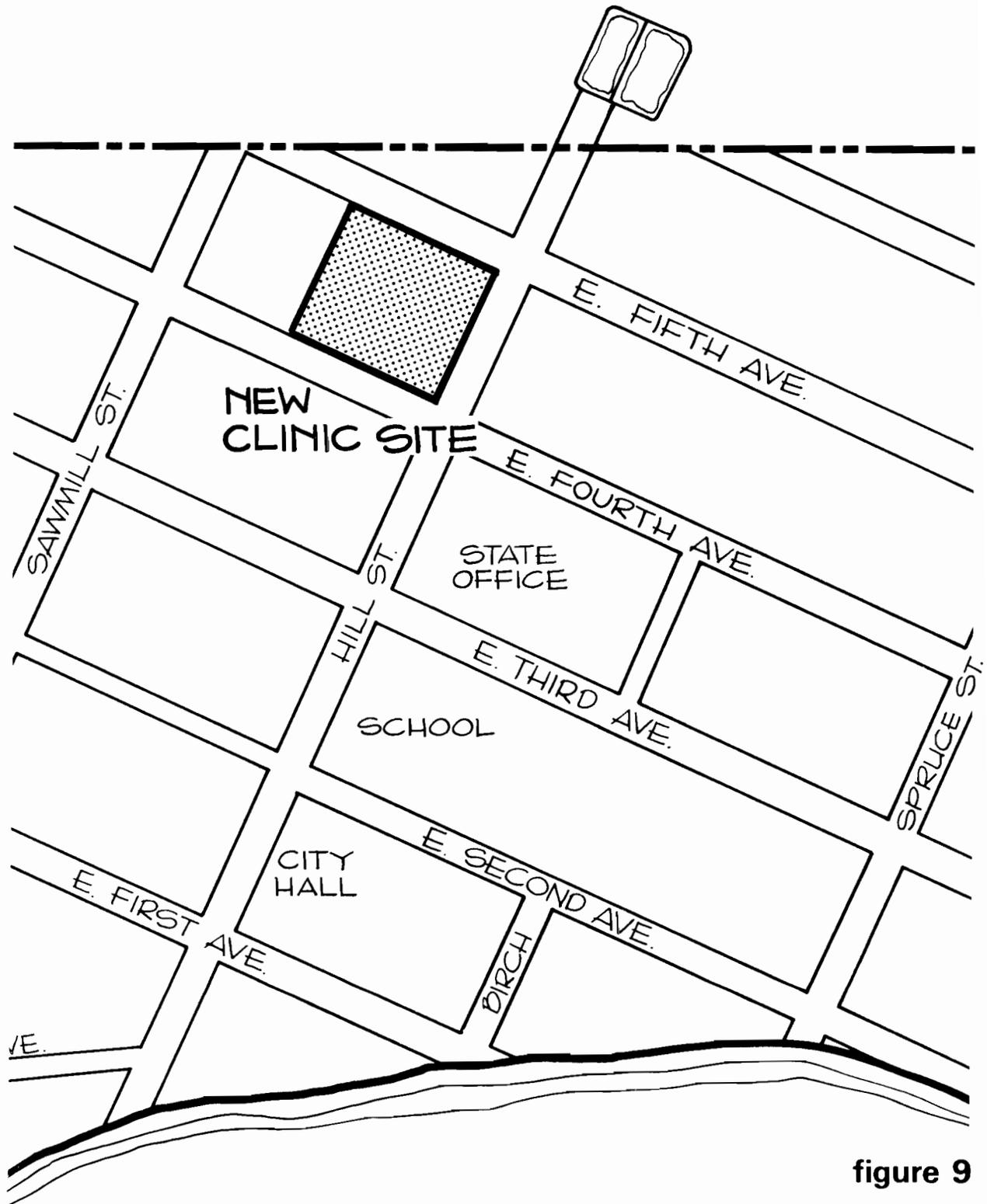


figure 9
proposed location for
public health service clinic

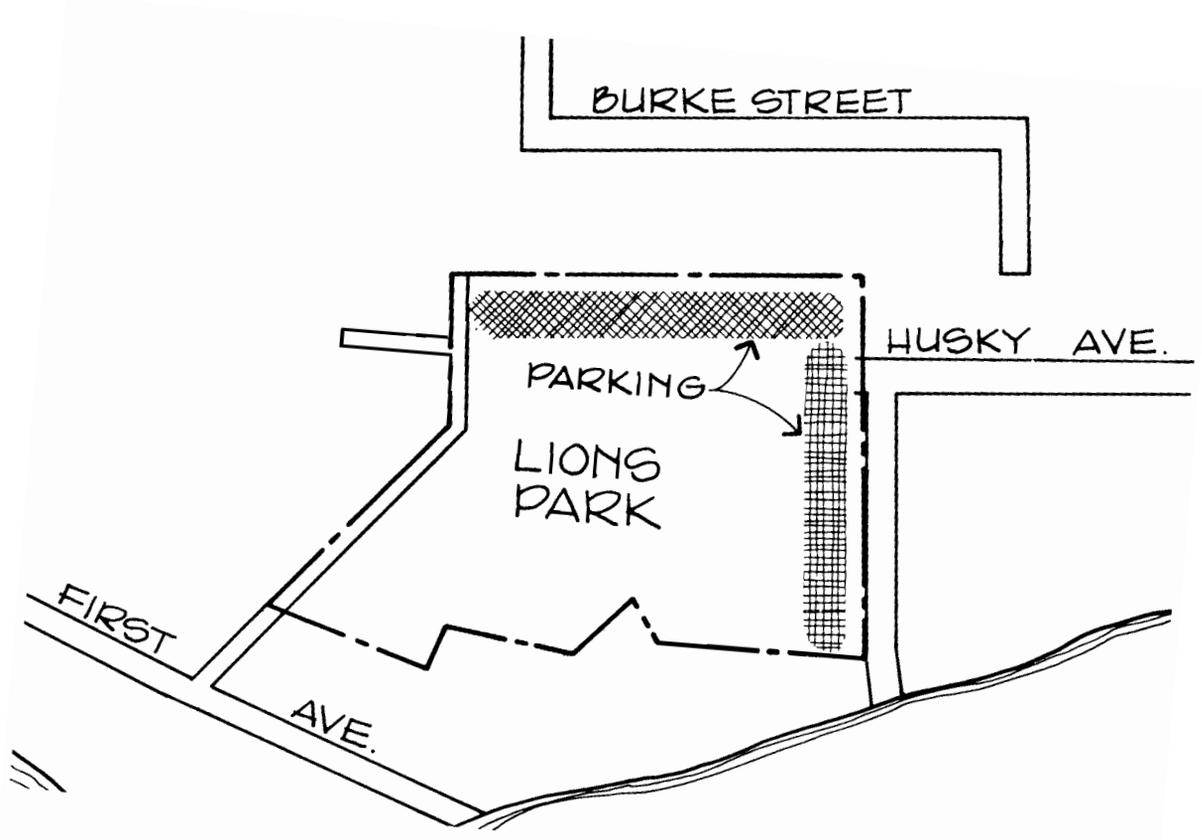


figure 10
proposed park access

Appendix Soil Data



UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

P. O. Box F, Palmer, Alaska 99645

November 24, 1976

Miss Vicky M. Sung
CH₂M Hill
310 K Street, Suite 602
Anchorage, Alaska 99501

Dear Miss Sung:

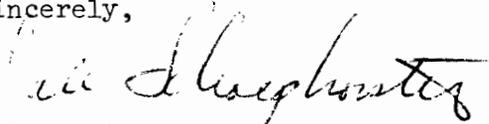
I am returning the photos and overlays for the Ft. Yukon area along with some soil profile descriptions taken at several sites.

On one of the overlays I have outlined areas that appear to have potential for building sites. Areas designated 1 are slightly above average elevations and probably have a high proportion of well-drained soils (over 75 percent) and the best potential for building sites. Areas designated 2 may also be suitable for building sites but appear to have a lower proportion of well-drained soils (40 to 60 percent). These areas all appear to be well above normal flood levels.

The sites where soil profile descriptions have been written or examined are designated on the overlay as S-1, S-2, S-3, and S-4.

I hope this material will be helpful to you. If you have any questions about it, or if we can be of further help, please don't hesitate to give us a call.

Sincerely,



Dale B. Schoephorster
Soil Scientist

Enclosures



The only soil information we have on Ft. Yukon is general in nature and is based, largely, upon unpublished data taken from the Alaska Exploratory Soil Survey. Although this survey, to be published in 1978, is designed for statewide and regional planning, some of the soil information recorded by SCS soil scientists that conducted field work in the vicinity of Ft. Yukon may be helpful to you. Observations made in the area indicate that most of the soils have characteristics and properties similar to soils mapped, described, and classified in detailed surveys made in other areas of Alaska where environmental conditions are much the same. These soils are identified and described in mimeographed reports of the Circle Area, the Yukon Crossing Area, and in copies of detailed soil descriptions which we have made available to you. However, the proportionate extent and distribution of these soils in the Ft. Yukon area cannot be determined without a detailed soil survey.

Following are general statements about soils in Ft. Yukon, based on personal observations:

1. Ft. Yukon is situated on broad, nearly level and gently sloping stream terraces of the Yukon River.
2. The dominant soils in the area consist of thick deposits of waterlaid silts and fine sands. In places, these sediments are capped with a mantle of silty windlaid materials varying from a few inches to several feet in thickness. Although our soil investigations were only to a depth of 4 or 5 feet, other observations (cut-banks along the river, and pits) indicate that in most places the silty and fine sandy sediments are many feet thick and probably underlain with sand and gravel. To the best of our knowledge, there is no bedrock anywhere near the surface. The engineering classification (Unified) of the dominant soils is estimated as ML with stratified layers of SM material.
3. The well-drained soils of the area commonly support young stands of aspen, paper birch, and white spruce. The permafrost tables in these soils is usually more than 4 feet below the surface and is generally deeper or may be absent in soils close to the river. These well-drained soils, in areas not subject to flooding, have the highest potential for building sites and most other types of construction.
4. In soils with impeded drainage (poorly drained soils) that commonly occupy positions in swales or other low-lying areas, the permafrost tables are generally within 2 feet of the surface. The perennially frozen materials in these soils contain a much higher proportion of ice than the permafrost materials in well-drained soils. The dominant vegetation on these soils consists of mosses, low-growing shrubs, and scattered stands of stunted black spruce. Removal or destruction of the vegetative mat results in thawing of the "ice-rich" materials, lowering of the permafrost table, and uneven settling of the

soil surface. These soils generally have severe limitations for buildings and other types of construction.

5. The frequency, duration, and extent of flooding in the area can best be determined from local records and from studies conducted by the Army Corps of Engineers. Our best estimates are that flooding is rare (unlikely, but possible under abnormal conditions) on most of the area and frequent (more than once in two years) on low-lying areas.

We hope the above information will be useful to you and if we can be of further assistance, please let us know.

Soil profile description at site S-1:

Site location: Approx. 1 mile north of the north end of the airport runway, Ft. Yukon.

Physiography: Nearly level "remnant" terrace.

Vegetation: Dominantly aspen, white spruce, and willow with an understory of lab. tea, blueberry and mosses.

The soil is well-drained, moderately permeable, and depth to permafrost is more than 52 inches. The parent materials appear to be silt loam loess about 28 inches thick over stratified loamy waterlaid sediments.

Profile description:

2-0 inches--Partially decomposed organic material.

0-3 inches--Dark brown silt loam; weak fine granular structure; very friable; many roots; pH 5.8.

3-11 inches--Dark yellowish brown silt loam; weak thin platy structure; very friable; pH 6.5.

11-28 inches--Dark grayish brown silt loam; many streaks and large patches of olive brown and dark reddish brown silt loam; weak thin platy structure; very friable; pH 6.5.

28-52 inches--Olive gray fine sandy loam with few thick strata of dark gray silt loam; few fine reddish brown mottles; massive; friable; pH 6.5.

(The Unified classification is estimated as ML in the upper 28 inches and ML or SM in the substratum materials)

Soil profile at S-2:

The soil was examined but not described in detail. The profile was essentially the same as at site S-1 but was frozen at a depth of 38 inches in late July, 1970.

Soil profile at S-3:

Site location: Approx. 1/2-mile east of Ft. Yukon airport; about 150 feet north of the bank of a slough of the Yukon River.

Physiography: Nearly level terrace slightly above normal flood levels.

Vegetation: Dominantly willow brush and young white spruce.

The soil is moderately well-drained and consists of stratified silty and sandy water-laid sediments; depth to permafrost unknown.

Profile description:

0-4 inches--Very dark grayish brown silt loam; weak fine granular structure; very friable; pH 6.8.

4-37 inches+-Dark grayish brown stratified silt and fine sand with streaks and patches of dark brown and black buried organic material; very friable; pH 7.0.

(Unified classification estimated as SM)

Soil profile at S-4:

Site location: Approx. 1/2-mile east of airport, 100 feet north of road to military site.

Physiography: Shallow depression in nearly level terrace.

Vegetation: Dominantly willow and black spruce with a ground cover of moss and sedges.

The soil is poorly drained and consists of silty waterlaid sediments. Permafrost table at 24 inches below the surface mat of organic material.

Profile description:

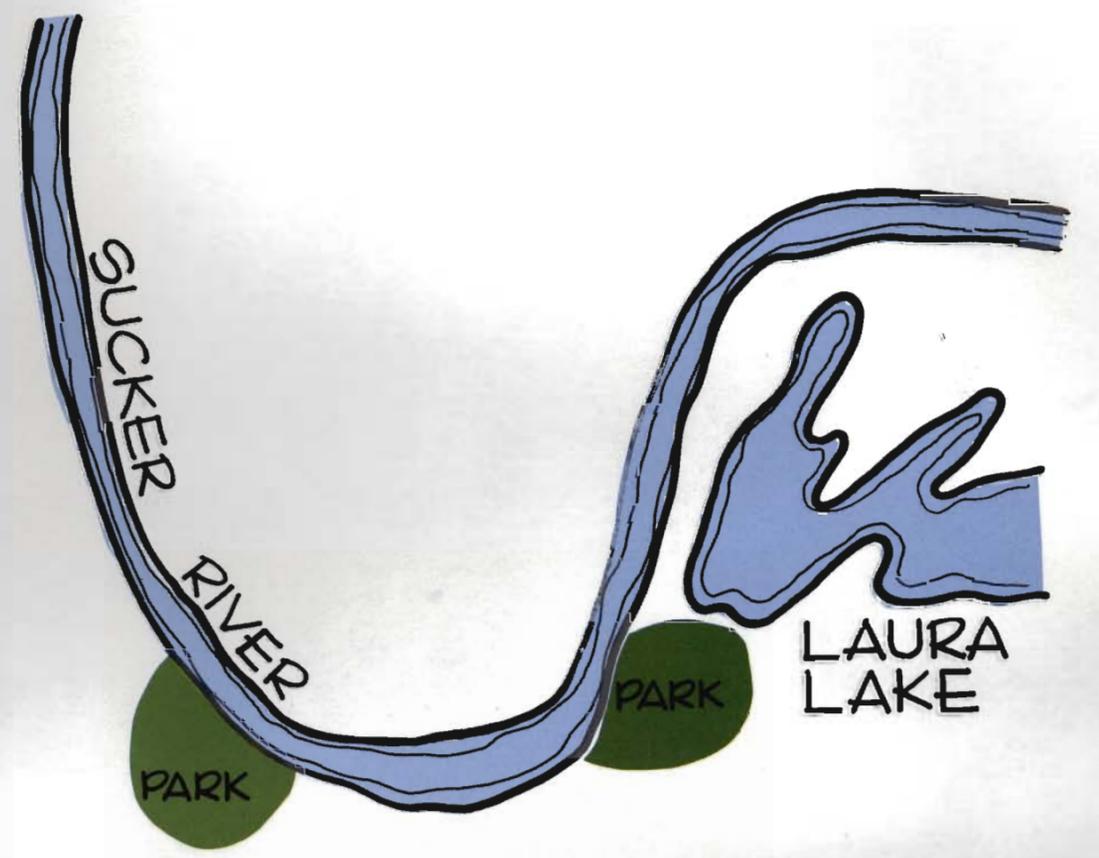
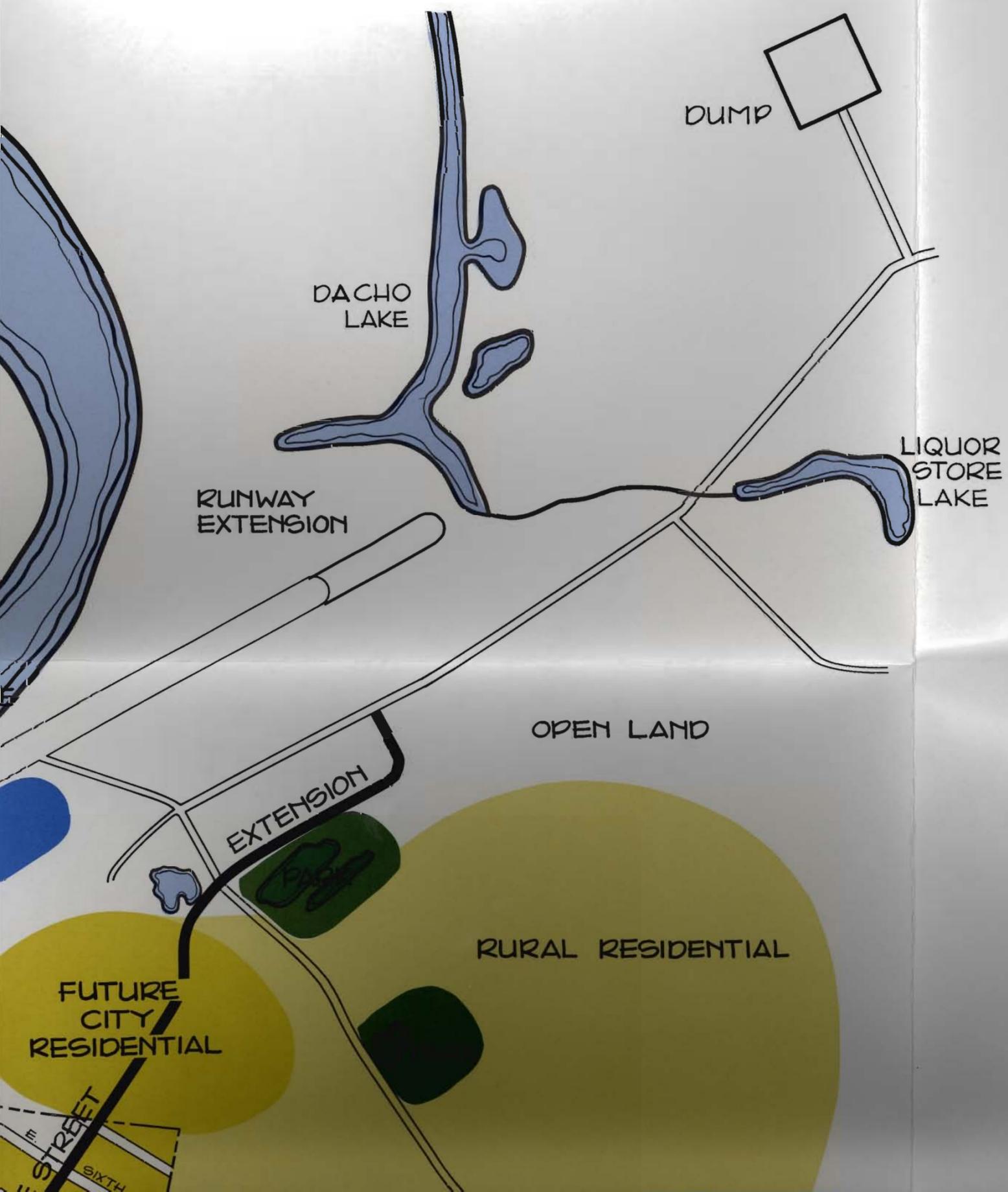
7-0 inches--Mat of moss, roots, and partially decomposed organic material.

0-2 inches--Black mucky silt loam; nonsticky, nonplastic.

2-18 inches--Dark gray silt loam with many dark brown and gray mottles; nonsticky and nonplastic; pH 6.0.

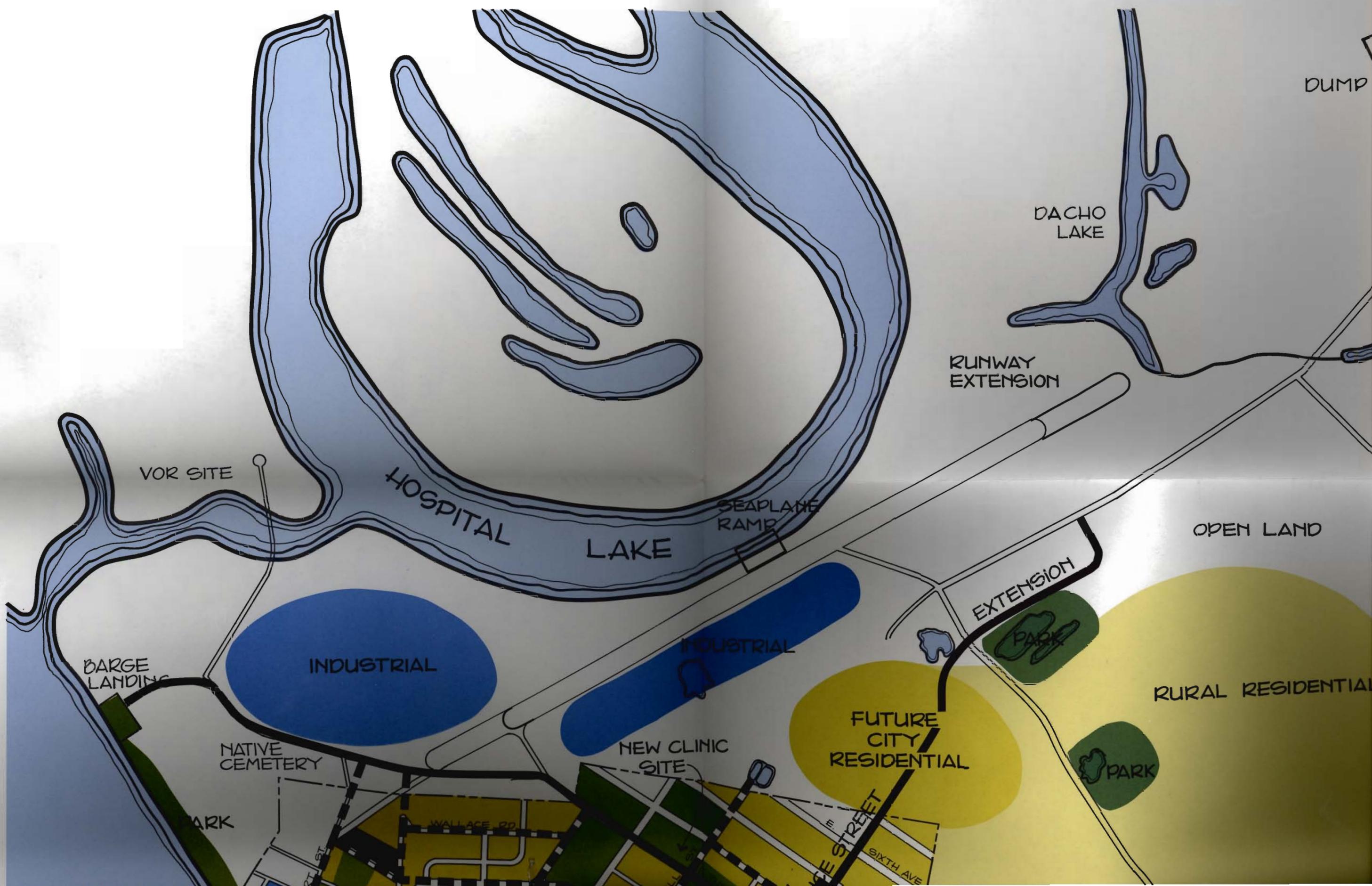
18 inches+ --Same material as above but frozen July 27, 1970.

(Unified classification estimated as ML)



OPEN LAND

OPEN LAND



DUMP

DACHO LAKE

RUNWAY EXTENSION

VOR SITE

HOSPITAL LAKE

SEAPLANE RAMP

OPEN LAND

BARGE LANDING

INDUSTRIAL

INDUSTRIAL

EXTENSION

NATIVE CEMETERY

NEW CLINIC SITE

FUTURE CITY RESIDENTIAL

RURAL RESIDENTIAL

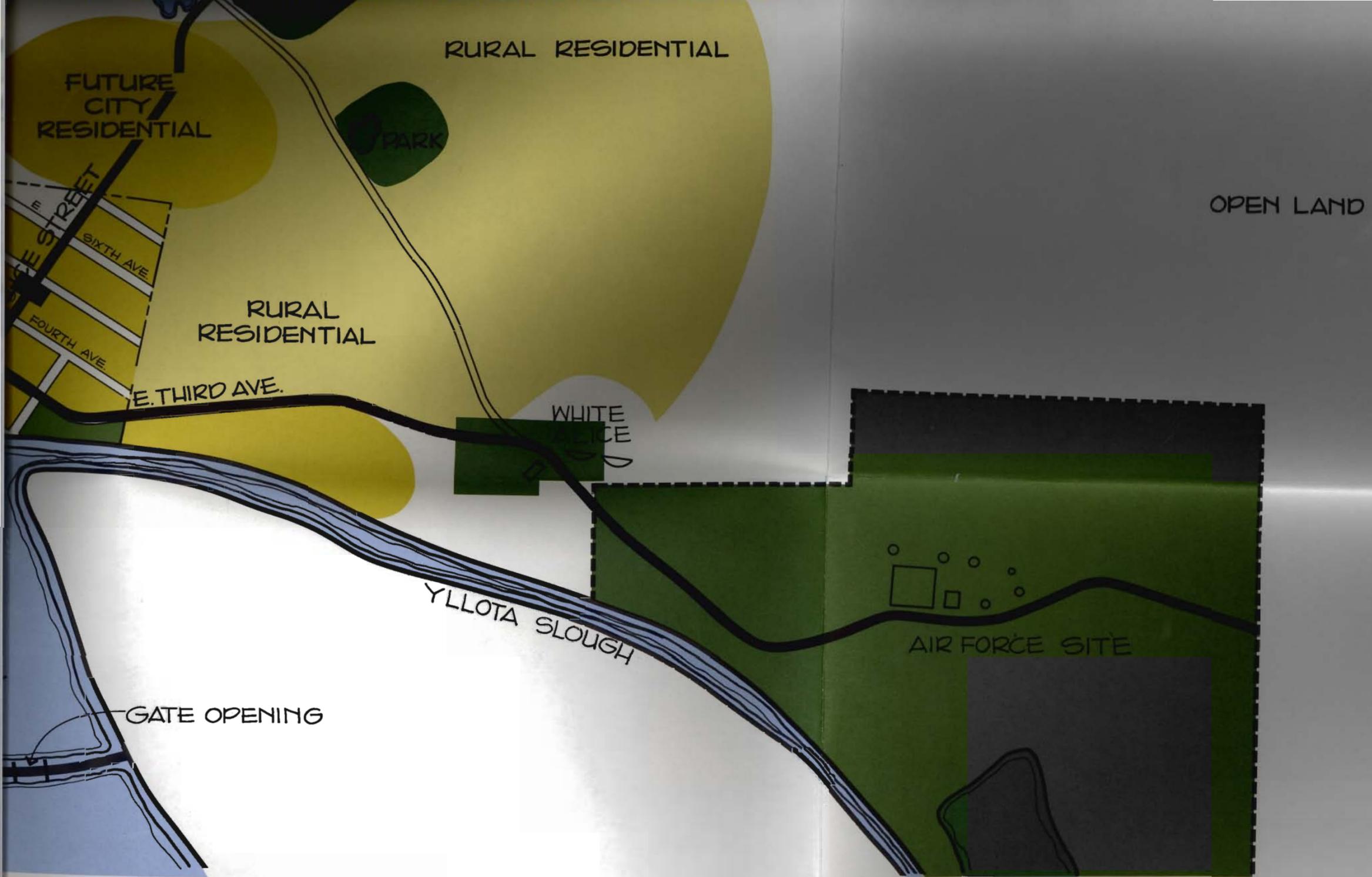
PARK

PARK

WALLACE RD

LAKE STREET

SIXTH AVE

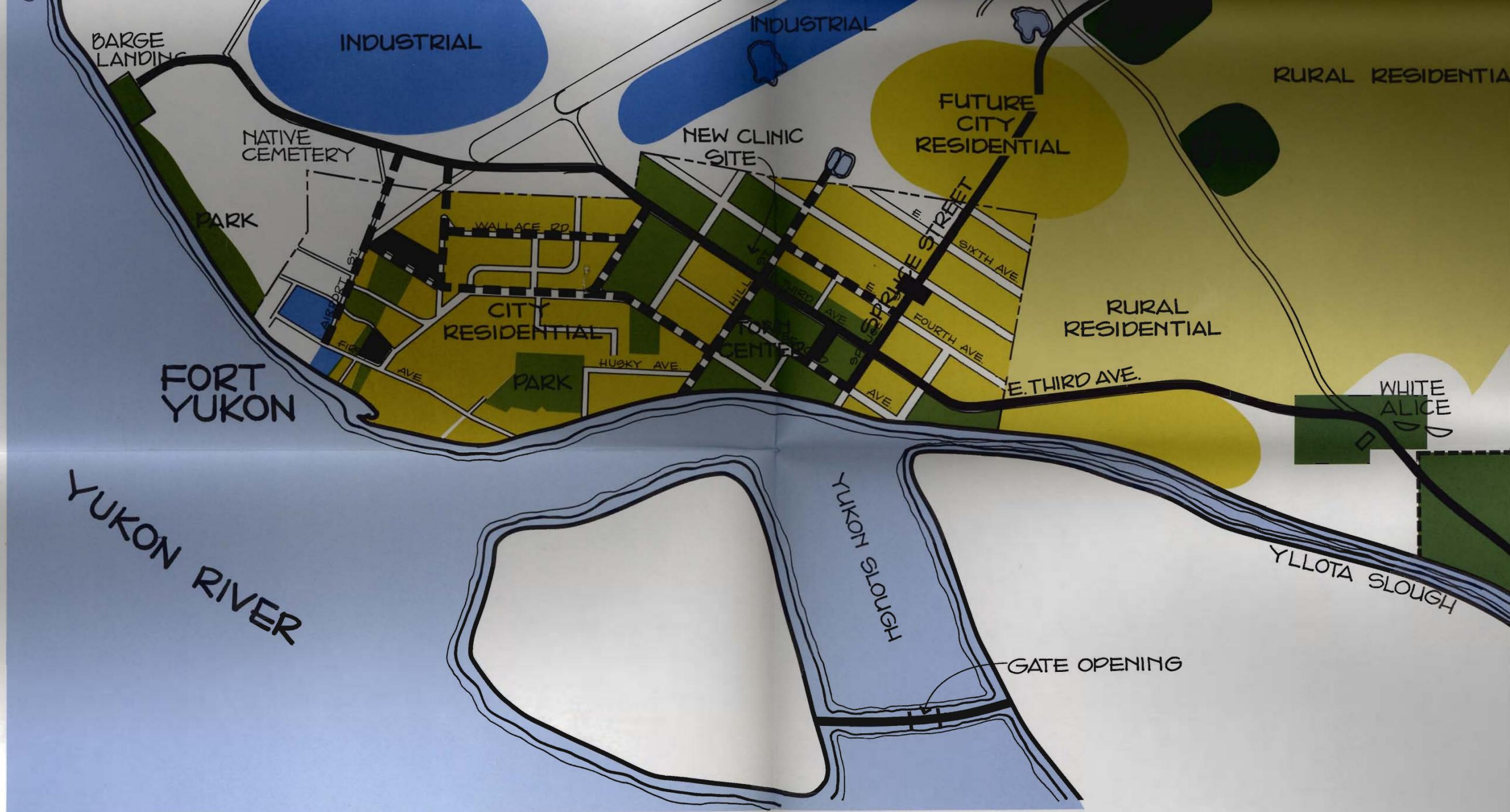


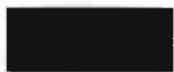
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- ARTERIAL
- - - COLLECTOR

comprehensive plan

ALASKA
DOCUMENT
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|---|------------|---|-------------------|---|-----------|
|  | PUBLIC |  | CITY RESIDENTIAL |  | ARTERIAL |
|  | COMMERCIAL |  | RURAL RESIDENTIAL |  | COLLECTOR |
|  | INDUSTRIAL |  | OPEN LAND | | |