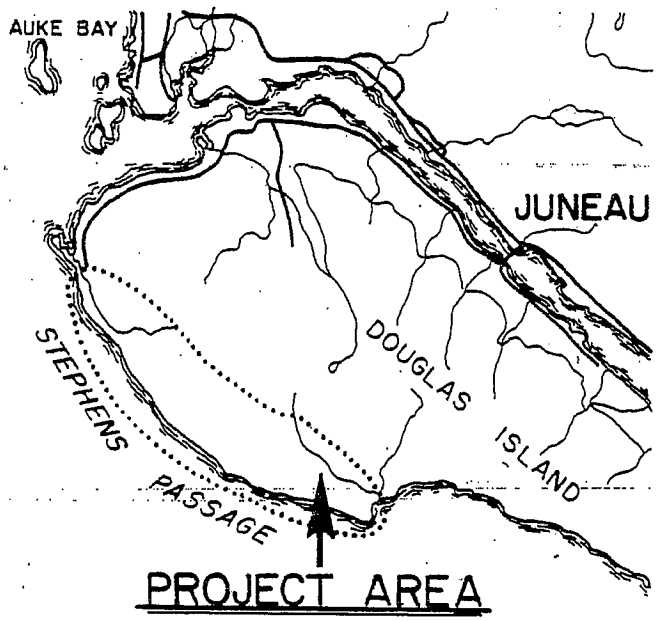
FHWA-AK-EIS-88-02-F

NORTH DOUGLAS HIGHWAY EXTENSION

CORRIDOR IDENTIFICATION

FINAL ENVIRONMENTAL IMPACT STATEMENT RS-M-0959(12)



FHWA-AK-EIS-88-02-F

NORTH DOUGLAS HIGHWAY EXTENSION
CORRIDOR IDENTIFICATION
CITY AND BOROUGH OF JUNEAU

FINAL ENVIRONMENTAL IMPACT STATEMENT

Submitted pursuant to 42 USC 4332(2)(c)

U.S. Department of Transportation
Federal Highway Administration
and
Alaska Department of Transportation and Public Facilities

Cooperating Agencies

U.S. Army, Corps of Engineers
U.S. Department of Agriculture, Forest Service
U.S. Fish and Wildlife Service
Alaska Department of Fish and Game

This action complies with Executive Order 11988, Flood Plain Management, and Executive Order 11990, Protection of Wetlands.

6.14.89
Date of Approval

For DOT&PF

Title

7.19.89
Date of Approval

For FHWA

Fnv. Programs Mgr.
Title

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The Alaska Department of Transportation and Public Facilities in conjunction with the Federal Highway Administration proposes to identify a corridor for the future extension of the North Douglas Highway, a distance of 8.4 miles to Point Hilda on Douglas Island.

SUMMARY

The Alaska Department of Transportation and Public Facilities (ADOT&PF) Draft Environmental Impact Statement (DEIS) for the North Douglas Highway Extension corridor identification was made available for public review on March 11, 1988. The public hearing was conducted on April 13, 1988 and the comment period closed on May 2, 1988. Respondents were generally opposed to building a highway in the west Douglas area for the foreseeable future. Comments centered on the following:

- The west Douglas Island area is a heavily used local recreation and hunting area.
- The area is important habitat for a local deer population.
- Given the economic situation in Alaska, available funds should be used to maintain and improve the existing highway system.

Most commenters believed the highway corridor identification project was also a construction project, and consequently requested extensive analysis of the secondary and cumulative impacts of opening west Douglas Island for development.

The current action is not a proposal to construct a road. It is a transportation corridor identification.

To clarify intent, each section of the final EIS (FEIS) restates that this project is a corridor selection only. The construction standards and potential impacts identified in the FEIS constitute a modeling exercise that allowed DOT&PF to select a corridor by pinpointing and then avoiding/minimizing impact areas.

Should a construction project be proposed, a Supplemental EIS (SEIS) would be prepared. The primary, secondary and cumulative impact issues outlined in the DEIS comments would be incorporated into the SEIS scoping process.

Alignment A is the selected alignment for west Douglas Island. The alignment avoids or minimizes environmental impacts to a greater extent than other potential alignments in the area.

The positive impact of the corridor identification is that it secures an environmentally sound and cost effective alignment should a construction project be proposed for this area in the future. The positive secondary impact is that it would allow local government and private property owners to plan subdivisions, access roads, and other developments in such a way that they align efficiently with the highway corridor.

The adverse impact of corridor selection is that private developers and public planners may find that future development planning is restricted as a result of corridor reservation.

The economic study presented in the DEIS has been removed from the FEIS as the scope and timeliness are no longer applicable to the project. The study will be used for file reference only. The alternatives section of the DEIS has been streamlined in the FEIS. There are now only three alternatives, No Action, Alignment A and Alignment B. The discussion of gravel road vs. paved road is reorganized to recognize that the standard phasing of a highway would typically be to build a gravel surfaced road and then pave the road in the future as funding allows. A 4-lane facility would typically be constructed only when traffic volumes exceeded the capacity of the 2-lane highway.

CONTENTS

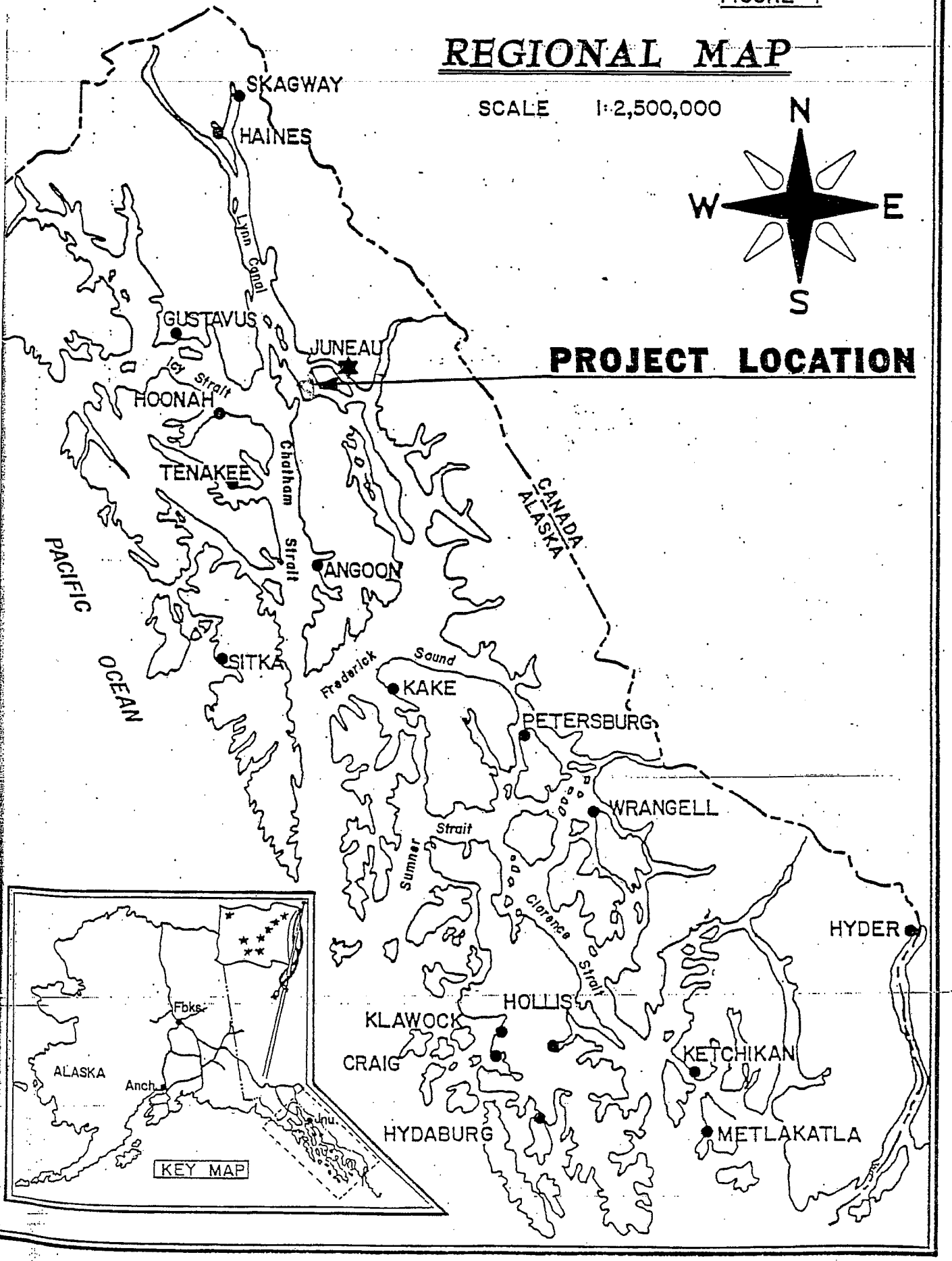
CONTENTS cont.

CONTENTS cont.

FIGURES

APPENDICES

FIGURE 1


REGIONAL MAP
SCALE 1:2,500,000
N
W
E
S
PROJECT LOCATION
SKAGWAY
HAINES
Lynn Canal
GUSTAVUS
JUNEAU
Icy Strait
HOONAH
TENAKEE
Chatham Strait
PACIFIC OCEAN
CANADA
ALASKA
ANGOON
SITKA
Frederick Sound
KAKE
PETERSBURG
WRANGELL
Sumner Strait
Clarence Strait
HYDER
HOLLIS
KLAWOCK
CRAIG
KETCHIKAN
HYDABURG
METLAKATLA
KEY MAP
ALASKA
Fbks
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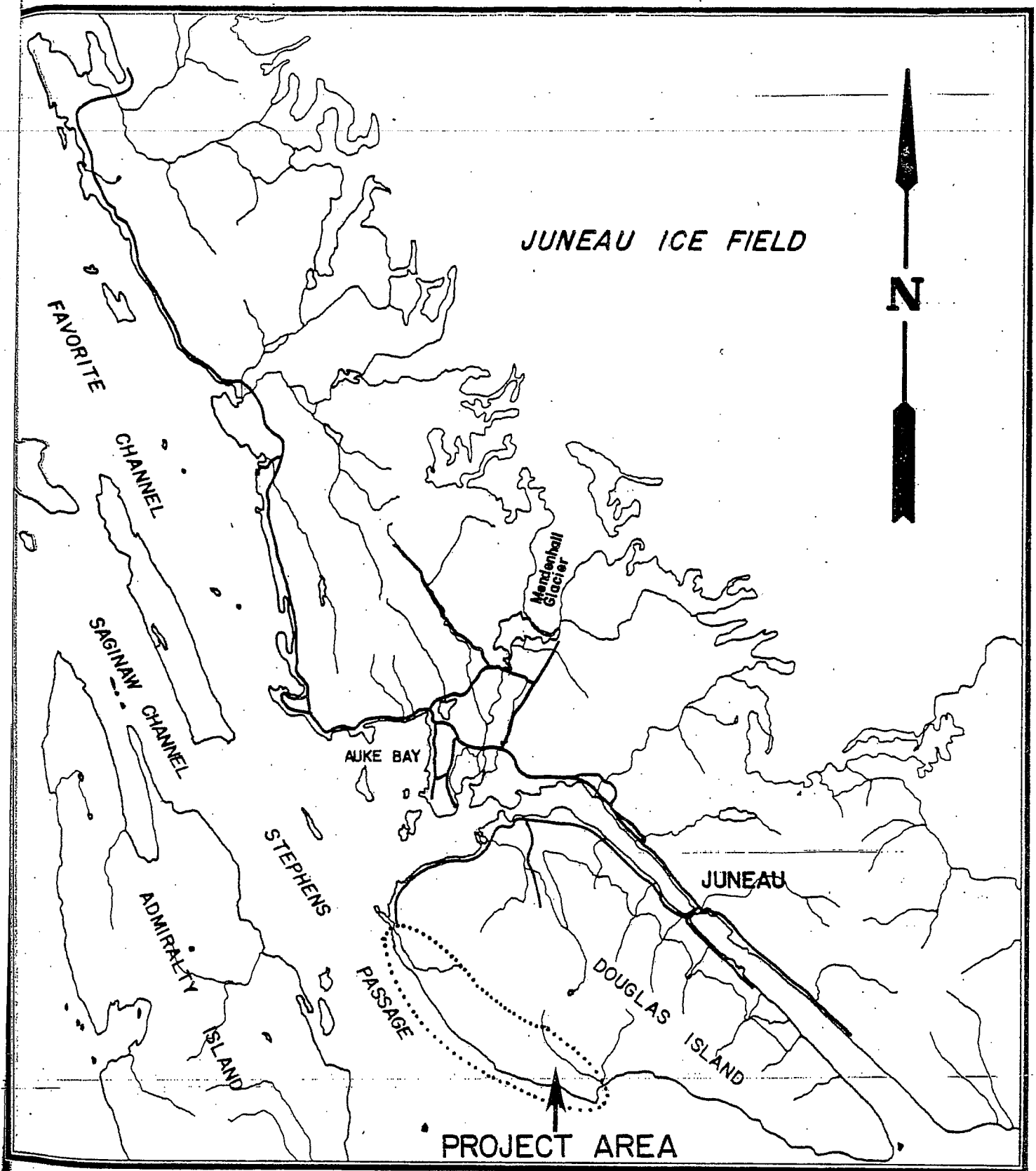
Jnu



AREA MAP

SCALE 1:250,000

NORTH DOUGLAS HIGHWAY EXTENSION —
CORRIDOR IDENTIFICATION

FIGURE 2

I. PURPOSE AND NEED FOR ACTION

The purpose of the proposed project is identifying a highway corridor for west Douglas Island to provide a long range planning tool for the department, the City and Borough of Juneau (CBJ) and the private property owners. The designation provides the State with cost effectiveness by avoiding the substantially higher costs of acquiring developed properties and will allow developers to plan subdivisions, businesses and local road systems so that developments tie into the main highway system in an efficient and cost effective manner.

The need to provide this planning tool is based on the CBJ Comprehensive Plan (Appendix A). Five areas throughout the Borough are designated in the plan as New Growth Areas. These are rural areas where, under strict zoning guidelines (CBJ Land Use Ordinances, Chapter 40.790), urban-style cluster communities can be established in rural settings. These New Growth Areas are primarily CBJ and/or local native corporation (Goldbelt Incorporated) lands. In these planned development areas there is a need to designate a primary, State highway access. Recognizing that New Growth Area developments on west Douglas Island may not be imminent, the need nonetheless exists for the department to reserve a primary, state highway transportation corridor. The FEIS also accomplishes the department's obligation under federal regulation that preliminary engineering carried out on a Federal Aid Highway route (U-985; 1985) be performed in compliance with Federal Highway Administration (FHWA) environmental procedures. The corridor extension project is not programmed for construction, nor is it anticipated the department will seek funding for construction for the foreseeable future.

The need for a 200' corridor that would accommodate a four-lane facility is a function of long range planning. While a two lane facility would handle most local residential developments in the west Douglas area, the identification of a four-lane width corridor provides the department, the taxpayers and the developers on west Douglas the opportunity to avoid costly, time consuming and disruptive right of way acquisition in the future. This decision is

driven by the experience common to Alaskan coastal communities in which many existing highways are difficult to upgrade or improve because homes and businesses have been constructed up to the existing highway.

The identification of highway corridor Alignment A, provides the department, the local government and the private property interests on west Douglas with a long range planning tool that can aid in the efficient, cost-effective and environmentally sound development of the designated New Growth Area when such developments are economically feasible.

II. PROPOSED ACTION AND ALTERNATIVES

A. DESCRIPTION OF ALTERNATIVES

The goal of developing alignments was: an efficient and cost-effective transportation system that avoided fish streams, floodplains, coastal fringe, wetlands, and other important habitats to the greatest extent feasible.

Two corridor alignments, A and B (Figure 3, p. 4), were evaluated. Because of topographical constraints, both alignments follow the same basic corridor except through the Peterson Creek watershed.

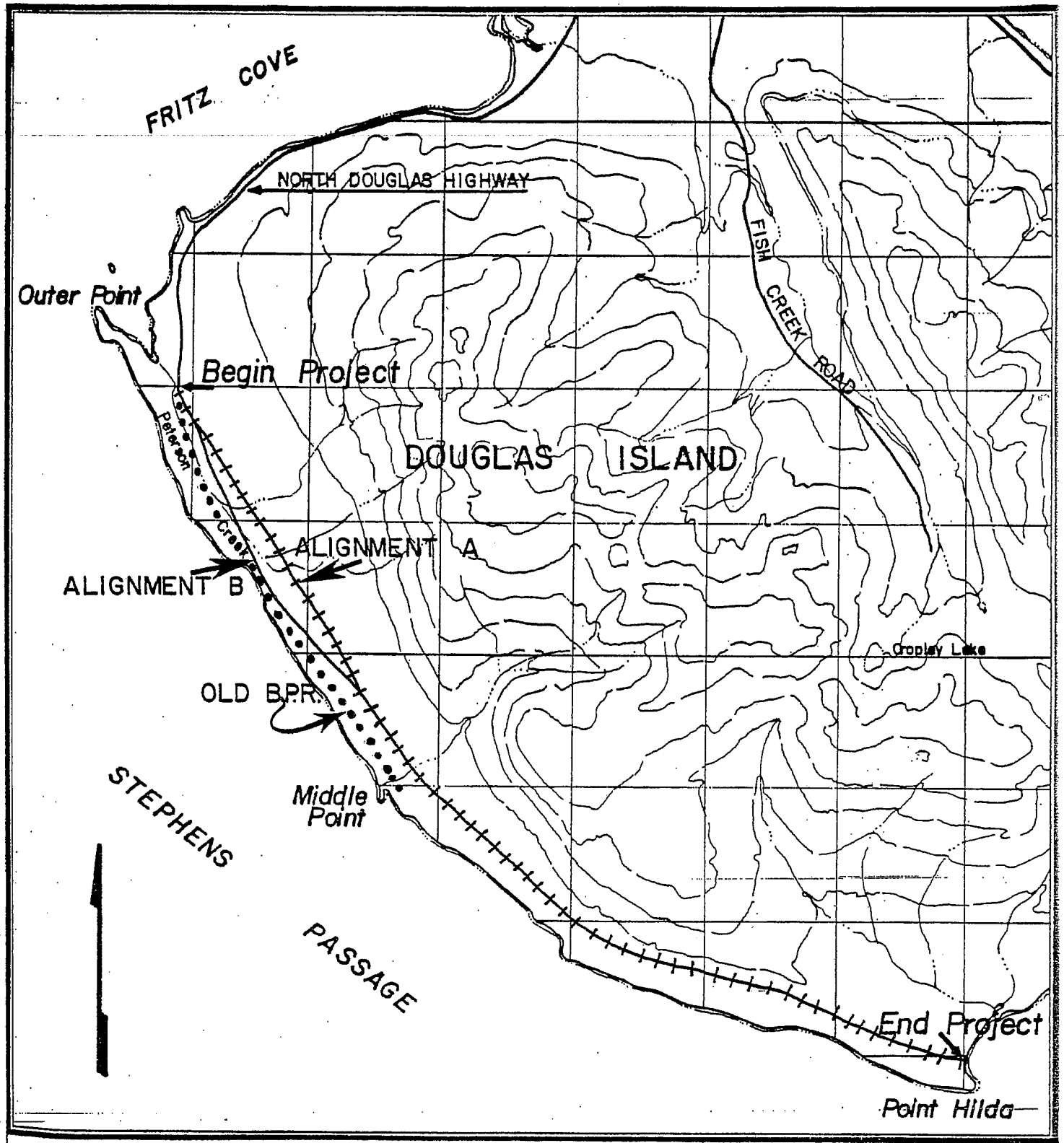
The analysis of construction models on the alignments allowed the department to identify where a highway could traverse the land with the least impact. The construction models required mostly fill sections, that is, placing fill on top of the existing ground after clearing and grubbing.

The upper side of the models required ditching with cross-drains for runoff and sheet flows. Appropriate water passage structures would be required for all streams and obvious flood channels.

Figure 4, p. 5, illustrates the typical phased implementation of a highway on new location. It was used as a model for corridor width and alignment studies. An initial two-lane road would typically be built off-center in the right-of-way corridor. The second phase would typically be paving of the 2-lane road. The final phase of construction would be a four-lane road when traffic volume exceeded the capacity of the 2-lane highway.

The modelling revealed that Alignment A (Figure 3, p.4) was clearly superior to other potential alignments in terms of social and environmental impacts. Economic impacts were approximately the same.

Alignment B was not selected because it lies much closer to the mainstem of Peterson Creek than Alignment A. Its proximity to the mainstem of Peterson Creek increases the possible severity of water quality impacts.



LOCATION MAP
SCALE 1"= 1 MILE
CONTOUR INTERVAL 500'

FIGURE 3
NORTH DOUGLAS HIGHWAY
CORRIDOR IDENTIFICATION

ALTERNATIVES
+++ ALT. "A"
— ALT. "B"
... OLD B.P.R.

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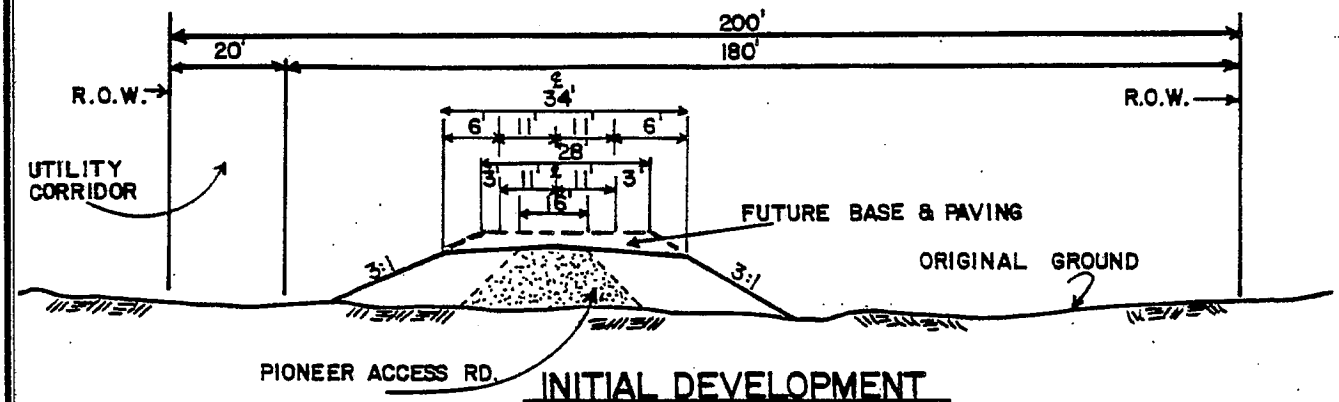
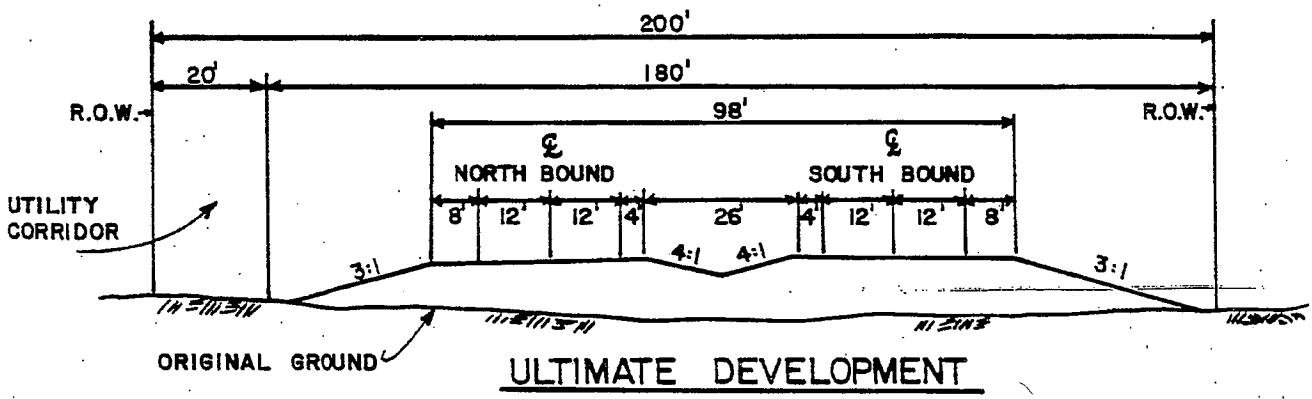
FIGURE 4

PHASED CONSTRUCTION



INITIAL DEVELOPMENT



ULTIMATE DEVELOPMENT

NO SCALE

TYPICAL SECTIONS-FLAT TERRAIN

NORTH DOUGLAS HIGHWAY EXTENSION
CORRIDOR IDENTIFICATION

The erosion control methods and materials would be similar to those listed for Alignment A. However, because Alignment B closely parallels Peterson Creek in some places, techniques such as settling ponds and routing of runoff through vegetated areas would be difficult. Also, incidents such as a fuel spill from equipment would be difficult to control sufficiently to avoid impacts.

Alignment A is the department's selected alternative. Final selection of an alternative was based on the issues described above and on the results of the Draft Environmental Impact Statement public involvement process.

The No Action alternative was also being considered in the development of this proposal. The No Action alternative would not lead to the establishment of a transportation corridor. In the absence of a defined corridor, development may occur that could preclude an efficient and environmentally sound transportation system in the future.

This alternative would have no immediate impacts to wetlands or fish and wildlife. However, this alternative would not necessarily eliminate development in the area. It is entirely possible that a private developer could construct an access road that has significantly greater direct impacts than those impacts associated with construction within the selected alternative--Alignment A.

B. ALTERNATIVES CONSIDERED AND ELIMINATED

The department's preferred alternative when the Notice of Intent to Develop an Environmental Impact Statement was presented was a 14-ft wide one-lane gravel road with frequent turnouts for passing. That alternative would have provided immediate access from the end of the existing road as far as available state funding would have allowed, approximately to Middle Creek, about 3.5 miles. This alternative originated by state legislative action. However, subsequent investigation of this alternative revealed several disadvantages. First, CBJ ordinances require at least a 28-ft wide road for any development. The 14-ft wide gravel road would not meet this criteria. Second, the 14-ft

road would not meet applicable state standards for road design. The combination of these two disadvantages led the department to discard this alternative in favor of a corridor identification project.

Prior to ADOT&PF studies on a proposed extension of the North Douglas Highway, an alignment for extension of the existing highway had been planned. This alignment was proposed by the Bureau of Public Roads [BPR] in 1952 and would have extended the highway from its existing terminus approximately 3.5 miles down the west side of Douglas Island (Figure 3, p. 4).

Early investigation of the BPR alignment by ADOT&PF reconnaissance personnel revealed that extension of the highway along that alignment would be contrary to the Alaska Coastal Management Plan [ACMP] (which did not in exist when the BPR alignment was developed). The ACMP, 6 AAC 80.080(b) states "Transportation and utilities must be sited inland from beaches and shorelines unless the route or facility is water-dependent or no feasible and prudent inland alternative exists to meet the public need for the route or facility." It was determined that: (1) the route was not water-dependent and (2) several feasible and prudent inland routes did exist. Furthermore, construction of the highway on the BPR alignment would bring a highway close to a number of eagle nests along the shoreline. Therefore, the BPR alignment was dropped from further consideration.

The possibility of an alignment that did not impact wetlands was explored early in the reconnaissance of this project. The alignment with least wetland impacts would necessarily run along the base or side slopes of the mountains to the northeast of the selected corridor. This alignment was dropped from further consideration because of geophysical hazards, the need for extensive earth cuts and fills, significant visual and water quality impacts and significantly higher costs.

III. AFFECTED ENVIRONMENT

A. SOCIAL ENVIRONMENT

The sections below outline the local and regional setting for the proposed corridor selection. Prior to any construction, a review and update of the affected environment would be required. This would be accomplished in a Supplemental Environmental Impact Statement (SEIS).

1. Population

The population of Juneau is approximately 30,000. The majority of these people live either in the "downtown" Juneau-Douglas area, or in the Mendenhall Valley, north of town. There are also small scattered communities along the road system surrounding Juneau, such as Auke Bay, Thane, Lemon Creek, Lena Cove, and North Douglas.

This corridor selection project involves an undeveloped area that the CBJ has identified as a potential satellite community site. There are presently three houses near the coast close to Peterson Creek, but these residences are not within the corridors studied. There are no other residences along the west side of Douglas Island.

2. Public Facilities, Services, and Utilities

No public facilities, services, or utilities exist in the corridor identification area.

3. Economics

The CBJ is the geographic area most likely to be economically impacted by development of a satellite community on west Douglas Island. The economic climate in the CBJ has been subject to wide fluctuations within the last 10 years. Government is the major employer, providing approximately 2/3 of all jobs in the area. Therefore, fluctuations in the state economy, as well as political decisions pertaining to the location of the capital, have a profound

effect on the local economy. The area, and the state, are presently experiencing an economic downturn directly linked to the loss of oil royalty revenues. Area-wide real estate values have declined, and the current state economic situation reinforces the probability that they will remain at present levels or move up slowly for at least the near future. At this time it appears there is little chance in the foreseeable future that the proposed corridor selection will result in development of west Douglas properties or in construction of a road to access the properties in the immediate future.

4. Recreation

The west side of Douglas Island is a heavily used recreation area. The entire area is used for hunting, fishing, kayaking and hiking including alpine hiking and cross country skiing along the mountain ridges.

The area is one of the few road-accessible deer hunting spots in the borough and is especially popular with those unable to reach outlying deer hunting areas. Some black bear, grouse, and snow shoe hare hunting also occurs.

Dolly varden, cutthroat trout, and coho and pink salmon are caught at Peterson Creek, Middle Creek and Hilda Creek. Dolley Varden and salmon are also caught frequently offshore of west Douglas.

There are several camping sites along the west Douglas shore. These sites have not been designated in any official manner, but have been established by use over the years. The more frequently used sites are at Middle and Hilda Points.

5. Cultural, Archaeological

Several cultural resource sites are known to exist on the coastline of north Douglas Island.

B. NATURAL ENVIRONMENT

1. Meteorologic Conditions

Douglas Island is dominated by the maritime weather typical to Southeast Alaska. This weather pattern is caused by relatively warm, moist air from the Pacific Ocean being forced by prevailing winds up the mountain slopes of the coastal islands and the coastal range. The moist air condenses, forming fog, clouds, and rain or snow. Juneau has an average of 60% of days with 0.01" of precipitation or more, with some extended periods of precipitation in the fall months.

Juneau Airport, the closest weather recording station to the west Douglas area, has the following weather statistics (from Alaska Environmental Information and Data Center):

Temperature: Summer, 44° to 64°, Winter, 18° to 34° F

Temperature Extremes: -22° TO 89° F

Average Yearly Precipitation: 55" (includes 107" snow)

Average Wind: East-to-Southeast at 7.4 Knots

Extreme Wind: East-to-Southeast at 50 Knots

These statistics generally apply to the preferred corridor, approximately 10 miles southwest of the airport, although amounts of rainfall and wind speeds are reported to vary from the airport station because of microclimatic conditions.

2. Geology and Topography

Douglas Island is within the Alexander Archipeligo, a group of islands along the coast of Southeast Alaska. The terrain is typified by mountains up to

3,500 feet rising steeply from deep channels and fjords. The geologic composition consists of many different formations of rock uplifted, folded, and severed by faults as well as several volcanic formations (Appendix B, Reconnaissance Engineering Study). The nearest known active fault is approximately 100 miles west of the project area. Several major, though presently inactive, faults are within several miles of the proposal. The area is classified as a Seismic Risk Zone 3, in which major damage to structures may occur from an earthquake greater than 6.0 on the Richter Scale. In the last 50 years there have been at least five earthquakes of this magnitude within 125 miles, the range at which damage may occur (from National Oceanic and Atmospheric Administration).

Like the rest of the Juneau area and many other parts of Southeast Alaska, west Douglas is undergoing isostatic rebound or uplifting with respect to sea level as a result of the retreat of regional glaciers. This emergence is presently measured at a rate of 0.04 feet/year or 1 foot/25 years.

Soils generally have high to medium erosion potential. The erosion potential is aggravated by heavy rainfall common to the area and by the steepness of slopes on west Douglas. The steep slopes along west Douglas are also susceptible to snow or mud slides, especially on brushy or unvegetated slopes.

3. Vegetation

Vegetation along the proposed corridor is typical of a coastal western hemlock-Sitka spruce forest with scattered muskeg areas. Those areas with better drainage are generally more dense, with larger trees.

Sites where large trees predominate tend to have a closed canopy overhead, with an open understory of moss and small shrubs. In other areas, thickets of devil's club, alder, and smaller spruce and hemlock may be practically impenetrable. Most of the west Douglas area is old growth timber. Some parts of the shoreline outside the corridor area were probably logged 70-85 years ago.

According to Flora of Alaska, by E. H. Hulten, common plant species in the western hemlock-Sitka spruce forest are as follows:

Trees

Common Name	Scientific Name
Western Hemlock	Tsuga heterophylla
Sitka Spruce	Picea sitchensis
Lodgepole Pine	Pinus contorta
Mountain Hemlock	Tsuga Mertensiana

Shrubs

Sitka Alder	A. Crispa ssp. sinuata
Devil's Club	Echinopanax horridum
Rusty Menziesia	Menziesia ferruginea
Salmonberry	Rubus spectabilis
Blueberry	Vaccinium spp.
Elder	Sambucus Callicarpa

Herbs, Mosses and Others

Bunchberry	Cornus canadensis
Horsetail	Equisetum spp.
Lady Fern	Athyrium filix femina
Spreading Wood Fern	Dryopteris dilatata ssp. Americana
Oak Fern	Gymnocarpium dryopteris
Sedges	Carex spp.
Yellow Skunk Cabbage	Lysichiton Americanum
Twisted Stalk	Streptopus amplexifolius

Within the selected corridor area are several muskegs. These are areas of very poor drainage dominated by bog plant communities. Small pools of standing water are common. The soil in these muskegs is peaty, with an impermeable underlying strata. Dominant plants are sphagnum moss, sedges, leatherleaf, and shore pine.

The fringes of these muskegs grade into western hemlock-Sitka spruce forest with progressively larger trees and shrubs. Common plant species in these fringe communities are as follows:

Trees

Mountain Hemlock	Tsuga Mertensiana
Western Hemlock	Tsuga heterophylla
Lodgepole Pine	Pinus contorta
Sitka Spruce	Picea sitchensis

Shrubs

Cassamdra	Chamaedaphne calyculata
Crowberry	Empetrum Nigrum spp.
Labrador Tea	Ledum palustre ssp. groenlandicum
Bog Rosemary	Andromeda polifolia
Bog Laurel	Kalmia polifolia ssp. polifolia
Blueberry	Vaccinium spp.
Oregon Crabapple	Malus fusca

Herbs, Mosses and Others

Sphagnum	Sphagnum spp.
Sedges	Carex spp.
Rushes	Juncus spp.
Yellow Skunk Cabbage	Lysichiton Americanum
Bracken	Pteridium teridium ssp. aquilinum
Swedish Dwarf Cornel	Cornus suecica
Sundew	Drosera spp.
Cotton Grass	Eriophorum spp.
Cloudberry	Rubus chamaemorus

Threatened or Endangered Species of Flora

There are no Threatened or Endangered species of flora in the west Douglas Island area.

4. Wildlife

Aquatic Wildlife

The corridor identification area contains two streams identified by the Alaska Department of Fish and Game [ADF&G] as anadromous fish habitat. These are Peterson Creek (111-50-10750)* and Middle Creek (111-50-1600)* which both contain anadromous trout, dolly varden and salmon.

Hilda Creek (111-50-10690/10700)*, just past the End of Project, also contains anadromous fish.

a. Peterson Creek

Peterson Creek, which consists of a mainstem and many feeder streams, drains an area of about 4 square miles and hosts a sport fishery for dolly varden, cutthroat trout and salmon. It provides spawning and rearing habitat for coho, chum, and pink salmon, all important sport and commercial fishes in the Juneau area.

The ADF&G has documented escapements of coho, pink, and chum salmon from Peterson Creek are shown below:

Species	Documented Escapement	Estimated Escapement
Coho Salmon	94 (1983)	200-500
Pink Salmon	3,000 (1983)	5,000-8,000
Chum Salmon	250 (1970)	300-1,000
Dolly Varden	. . .	1,000+
Cutthroat Trout	. . .	300+

(from ADF&G, 1984)

*(ADF&G anadromous stream catalogue number)

Outer Point, off the mouth of Peterson Creek, is a favored fishing spot. In 1984, it received approximately 16,300 fishing hours or 5% of the Juneau area sport-fishing effort.

b. Middle Creek

The lower reach of Middle Creek is used as spawning and rearing habitat by cutthroat trout and dolly varden char, and chum, coho, and pink salmon. A gorge not far inland from the stream's mouth presents a blockage to both spawning and rearing anadromous fish.

ADF&G estimated escapements for various species of salmon in Middle Creek are as follows:

Species	Documented Escapement	Estimated Escapement
Pink Salmon	2,000 (1981)	2,000-4,000
Chum Salmon	650 (1984)	800-1,500
Coho Salmon	. . .	10-30

(from ADF&G, 1984)

Terrestrial Wildlife

a. Game Animals

°Deer

The west side of Douglas Island is range for an important local Sitka black-tailed deer population. The area between Peterson Creek and Middle Creek, and the Point Hilda area both provide valuable winter habitat. The deer generally summer high on the alpine slopes and move to lower elevations in the winter, where food is most accessible. In mid-winter, the deer gather in stands of large hemlock and Sitka spruce

that form a protective canopy from heavy snows. Deer generally migrate back to summer areas in May and June. The area's habitat and deer population is typical of undeveloped areas throughout Southeast Alaska.

°Black Bear

The near-shore areas, including Peterson, Middle and Hilda Creeks, have been identified by U.S. Fish and Wildlife Service [USF&WS] as being valuable habitat for black bear. These areas provide berries, food and cover for black bears.

°Furbearers

The creeks, shoreline, and surrounding area on west Douglas are important habitat for weasel, marten, mink, and river otter. A small amount of commercial trapping may occur in the area.

°Other animals

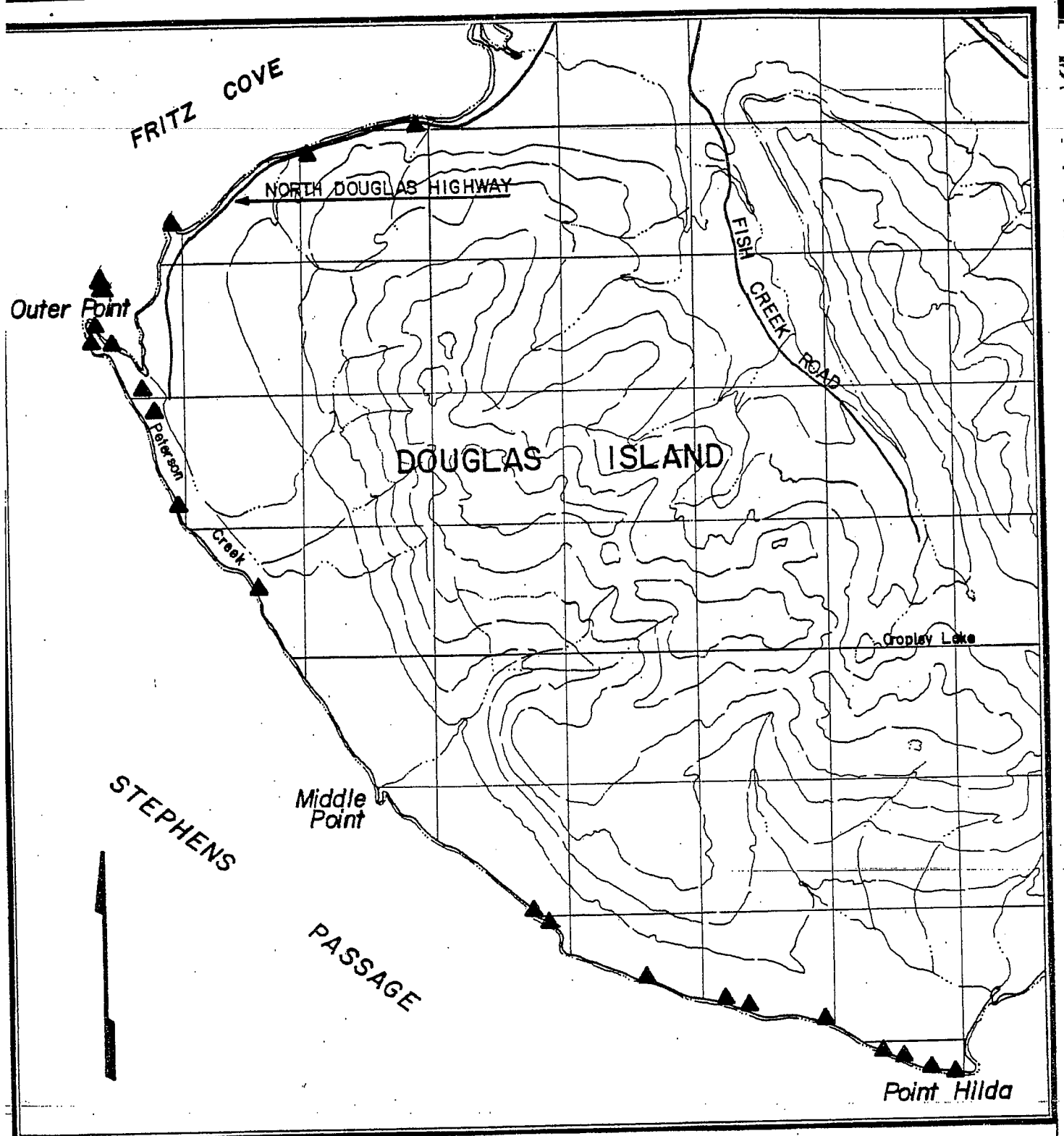
Red squirrels, porcupines, snowshoe hares, and several species of mice, voles, and shrews are found on west Douglas Island.

b. Birds

The shoreline of Douglas Island is important habitat for bald eagles, a common species in the Juneau area. Twenty-two nests have been identified along the coast in the project area (Figure 5, p. 17). The selected corridor does not encroach on any known nesting or perching sites as the alignment is inland of typical use areas. Several species of upland birds are common in the project area.

Threatened or Endangered Species of Fauna

There are no threatened or endangered species of fauna in the corridor identification area, or on the west Douglas Island.



LOCATION MAP
SCALE 1"= 1 MILE
CONTOUR INTERVAL 500'

FIGURE 5

▲ EAGLE NEST LOCATIONS

5. Natural Resources

The Peterson Creek drainage is used for sport fishing for dolly varden, cutthroat trout, and salmon. The entire west Douglas Island area is heavily used for deer, bear, and small game hunting and a limited amount of commercial trapping of furbearers.

The shoreline near Pt. Hilda was logged some time ago, probably in the early part of the century; however, no logging has taken place recently. Some firewood cutting occurs adjacent the existing road. The inland areas of west Douglas are old-growth timber.

There are no known claims of valuable minerals on west Douglas Island. As part of the corridor identification project, the department's Reconnaissance Study identified and mapped a large potential quarry site near the terminus of the existing highway. The site is on CBJ-selected lands presently managed by the U.S. Forest Service. The site may contain as much as 15 million cubic yards of rock. While this site is adequate to provide material for the CBJ New Growth Area developments, its development and operation costs, and its economic impact on existing or potential material sites owned by private companies is unknown. This site and its economic impacts would be studied in a SEIS at the time a construction project in the corridor were proposed.

IV. ENVIRONMENTAL CONSEQUENCES

A. URBAN AND COMMUNITY IMPACTS

1. Related Transportation Facilities

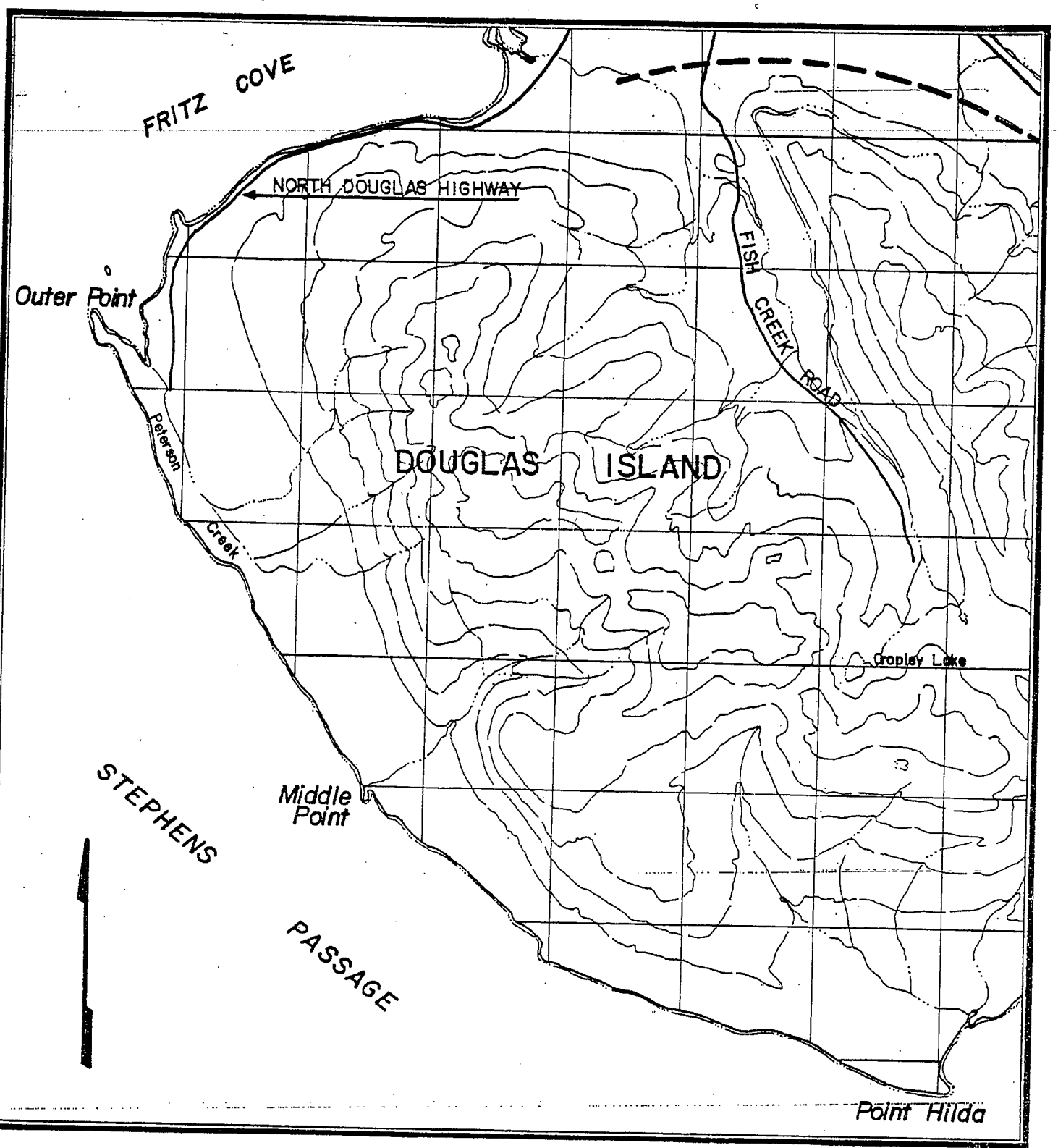
This corridor identification is a planning tool similar to the identification of several other major Juneau transportation improvements: a second Gastineau Channel crossing and a four-lane bench road on east and north Douglas Island (Figure 6, p. 20). Each of these proposals is in the preliminary planning phase and will be considered in a coordinated environmental document once any one of the projects becomes a construction project.

The need for a second Gastineau Channel crossing, from Mendenhall Valley to Douglas Island, may increase with further development on North Douglas Island. The crossing would enable residents of North Douglas Island to travel a much shorter distance to the shopping and recreational opportunities in Mendenhall Valley. Conversely, Mendenhall Valley residents would have a shorter distance to travel to recreational areas on North Douglas Island. If an industrial port proposed for North Douglas Island were developed, its commercial transport needs would further increase the need for a second crossing.

The four-lane bench road concept is also closely tied to possible new development in the west Douglas area. The need for such a bench road would be mandated by traffic increasing beyond the capacity of the existing highway. The planning for a bench road does not presently include the area between Fish Creek and the beginning of this project (Figure 6, p. 20). This link would need to be identified prior to construction of a four-lane facility in the proposed west Douglas corridor.

2. Related Development

The proposed corridor identification is being undertaken as part of the planning associated with the CBJ's Comprehensive Plan designation of west Douglas as a New Growth Area. The primary land owners are the U.S.D.A.



LOCATION MAP
SCALE 1"= 1 MILE
CONTOUR INTERVAL 500'

FIGURE 6

PROPOSED N. DOUGLAS 4 LANE — — —

Forest Service and Goldbelt, Inc., a local native corporation. Goldbelt owns all of the shoreline property for the length of the corridor identification area except for several parcels managed by the U.S. Coast Guard for aids to navigation. This shoreline property may be valuable for residential, commercial, and industrial developments.

Some developments envisioned by Goldbelt, Inc. include residential subdivisions, condominiums, hotels, a deepwater port and related upland facilities, and various light commercial and industrial complexes.

The CBJ has selected the area inland of the Goldbelt, Inc. properties for residential and commercial development (Figure 7, p. 22). These lands will probably be conveyed to CBJ within 5 years. In the interim, they are managed by the U.S. Forest Service. Forest Service plans are to continue management of the land as a multiple-use area.

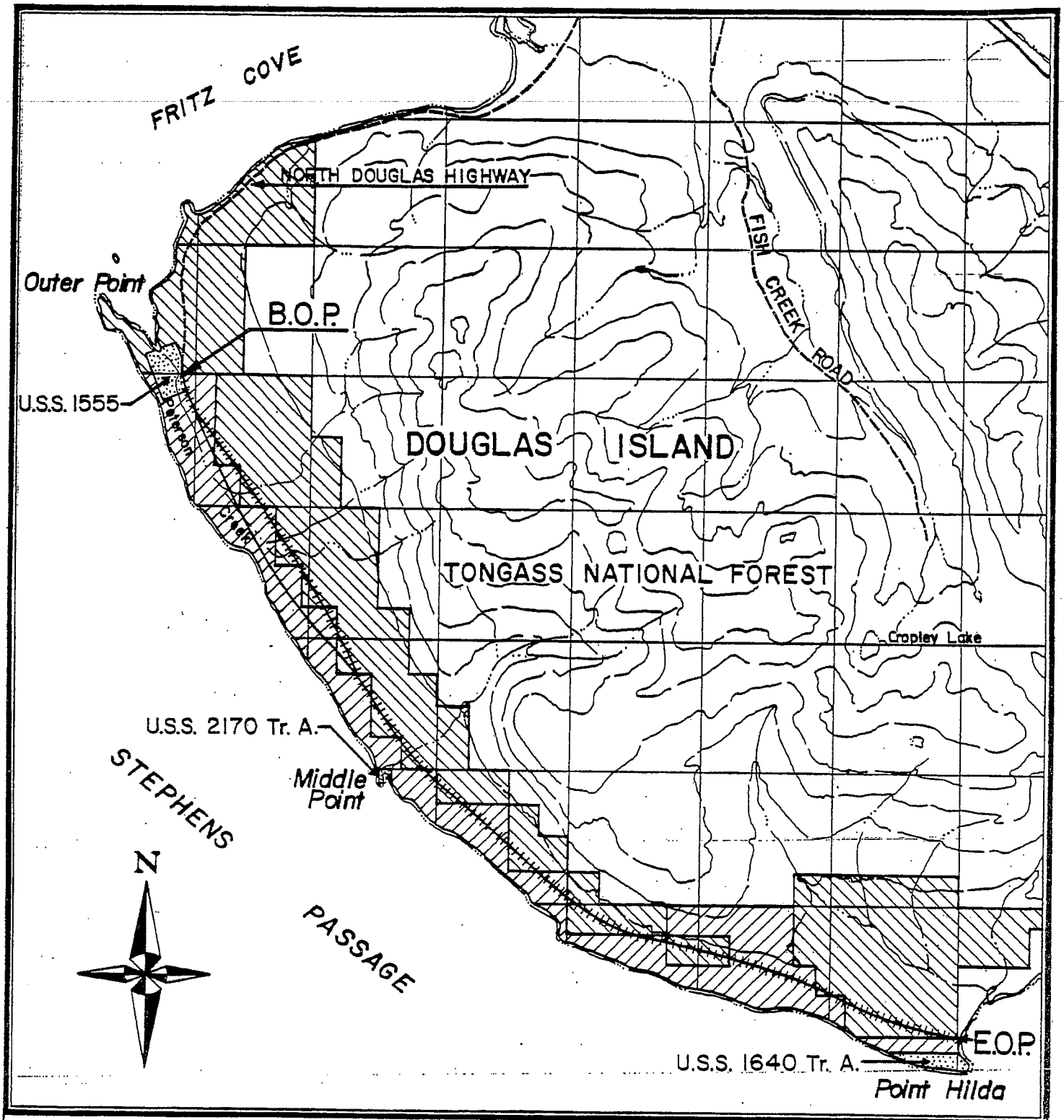
3. Utilities

There are presently no utilities of any kind in the proposed corridor area. Water supplies, electrical service and sewer treatment would be planned and developed as part of the satellite community Master Plan for west Douglas. The utility services as well as access roads and other developments would be required to comply with the CBJ September 9, 1987 Land Use Ordinances, Chapter 49.70, Part I, New Growth Areas (pp. 166-171) (Appendix A).

4. Human Health

While there are no impacts associated with corridor identification, in the future, residential, commercial and highway developments may adversely impact the water quality of Peterson Creek. Sedimentation from construction, runoff from developments, and increased recreational use of the area may all render the stream unfit for human household use.

Three landowners on the lower reaches of Peterson Creek have water rights for household use of the creek water. These residents use the stream water for household uses except when water quality is degraded by spawning salmon



LOCATION MAP
SCALE 1"= 1 MILE
CONTOUR INTERVAL 500'

LANDOWNERSHIP

- ALT. "A"
- ALT. "B"
- GOLDBELT
- CBJ SELECTED (U.S. FOREST SERVICE)
- OTHER

Figure 7

or flood conditions. Construction in the future may produce organic and/or inorganic pollution in the creek. A small possibility of a fuel spill exists during construction. Those using water from Peterson Creek would be notified immediately of such an occurrence . Any of these water quality impacts could produce adverse impacts to the health of those consuming or using Peterson Creek water. The Master Plan (CBJ Land Use Ordinance 49.70.140) for New Growth Areas requires the incorporation of areawide water and sanitation systems for any new developments.

Alternatives for existing water rights users could include moving their domestic water intake structures, delivery of potable water and providing well water systems.

5. Transportation

Designation of a highway corridor in the west Douglas Island area will have no adverse impact on the Juneau transportation system. The corridor identification will facilitate state, local and private property owner planning efforts in the west Douglas New Growth Area. The corridor meets the state's responsibility under item 3, page 30 of the CBJ Comprehensive Plan to assist in the identification of the major transportation element for the area.

When development of properties warrants a highway construction project, a Supplemental EIS (SEIS) will be prepared to examine the direct and cumulative impacts. Included in the SEIS would be an examination of the relationships of the extension to the Gastineau Channel Second Crossing and the Douglas Island Bench Road.

Construction would result in increased traffic on local systems. An Average Annual Daily Traffic (AADT) count of 3,300 or more vehicles on any of the segments of the existing highway warrants consideration of reconstruction of the existing roadway. When traffic volumes reach 7,200 AADT, the existing roadway will reach level of service "D." (Level of service "D" is characterized by speeds lowered to 35 mph and 85% capacity traffic.) At this point, an alternative route, or construction of an additional two lanes should be considered. This is the point at which construction of the Douglas Island

Bench route or a second Gastineau Channel crossing would have to be considered.

When traffic reaches 13,500 AADT, the roadway is at level of service "E," or absolute capacity. At this level of service, any unusual condition will stop or slow traffic to unacceptable speeds. At this point, a four-lane highway and/or second Gastineau Channel crossing is a must (Appendix G, Traffic Volume Estimate).

6. Population/Housing

Identification of a transportation corridor in the CBJ west Douglas New Growth Area will have no impacts on the population or housing of the Juneau area. This action will outline for planners the location and dimensions of a highway corridor that meets federal and state standards. This will allow efficient planning for subdivisions, access roads and other area facilities. Because of the current real estate markets and the remote nature of the Juneau area, the availability of residential building lots will generally not lead to an increase in population. It is more likely that development will follow an increase in population. Therefore, it is assumed that development in the project area will not cause an increase in Juneau area population.

The eventual availability of desirable shorefront building lots on west Douglas Island may cause a shift in population from other areas such as the Mendenhall Valley. The possible population shift, however, should not cause significant impacts on the Juneau area's economy or cohesiveness.

7. Land Use

Existing land use along the proposed corridor is classified as "multiple use" by the U.S. Forest Service (USFS), which currently manages the uplands. This classification includes recreational use and controlled logging. No USFS, Bureau of Land Management, CBJ or Goldbelt, Inc. lands are designated as park, recreation area, historic site, or wildlife or waterfowl refuge. Present uses of the area include hunting, fishing, and hiking in the uplands and picnicing, camping, and fishing along the shore. No specific sites or trails

have been designated for recreational use. The Goldbelt, Inc. lands are private lands, although presently not closed to public use.

The west Douglas area has been designated a "New Growth Area" in the CBJ Comprehensive Plan (Appendix A). Land Use Ordinance, Chapter 49.70 will guide development that occurs in the area. In addition, the CBJ Coastal Management Plan recognizes the proposed corridor area as Sitka black-tailed deer wintering habitat and two of its policies appear to offer some protection to deer wintering areas along the proposed corridor; these are: Coastal Policies #4: "Protect the region's scenic, environmental, and economically valuable natural resources from the adverse impacts of urban development" and #39: "Preserve as open space publicly owned lands and shoreline areas which possess recreational, scenic, wild life, and other environmental qualities or are subject to natural hazards."

The identification of a highway corridor has no impact to area land use. It is a planning tool the CBJ and others can use to lay out the ancillary transportation facilities for a west Douglas satellite community. Construction and increased access resulting from the development of a satellite community and highway extension may significantly impact existing recreational uses. If the CBJ and other development interests initiate development of the community, the corridor would have the following right-of-way impacts, based on the reservation of a 200-foot corridor for a four-lane facility. While the need for a four-lane highway may be decades into the future, experience in Southeast Alaska and other coastal states repeatedly shows that inadequate right-of-way along highway corridors is the major stumbling block and expense in bringing highways up to modern standards. It is also generally the source of considerable social and economic impacts to members of the public whose homes and properties must be acquired to allow construction to move forward.

Right-of-way requirements for Alignments A:

* Alignment A (Outer Point to Middle Point)

City and Borough of Juneau	66.6 acres
Goldbelt, Inc.	23.9 acres

* Alignment A (Middle Point to Point Hilda)

City and Borough of Juneau	40.7 acres
Goldbelt, Inc.	83.7 acres

* Alignment A (Total)	214.9 acres

8. Recreation

There will be no impacts to recreation or recreation access as a result of the department identifying a transportation corridor for the west Douglas area. The preferred alternative is a planning tool.

For all construction models considered, direct construction impacts to recreational users of the proposed project corridor were similar. The primary impacts would be inconvenient access to the area due to construction equipment operation and decreased hunting opportunities and aesthetic experience due to construction. The preferred alternative will not impact 4(f) or 6(f) recreational lands. 4(f) and 6(f) are sections of the Department of Transportation Act (1968) require the DOT&PF to examine all alternatives to using designated recreation lands, preserves, parks and refuges, and land in which certain Department of the Interior Outdoor Recreation money has been used. If use of 4f/6f lands is unavoidable, such use must be given special approval. The approval is based on documentation that there is no practicable or feasible alternative to use of the land, and all measures have been taken to minimize and mitigate use of the land. In the case at hand, none of the public or private land in the west Douglas area has been designated for recreation or preservation status by a local, state or federal land manager, therefore, the requirements of 4f/6f are not applicable to the west Douglas Island area.

Operational impacts on recreation would include reduced recreation area and diminished wilderness character. Increased access as a result of road construction would be seen by some persons as a positive impact and by others as a significant adverse impact.

Residential and commercial development along the proposed corridor would result in a combination of loss of habitat, increased noise and other disturbances to the wildlife and wilderness character and increased use of remaining fishing and hunting resources. Satellite community development along the proposed corridor would also heavily impact and displace Sitka black-tailed deer and black bear populations. Construction of subdivisions and other support facilities could also impact the Peterson Creek drainage, possibly adversely affecting the anadromous fish spawning and rearing areas. These changes would adversely impact hunting and fishing. In addition, private ownership of beach lots may impact public access to the beach.

9. Economics

The economic impacts of a corridor identification on west Douglas Island are primarily to private property owners along the alignment. While the corridor identification is a planning tool, it does restrict the use of those properties that lie inside the corridor. Because present values do not reasonably reflect values that may exist at the time acquisition may occur, it is not possible to quantify the value of the properties at this time. For the purposes of modelling, construction of a two-lane road was studied for its impacts on the economy. The construction model showed that it would cost approximately $20.387 million to construct a two-lane gravel road on the preferred alternative, Alignment A. A project of this scale would ~~typically require 15-20~~ workers for two construction seasons. The workers' wages would be at least partially recirculated in the community.

Property values in the affected area would be expected to increase due to planned community development envisioned in the CBJ Comprehensive Plan. State highway access as a result of this effort would coincide with development of the property and would in turn enhance property values. With no road, the 1200 acres of developable public and private land between Peterson Creek and Middle Point would be valued at approximately $3,000,000. The extension of the highway would tend to double the value of the no-road scenario to $6,000,000. These land value estimates are for the undeveloped, unsubdivided 1200 acre tract of land to be accessed. The value of the land would be expected to increase with further development, and the value may be higher

for commercial and industrial uses. The value of other lands already available in the CBJ are unlikely to be significantly impacted as a direct result of the access of these additional 1200 acres.

Revenues and costs to the local government could also be an economic impact to the community. The revenues to the CBJ would be relatively small initially, and any potential for significant revenue flows would be five to ten years into the future. The increased value of CBJ-selected land will have no real effect until the land is actually transferred; Goldbelt is exempt from paying property taxes until after 1991 and the pace of development is likely to be slow, implying a longer period of time before the higher valued lands are in the hands of private owners who are not exempt from taxation.

The costs to the CBJ of opening this area would not be immediate and may not be large even in the future. The cost of police and fire protection will not increase as a direct result of this project for more than five years and possibly ten. These needs could be satisfied with existing facilities, equipment, and personnel.

In short, the primary impact of the project over the first five years after construction would be its direct employment and income effects. Even these, however, would be relatively small compared to total Juneau economy. The longer term effects of the project will be the opening of lands which will increase in value and the facilitation of possible residential, commercial and industrial development.

10. Subsistence

There are no impacts to subsistence uses as a result of the proposed project.

The selected alternative was evaluated in compliance with Section 810 of the Alaska National Interest Lands Conservation Act of 1980 which requires public lands be managed to minimize impact on subsistence uses that occur on those lands. The evaluation concluded that only a small amount of subsistence deer hunting, fishing, and berry picking are done on Douglas Island that would be affected by the proposed highway extension.

In 1986, one subsistence fishing permit for pink salmon was issued for Middle Creek. In 1985, two pink salmon permits were issued for Middle Creek and one for Hilda Creek. However, the Alaska Boards of Fish and Game have recently defined subsistence to be applicable to rural residents only. Further, they have determined the CBJ to be "non-rural." Therefore, by definition, a resident of the CBJ cannot be a subsistence user. Although a person from a rural area outside the CBJ may elect to use an area within the CBJ for subsistence purposes, there is no evidence that this has happened on west Douglas Island.

The proposed action will have no significant impacts on subsistence users or resources. (Information on subsistence use from personal communication with Rob Bosworth, ADF&G Subsistence Resource Specialist, Juneau.)

11. Cultural, Archaeological

A historical/archaeological ground survey of likely sites within the proposed corridor was performed by Department of Natural Resources staff archaeologists (Appendix D, Archaeologic Survey). While several sites are known to exist on west Douglas Island, the survey revealed no evidence of historic or archaeologic sites in the selected corridor. Further detailed studies would be conducted prior to construction in the corridor.

B. PHYSICAL IMPACTS

There are no physical impacts associated with the proposed corridor identification. However, the construction model of the selected alternative outlined in the following sections illustrates impacts that would be associated with a two-lane highway on Alignment A. The model was developed so that the department could select an alignment that had minimum impacts to the area resources.

1. Air

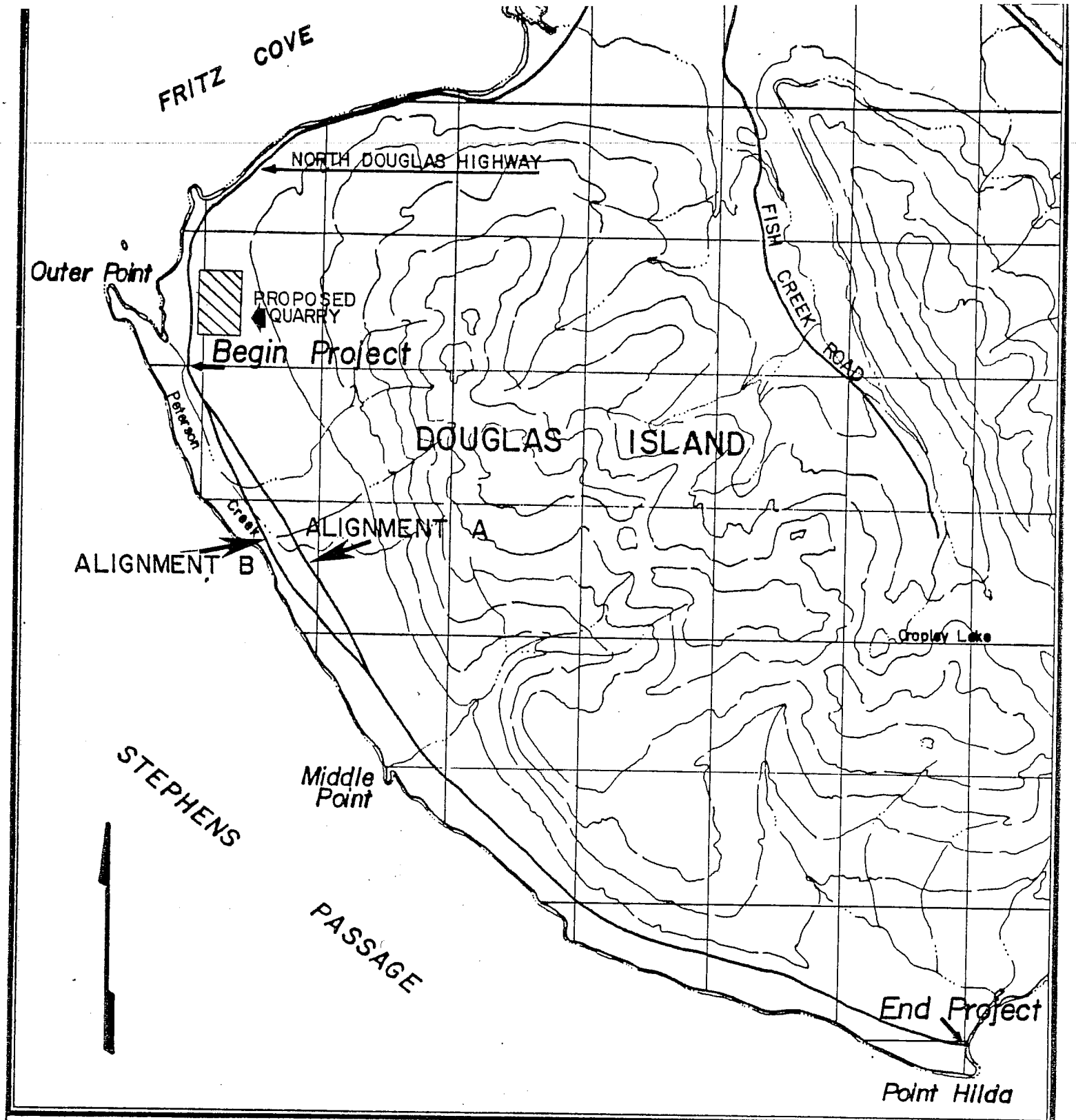
Existing air quality along the proposed highway corridor is excellent. The corridor lies along Stephen's Passage which runs northwest-southeast, parallel to prevailing winds in the area. It is expected that excellent flushing of airborne pollutants would therefore occur. The proposed corridor is not in an air quality non-conformance or maintenance area; therefore, conformance to the State Implementation Policy does not apply.

Construction would produce minor and short-term air pollution. These will be in the form of rock dust and equipment exhaust gases and particulates. If the CBJ material site (Figure 8, p. 31) were used, operation would produce rock dust, blasting agent gases, and equipment exhaust gases. These air pollutants would also be minor and short-term in nature.

Development in the corridor would include residential, commercial, and light industrial facilities. No heavy industry or obvious sources of significant air pollution have been identified as possible developments. Siting of the proposed corridor along Stephen's Passage, the direction of the prevailing winds, and the probable development activities indicate that any air pollution as a result of indirect impacts will not be significant.

2. Water Quality

There are no water quality impacts associated with the proposed highway corridor selection.



LOCATION MAP
SCALE 1"= 1 MILE
CONTOUR INTERVAL 500'

FIGURE 8
NORTH DOUGLAS HIGHWAY
CORRIDOR IDENTIFICATION

QUARRY LOCATION

68870

Alignment A was chosen because of its distance from the mainstem of Peterson Creek, where most spawning of anadromous fish occurs. This distance from the mainstem would reduce the potential for impacts on spawning areas and would also reduce impacts to the three holders of water rights near the mouth of the creek. Providing a potable water source for water rights holders during construction would be a likely alternative for reducing construction phase impacts. Impacts to Middle Creek would be minor introduction of sediment resulting from bridge construction. Very minor and short-term sediment impacts to small streams crossing the corridor may be expected as a result of construction and operation.

Various methods and materials would be used to control construction related impacts. These include, use of slopecovering material, such as jute mesh or visqueen, use of seeding of cut and fill slopes, construction windows for work in anadromous fish streams, settling ponds, and routing of sediment laden waters through adjacent vegetated areas.

QUARRY DRAINAGE IMPACTS

Construction modelling included analysis of a quarry for road building materials. A potential CBJ quarry site has been identified near the Beginning of Project. A drainage plan has also been devised as part of a model to study operation impacts. The sediment-laden water would be routed through a settling pond. The water would then drain into a ditch and across the highway to a wetland area, then into Fritz Cove. This routing would assure that Peterson Creek would not be impacted by quarry operations (Figure 8, p. 31).

Minor amounts of nitrates may leach from unspent explosives and could affect the above mentioned wetlands. Blasting practices would be developed to minimize the amounts of unspent explosives that may leach from the shot rock.

Once in production, a quarry would likely be in operation on an intermittent basis for a number of years. Water quality protection measures would be permanent features of the quarry development ensuring that development and operation of the quarry would not have significant impacts on the environment.

3. Floodplains

There are no floodplain impacts associated with the identification of a highway corridor on west Douglas Island.

Construction in any corridor would involve construction in floodplains. The construction modelling in Alignment A would cross approximately 131 small streams plus Middle Creek. The selected alternative would avoid the parallel encroachment of Alignment B. Construction of the selected alternative will pose no flood hazard to downstream residents or developments, nor will it impact the natural and beneficial values of floodplains along the route. All crossings of small streams would be designed to accommodate a 2%, or 50-year, flood. The Middle Creek crossing would be a clearspan structure and would not encroach on the Middle Creek floodplain. Construction would not produce significant impacts to floodplains. It would comply with Executive Order 11988, Floodplain Management.

Development of a satellite community on west Douglas Island would lead to further floodplain encroachments. Although the most desirable developable lands are on uplands adjacent the shoreline, and therefore not in floodplains, access roads to these developable areas will probably encroach on floodplains. Also, developments on the shore may involve encroachments in the tidal floodplain. All fills in wetlands or tidelands would be subject to local zoning ordinances, the U.S. Army Corps of Engineers permit process and a state Coastal Zone Management Plan review.

4. Soils

There are no impacts to soils as a result of identification of a highway corridor on west Douglas Island.

Soils along the selected corridor can be separated into 3 main types:

1. A thin (0-6") organic mat overlying stream outwash sand, silt, and beach deposited gravels. This type is prevalent on Alignments A and B to approximately Middle Creek.

2. A thin (0-15") organic mat overlying stream outwash sand, silt, gravel, and angular talus. This type is prevalent along the steeper slopes from Middle Point to Point Hilda.

3. Peat, or a very thick organic layer (0-12'), overlying sand. This soil is found in the muskeg areas.

All of these soils are directly underlain by bedrock.

Soils 1 and 2 drain well and are good soils to construct a road upon. Soil 1, because of the relatively flat terrain it is found on and its relatively shallow depth to bedrock is usually saturated by groundwater. Soil 3 (peat or muskeg) is generally excavated and disposed of in waste areas prior to road embankment placement. However, relatively new construction methods using geotextile fabrics may allow construction over this soil.

Erosion Potential

It is anticipated that at least the first 3.5 miles of construction in the selected alignment would be built on a fill of rock. This rock fill could be obtained from the quarry described on page 31 although other sources would be studied during a Supplemental EIS (SEIS) should a construction project be proposed. Shotrock fill typically contains little fine material and thus has a low erosion potential. Construction beyond 3.5 mile would be on sideslopes that may require a cut/fill method. Cut/fill construction leaves an exposed earth cut slope on the uphill side of the road and an exposed earth fill slope on the downhill side. These fill slopes would have a moderate to high potential for erosion, depending on the soil conditions. Mitigation measures to reduce erosion potential would typically include:

a. Frequent cross-culverts to reduce erosion of road embankments in ditches.

b. Ditch blocks to channel ditch flow through cross-culverts on long grades, thus avoiding excess velocities of water in roadside ditches and subsequent embankment erosion.

c. Temporary erosion and pollution control plans in project construction specifications.

d. Timing stipulations for work in anadromous fish streams.

e. Grading of cut and fill slopes to a grade less than the natural angle of repose of the embankment.

f. Seeding of cut and fill slopes with mulch and fertilizer.

g. Protection of roadside embankments near streams with armor rock.

5. Flora

There are no adverse impacts to the area's flora by identification of a highway corridor.

Construction modelling showed that a section of vegetation about 70 feet wide would be cleared for a two-lane highway. Brush and root wads would typically either be burned according to Alaska Department of Environmental Conservation [ADEC] regulations or disposed at an approved upland waste site. Typically, no sidecasting of organic waste would be allowed. Also, if the CBJ quarry site and access road were developed, it would require sufficient clearing of vegetation to produce material. Clearing would involve only a small percentage of vegetation common to the corridor area.

Road building would be subject to Alaska State Forest Practices Act (11AAC 95.010-900) requirements because the right-of-way area to be cleared of timber would exceed 10 acres. Under this act, a road constructed to harvest the timber must comply with the regulations pertinent to the act. These regulations are designed mainly to protect water quality and maintain fishery values and are subject to Alaska Department of Fish and Game [ADF&G] review under the statutes related to anadromous fish (AS 16.05.870) and fish passage (AS 16.05.840). The State Forester must be notified at least 30 days prior to commencement of logging activities. The road plan must also include approval by the CBJ satellite community planning process (CBJ Land Use Ordinance, Chapter 49.70).

Development of subdivision access roads, building sites and utility corridors all require clearing of the natural vegetation. Disposal of merchantable or waste vegetation from development of the New Growth Area would produce more impacts, both in quantity and extent, than the road construction itself.

6. Fauna

Fish

The identification of a highway corridor by this planning action would have no adverse impacts to fish populations or habitat on west Douglas Island.

Construction within Alignment A in the future may impact anadromous fish. Although temporary and permanent erosion and pollution control measures would be taken, adverse impacts to spawning and/or rearing fish and their essential habitats from incidental stream sedimentation may occur. These impacts would be largely a result of impacts to water quality caused by the construction and operation of a two-lane road. The ADF&G would require a Fish Habitat permit for construction of any crossings of anadromous fish streams. These permits are designed to insure that fish passage through drainage structures would not be impaired and that in-stream work would be accomplished during the time of year least injurious to fish.

Construction would also result in increased access to the anadromous streams. This may impact fish in several ways: increased sport fishing pressure, spawning disturbance, and water quality impacts from people wading the creek and trampling the banks in heavily used fishing areas.

Another indirect impact would be residential development in the Peterson Creek watershed. Such development, even if it doesn't directly impact wetlands or anadromous streams, may have other adverse impacts. Among these adverse impacts will be increased use of the streams, sedimentation from construction activities, possible loss of streamside shade from clearing, altered water table and stream flows, loss of runoff retention properties of surrounding uplands, and increased possibility of pollution.

Wildlife

Sitka black-tailed deer, black bear, waterfowl, and small animals exist in the highway corridor. The corridor identification would have no direct adverse impacts on game populations.

Construction would impact animals. The most obvious direct impact will be the loss of habitat due to road clearing operations.

Sitka black-tailed deer and black bear use both the mountainous terrain to the east of the proposed corridor in the summer and the flatter, low-lying area along the shoreline in the winter. The proposed corridor will separate the two areas. While black bear will cross a highway, especially a narrow gravel road, Sitka black-tailed deer are much more wary of traffic and may avoid the corridor. Construction of the highway may deter the deer from using shoreline wintering habitat; this could impact survival rates during the winter.

Development of a satellite community on west Douglas Island would have greater impacts on animals than direct construction impacts. Residential and commercial developments and increased hunting pressure would significantly impact game populations including waterfowl and blue grouse. Beside loss of habitat, residential development brings increased noise, loose dogs, and increased human use of surrounding habitat. In addition, residential areas generally attract black bears which are often killed for safety reasons. Much of the area suitable for residential development along the proposed corridor is critical winter habitat for deer. The loss of this habitat, both directly and indirectly, is likely to significantly impact the deer herd and other animals on the west side of Douglas Island.

Eagles

Approximately 22 bald eagle nests have been identified along the shoreline in the proposed project area (Figure 5, p. 17).

Construction in the selected alignment corridor may have noise impacts on nesting bald eagles. Blasting associated with quarry operation or road building as well as heavy equipment operation may have to be timed so as to avoid disruptions to normal nest selection, nesting, or fledging activities. U.S. Fish and Wildlife Service [USF&WS] guidelines for operations within 330 feet of eagle nests call for a moratorium on construction activities during the spring until it has been determined if the nests will be selected (usually by May 15) for that season. If the nest is selected, then construction in the area is curtailed until the young eagles fledge (around mid-August). If the nest is not selected, construction proceeds as planned.

No eagle nests have been identified within 330 feet of the clearing areas of the selected alignment. Eagle nest locations in the area would be reviewed as part of a Supplemental EIS.

Most eagle nests are found within several hundred feet of the shore. Although the CBJ development ordinances call for a buffer zone around existing eagle trees that is consistent with USF&WS guidelines, it is reasonable to assume that development of a satellite community would impact existing or future eagle nesting sites.

7. Noise

There are no noise impacts associated with identification of the selected alignment.

Noise impacts from construction in the corridor would include chainsaws during clearing operations; heavy equipment operation during road construction, and blasting and operations in the quarry. Persons most impacted by construction noise would be residents near the mouth of Peterson Creek, where quarry blasting and haul operations would take place if the CBJ quarry site were used. Blasting and construction operations would typically be limited to normal working hours to lessen impacts on nearby residents.

Blasting in the quarry could impact nesting bald eagles in the area. Blasting would be coordinated with the USF&WS to avoid critical periods in bald eagle nesting.

Noise impacts as a result of construction activities would be short-term and minor.

Construction of a highway in the corridor would probably coincide with other satellite community development. This development would produce some noise impacts to residents and wildlife in the area. The CBJ quarry, if developed, would most likely continue in operation intermittently. The potential exists for removal of approximately 15 million cubic yards of material from the quarry. That scale of quarry development could supply material for projects in the area for many years and result in significant noise impacts to area residents at some future date.

Also, increased development along the selected corridor would increase traffic noise on the existing North Douglas Highway. A noise study (Appendix F) showed that ambient noise levels along the existing highway are presently impacted by the nearby airport and heliport. Present noise levels (L_{10}) are only 2dBA below established Federal Highway Administration [FHWA] noise abatement criteria for Activity B, which includes residences. Noise abatement criteria are noise levels above which the FHWA deems mitigation such as noise barriers must be considered.

The noise analysis shows that noise levels will not significantly increase as a result of construction in the corridor.

8. Light

There are no adverse light impacts associated with the identification of the selected alignment. Light emission impacts from any future highway luminaires at access road intersections would be minor.

The development of residential subdivisions and commercial development along the shore of Stephen's Passage will result in light emissions that will

be visible to persons aboard boats and planes for several miles up and down the passage. Any port development along the shore would probably involve navigation lights. Light emission impacts from developments would not be expected to have a significant adverse effect on humans or wildlife.

9. Energy

There are no adverse impacts on energy resources as a result of the identification of a transportation corridor on west Douglas Island.

Construction and operation of a highway in the future would not significantly impact the energy resources of the Juneau area. The quantities of fuel required for this proposal would not deplete local supplies.

Residential and commercial developments resulting from a planned community on west Douglas will require both electrical energy and heating fuel.

The CBJ Coastal Management Plan describes a feasibility study by the Alaska Power Authority to run electrical transmission lines from Juneau to Hoonah across North Douglas Island. The proposal is not funded at this time, but could eventually provide electrical power to the development area along the proposed corridor. Development in the west Douglas area may add impetus to construction of this transmission line.

10. Wetlands

There are no adverse wetland impacts associated with the selection of a highway corridor on west Douglas. In fact, a primary goal in the selection of the corridor was to minimize wetland impacts in compliance with Executive Order 11990, Protection of Wetlands.

A wetlands determination of the proposed alignments was performed with a representative of the U.S. Army Corps of Engineers. The alignments were traversed by foot and wetlands identified enroute.