COMMITTEE MEETING:

WORK SESSION

AK. MARINE HIGHWAY (FILE 1)

1-29-87

Official Business

Alaska State Legislature

House of Representatives

House Transportation Committee

P.O. Box V
Juneau, Alaska
99811

Phone:
(907) 465-4859

People Invited to House Trans. Work Session
on Marine Highway 1/29/88

1. Bill Cullinane--Business Owner/People's Wharf Assn.
2. T. Terry Harvey--Business Owner/People's Wharf Assn.
3. J. R. McDonald--Shearson Lehman
4. Fran Rose--Business Owner & member Juneau Chamber of Commerce
5. Members--Downtown Business Association, Juneau
6. Commissioner Hickey--DOT
7. Director Davidson--Marine Highway
8. Rep. Goll
9. Jim Ayers--CBJ Lobbyist
10. Rod Mourant--Juneau Downtown Business Assn. Board of Directors
11. Jim Kohler--Juneau Economic Development Council
12. Rudy & Judy Ripley--Business Owners & member Juneau Chamber
13. Senator Duncan
14. Representatives from the Port of Bellingham

Official Business

COMMITTEE:

House Transportation Committee

DATE: January 29, 1988

SIGN-IN

Subject of meeting:

A work session only on the Alaska Marine Highway System

NAME Please include title	ADDRESS Please use full address. Please include zip.	PHONE	REPRESENTING	~~DO YOU WANT TO TESTIFY?~~
KEITH GERKEN	DEPUTY COMMISSIONER DOT&PF	3900		Yes
Stan McAlister	Planning Chief AK Marine Highway	2734		Yes
George Dawson	AMHS Director	3950		Question
Bellingham Delegation				

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Publications for House Transportation Committee
January 29, 1988 1:30 p.m.

"Alaska Marine Highway System, The Community Perspective" By Southeast Conference

"Southeast Alaska Marketing Council, 1987-88 Program Evaluation and Recommendations" By Date Decisions Group, Inc.

"High-Speed Surface Craft"

"Southeast Alaska Transportation Plan, Evaluation of Corridor Alternatives, Juneau Access (lynn/Taku Corridors" By Acres International Corporation for Alaska Department of Transportation & Public Facilities

"Southeast Alaska Transportation Plan" By Alaska Department of Transportation and Public Facilities

"Southeast Alaska Transportation Plan, Evaluation of Surface System Alternatives" Prepared by Acres International Corporation for Alaska Department of Transportation and Public Facilities

"The Alaska Marine Highway - Southeast System, A Holistic Concept" By Representative Bill Hudson

The Bellingham Report.

THE ALASKA MARINE HIGHWAY - SOUTHEAST SYSTEM

A HOLISTIC CONCEPT

BY

REPRESENTATIVE BILL HUDSON

December 10, 1987

Executive Summary

INTRODUCTION: The Alaska Marine Highway System (AMHS) is fast approaching 25 years of service in Southeast Alaska and by all accounts has served well. The system consists of seven vessels serving 18 S.E. communities via an inter and intrastate Marine highway over 1000 nautical miles long, connecting this landlocked Alaskan region to Land highways at Prince Rupert and Seattle to the South and Haines and Skagway to the North.

PURPOSE OF THIS PAPER: I have prepared this paper to stimulate discussion and debate on issues surrounding the future of this our essential Marine Highway system.

It is my belief that we must find consensus for and immediately begin the implementation of a Marine Highway plan that will carry this system into the next 20 years of service!

GENERAL CONCEPT: I am proposing a holistic concept that addresses such issues as: Bellingham vs Seattle, Roads vs. Hi-Speed Ferries, System Marketing, Thru-Haul vs. Segmentation Scheduling, and the Need for Compatibility with Regional Economic Development Plans.

TIMELINESS: Given the fact that Marine Union contracts expire March 30, 1988, any operational changes contemplated in the next three years should be established soon.

Vessel age and years of hard use dictate a need for major rehabilitation and/or costly replacement within the next 5 - 10 years.

Southeast Alaska's regional economic development growth will depend on a future system that compliments and supports local independent visitor tourism, emerging seafood production in Southeast Alaska and other businesses relying on marine transportation.

Finally, like any $60 million a year transportation system, we must assure it remains alive and progressive - growing to meet the needs of our state and this region.

CONSIDER OUR PRESENT SYSTEM: Alaska operates this seven vessel fleet at about 67% capacity with far more offline-layup than most private or public shipping companies would.

The system was tailor made to meet peak summer demands and evolved to accommodate many smaller communities over the years.

Ships largely call through Southeast communities and I believe, unknowingly, discourage stopover travel. In fact, I suspect a careful review of traffic figures would show that most of the 45,000 passengers who annually embark at Prince Rupert and Seattle do not spend much time in Southeast communities, to the economic loss of these communities.

Some value added benefits to the system are being realized in every community, especially the larger towns like Juneau, Ketchikan and Sitka, but, every community is losing value because of short docking times, time of arrival and/or the location of our terminals.

Vessel fares are marginally at the point of diminished returns and do not encourage widespread local use.

The system marketing, advertising and promotion is almost non-existent and may be a prime reason why shoulder traffic has not increased appreciably.

RECOMMENDED CHANGES: I believe it is time to implement some of the changes proposed in the 1986 Southeastern Transportation Plan and the Southeast Conference Community Perspective Report. It is time to activly seek demonstration project funds to acquire two properly configured surface effect or conventional high speed vessels to employ in the Lynn Canal corridor between Juneau, Haines and Skagway, and between Ketchikan and Prince Rupert. I intend to approach our Congressional delegation for a realistic determination of this support.

It is time to consider moving our southern terminus from Seattle to Bellingham and to implement a sound marketing and sales program to increase year around passenger, vehicle and freight sales and service.

Traffic should analyze the probable effects of operating a turnaround schedule between Bellingham and Ketchikan interconnecting with an intrastate route between Ketchikan and Juneau with as-needed trips to Sitka. Under this model all mainline traffic would end in downtown Juneau and travellers would proceed north by road and hi-speed ferries.

With this move I recommend we consider the benefits of relocating the Juneau Auke Bay operations to a site in Echo Cove, and to operate directly into downtown Haines or to a terminal site closer to Juneau on the Chilkat Peninsula. Our long-term priority must remain for a road. Realistically we will likely have to wait for significant mining development or exceptional federal funding to justify constructing a $400 million dollar road between Juneau, Skagway and Haines .

I propose that the time saved by stopping mainline traffic in Juneau and relocating to Bellingham be allocated to longer dock time at smaller communities such as Petersburg and Wrangell for sightseeing, local shopping and other such economic benefits as well as to structure more frequent trips.

As a former Director of the AMHS, I understand the many complexities of this unique system and the time honored constraints. I am confident

that vessel employees, shipping and travel agency partners would be willing to consider some changes for the improvement of the system.

I realize the problems associated with changing a system that has operated essentially the same for 25 years; yet I urge change because the present system is becoming increasingly regressive, more costly and is out of sync with the original legislative intent and the economic development needs of the very communities it was created to serve.

I urge creative marketing, such as booking on-board, off-season conventions, university and school field trips, coordinated trip sales with B.C. ferries and perhaps it is time to offer space available travel as a negotiable labor contract provision in lieu of wages. I would consider offering a once a year space available round trip to Alaska residents (at least SE residents) at a minimal charge to garner the passenger service revenue at a time when passenger loads are down. A little revenue is better than no revenue - providing costs are offset to show some profit.

I recommend all changes be coordinated with the Southeast Conference members and Legislators as well as traditional users of the system. Alaskans should be able to use their only highway at less cost.

POTENTIAL BENEFITS OF CHANGE: I believe the changes I have proposed will increase revenue to the system, appreciably increase economic benefits to Southeast communities, increase employment for Southeast crew members, provide affordable, more frequent and dependable transportation

for all Southeast residents and essentially connect the 70,000 Southeast residents with the Yukon, British Columbia, and the rest of our State. Clearly these changes will increase the value added potentials in every community we serve.

I foresee greatly increased tourism activity, less costly travel between cities in Southeast Alaska and expanded travel between Southeast and our neighbors in the Yukon as well as two way travel between Southeast and the rest of our state. Southeast benefits because our highway now supports our ecomomic development plans and the rest of Alaska benefits because Southeast, especially our Capital city, is easier to access and the 70,000 people of SE Alaska can now travel to Anchorage easier and more frequently. Haines and Skagway benefit because they would have direct and frequent, affordable access to other SE markets and legislative activities.

Orienting the ferry system more to a hub in Ketchikan and one in Juneau may encourage many of those Seattle resident employers to relocate back to Alaska.

FINALLY: This paper is meant to be constructive. It should not be construed as a detailed plan, but rather a conceptual plan to build upon. We still need much debate and a whole lot of in-depth study on this vital system.

Whatever we do, we must begin to implement some of the changes to make the system more beneficial to the inevitable growth of our region.

I welcome your comments and input. I seek your support.

Respectfully submitted,

Bill Hudson

SOUTHEAST CONFERENCE

ALASKA MARINE HIGHWAY SYSTEM

THE COMMUNITY PERSPECTIVE

"Working For All Alaska"

ALASKA MARINE HIGHWAY SYSTEM:

THE COMMUNITY PERSPECTIVE

A report regarding the importance of the Alaska Marine Highway System; containing community perspectives; recommendations for the fiscal year 1988 budget; and suggestions for improvements and efficiencies for the future.

Commissioned by the Southeast Conference

Prepared By
Ayers and Associates
April 1987

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I.

INTRODUCTION

INTRODUCTION

This report was commissioned by the Southeast Conference to provide a basic understanding of the importance of the Alaska Marine Highway System to the people of Alaska. The Southeast Conference is an organization of municipalities, chambers of commerce, groups and individuals representing the common interests of citizens, and businesses of Southeast Alaska. This year, the Conference is working on a variety of issues. They include economic development, educational services, fishing and timber enterprises, and transportation.

The general goal of the Conference is to represent the interests of the 70,000 people of Southeast Alaska on those issues where there is common accord and which significantly affect the economic well being of the entire region as well as the state.

While the Southeast Conference is working on a variety of issues, it has focused on the Alaska Marine Highway System as its top priority. This is because the economic stability and way of life of the entire region is so closely linked to the service level of the ferry system. At the time of its genesis in 1956, the establishment of the ferry system was the exclusive goal of the Southeast Conference, and the Conference does credit itself to a large degree for the birth of the ferry system in Southeast.

Now, more than twenty years have elapsed since the Malaspina, the Matanuska and the Taku were commissioned in the spring of 1963. During the past twenty-four years,

the ferry system has served the people of Southeast quite well. Sometimes, especially during recent prosperity, it was even taken for granted. But as times have changed from fat to lean, its budget attracts attention. As the ferry system is subjected to budgetary scrutiny, its crucial importance to the economy and way of life of all of Southeast and other regions is something which we implore be kept in mind. Accordingly, this report is intended to provide a basic understanding of the importance of the ferry system to Southeast and indeed to the entire state. To accomplish this, much of the report focuses on the roots of importance of the ferries in ways that are specific to each community. This perspective is developed to reveal the statewide dangers in dismantling such a broad foundation. In order to discover the particular importance of the ferries in each community, surveys and observations were conducted in each of them and inquiries made of local citizens and business people.

There have been many studies of the ferry system in the past, and there are volumes of reports, but it appears that none of these focuses attention on the critical importance of the evolved system to the communities themselves and ultimately the state.

At the same time as inquiry was made of the ways in which the system is important to each community, inquiry was also made about how the system might be improved and how it should be managed in light of the states' present revenue deficiencies. Thus, one section of the report is devoted

strictly to a set of recommendations and findings. Most of the recommendations merely reflect the views of the citizens of Southeast Alaska. Some, however, have been framed by the authors of this report as a result of their study efforts.

The Southeast Conference is well aware of the fact that the ferry system in Southeast is less than the whole; that the Southwest ferry system is also important. But for purposes of this report, and due to cost and urgency we were only able to focus on the Southeast System as representative of the state's economy as a whole.

The Conference is pleased to offer this report of important aspects of the ferry system which we submit respectfully as assistance to the Legislature and the Governor in their deliberations, and to the people of Alaska who we pray will continue to benefit from our endeavors. Further, we stand ready to serve on any taskforce, advisory board or commission which may be established to help improve the Alaska Marine Highway System.

April Lapham
1st Vice President of
the Southeast Conference,
Mayor of the City of Haines

Ernest E. Polley
President of the Southeast Conference
Mayor of the City & Borough of Juneau

II.

OVERVIEW

ALASKA MARINE HIGHWAY SYSTEM

SOUTHEAST ALASKA

OVERVIEW
ALASKA MARINE HIGHWAY SYSTEM
SOUTHEAST ALASKA

1988 marks the 25th year of service for the Alaska Marine Highway System (AMHS). While service began in 1963, the real origin of the system was a study by the W.C. Gilman Company of New York, commissioned by the U.S. Department of Commerce in 1958. The resulting report proposed the creation of a new and totally unique solution to the transportation needs of Southeast Alaska - a ferry system capable of carrying the same load that one would find on a normal stretch of asphalt highway connecting Southeast communities, if such a highway were feasible. Thus, through the sale of revenue bonds, the AMHS was born. For the first five years, the AMHS completely funded its operation out of receipts. In 1970, the State convinced the federal government that the system was indeed a "Marine Highway," and as such, began receiving federal maintenance funds on the basis of a determination that the AMHS was, by definition, a bridge 500 miles long.

Today the AMHS for Southeast Alaska is a system of seven vessels serving 18 communities in the Alexander Archipelago. The vessels consist of four "mainline" ferrys, and three vessels which serve what the managers of the system term a secondary system. The mainline vessels, consisting of the Motor Vessels Columbia, Malaspina, Matanuska, and Taku connect the large communities of southeast Alaska with each other and Prince Rupert, British Columbia and Seattle, Washington. The three smaller vessels consisting of the Motor Vessels Le Conte, Aurora, and Chilkat connect the smaller communities of southeast to each other and to the larger communities. The communities served by the mainline vessels are:

Ketchikan
Wrangell
Petersburg
Sitka
Juneau
Haines
Skagway

The communities constituting the "secondary system" are:

Metlakatla
Hollis (Hollis is the terminal for four Prince of Wales Island communities: Craig, Klawock, Hydaburg, Thorne Bay)
Hyder
Kake
Angoon
Tenakee Springs
Hoonah
Pelican

The largest vessel in the Southeast System is the M/V Columbia. It is 418 feet long, carries 1000 passengers and 180 vehicles. The M/V Matanuska and M/V Malaspina are the same size. Each is 408 feet long with a passenger capacity of 750 and a vehicle capacity of 120. The M/V Taku is 352 feet long with a passenger capacity of 500 and a vehicle capacity of 105. The M/V Le Conte and M/V Aurora are sister ships. They have identical capacities of 250 passengers and 47 vehicles. The M/V Chilkat, a smaller, aging vessel has a capacity of 75 passengers and 15 vehicles.

During the summer, the Columbia and the Matanuska are on the Seattle run, completing one round trip each week. During the winter period, from October 1 through April 30, there is only one vessel used on the Seattle run, usually either the Matanuska or the Malaspina. The Columbia is usually laid up for most of the winter due to its high operating cost. The Malaspina and the Taku operate between Prince Rupert and Skagway during the summer, completing the round trip in four days if Sitka is served once on each trip and three days if Sitka is not served. Typically each vessel stops at Sitka once each week. During much of the winter only one vessel is used on this route, due to lower traffic.

The Le Conte and Aurora serve the southeast secondary route, supplemented by the Chilkat. The Le Conte serves the northern panhandle and the Aurora serves the southern panhandle. During the summer, the Le Conte operates between Juneau, Sitka, and Petersburg, with stops at Hoonah, Tenakee Springs, Angoon, and Kake. The Le Conte is routed north to Haines and Skagway once or twice each week. The Aurora operates nearly every day between Ketchikan and Hollis, and during the summer, south to Hyder once each week. In October, 1986 the Aurora began serving Metlakatla as well. The Aurora is also used between Prince Rupert and Ketchikan once or twice each week. These vessels serve the same routes during the winter period, but on a reduced basis.

The Chilkat is used between Ketchikan, Hollis, and Metlakatla. The Chilkat makes two round trips on four days of each week during the summer. The ferry system states in its Draft System Plan dated November 1986 that the Chilkat will be retired soon.

In 1985 the Southeast System carried a total of 313,071 passengers. Of these, 235,850 passengers (75.3%) traveled between mainline ports. Tourist traffic is very heavy in the summer months. During July of 1982, a survey showed that approximately 80% of its mainline passengers live outside of Alaska. Of the remaining 20%, 12% were from S.E. Alaska and the remaining 8% were from other parts of the state. As of the time of the preparation of this report, traffic volume figures for 1986 were unavailable.

During 1985 the Southeast system carried a total of 79,780 vehicles. The largest percentage of these vehicles (17.6%) disembarked at Juneau. Of course, many of the vehicles travelling on the ferry system embarked and disembarked more than once as part of a single trip. 15.6% disembarked at Haines. 8% disembarked at Skagway.

The Alaska Marine Highway System, in its twenty-fifth year, is one of Alaska's success stories. We have in the Southeast AMHS a billion dollar infrastructure that is functioning remarkably well, considering the lack of attention it has had for fifteen years.

III.

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

This report describes the importance of the Alaska Marine Highway System (AMHS) from the community perspective. It has been developed to show how the economy and way of life of the people in Southeast Alaska has evolved in concert with the ferry system. It points out that budget and other decisions regarding the AMHS should take into consideration the importance of the ferry system in other than strictly economic terms; most particularly the sense of real security, reliability, and the affordable transportation which it offers to the traveling public. It explains the reality that dismantling this billion dollar infrastructure would be a severe blow not only to Southeast Alaska but to the entire state. The report shows how the ferry system is so interwoven in the economic fabric and well-being of Alaska that it deserves a fresh look; a commitment to efficient management and direction through prudent budget decisions. Further, it offers specific recommendations and findings to improve the system.

The ferry system is a vital component of the economy of Southeast Alaska. Therefore, any decision that may result in a general service reduction should be approached with great caution. It is an unfortunate reflection of our government that the rationale to reduce service seems based on the assumption that communities must suffer before management can become effective or labor brought to the table as a full partner in resolving the problems. As a matter of fact,

in most cases it costs at least 50% of vessel expense to lay-up. For example, the Bartlett cost 90% of operating expense to be put into lay-up. Therefore, it needs to generate only 10% of costs in revenue to be more cost effective to operate.

As this study began, the focus of the effort was that of discovering the relative ways in which the AMHS is important to each respective community served by the system. The inter-relationships developed with the rest of the State as a result of the ferry system were also explored. It was learned that not only is the system important in a general way for transportion of people, vehicles, and goods, but in particular ways. That is, a particular major component of a local economy has often developed with the ferry service, and vice versa.

The major component in some communities may be a single business, such as the case with the Hoonah Cold Storage. Hoonah Cold Storage depends on the ferry to ship out 100% of its fish products. This was almost two million pounds of salmon in 1986, and the business expects a 30% increase this year. In Sitka, a winter 'turnaround' run is the primary boost to the retail trade. It is an economic convenience, as well as being key to the delivery of important human services, for those who do not live in Sitka. The economy of the City of Skagway in recent years has become almost entirely based on tourism. Of course, the ferry system plays a very important role in bringing tourists to Skagway. The

AMHS brought 36,000 visitors to Skagway in 1986. Ketchikan faces a double-edged sword when the State considers reductions in ferry service. The mainline runs are extremely important because of the tourist trade, export of fisheries products, and the import of goods and supplies to furnish the area's retail demands. But the feeder ferries are critical for retail and commercial trade, fish transport, and winter economic activity. The economies of the people of Ketchikan would be severely impacted by a reduction in either mainline or feeder ferry service. There is one community, however, which appears to have an even deeper dependence on the ferry system: the City of Haines. There are so many business functions in Haines which have evolved with, and depend upon the ferries, it clearly would suffer the most immediate and significant effects of reductions in service. Haines is still the main embarkation and disembarkation point for people and goods destined for the interior or travelling south from the interior. Without the ferry system, Haines would simply be a place at the end of a very long spur road. These are but few examples of the community perspectives of the AMHS. The more enlightening and detailed reports are found in the Community Section. Reading that section is imperative in understanding the AMHS's relationship to developing economies. The particular ways the communities have used the ferries to develop and stafilize the economy of Southeast must be recognized.

Of course, the communities served by the ferry system are dependent on it in numerous general ways. These include the delivery of food, particularly fresh produce and dairy products; mail delivery; school travel; tourist travel; and the transportation of vehicles, equipment and general freight. In some cases, practically 100% of the fresh produce is delivered by ferry. In addition, all second and third class mail and surface parcel post from the lower 48 travels by ferry. The mail is ferried to Haines, Skagway, Petersburg, Wrangell, Sitka, Ketchikan, and Juneau, then shuttled to smaller communities.

During the school year, all school districts make use of the ferry system for student travel to a remarkable degree. Petersburg, Juneau, Wrangell, and Ketchikan report that a student group (averaging 30 students) from their high schools is going somewhere on the ferry system virtually every week of the school year. For purposes of school travel, both safety and cost considerations combine so that schools schedule events around the ferry schedule. And as funding for education decreases, the cost of flying is not a reasonable alternative for student travel.

The AMHS is also important to the health, welfare and safety of Southeast residents. Residents of the smaller communities depend on the system for transportation to larger communities to meet shopping, business, medical, and recreational needs. The selection of goods and services is extremely

limited in some small communities, making travel to larger communities a necessity. Thirteen of the nineteen SE communities we surveyed have no resident doctor; fourteen have no hospital. Travel by ferry to the larger communities is often the preferred mode of transportation, due to its safety, dependability, and people's fear of flying. The senior citizens of Southeast rely on the ferry system to a great degree, perhaps more than others. For them the ferries are safer, more accessible, and more dependable; as well as providing a far less costly means of transportation.

It is safe to say that almost all Southeast communities served by the AMHS are positively affected by the ferry transport of tourists into their community. Communities as small as Pelican notice an increase in business brought about by the arrival of a ferry. The Southeast communities, through the Southeast Alaska Marketing Council (SAMC), have been doing a great deal to encourage use of the AMHS. They have invested $400,000. in advertising to encourage the 'independent traveller' to visit SE Alaska. To date they have received 12,000 responses to their ads; 57% of these were interested in ferry travel as their means of transport. The SAMC supplies travel information to the respondents based on their interest.

The degree of general dependence on the ferry system by the various communities appears to rise in inverse proportion to the size of the community. The smaller the community, the more dependent it is likely to be on the ferry system for its

transportation needs. However, a reduction in service would adversely impact elements of all local economies.

In addition to the individual and general ways in which the various Southeast communities are dependent on the ferries, the system is an important source of jobs. The system employs approximately 900 people and there are more than 5,000 other people that depend on the system for their jobs. Table 5 which is appended to this report details the number of people directly employed by the AMHS in each community. Ketchikan is home for the largest number of employees of the ferry system: 294 employees.

It is also important to note that the system is not only important to the economy of Southeast, but to the state's overall economy - more important than is generally thought. In all, the Southeast system carried 313,071 passengers during 1985, the latest year for which figures are available. That same year the system transported 79,780 vehicles. The "Alaska Tourism Handbook," published by the Division of Tourism reveals that 60% of the summer travelers on the ferry system visit Anchorage and 59% visit Fairbanks. In addition, 40% of all winter traffic on the Southeast ferries is headed for the interior. Each year the AMHS carries thousands of tons of freight and millions of dollars of visitor revenues to the northern regions of the state. Each week semi-vans loaded with goods and supplies head for interior Alaska. Even more vans flow from the rest of the state, especially Anchorage to

points in Southeast.

The efforts of this study as indicated, included inquiring of local citizens and business people about how they are affected by the ferry system. But it also elicited opinions of how the AMHS could be more efficient. There was a remarkable consensus about whether budget reductions should automatically result in a commensurate reduction in service. Most people believe that large savings could be achieved by better management, privatization or cost reductions in areas such as marketing and food service, and a very close and serious scrutiny of current labor agreements in cooperation with the unions themselves. Some also expressed opinions that procurement of supplies and fuel throughout the system could be done much more efficiently.

It is apparent that any significant progress in these areas will take time. The answer lies in effective management and sufficient time to implement strategies. Therefore, it appears that for the present, the best that can be done is to begin to direct the system toward attainable goals with clearly defined strategies, some of which are offered in the Recommendations and Findings section of this report. In the short term, the system should maintain the current level of service with an authorization of 62.6 million for FY 88. In the long term, a work plan should be developed that sets objectives and milestones that cut costs and increase revenues. However, one of the most important recommendations must be

mentioned here, namely that of establishing an advisory board or task force of professionals, users and legislators to advise the Legislature, Governor, and managers of the AMHS on various aspects of operating the system. This system is in many ways an anomaly to normal government processes; it demands separate unique attention.

The AMHS is such a pervasive part of both the economy and way of life for the 70,000 people of Southeast that the proposed, but unneccesary reduction in service could severely cripple the communities of Southeast. The impact of any significant service reduction would also affect the economy of the rest of Alaska, further exascerbating the state's current economic and social situation.

This community perspective is hopefully the beginning of a fresh look at maintaining our AMHS System with reasonable approaches that go beyond the simplistic, devastating proposal to reduce service. This report provides an interesting review of the AMHS, and proposes a direction of effective management and prudent decisions henceforth. It is intended as a symbol of the efforts of the Southeast Conference to work hard in a cooperative spirit with the AMHS, for all Alaskans.

IV.

THE COMMUNITIES' PERSPECTIVE

KETCHIKAN

Ketchikan is the second largest community in Southeast Alaska, with 14,300 residents. It is situated on the southwest side of Revillagigedo Island. Ketchikan's economy is based primarily on fishing, lumber products, and tourism. As the southern-most Alaska municipality on the ferry system's mainline, it relates closely to Seattle and the coastal communities of Britsh Columbia. As the first Alaska stop not only for the mainline ferry, but for barge, jet, and cruiseship traffic as well, Ketchikan has developed a thriving "micro-economy" servicing those transportation systems. In the past month of March, a major vessel maintenance and drydock facility has begun operation, and has already performed maintenance on the AMHS vessels Bartlett and Matanuska. The facility is owned by the state but privately operated by Ketchikan Welding Works.

In its position as the first Alaska stop for both passenger and freight service from the South, Ketchikan has become a strong regional retail center, drawing from an area population of nearly 25,000 in an area generally referred to as Southern Southeast. Because of this position, both mainline and feeder ferries are extremely important to the community. In terms of ferry traffic, Ketchikan is the second busiest port in Southeast. In 1985 51,250 passengers embarked and 50,913 passengers disembarked in Ketchikan; 13,821 vehicles embarked and 13,965 vehicles disembarked. The mainline runs from Seattle and Prince Rupert in the south, to Haines, Sitka, and Juneau in the north providing a steady, dependable system for the delivery of freight, dry goods and produce, as well as tourists and vehicular traffic. The feeder ferries running between Southeast communities provide Ketchikan with the consumers for those products, both from an "import" and "export" perspective. In the sections of this report on Metlakatla and Prince of Wales Island, we discuss the import to the outlying communities of maintaining maximum possible service to Ketchikan. But Ketchikan's health and welfare is also very much dependent on the same service. The retail economy of Ketchikan has grown to the service demands of 25,000 - 30,000 year-round consumers, nearly half of whom depend upon the AMHS for access. A decrease in service of the feeder system would indeed have a dramatic affect on Ketchikan's private sector, which has invested heavily, and confidentally in their regional responsibilities.

A study conducted by the Ketchikan Gateway Borough of economic indicators showed that while Ketchikan's tourists are extremely important to the local economy, almost 95% of sales are by area residents, and over 20% of those are by

residents of outlying island communities. The study also found that the average tourist spends $28 per day in Ketchikan. The average ferry passenger, on the other hand, spends $55. Reductions of ferry service over the past winter between Ketchikan, Metlakatla, and Hollis have already resulted in a drop in retail sales. Several businesses have responded by conducting "road trips", taking limited inventories out to the islands for "trade shows". The result is some compensation to the island consumer for the lost accessability to goods, but their purchases are from considerably less selection, and at a higher price.

The mainline ferry is extremely important to Ketchikan's regional responsibilities, especially as it relates to fresh meats, produce, and dairy products. A reduction in service between Ketchikan and Seattle could have a dramatic affect on the quality of those products; a level of quality that all of Southeast has come to expect. By utilizing the ferry system rather than barge service, three days are saved in transit. Fresh pork and chicken are especially volatile products, and a reduction in service could affect their availability. A reduction in mainline service that would force milk to be barged would, at present costs result in a 14% increase in price to the consumer due to decreased shelf life. Such a scenario could also result in an inability to get fresh dairy products to some villages, camps and communities in a reasonable time and in reasonable condition.

The timber industry in Ketchikan also utilizes the ferry system extensively for supplies and freight, but not for shipping product. Ten per cent of their incoming freight arrives by mainline ferry into Ketchikan. However, after arrival, 25% of their outgoing freight leaves Ketchikan on the feeder runs. In addition, the ferry is used for employee and vehicle transport. Any immediate freight or supply needs are sent via ferry.

The fish processing industry in Ketchikan is also a major user of both mainline and feeder ferries. Nearly three hundred linear feet in van space is utilized weekly in the summer, exclusively for fish, between Hollis and Ketchikan. Salmon, black cod, halibut, and herring all are shipped via ferry year-round. The industry is a major seasonal employer. A large on-shore processor will employ as many as 200 people during the season. Winter cutbacks on the Ketchikan-Hollis run have, on occassion, forced some companies to charter their own boats to transport the fish. Good frequency of service on the feeder runs is of utmost importance to the industry. Their need is also a year-round need, as harvest of the different species takes place at different times.

Tourism is of course a major portion of the AMHS's

business, and much of that business is channelled to Ketchikan. As Alaska's first port of entry on the mainline, and also the first stop after 40 hours of travel, almost all passengers disembark for a break. This winter and spring, Alaska Airlines, the Port of Seattle, and the AMHS have jointly contributed to a program to promote the AMHS to Seattle area travel agents. Three lunches for nearly 225 travel agents have been held on board the Matanuska in Seattle, while four familiarization trips have been held for four hundred travel agents. The trip cost each agent $295 and includes a ferry stateroom from Seattle to Ketchikan, and a return by air. The target of the program is the 650 travel agencies in the Seattle area. The program has been so successful that plans are in the works to expand the effort to cover the entire west coast, though the program has revealed some serious flaws in the reservations system, which affect the willingness of travel agents to write AMHS tickets.

System wide, one of the major off-season users of the AMHS are school districts. All inter-school activities and competitions depend heavily on ferry transportation. Cuts in the Education Foundation Funding program have already resulted in dramatic reductions in activity budgets for all of Southeast. Ketchikan, for example, has at least one group traveling every weekend of the school year. Of a $140,000 activities budget, $100,000 goes to travel costs. That budget is a 50% reduction over the past year. 50% of student travel is by air; 50% by ferry. However, the cost ratio is 70/30, air over ferries.

Ketchikan faces a double-edged sword when the State considers reductions in ferry service. The mainline runs are extremely important because of the tourist trade, export of fisheries products, and the import of goods and supplies to furnish the area's retail demands. The feeder ferries are also extremely important because they transport the fish product for the fisheries, and the consumers for the retail and commercial trade. Cutbacks in either mainline or feeder ferry service would have a potentially devastating impact on the service the other can provide. Ketchikan, perhaps more so than most other Southeast communities, is subject to economy-wide repercussions from a loss or reduction of service by the AMHS.

HYDER

Hyder is an unincorporated community of 100 people located at the head of Portland Canal in southern Southeast Alaska. The community is the only one in Southeast accessible by road. The community economy has two primary sources; tourism and retailing, both of which derive from Hyder's "sister city" of Stewart, British Columbia.

More than 60,000 visitors arrive in Hyder every summer, primarily from the Trans-Canada highway. Via that route, Hyder is just a 20 hour drive from Seattle. The tourist trade supports one motel, one inn, three restaurants, and several gift shops. In addition, Hyder is a popular destination for Canadian residents of Stewart and the surrounding area. The principal reason for this is that Britsh Columbian bars close several hours earlier than than those operating under Alaska law in Hyder. One freight line also operates in Hyder, and the community is serviced by float plane from Ketchikan.

Hyder did not begin receiving ferry service until last year, and then only by legislative mandate. The service is for summer months only, and on a weekly basis. The intent of adding service to Hyder was to create an opportunity for a drive/ferry circle from Seattle, through Canada and then return by ferry through Hyder.

Traffic counts and analysis are not available for evaluation yet for this run. The trip is 144 miles from Ketchikan with no stops in-between. The trip takes eleven hours.

METLAKATLA

Metlakatla is a Tsimpshian Indian community of 1,100 residents on Annette Island. It is the southernmost of all Alaskan communities, being 12 miles south of Ketchikan. Metlakatla is not an incorporated municipality under state law. Rather, it is a federally created reservation, created by Congress nearly 100 years ago.

The two mainstays of the Metlakatla economy are a fish trap/cannery operation and a saw mill owned by Louisiana-Pacific. Both of these operations ship their products south by barge, but do rely on the ferry for supplies and equipment. The primary traffic on the Ketchikan-Metlakatla run has always been passengers, but the community does receive two vans/week of groceries. In 1985 Metlakatla embarked 5,974 passengers and 1632 vehicles. 5,651 passengers and 1706 vehicles disembarked.

Given its close proximity to Ketchikan, Metlakatla has interacted closely with Ketchikan for many years. This close interaction was made possible primarily because of daily service that was provided by the Alaska Marine Highway System. The service resembeled a commuter service. It allowed the Metlakatla residents to go into Ketchikan in the morning, take care of their business and return in the afternoon. The service was popular and well used. Indeed, the traffic apparently warranted a larger ferry for the run. Therefore, the Metlakatla terminal was modified to accommodate the larger Aurora. Formerly the Chilkat served the Ketchikan-Metlakatla run. The terminal modifications were completed by October of last year. But now the community must share the Aurora with the Prince of Wales Island communities, and they no longer enjoy the daily, over-and-back service they had for so long.

The reduction in service has created some serious problems and inconveniences. Since the residents can no longer go round trip to Ketchikan in a single day, they must overnight in Ketchikan. Usually this means paying for a hotel room. But on the reverse perspective, there are no hotels or motels in Metlakatla. The community had launched an aggressive tourism promotional effort based on the single day turn around service. Now, however, a day trip can only be accomplished if one flies at least one way. The reduction in service has also had the effect of jeopardizing the availability of emergency medical service. There are about 25 - 30 days a year when wind, fog or snow prevents planes from reaching the community. If an emergency should arise now during one of those periods, the ferry is simply less available as an alternative. Any further reductions in service to Ketchikan would seriously impact Metlakatla.

PRINCE OF WALES ISLAND

Prince of Wales Island is the largest island in Southeast Alaska. It is the site of five incorporated municipalities: Craig, population 1200; Klawock, population 600; Hydaburg, population 500; Thorne Bay, population 400; and Kasaan, population 100. In addition, Prince of Wales Island hosts several other unincorporated communities, villages, and logging camps. They include: Rowan Bay, Hobart Bay, Camp Island, Whale Pass, Dolomi, Port Alice, Chomley, Dana Bay, Shoal Cove, Notaki, Labouchere Bay, Coffman Cove, Polk Bay, Point Baker, Port Protection, Long Island, Warm Springs, Bell Island, Waterfall, and Steamboat Cove.

The residents of Prince of Wales Island apparently have not been informed of the State's recession. Existing industries on the island are going strong and local economies are experiencing something of a "mini-boom". Timber prices have begun to rebound which has made harvesting profitable again. In addition, both regional and village native corporations have extra incentive at this time to set aggressive logging schedules in order to take advantage of their ability, for another four years, to sell operating losses. The summer commercial salmon fishing industry is doing extremely well in the southern panhandle and is expected to continue on an up cycle.

In addition, communities on Prince of Wales are pursuing very aggressive economic development plans. A black cod bottom fishery is just beginning to turn the corner in Craig and Klawock. This past winter, over forty boats took part in the opening. Several areas along the west coast of the island have been identified as the best potential areas for mariculture of salmon, oysters, and seaweed. Additionally, several mining companies have been conducting tests and taking samples for a variety of minerals along some of the island's interior roads. Prince of Wales Island has the most extensive road system in Southeast Alaska. As such, it received a great deal of camper/RV/trailer use during both the summer tourist season and the fall hunting season. In addition, this summer two cruise ships a week will off-load tourists for a two-hour tour of Klawock and the surrounding area. This will be the second summer cruise ships have visited Prince of Wales Island.

Obviously, the communities of Prince of Wales depend a great deal on the AMHS to provide transportation and freight to their thriving economies. All economic development efforts, as well as existing industries, would not function without the AMHS. The cold storage in Craig, a major employer, sends all its fish to Ketchikan via ferry, both summer and winter. They already use the service to capacity. A loss or

reduction of service for the cold storage does not just mean more expense; it means the potential loss of the business itself. Quality is the single most important factor. Fresh fish must be processed and transported as quickly as possible. There exists a fear in Craig that if ferry service is reduced, off-shore processors and tenders will move into the area to service the fishermen on the fishing grounds, and that the Craig cold storage will be by-passed completely.

The lumber camps are supplied almost excusively by the ferry. Five refrigerator vans and four dry vans of groceries come onto the island every week via the ferry. All logging equipment, materials, parts, and supplies arrive by ferry. Forest Service vehicles come by ferry. Nearly all motorized vehicles on the island come and go via the ferry. In 1985 15,881 passengers and 4,739 vehicles embarked at Hollis. 16,591 passengers and 5,116 vehicles disembarked

Mail also arrives by ferry, as does an annual convoy of state road equipment. There is no doctor or dentist on the island, so patients must go to Ketchikan, as do participants in local alcohol rehabilitation and mental health programs. The ferry system is also heavily used by the island's senior citizens. Of course, the residents rely upon Ketchikan for regional shopping for all goods and services not available on the island, and the ferry is the chief mode of transportation.

Residents of the island have long been of the opinion that they are under serviced by the ferry system, and recent developments have not seemed to help. A facility upgrade at Metlakatla last summer now prevents the state's smallest ferry, the Chilkat from docking there. The Chilkat had regularly serviced Metlakatla. As a result, the Chilkat has been switched over to the Ketchikan-Hollis run, and the larger ferry, the Aurora, is utilized for the Metlakatla run, except for Tuesdays, when it goes to Hollis. So the Chilkat serves Hollis approximately six days a week. But it is seriously undersized for the daily trip across Clarence Strait. As a result, many of its trips are delayed or cancelled due to adverse weather and sea conditions. Further, because the Chilkat has such limited vehicle capacity (15 vehicles), competition is fierce for the Tuesday sailing on the Aurora. The situation has caused problems, inconveniences and added expense this past winter.

The real concern, however, is that even without any reduction in service from budget cuts, service to the island may not be adequate to support the burgeoning economy. The situation appears to be a lost opportunity for the ferry system, as well. The demand for service is there, almost all of it freight, which should make the run highly cost-effective for the ferry system. The residents hope the situation can be improved soon, as they must depend on consistent reliable ferry service - at least at the current level.

WRANGELL

The City of Wrangell is located on the northern tip of Wrangell Island, 89 miles northwest of Ketchikan. Its population as of July 1, 1986 was 2376. Bordered by Zimovia Strait, Wrangell is situated near the mouth of the Stikine River, which reaches into the Canadian interior. As the Stikine developed into a gateway for trappers and prospectors, the northern tip of Wrangell Island became a strategic location that was the key to Wrangell's early development as a military outpost, a fur trading center, and an outfitting, support and entertainment center during three successive gold rushes. Changing interests led to several boom and bust cycles in Wrangell's early history.

Today, Wrangell's economy is structured around harvesting and processing renewable resources of the area. The Alaska Lumber and Pulp sawmill employs up to 100 workers and is Wrangell's largest private employer. Fishing is Wrangell's other major resource based industry. More than 100 residents fish commercially, and for about half of these, fishing is their principal source of income. There are two seafood processors in Wrangell, with a combined workforce of about 100 workers during peak processing months each year. Most of the fish processed in Wrangell is canned, but there is an increasing demand for fresh fish. Presently, fresh fish is flown out of Wrangell, though the entire halibut harvest in 1986 (620,000 lbs.) was shipped via ferry. Expanded use of ferries for the shipment of fresh fish south is foreseeable, especially if jet service to Wrangell is suspended.

Recently, Wrangell has begun a conscious shift to develop its tourism potential. They are trying to encourage people to discover the unique attractions of Wrangell, including its petroglyph beach, access to the Stikine River and the hot springs, Chief Shakes Island which is home of many totems and carvings, and their 2 annual community festivals - Tent Days and the 4th of July. The ferry system plays an important role in tourism development and is viewed by Wrangell businesses as a key ingredient for the future. Wrangell, along with a number of other Southeast communities is currently engaged in a promotional campaign to lure the "independent traveler" back to Southeast. The "independent traveler" is seen as the person who eschews both group trips and package tours. Studies have shown that a high percentage of independent travelers choose the ferry as their mode of transportation. Even now, Wrangell's Economic Development Director estimates that 40% of Wrangell's visitors arrive by ferry on an annual basis. Further, he advised that approximately 70% of the guests of the city's four hotels arrive via ferry. During

the summer, a steady flow of recreational vehicles disembark from the ferry and use the RV parking area provided free of charge by the City. Their average stay in Wrangell is 5 days, during which time they help support local businesses. Needless to say, any cut back in ferry service would severely curtail the most important aspects of Wrangell's tourism potential.

The ferries are used for close to 100% of student travel. A minimum of one group of Wrangell High School students travels each week of the school year to athletic events, Close-up, RSVP, band performances, or Native Education functions. The ferries are also important to the Native people of Southeast as a whole. Travel between southeast villages and communities to attend potlatches, 40-day parties, 'Celebrations' of heritage, and Native dance performances most often occurs by ferry.

Like Petersburg, Wrangell is presently threatened with a loss of jet service. Should this occur, the importance of the ferries would expand suddenly, and dramatically. Ferry travel for business and pleasure has become a way of live for Wrangell residents - a way of life which would be jeopardized by reductions in ferry service.

PETERSBURG

The City of Petersburg is a fishing community of 3252 permanent residents located on the north end of Mitkof Island where Wrangell Narrows meets Frederick Sound. By air, it lies halfway between Juneau to the north and Ketchikan to the south. Petersburg grew up around a cannery established by a Norwegian immigrant named Peter Buschmann. The cannery began operating in 1900.

Today, fishing and seafood processing continue to be the mainstay of the town's economy, though wood processing has also been important at times. During the fishing season the town's population swells by an additional 600 seasonal workers who are employed in the town's three processing plants. This does not count the fishermen themselves and their crew who make Petersburg their home base during the fishing season. Managers of the processing plants estimate that about half of the seasonal workforce arrives on the ferry and departs in the same manner. The ferry system is used to ship fresh fish south to Seattle. Last year, the second largest processor in Petersburg shipped more fresh fish in this manner than by air. The use of the ferries for the purpose of shipping fish product south (and for other purposes as well) may suddenly increase in the foreseeable future. Both Petersburg and Wrangell are presently threatened with the loss of jet service if the present federal subsidy of that service should end. Last year the number of passengers arriving by air and by ferry into Petersburg was about the same: approximately 15,000 passengers by each mode. Therefore, the amount of passenger traffic into Petersburg by ferry could possibly double unless some alternate type of airplane service is provided.

Presently, during the month of March 1987, ferry service to Petersburg consists of an average of three mainline stops per week, north and south. It also presently has two feeder stops/week, north and south. During the summer season, service expands to an average of six mainline stops per week, north and south. Feeder service remains about the same. In 1985 15,650 passengers and 3,650 vehicles embarked in Petersburg. 15,720 passengers and 3717 vehicles disembarked.

It appears that in the case of both Petersburg and Wrangell, the ferry system is often the preferred alternative for persons travelling to Juneau, Ketchikan or Sitka because of the relative cost. One way passenger fare from Petersburg to Ketchikan is $24 by ferry and $76 by air. One way fare to Juneau is $26 compared to $73 by air. To Sitka it is $16 by ferry and $69 by air.

The ferry system is also important to Petersburg in general ways. A significant amount of the food consumed in Petersburg arrives by ferry, viz. 25 - 30% of all produce, meat, and dairy products. As with virtually all other Southeast communities, it is heavily used for student travel. Petersburg school officials report that at least one group per week, averaging 30 students per group, travels on the ferry throughout the entire school year. 85 - 90% of all student travel is via ferry. Also similar to other Southeast communities, all third class and fourth class mail (parcel post) comes by ferry.

KAKE

Kake, Alaska is a Tlingit community of approximately 600 residents located on the Northwest end of Kupreanof Island in Southeast Alaska. Its direct ferry connections are to Sitka (8 1/2 hours) and Petersburg (4 hours). In addition to being linked to these two communities by air, it has two direct flights to/from Juneau daily.

Fishing and seafood processing provide the main economic base to the town's economy. It is a community where subsistence hunting and fishing are still an important part of life. Timber harvesting has been important, but recently, poor market conditions have forced operators to severely cut back or suspend operations altogether.

Kake is in the unique position of having three community links which are important to it. Petersburg, Sitka, and Juneau all play a role for Kake's residents. Of the three communities Kake is linked to, Petersburg has become the most important, mainly due to its close proximity and its one day ferry turnaround service. Residents go to Petersburg to purchase items not available in Kake, to take care of their banking needs as there is no bank in Kake, and to take care of general business which they can't do in Kake. In addition, Cuprenof Seafoods, the seafood processing company in Kake is under the same ownership as Chatham Straits Seafoods in Petersburg. There is frequent transfer of equipment between the two by ferry. All of the goods sold by the largest store in Kake (approximately 70% of all goods sold in Kake) arrive by ferry from Petersburg. Also the bookkeeping office of this store is in Petersburg. This relationship requires frequent travel of personnel between the two communities. The non-native residents of Kake generally travel to Petersburg for their medical and dental needs, as they are not eligible for service by the regional health corporation in Sitka. This travel is usually scheduled around ferry service.

Sitka is important as a regional health center for the majority of Kake residents, as well as a somewhat larger shopping center than Petersburg. Round trip travel to Sitka by ferry is difficult as the ferry usually arrives very early in the morning and does not provide same day, or even next day return service. The cost to fly back is $75, as opposed to $14 on the ferry.

Juneau maintains its importance as a regional shopping and service center with Kake. However ferry service to and from Juneau is even more difficult and expensive than Kake to Sitka. The ferry situation for Kake residents tends to add to their isolation.

As with all other Southeast communities served by the ferries, the school district utilizes the ferry system a great deal for school travel. The athletic teams using the ferry include basketball, volleyball, and wrestling. Other student organizations utilizing the ferry are RSVP, student dancers, and the student council. The principal of the high school stated that without a doubt, any reduction in ferry service would concomittantly limit activities.

In 1985, 3,490 people boarded the ferry in Kake; 3,421 people arrived in Kake by ferry. There were 830 vehicle arrivals and departures. As with all other smaller communities served by the ferries, travel to meet medical needs and travel by senior citizens is greatly dependent upon the ferries. Kake's general dependence on the ferry is such that it would suffer greatly by any overall reduction in service; indeed residents would like to see it expanded.

ANGOON

Angoon is a Tlingit Indian village located on the southwest side of Admiralty Island. By ferry, it is halfway between Juneau to the north and east, and Sitka to the west. Angoon is the only permanent community on the island, and is considered to be the most traditional of all Tlingit communities in Southeast. Angoon's 700 residents have, for the most part, maintained their subsistence lifestyle, though commercial fishing is important. Angoon consistently registers the highest level of unemployment in the state, as well as the lowest income per capita.

Angoon is served by one main store. This main store carries a large inventory of fresh produce, dairy products, and meats as well as dry goods, and a variety of other items. All fresh produce, dairy products, meats, and some frozen foods are supplied by the ferry. Prior to its weekly ferry service, Angoon had no fresh or frozen foods available. The cost of flying them in makes the consumer cost prohibitive.

Beyond its dependence on the ferries for all fresh and frozen food, there are other significant dependencies. All food for the Senior Citizens Lunch Program arrives by ferry. All building contractors operating in Angoon use the ferry exclusively to transport equipment and machinery. The ferry also allows for both students and adults to be involved in sports programs. Despite its small size, Angoon consistently produces quality sports experiences. Angoon always places well in the annual Gold Medal Basketball Tournament in Juneau, for example. The City of Angoon, incidentally benefits by serving as the local agent for the ferry system. The city receives a 7% commission on ticket sales. Last year these commissions totalled $12,000 or about half the salary of the municipal secretary. As with other Southeast communities, Angoon depends heavily on the ferries for student travel. Prior to the establishment of ferry service, this function was extremely limited. In addition, the community utilizes the ferries for a wide variety of cultural events, such as potlatches, and forty day parties (a wake forty days after the passing of a loved one).

In 1985 4,834 passengers and 458 vehicles embarked at Angoon. 5,212 passengers and 465 vehicles disembarked.

The people of Angoon appreciate the service they now receive, but express apprehension at a possible reduction in service, especially a reduction in winter service. It is during the winter that they are most dependent on the ferries. Winter weather in Chatham Strait can be most vexing.

Wind, waves, snow and fog each or together can and often do prevent planes from getting in or out often for days at a time. During such times the ferry is the only means of transportation. Additionally, Angoon's dependence on the ferries for food is somewhat greater in the winter as it is then out of season for fishing and hunting. Lastly, Angoon's barge service in winter is less frequent than in summer, by two weeks. Consequently, even goods that might otherwise be brought by barge are shipped by ferry. In winter, Angoon receives two vans (approximately 4,000 lbs) of produce, milk, and supplies by ferry each week. Angoon is a prime example of the rule that dependency on the ferry system rises as the size of the community decreases. In the case of Angoon, even a slight reduction of its present service would hurt. Angoon has already experienced some reduction of service and it has hurt. Last winter the Juneau turnaround was discontinued. This created difficulties in terms of the arrangement that had existed for getting groceries from Juneau.

SITKA

The City and Borough of Sitka, Alaska is located on the west coast of Baranof Island. It is home to 8200 people. The borough's boundaries also include a large portion of Chichagof Island. Sitka was Alaska's first capital and also served as Alaska's capital during Russian settlement. Sitka's rich Russian heritage makes it a favorite stop for tourists. The Sitka Summer Music Festival has become one of the nation's premier chamber music festivals. Sitka is also home of Sheldon Jackson College, Southeast's only privately owned and operated college, and one of only two in the state. In addition, Mt. Edgecumbe High School, the state's only public boarding high school is in Sitka, as is Mt. Edgecumbe Hospital, which provides health services to Southeast's Native population. Sitka is also home to Alaska's shortest and most unusual fishing season. The Sitka sac-roe herring fishery lasts just a couple hours, but involves over 50 teams of seine boats, power skiffs, spotter planes, and tenders, all packed into just a couple small bays and inlets.

Sitka receives both mainline and feeder service from the AMHS. In March of this year, it averages a little more than one stop/week, north and south by mainline ferries, and about three stops/week by the LeConte. In summer this changes to an average of more than two stops per week by mainline ferries and less than two stops per week, north and south by feeder ferries. In 1985 18,381 passengers and 3,536 vehicles embarked at Sitka. 18,463 passengers and 4,002 vehicles disembarked.

One run that is both convenient for the communities it serves and to Sitka's economy is the Saturday feeder turnaround. This ferry leaves Juneau late Friday afternoon and picks up passengers from Hoonah, Tenakee Springs and Angoon enroute to Sitka. It arrives in Sitka at 8:00 a.m., then sails at 4:00 p.m. on the return trip. This run allows the residents of the smaller communities an opportunity to buy supplies without having to spend money on hotels or air fares, which could make their whole trip uneconomical. It is important to Sitka's retail economy as it is the only winter "boost" for the town. Sitka's winter economy is stronger than some other communities largely because of this "turnaround" run.

This "turnaround" run is also key to some important human services provided by the Southeast Regional Health Corporation hospital in Sitka. The hospital serves Native people from all of Southeast, and the ferries are the primary means of transportation for all who do not live in Sitka.

The importance of the Saturday turnaround is demonstrated by the fact that until the service was cut this past winter, the hospital's operations were specially geared for the Saturday turnaround. It would be fully staffed by physicans and dentists for their patients who would arrive on that ferry. When the turnaround service was cut this past winter, patient visits decreased significantly.

The ferry system also serves Sitka in more general ways. The U.S. Postal Service delivers 25,000 pounds of mail each week to the city via the ferries. Nearly 100,000 pounds of meat, produce, and dairy products are delivered each week by the ferries to Sitka grocery stores. One grocery store in Sitka estimates that 40% of its groceries come by ferry.

The AMHS is thus important both as a major support to the local retail and tourist trade, and as the primary method of transportation for clients of regional human services that are provided in Sitka.

TENAKEE SPRINGS

Tenakee Springs, also known as Tenakee, is a small community of about 125 people located on the north shore of Tenakee Inlet on the east side of Chichagof Island. It is about equidistant between Sitka and Juneau, 55 miles either way, or about 45 minutes by air. It is well known for its hot springs. Indeed, the existence of the springs is the reason for its founding. Early prospectors and miners apparently discovered the springs, and began using it as a winter haven - a place to wait out the cold winters while taking advantage of the natural springs. Tenakee became a booming resort, complete with card rooms and pool halls. Later, several canneries operated in the area, with the last one closing in 1974. Today Tenakee is a significant retirement community, a seasonal home for some, and a fishing community. The extent to which it is a seasonal home is significant - of the 125 houses and cabins in Tenakee, only 64 are occupied year-round. Of the year-round population, it is estimated that 30% is over 60 years of age.

Tenakee has a special nostalgic appeal. It has no roads. The only vehicles in Tenakee are a fuel truck, a fire truck, and some ATVs. It is a safe harbor for those who would live apart from modern world. Life in Tenakee has been described as "like turning the clock back 40 years."

Tenakee has three private businesses: the Blue Moon Cafe, the Tenakee Inn and Bar, which offers ten rooms in addition to its food and beverage service, and Snyder Mercantile, a general store selling food, basic hardware, drug items, and fuel. Snyder Mercantile also has five cabins, with another four or five planned. Owners of the Inn and the cabins estimate that 85% of their customers travel to Tenakee by ferry. The expansion of Snyder Mercantile is based on the assumption of continued ferry service, especially continued weekend service from Juneau.

When ferry service was initiated less than ten years ago, its residents chose to limit loading capabilities to passengers only. No vehicles can offload at Tenakee. Thus, use of the ferry for freight purposes by the community is limited. However, its use for passenger transport is quite important. The residents depend upon the ferry for trips to Juneau and Sitka for shopping and medical care. The residents especially appreciate the availability and dependability of the ferry during the winter. Since Tenakee has no land based airstrip, all planes coming in must land on the water. Boarding float planes is quite difficult for some of the older people, as well as for the wheelchair-bound residents. Therefore these residents have a greater degree of reliance on the ferries.

The residents have found that the introduction of ferry service has not impaired their lifestyle. Indeed, they now rely upon it as their primary mode of transportation.

PELICAN

Pelican is a fishing community of 200 permanent residents located on the Northwestern corner of Chichagof Island. Fishing and seafood processing are nearly the whole of Pelican's economy. Pelican Seafoods is the primary employer. During the fishing season, Pelican's population doubles in size, partially due to the increase in Pelican Seafood workers and partially due to an increase in the fishermen themselves. Seven million pounds of seafood are processed in Pelican per year.

Pelican is not accessible to any other community by road. Juneau is Pelican's primary source of goods and services, though Sitka also serves that function. Pelican has daily scheduled flights from Juneau and scheduled flights three times/week from Sitka. Direct air time is 45 minutes from Juneau. One way air fare is $72 from Juneau, three times the cost by ferry. Pelican does not have a landbased airfield. Therefore, only seaplanes can land in Pelican.

Ferry service is very limited to Pelican. Only one ferry per month travels to Pelican in winter, and two per month in the summer. However, Pelican residents do depend upon it. Because of the town's location, it has more weather problems and planes have a more difficult time getting in and out than with communities on the inside of the Archipelago. Almost every winter Pelican experiences a period of a week at a time without air service due to weather conditions. Some residents expressed the opinion that even though the ferry probably serves more people in the summer, it is more important to them to have good ferry service in the winter, when fewer flights are getting in, and when they don't have access to local boats to take them to town.

There is only one general store in Pelican, owned by Pelican Seafoods. Prices are high in the store. Thus, local residents try to avail themselves of the once/month ferry service which delivers groceries and goods for about half the cost of the general store. There are three restaurants in town, two of which close in the winter. Two of the three restaurants receive all their food and supplies by ferry.

Ferry service is important to Pelican both for passenger transport and some vehicles. Equipment of both the City and school District is sent to Juneau for maintenance. As with all other communities served by the ferries, elderly people much prefer the ferries. It is very difficult for them to attempt to board seaplanes. Also as with other Southeast communities, ferry service is viewed as very important for student travel. All student travel is planned around the ferry schedule. Pelican cannot afford a reduction in service.

HOONAH

Hoonah, Alaska is a Tlingit Indian community (pop. 906) located on Chichagof Island, 3 1/2 hours by ferry from Juneau and 20 minutes by air. Hoonah is not presently connected by road to any other town or village. However, there is a logging camp of approximately 250 people at peak season two miles from town.

Hoonah's economy has changed from a subssistence way of life to a varied one where commercial fishing forms the economic base. During the past five years, logging has also become important. However, in 1987 the loading of logs on ships bound for Japan will cease. This will reduce the number of Huna Totem shareholders employed in the industry by 32. This loss will dramatically affect local employment.

Hoonah is now looking at ways to diversify their economy. Tourism is an option being explored as a means to stabilize the economy. People involved in the operations of the Inn, the Lodge, the restaurant, and the City all spoke of promoting Hoonah as an entry point to Glacier Bay. Hoonah is the closest community to Glacier Bay with ferry service. It is this service that would be essential to the development of tourism for Hoonah.

Presently, the ferry system is essential to the community in a number of ways. 100% of the community's fresh produce, eggs, and bread arrives via the ferry, and 50% of the milk and other dairy products. A total of 8,000 lbs. of food arrives each week destined for three stores, two restaurants, and two food co-ops. An additional 6,000 lbs. of food is delivered each week via the ferry when the logging and fishing seasons are in full operation. 5,584 passengers and 1051 vehicles embarked in Hoonah in 1985. 5,947 passengers and 1172 vehicles disembarked. Perhaps just as important as the transportation of food into town, is the transportation of fish out of town. 100% of the fish from Hoonah Cold Storage is shipped on the ferry. During the fishing season, every northbound ferry (bound for Juneau) is used for the transport of fish. In 1986 approximately two million pounds of fish were shipped in this manner. This year, a 30% increase is anticipated, due to an increased freezer capacity. A common concern voiced by the owners of restaurants and stores stems from their limited storage capacity. The growth of their businesses without a corresponding increase in their storage capacity has resulted in a greater dependence on the ferry system.

In addition to the essential functions of food and fish transportation, there is the normal function of people transport. Hoonah, with its small population, has little selection of clothing, and its selection of items such as furniture,

appliances, and building materials is almost non-existent. For these items and many others there is a significant amount of commerce by the Hoonah residents with Juneau. The ferries provide both the cheapest and most convenient method for the Hoonah citizens to do their regional shopping.

As with other southeast communities, heavy use is made of the ferries during the school year for the transportation of school children for athletic, cultural, and music events. 50% of student travel is by ferry. Most Southeast school events are planned around the ferry schedule. In a time of decreasing revenues to the schools, any significant decrease in ferry service would limit student travel correspondingly.

Significant use of the ferries is made by people in need of medical treatment. Hoonah has limited medical facilities and staff. People travel to Juneau or Sitka to visit the doctor, enter the hospital, get prenatal care, have a baby, get more diagnostic tests, etc. Indeed, unless an emergency exists, it appears that the vast majority of patients and attendants utilize the ferry rather than flying. The Southeast Regional Health Corporation provides vouchers for patient transport by ferry, rather than by air, whenever possible.

In questioning the local citizens regarding their use of the ferries, it was discovered that people who prefer to ride the ferry do so for three reasons: 1) cost. The regular roundtrip airfare from Hoonah to Juneau is $94. But roundtrip fare on the ferry is only $20 (winter rate), and senior citizens and children under the age of six can ride the state ferries for free. 2) safety and the fear of flying. Numerous responses were received citing this as the reason for using the ferry. 3) people can take their car, which makes it much easier to operate in a larger city. Hoonah's senior citizens use the ferry almost exclusively in traveling from Hoonah.

The ferry is also important in the transport of vehicles, machinery, and equipment in and out of Hoonah. Whitestone Logging utilizes the service to bring in trucks and heavy equipment, as does the Forest Service and the Huna Totem Corporation. This year the water line installation should be completed and the roads are scheduled to be paved. Equipment used for these projects is transported on the ferry. In general, all regular size vehicles coming into or going out of Hoonah will be transported by ferry.

Hoonah is a prime example of a community which has both a general and particular dependence on the ferries. The general dependence has to do with the overall transportation needs of a small, isolated community. The particular needs are the dependence on the ferry to transport food into Hoonah and fish out.

JUNEAU

Juneau, Alaska, population 29,370, is Alaska's state capital and third largest city. It is located on the mainland, but is not connected by road to any other mainland community. It's closest link to mainland travel is with Haines, 75 miles to the north.

The discovery of gold in Juneau was the basis for Juneau's early growth. For centuries before this discovery, Tlingit Indians had established and enjoyed a sophisticated culture in the area. However, Juneau's destiny changed dramatically in 1880, when Joe Juneau and Richard Harris found gold. Within a few years Juneau became a center for large-scale hard-rock mining. Three gold mines, the Alaska-Juneau (AJ), the Alaska-Gastineau, and the Treadwell Gold Mining Co. were established and became world renowned. Treadwell production peaked in 1915, but closed two years later due to a cave-in which flooded the mines. The Alaska-Gastineau folded due to high costs in 1921. And the AJ mining was halted by the war in 1944.

By the time the mines closed, the government had been transferred to Juneau, establishing Juneau as Alaska's capital. Government remains the focal point. Today government employs one of every two Juneau workers. As in other Southeast communities, fishing is important in Juneau. Tourism is an ever-expanding industry. In the summer of 1985, Juneau was the most visited community in Alaska by vacation/pleasure visitors and the second most visited commmunity by all visitors.

Each year Juneau's population goes through seasonal cycles. In the winter, as host to Alaska's Legislature, Juneau is home to people from all over Alaska who come here to take part in Alaska's government. In the summer, Juneau is a bustling city, entertaining visitors from all over the world.

Many of these visitors come to Juneau by way of the Alaska Marine Highway System. In 1985, the ferries transported more than 60,000 passengers to Juneau and more than 14,000 vehicles. Juneau receives more ferry traffic than any other community in Alaska. Many of these travellers are tourists, but many are people from outlying communities coming to town to avail themselves of the shopping, medical, social service, and other service opportunities which are not available in their communities. Juneau has become a regional trade and travel center for the northern panhandle. Because it is the only community in northern southeast with year-round jet service, residents from the smaller communities travel to

Juneau to connect with jet flights going both north and south. But in travelling to Juneau from the smaller communities, the residents often prefer to use the ferry system because of its lower cost, safety, and dependability.

Juneau has the widest selection of available goods in Southeast due to its frequent barge, ferry, and air service, and its population base. There are also more doctors, dentists, and medical specialists in Juneau than in other Southeast communities. The Southeast Alaska Regional Health Corporation operates a regional clinic in Juneau; and an alcoholism treatment facility as well as a shelter for battered women and children, serving northern southeast are in Juneau. Juneau is also the regional headquarters for many organizations and government agencies including, the Forest Service, the Bureau of Indian Affairs, the Coast Guard, the Postal Service, and many others. In general, people from all over Southeast travel to Juneau to meet their shopping, business, and medical needs. Frequent and dependable ferry service is essential to this travel.

The movement of construction equipment to smaller communities from Juneau by ferry is extremely important. Many Southeast communities do not have paving equipment, asphalt plants, cement trucks, a sufficient number of dump trucks for projects, or good crane trucks to complete certain projects. Contractors from Juneau have the equipment and move it with them to the communities for projects such as water line installation, paving roads, and building projects. The ferry is the only practical way to move it.

As with other Southeast communities, student travel by ferry has become very important. 95% of the student's travel is by ferry. Students travel in groups of 10-60 to sports activities, music and drama festivals, and to debate and foreign language conferences. There is approximately one of these groups from Juneau-Douglas High School travelling in SE Alaska each week. Any reduction in ferry service would mean a corresponding reduction in student travel.

The Gold Medal Tournament is an annual adult basketball tournament in which most of the Southeast communities participate. It is held in Juneau and attracts approximately 1,000 people. The demand for ferry service at tournament time is so great that walk-on reservations must be made to get on the ferry bringing participants and spectators into Juneau. This event may seem minimally important, but it is the highlight of many communities' spring and has become a social tradition throughout. Angoon even closes its schools to coincide with tournament time. Gatherings such as this decrease the isolation people begin to feel after a long, cold winter.

Juneau to the smaller communities is equally important. Juneau receives approximately 16 27-ft. vans each week from the south, loaded with groceries, mail, and supplies. The desire for quick, frequent dependable service are reasons freight companies cited for ferry use. Juneau is served by barge lines once a week. Ferries arrive from Seattle or Prince Rupert 3 times a week. Ferries are off-loaded quickly, with vans heading for their destination upon arrival. With barge service it takes longer from the time the barge docks, to the loading and delivery of containers. There is no benefit to shipping on the ferry from Seattle or Prince Rupert if the frequency is no better than that of the barge. Thus, if the Seattle and Prince Rupert runs are reduced in the winter from 3 to 1 per week, the ferry system would loose more than the corresponding reduction in revenues; it would loose the business of those who use the ferry for its more frequent deliveries from the south. Foodland, a local store, uses the ferry exclusively in order to insure the freshest produce, milk products, and meat by getting deliveries twice a week. This is not possible by using the barge. Contractors, hospitals, the fishing industry, and the forestry industry use the ferry for its speedy delivery.

The movement of freight out of Juneau to the smaller communities is of growing importance. People in the smaller communities have become accustomed to diets of fresh produce, meats, and dairy products. The ferries are the only cost effective way of providing these items to some communities. Since many of these commuities are served by barge once every 4-6 weeks, a reduction in ferry service would severely limit the availability of these products. Other freight such as car parts, hardware, furniture, fishing gear, etc. make up the bulk of items for transport to the smaller communities. As it is now, the car decks of the feeder ferries are oftentimes too full to carry all the traffic needing transport. A cut in the service offerred by these ferries would increase this problem and the ferries may get into the undesireable position of prioritizing users of the system.

In general, the ferry's importance to Juneau is derived from the transport of tourists and Southeast residents from outlying communities into Juneau, and the transport of freight out of Juneau.

HAINES

The City and Borough of Haines (pop. 1847) is located 75 miles north of Juneau on Lynn Canal. It is 1/2 hour from Juneau by air and 4 1/2 hours by ferry. Haines is connected by road to the interior. Twenty-two miles up this road is Klukwan, a small Chilkat Indian Village with a population of 192. Klukwan has no businesses, so it relies totally on Haines for goods and services. Haines is a major entry point for land travel from Southeast Alaska into Canada or the Interior of Alaska, and from the interior to Southeast, Prince Rupert, and Seattle. This function, however, is only possible because of the ferry system. Despite the still recent completion of the Klondike Highway connecting Skagway to Whitehorse, Haines may still be described as the northern terminus of the Marine Highway System. It is the Panhandle's closest link to the rest of Alaska.

The Haines economy in the past ten years has often seemed to be reacting to the on-again, off-again attempts to keep the sawmill operating. Presently, the sawmill is not operating. Fishing has been an important contributor to the economy, but has recently been facing tougher times. Now the community is turning towards its tourism potential as a means of finally stabilizing the Haines economy. This effort has been helped a great deal by the publicity and attention which has been given to the annual fall eagle migration to the Chilkat River. Work on promoting the eagle reserve as a place to visit is progressing, and a visitor information center is under construction. In addition, other efforts are being made to promote Haines as a place to visit rather than just pass through. The underling key ingredient for Haines' tourism potential is its accessability by ferry. Without the ferries, Haines becomes simply a place at the end of a very long spur road.

It is difficult to overemphasize the importance of the ferry system to the Haines economy. For example:

(1) There are five hotels in Haines (a total of 128 rooms), with a gross income of $625,000. The owners of the hotels state that 90% of their business is derived from travellers on the Marine Highway System.

(2) Even though Haines has little more than a thousand residents, it has 11 restaurants, seven of which remain open year-round. The owners of the restaurants estimate that 80% of their business is derived from ferry travellers.

(3) There are are four automobile service stations. The operators of these stations state that 40% of their business derives from ferry traffic.

(4) In 1985 43,534 passengers embarked at Haines, and 13,454 vehicles. 40,867 passengers and 12,424 vehicles disembarked. In comparison, Juneau, which had the highest number of disembarkations had only 1,650 more vehicles disembarking than Haines.

It appears that when people drive down from the interior to connect with the ferry, they have a strong desire not to miss their connection south. And so they arrive early - early enough to need accommodations. Other examples abound of the importance of the ferry system to th Haines community:

(5) Approximately 1/2 of the food in the grocery stores arrives via the ferry; restaurants and bars receive all their supplies by ferry.

(6) Approximately 1/2 of the construction materials sold in Haines arrives by ferry.

(7) The ferry system itself has 27 employees in Haines; including two seasonal and one part-time.

Of all the communities of Southeast Alaska, it is clear that Haines is the most vulnerable and would be hurt the most by any significant curtailment in ferry service. The community has experienced a taste of the impact of ferry service reductions this winter. Last winter Juneau residents could conveniently travel via ferry for the weekend to Haines. This year, however, the schedule will not allow them to go to Haines and return for the weekend. The result is that some businesses in Haines have had their worst winter ever. Indeed, a tour company that had planned some group tours to the Haines area to enjoy the eagle migration had to cancel their plans due to the scheduling difficulties.

Apart from the aspects already identified, it appears as well that Haines is more dependent upon the ferry system than other communities in terms of social and cultural events. Haines is the site of the annual Southeast Fair. The fair, scheduled every year in August, has become a major event. Last year, attendance was approximately 8,000. And the ferries play a vital role. The event has become such a popular one for for Juneau residents (and those travelling

through Juneau) that demand for space far exceeds capacity. To their credit, managers of the system have cooperated by scheduling an extra run to Haines. The ferries carry horses, other animals, and exhibits as well as people to the fair.

While the fair may be the largest event, there are other cultural events and ongoing functions which depend on the ferries. The famous Chilkat Dancers of Haines use the ferries exclusively in their regional tours. They report that approximately 25% of their audience for Haines performances stem from the ferries. Also, there is an annual drama festival and competition in the summer which draws people to Haines by ferry.

As with most other communities served by the ferries, school travel relies greatly on the ferry system. 90% of student travel from Haines is via ferry. The purposes include travel to the annual music festival (this year held in Ketchikan) and a foreign language festival in addition to athletic events. Choosing ferry travel over air is a matter of safety more than cost, according to the high school principal.

Finally, but not least, there are numerous ongoing people services and functions which depend upon the ferries in a manner which makes life in this and other smaller Southeast communites more manageable. There are only two doctors in Haines, one of which also serves Skagway. There is no hospital. People from both communities depend on the ferries for transportation to Juneau for medical treatment unless an emergency exists. Also, periodic visits to Haines are made by a veterinarian, an optometrist, and a chiropractor, all of whom use the ferry as they carry with them a fair amount of equipment. And, twice a month both the Public Defender and District Attorney along with a judge come to Haines for judicial proceedings. They usually fly, but schedule their visits according to the ferry schedule as a backup. The local magistrate estimates that it would cost the state approximately $1500/day should those three people get weathered in. Of course, as with Skagway and Hoonah, many residents depend upon the ferry to be able to travel to Juneau for consumer goods which are simply not available in their community. It is cheaper, safer, and more dependable than flying.

In this study and report, it appears to a significant degree that the importance of the ferries rises in inverse proportion to the size of the community. Haines happens to be the one example which demonstrates the rule most dramatically. The ferries quite simply are a major factor, not just to the economy, but to the quality of life.

SKAGWAY

The City of Skagway is located at the northern end of Lynn Canal. The current population is 790. It is 93 miles north of Juneau, 45 minutes by air and 6 1/2 hours by ferry. Like a great many other places in Alaska, it has had its economic ups and downs, but Skagway's history appears to have peaks and valleys which are both higher and lower than perhaps any other. Soon after its beginning, and at the height of the rush to the Klondike gold fields, Skagway (combined with nearby Dyea) was the largest city in Alaska (pop. 8500). Of course when the boom turned to bust, the population declined rapidly. Skagway might have turned into a ghost town were in not for the construction of the railroad in 1899. Eventually the railroad became the mainstay of the economy, transporting ore from the Yukon to Skagway to be loaded on ships, and tourists and freight north to Lake Bennett and Whitehorse. But the iron mines closed in 1981 forcing the railroad out of business in 1982. This put the very life of Skagway in jeopardy. But the opening of the Klondike Highway connecting Skagway with Whitehorse has given the town new vitality.

Now Skagway concentrates almost entirely on tourism and the ferries are an important component of this economy. 230,000 people visited Skagway last year. Skagway's population doubles in the Summer in an effort to accommodate their visitors.

While the vast bulk of tourists come by cruise ship, it is the visitors who come by ferry who spend money in local restaurants, hotels, service stations and grocery stores. This is because food and lodging is included in the cruise ship package. Thus, the 36,000 visitors who came by ferry in 1986 are an important component to these Skagway businesses. And, to an increasing degree, this component is not restricted to the Summer period. Skagway is working hard at encouraging Juneau residents to travel north for winter breaks. Since this winter is the first winter that the road to Whitehorse has remained open, visitors are being encouraged to come to Skagway for cross-country skiing or to go to Whitehorse. Due to the winter opening of the road, those business remaining open all report increased winter business. Of course, the ferries play an important role in making the increased winter traffic possible.

The opening of the road also means that tourists traveling north with their car now have the option of disembarking at Skagway. Thus, Skagway now joins Haines as an entry point for travel to the interior and Canada. The 1985 Port Traffic Summary Data indicates that 29,577 passengers and 5,731 vehicles embarked from Skagway. 31,522 passengers and 6,402 vehicles disembarked. Presently, (March 1987) Skagway receives four main-

line ferries/week, and one visit by the Le Conte. In the summer, service increases to five mainline ferries while service by the Le Conte remains about the same.

Like other Southeast communities, Skagway depends on the ferry system for its basic transportation needs. The ferry offers a low-priced, dependable means of transportation to Juneau with its greater selection of consumer goods and services. Since Skagway is situated in a narrow valley with steep mountains on either side, it receives winds from the north, especially in winter, which are severe. The winds make flights into Skagway uncomfortable and at times impossible. The ferry offers a dependable option. Most people schedule their departures according to the ferry schedule, so that even though they may plan to fly, they will not be stranded by a flight cancellation.

Skagway's health professional is a Physician's Assistant, with a doctor from Haines visiting once every two weeks. The ferry is an important link between Haines and Skagway for the transfer of medical supplies, drugs, and personnel. If people need more medical services than are available in Skagway, they usually travel to Juneau, and often by ferry.

Given the recent efforts by Skagway businesses to attract winter business, buoyed by the opening of the road for winter traffic, people in Skagway are naturally disheartened at the prospect of decreased ferry service. For it is the current level of ferry service which largely makes it possible for the winter business to grow. That is, the appeal is being made to Juneau residents for a winter foray to Skagway and Whitehorse, and such a visit by car necessarily involves use of the ferries.

V.

RECOMMENDATIONS AND FINDINGS

RECOMMENDATIONS AND FINDINGS

The intent of this section is to provide a helpful perspective of ways to improve our Alaska Marine Highway System (AMHS). We intend no offense. Indeed, this section, like each of the others is to lend assistance.

From the beginning, the goal of the AMHS has been to allow residents of Southeast access to the same transportation opportunities as those residents of areas on maintained road systems. The service has been treated fiscally as lump sum appropriations, turned over to an administrator for disbursement, much like other passthrough programs such as Education Foundation, Municipal Assistance, and Revenue Sharing. But there is a major difference: school districts and local governments statewide are not able to meet their own funding needs. For that matter, neither is the State's land based highway system. But the AMHS on the other hand, is entirely capable of providing most of its own revenues. It has in the past, and studies indicate that the system has the potential, in the short-term (within five years) to provide from 55 to 60 per cent of its operating costs through system receipts.

This potential, however, is dependent upon the continuation and expansion of service. The system generates no revenues sitting off-line at dockside, and in some cases may cost the system more than when operating and generating revenues. The system is a long way from realizing its revenue potential. The solution, however, does not lie in a change of schedule or reduction of service. It lies in necessary changes to the delivery of those services, specifically day-to-day operation, manning requirements, public perception, and management. The following are some areas revealed during this study where significant improvements could be made:

(1) Advisory Board

Foremost among our suggestions is that the Legislature and Governor form a small advisory board to work with the AMHS to develop goals and implement strategies over the next three years. This recommendation cannot be overstated. The board could well serve as the ingredient necessary to make the AMHS the paradigm of marine transportation and the backbone of economic development. The small board should be comprised of transportation and marketing professionals, legislators, and users.

(2) Vessel Lay-Up

One item that should play an important role in the decisions on funding levels are vessel lay-up costs and the amount

of time vessels spend in port for maintenance. Here is a listing of overhaul costs per week for each vessel, shown as a percentage of its weekly operating costs:

Aurora - 51.4%	Tustemena - 65.5%
Chilkat - 82%	Bartlett - 90.8%
LeConte - 49.8%	Columbia - 71.1%
Matanuska - 66.1%	Malaspina - 42.9%

Lastly, the Taku has a percentage of 50.3%.

If you accept the validity of the 1984 Task Force Report that the system could be providing 55 to 60 per cent of its own funding within five years, then only on the Malaspina would it cost significantly less to lay-up for maintenance than to operate. Further, the time periods for lay-ups for maintenance seem to be excessive. They range from a five week maintenance period for the Chilkat to 19 weeks for the Columbia. By contrast, the cruiseship Stardancer lays up for 8 days per year. All other maintenance is done on board, during operation.

Our recommendation is that the Legislature and Governor establish a five year series of attainable revenue goals as a percentage of operating cost, and that these goals be evaluated along with actual experience prior to each fiscal year appropriation. In this manner, the Legislature can encourage the system to eliminate those areas of apparent excess cost, such as the maintenance time on vessels.

(3) Inventory Control and Purchase of Provisions

Perhaps the most common complaint has been the warehousing of supplies, especially foodstuffs, and the system's inability to track those provisions. We came across a report dated August 4, 1983 from Gerald Wilkerson to members of the Legislative Budget and Audit Committee regarding an audit of AMHS warehouses in Seattle and Juneau. The State Accounting System (SAS) records for the inventory at the Seattle warehouse showed the Seattle inventory at $230,621.49; while the warehouse records showed inventory at $87,161.18, a difference of $143,460.31. Acting Deputy Commissioner Eugene Black attributed the discrepancy to inadequate reconciliation procedures between the AMHS warehouses and the State Accounting System. Indeed, there were consistent diferences between other AMHS records and the SAS. The Seattle finding stands out, however, because of Governor Sheffield's AHMS Task Force, which was conducting its ispections during the same general time period. In its official report dated April, 1984, the Task Force had the following to say about its inspection of the Seattle warehouse:

Stardancer goes South!

> The warehouse space at Pier 48 currently leased by the system is not being utilized to its fullest capacity. In addition, the main warehouse is disorganized with little control in effect. Both front and rear doors to the main warehouse were open with vehicles entering unrestricted. There appears to be excess warehouse capacity and minimal control of the main warehouse area.

In the same audit report, Wilkerson also points out another shortcoming that we feel warrants immediate attention. Wilkerson states:

> Juneau warehouse records do not provide historical detail of inventory transactions which would show all purchases, adjustments, and issuance of inventory items. By not having this detail, the disappearance of inventory and subsequent adjustment of records could go undetected.

Black responded that "the data processing program purchased for use at the warehouse does not have the capability of keeping transactions by item."

We are aware that the management is reviewing these cost saving measures. Our recommendation on this matter is that the Legislature and the Governor direct the AMHS to pusue "shipside" purchase of Provisions. That is, shifting to a system of little or no inventory. The benefits are several. There seems little justification for the amount of space currently being payed for in Seattle, especially if supplies were to be purchased "shipside". Inventory could be more easily tracked because everything purchased would actually make it onto the ship rather than be warehoused. It would also allow Alaska dollars to stay in Alaska, and help to support local economies along its routes, plus build a stronger relationship with the business community. An additional effort should be made to evaluate the current procedures for the purchase of fuel by AMHS. This particular purchasing strategy needs a review beyond our budget and timetable. However, it is equally important and seems to be an area which has been neglected. It is a complex question and entails cost comparisons of food purchase alternatives and warehouse efficiencies.

(3) <u>On-Shore Ship Services</u>

The system seems to have little or no control over docking costs, and certainly no consistency in approach. One

community charges the system $600 every time they tie up a boat, while another community provides the service gratis, in recognition of the importance of the ferry to the community. We do not suggest there is no reasonable explanation, we simply do not have one. A similar problem exists with on-shore agents at the various ports of call. Some are AMHS employees, some are contract agents. Some are dedicated to their work and represent the ferry system very well. They keep regular office hours, sell tickets, meet ships, help with tie-ups etc. Some (more likely to be contract agents) keep minimal staff and minimal office hours, do a poor job on-shore costs (such as tie-ups) that are billable directly to the AMHS, do not present a good impression to passengers, and collect a higher percentage of ticket sales than do travel agents.

Our recommendation is that the Legislature and Governor direct the AMHS to determine the most cost-effective method of handling on-shore services, and further direct that those costs and methods should be as consistent as possible throughout the system. Further, that the system should function within a strict set of guidelines to ensure a consistent level of service at a consistent cost.

(5) Ferry Freight

We found a tremendous dependence by some businesses on the ferry system for freight service, but also received many complaints regarding practices on the cargo deck that often cause inconveniences to clients. There was expressed to us a feeling that the AMHS did not consistently recognize the importance of their commercial clients as a source of revenues. One example given is that the system does not enforce its prepayment requirement on vehicles. The result is that commercial opportunities are lost when a passenger vehicle cancels, because there is no incentive for the person cancelling to notify the AMHS. There is then no opportunity for the space to be filled, though there may be a commercial carrier who would desire the space.

Our recommendation is that the Legislature and Governor instruct the AMHS to consider methods of maximizing revenues from commercial freight users through adjustments in scheduling or lay-up schedules so as to "cater" to commercial clients during periods of high freight volume, such as those noted in the community sections of this report.

(6) Promotion and Marketing

The AMHS is the largest public water transportation system in the United States. Southeast Alaska is one of the nation's major tourist destinations. In a recent survey, 58 percent

of all respondents identified the ferry system as their preferred method of travel to Alaska. Yet until just four months ago, very little effort was made at promoting the system "outside", and even less within Alaska. If the AMHS is to survive without dramatic reductions in services, major sources of revenue have to be identified. There is very nearly unlimited potential for "selling" the system, but several changes do need to occur to realize its tourism potential. We believe this can occur in concert with private enterprise, particularly during the winter months.

Our recommendation is that the Legislature and Governor instruct the AMHS to actively pursue changes within the reservation system that will expedite that system. Areas to be considered should include contracting out the reservation function or the training of the staff to experienced professionals within the travel industry; transferring reservations onto one of the major airlines computer systems so that no extra equipment would be needed by travel agents to write tickets for the ferry system; increase the commissions on tickets to at least minimum industry standards; actively recruit and pursue private/public partnerships in the marketing of the system; work closely with the State Division of Tourism for promotional purposes; initiate efforts to improve the impression the system presents at its Seattle and Prince Rupert terminals; provide training to employees in public contact positions, both on-shore and on-ship. Finally, the Legislature and Governor should urge the management and employees to help realize its potential.

(7) Operations

This brings us to our final "operational" recommendation, and the most common issue we found among systems users. We recommend that the AMHS conduct a thorough, comparative review of all contract provisions with organizations representing employees of the system. Further, that special attention be paid to provisions relating to manning requirements, seniority, training programs, assignment of duties, annual leave, sick leave, penalty and overtime compensation, ship-based versus shore-based compensation and benefits, call-out practices, and residency requirements. The various contracts should be consistent in the different provisions. In addition, a similar review should be conducted of the cost of administering the system, and appropriate recommendations made. The findings and recommendations of this contract review and the administrative review should be implemented at the earliest opportunity, in order to help stabilize the system's operating expenses at a level that will assure continued Legislative support. The labor forces of the AMHS are the element primarily responsible for the successes of the system and

maintaining its effectiveness through recent turmoil. They must be full partners in meeting the current challenges.

The conclusions reached by our research lead us to believe that much of the expense in operating the AMHS is not inherent in the ferry service itself. It appears rather to be entrenched in the delivery of that service by the AMHS. Ferry loads are adequate and the system is being used. For that reason, every effort should be made to avoid a reduction in actual service. By the same token, it is imperative that every effort be taken to encourage the system to streamline its delivery of service in an effort to increase revenue, without sacrificing its committment to basic transportation needs of all Southeast residents. It would be truly unfortunate if any reduction in funding should result strictly in a commensurate reduction in service without regard to other areas of the system. We see the decisions made this session as decisions affecting the entire future of the AMHS.

We feel strongly that there are quantifiable ways of both reducing the cost of operation, and at the same time increasing revenues. We urge your support of funding levels that will guarantee the continuation of the essential service level currently being provided by the AHMS. By the same token, we implore you to adopt an aggressive handling of the system's managerial and operational deficiencies. <u>On no level of management theory have we found justification for allowing a billion dollar infrastructure to sit idle</u>. It would be a questionable business decision to do so, and absolutely unacceptable as a matter of public policy. We urge the legislature and governor to fund the AMHS for FY 88 at a level of 62.6 million, and to adopt intent language that service levels be maintained. Since this is the first year of the session, we would also encourage the governor and the legislature to set some General Fund net operating goals for the AMHS for FY 88. A report from management on the status of that effort, with specific citations, should be requested for delivery to the Legislature by the first day of April, 1988.

Thank you for your consideration. We believe that a strong directive from the legislature and Governor to the management of the AMHS, combined with a maintenance level appropriation for FY 88, can assist the AMHS to make great strides toward ensuring that the system will continue to provide adequate levels of service to the State in the future. We do not pretend or suggest that all of our recommendations are absolutes. There is no claim that we have all the answers, but we believe in the viability and future of the ferry system.

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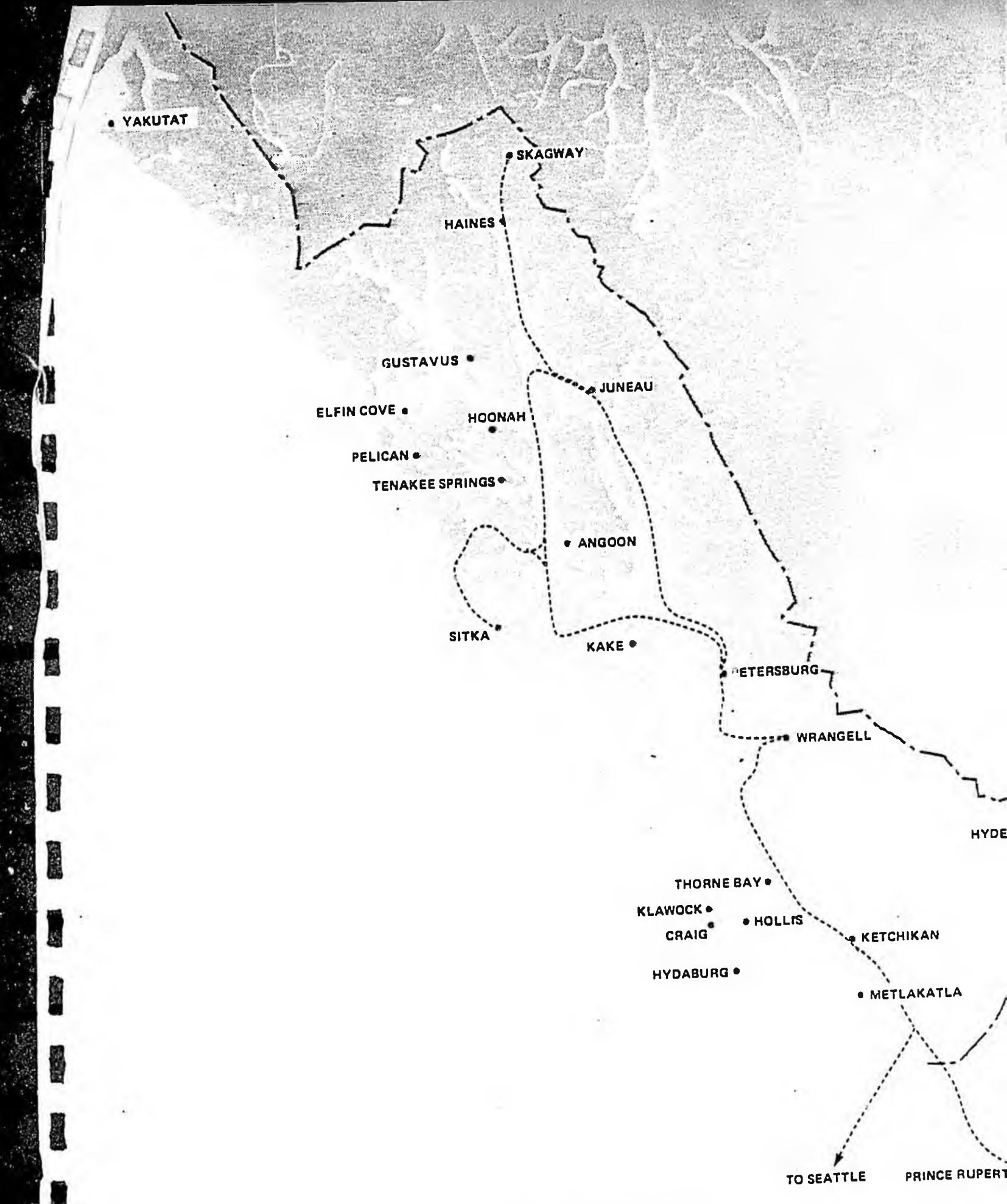
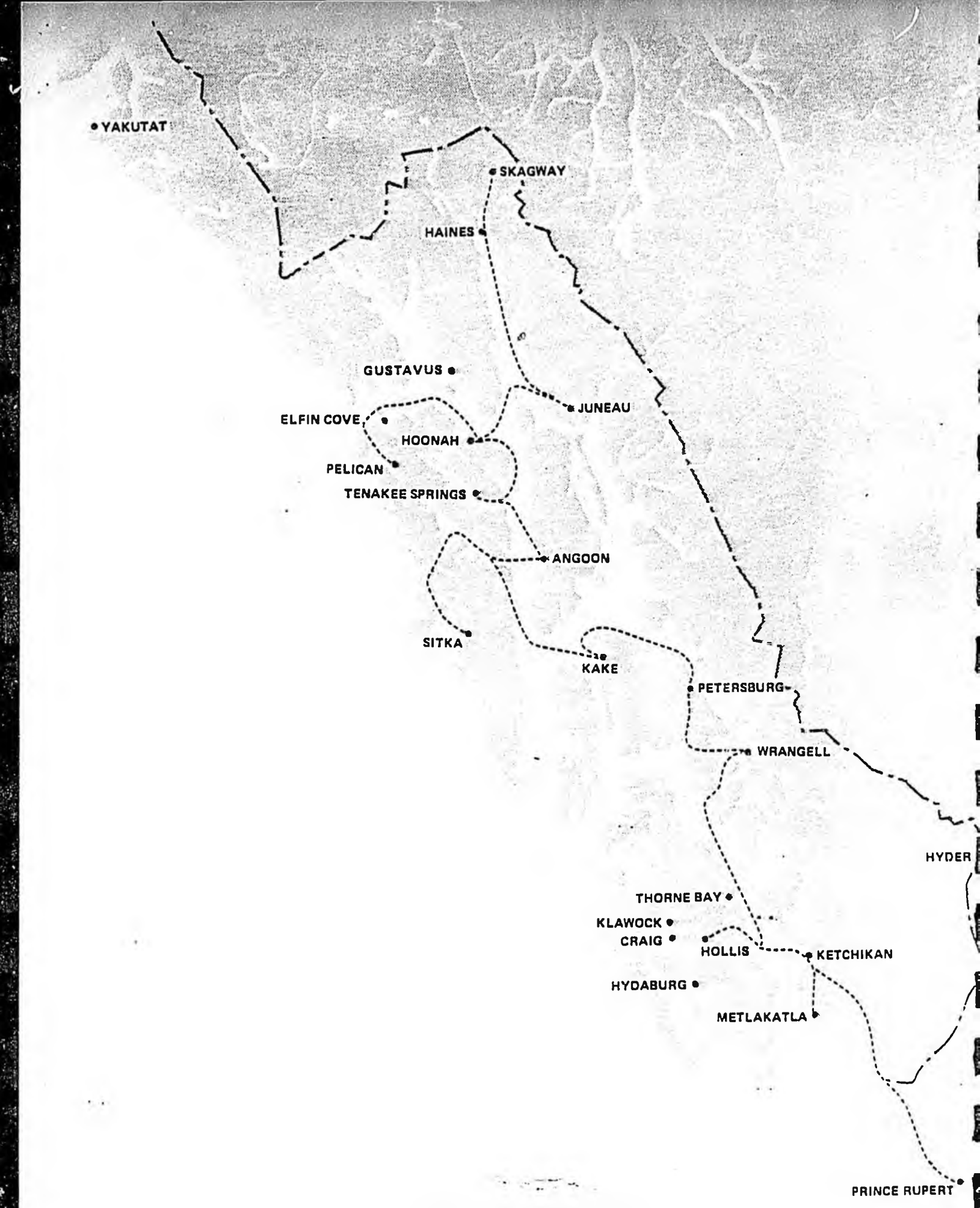
VI.

APPENDICES



MAINLINE FERRY ROUTES



FEEDER FERRY ROUTES

TABLE 1

FERRY SERVICE FOR SOUTHEAST ALASKA
MARCH 1987

	Mainline		Secondary	
	Northbound Stops	Southbound Stops	Northbound Stops	Southbound Stops
KETCHIKAN	14	13	21	23
WRANGELL	14	13	0	1
PETERSBURG	13	13	6	7
SITKA	5	5	12	14
JUNEAU	14	14	17	18
HAINES	14	14	5	5
SKAGWAY	14	14	5	5
METLAKATLA			26	27
HOLLIS			22	22
KAKE			6	10
ANGOON			10	12
TENAKEE			9	9
HOONAH			9	12
PELICAN			3	3

Note: Hyder does not receive service during the period of the winter schedule.

TABLE 2

AVERAGE WEEKLY SERVICE FOR SOUTHEAST ALASKA

MARCH 1987

	Mainline		Secondary	
	Northbound Stops	Southbound Stops	Northbound Stops	Southbound Stops
KETCHIKAN	3.16	2.93	4.74	5.19
WRANGELL	3.16	2.93	0	.23
PETERSBURG	2.93	2.93	1.35	1.58
SITKA	1.13	1.13	2.71	3.16
JUNEAU	3.16	3.16	3.84	4.06
HAINES	3.16	3.16	1.13	1.13
SKAGWAY	3.16	3.16	1.13	1.13
METLAKATLA			5.87	6.09
HOLLIS			4.97	4.97
KAKE			1.35	2.26
ANGOON			2.26	2.71
TENAKEE			2.03	2.03
HOONAH			2.03	2.03
PELICAN			.68	.68

Note: Hyder does not receive service during the period of the Winter schedule.

TABLE 3

FERRY SERVICE FOR SOUTHEAST ALASKA
JULY 1987

	Mainline		Secondary	
	Northbound Stops	Southbound Stops	Northbound Stops	Southbound Stops
KETCHIKAN	26	27	36	34
WRANGELL	26	29	0	0
PETERSBURG	27	29	4	4
SITKA	11	9	8	[illegible]
JUNEAU	28	26	14	[illegible]
HAINES	26	25	10	[illegible]
SKAGWAY	26	26	10	[illegible]
METLAKATLA			26	25
HOLLIS			30	30
KAKE			4	4
ANGOON			8	9
TENAKEE			8	5
HOONAH			14	10
PELICAN			2	2
HYDER			5	5

TABLE 4

AVERAGE WEEKLY SERVICE FOR SOUTHEAST ALASKA

JULY 1987

	Mainline		Secondary	
	Northbound Stops	Southbound Stops	Northbound Stops	Southbound Stops
KETCHIKAN	5.87	6.09	8.13	7.67
WRANGELL	5.87	6.54	0	0
PETERSBURG	6.09	6.54	.90	.90
SITKA	2.48	2.03	1.81	1.81
JUNEAU	6.32	5.87	3.16	3.16
HAINES	5.87	5.64	2.26	2.26
SKAGWAY	5.87	5.87	2.26	2.26
METLAKATLA			5.87	5.64
HOLLIS			6.77	6.77
KAKE			.90	.90
ANGOON			1.81	2.03
TENAKEE			1.81	1.13
HOONAH			3.16	2.26
PELICAN			.45	.45
HYDER			1.13	1.13

TABLE 5

ALASKA MARINE HIGHWAY SYSTEM PERSONNEL BY COMMUNITY
(Also showing onboard personnel by union membership)*

	ONBOARD				
	IBU	MM&P	MEBA	SHORESIDE	TOTAL
JUNEAU	158	9	8	101	276
KETCHIKAN	245	19	19	11	294
HAINES	17	1	2	7	27
SKAGWAY	3	1	1	5	10
PETERSBURG	7	1	1	2	11
WRANGELL	2	0	0	2	4
SITKA	5	0	0	2	7
CRAIG	4	0	0	0	4
HOLLIS	0	0	0	2	2
HYDABURG	1	0	0	0	1
THORNE BAY	1	0	0	0	1
HOONAH	0	0	0	1	1
ANGOON	1	0	0	0	1
HYDER	1	0	0	0	1
AK NOT SE	71	10	8	15	104
NON-RESIDENTS	39	27	52	16	134
	555	68	91	165	878

Note: Figures include seasonal and part-time employees

* IBU = Inland Boatmen Union
MM&P = Marine Mates & Pilots
MEBA = Marine Engineer Beneficial Association

TABLE 6

PORT TRAFFIC SUMMARY FOR SOUTHEAST ANNUAL 1985

PASSENGERS EMBARKING

MON	SEA	KTN	WRG	PSG	JNU	HNS	SGY	SIT	YPR	PEL	HOL	KAE	ANG	TKE	HNH	MJF	MET	TOT
JAN	1006	2859	410	715	1977	1341	396	768	673	25	727	210	366	84	292	0	740	12589
FEB	973	2225	330	786	2256	1253	397	1167	530	29	746	464	497	86	382	0	402	12523
MAR	1532	3162	345	751	3483	1550	546	1079	1052	59	1172	220	336	105	318	0	636	16346
APR	1567	2658	367	804	3758	1811	912	1051	1459	63	1098	208	288	120	319	0	0	16483
MAY	2108	3834	450	1219	5201	2862	2146	1463	2260	70	1214	352	488	109	421	240	475	24912
JUN	2623	6385	910	2040	7508	5293	4565	2460	6150	70	1775	408	497	130	561	240	697	42312
JUL	2097	7576	1210	2627	11060	9049	8137	3247	7977	166	1731	337	326	167	522	0	486	56715
AUG	2331	8068	1395	2577	11011	9949	6899	2904	5761	79	2355	350	486	202	576	0	538	55481
SEP	1267	4952	706	1634	4828	4379	3273	1425	1674	159	1614	238	306	66	343	0	394	27258
OCT	1135	3317	476	879	3474	2528	1477	1109	864	22	904	208	257	99	482	0	527	17758
NOV	876	2804	437	730	2816	1647	418	728	645	36	1134	223	453	157	678	0	404	14186
DEC	856	3410	534	888	3267	1872	391	980	522	47	1411	272	534	159	690	0	675	16508
TOT	18371	51250	7570	15650	60639	43534	29557	18381	29567	825	15881	3490	4834	1484	5584	480	5974	313071

VEHICLES EMBARKING

MON	SEA	KTN	WRG	PSG	JNU	HNS	SGY	SIT	YPR	PEL	HOL	KAE	ANG	TKE	HNH	MJF	MET	TOT
JAN	384	645	90	138	509	423	103	130	302	2	175	44	38	0	33	0	153	3169
FEB	490	595	80	128	508	363	101	131	270	6	198	68	40	0	41	0	115	3134
MAR	638	916	100	174	768	447	120	212	547	6	342	43	42	0	68	0	195	4618
APR	549	747	103	193	793	590	145	199	662	10	340	83	33	0	60	0	0	4507
MAY	591	1090	143	306	1283	886	419	266	898	5	370	63	36	0	106	0	131	6593
JUN	566	1632	284	510	1763	1548	881	506	1681	4	529	86	35	0	97	0	163	10285
JUL	438	1991	297	678	2341	2678	1457	639	1913	15	530	80	26	0	105	0	148	13336
AUG	519	2121	278	582	2259	2786	1216	551	1423	5	692	76	46	0	101	0	146	12801
SEP	338	1449	156	352	1333	1516	691	321	571	10	552	62	36	0	83	0	154	7624
OCT	436	1117	142	251	966	1028	370	230	389	2	347	79	41	0	134	0	176	5708
NOV	457	750	122	190	731	599	116	179	307	4	386	82	47	1	127	0	93	4191
DEC	368	768	99	148	723	560	112	172	231	5	278	54	38	4	96	0	158	3814
TOT	5774	13821	1894	3650	13977	13424	5731	3536	9194	74	4739	820	458	5	1051	0	1632	79780

PASSENGERS DISEMBARKING

MON	SEA	KTN	WRG	PSG	JNU	HNS	SGY	SIT	YPR	PEL	HOL	KAE	ANG	TKE	HNH	MJF	MET	TOT
JAN	598	3179	456	784	2472	1134	365	741	405	24	818	282	293	87	269	0	682	12589
FEB	587	2166	334	874	2919	1282	440	958	399	55	911	333	390	77	414	0	384	12523
MAR	741	3184	350	961	3091	2128	543	1158	567	71	1445	345	582	108	490	0	582	16346
APR	1147	2585	442	791	3677	2435	1034	1064	849	84	1267	195	355	130	428	0	0	16483
MAY	816	3985	536	1274	5062	3748	2706	1641	1566	94	1364	330	476	196	518	240	360	24912
JUN	1300	6594	1056	2200	7863	6405	5362	2385	4730	98	1804	417	540	117	577	240	624	42312
JUL	2175	7678	1276	2724	11318	7945	8611	3284	7605	187	2025	320	367	135	581	0	484	56715
AUG	2004	7952	1362	2425	10437	8058	7632	3019	8029	96	2317	382	516	171	517	0	564	55481
SEP	2264	4383	789	1333	4932	2662	2764	1410	3755	127	1540	241	311	74	339	0	334	27258
OCT	1495	3156	443	826	3393	2021	1224	1087	1567	56	898	139	362	101	464	0	526	17758
NOV	927	2787	459	759	2761	1630	462	806	827	24	996	154	384	175	642	0	393	14186
DEC	1431	3264	541	769	3160	1419	379	910	874	27	1206	283	636	183	708	0	718	16508
TOT	15485	50913	8044	15720	61085	40867	31522	18463	31173	943	16591	3421	5212	1554	5947	480	5651	313071

VEHICLES DISEMBARKING

MON	SEA	KTN	WRG	PSG	JNU	HNS	SGY	SIT	YPR	PEL	HOL	KAE	ANG	TKE	HNH	MJF	MET	TOT
JAN	226	651	103	132	627	395	91	181	209	2	258	58	36	0	40	0	160	3169
FEB	212	629	93	162	593	432	100	184	183	5	289	50	29	0	47	0	126	3134
MAR	215	957	125	235	765	752	125	249	270	10	480	92	60	0	102	0	181	4618
APR	296	782	130	190	851	880	183	228	330	10	445	62	33	0	87	0	0	4507
MAY	177	1119	183	306	1216	1331	522	361	501	4	471	79	37	0	137	0	149	6593
JUN	268	1750	301	537	1842	1902	1011	519	1220	7	518	88	40	0	119	0	163	10285
JUL	468	2076	329	688	2361	2108	1666	679	1962	17	621	80	28	0	103	0	150	13336
AUG	371	2080	289	558	2101	2055	1548	590	2110	6	688	97	45	0	102	0	161	12801
SEP	529	1321	184	310	1292	862	620	327	1357	11	465	61	33	1	106	0	145	7624
OCT	531	1009	136	243	1030	707	284	255	738	0	353	63	45	1	123	0	190	5708
NOV	361	815	127	193	739	579	130	239	379	5	303	56	41	5	101	0	118	4191
DEC	439	776	105	163	657	421	122	190	356	2	225	52	38	0	105	0	163	3814
TOT	4093	13965	2105	3717	14074	12424	6402	4002	9615	79	5116	838	465	7	1172	0	1706	79780

A RESOLUTION BY THE SOUTHEAST CONFERENCE
RESOLUTION #87-1

WHEREAS, the Southeast Conference has completed a comprehensive review of the Alaska Marine Highway System's critical importance to Alaska communities; and,

WHEREAS, Alaska's rugged coastline prohibits road access to all but two of Southeast Alaska's twenty-four municipalities and boroughs; and,

WHEREAS, Southeast Alaska's severe and unpredictable weather frequently prohibits air access to those municipalities; and,

WHEREAS, the Alaska Marine Highway System is the foundation of Southeast Alaska's economy; and,

WHEREAS, the Alaska Marine Highway System is the primary and only dependable mode of transportation in Southeast Alaska; and,

WHEREAS, the Alaska Marine Highway System also provides a significant means of transportation to Southcentral and Interior Alaska that effects their economy; and,

WHEREAS, the Alaska Marine Highway System is critical to Southeast Alaska's fishing, timber, tourism, and retail industries; and,

WHEREAS, the Alaska Marine Highway System is also critical to the delivery of human services, such as health care and education; and,

WHEREAS, any reduction in the level of service in Southeast Alaska would have a dramatic affect on day-to-day life in Southeast;

THEREFORE, BE IT RESOLVED that the Southeast Conference respectfully urges Governor Cowper and the Fifteenth Alaska State Legislature to accept and implement to the maximum extent practical the recommendations presented by the Southeast Conference in the report entitled "The Alaska Marine Highway System: The Community Perspective;" and,

BE IT FURTHER RESOLVED that the Alaska Marine Highway System maintain its current level of service and be funded by an authorization of $62.6 million for fiscal year 1988.

Adopted by the Southeast Conference on the 7th day of April, 1987.

Ernest Polley, President

PUBLICATIONS CONSULTED IN THE PREPARATION OF THIS REPORT:

Alaska Marine Highway Draft System Plan, AMHS, November 1986.

Alaska Marine Highway Schedules, Alaska Marine Highway System, Fall/Winter/Spring/Summer, 1986-1987.

Alaska Tourism Handbook, A Guide to Community Tourism Development, State of Alaska, Division of Tourism, September 1985.

Alaska Visitors Statistics Program; Alaska Visitor Arrivals, Summer Season 1985, Data Decisions Group, February 1986.

Alaska Visitors Statistics Program; Patterns, Opinions, and Planning, Summer Season 1985, Data Decisions Group, April 1986.

Alaska Visitors Statistics Program; Alaska Visitor Arrivals, Fall/Winter/Spring 1985-86, Data Decisions Group, September 1986.

Economic Indicators, Ketchikan Gateway Borough, March 1987.

Governors Revised FY 88 Operating Budget for the Alaska Marine Highway System, AMHS, March 1987.

1985 Annual Traffic Report, AMHS, May 1986.

Report and Recommendations of the Alaska Marine Highway Task Force, Prepared for Governor Sheffield, April, 1984.

Southeast Community Profiles, Department of Community and Regional Affairs, Dates vary by community: 1982-1984.

A Study of the Feasibility of Converting the Haines Tank Farm to a Maintenance, Refueling, and Watering Facility for the Alaska Marine Highway System, Homan-McDowell Associates, April 1979.

SOUTHEAST ALASKA TOURISM COUNCIL
SOUTHEAST ALASKA MARKETING COUNCIL

OUR PURPOSE:
To Promote Southeast Alaska To Visitors

Kelly K. Follis
ADMINISTRATOR

P.O. Box 20710
Juneau, Alaska 99802
(907) 586-4777

SOUTHEAST ALASKA MARKETING COUNCIL

1987-88 PROGRAM EVALUATION and RECOMMENDATIONS

Data Decisions Group, Inc.

Juneau • Seattle • Portland

SOUTHEAST ALASKA MARKETING COUNCIL
1987-88 Program Evaluation & Recommendations

Table of Contents

INTRODUCTION

The Southeast Alaska Marketing Council (SAMC) is closing its first year of promotion specifically for the Southeast area of Alaska. SAMC was able to organize a full promotion program within a very short timespan since its inception in December, 1986. The funding and expertise for the program comes from both public and private sources and thus is called a cooperative marketing program.

Cooperative programs require a high degree of accountability in terms of program results, both measurable and unmeasurable. The return on investment must be sufficient to warrant future involvement of both public and private members, guaranteeing results in an environment where no one member has total control. To this end, the Southeast Alaska Marketing Council contracted with Data Decisions Group, Inc. (DDG) of Juneau, Seattle and Portland to evaluate the results of the 1987 Program and make recommendations for 1988 and beyond.

In the absence of primary research conducted specifically on the SAMC Program, DDG based its evaluation on extrapolated results from the State AVAMC Program (discussed at length in Chapter II), on a special analysis of Southeast Independent Visitors from the Alaska Visitor Statistics Program and on its 35 combined years of studying tourism in Alaska and worldwide. It is DDG's hope that this document will be of assistance to SAMC members and program planners.

Chapter I
DESCRIPTION OF SAMC PROGRAM

CHAPTER I: DESCRIPTION OF SOUTHEAST ALASKA MARKETING COUNCIL PROGRAM

In November of 1986 a group of representatives from both public and private sector organizations met officially for the first time as the Southeast Alaska Marketing Council (SAMC). The formation of the SAMC was prompted by a noticeable decrease in hotel room nights in Southeast despite an overall increase in visitors throughout the state. While all visitor sectors have gained substantially in Southcentral and Interior/Northern regions, only cruise traffic has seen major increases in Southeast.

SAMC members were reacting to statistics such as the following:

- Only 35% of Independent Pleasure visitors to Alaska visited Southeast in Summer 1985 compared to 78% visiting Southcentral and 57% visiting Interior/Northern.
- No Southeast land-based attractions make the top five state attractions list -- the first SE attraction on the list is Mendenhall Glacier visited by only 20% of independent visitors.
- The first SE community on the top ten most visited community list ranks No. 7 (Juneau drawing 27% of Independent Pleasure visitors). (see Appendix for details)

The function of the SAMC, as the marketing arm of the Southeast Alaska Tourism Council (SATC), is to develop and implement marketing plans to attract more independent travelers in Southeast. **Specific goals are:**

- **To increase hotel visitation**
- **To increase point of purchase activity among regional businesses**
- **To increase the visitor length of stay**
- **To increase number of points visited in Southeast**

To accomplish these goals, the SAMC was organized along the same cooperative lines as the statewide Alaska Visitors Association Marketing Council (AVAMC) with 13 members, including the nine largest financial contributors and three regional SATC representatives, and an unlimited number of expert advisors. The AVAMC is recognized as an enviable model for other states and destinations due to its successful blending of public and private marketing expertise and dollars.

The SAMC Cooperative Marketing Program was funded at $446,000 in 1987 and is projected at $400,000 for 1988. Public sector contributors in 1987 included the communities of Juneau, Ketchikan, Sitka, Skagway, Prince Rupert, Haines, Whitehorse, Petersburg and Wrangell plus the Alaska Marine Highway System. Public sector contributions are determined from a formula based on percent of population and percent of beds. Private sector contributors were Alaska Airlines, Glacier Bay Yacht Tours, Sheffield Hotels, Grayline of Alaska, Alaska Travel Adventures, Prewitt-Sitka, Temsco, Ingersoll Hotel/Waterfall Group, Baranof Lodge and AlaskaBound.

The Three-Year Goal of the SAMC Marketing Program is to

- increase overnight visitation to Southeast Alaska by 300,000 room nights.

The Target Audience of the SAMC Marketing Program is

- independent travelers using air, ferry and highway as their transportation modes.

The Focus of the SAMC Marketing Program is on

- increasing awareness of the Southeast region overall and of the air, ferry, and highway access to the region specifically.

The SAMC Program has been implemented for 1987 and is on the drawing boards for 1988. Eight components comprise the program for each year. The following list itemizes each component, its objectives, its elements and its allocation levels for 1987 and projected for 1988.

PROGRAM COMPONENTS

1. Participation in State of Alaska AVAMC Cooperative Marketing Program

Objectives: To obtain qualified Alaska prospect names/labels for Southeast brochure distribution. To establish Southeast as a recognized marketing entity in the statewide AVAMC cooperative marketing program. To gain exposure as an advertised marketing entity in the state Official Alaska & Canada's Yukon Vacation Planner Directory distributed to over 400,000 qualified potential visitors per year.

Elements: Purchase of 172,000 labels of respondents to national state advertising, most qualified as interested in visiting Alaska but not by cruiseship or package tour.

Purchase of AVAMC Marketing Partner status with option to purchase respondent labels.

1988 planned addition: Small (2") advertisement in the Official Alaska & Canada's Yukon Vacation Planner Directory which reaches over 400,000 qualified Alaska prospects each year.

Allocation: 1987: $17,000 (including $5000 retirement of SATC 1983 Travel Planner ad debt).

1988: $14,000

2. Consumer Advertising

Objectives: To establish consumer awareness of Southeast Alaska as a travel destination among prime travel markets for Alaska to reverse the declining trend of independent travel to Southeast.

To generate advertising responses for purpose of converting interested inquirers into Southeast visitors.

Elements: Full page color advertisements with response cards in two of Alaska's premium travel market consumer publications during the travel planning period:

- Sunset Magazine -- February, 1987
- National Geographic Western edition -- March, 1987

1988 planned addition: Alaska Magazine insertion

Allocation: 1987: $160,000 including $88,000 National Geographic insertion, $59,000 Sunset insertion and $13,000 photo usage, color production, misc.

1988: $160,000 (using same ad and adding Alaska Magazine insertion)

3. Collateral

Objectives: To increase consumer awareness of Southeast Alaska.

To increase consumer awareness of independent travel options in Southeast Alaska.

To produce a fulfillment piece to mail to potential visitors generated by Components 1 and 2 above.

Elements: Develop and produce colorful, glossy, high quality 16-page brochure including a response card directing prospects to SAMC member firms and communities.

The 1988 program may include an additional eight pages of directory. If so, the 1988 budget will increase beyond $70,000.

Print 200,000 copies of brochure.

Allocation: 1987: $95,000

1988: $70,000 (using same brochure as 1987, more if eight additional directory pages are added)

4. Mail Fulfillment

Objectives: Place Southeast brochure into the hands of AVAMC advertising respondents and SAMC advertising respondents.

Elements: Mail out of 200,000 brochures by Media Services, the state's mail fulfillment house.

Allocation: 1987: $50,000

1988: $50,000

5. Public Relations

Objectives: To enhance the effectiveness of advertising and direct mail programs by increasing awareness of and enhancing the image of Southeast Alaska by generating press coverage in prime national and regional markets and to special targeted audiences.

Elements: Retained national and state public relations professionals

Press Kit, including Southeast stories, photos and contacts, distributed to over 100 travel trade publications and newspaper travel editors throughout the U.S. and Canada.

Monthly stories and news releases in major U.S. markets and in Alaska.

An instate regional awareness element informs SAMC participants and Southeast residents on the use and effectiveness of the program.

1988 planned additions: Purchase of quality stories from freelance writers for the Press Kit, purchase of quality photos, retaining a clipping service, expanded Press Kit distribution, travel writer familiarization trips, special newspaper section advertising to obtain editorial space.

Allocation: 1987: $25,000

1988: $50,000

6. Research

Objectives: To measure effectiveness of SAMC Marketing Program components.

To profile the Southeast independent pleasure traveler to better market to that visitor and to enhance facility/attraction delivery.

To identify best media choices and advertising vehicles.

To determine best AVAMC list criteria for widest effective brochure distribution.

Elements: 1987: 1987/1988 Program Evaluation (this document)

AVSP Special Independent Pleasure Visitor Analysis

1988 planned: Conversion Study

Allocation: 1987: $13,000

1988: $20,000

7. Administration

Objectives: To provide an efficient implementation of the Southeast Alaska Marketing Council Marketing Programs.

Elements: Daily administrative functions

Preparation and production of annual report including funds spent, projects undertaken and, when available, an indication of results of the program.

Allocation: 1987: $21,000

1988: $28,000

8. Contingency

Objectives: To provide contingency funds for investment in program components determined to provide the greatest returns.

To provide for absorption of shortfalls in expected revenue, if any.

Allocation: 1987: $79,000

1988: $17,000

Chapter II
THE SAMC PROGRAM MODEL: STATE OF ALASKA COOPERATIVE MARKETING PROGRAM

CHAPTER II: THE SAMC PROGRAM MODEL: STATE OF ALASKA COOPERATIVE MARKETING PROGRAM
An Historical and Performance Review

1. Description and History

The Southeast Alaska Marketing Council Program is based on the State of Alaska's AVAMC Cooperative Marketing Program. The AVAMC Program has been hailed by destinations throughout the world for its successful blending of public and private sector funding and marketing expertise. The Travel Industry Association of America named Alaska's Cooperative Marketing Program the Number 1 marketing program of all 50 states in 1985.

The organizational structure of the AVAMC consists of a chairman plus fifteen members including the seven largest contributors to the program and a minimum of four members from instate, plus advisors. Currently, seven committees are functional: Advertising, Collateral, Fall/Winter/Spring, Overseas, Planning, Public Relations and Research. Each committee is chaired by a council member and is composed of two to four other council members.

The AVAMC Program is now in its 11th year. It has grown from a $793,000 program in FY 1976 to a $6.2 million program in FY 1987. **Its primary goals have been two-fold:**

- **To enhance the image of Alaska as an attractive vacation destination.**
- **To generate inquiries about Alaska so as to place in qualified prospects' hands the motivational and educational information necessary for conversion.**

The AVAMC annual program is composed of advertising primarily in consumer magazine publications and also in newspapers, television and trade publications. Other program components include a sizeable public relations effort, trade and consumer shows, travel agent direct mail and a consumer direct mail program in recent years. Rack brochures, posters, maps, Alaska films, slides and print photography for editorial use are also products of the AVAMC program.

The main annual program collateral piece is **The Alaska and Canada's Yukon Official Vacation Planner**, a 100+ page full color dual-purpose booklet. Its purposes are to motivate prospects to decide to visit Alaska and to educate those prospects on the variety of ways to plan an Alaska trip. The Vacation Planner includes over 1,200 free directory listings of visitor-related businesses in Alaska plus advertisements purchased by "marketing partners". Occasionally, the program also produces a travel agent sales manual edition of the Vacation Planner and a few times has split the contents of the Vacation Planner into smaller sized brochures each addressing itself to one of the two Vacation Planner purposes.

An immediate program benefit to individual "marketing partners" (those who purchase an advertisement in the **Vacation Planner** or contribute an equivalent amount) is the ability

to purchase mailing labels of consumer advertising respondents. These respondents qualify themselves on BRCs attached to the advertising as potential visitors interested in specific types of Alaska travel, accommodations and activities and state their year and season of intended visit, their past travel habits and their age.

Each year's AVAMC program has a **unique theme** which is reflected in all advertising and in most collateral. Some representative themes have been:

1977: America's New Frontier of Travel
1979: Alaska - America's Greatest Travel Adventure
1980: Alaska - The Travel Destination of the 80's
1981: Alaska! America's Biggest Travel Adventure
1982: Alaska - Spectacular Scenery is Just the Beginning
1983: Once You've Gone to Alaska, You Never Come All the Way Back
1984: Alaska Keeps Coming Back To Me / "100 Pages of Free Advice..."
1985: Alaska - "100 Pages of Free Advice..."
1986: "100 Pages of Free Advice for Anyone Wishing to Experience the Vacation of a Lifetime"
1987: "100 Pages of Free Advice..." / Alaska is the Mystery that I Will Never Tame (con't. television theme from 1983)

The AVAMC Program also responds to special interests of its members and conditions of the marketplace on an "as needed" basis. The **Fall/Winter/Spring market development campaign of 1986-87** is a prime example. The campaign consists of in-state advertising aimed at encouraging residents to invite their friends and relatives to vacation in Alaska during the off-season months. The F/W/S campaign also includes activity fairs, brochures and a product booklet sampling Alaska's various F/W/S attractions and activities.

Residents were asked in the advertising to send in a coupon with their friends' and relatives' names and addresses and the Division of Tourism would then mail out the F/W/S brochure and product booklet to them. The DOT also mailed these collateral pieces to a select list of winter travelers and to AVAMC advertising respondents who stated an interest in visiting in the fall, winter or spring months. The final program element, a companion to the advertising, was a direct mailing to Alaskans to get names of friends and relatives in the Lower 48 who are potential fall/winter/spring visitors. To date, the Fall/Winter/Spring campaign has generated 4,000 names of potential visitors. A conversion study to measure actual visitors generated will be performed during the summer.

Other special campaigns have addressed the potential Winter traveler and the Overseas market. A major campaign for the Overseas market is currently being researched and may be operational by FY 88. The second year of the F/W/S campaign will include a 24 page brochure and special mailings to *Alaska* magazine gift subscribers in the Lower 48 in addition to last year's efforts.

In summary, the major activities of the AVAMC Marketing Program are:

- Consumer magazine advertising which places the Vacation Planner in the hands of over 400,000 interested and qualified potential visitors, and generates names and addresses and phone numbers which can be used by marketing partners in their own individual sales efforts.

- Television commercials reaching millions of U.S. consumers with the Alaska travel message.

- Newspaper Sunday Supplement Travel Sections on Alaska nationwide.
- Extensive publicity and public relations.
- Distribution of over 700,000 Alaska Vacation Planners, the State's official travel brochure containing over 100 pages of photos and copy about Alaska, including over 1,200 free directory listings of visitor-related businesses in Alaska, plus marketing partner advertisements. The Planner also contains Reply Cards for readers to send for information from individual listings/advertisements.
- Rack brochures, posters, maps, travel agent manuals and other trade sales literature; Alaska films, slides and print photography for editorial use.
- Special marketing campaigns such as Fall/Winter/Spring promotions.
- Foreign marketing promotion in Canada, Germany, Great Britain and Japan.
- Long-term and short-term market planning
- Marketing research

The average industry member, whether in the public or private sector, has access to all AVAMC products listed above. The most used AVAMC products by industry members for their own sales efforts are:

- **listing or advertising in the Vacation Planner, and**
- **purchasing consumer advertising respondent mailing labels that can be selected for their own target audience's characteristics.**

2. Performance of AVAMC Program

Performance of a program with as many diverse components as the AVAMC program is difficult to measure. It is impossible to measure image enhancement efforts since their payoff is usually delayed in terms of actual visitation. The rationale behind image enhancement has always been, and is for all destinations, that such advertising is a long haul effort to familiarize and, in many cases, to rebuild the destination in the consumer's mind. When it has been sufficiently "rebuilt", the consumer is likely then and only then to respond to advertising which requires a call for action, such as a request for information. **Therefore, image (awareness) advertising enlarges the pool of potential visitors while response-oriented advertising provides the vehicle for that pool to take the first steps toward conversion to visitor status.**

The only part of the AVAMC program which can be quantifiably measured is direct response advertising. Since this part of the program generally accounts for the majority of program expenditures, measurement of this part is considered a good indication of the overall success of the program.

The effectiveness of direct response advertising has been measured every year except one since 1980 with Conversion Studies. The studies have measured the cost per inquiry, conversion rate, cost per conversion and return on investment for a variety of advertising vehicles. The number of inquiries is another indicator of success, albeit not as conclusive as actual conversion rates.

a. Number of Inquiries

NUMBER OF INQUIRIES (BRCs)

FY 1980	445,000
FY 1981	412,000
FY 1982	445,000
FY 1983	432,000
FY 1984	632,000
FY 1985	451,000
FY 1986	450,000
FY 1987	400,000

Response rates for the entire program appear to be declining somewhat as are response rates for individual consumer publications. This, however, reflects considerably lower media budgets as well as lower response goals.

NUMBER OF INQUIRIES FROM SELECTED PUBLICATIONS (thousands)

Magazine	1986 (1 p)	1985 (1 p)	1984 (1 p)	1983 (sprd)	1982 (sprd)	1981 (1 p)	1980 (1 p)	1978 (sprd)
Alaska	5.0	4.0	3.0	2.7	6.3	7.5	6.8	11.1[3]
Modern Maturity	92.5[1] 109.1	109.5	97.9	9.0[2]	16.0[2]	8.4[2]	-	-
National Geographic	55.9	72.7	94.8	33.0[1] 34.1	124.0[4]	84.0	157.4	130.6
Smithsonian	17.2	24.3	20.5	5.6	19.2	-	-	-
Southern Living	16.5	21.2	-	-	4.1	-	14.2	8.0
Sunset	13.9[1] 9.6	17.6	19.1	6.1	14.6	25.0	21.9	-

1 Two separate insertions of Image ads
2 Regional issues
3 Split-BRC 6190, without prepaid postage 4,941
4 Three pages and gatefold

Note: Image ads with BRCs were run in all 1983 insertions.
Source: "Analysis of the Alaska BRC Response Program: Fiscal years 1980-84" and "1986 Alaska Conversion Study".

The actual number of inquiries from publications used consistently in the last several years has declined recently (last two years). This is especially the case for *National Geographic, Smithsonian* and *Southern Living*. If *Modern Maturity* and *Sunset* had not had two insertions rather than the single insertion of previous years, their responses would also have declined. Only *Alaska* magazine of these consistently used publications shows not only stability but also an increase in responses.

b. Conversion Rates

CONVERSION RATES

FY 1980	10.5%
FY 1981	9.1%
FY 1982	7.7%
FY 1983	11.9%
FY 1984	9.3%
FY 1986	13.0%
Average	**10.3%**

Conversion rates show no real pattern from year to year overall. Specific publications, however, tend to have their own patterns.

CONVERSION RATES OF SELECTED PUBLICATIONS 1980-1986

Magazines	1986	1984	1983	1982	1981	1980
Modern Maturity	14	11	-	-	-	18
National Geographic	10	-	18	6	10	7
Smithsonian	11	7	-	6	-	-
Sunset	17	-	-	15	10	13
In-Flight Magazines	10	9	-	9	-	-
Travel Holiday	-	9	-	-	-	12
Alaska	24	-	-	-	-	-

Source: "Analysis of the Alaska BRC Response Program: Fiscal years 1980-84" and "1986 Alaska Conversion Study"

Although never measured before 1986, *Alaska* magazine registers the highest conversion rate this year and probably the highest in the program's history (24%). *Sunset* scores the next highest rate this year with 17%, continuing its consistent increases in effectiveness each year since 1981. *Modern Maturity* ranks third in conversion rates at 14%, also an increase over its last measurement in 1984. *Smithsonian* is fourth with 11%, also an increase over previous years. *National Geographic's* conversion rate of 10% is a decline from its last measurement of 18% but consistent with previous measurements before that.

c. Cost-Efficiency

The overall cost per inquiry, cost per conversion and return on investment of the AVAMC Cooperative Marketing Program for magazines shows a decline in cost-efficiency from 1980 to 1983, then an increase in 1984 declining again to 1986. Primary reasons for the variation are the use of spreads rather than one page ads for BRC response, and the inflationary cost increases of magazines from year to year. Cost per inquiry has increased from $1.56 in 1980 to $4.03 in 1986. Cost per conversion has increased from $14.83 in 1980 to $30.98 by last year. Not surprisingly, then, the actual return on investment (ROI) without including transportation to/from Alaska of these advertising buys decreased from $153.00 in 1981 to $106.51 in 1986. **This means that for every $1 spent in media space and card printing expenses to place an ad in an AVAMC-selected publication, the State of Alaska realized over $100 in direct visitor expenses -- a ratio of 1 to 100.**

This of course does not count the industry expenses such as fuel for the motorcoaches or food supplies for the cruiseships nor does it count the indirect expenses such as labor costs and taxes accrued. On the other half of the equation, though, it does not count the ad production costs nor the brochures sent to advertising respondents. In any event, the total economic impact of this visitor spending far exceeds the basic 1 to 100 ratio.

Specific publications vary in their cost-efficiency. In 1986, *Alaska* magazine was by far the most efficient with a cost per inquiry of $1.92, cost per conversion of $8.01 and ROI of $325 -- or a 1 to 300 return ratio. *Sunset* ranked third in efficiency with $5.48 cpi, $32.21 cpc and an ROI of $78. *National Geographic* trailed at #6 place (out of 8) with $5.98 cpi, $59.75 cpc and $60 ROI.

The following tables show the cost-efficiency of consistently used publications over time, in real dollars and, separately, adjusted for inflation. Adjustments for inflation show a definitely increased cost-efficiency for *Sunset* and *National Geographic* since their last readings in 1983/1984.

AVAMC PROGRAM COST-EFFICIENCY

	1986[3] (1 pg)	1984[1] (1 pg)	1983[2] (Spread)	1982[2] (Spread)	1981[2] (1 pg)	1980[2] (1 pg)
Magazines Overall						
Cost Per Inquiry	$4.03	$2.46	$9.99	$3.64	$2.70	$1.56
Cost Per Conversion	30.98	26.43	63.23	47.27	29.70	14.83
ROI - Without Transp.	106.51	97.27	34.39	64.00	153.00	NA
ROI - With Transp.	200.11	NA	77.77	119.00	313.00	460.00
Alaska						
Cost Per Inquiry	$1.92	NA	NA	NA	NA	NA
Cost Per Conversion	8.01	NA	NA	NA	NA	NA
ROI - Without Transp.	324.80	NA	NA	NA	NA	NA
ROI - With Transp.	574.64	NA	NA	NA	NA	NA
Modern Maturity						
Cost Per Inquiry	$2.75	$1.67	NA	NA	$6.35	NA
Cost Per Conversion	19.67	15.36	NA	NA	29.22	NA
ROI - Without Transp.	177.91	136.74	NA	NA	193.00	NA
ROI - With Transp.	345.66	NA	NA	NA	425.00	NA
Sunset						
Cost Per Inquiry	$5.48	NA	NA	$5.37	$1.68	$1.66
Cost Per Conversion	32.21	NA	NA	35.09	16.80	13.27
ROI - Without Transp.	77.62	NA	NA	61.00	221.00	NA
ROI - With Transp.	173.87	NA	NA	131.00	484.00	434.00
Smithsonian						
Cost Per Inquiry	$4.98	$2.58	NA	$4.60	NA	NA
Cost Per Conversion	45.28	37.41	NA	76.67	NA	NA
ROI - Without Transp.	72.88	151.21	NA	60.00	NA	NA
ROI - With Transp.	123.67	NA	NA	82.00	NA	NA
National Geographic						
Cost Per Inquiry	$5.98	NA	$9.14	$2.66	$2.61	$1.10
Cost Per Conversion	59.75	NA	51.92	47.43	25.37	15.65
ROI - Without Transp.	60.25	NA	34.44	71.00	131.00	NA
ROI - With Transp.	97.16	NA	72.36	145.00	295.00	525.00
In-Flight Magazines						
Cost Per Inquiry	$6.82	$1.34	NA	$7.57	NA	NA
Cost Per Conversion	68.20	14.44	NA	81.43	NA	NA
ROI - Without Transp.	43.99	127.45	NA	40.00	NA	NA
ROI - With Transp.	76.24	NA	NA	71.00	NA	NA
Newspapers						
Cost Per Inquiry	$19.46	NA	$7.79	NA	NA	NA
Cost Per Conversion	121.61	NA	46.72	NA	NA	NA
ROI - Without Transp.	19.74	NA	31.76	NA	NA	NA
ROI - With Transp.	45.11	NA	70.28	NA	NA	NA

[1]Source: "1984 Conversion Study Key Findings."
[2]Source: "Analysis of the Alaska BRC Response Program: Fiscal years 1980-84."
[3]Source: "1986 Alaska Conversion Study."

AVAMC PROGRAM -- ADJUSTED COST-EFFICIENCY[1]

	1986 (1 pg)	1984 (1 pg)	1983 (Spread)	1982 (Spread)	1981 (1 pg)	1980 (1 pg)
Magazines Overall						
Cost Per Inquiry	$4.03	$2.84	$12.60	$5.01	$4.07	$2.59
Cost Per Conversion	30.98	30.54	79.72	65.08	44.77	24.59
Modern Maturity						
Cost Per Inquiry	$2.75	$1.93	NA	NA	$9.57	NA
Cost Per Conversion	19.67	17.75	NA	NA	44.05	NA
Sunset						
Cost Per Inquiry	$5.48	NA	NA	$7.39	$2.53	$2.75
Cost Per Conversion	32.21	NA	NA	48.31	25.33	22.01
Smithsonian						
Cost Per Inquiry	$4.98	$2.98	NA	$6.33	NA	NA
Cost Per Conversion	45.28	43.23	NA	105.56	NA	NA
National Geographic						
Cost Per Inquiry	$5.98	NA	$11.52	$3.66	$3.94	$1.82
Cost Per Conversion	59.75	NA	65.46	65.30	38.25	25.95
In-Flight Magazines						
Cost Per Inquiry	$6.82	$1.55	NA	$10.42	NA	NA
Cost Per Conversion	68.20	16.69	NA	112.11	NA	NA
Newspapers						
Cost Per Inquiry	$19.46	NA	$9.82	NA	NA	NA
Cost Per Conversion	121.61	NA	58.90	NA	NA	NA

[1] Inflation rates: 1986 7.0%, 1985 8.0%, 1984 9.1%, 1983 9.2%, 1982 9.5%, 1981 10.0%

Source: "1986 Alaska Conversion Study".

Chapter III
1987 SAMC PROGRAM EVALUATION

CHAPTER III: 1987 SAMC PROGRAM EVALUATION

This chapter will assess the **1987 SAMC Marketing Program** component by component. The assessment is based on Data Decisions Group's professional judgment grounded in 35 combined years of experience studying the visitor industry in Alaska and worldwide. Estimated numbers of visitors and economic impact data are based on the Alaska Visitor Statistics Program database and on extrapolations from AVAMC Marketing Program evaluations in the absence of primary research on the effectiveness of the SAMC Program specifically.

Overall, the 1987 SAMC Program is estimated to deliver 15,000 more visitors, 48,000 more room nights and $4.1 million more visitor dollars to Southeast Alaska in 1987 than would otherwise have occured. These estimates do not include future economic benefits to be reaped from the long-term awareness-building process of advertising. The estimates are the cumulative effect of the following program components.

One example of early impacts of the SAMC program is the record rate of bookings experienced by a major SAMC participant, the Alaska Marine Highway. Officials attribute part of their success to SAMC participation as well as an improved reservation system and more aggressive marketing.

1. Participation in AVAMC Cooperative Marketing Program

A $12,000 investment in 1987 purchased Marketing Partner status in the AVAMC program for SAMC which allowed purchase of 172,000 names and addresses of state advertising respondents. These respondents are Alaska prospects qualified by their committment to visit by requesting information and filling out a BRC card with pertinent information about themselves.

SAMC ordered 142,000 names of prospects who specified an interest in traveling to Alaska by means exclusive of package tours and/or cruiseships on their BRC interest/information card. SAMC also ordered another 30,000 names of state advertising respondents who did not specify any travel mode interest including package tours or cruiseships. These 172,000 qualified Alaska prospects were then mailed the 16-page Southeast Alaska brochure which included a response card directing prospects to SAMC member firms and communities.

To determine the effectiveness of this SAMC investment, we must look at the expected conversion rate of these prospects, at their length of stay in Southeast and at the amount of visitor dollars they spent in Southeast. We must estimate these impacts as additional impacts beyond the standard impact of the AVAMC program itself. In other words, how many **additional** dollars (visitors, room nights, etc.) did the SAMC program effect in Southeast?

The overall conversion rate of the 1986 AVAMC Program was 13%, that is, 13% of all 1985-86 advertising respondents actually visited Alaska in 1986. More of them will visit in 1987, 1988 and beyond but only the current year conversion rate is scientifically established. We know that package tour visitors convert at a much higher rate in the AVAMC program -- over 20%. Therefore, to allow the average to be 13%, independent visitors must convert at a lower than average rate. DDG estimates approximately an 8%

independent visitor conversion rate based on AVSP data and industry knowledge. This conversion rate means that **the 1987 SAMC message reached a total of 13,800 actual independent visitor parties, or 30,300 visitors due to its AVAMC investment.**

As a result of receiving the SAMC message and follow-up marketing from member firms and communities, it is conservatively expected that 40% of these visitors (12,100) will include Southeast in their plans if they were not intending a Southeast visit OR will extend their already planned stay. An average additional stay of an estimated 2 nights each would result in the following benefits:

SAMC 1987 AVAMC PROGRAM RESULTS
(Estimated)

Visitors	Room Nights	Visitor Dollars
12,100	24,200	$2,060,000[1]

Further economic benefits will be realized from two other sources: the indirect expenditures deriving from these direct expenditures, i.e. employee wages, instate operations costs and capital investment by transportation and tour companies, and both the direct and indirect expenses of those on the AVAMC lists who will visit in 1988 and beyond.

2. Consumer Advertising

The SAMC 1987 Program invested $88,000 in National Geographic (West Edition) advertising insertion costs, $59,000 in Sunset advertising insertion costs and approximately $13,000 in ad production costs. These dollars bought full page color advertising with response cards in two of Alaska's premium travel market consumer publications. The **primary purpose** of the advertising was to establish/increase consumer awareness of Southeast Alaska as a travel destination among prime travel markets for Alaska to reverse the declining trend of independent travel to Southeast. The **secondary purpose** was to generate advertising responses for the purpose of educating and converting interested inquirers into Southeast visitors.

As discussed in Chapter II (Performance of AVAMC Program), **it is impossible to measure awareness/image advertising efforts since their payoff is usually delayed in terms of actual visitation.** The rationale behind image enhancement has always been, and is for all "emerging" destinations, that such advertising is a long haul effort to familiarize and, in many cases, to rebuild the destination in the consumer's mind. When it has been sufficiently "rebuilt", the consumer is likely then and only then to respond to advertising which requires a call for action, such as a request for information.

Therefore, image (awareness) advertising enlarges the pool of potential visitors while response-oriented advertising provides the vehicle for that pool to take the first steps toward conversion to visitor status. Awareness advertising is essential to the success of later response-oriented

[1] Based on $85 per person per night Independent visitor expenditure figures, preliminary estimates from Alaska Visitor Statistics Program Visitor Expenditure Survey.

advertising. All destinations and nearly all products accept and work with this two-part promotion process.

We can measure the response-oriented aspect of the SAMC National Geographic and Sunset advertising, realizing that eliciting responses was not the primary purpose of the ads. It should also be noted that each of these issues was replete with Alaska cruise and tour advertising as well, all offering vehicles for response.

The ads generated approximately 11,500 inquiries, 6,500 from National Geographic and 4,700 from Sunset (and 250 publication-unspecified written responses). While not as high as expected, the response rate is roughly proportional to that generated by the State AVAMC program in those publications. Alaska inquiries are down this year and have been for many publications for the last few years (see Chapter II Performance of AVAMC Program). This is especially the case for National Geographic. Alaska placed two insertions in Sunset last year; otherwise its totals would also be down. The cause of such performance has not yet been determined. Theories run the gamut of reaching an Alaska plateau of awareness to having plumbed the existing "pool" created by initial image/awareness advertising. In the latter case, new image enhancement advertising would have to be placed to create a new "pool" of interested Alaska prospects.

The economic impact of the 11,500 responses can be calculated to give an immediate benefit picture of the SAMC 1987 Consumer Advertising component. These 11,500 responses represent 25,300 potential visitors, assuming the 2.2 Independent Pleasure party size identified in the AVSP. These potential visitors will probably convert at a higher rate than the generic statewide program because of the specific nature of the SAMC advertising - they are qualified **independent** Alaska prospects rather than just qualified Alaska prospects. Some, however, would probably have visited Alaska regardless of the SAMC advertising/brochure. An estimated conversion rate, therefore, would be 10% for National Geographic respondents and 17% for Sunset respondents -- the actual AVAMC conversion rates for these publications in 1986 (see Chapter II). This would produce the following number of visitors, additional room nights and additional visitor dollars based on the 8.2 night average stay of the Independent Pleasure visitor in Southeast[1] and the assumed $85 per person per night expenditure quoted under section 1 above.

SAMC 1987 CONSUMER ADVERTISING
MEASURABLE RESULTS
(Estimated)

	Visitors	Room Nights	Visitor Dollars
National Geographic	1,300	10,700	$ 906,000
Sunset	1,600	13,100	$1,115,000
TOTAL	**2,900**	**23,800**	**$2,021,000**

This high rate of impact for relatively few visitors stems from the above average length of stay of Southeast Independent Visitors. While the average Southeast visitor spends 5.6 nights in the region, the average Independent Southeast visitor spends 8.2 nights there.

[1] Number of nights based on Alaska Visitor Statistics Program Visitor Opinion Survey special analysis.

It should be noted that this $2,021,000 does not include any eventual economic impact of the awareness-building aspect of these advertisements or any indirect economic impacts.

3. Public Relations

In 1987 SAMC spent $25,000 on retaining national and state public relations firms to prepare and implement a first-year awareness-building effort. California-based Ginny Rodin Public Relations and Sharon Gaiptman Public Relations of Juneau developed a press kit sent to over 100 travel trade publications and newspaper travel editors. They also released news and human interest stories in major U.S. markets and in Alaska.

The majority of public relations efforts are not immediately measurable in quantifiable terms. They are aimed at image enhancement and awareness-building which results in enlarging the pool of interested prospects who will at some point down the line respond to a direct response program and will then be quantified. This stage of the process is, however, critical as has been pointed out several times in this document. Without "prepping" -- the purpose of image/awareness building -- no other steps in the conversion process can occur.

Public relations efforts provide the greatest possible reach of your message for the smallest possible expense. Stories and editorial in newspapers and on radio and even in magazines and on television are often zero cost ways to spread the message. The key to obtaining the best possible reach with the right messages is retaining the right public relations people with the proper skills and contacts. The second key is funding your public relations people well enough to allow them to accomplish your goal and not hamstring their efforts. The third key is monitoring your public relations people so that they are held accountable for implementing your goals. This is especially critical since vacation planning has a regular timeline to it and pr efforts must be sensitive to this.

The 1987 SAMC Public Relations component seems to have targeted the most critical initial audiences for this first year -- government, the trade, regional media, and mass newspaper readership. The Information Presentation will be valuable for community support. The Press Kit is a good basic packet, although additional contents would be helpful. The newsletter UPDATE will keep the tourism community apprised of program events and results.

Approximately 400 inquiries have been generated by the Public Relations component as of May 5, 1987. Since generating inquiries is not the goal of a public relations program, these 400 inquiries should be considered a bonus. Conversions and visitor expenditures will come from these inquiries in approximately the same proportions as for the other SAMC program components.

4. Research

Research provides direction for future program elements, allocations and overall strategy. It can analyze existing information or collect new information to monitor program effectiveness or to refine target markets and media choices.

The 1987 SAMC Program invested $8,200 in research to evaluate the 1987 Program and make recommendations for future programs based on existing information. The results of this research are in this document. Another $5,000 has been appropriated for a special analysis of the Southeast independent visitor in terms of travel patterns, party

characteristics, opinions about their Alaska trip and their Southeast trip in particular, trip planning information and demographics. Some of this information has been used on a preliminary basis in this document.

In light of the timing situation, an estimated evaluation of the SAMC Program is a good, adequate alternative to an official Conversion Study which would reliably quantify the measurable results of the program. The Independent Visitor Analysis should be invaluable in providing direction for future campaigns. No other community or private firm has requested a similar analysis, insuring Southeast's gameplan will be at least one step ahead of any other body catering to this audience.

5. Analysis of Measurable Impacts of Major SAMC Programs

The following is a tabular analysis of important economic impacts of the two major SAMC 1987 investments, the participation in the AVAMC Cooperative Marketing Program to obtain names of their advertising respondents to whom to mail SAMC brochures and SAMC's own consumer advertising program in National Geographic and Sunset. Due to the very different investments that National Geographic and Sunset represent, they are analyzed separately for cost-effectiveness.

The reader should note that, in slashed (/) entries in the table, the number before the slash shows the "cost per" based on total component costs while the number after the slash shows the same "cost per" based only on advertising insertion and card printing expenses. The cost-effectiveness of the AVAMC Program is always calculated by the latter method, as shown in Chapter II.

The analysis demonstrates several significant features of the 1987 SAMC program:

- The total cost of implementing the AVAMC program participation was higher than either *National Geographic* or *Sunset* total costs due to the large volume of brochures and mailing costs, even though no direct advertising costs were incurred.

- The AVAMC program component scores much higher on total cost per inquiry than either of the SAMC advertising placements because of zero advertising costs in spite of high fulfillment costs.

- The AVAMC program component also runs away with the honors on cost per conversion, 5 times as efficient as *Sunset* and 8 times as efficient as *National Geographic*.

- *Sunset* does nearly as well as the AVAMC component on cost per room night and even slightly better on final return on investment due to the long stays estimated for SAMC advertising-inspired visitors vs. the shorter add-on stay estimated for AVAMC-induced visitors.

- National Geographic simply did not generate as well as either of the other two components in terms of any cost-efficiency measure.

Measurable return on investment for the 1987 SAMC Program is an estimated $14 for every dollar spent. The AVAMC program component is estimated to add $16 to the Southeast economy for every $1 spent. *Sunset* is also estimated to add $16 for every $1. *National Geographic* is estimated at $9 for every $1 spent.

This is not a high return on investment as compared to the AVAMC Program which traditionally gets ROIs of about 100 to 1 (see Chapter II) but it must be remembered that the objectives of the two programs in the past several years are significantly different. The objective of the AVAMC Program has been to generate responses rather than increase the pool of awareness *from which* to generate responses. And, in fact, the response rate of the AVAMC Program is suffering now from what some think is an exhaustion of the established pool of aware and interested respondents without a replenishment of the pool itself.

In any case, the SAMC Program has generated an estimated $14 for every dollar spent that would not have entered the Southeast economy had the program not been in existence. This translates to an estimated $3,786,000 in new monies for regional coffers in 1987 alone. Again, this does not include any indirect visitor expenditures or future visitor expenditures based on the eventual payoff of image/awareness building.

ANALYSIS OF MEASURABLE IMPACTS OF MAJOR SAMC PROGRAMS
(Estimated)

	AVAMC	SAMC Advertising Component	
	Component	Sunset	National Geographic
Ad Insertion/Cost	$12,000	$59,000	$88,000
Ad Production	-	6,000	7,000
Brochures	76,000	2,200	3,100
Mail Fulfillment	40,000	1,200	1,600
TOTAL COST	**$128,000**	**$68,400**	**$99,700**
# Inquiries/Names	172,000	4,700	6,500
# Visitors	12,100	1,600	1,300
# Room Nights	24,200	13,100	10,700
Visitor Dollars	**$2,060,000**	**$1,115,000**	**$906,000**
Cost per Inquiry	$0.74 / 0.07	$14.55 / 12.55	$15.34 / 13.54
Cost per Conversion	10.58 / 0.99	42.75 / 36.88	76.70 / 67.70
Cost per Room Night	5.29 / 0.50	5.22 / 4.50	9.32 / 8.22
Return on Investment	16.09 / 17.17	16.30 / 18.90	9.09 / 10.30

TOTAL MEASURABLE PROGRAM:	$4,081,000.00	Visitor Dollars Income
	295,100.00	Program Expenditures
	$3,786,000.00	Program ROI (total)
	$13.83	Program ROI (per dollar)

Chapter IV
RECOMMENDATIONS FOR FY 1988 AND FUTURE YEAR SAMC PROGRAMS

CHAPTER IV: RECOMMENDATIONS FOR FY 1988 AND FUTURE YEAR SAMC PROGRAMS

The evaluation of the FY 1987 Southeast Alaska Marketing Council Program and the review of the AVAMC Cooperative Marketing Program provides the consulting team with a selection of suggestions for increasing the effectiveness of future year SAMC programs. Given the budget considerations in the public sector, as well as in the private sector, a productive and efficient program is essential. Following are specific component recommendations developed by Data Decisions Group for further enhancing the effectiveness of this pioneering regional economic development program.

1. Participation in AVAMC Cooperative Marketing Program

The evaluation of the measurable benefits of the AVAMC participation show this SAMC program to be highly productive. Screening of the labels for independents makes the mailout efficient and minimizes the amount of competition for these names. Package inquirers are heavily solicited as are some specific categories of independents. But few if any other entities blanket the independent inquirers. This means that for those who do convert to visitors, SAMC has the only message or at least the most comprehensive and attractive one. Since most independents had not intended to visit Southeast, the AVAMC program is an excellent means to expand the pool of Southeast visitors by getting their message to the existing pool of potential Alaska visitors.

Participation in the AVAMC is estimated to produce as much in direct results as the consumer advertising program and yet costs significantly less. However, the comparison is not exactly valid since the primary purpose of the advertising is image, not immediate response and conversion. The AVAMC program also achieves the image objective to the prime market of qualified Alaska prospects. This market, though, has already been primed to Alaska and is in the response stage of the conversion process. They are, therefore, further ahead, at least in the decision to visit the "generic" Alaska. The total cost of AVAMC participation will fall next year because the basic brochure production costs are already borne by the FY 1987 program.

AVAMC participation should be continued and the purchase of all available qualified names/labels should be the policy. Research should be conducted to determine the most effective breadth of label criteria. It may be that independent visitor conversions occur just as easily among those who have just not checked interest in package tour on their BRC as for those who have not checked either package tour or cruiseship travel or just not cruiseship travel. See section 6. Research in this chapter for recommendations.

SAMC should also consider participation in another phase of the AVAMC Program for 1988. The **State's F/W/S campaign** this next year will be soliciting names of residents' friends and relatives to whom to mail F/W/S brochures and will also be mailing to the Lower 48 gift subscription list of Alaska magazine. SAMC may want to take advantage of both lists to serve as a second tier for SAMC direct mail, especially since 37% of all Summer Southeast Independent Pleasure Visitors came because of friends and relatives instate.

The purchase of major advertising space in the Official Vacation Planner is of debatable value. First, the cost of a full or even half page is quite high. Second, the competition among advertisers in the book may detract from the overall impact of a Southeast ad. Also, the region receives some editorial coverage and the incremental impact of a large ad is questionable. Some presence in the Planner is necessary for participation and this presence should be more than a directory listing of the magnitude of those of small operators.

2. Consumer Advertising

Appealing to the potential Alaska visitor through advertising is a rapidly changing science and art. Responses to one of the most effective programs in the country -- the AVAMC Program -- are declining alarmingly in spite of the best travel marketing expertise on the West Coast. The SAMC is entering the market when some tried and true Alaska advertising vehicles are not producing at historical levels.

Two major factors have been identified which contribute to the State's advertising response decline. One reason is the increasing volume of brand advertising for Alaska travel products in recent years. The tens of millions of dolla· spent, primarily by cruise and tour companies, dilutes the pool responding directly to t' ·te's ads because they are aimed at roughly the same group of people. In reaction t· the SAMC is cautioned to consider timing and placement carefully to avoid excessiv· ·ge and response dilution.

The second theory for declining responses is the strong emphasis in the last few years on maximizing BRC responses from the known pool of Alaska visitor prospects. The same message to the same people in the same publications over several years was an effective way to maximize responses (and therefore conversions) among a limited, known group of people. In hindsight, this strategy seems to have maximized responses but has not replenished the pool of potential visitors who responded and/or converted. Now the AVAMC must look to new prospects or else remain dependent on a dwindling supply of known prospects who have Alaska at the top of their destination priority ladder. They must consider creating another pool, similar to the pool they created in the first several years of the AVAMC Program.

The lesson for SAMC programs, especially at this stage of introducing a "new" product, is to **first build a pool** through image and awareness advertising. Then and **only then** after a significant pool has been established can SAMC concentrate on maximizing direct responses. In other words, the original SAMC priorities -- awareness and image first -- were in the correct order and should be for some time. This is not to say that some SAMC component(s) cannot have direct response as an objective -- it is only to say that image and awareness-building must be priorities. As the SAMC program matures, a **healthy combination of awareness-building and direct response must be maintained.**

Information for the following recommendations came from the evaluation of the AVAMC and SAMC advertising placements, conversion study data, a review of travel planning habits of Southeast Independent Visitors and the professional background of the evaluation team.

- **Timing**

The prime travel magazines are heavy with Alaska advertising from October through March. Dilution can be minimized, especially for image advertising, by placement at the **front end (September/October) and the tail end (March/April)** of this period. Interestingly, SE Independent Visitors have rather lengthy planning periods compared to other Independent Visitors (average: 8.1 months from Alaska season/year decision, 3.7 months for trip planning). These lead times also tend to support beginning and end of planning period ad placements.

- **Advertising Placement**

Sunset and *Alaska* Magazine are considered excellent Alaska buys in general as they are by far the leaders in actual conversion to visitors, 17% for ***Sunset*** and a record 24% for ***Alaska*** Magazine. They are especially good for the Independent market because of the nature of their editorial content. *Sunset* is packed with do-it-yourself material for the middle to high-end Westerner. It also contains a plethora of mail order ads, another characteristic of readers who like to do it on their own.

Alaska is likewise full of special topic information for the independent planner. Further, *Alaska* has recently recruited a large number of new subscribers in regions which are good generators of independent Alaska travelers (The West and the Northern Tier Snowbelt). Placement in *Alaska* would mean excellent and economical exposure to new Alaska enthusiasts who are presumably new entries into the potential visitor pool. *Sunset*, given judicious timing of placement, should provide a good image base as well as generate quality inquiries for conversion.

National Geographic, though prestigious, may be perhaps too broad a vehicle for the target prospect market. The combination of very high cost for a very limited advertising budget coupled with low response and conversion even at the State level are factors which prevent recommending repeating in this publication. Long a staple of the DOT program and the package tour industry, its effectiveness may be on the decline at least for response generation purposes.

Though this report does not propose a media plan, there are some obvious publications worthy of consideration. In addition to *Sunset* and *Alaska* , the ***Milepost*** guidebook is another clear choice. Many more visitors than just highway travelers use this publication. Twenty-two percent of Southeast Independents in Summer 1985 used the *Milepost* as a source of trip planning information before leaving home. This is nearly double the percentage who said they used the State's Vacation Planner. Also, a surprising 28% of Southeast Independents were highway entries and 20% exited by highway. A publication such as the *Milepost* aimed directly at them puts the SAMC message on target.

Vertical interest publications are another cost-efficient vehicle for building awareness and generating recruits. Independents, not package visitors, are **sportfishing** participants. Thirty-six percent (36%) of Southeast Independents participate. Even higher percentages participate to some extent in **other outdoor activities**--hiking and wildlife and bird watching. Except for individual businesses, sportfishing is not heavily marketed either by the State or major tour companies. Yet a major element in the Alaska mystique is sportfishing. Were SAMC to position the region as the place for Alaska sportfishing at reasonable cost, an appeal to this vertical market may be effective.

National awareness coverage should be considered by SAMC under certain conditions. Media selected must provide a vertical interest group relevant to Alaska, cost of national coverage must be considered and impacts of ad sizes evaluated.

The highway entry and exit numbers also show that many Southeast Independents are in personal vehicles -- often RVs or campers. Placement in RV industry magazines could be productive for SAMC. In terms of response volume, the State has generated exceptionally heavy responses from occasional insertions in *Motorland.*

Finally, an asset of the region is the ferry system which is utilized by a majority of Southeast Independents. This use is in spite of virtually nonexistent marketing, a poor reservation system and service problems. Cruising the Inside Passage has almost universal appeal for packaged and independents alike. One way to take advantage of this asset but avoid dilution from package tours is the sell concept of the Inside Passage cruise ferry-style. Joint advertising efforts with the ferry system could generate more image and response mileage for both SAMC and the ferry system. The possibility of cooperative marketing also exists with the vehicle carrying cruiseship Stardancer provided Admiral Cruises would be willing to sell partial cruises so visitors could take their vehicles off the ship at locations other than the ends of the line.

- Advertising Copy

The advertisement in *Sunset* and *National Geographic* had several strong points for accomplishing its primary purposes of image and awareness. The subject matter was excellent. Glaciers/Scenic Beauty are invariably at the top of list in visitor studies of what people want to see in Alaska and in subject matter which they associate with the Alaska travel destination. Showing that Southeast has these attractions in spectacular fashion is a strong message. Showing people and activities lend emotion and fun to the image. An earlier State of Alaska study[1] established that people and activities had high motivational appeal in ads. The overall feeling of the ad was warm (both climatic and emotional) and inviting. The BRCs were convenient and readable. The up front position in *National Geographic* was excellent. The *Sunset* position was not as good but still fine. However, placement in an issue with fewer other BRCs would be preferable.

Suggestions for improving the ad's effectiveness include the following. The appearance of specific mode type equipment (helicopter) may cause some misinterpretation of the ad's sponsor. In any case the ad should show the sponsor (SAMC) prominently and in an official-appearing way. This will establish additional credibility with the result being to encourage the requesting of information plus establish the ad clearly as a destination ad. Southeast Alaska needs to become apparent immediately and it is not really noticeable until the reader is into the copy at the bottom right of the page.

The Seattle address detracts from the Alaska mystique. This is permissible for magazine subscriptions or cruise brochures but not for destination advertising. The Seattle address also adds to existing confusion over sponsor. A postage paid BRC would increase response provided the SAMC felt the additional postage dollars are worth the investment. The word "FREE" needs to be larger and more striking and needs to clearly designate specifically what it is that is free.

[1] Image/Season Expansion Advertising Focus Group Research, 1980.

If the sponsor, destination and what is free is clearly established, the confusion from the presence of the equipment is minimized. These improvements should increase the response production of the ad as well as its image and awareness appeal for Southeast as a destination.

3. Collateral

The collateral piece used for all fulfillment and for the AVAMC mail-out is an extremely attractive 16-page color piece. In our opinion it **achieves its primary purpose and has outstanding image impact.** Further, the reproduction quality of most photos is high. Photo selection is superb -- both in color and topic choice and variety. In short, the collateral piece is one of the highest quality seen in the promotion of Alaska tourism.

Suggestions for improvement center primarily around mechanics and content. We suggest the brochure be made to appear **more "official"** than it does. An extensive focus group research project for the Alaska Travel Planner found that, without the official aura, recipients tended to view it as a commercial mailing and not take it to heart as a destination promotional piece. Thus, "official" means the recipient will give it more credibility and correctly interpret the purpose of the piece. The **postcard** is somewhat incongruous but not particularly distracting. We suggest the **opening inside photo** be more spectacular than mood setting. The contents might also include a listing of the region's **top attractions,** since some of them may have more existing market presence than the region as a whole.

The white background for the **bingo card/postcard back** is the one detraction from the highly appealing mood of the piece. A toned background would make it more compatible. The content of the bingo card is informative and varied insuring wide distribution of benefits among communities and participants.

A consideration for the future may be inclusion of a **Southeast Travel Planning brochure** in the fulfillment package. The brochure would be similar in purpose to the SATC Travel Planner and would provide specific tools for trip planning. The most effective effort would be to coordinate this piece with the SATC effort as much as possible. Such a brochure might only be included in fulfillments of prospects who say they'll be coming in the next year or two, rather than a blanketing of all inquirers, some of whom will not be at the planning stage yet.

4. Mail Fulfillment

The only suggestion here is to listen to what those who have been dealing with your list management/fulfillment house for years have to say about Media Services' record on responsiveness and efficiency.

5. Public Relations

As discussed in Chapter III, there are three keys to a successful public relations effort. First, retain the right people with the proper skills and contacts. Second, fund them well enough to allow them to accomplish your goal and not hamstring their efforts. Third,

monitor them so they are held accountable for implementing your goals on the timeline needed for effective message communication.

The long distance relationship of SAMC's two public relations firms cannot help but be subject to occasional communications problems regardless of who the two firms are. It is, however, important to have both an Alaskan and Lower 48 presence. The 1988 effort, also, will not be hampered by the time constraints of 1987 which should also be avoided if at all possible in the future. Press kits should be distributed by end-October or to coincide with consumer advertising insertions, which means **planning must begin during the summer months of 1987.**

New stories for the press kits might be generated by travel writers invited to Southeast this summer as part of the first official Southeast **travel writer familiarization trip(s).** This is encouraged, especially since private member firms can be asked to provide air, lodging and hospitality for these influential people.

Another way to accomplish the goal of good public relations efforts -- providing the greatest possible reach of your message for the smallest possible expense -- is to take advantage of special newspaper travel sections where placing at least a small ad guarantees editorial space. This PR method is probably not particularly cost-effective if the ad package does not include editorial space.

The instate regional awareness element is a positive feature of the PR program. It contributes to an informed and supportive constituency.

All the above enhancements require additional dollars which SAMC has already budgeted for this component in 1988.

6. Research

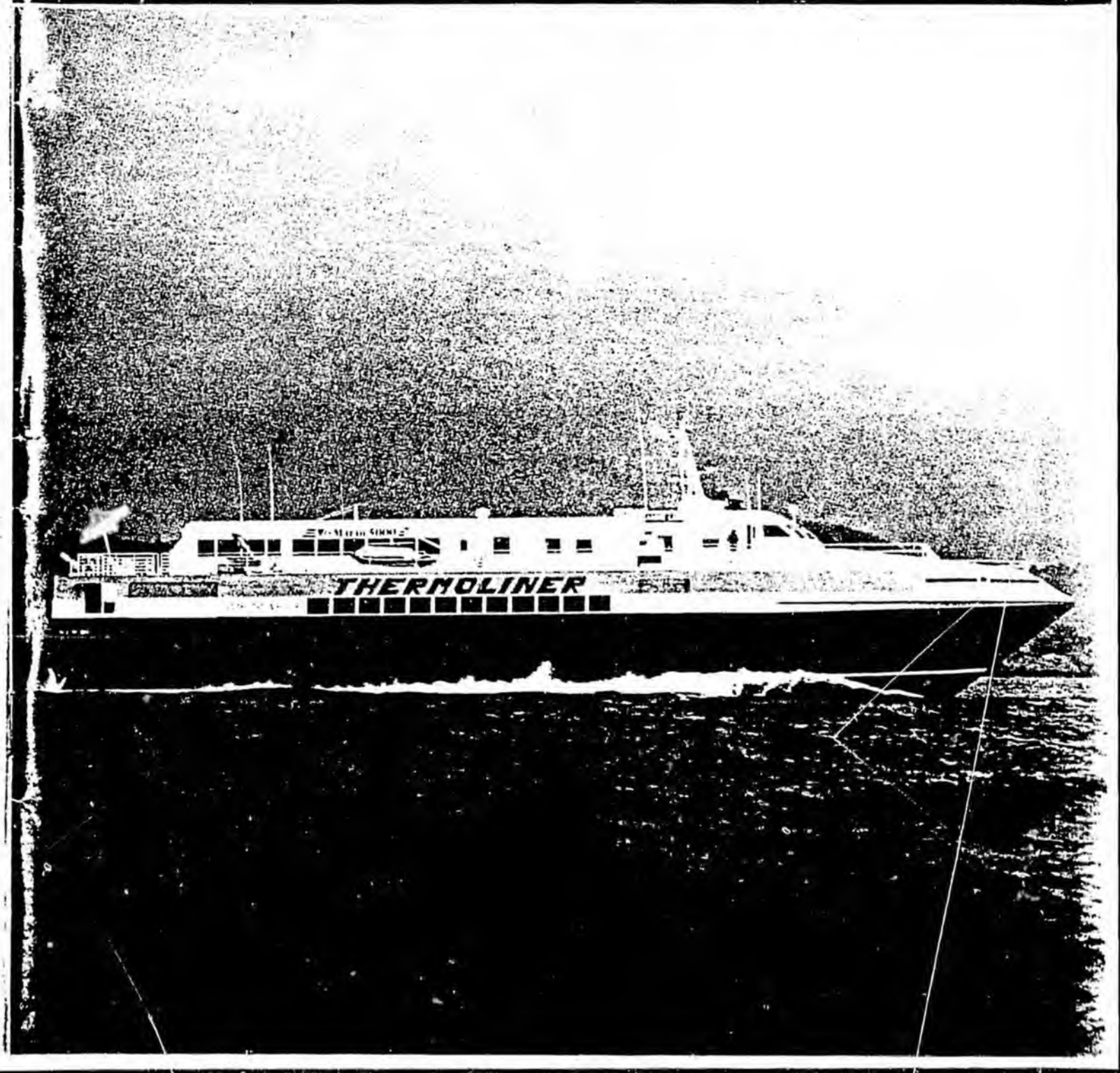
The Number One priority for the SAMC research budget should be an annual **Conversion Study** to quantify the measurable results of the program. Conversion studies can serve a number of purposes, especially in the case of SAMC. They can identify the conversion rates among various target audience lists, the costs per inquiry and conversion for each and the actual return on investment for every dollar of advertising or program cost. These studies can also profile the converted visitor in terms of their demographics, their travel habits both outside and inside Alaska, their lifestyles and their trip planning steps.

Perhaps of even greater importance is the ability of an SAMC Conversion Study to **identify the broadest but most effective BRC criteria.** The study will cross-check what prospects say they are interested in on their BRC (travel mode, accommodations, activities, time of travel) against what they actually did as visitors. This will enable precise pinpointing of the criteria guaranteed to predict conversion. SAMC will not spend dollars blanketing a population not given to conversion to Alaska visitorship and will instead be able to concentrate their investment on nearly-sure bets. This, of course, will reflect only conversion likelihood that year and will not predict the effects of image/awareness building, so that program will need to be considered separately. The Conversion Study, however, will be able to tell SAMC whether the literature has made an impact on inquirers in terms of image/awareness building.

Other research to consider in 1988 and beyond includes **talking with Southeast visitors** in person or by telephone to determine what prompted them to visit Southeast in particular as well as how they first became aware of Southeast as a vacation destination. This would provide key input for advertising message content and placement.

Another project which would provide strategic planning information on the most effective ways to build awareness among prospective travelers would be a series of **focus groups with prospective travelers.** These groups would be held in major West Coast communities with people of the demographic and travel backgrounds shown to be typical of the Southeast visitor through the special AVSP analysis. Topics would include level of awareness of Southeast as a specific destination, image associations with Southeast, ways to encourage image enhancement among frequent travelers, identification of persuasive advertising copy and more. Two wonderful aspects of focus groups are the ability to show and hear tangible objects like ad boards or radio tapes and the ability for clients to sit behind a one-way mirror and view the entire proceedings. Clients can also have direct input into discussions through notes sent in to the moderator.

High-Speed Surface Craft



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High-Speed Surface Craft

July-August 1987 Vol 26 No 4

Cover photograph: The first Westamaran 5000L cargo catamaran delivered to Gods-Trans at the beginning of August and due to enter service, carrying fresh cod from Iceland to the Netherlands, at the end of the month

PROGRAMME ANNOUNCEMENT
PLUS EXHIBITION BOOKING DETAILS

SIXTH
HIGH SPEED SURFACE CRAFT CONFERENCE & EXHIBITION

High-Speed Surface Craft

14-15 January 1988
Heathrow Penta, London

PROVISIONAL PROGRAMME

Organisers of the Sixth High Speed Surface Craft International Conference are pleased to announce the provisional programme of contributions for this unique forum devoted to discussion of latest developments in fast ferries and other rapid marine transport. The conference is designed to cover operations in a highly competitive market, as well as key topics in the design and building of new craft, with particular emphasis on assessing construction materials.

DAY 1

Operator's viewpoint: Red and White, USA, and Thames Line, UK
Construction and operation of a high speed passenger ferry: Stolkraft International, Australia
High performance propulsion: Servo Gear, Norway
Influence of shaft inclination on relative merits of propellers and water jets: A G Blyth, Naval Architect, UK
Design, development and testing of SES Jet Rider: Karlskronavarvet, Sweden, and SSPA Maritime Consulting, Sweden
Evaluation of a ride control system for SES: University College, London.

DAY 2

Role for composites in future marine transportation: Marchant Filer, UK
Fatigue properties of advanced laminated composites: Lloyds Register of Shipping, UK
High performance composites in sandwich panels: University of Southampton, UK
Advance material for high speed craft: Cougar Holdings, UK
Powering characteristics of hydrofoil craft: Maritime Research Institute, Netherlands
Case Studies in high speed surface craft: International Catamarans, Australia, and Marinteknik, Hong Kong.

DISPLAY SPACE

Companies are invited to take advantage of the exhibition area at the conference as an excellent opportunity to display equipment and services available to this rapidly expanding market. Such is the demand for the limited space available, that early bookings are advised.

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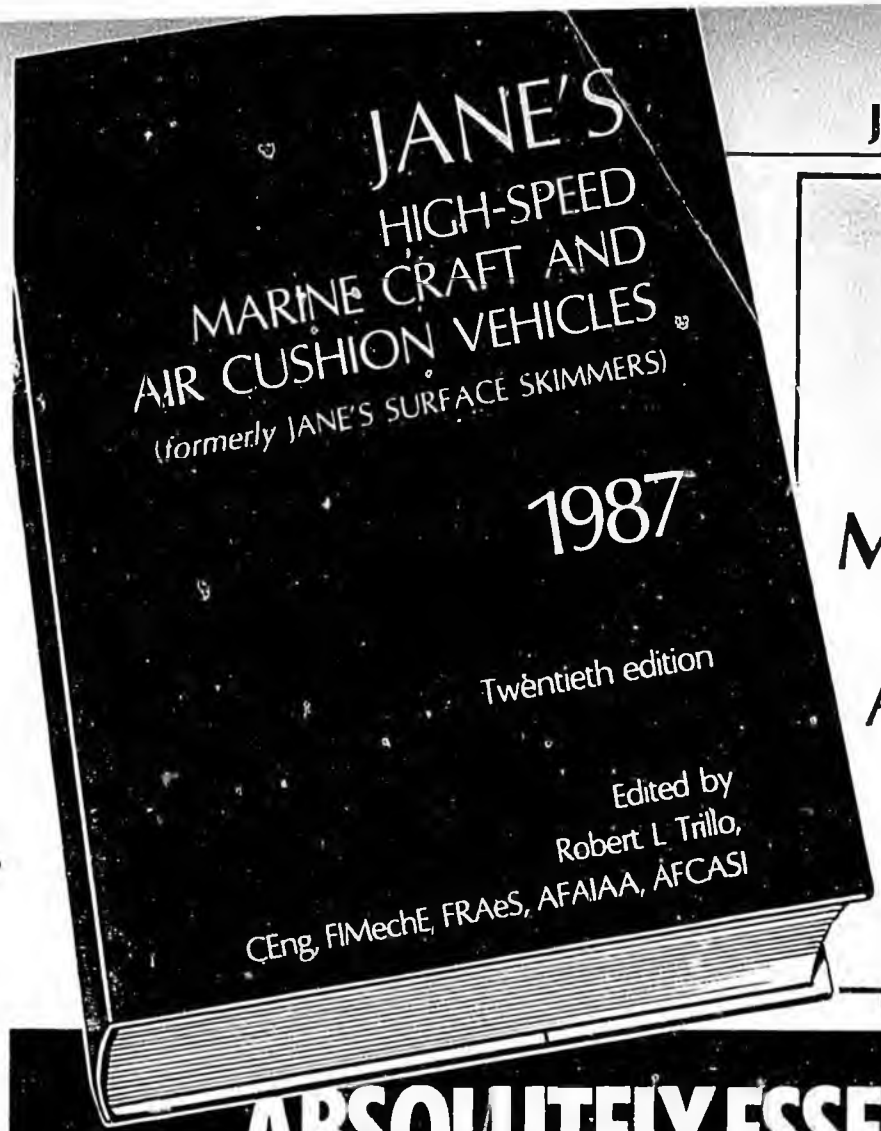

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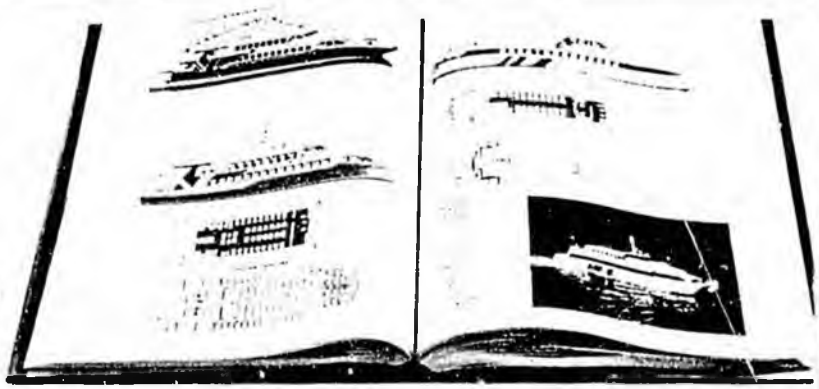
This latest edition of Jane's High-Speed Marine Craft and Air Cushion Vehicles (formerly Jane's Surface Skimmers) containing 506 pages is more than 20% larger than the 1986 edition, which is a reflection of both the growth and speed of change within the high-speed marine industries.

Comprehensive sections on operator information giving full details of craft, contact names and addresses are a key feature of the work. However, the description of types both in service and in production occupies over 60% of the book.

Significant new developments in high-speed craft, particularly in the field of SES, Catamaran and monohull vessels, are covered. Jane's High-Speed Marine Craft and Air Cushion Vehicles continues to provide industry with the only up-to-date reference source available.



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SYMPOSIUM ON SMALL FAST WARSHIPS AND SECURITY VESSELS

United States Coast Guard Operational Evaluation of the Bell-Halter 110 Foot Surface Effect Ship

by Lieutenant Commander Kurt G. Zimmerman*

SUMMARY. After more than a year as a demonstrator crew boat, the Bell-Halter 110 Foot Surface Effect Ship (BH-110) was sold to the US Navy Surface Effect Ship Project Office (PMS-304) in October 1980. The Coast Guard provided supplemental funding to have certain modifications incorporated into the craft to convert it from a crew boat to a patrol boat. Following modification, the BH-110 SES was delivered to the Navy in May 1981 and subsequently transferred to the Coast Guard. The vessel was painted in Coast Guard colours and on 18 June 1981 it was placed into commissioned service for an operational evaluation of six months duration.

The vessel operated both singly and in conjunction with other vessels and aircraft in a variety of Coast Guard mission areas. Armed with 0·50 calibre machine guns, it was used to enforce both fishing and drug laws. Other mission operations included search and rescue, pollution control and enforcement, the servicing of aids-of-navigation, and military preparedness.

The conventional diesel power, the ship type handling characteristics, and the speed and seaworthiness of the craft all implied a potentially desirable craft. Although some specific vessel problems were identified as a result of the evaluation, the concept proved valuable in conducting US Coast Guard missions.

1. INTRODUCTION

The United States Coast Guard (USCG), an agency of the Department of Transportation, is responsible for enforcing government policies and providing humanitarian services on and near the territorial and contiguous zone waters of the United States. Although quite independent of the US Navy which is under the Department of Defense, the two agencies often work in close cooperation.

The United States Coast Guard utilises marine vehicles, ships and boats, to conduct its many missions. Although varied, the missions can be simplistically portrayed as a four sided figure. Side one is the enforcement of laws and treaties. This implements the Coast Guard's role as the government's marine police force. These missions include enforcing fishing rules and regulations, enforcing drug smuggling laws and the prevention of illegal alien immigration. Side two represents the humanitarian aspect of the service. These missions include searching for and rescuing people lost at sea from small boats, yachts, merchant ships, and aircraft. Towing disabled craft, and providing fire fighting and dewatering assistance to ships in need also fall within this category. The Coast Guard also places and repairs some 44,000 navigational buoys and other aids to navigation. The third side of the Coast Guard endeavours to protect natural resources. This field includes monitoring, containing, and assisting in cleaning up oil and hazardous substance spills. Oceanographic research and water quality monitoring are also included among the missions in this area. The fourth side of Coast Guard missions is military readiness. In time of war, the US Coast Guard joins the US Navy and carries out military operations.

It is against this background of Coast Guard multiple mission requirements that potential replacement vessels are tested. Vessels are sought which are capable of executing these multimission aspects. To that end, the Bell Halter Surface Effect Ship (SES) was evaluated.

2. VESSEL DESCRIPTION

The vessel ultimately used in the operational evaluation was constructed in 1978 by Bell Halter of New Orleans, Louisiana, as a demonstrator craft. Their purpose was to prove the concept that a surface effect ship could be built and operated effectively in the competitive arena of offshore oil field operations in the Gulf of Mexico. The technical characteristics of the demonstrator craft are shown in Table I.

TABLE I. Physical Characteristics of the Bell Halter 110 Foot SES Demonstration Craft

DIMENSIONS		
Length	110 ft	33·5 m
Beam	39 ft	11·9 m
Height (on cushion)	28 ft	8·5 m
Draught (on cushion)	4·6 ft	1·4 m
Height (off cushion)	22·6 ft	6·9 m
Draught (off cushion—normal)	7·7 ft	2·3 m
Draught (off cushion—maximum)	8·2 ft	2·5 m
WEIGHTS, ETC.		
Maximum displacement	150 LT	152·4 t
Normal displacement	125 LT	127 t
Light ship displacement	98·3 LT	100 t
Maximum deck load	37·5 LT	50 t
Cargo deck area	1672 ft²	155 m²
Fuel capacity	3100 gal	11733 l
Water capacity	384 gal	1453 l
Crew	4	

*United States Coast Guard

MACHINERY

Propulsion — Two 16v-149TI Detroit D l Marine Engines
— Two 42 × 50·86 Gawn-Burrill subcavitating fixed pitch propellers

Lift System — Two 8v-92TI Detroit Diesel Marine Engines
— Two Double Inlet 42 inch diameter centrifugal fans

Generators — One 3-71 General Motors Diesel Generator (55 kw)
— One KATO KAMAG 14 generator driven from lift engine (40 kw)

PERFORMANCE

Maximum Cruise Speed	SS0	SS3
On Cushion	34 kts	28 kts
Off Cushion	19 kts	15 kts

Range at maximum speed — Sea State 3 — 500 n.m.

After launching, the craft was employed by Bell Halter in a series of demonstrations to the offshore petroleum industry, ferry boat operators, military organizations and representatives of foreign countries. The craft, a 110 foot (33·5 m) surface effect ship, alternatively called a rigid side wall hovercraft, was constructed of welded marine aluminium. It uses conventional diesel machinery and submerged marine propellers and rudders for high reliability and low fuel consumption. The vessel has a catamaran style hull form, with flexible skirts at the bow and stern to contain the air cushion (Fig. 1). The hull form is such that when off cushion, the waterline is well below the between hull cross structure, (see Fig. 2). Air is supplied to the cushion at three points along the hull from diesel driven lift fans supplying pressure at about 1·0 psi (703 kg/m^2). The bow seal system consists of eight finger-type segments. The stern seal is an arrangement of three horizontal tubular bags extending athwartships across the stern opening between the side hulls. Both sets of seals are supplied from the UK by Avon.

In the winter of 1979-1980 the vessel was used by Exxon in support of offshore oil rigs in the Gulf of Mexico. During this time it serviced rigs from 60 to 145 nautical miles from its home port in Louisiana, often carrying cargo up to 20,000 pounds.

3. INITIAL EVALUATION AND SUBSEQUENT MODIFICATIONS

Knowledge of the craft and its potential for service use generated interest in USCG circles and other governmental agencies. Although the US Navy was pursuing a large, high speed surface effect ship concept, the Bell Halter craft, with its diesel propulsion, seemed particularly suitable to Coast Guard needs.

In March 1980, a month long technical evaluation was conducted off Norfolk, Virginia, by the US Navy under the sponsorship of the US Coast Guard and the US Urban Mass

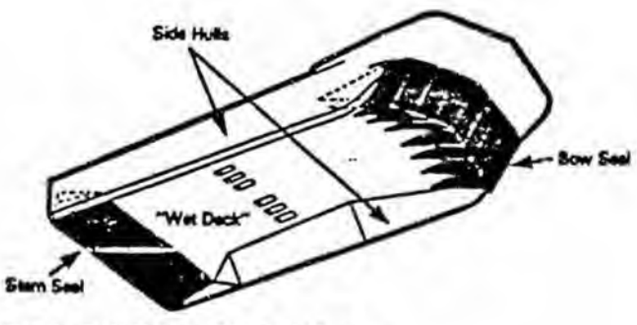


Fig. 1. Bell Halter SES Hull Form

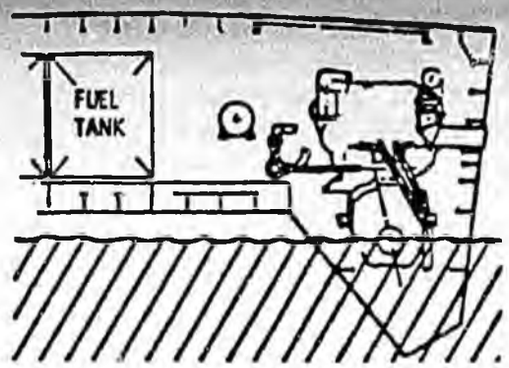


Fig. 2. Buoyant Sidehull Form

Transportation Administration. This test investigated technical performance of the craft and made direct comparisons to a Coast Guard 82 foot (25 m) patrol boat. It concluded 'the Bell Halter 110 foot SES is an effective and able marine vehicle that warrants consideration for varied future military and civilian applications'[1].

After the technical trials, the vessel was modified to satisfy the IMCO (International Governmental Maritime Consultative Organization) Resolution A. 373(x), Code of Safety for Dynamically Supported Craft. This was necessary before the craft was put into service for PEMEX in the Mexican oil industry in the Bay of Campeche.

In October, 1980, the US Navy Surface Effect Ship Project Office, with financial participation from the US Coast Guard Office of Research and Development, purchased the demonstrator vessel from Bell Halter. Under the terms of the procurement, certain modifications were to be made to the craft before delivery for a six month evaluation by the Coast Guard. At the completion of the USCG evaluation, the vessel would be lengthened by installation of a 50 foot (15·2 m) hull extension amidships. The US Navy would then take over the craft and test it in the new length-to-beam ratio configuration.

TABLE II. BH-110 SES Contract Modifications for Conversion to Cutter Use

1. Berthing for 14.
2. Additional heads and showers.
3. Install office space.
4. Add 400 gallon per day desalinator.
5. Add Food Stowage—freezer, refrigerator, dry food storeroom.
6. Add ice machine, mess deck tables.
7. Add supplemental fuel and water tanks.
8. Add ammunition stowage.
9. Provide Rigid Hull Inflatable ship's boat with hoist.
10. Install additional engineroom instrumentation.
11. Add towing bitt.
12. Add dedicated fire pump.
13. Add machine gun foundations and mounts.
14. Add anchors and anchor winch.
15. Paint boat to USCG standard colours.
16. Install transformer to allow connection to shore source of electrical power.
17. Install washing machine and clothes dryer.

These modifications to the craft before evaluation were made to change the configuration from a civilian passenger carrying crew boat to a craft capable of functioning as a Coast Guard patrol boat. The modifications are summarised in Table II.

In addition to these modifications, supplemental modifications were made in order to make the craft capable of conducting operations with other USCG vessels. These additional modi-

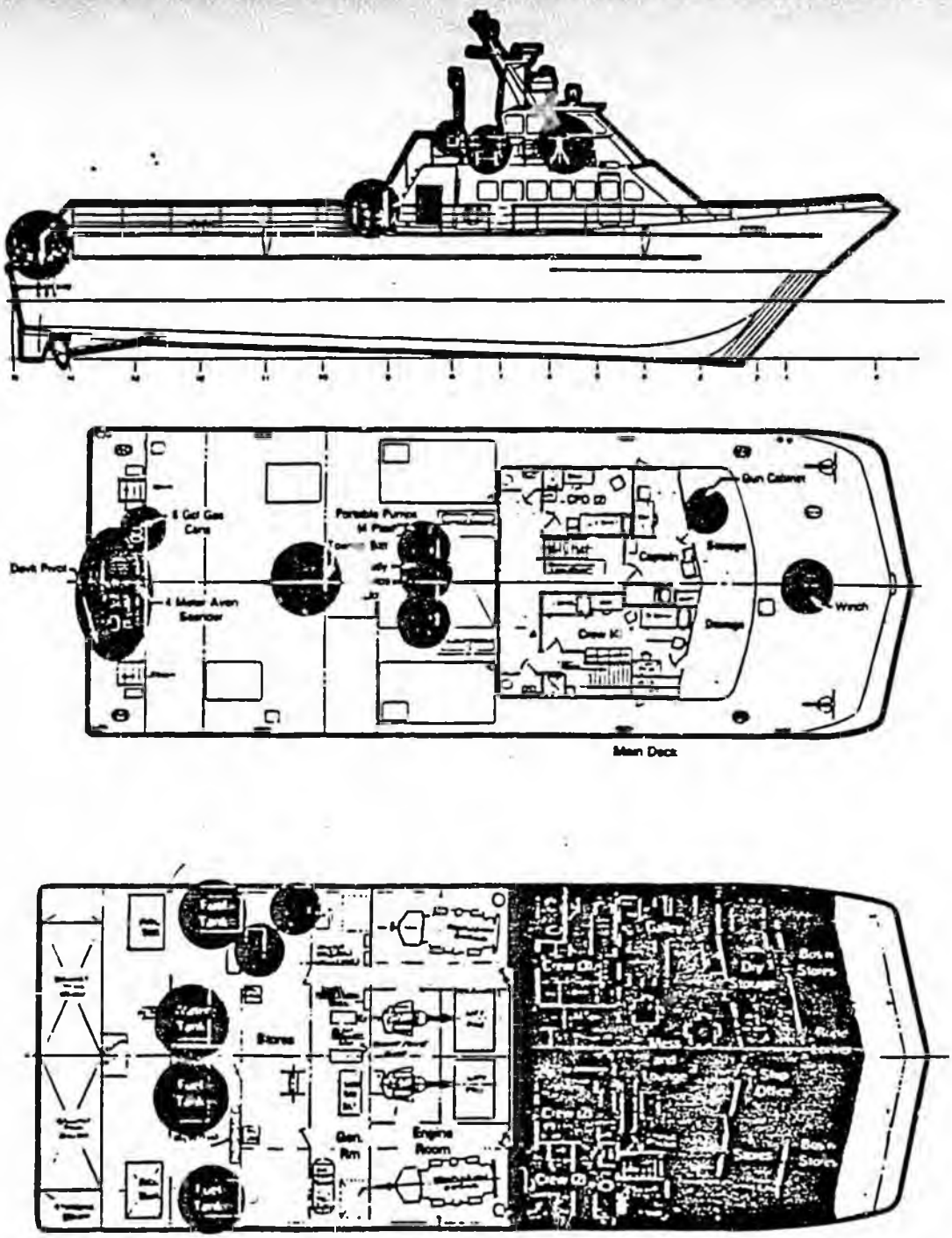


Fig. 3. USCGC DORADO Arrangements: Modifications shown highlighted

fications are shown in Table III. Fig. 3 shows the deck plan arrangements of the vessel as it was when placed into Coast Guard service.

The vessel was formally turned over to the US Coast Guard from the US Navy on June 12, 1981, and placed in commission on June 18, 1981, as the US Coast Guard Cutter DORADO (WSES-1). The crew personnel for CGC DORADO were taken directly from the USCGC POINT SPENCER, an 82 foot (25 m) patrol boat based in New Orleans.

The spirit of USN/USCG cooperation was continued with the assignment of two US Navy personnel to the crew for the duration of the Coast Guard trials. A US Navy senior petty officer was assigned as chief engineer, and the first assistant engineer was also a Navy petty officer. The crew personnel varied somewhat during the six months, depending on what

TABLE III. CG Installed Modifications to BH-110 SES

1. Provide secure weapons stowage.
2. Install telephone and interior communication circuits.
3. Install gyrocompass and gyro repeater units.
4. Install foundations for gasoline cans and portable pumps.
5. Install racks for firefighting foam.
6. Install electronics equipment.

missions were planned, but the typical composition of the eleven man crew is shown in Table IV. Special ratings were assigned when required to supplement operations of limited duration.

After commissioning, the DORADO was loaded with CG mission related equipment borrowed from POINT SPENCER,

TABLE IV. Typical Crew for USCGC DC)O (WSES-1)

Lieutenant (junior grade) — Commanding Officer*

Boatswains' Mate — 1st Class — Executive Petty Officer*

Quartermaster — 3rd Class*

(*Deck Watch Officers)

Engineering Department	Deck Department
Senior Chief Machinist Mate (USN) — Engineer Chief Petty Officer	Subsistence Specialist (Cook) 1st Class
Gas Turbine Technician — 1st Class (USN)	Seaman (non-rated)
Machinery Technician — 3rd Class	Seaman (non-rated)
Fireman (non-rated)	
Fireman (non-rated)	

VACANT BERTHS — Three — Temporary duty personnel as required.

and fully outfitted as a cutter. The loaded DORADO characteristics are shown in Table V. Performance of this configuration, as predicted by Bell Halter and as actually experienced, is shown in Fig. 4.

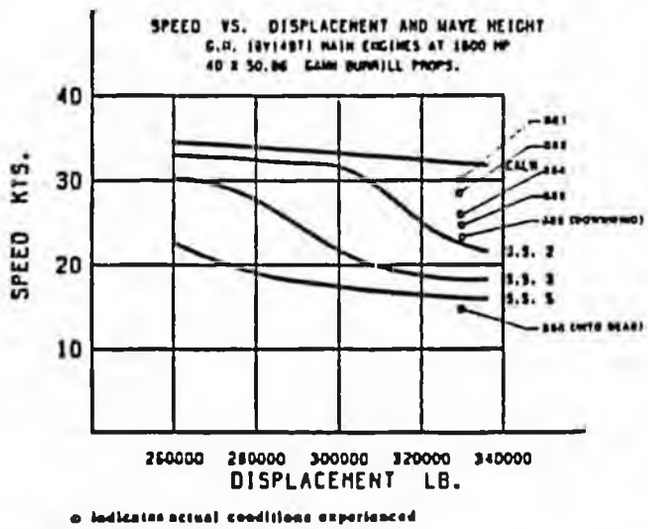
On June 20, 1981, the USCGC DORADO (WSES-1) departed on patrol and began the six month evaluation. During the evaluation, she participated in numerous missions demonstrating the usefulness of this craft concept for Coast Guard duties in the Gulf of Mexico.

On December 15, 1981, USCGC DORADO was decommissioned, Coast Guard peculiar equipment was removed, and the vessel was returned to US Navy custody. The craft is presently in New Orleans undergoing major structural modifications.

4. OPERATIONAL EVALUATION

The USCGC DORADO was in commissioned service for 181 days. The craft was underway 84 days; in a ready-for-sea standby status 47 days; and in a maintenance status 50 days during the trial period.

Maintenance requirements generally were similar or slightly less trouble than other Coast Guard cutters. The unpainted



● Indicates actual conditions experienced

Fig. 4. USCGC DORADO
Performance — Predicted and Actual

TABLE V. CGC DORADO Characteristics

DIMENSIONS		
Length	110 ft	33·5 m
Beam	39 ft	11·9 m
Height (off cushion)	22·6 ft	6·9 m
(on cushion)	28 ft	8·5 m
Draught (off cushion —maximum)	8·2 ft	2·5 m
(on cushion)	4·6 ft	1·4 m
WEIGHTS		
Maximum displacement	150 LT	152·4 t
Design displacement	125 LT	127 t
CG Operated displacement	147 LT	149·4 t
Fuel	6582 gal	24916 l
Water	1089 gal	4122 l
Lubricating Oil	174 gal	659 l
Crew	14	

MACHINERY

Propulsion — Two 16v-149TI Detroit Diesel Marine Engines
— Two 40 × 50·86 Gawn Burrill Subcavitating fixed pitch propellers

Lift System — Two 8v-92TI Detroit Diesel Marine Engines
— Two Double Sublet 42 inch diameter centrifugal fans

Generators — One 3-71 General Motors Diesel Generator (55 KW)
— One KATO KAMAG 14 generator (40 KW) driven from lift engine

PERFORMANCE

Maximum Cruise Speed	SS0	SS3
On Cushion	30 kts	25 kts
Off Cushion — fans on	19 kts	15 kts
Off Cushion — fans off	6 kts*	6 kts*

Range at maximum speed — Sea State 3 — 1000 n.m.

(*Speed limit to prevent damage to stern seal when water is not blown out by lift fan).

interior of the aluminium hull proved quite easy to maintain. Two major repair efforts were required however.

On September 10, 1981, the DORADO experienced an engine room fire. There were no serious injuries, but the incident necessitated a return to New Orleans for two weeks to repair the fire damage. The fire was caused by a cracked lubricating oil line on the reduction gear which failed through fatigue due to vibrations. The installed fixed flooding carbon dioxide fire extinguishing system in the engine room successfully extinguished the fire.

The other major repair effort was the replacement of all eight bow seal fingers. On August 28, it was discovered that a number of bow finger seals had ripped causing the cushion pressure to be vented through the bow. This necessitated a return to port for repairs. Investigation revealed that two seals had failed. They had been created along the vertical centre axis for shipment prior to initial delivery. It was along this crease that two of the eight seals had failed, ripping nearly the entire length. Failure of two of the seals was sufficient to vent the cushion severely enough to prevent normal operation. The seals had between 350 and 400 hours of operation on them when failure occurred. As a preventative maintenance measure, all eight seals were replaced, since all had been received at the same time.

Replacement of the bow seal was surprisingly quick and easy. Four personnel from the ship's crew replaced all eight seals in two days (24 hours effort) while DORADO remained in the water at pier side. The last seal took only one hour to remove and replace. The replacement cost for new bow finger seals was quoted as $5300 each.

Although not confirmed by this trial, the ected life of the seals is estimated to be between 1500 to 2000 hours of operation. This figure is based on US Navy operating experience with test air cushion vehicles (Jeff A and B) and surface effect ships (100A and 100B).

During the Operational Evaluation, CGC DORADO was assigned to various commands along the Gulf of Mexico, and employed in different missions. Fig. 5 shows areas of operation. In June and early July the vessel was operated out of Galveston, Texas in fisheries law enforcement duties. This included boarding vessels for inspection of catch and cargo as well as identification of vessels.

In mid-July, the craft was based at Corpus Christi, Texas, and employed in search and rescue duties and law enforcement patrols. The particular emphasis was on prevention of drug smuggling.

In August CGC DORADO conducted missions servicing aids-to-navigation while based out of New Orleans. This included minor repairs to buoys as well as fixed aids-to-navigation and transporting equipment. Late in August, the vessel was one of many employed in a pollution control drill in and around the Louisiana Offshore Oil Port, working in conjunction with the US Coast Guard Gulf Strike Team hazardous substance spill control specialists.

Much of the operational evaluation was spent on multi-unit law enforcement patrols, in the southern portion of the Gulf of Mexico. These patrols involved coordinated operations with other Coast Guard units working to prevent the smuggling of drugs. These operations were from 7 to 10 days in duration usually requiring continuous operation at sea. Resupply, including fuel, was from larger Coast Guard units. The seaworthiness characteristics of DORADO provided very habitable conditions for the crew. They were well rested and remained alert. This is in sharp contrast to the case on normal patrol boat sized craft, where the crew is usually exhausted from merely operating the craft in rough seas. During one extended patrol of this type, the seas were running up to 16 feet, and the DORADO, by drifting, was able to experience less than 18 degree rolls.

During the operational evaluation, methods of operation were developed to maximise the DORADO's unique capabilities, while bypassing its negative features. Due to the broad beam and wide set screws, manoeuvrability was very good. Such a good degree of control was afforded by this and the one set of controls looking aft that the crew often boarded vessels directly from DORADO without resorting to the small boat carried aboard.

In order to conserve fuel vessel would frequently sprint to a picket position then shut down and drift. While maintaining a radar guard, DORADO could take advantage of the improved seakeeping to rest the crew and still be ready to respond to an interception when required.

During the six month period, CGC DORADO proved to be a vehicle capable of performing Coast Guard duties in law enforcement, including fisheries patrol as well as coastal smuggling prevention and as a choke point patrol vessel. As a search and rescue craft, it responded to calls for assistance, conducted searches, salvage and firefighting duties as well as performed towing of disabled craft. Multi-ship and aircraft operations, medical evacuations, and cargo carrying capability were also satisfactorily performed.

The large deck aft and relatively high speed and resistance to roll made vertical lift operations with helicopters particularly easy. While not suitably sized nor strengthened to land or refuel a helicopter, the aforementioned characteristics afforded helicopter pilots significantly more control and margin for error than conventional slower speed vessels. On one occasion a medical patient was evacuated from a conventional Coast Guard cutter and transported quickly to within range of land based helicopters. The personnel transfer was accomplished successfully and resulted in the patient reaching medical facilities 6 to 8 hours sooner than would have been possible with conventional vessels.

Speed was one of the obvious advantages of CGC DORADO. The craft was able to transit in excess of 30 knots in low sea states in spite of the operating displacement of 147 long tons (149 metric tonnes) which was well in excess of the designed displacement of 125 long tons (127 metric tonnes). This advantage continued even with speeds of 28 knots in seas up to eight feet. During one patrol CGC DORADO encountered 12 to 14 foot (3·6 to 4·3 m) seas, and swells to 18 feet (5·5 m). The crew was able to make good 16 knots into the seas, and 25 knots when running with the seas. This range of relatively constant high speeds with increasing sea states was found to be a particularly desirable feature. Once DORADO, responding to a call for assistance, beat a helicopter to the scene of a burning yacht. Slow speed operations, however, use considerable fuel, hence normal operations were usually conducted at or near full speed. Fig. 6 shows fuel consumption plotted against speed. The transit speed of around 30 knots had positive effect on crew morale as well. When on patrol in the Yucatan region, CGC DORADO could be ordered home, and within 19 hours grant liberty. Conventional cutters would take two days or more to cover the same distances. The high level vibrations and rapid speed of advance made conventional navigation methods near obsolete however. Automatic position plotters, using

o indicates USCG Bases from which CGC DORADO operated June-December 1981

Fig. 5. USCGC DORADO
Areas of Operation

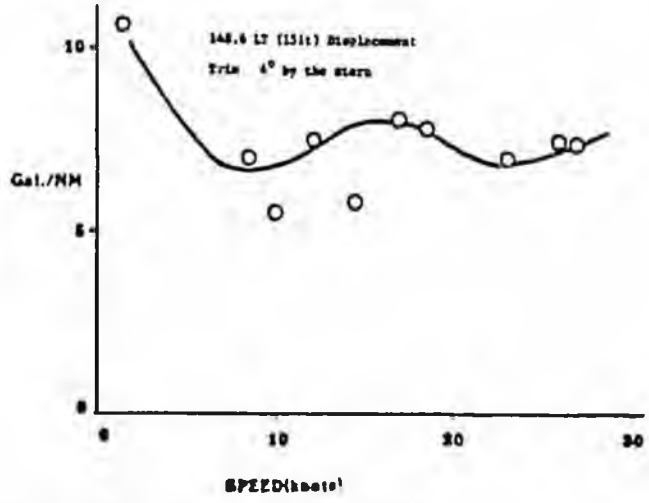


Fig. 6. Fuel Consumption versus Speed
Measured 2-3 December 1981

Loran-C, were utilised, and stabilised binoculars for bridge lookouts were a necessity.

Ship speed was found to be very sensitive to trim adjustment. At or near full load displacement, CGC DORADO was very sensitive to the position of its longitudinal centre of gravity. The crew had to become much more aware of trim than on a conventional ship, because improper trim would often prevent achievement of hump speed. Operations were then limited to between 18 to 22 knots until trim conditions were corrected.

The range for DORADO was about 1000 miles at a full speed of 30 knots. However, as sea state increased, fuel consumption remained almost constant at 160 gallons per hour according to the crew while transit speed decreased accordingly. Even with two ruptured bow seal fingers however, fuel consumption at full throttle was about the same rate of 160 gallons per hour while speed was only reduced to 18 knots.

The seaworthiness and habitability of CGC DORADO proved to be two particularly desirable features. With the broad beam, crew living conditions aboard compared more to shore side barracks than they did to shipboard conditions. Ship motions, particularly heaving and lurching, were rough during full speed operations and often prevented normal activities. However, due to the seaworthiness of the hull, either a course alteration, or a complete stop, would moderate motions to such a significant degree that activities approaching inport routine could be conducted. One method of operation that developed was to stop and drift once the operating area had been reached. This technique provided an extremely well rested and alert crew for when action was required, as well as a method to conserve fuel. This is in contrast to conventional vessels which would, of necessity, be steaming at slow speeds in their patrol areas.

Noise and vibration were two negative factors determined during the trial. The main engines were hard mounted to the aluminium hull structure, and as a result, transmitted engine noise throughout. The craft, being a prototype, has some insufficient propeller tip clearance induced vibrations. The propellers were turned down from 42 inch (1·06 m) to 40 inch (1·02 m) diameter before delivery to US Navy/US Coast Guard in a partially successful attempt to alleviate this source of vibration. The inherent pneumatic spring effect of the air cushion also contributed to the unusual motions. While the motions often seemed extreme to visitors, the fact remains the crew lived and functioned very well for the six month evaluation period.

The vibrations did contribute to numerous piping failures and hull cracks. These failures illustrate the need for care in designing aluminium craft. Flexible connections and more numerous pipe system supports would have reduced the occurrence of these failures. Strengthening of hull plating in discovered weak areas, as well as more use of continuous, rather than skip welding techniques would lessen the occurrence of hull cracks. Bell Halter has incorporated hull thickness changes on the next generation design of these vessels.

Operationally, the DORADO presented a small radar and visual target when viewed from a bow aspect. This was useful when coupled with the high speed of the vessel while the craft was being used in law enforcement missions.

The broad beam allowed large deck space aft, suitable for cargo. This area, however, was subjected to spray and was often quite wet when the craft was underway on cushion at high speeds. The widely separated propellers provided DORADO with excellent manoeuvrability at pier side and when alongside other vessels at sea. This feature, along with the stable ride was particularly useful when DORADO was resupplied by other Coast Guard cutters. The manoeuvrability, coupled with the variable deck height, due to lift engine throttle settings, was used to advantage by DORADO's crew during boardings and inspection of other vessels. DORADO would manoeuvre alongside, then adjust cushion height, to match deck levels, allowing the boarding crew to step directly from one ship to the other.

The broad beam, and shallow step aft also allowed easy boat launching and over the side operations. The crew reported a significantly improved sense of safety during these operations when compared to conventional patrol vessels. Items were easily launched and recovered off the stern platform. Small Coast Guard boats moored across the stern on occassion. Towing was likewise easy. The location of the tow bitt was found to be troublesome, as it rendered so much of the stern unusable (Fig. 2). The tow point could be moved further aft without detriment because of the wide set screws.

The crew learned to operate the craft quickly. The only controls beyond those found on a normal vessel were the lift engine controls. The large beam and draught, when off cushion, were factors the operators had to keep in mind when operating in restricted waters however.

The installed ground tackle proved inadequate. The two 90 pound Danforth type anchors, standard equipment aboard 95-foot patrol boats, proved inadequate to hold DORADO when trailing a pollution containment boom astern.

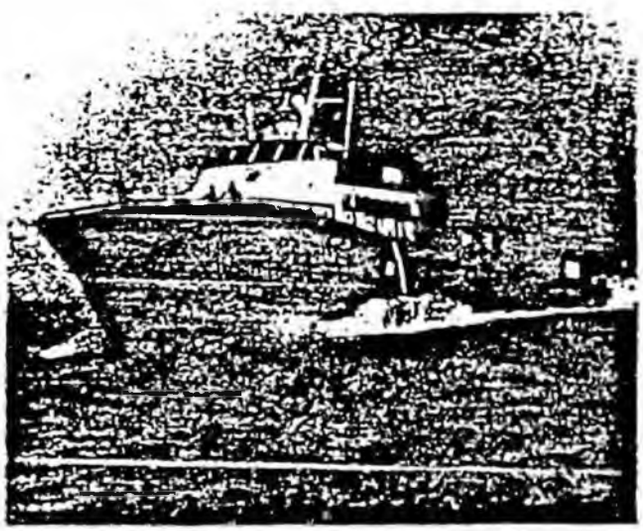


Fig. 7. USCGC DORADO in transition from hull borne to cushion borne mode of operation. Note eight bow finger seals.
Official US Coast Guard Photo.

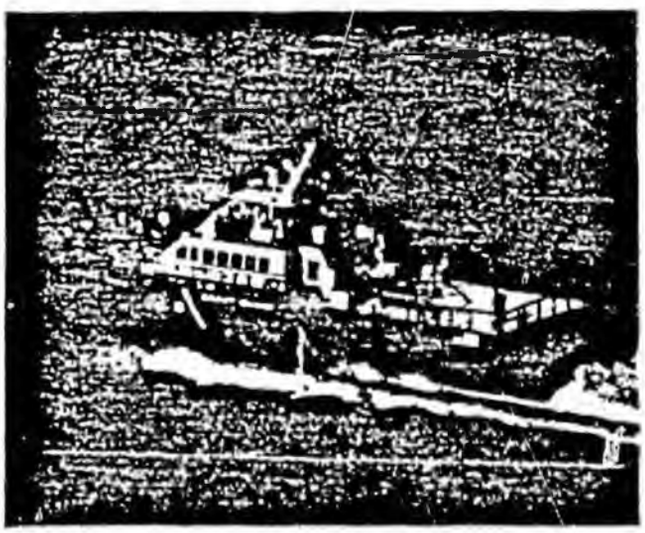


Fig. 8. USCGC DORADO aerial view from port quarter while operating on cushion.
Official US Coast Guard Photo.

The aluminium construction allowed f unpainted interior spaces, and hence reduced maintenance despite the increased area to be cleaned. The low melting point of aluminium requires adequate fire protection. The installed carbon dioxide fire extinguishing system and remote ventilation fan shut off switches proved vital during the evaluation of DORADO.

Engineering experience aboard CGC DORADO has shown the craft is within the scope of normal maintenance expertise found on other Coast Guard cutters. The diesel propulsion and conventional ship characteristics offered no problem for crew operations. The main diesel engines are common to those used on 95-foot Coast Guard patrol boats. The only feature unique to the DORADO are the bow and stern seals. There were no repairs made to the seal system, except direct replacement, so an assessment of the crew's capability to make repairs cannot be made.

The extensive use of aluminium pipe and the use of dissimilar metals in piping systems, such as brass valves, are a potential problem. The generous use of protective zincs is necessary for long term operation of craft similar to DORADO. Similarly, vibration mounts, flexible bulkhead penetrations, and more supports for pipes should be installed to reduce one of the major maintenance problems encountered on DORADO.

5. CONCLUSIONS

In summary, the six month operational evaluation of the USCGC DORADO proved that the SES concept can be valuably employed as a Coast Guard resource. The craft proved equal or more capable in conducting most of its missions than comparable Coast Guard cutters. While problems and limitations with the concept and this particular vessel exist, solutions are not beyond the reach of technology. On balance, the concept is valuable and useful in pursuit of many Coast Guard missions.

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File Name: [F0]<SeaHawkCo>FY87-Stats

USCGC SEA HAWK(WSES-2)
OPERATIONAL STATISTICS FY-87

MISSION SUMMARY

CATEGORY	MISSIONS	RES HRS	INPORT OPS HRS	HIGH READY HRS
SAR	19	156	0	0
ELT-DRUGS	19	2450	72	14
ELT-OTHER	3	55	0	0
OPTRA	12	23	106	0
PIA	6	11	10	0
MISC	12	66	18	0
TOTAL	71	2761	206	14

TOTAL MAINTENANCE HRS: 4424
TOTAL STANDBY HRS: 1355

EMPLOYMENT SUMMARY

CATEGORY	HOMEPORT	AWAY FROM HOMEPORT	TOTAL
U/W DAYS	33	122	155
INPORT OPS DAYS	15	0	15
HIGH READY DAYS	0	0	0
MAINTENANCE DAYS	157	2	159
STANDBY DAYS	36	0	36
TOTAL	241	124	365

MISCELLANEOUS INFORMATION

NR OF PATROLS: 21
FUEL CONSUMED: 193,636 GALS
MILES CRUISED: 21,121 NM
SIGHTINGS: 332
BOARDINGS: 59

SEIZURES: 3

DATE	VSL NAME	CONTRABAND	ARRESTS
05 MAY 87	F/V NATALIA DEL MAR(US)	4,000 LBS MJ	5
22 JUN 87	S/V ESMERALDA(US)	150 LBS MJ	3
01 SEP 87	M/V LUCELIA(HA)	2,055 LBS COKE	5

HMIO INTERDICTIONS: 2

DATE	VSL NAME	POB
30 MAR 87	M/V MARIE FLORE(HO)	140
21 JUL 87	S/V DIEU D'AMOUR(HA)	136

USCGC SHEARWATER (WSES-3)
OPERATIONAL STATISTICS FY-87

MISSION SUMMARY

CATEGORY	MISSIONS	RES HRS	INPORT OPS HRS	HIGH READY HRS
SAR	11	92	0	0
ELT-DRUGS	32	2516	109	23
ELT-OTHER	1	16	1	0
OPTRA	19	27	0	0
COOP-FED	2	60	0	0
PIA	6	66	0	0
MISC	14	142	24	0
TOTAL	85	2919	134	23

TOTAL MAINTENANCE HRS: 4022
TOTAL STANDBY HRS: 1662

EMPLOYMENT SUMMARY

CATEGORY	HOMEPORT	AWAY FROM HOMEPORT	TOTAL
U/W DAYS	10	158	168
INPORT OPS DAYS	0	0	0
HIGH READY DAYS	2	0	2
MAINTENANCE DAYS	78	69	147
STANDBY DAYS	48	0	48
TOTAL	138	227	365

MISCELLANEOUS INFORMATION

NR OF PATROLS: 31
FUEL CONSUMED: 231,178 GALS
MILES CRUISED: 28,833 NM
SIGHTINGS: 146
BOARDINGS: 49

SEIZURES: 3

DATE	VSL NAME	CONTRABAND	ARRESTS
08 OCT 86	S/V JOUER (UK)	400 LBS MJ	2
16 DEC 86	S/V CONQUEST(US)	1,851 LBS MJ	3
16 MAY 87	S/V ALGERNON (US)	1,000 LBS MJ	2

MIGRANT INTERDICTIONS: 1

DATE	VSL NAME	POB
01 MAY 87	M/V STONEINGTON(US)	18

USCGC PETREL (WSES-4)
OPERATIONAL STATISTICS FY-87

MISSION SUMMARY

CATEGORY	MISSIONS	RES HRS	INPORT OPS HRS	HIGH READY HRS
SAR	26	201	0	0
ELT-DRUGS	32	3623	20	2
ELT-OTHER	1	24	0	0
ELT-FISHDOM	1	1	0	0
OPTRA	29	109	10	0
PIA	3	7	0	0
ATON	1	3	0	0
MISC	8	25	0	0
TOTAL	101	3993	30	2

TOTAL MAINTENANCE HRS: 2778
TOTAL STANDBY HRS: 1957

EMPLOYMENT SUMMARY

CATEGORY	HOMEPORT	AWAY FROM HOMEPORT	TOTAL
U/W DAYS	27	182	209
INPORT OPS DAYS	2	0	2
HIGH READY DAYS	0	0	0
MAINTENANCE DAYS	101	0	101
STANDBY DAYS	53	0	53
TOTAL	183	182	365

MISCELLANEOUS INFORMATION

NR OF PATROLS: 36
FUEL CONSUMED: 362,323 GALS
MILES CRUISED: 36,472 NM
SIGHTINGS: 189
BOARDINGS: 105

SEIZURES: 8

DATE	VSL NAME	CONTRABAND	ARRESTS
07 OCT 86	F/V GUADELUPE	70 LBS MJ	4
12 OCT 86	S/V RAINBOW CHASER	3,400 LBS MJ	2
11 MAR 87	FL 5778 EY	RESIDUE	5
03 APR 87	FL 5334 SH	RESIDUE	5
06 JUN 87	FL 3804 EY	HIDDEN COMPT	2 DET
12 AUG 87	P/C REMAN	HIDDEN COMPT	3 DET
10 SEP 87	S/V WONTON	100 LBS MJ	4
25 SEP 87	P/C EXCALIBUR	ILL EXPORT ELECTRONIC EQUIPMENT	2

MIGRANT INTERDICTIONS: 0

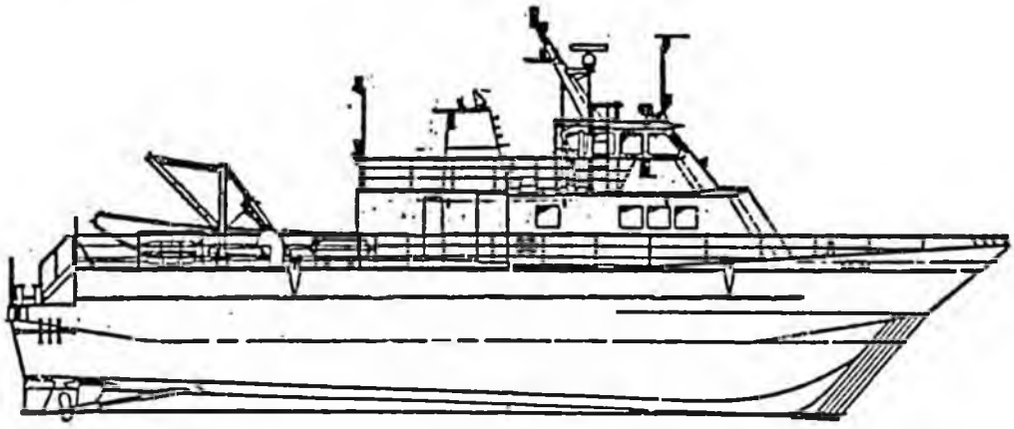
LACY ACT:

DATE	VSL NAME	VIOLATION
22 FEB 87	F/V LITTLE JOE	730 LBS SHRIMP SEIZED FOR FISHING IN MX WATERS

U.S. Department of Transportation **Fact Sheet**

United States Coast Guard

Public Affairs Office, 2100 2nd St. SW, Washington DC 20593-0001 — 202-267-2304



THE SURFACE EFFECT SHIPS (WSES)

The three U.S. Coast Guard Surface Effect Ships are a new concept in patrol craft. These rigid side wall hovercraft are used primarily for enforcement of laws and treaties, especially drug or illegal migrant interdiction and marine environmental protection.

With a maximum speed greater than 30 knots, the SESs assure rapid response for rescue cases, pollution containment and law enforcement while the thirty-nine foot beam provides a stable platform in most sea conditions. The ship is constructed of welded marine aluminum, has two 1800 horsepower diesel engines for propulsion, mounted in the side walls and two smaller diesels for lift.

The lift engines drive fans that create a pressurized air cushion under the vessel, which lifts the vessel, thus reducing drag and draft. The two solid side walls pierce the water surface, formimg a catamaran hull and the air cushion is sealed by flexible rubberized skirts at the bow and stern.

Because Surface Effect Ships are designed with low length to beam ratio they are stable at high speeds. When on cushion they have a shallow draft, which can still be maintained at low speeds. The large freeboard area can be adjusted by controlling the lift fans, a useful docking feature. Until wave height approaches the freeboard, speed and ride comfort are not reduced. SESs are highly maneuverable even at low speeds with propeller and rudder in each side hull.

The SESs were manufactured by Bell Halter Inc. in New Orleans, Louisiana. Detroit Diesel Division of General Motors built the 16V-149TIB marine engines in Detroit, Michigan.

SURFACE EFFECT SHIP SUMMARY

PRINCIPAL

Length Overall: 109 feet 3/4 inch

Beam: 39 feet

Full Draft: 8 feet 3 inches

On Cushion: 5 feet 6 inches

Hull Material: Aluminum Alloy
Super Structure: " "

Full Load Displacement: 150 tons

Maximum Operating Speed: 30+ knots

Best Economical Speed: 26 knots

Endurance: 7-10 days

Cruising Range: 1100 n.m.
@25 knots

MACHINERY

Lift: 2 Detroit Diesels
350 HP
2-two stage 40" diameter
lift fans

Main Engines: 2 General
Motors Diesels 1800HP
@1900 RPM

Generators: 2 GM Diesels
(55kw)

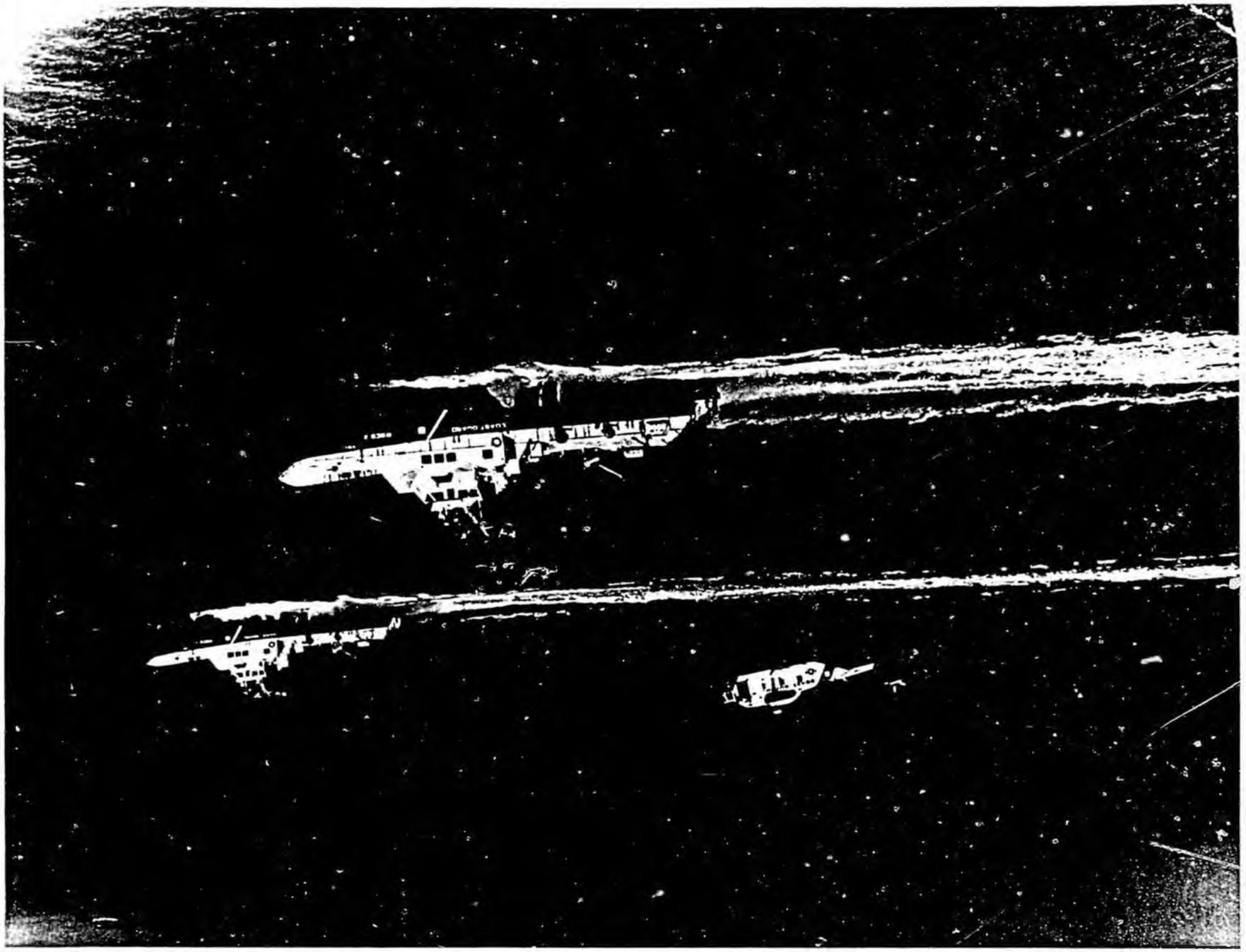
ACCOMMODATIONS

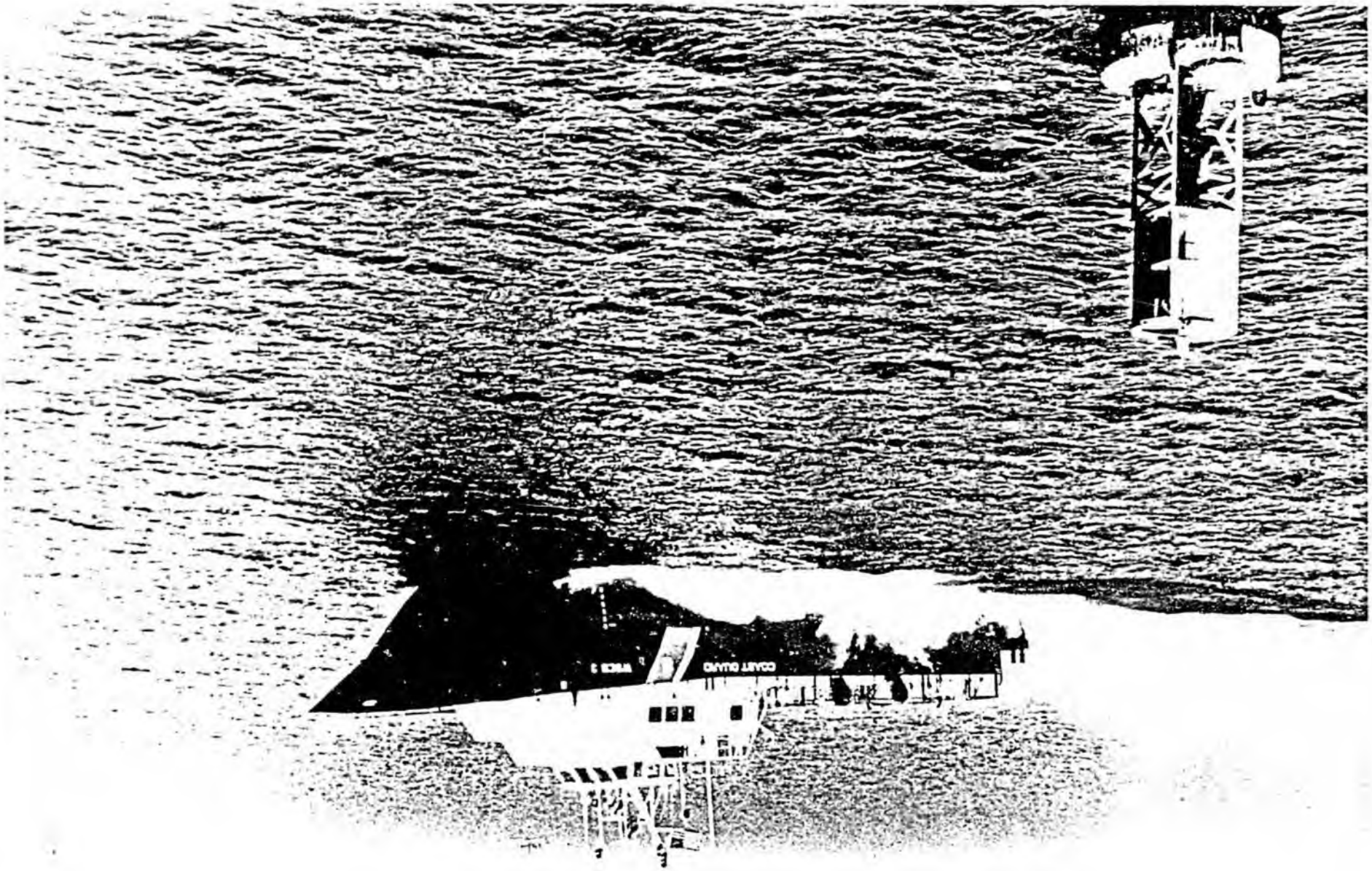
2	Officers
1	CPO
14	Crewmen
1	Spare
18	

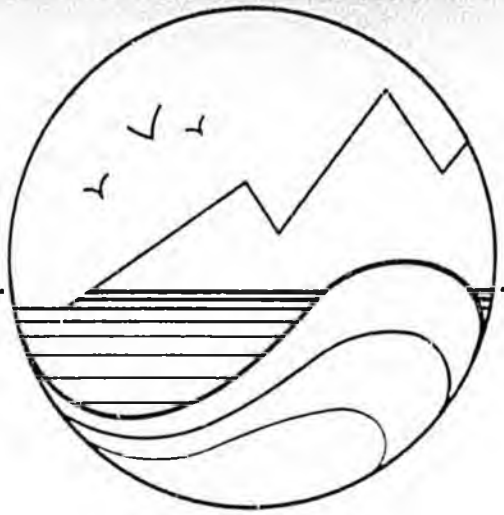
SURFACE EFFECT SHIPS

SEA HAWK	WSES-2
SHEARWATER	WSES-3
PETREL	WSES-4

Home Port: 7th. District
Key West, Florida




COAST GUARD



Southeast Alaska Transportation Plan

Evaluation of Corridor Alternatives

Juneau Access (Lynn/Taku Corridors)

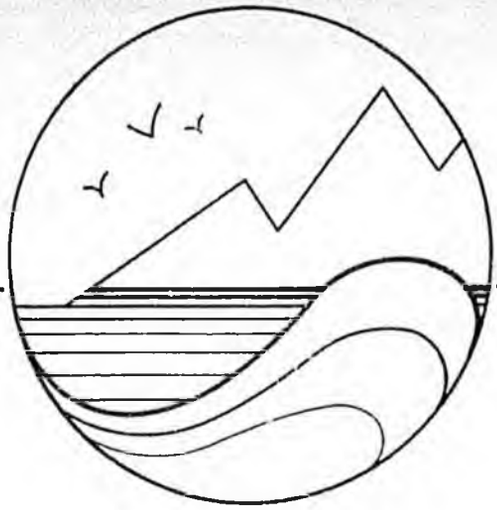
Prepared by

Acres International Corporation

for

Alaska Department of Transportation and Public Facilities

March 1986



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EVALUATION OF CORRIDOR ALTERNATIVES - LYNN CORRIDOR

1 - INTRODUCTION

1.1 - General

As part of the update of the Southeast Alaska Transportation Plan, a number of studies were carried out relating to the provision of surface transportation services within subsections or corridors of the overall region. These subregional studies were used as a screening process, to examine a number of transportation options within a particular corridor in isolation from the balance of the system and to identify, at a restricted level of analysis, those options which seemed most promising and hence which warranted further consideration in the context of the total regional transportation system. In all, five corridor studies were carried out dealing with transportation issues and alternatives with regard to Juneau Access (Lynn/Taku Corridors), the Ketchikan-Southern Terminus Corridor, the Stikine Corridor, the Sitka Access Corridor, and the Prince of Wales Island Access Corridor.

This report describes the process and the findings of the corridor study relating to Juneau Access including the Lynn Canal and Taku River Corridors. It outlines the anticipated transportation requirements in the corridors, identifies the options which were considered, and describes the evaluation of the various options in terms of financial implications, user impacts and service/cost effectiveness.

1.2 - Description of Corridor

The Lynn Corridor analysis examined the provision of road and marine transportation services up and down the Lynn Canal, connecting the communities of Juneau, Haines and Skagway (see Figure 1). The corridor serves passenger and vehicle traffic between these three communities and also acts as the

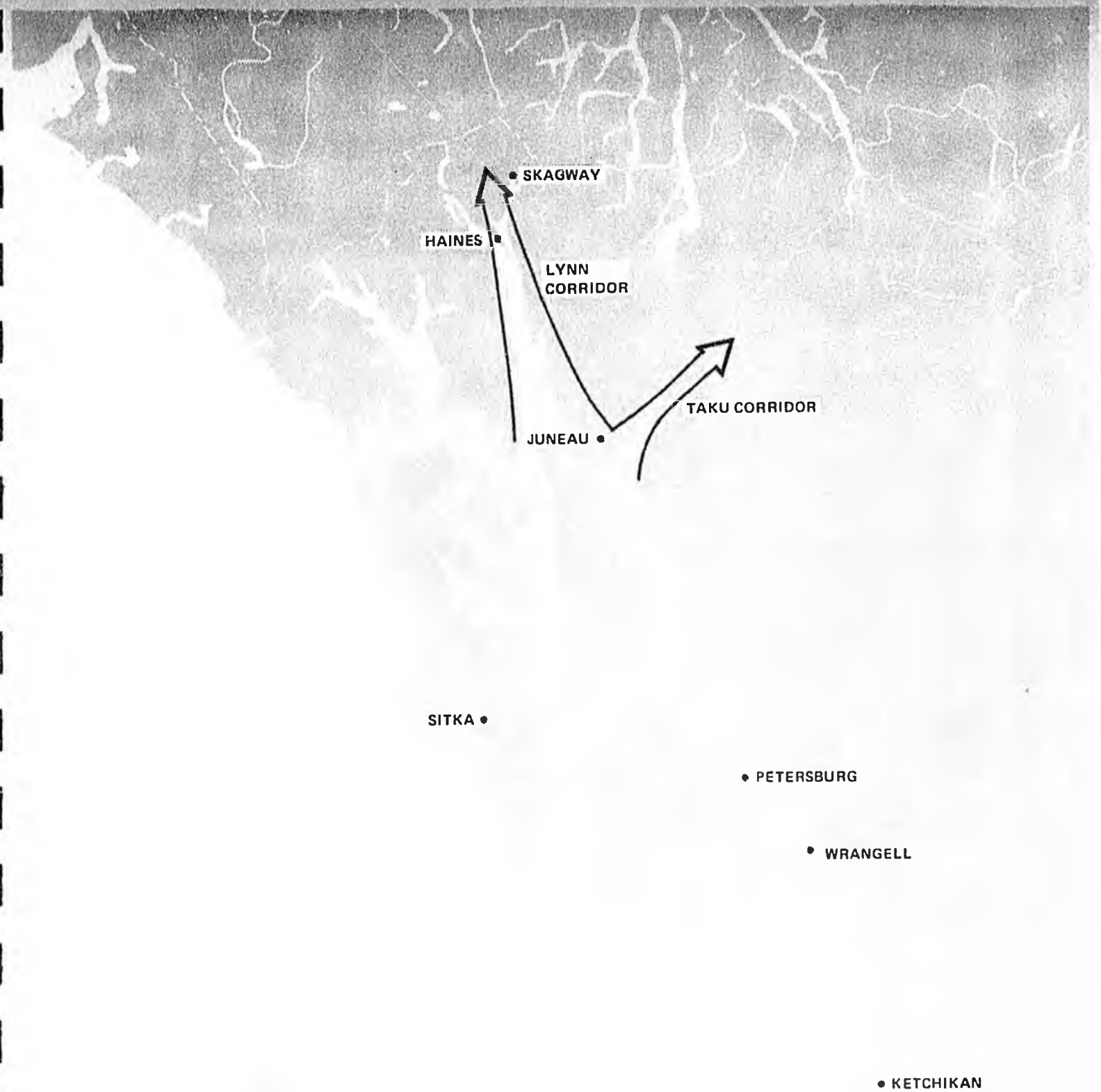

Figure 1

JUNEAU ACCESS CORRIDORS

northern terminus of the Southeast Marine Highway system. As such, it connects Haines, Skagway and points north with other southeast communities and with the Lower 48. The Taku Corridor analysis (see Figure 1) examined the possibility of utilizing the Taku River Valley as a means of connecting Juneau with the continental road system and hence, with other communities having access to the roads.

1.3 - Scope of Analysis

For the corridor analysis, the Lynn Canal was treated as a separate transportation system. The assessment of options considered only the provision of service within the Juneau-Haines-Skagway triangle without regard to connections required north and south of the corridor. Service options, financial implications and user impacts relate only to that portion of a trip which falls within the corridor boundaries. Impacts accruing outside the corridor as a result of different corridor options were included at the next stage of analysis as part of the assessment of regional systems.

Similarly, the Taku Corridor was regarded as a separate transportation system, primarily providing access between Juneau and the road systems of Yukon and Alaska. While the corridor could be used as a means of connecting with the Alcan Highway and hence, with the southbound Stewart-Cassiar Highway out of Watson Lake, this would involve a significant detour for traffic to and from the south and hence, was not considered to be a viable alternative for Marine Highway traffic to and from the Lower 48.

1.4 - Report Format

The balance of this report is divided into three sections. Section 2 discusses the key factors considered in defining corridor options and describes the physical and traffic components of the alternatives which were evaluated. Section 3 presents the findings of the financial analysis and user impact evaluations, and Section 4 provides a summary of conclusions and recommendations. Two Appendixes are also included which describe in detail

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the methodologies used in developing, costing and assessing corridor alternatives and discuss the theories and methods underlying the evaluation parameters.

2 - CORRIDOR ALTERNATIVES

2 - CORRIDOR ALTERNATIVES

2.1 - Corridor Issues

The Juneau Access Corridor, which currently consists of Marine Highway links between Juneau, Haines and Skagway, represents a problem within the regional transportation context on a number of fronts.

- The Lynn Canal is one of the most intensively used links in the Marine Highway system. In 1984 it carried more passengers than any other link and was second only to the combined Seattle/Prince Rupert to Ketchikan links in terms of total vehicles carried.

- Aggravating this problem, the Lynn traffic tends to be more concentrated into the peak summer months than traffic in other corridors.

- Over 35% of the traffic disembarking in the Lynn boards at either Seattle or Prince Rupert. This makes it difficult for passengers embarking within the Southeast Region to book space on the vessels.

- The Lynn ferry service represents the only surface link between Juneau, the State capital, and the rest of Alaska. For political reasons a faster, more frequent connection would be desirable.

In developing the Juneau Access Corridor alternatives, the key concerns therefore were how to provide additional capacity up the Lynn Canal and/or how to improve service (particularly travel time) between Juneau and the northern terminus.

With these factors in mind, eleven options were developed for the provision of transportation service in the Juneau Access Corridor, with nine involving service via the Lynn Canal and two involving service via the Taku River.

These are described, in terms of physical characteristics and traffic impacts, in the following sections. Figure 2 provides a map of the region showing the key points referred to in the description of alternatives.

2.2 - Base Case - Lynn Option 1

2.2.1 - Description

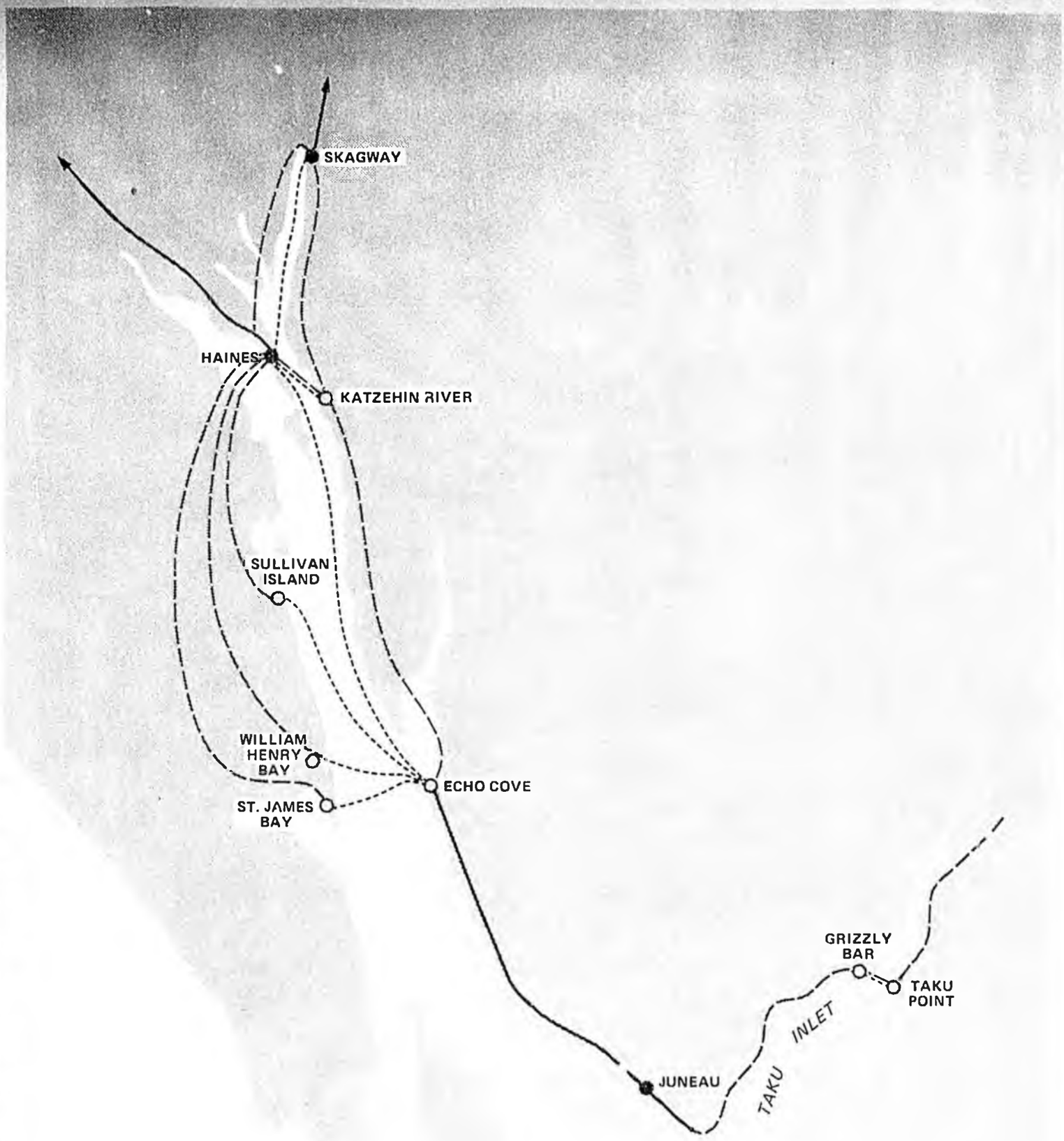
Option 1 involves continuation of the existing ferry service up the Lynn and serves as a base case against which other options can be evaluated. Under this option, peak season service would be provided twice weekly by the Taku, Malaspina and Matanuska, and once a week by the Columbia and the LeConte, giving a weekly total of eight trips.

The annual cost to the Marine Highway of serving the Lynn in this manner was estimated at $7.0 million for vessel operations and $0.4 million for port operations.

Capital costs associated with the existing fleet would add another $3.1 million to this cost. (These figures are based on an average Lynn transit time of 18 hours, multiplied by total hourly costs and total annual Lynn trips for each vessel.)

2.2.2 - Traffic

Under the base case scenario, tourist and resident traffic up the Lynn were assumed to grow at the rates presumed in the travel demand forecasts; viz 4.5% (to 1990) and 2.5% (1991-2005) for tourist traffic and 2.8% (to 1990) and 1% (1991-2005) for residents. Average peak daily demand within the corridor (total embarkations plus total through traffic) was projected at 965 passengers and 215 vehicles in 1990, increasing to 1340 passengers and 300 vehicles by 2005. Of these, approximately 15% were internal Haines/Skagway trips while the balance transitted the Juneau/Haines section of the corridor.



LEGEND

——— Existing Roads

— — — Potential Road Links

-------- Potential Ferry Links

NOTE:

Road links as shown do not necessarily represent proposed alignments.

Figure 2

JUNEAU ACCESS – CORRIDOR ALTERNATIVES

Since the 2005 figures for vehicle demand, when adjusted for links and direction, would exceed the capacity of the existing ferry system, consideration had to be given to assigning the cost of a new vessel to this option when demand reaches capacity (approximately 1998). It was noted, however, that the Lynn Corridor was not the only capacity constraint in the system. In fact, demand would exceed capacity out of Seattle in the early 1990s, thus prohibiting many Lynn-bound users from entering the system. Without new capacity out of Seattle, Lynn capacity problems would not arise since demand would not materialize. With new capacity out of Seattle, Lynn problems would also be eliminated since additional vessels would be in service.

This interaction raised problems with regard to the proportion and timing of new capacity costs which should be attributed to the Lynn Canal. Since this issue was to be dealt with in the system studies, it was decided to maintain the isolated 'corridor' perspective of this analysis by adding a vessel to the Lynn system in 1999 when additional Lynn capacity was needed, and assigning its cost to the Lynn in the same proportion as that of other vessels serving the corridor.

2.3 - All-Road Options - Lynn 2 and 3

2.3.1 - Description

The second and third Lynn Corridor alternatives involved linking the communities of Juneau, Haines and Skagway by road and terminating all marine operations north of Juneau.

Lynn 2, the more costly alternative, involved extending the existing road from Echo Cove up the east side of the Lynn to Skagway and building a bridge across the Chilkoot Inlet at the mouth of the Katzehin River to link Haines to the new road. Total capital cost of this option, which involved 76 miles of new road, was estimated at $440 million of which $290 million was for road construction and the remaining $150 million for the bridge. Annual

operating and maintenance costs for road upkeep were estimated at $2.07 million. Offsetting these were savings associated with closing the ferry terminals at Haines and Skagway--approximately $0.4 million per year.

Lynn 3 also involved building a road up the east side of the canal to Skagway. However, instead of a bridge crossing at Haines, a road would be built down the west side of the canal between Haines and Skagway. The total capital cost of this option, which required 109 miles of road construction, was estimated at $365 million, while road operating and maintenance costs were estimated at $2.52 million per year.

2.3.2 - Traffic

Projected Lynn traffic demand under the 'all road' options was expected to differ significantly from the 'base case' marine highway alternative. Passengers to and from points south of Juneau who were traveling with vehicles were assumed to switch to the road and continue their trip up the Lynn by car. Lynn foot passengers originating at or destined for points south of Juneau, however, were assumed, in large measure, to forego the trip up the Lynn rather than make arrangements to bring or rent a vehicle. Thus only 25% of Lynn foot passengers to and from points south of Juneau were presumed to shift to the road.

Travelers originating at or destined for Juneau were assumed more likely to have access to a vehicle and to make the trip up the Lynn even in the absence of ferry service. All Juneau O/D passengers were therefore forecast to switch to the road, and vehicle numbers were adjusted accordingly.

In addition to carrying traffic which would otherwise move on the Marine Highway, the direct road connections between Juneau, Haines and Skagway were also assumed likely to stimulate additional trips within the Lynn Corridor as a result of the lower cost and greater flexibility of road travel. These trips would largely originate among the residents of the area and would likely be related primarily to recreation/shopping/visiting activities.

Consideration was given to the possibility that some traffic might also be diverted from air but, in view of the frequency and speed of air service within the Lynn and the high proportion of business travelers on this mode, it was decided that such diversions would likely be small in number. The possibility of additional road traffic related to future resource development in the corridor was also reviewed and several potential developments were noted. However, since there are no committed plans for other development along the proposed road corridors beyond existing logging activities, this class of potential traffic, while recognized as a possible addition to demand, was excluded from the quantitative analysis.

Estimating the road-induced recreation type trips involved considerable subjective judgment. There were few data sources available which would assist in predicting the behavior of the local residents if a road were developed. Within Southeast Alaska there are no road links comparable to the proposed Lynn system either in terms of distances involved or the size and amenities of the communities at either end. Some travel propensity data were available for road developments in other parts of the United States and Canada but none represented a reasonable proxy for the Lynn Corridor.

In consequence, the travel propensity data on the two roads most comparable to the Lynn roads were reviewed (the road from Juneau to Echo Cove and the road from Petersburg to Blind Slough) and were adjusted to reflect the longer distances involved in the Juneau/Haines/Skagway trip and the high level of attractions within the Juneau community. It was judged, in light of these factors, that an average daily traffic level of .0075 vehicle trips per capita was appropriate, yielding a projected induced traffic volume of 94 000 vehicle movements in 1991 (the earliest possible time when the road could be operational) and 108 000 movements in 2005. Because of the heavy recreational focus of this traffic it was assumed that 50% of these movements would take place in the peak summer period with the balance divided equally between the shoulder and low seasons.

Total projected traffic on the Lynn roads, including the carryover from points south of Juneau, the existing Juneau/Haines/Skagway traffic, and the induced traffic would total 155 500 vehicle movements in 1991 and 189 100

vehicle movements in 2005 of which, on average, 52% would occur during the peak season. Peak average daily traffic would therefore be approximately 900 vehicle movements per day in 1991 and 1100 vehicle movements in 2005.

2.4 - West-Side Road Options - Lynn 4, 5 and 6

2.4.1 - Description

Lynn options 4, 5 and 6 assessed the potential for building roads up the west side of the Lynn Canal and linking these roads to the east side of the canal and Juneau via a shuttle ferry out of Echo Cove. Three variations of this concept were analyzed.

Lynn option 4 involved operating the shuttle ferry from Echo Cove approximately 17 miles across the canal to St. James Bay, and building a road from St. James Bay through Haines to Skagway--a total of 95 miles. Total construction cost, including ferry terminals at Echo Cove and St. James Bay was estimated at $240 million. Road maintenance and operation was estimated at $1.89 million per year and terminal operations at $0.2 million. Two 60-vehicle shuttle ferries connecting Echo Cove and St. James Bay represented an additional $7 million in capital cost, and added $4.2 million per year to operating expenses.

Lynn option 5 consisted of a shuttle ferry from Echo Cove to William Henry Bay (approximately 14 miles) and a road from William Henry Bay to Haines. Haines and Skagway would be linked by shuttle ferries similar to those operating out of Echo Cove. Total capital cost for the 45 miles of new road and the two new ferry terminals was estimated at $130 million, while road operating and maintenance costs were estimated at $1.14 million per year and terminal operations at $0.4 million. In addition, the four new shuttle ferries (2 on each link) would require an additional capital expenditure of $14 million and annual operating costs of $8.5 million.

Lynn option 6 involved running the shuttle ferry from Echo Cove north to Sullivan Island (approximately 30 miles) and building a connecting road from Sullivan to Haines. As in Option 5, Haines and Skagway would be joined by shuttle ferry. This option involved 21 miles of new road at a total cost (including ferry terminals) of $70 million. Annual road operating and maintenance costs were estimated at $0.9 million while terminal operating costs were estimated at $0.4 million. Four shuttle ferries were assumed at a total cost of $14 million capital and $8.5 million per year operations. However, under this option it is likely that, towards the end of the 1990s, an additional shuttle would be required on the Echo Cove- Sullivan Island link, since the longer voyage time significantly reduces the shuttles' daily ability to carry traffic.

2.4.2 - Traffic

In projecting demand on the three west side road options, the same assumptions were made regarding the diversion of existing ferry traffic as under the 'all-road' options; that is:

- all Lynn passengers with vehicles originating at or destined for points south of Juneau would divert to the road

- 25% of Lynn foot passengers to/from points south of Juneau would divert to the road while 75% would forego the trip

- all internal Lynn passengers (i.e., those traveling between Juneau, Haines and Skagway) would divert to the road/shuttle.

The ability of the road/shuttle options to generate new traffic, however, was judged to be lower than under the all road options. The main deterrent to high volumes of induced traffic was felt to be the potential delay associated with the shuttle ferry. With two ferries operating across the Lynn, the minimum interval between departures would be 1.5 hours on the William Henry Bay option, rising to as much as 2.75 hours on the Sullivan Island route. While this could be tolerable if the road trip could be timed so as to just connect with the ferry, in peak travel periods (e.g., on a

summer weekend) when as much as half the daily traffic may want to travel within a span of a few hours, a vehicle may have to wait for two or three ferries in order to be accommodated.

This peaking problem, together with the relatively long ferry trips, was felt to detract from the three road/shuttle options in terms of generating additional traffic within the Lynn Canal. It was therefore assumed that, under these three options, total induced traffic would amount to 23,500 vehicle trips in 1991, and 27,000 trips in 2005, or roughly one-quarter of the volumes induced under the all-road options.

Total projected traffic including carry over from the existing system and new induced travel would amount to 85 000 vehicle movements in 1991 and 108 000 movements in 2005, of which slightly over 50% would occur during the peak season. Average daily traffic in the peak would therefore be 490 vehicles per day in 1991 rising to 625 by 2005.

2.5 - East-Side Road/Shuttle Options - Lynn 7 and 8

2.5.1 - Description

Since the operational attractiveness of the all-road options (Lynn 2 and 3) was offset in part by the high cost of linking Haines to the road system (either through a bridge at Chilkat Inlet or a road from Haines to Skagway), it was decided to examine the possibility of building a road up the east side of the canal and connecting it to Haines via a shuttle ferry. A shuttle to Haines was considered to be potentially more attractive than an Echo Cove crossing first because of the shorter crossing time and secondly because the greater distance from Juneau might dissipate some of the peaking problems before the ferry crossing was reached.

Two variations on this concept were examined. In the first, Lynn 7, a road would be built to the Katzehin River with a shuttle ferry connection to Haines. Haines and Skagway would be linked by another ferry shuttle. Total

capital cost for 52 miles of new road and a terminal at Katzehin River was estimated at $210 million while road operating and maintenance costs were estimated at $1.56 million per year and terminal operating costs at $0.4 million. In addition, four shuttle ferries would be required at a total capital cost of $14 million plus $8.5 million per year for operations.

Lynn option 8 also involved a road to Katzehin River and a shuttle to Haines but under this option the road was continued up the east side of the canal from Katzehin to Skagway. Total road capital cost (including a Katzehin River shuttel ferry terminal) was estimated at $270 million while road maintenance and operations would require $1.94 million per year and terminal operations would require $0.2 million annually. Two shuttle ferries would also be required but it was felt that, with the road running direct to Skagway, the traffic demand on the shuttle would be lower than under other cross-canal options and smaller vessels could be used. Total ferry capital cost was therefore estimated at $4.0 million while total annual operating costs would be $3.0 million for the two vessels.

2.5.2 - Traffic

Total Lynn traffic under the east-side road shuttle options was predicted to reach the same levels as under the all-road alternatives (Lynn 2 and 3); that is, the standard share of carry over from existing ferry traffic and a high level of induced traffic in the corridor. It was felt that the induced traffic would be less deterred than in the west-side road shuttle options due to the short and frequent shuttle connection to Haines and to the reduced peaking problems associated with the greater distance from Juneau and the potential for intervening stopovers.

The distribution of induced traffic was assumed to differ somewhat from the all-road options. Under Lynn 7, where Haines and Skagway are connected by shuttle ferry, most of the induced traffic was presumed to travel between Juneau and Haines. Under Lynn 8, where the east road continued to Skagway, induced traffic was assumed to be spread more evenly between the two northern terminals.

2.6 - High-Speed Shuttle - Lynn Option 9

2.6.1 - Description

The final alternative considered for Lynn Canal service was the use of high-speed ferries to link Juneau, Haines and Skagway out of a terminal at Echo Cove. Echo Cove was chosen as the southern terminus both to avoid conflicts in operations at Auke Bay and because the lesser marine distances allowed higher utilization of the vessels.

Because of the large traffic volumes involved, it was judged that the most appropriate type of craft would be a large (40 vehicle, 180 passenger) high speed (46 mi/h) vessel of the surface-effect-ship class. The Bell-Halter 350B SES was selected as representative of this type of ship.

These ferries were conservatively assumed to make three round trips each during a 16 to 18-hour day in the peak season and two round trips per day over a 10 to 12-hour day in the off peak. Two ferries would be required during the early years, with a third being added in the mid-1990s as traffic volumes increase. Each ferry would cost approximately $12 million to purchase and approximately $4.2 million per year to operate. The capital cost of upgrading the road to Echo Cove and constructing a terminal there was estimated at $7 million. Road maintenance and operations would add approximately $0.6 million per year to the cost, while ferry terminal operations were estimated at $0.6 million annually.

2.6.2 - Traffic

Total projected traffic under the high-speed shuttle option was assumed to be the same as under the west-side road shuttle options (Lynn 4, 5 and 6); that is, the standard level of carry over from existing traffic and the lower level of induced traffic. This assumption may be somewhat optimistic since, with a 3-hour arrival interval between vessels during the early years, this option is particularly sensitive to peaking problems. On the other hand, the high-speed shuttle option is also more adaptable to a

reservations system than a cross-canal shuttle would be, and some peak-spreading should therefore be possible.

2.7 - Taku Corridor Options - Taku 1 and 2

2.7.1 - Description

In additon to the Lynn Canal routes, two other options were considered under the heading of "Juneau Access". These involved construction of road links up the Taku Inlet and Taku River valley to connect Juneau with the existing Yukon/British Columbia road out of Atlin, B.C.

The first option (Taku 1) involved extending the existing Thane Road up the west bank of Taku Inlet to Grizzly Bar, constructing a bridge to the east bank (Taku Point) and continuing along the east bank to the Canadian border. A total of 50.4 miles of new road would be required at a capital cost of $202.5 million. Road operating and maintenance cost would add a further $1.2 million per year.

The second option (Taku 2) followed the same route as the above. However, instead of building a bridge across the inlet at Grizzly Bar, two shuttle ferry terminals would be built and a small ferry used to cross to Taku Point. This option would involve 49.9 miles of new road at a capital cost (including terminals) of $143 million. Annual road maintenance and operations were estimated at $1.1 million. Capital cost for a small shuttle ferry would be in the order of $2 million while annual ferry operating costs would be in the order of $1.5 million.

While the Taku River options would provide competitive connections for travellers between Juneau and points in Yukon and Central Alaska, they would represent a poor alternative to the Marine Highway for travellers between Juneau and Haines/Skagway. Overland distances from Juneau to Skagway under these options would be approximately 300 miles (versus 93 by water) while overland distances to Haines would be almost 500 miles (versus 78 by water). Accordingly, in order to serve Haines and Skagway and provide them with

adequate links to the rest of the Southeast Region, it would probably be necessary to continue Marine Highway operations in the Lynn Canal either at or near existing levels. Thus, the Taku Corridor options, unlike the Lynn alternatives, would not provide any offsetting marine cost savings in the regional systems context.

It should also be noted that the road cost figures quoted earlier in this section cover only the portion from Juneau to the Canadian border. An additional 85 miles of new road would be required in British Columbia in order to connect the Taku Road with the road out of Atlin. In discussions with the B.C. Government, it was indicated that further road connections into the Atlin area were not regarded as a priority, particularly in light of government spending constraints and the more urgent needs for development funding elsewhere in the Province. Accordingly, there is some question with regard to the feasibility of a Taku connection, at least until such time as the B.C. Government indicates a positive interest in developing such a link.

2.7.2 - Traffic

Potential traffic on the Taku Corridor was difficult to estimate due to the lack of data with regard to the proportion of existing Lynn Corridor traffic which originated at or was destined for points north of Haines and Skagway and which hence might be induced to transfer to the road. Even if this were known, there is some question as to the portion which would divert to the Taku Road, particularly if they also embarked or disembarked at a point south of Juneau and hence were obliged to make part of the trip by ferry.

The most probable market for the Taku River road would likely consist of current vehicle traffic between Juneau and points north of Haines and Skagway. Some portion of this traffic might be captured by the road link. In addition, some induced traffic out of Juneau might be expected to use the new road. The volumes of both categories of traffic, however, are likely to be lower than those attracted to a new Lynn Canal route for two reasons. First, a Taku Road would be obliged to compete with ongoing Lynn ferry

service for traffic out of Juneau and secondly, it would not serve as an inducement factor for traffic out of Haines and Skagway but only for traffic out of Juneau.

2.8 - Summary of Costs

Table 2.1 presents a summary of the capital and operating cost associated with each of the Juneau Access options. For purposes of the summary, capital costs are presented both in total and on an annualized basis with the latter being calculated using a 5% - 30 year capital recovery factor for roads and terminals and a 5% - 15 year factor for vessels.

TABLE 2.1

JUNEAU ACCESS OPTIONS - SUMMARY OF COSTS

		TOTAL CAPITAL				ANNUALIZED COSTS				
		Roads		Vessels	Terminals	Road/Terminal Capital	Road/Terminal Operatic	Vessel Capital	Vessel Operations	Total
		(mi)	($millions)	($millions)	($millions)	($millions)	($millions	($millions)	($millions)	($millions)
L1	Existing System	-	-	32.4[1]	-	-	0.4	3.1	7.4	10.9
L2	East Road/Bridge	76	440.0	-	-	28.7	2.1	-	-	30.8
L3	East Road/Road	109	365.0	-	-	23.8	2.5	-	-	26.3
L4	West-St. James Bay	95	231.5	7.0	8.5	15.7	2.1	0.7	4.2	22.7
L5	West-William Henry Bay	45	119.0	14.0	11.0	8.5	1.5	1.4	8.5	19.9
L6	West-Sullivan	21	61.5	14.0/17.5	8.5	4.6	1.3	1.4/1.7	8.5/10.7	15.8/18.3
L7	East to Katzehin	52	204.0	14.0	6.0	13.7	2.0	1.4	6.5	25.6
L8	East Road/Shuttle	70	264.0	4.0	6.0	17.6	2.1	0.4	3.0	23.1
L9	High Speed Ferry	-	2.0	24.0/36.0	5.0	0.5	1.2	2.3/3.5	8.4/12.6	12.4/17.8
T1	Taku Road/Bridge[2]	56	202.5	32.4[1]	-	13.2	1.6	3.1	7.4	25.3
T2	Taku Road/Shuttle[2]	55	141.0	34.4[1]	2.0	9.3	1.5	3.3	8.9	23.0

[1] $32.4 million represents Lynn Canal share of total capital value of existing mainline fleet (based on replacement cost).

[2] Presumes continued ferry service up Lynn Canal.

3 - EVALUATION OF ALTERNATIVES

3 - EVALUATION OF ALTERNATIVES

In order to assess the preferred options for service in the Juneau Access Corridor, a detailed assessment was carried out with regard to the financial and user impact implications of the various alternatives. The two Taku Corridor options were not included in this assessment primarily because they were very close, in cost terms, to the Lynn alternatives yet would serve lower traffic levels and would require extensive investment on the part of the British Columbia Government in order to be implemented.

3.1 - Financial Evaluations

The nine Lynn corridor alternatives were each evaluated from the viewpoint of financial impacts on the Marine Highway, on the State and on the users. Details of the methodologies and the basis for cost and revenue figures used in this analysis are outlined in Appendix A.

The findings of the financial analysis are summarized in Table 3.1. The table outlines the net present value of the 20-year total of costs and revenues associated with each option. Costs are categorized for the Alaska Marine Highway System, the State government (including the AMHS deficit) and the users. (Care should be taken in interpreting the 'costs to user' figures, however, since they relate to different levels of traffic and different types of demand. A more detailed analysis of 'cost to user', which adjusts for changing traffic levels and for the different characteristics of traffic served, is given in Section 3.2 which follows.)

As Table 3.1 indicates, from the State's viewpoint the least costly option for serving the Lynn Corridor is Lynn 1, the continuation of existing ferry service. The only ongoing cost which the State must bear is the Marine Highway deficit associated with the service. Furthermore, since the deficit shown includes an allowance for capital cost of the vessels, any federal contributions towards capital replacement would serve to further reduce the State's costs.

TABLE 3.1

LYNN CORRIDOR OPTIONS -
FINANCIAL ANALYSIS
($ millions - Net Present Value of
20 year Total Discounted at 5%)

Alternative	Existing System L1	East Road-Bridge L2	East Road-Road L3	West-St. James Bay L4	West-William Henry Bay L5	West-Sullivan L6	East Road to Katzehin L7	East Road-Shuttle L8	High-Speed Ferry L9
Costs to AMHS									
Vessel Capital*	40.8	13.5	13.5	19.0	23.1	26.6	24.5	16.6	36.5
Vessel Operating	90.9	31.9	31.9	64.9	100.9	123.4	99.6	54.9	120.5
Port Capital*	-	-	-	5.1	7.3	5.6	3.6	3.6	3.4
Port Operating	5.2	1.9	1.9	3.4	5.0	5.0	5.0	3.4	6.6
Less Vessel Fares	(68.2)	(20.3)	(20.3)	(39.8)	(57.4)	(70.1)	(57.8)	(33.8)	(69.6)
Net Cost	68.7	27.0	27.0	52.6	78.9	90.5	74.9	44.7	97.4
Costs to State									
AMH Deficit	68.7	27.0	27.0	52.6	78.9	90.5	74.9	44.7	97.4
Road Capital*	-	294.4	244.3	154.9	83.6	43.2	136.5	176.7	1.5
Road Operating	-	16.8	20.5	15.3	10.2	8.1	12.7	15.8	5.9
Less Fuel Tax Revenue	-	(0.5)	(0.6)	(0.3)	(0.3)	(0.2)	(0.4)	(0.5)	(0.1)
Net Cost	68.7	337.7	291.2	222.5	172.4	141.6	223.7	236.7	104.6
Costs to User									
Vehicle Operating	-	19.8	25.7	11.9	10.1	7.5	17.8	19.5	4.9
Vessel Fare	68.2	20.3	20.3	39.8	57.4	70.1	57.8	33.8	69.6
Total	68.2	40.1	46.0	51.7	67.5	77.6	75.6	53.3	74.5
Total Costs (State + User)	136.9	377.8	337.2	274.2	239.9	219.2	299.3	290.0	179.1
Effective Passenger Miles (millions)	282.4	547.5	547.5	316.7	319.0	319.0	528.8	547.5	321.4
Cost per Effective Passenger Mile ($)	0.48	0.69	0.62	0.87	0.75	0.69	0.57	0.53	0.56

*Adjusted to reflect residual value at end of planning period.

As noted earlier, however, the continuation of existing service is expected to handle only the growth in existing corridor traffic, generating a total of 282.4 million effective passenger-miles of travel over the 20-year planning period. (Effective passenger-miles are calculated by multiplying the number of passengers on each link by the travel miles over the most direct route rather than over the actual route between two points. This eliminates the distortions which might arise in cases where a more circuitous route would appear to generate a greater number of passenger-miles of service.)

Lynn option 9, the high-speed ferry service, represents the next most attractive option from the viewpoint of State finances, followed, at some distance, by Lynn 6 (shuttle to Sullivan Island) and Lynn 5 (shuttle to William Henry Bay). All three provide roughly the same effective passenger-miles of service. The fourth of these 'medium-traffic' options, Lynn 4 (shuttle to St. James Bay), is considerably less attractive financially, chiefly due to the high cost of the road link between Haines and Skagway.

Turning to the four 'high-traffic' east road options, all are more costly than the 'medium-traffic' alternatives. Lynn 7 (road to Katzehin River, shuttle to Haines and Skagway) represents the least costly of these options from the viewpoint of State costs, followed closely by Lynn 8 (road to Skagway, shuttle from Katzehin River to Haines). Lynn options 2 and 3 (the all-road options) are the most costly from the State's perspective.

Table 3.1 also provides figures for the total combined cost (to users and State) and total combined cost per passenger-mile associated with each corridor option. Again from a financial perspective, the existing system appears to be the most attractive option, followed by the east road-shuttle to Haines (L8), the high-speed ferry (L9) and the east road-shuttle to Haines and Skagway (L7) options.

3.2 - Evaluation of Service/Cost Effectiveness

As noted earlier and explained in detail in Appendix A, the figures for cost per passenger mile do not represent a complete basis for comparison of the alternatives. First of all, by treating all passenger-miles on an equivalent basis, they fail to reflect the different types of demand being served, and hence the different values which users assign to the trips involved. Secondly, by considering only the financial aspects of the options, the cost figures do not reflect the different service characteristics of the corridor alternatives in terms of service frequency, flexibility and travel time.

In order to overcome these difficulties, a more comprehensive supplementary basis was developed for evaluating transportation alternatives which attempted to measure the net benefits to users in terms of cost and service and compare these benefits with the additional cost to the State associated with providing the new transportation service. This assessment of service-cost effectiveness for the Lynn Corridor options is described in the following sections.

3.2.1 - User Costs

The first component of user impacts was the potential benefit associated with lower user costs. The costs incurred by users of the Lynn systems were computed, for each option, by dividing the discounted user costs by the effective passenger-miles of service provided. Each option was then compared with the base case (option L1) to determine the user saving per mile of travel.

Savings accruing to 'base' users (i.e., those who would use the system under all options) were calculated by multiplying the saving per passenger-mile by the number of passenger miles of service provided under the base case, Lynn option 1. Savings to incremental users (i.e., those induced to use the system as a result of the improved service and/or cost) were calculated by

multiplying the difference between total passenger-miles and 'base' passenger miles by one-half the cost saving associated with the alternative.

The resultant discounted cost savings associated with each alternative (per passenger mile and in total) are shown in Table 3.2. As would be expected, the highest total savings arise under those options which minimize ferry travel, both because of lower per-mile costs and higher traffic volumes.

Table 3.3, however, compares user cost savings with the increase in costs incurred by the State. This alters the perspective somewhat with Lynn option 8 (road to Skagway, shuttle to Haines) clearly offering the highest user savings per dollar of government expenditure, followed respectively by options 3 (road/bridge), 2 (road/road) and 7 (road to Katzehin).

3.2.2 - User Time Benefits

Table 3.3 also indicates that, on a user cost savings basis alone, none of the Lynn options generates benefits equal to the additional costs incurred by government. However, the various corridor options do give rise to other user benefits, the most apparent and readily quantifiable of these being the time savings associated with improved speed and service frequency.

Table 3.4 shows the total estimated travel time over the three Lynn links under each option and the travel time savings relative to the base case (existing service). Travel times include road time (at 40 mph average speed), ferry port and sailing times, and delays associated with the interval between ferry arrivals. Option 9, the high-speed ferry, shows two travel times, one for a 2-vessel service and one for a 3-vessel service with the difference reflecting the higher service frequency in a 3-vessel operation.

Since it is difficult to establish a defensible value of time, particularly for a market as diverse as that using the Lynn Corridor, an 'imputed value' approach was used to assess time benefits associated with the corridor alternatives. Under this approach, the total travel time savings were calculated in terms of hours for each option. Next, the difference between

TABLE 3.2

LYNN CORRIDOR OPTIONS -
COMPARISON OF USER COST SAVINGS

Option	Description	Discounted Cost per Pax-Mile ($)	Savings per Pax-Miles* ($)	Total User Savings ($ million)
L1	Existing System	0.242	-	-
L2	East Road/Bridge	0.073	0.169	70.1
L3	East Road/Road	0.084	0.158	65.6
L4	West-St. James Bay	0.164	0.078	23.4
L5	West-William Henry Bay	0.212	0.030	9.0
L6	West-Sullivan	0.243	(0.001)**	(0.3)**
L7	East to Katzehin	0.143	0.099	40.2
L8	East Road/Shuttle	0.097	0.145	60.2
L9	High Speed Ferry	0.232	0.010	3.0

* As ompared with existing system (option L1).

**Brackets denote negative; i.e., costs rather than savings.

TABLE 3.3

LYNN CORRIDOR OPTIONS - COMPARISON OF USER SAVINGS VERSUS COST TO THE STATE

Option	Description	Total Cost to State ($ millions)	Increase Over Base Case ($ millions)	User Cost Savings ($ millions)	User Saving per Dollar of State Expenditure ($)
L1	Existing System	68.7	-	-	-
L2	East Road/Bridge	337.7	269.0	70.1	.261
L3	East Road/Road	291.2	222.5	65.6	.295
L4	West-St. James Bay	222.5	153.8	23.4	.152
L5	West-William Henry Bay	172.4	103.7	9.0	.087
L6	West-Sullivan	141.6	72.9	(0.3)	-
L7	East to Katzehin	223.7	155.0	40.2	.259
L8	East Road/Shuttle	236.7	168.0	60.2	.358
L9	High Speed Ferry	104.6	35.9	3.0	.084

TABLE 3.4

LYNN CORRIDOR OPTIONS -
TRAVEL TIME AND TIME SAVINGS
(Hours per Trip)

Option	Description	Juneau/Haines Travel Time	Juneau/Haines Saving	Juneau/Skagway Travel Time	Juneau/Skagway Saving	Haines/Skagway Travel Time	Haines/Skagway Saving
L1	Existing System	11.00	-	12.50	-	7.5	-
L2	East Road/Bridge	2.50	8.50	2.75	9.75	0.6	6.9
L3	East Road/Road	3.75	7.25	2.75	9.75	1.0	6.5
L4	West-St. James Bay	5.10	5.90	6.10	6.40	1.0	6.5
L5	West-William Henry Bay	4.50	6.50	6.75	5.75	2.3	5.2
L6	West-Sullivan	5.90	5.10	8.10	4.40	2.3	5.2
L7	East to Katzehin	3.80	7.20	6.10	6.40	2.3	5.2
L8	East Road/Shuttle	3.80	7.20	2.75	9.75	1.9	5.6
L9-2	High Speed Ferry-2	4.40	6.60	5.30	7.20	2.4	5.1
L9-3	High Speed Ferry-3	3.90	7.10	4.80	7.70	1.9	5.6

government costs and user cost savings was calculated to determine the value which user time savings would have to have in order for combined user cost and time savings to equal government costs. This 'required time value' was then divided by the hours saved in order to determine the required hourly value of time savings. As long as the actual value of time is assumed to exceed this rate, total user benefits will exceed government costs. Thus, the lower the required time value, the more likely it is that benefits will exceed costs.

Table 3.5 shows the results of these calculations. Required time values range from a low of $2.57 per hour under Lynn option 9 (high-speed ferry) to a high of $13.31 per hour under option 4 (St. James Bay). Several of the options require time values which appear reasonable relative to average hourly incomes (1983 Alaska per capita income converts to an equivalent of $8.50 to $10.00 per work hour). It should be noted, however, that many of the expected trips are recreation-related and that time value under these circumstances may be only a small proportion of hourly income.

In terms of comparative ranking, the analysis indicates that the options most likely to yield benefits in excess of costs are Lynn 9 (the high speed ferry) and Lynn 8 (east road to Skagway, shuttle to Haines). Both show imputed time values which are reasonable relative to incomes, although the high-speed shuttle shows a significant advantage in this regard.

3.2.3 - Other Considerations

While the above analysis presents an assessment of the quantifiable impacts associated with each corridor option, there are a number of other non-quantifiable issues which should be considered in selecting among the alternatives. Some of these are highlighted below.

Capacity is an issue which, while it has been taken into account in planning and defining the corridor options, warrants some further comment. The various system options have been costed on the basis of the minimum expenditure required to meet forecast demand. In the case of the road options, this results inevitably in considerable excess capacity since the minimum

TABLE 3.5

LYNN CORRIDOR OPTIONS - TIME SAVINGS AND IMPUTED TIME VALUES

Option	Description	(1) Total User Time Savings (Mh)	(2) Increase in Government Cost ($million)	(3) User Cost Savings ($million)	(4) Required Time Benefits (2)-(3) ($million)	(5) Required Value of Time (4)÷(1) ($ per hour)
L2	East Road/Bridge	20.0	269.0	70.1	198.9	9.95
L3	East Road/Road	18.4	222.5	65.6	156.9	8.53
L4	West-St. James Bay	9.8	153.8	23.4	130.4	13.31
L5	West-William Henry Bay	10.4	103.7	9.0	94.7	9.11
L6	West-Sullivan	8.4	72.9	(0.3)	73.2	8.71
L7	East to Katzehin	15.4	155.0	40.2	114.8	7.45
L8	East Road/Shuttle	18.2	168.0	60.2	107.8	5.92
L9	High Speed Ferry	12.8	35.9	3.0	32.9	2.57

road is capable of carrying much higher traffic levels than those expected. If traffic levels were to exceed projections, however, the road options could accommodate this traffic without significant additional cost to the State. In the shuttle and high-speed ferry options, however, State costs would increase substantially if more capacity were required during the planning period.

A second consideration is flexibility which, in this context, refers to the ability of the transportation option to adapt to different traffic levels. Here the advantage lies with the existing system and the high-speed shuttle options since capacity can be tailored more closely to demand. If traffic growth does not meet expectations, vessels can be laid up, sold or diverted to other routes. In addition, cost savings can be obtained by reducing service in off-peak seasons. The road options represent a fixed link which can not be adapted, to a significant degree, to changes in the locations or level of demand.

Comfort and reliability are a third consideration. On this issue it is difficult to choose among the options. Comfort is a subjective issue and, while some would prefer driving themselves, others would prefer being carried on the ferry. On the other hand, the road options enable the user to stop en route and take advantage of intervening recreational opportunities--a choice not available to ferry users. All options are subject to delays due to inclement weather although the marine modes may have a slight advantage in winter.

Environmental impact should also be a consideration in assessing the various options. The road options are likely to create the most severe impacts in this regard since they infringe on the semi-wilderness nature of the Lynn's banks. However, intensive ferry operations out of Echo Cove (either high-speed or shuttle) will also impact on the existing environment there.

A final consideration which might be included in assessing the alternatives is the socioeconomic impact associated with construction and operation of the different options. This includes direct impacts such as employment, labor income and tax revenues, and also indirect impacts associated with

purchases of goods and services, income multiplier effects, and induced activity, if any, arising from the new transportation service. While a complete assessment of these impacts would require a separate and detailed analysis, it would be expected that higher levels of government expenditure on local labor and supplies would generate higher positive impacts. In consequence the road options, with their higher costs, are likely to rank higher than the ferry options in terms of socioeconomic benefits. On the other hand, there may be ways in which the government could spend the monies saved in the lower cost options which would generate higher socioeconomic returns than the road alternatives.

4 - SUMMARY AND CONCLUSIONS

4 - SUMMARY AND CONCLUSIONS

There are several options available for providing and improving transportation service in the Juneau Access Corridor. Of the alternatives examined, continuation of the existing service is the least costly from a government cost perspective.

The other corridor options, however, while more costly in financial terms, offer significant benefits to users in terms of travel cost and/or travel time savings.

The most attractive options appear to be option 9 (a high-speed ferry operating between Echo Cove, Haines and Skagway) and option 8 (a road up the east side of the Lynn to Skagway with a shuttle ferry operating between Haines and the Katzehin River). Both of these options could potentially generate benefits equal to their costs and both are superior to the other alternatives in this regard.

A closer examination of the two preferred options indicates some significant differences in the source and allocation of impacts. For example, the road-shuttle option shows only a small advantage over the high-speed ferry in travel time between Juneau and Haines and between Haines and Skagway, but a substantial saving on trips between Juneau and Skagway. The road-shuttle option also serves a greater number of passengers and generates higher cost savings to users both on a per-mile basis and in total. However, the road-shuttle option involves a significantly higher government outlay (an increase of $168 million over the base case versus an increase of only $38 million for the high-speed shuttle). As a result, it appears less attractive overall than the high-speed shuttle alternative.

The differences in the level and flow of benefits associated with these two options, together with the overall benefit potential which each showed in the analysis suggested that the limited corridor analysis was not a sufficient basis on which to choose between these alternatives. Accordingly

it was recommended that options 8 and 9 should both be retained for more detailed evaluation in the context of the total Southeast system.

APPENDIX A

EVALUATION METHODOLOGY

APPENDIX A

EVALUATION METHODOLOGY

A1 - GENERAL

The general method used to assess corridor alternatives consisted of five main steps

- o Forecast expected travel demand in the corridor over the next 20 years;
- o Define a range of possible methods of meeting this demand, and the equipment and/or infrastructure necessary to serve the traffic under each method;
- o Determine the associated capital and operating costs and revenues;
- o Calculate the financial impacts of each alternative from the viewpoint of the operator, the government and the user;
- o Calculate the service/cost effectiveness of each alternative and select the preferred option(s).

Each of these steps is described in greater detail in the following sections.

A2 - TRAVEL DEMAND

The forecasting of travel demand both within the Southeast Region as a whole and within particular corridors of the Region involved first analyzing the

existing patterns of traffic for both surface (marine, road) and air modes and identifying the factors which would cause this traffic to grow and change in the future.

Since the data regarding existing travel patterns was limited, this analysis was kept at a relatively simple level. Three factors were identified as the key issues impacting future travel demand. These were: regional population growth, growth in tourism, and changes in transportation service. The first two factors were deemed to cause general growth within the existing patterns of travel demand (or growth in 'base traffic') while the third was deemed to either increase or decrease the 'base traffic' demand within particular corridors.

To forecast "base traffic" demand (i.e., demand in the absence of service changes) existing travel was separated, on the basis of survey data, into tourist and nontourist traffic. This separation was done on a seasonal basis (in order to reflect the higher summer peaking in tourist travel) for both marine highway and air services. Tourist and nontourist components of existing traffic were then forecast, the former on the basis of expected growth in tourism travel to Alaska and the latter on the basis of expected population growth in the Southeast Region.

The growth rates assumed for tourism travel and for regional population were based on historic growth rates, tempered by concerns that with declining revenues and potential declines in government spending, these growth rates could not be maintained over the long-term. Consequently, tourism was assumed to grow at 4.5% annually to 1990 and at 2.5% annually thereafter. Regional population was assumed to grow at 2.8% per year to 1990, tapering off to 1% thereafter.

Over and above these population and tourism based growth rates, there was a special additional growth applied to air traffic, amounting to 1.4% per year. This additional growth reflected the long-term increase in the propensity of travelers to use the air mode--an increase which has generated growth in air traffic above and beyond that which can be explained by population and tourism growth alone.

The origin-destination patterns of this future 'base traffic' demand were assumed to follow the existing pattern of movements to, from and within the region. Therefore a growth in marine highway tourist demand, for example, would cause a corresponding percentage growth in traffic on all marine highway tourist-serving routes.

Once this 'base traffic' load had been calculated for the system and for the various corridors, adjustments were made to corridor demand to reflect the different service levels associated with corridor alternatives. These adjustments included diversion of traffic to a different port, loss of traffic, transfer between modes, and increases in traffic due to improved access depending on the service scenario. The particular adjustments associated with each corridor option are outlined in detail as part of the description of alternatives (Section A3).

A3 - DEFINITION AND DESCRIPTION OF CORRIDOR ALTERNATIVES

Having established the potential traffic demand within a corridor, the existing surface transportation service was reviewed and alternative road and marine options proposed which would increase capacity and or reduce operations costs. These alternative options were drawn from community suggestions, proposals put forward by the Department of Transportation, and new proposals put forward by the consultant.

An effort was made to develop a wide variety of corridor options in order to provide a range of costs and impacts for comparison purposes. Both capital (new roads, new ferries) and operational (new schedules) options were included when appropriate. In all cases the alternatives included a base-case 'no change' option against which new options could be assessed.

Once the corridor options had been defined, a detailed operating and investment schedule was laid out for each alternative specifying the traffic

to be served, the way in which it would be served, the timing of new road and new vessel requirements, and the operating schedules and procedures within the corridor. Traffic and operating procedures were both specified on a seasonal basis.

A4 - DEVELOPMENT OF COST DATA

Capital Costs - Roads

Capital costs for new road links were based on the Department of Transportation's per-mile costs of construction over various types of terrain. Routes were specified through detailed analysis of relief maps, through discussion with DOT/PF engineers and, where possible, through inspection of the area. Road links were then broken down into segments based on the severity of terrain and degree of construction difficulty, and the appropriate per-mile costs were applied.

Special structures such as bridges, tunnels, snowsheds, etc, were costed independently and included in total cost where required.

Capital Costs - Marine

Capital costs for marine facilities and equipment included costs of new terminal facilities, capital costs associated with the existing ships, and capital costs associated with new shuttle ferries, mainline ferries and high-speed craft. In the first two cases capital costs were based on Marine Highway data regarding terminal construction costs and expected replacement value of the existing fleet. In the case of new vessels, typical current construction costs for the type of vessel required were developed through discussions with shipyards, brokers, and manufacturers.

Operating Costs - Road

Operating costs for the road links included regular maintenance and winter snow removal. They were based on the actual costs per mile incurred by the DOT/PF.

Operating Costs - Marine

The operating costs for existing vessels and terminal facilities were based on the actual experience of the Marine Highway. Vessel costs were segregated into annual costs (major maintenance, overheads) seasonal costs (crew, stores and supplies) and daily costs (primarily fuel).

Operating costs for new vessels were based on Marine Highway experience in the case of mainline ferries, and on discussions with builders and other operators in the case of shuttle ferries and high-speed craft.

User Costs

Costs to users fall into three main categories: fares on existing ferries, fares on new ferries or new ferry routes, and vehicle operating costs on road links.

Fares on the existing ferry system were based on the current summer and winter rates for the Marine Highway. For new routes on existing vessels, fares were assumed to be the same per-mile as on current routes.

For new types of equipment (shuttle ferries, high-speed craft) it was initially assumed that fares would be set on the same basis as current ferry charges; that is, that fares would have to cover at least half of the total operating costs (excluding capital) of the new vessels. However, later analysis indicated that new vessels serving as a substitute for existing vessels generated sufficient savings elsewhere in the system that their fares could be maintained at existing fare levels and still lead to an overall improvement in the system operating cost recovery.

Accordingly current fare levels were used for traffic on these new vessels.

Vehicle operating costs on road links were based on the variable portion of average per-mile operating costs for mid-size automobiles. This was felt to be a fair representation of the mix of vehicles likely to be using the road. In actual fact, owners of vans and campers would pay more while owners of small cars would pay less.

In cases where corridor options required vehicles to divert from one port to another, vehicle operating costs were increased to include overnight accommodation if the diversion involved more than 12 hours driving time.

A5 - FINANCIAL ANALYSIS

The traffic, operating and cost data bases described above were then drawn together into a year-by-year financial analysis of each corridor alternative. Capital costs for roads, vessels and terminal facilities were assigned to the years in which they would be incurred. Road operating costs were based on miles of road in service, while marine operating costs were derived from the proposed Marine Highway schedules under each option.

User costs for each year were determined by first calculating the number of vehicles using the road links (either as a result of being diverted to another port and/or as a result of a new road link being available), and multiplying this number by the cost per vehicle over the relevant distance. A revised ferry demand matrix was then calculated (taking into account diverted and/or lost ferry traffic) and multiplied by the fares matrix to determine total fares paid to the Marine Highway.

The annual financial flows were then discounted at an interest rate of 5% to determine the net present value of capital, operating and user costs under each scenario.

A6 - EVALUATION OF SERVICE/COST EFFECTIVENESS

The financial evaluations provided an indication of the total costs to operators and users associated with the various corridor alternatives. They did not, however, reflect the differences among alternatives in terms of ability to serve demand and the quality of service provided.

In order to account for these differences, each corridor alternative was compared with the corridor 'base case' (which represented continuation of existing service) with respect to the number of passengers and vehicles served, the cost per user served, and the average travel time (including delays related to frequency of service). Appropriate values were assigned to the 'service' differences between the alternatives and the base case to represent the incremental benefit (cost) to the user. These user benefits (or costs) were then compared with the incremental cost (or cost saving) to the government to form a basis for evaluating service/cost effectiveness.

The approach to assigning values to 'service' differences varied somewhat between corridors due to the different focuses of the corridor alternatives. In the Lynn corridor, for example, the focus was on improving service through new modes and on generating traffic over and above existing demand. Measures were therefore required for the value of time and cost savings to existing and to new traffic. In the Ketchikan corridor, the focus was on the existing ferry system and on trying to adjust schedules so as to meet a higher portion of current demand in a cost-effective manner, and measures were primarily required for the costs of not meeting traffic needs or of meeting needs by diverting traffic to other ports.

In general, the following principles were used in assigning values to service differences.

- Cost savings to existing traffic - include the full dollar value of saving.

- o Cost savings to new traffic - include half of the difference between the fare (or travel cost) under the new option and the fare applicable under the base case (this presumes that traffic attracted as a result of less expensive service assigns a lower value to the trip).

- o Cost of failing to meeting demand - include the average surplus which the user would have enjoyed if space had been available. Surplus was calculated by postulating the shape of the demand curve for service and calculating the average difference between the maximum which users would have been willing to pay for the trip and the fares which would normally have been charged. (This is discussed in greater detail in Appendix B.)

- o Costs to diverted traffic - assume that users diverted to another port attribute a cost to the diversion equivalent to any out-of-pocket savings associated with using the new port. Thus users moved from one port to another were assumed to incur neither benefits nor costs. This assumption was necessary because the total trip cost from Seattle was lower via road to Prince Rupert than via direct ferry, yet demand continues to be strong out of Seattle. There is, therefore, some nonmonetary advantage to the direct ferry trip which offsets cost savings associated with diverting to Prince Rupert. This nonmonetary advantage could best be accounted for by assuming that diverted passengers assigned equal cost to trips out of either port.

- o Time savings to existing traffic - include the full number of hours saved in total travel time (sailing time, port time and delays related to schedule frequency).

- o Time savings to new traffic - include one half of the difference between total travel time under the new option and total travel time under the base case.

The user cost impacts (whether positive or negative) were calculated for each corridor option relative to the corridor base case. Total savings (or increases in user costs were then compared with the total additional cost (or saving) to the government associated with the new service.

If an option showed both lower user costs and lower government costs than the corridor base case, it was clearly preferable to both parties. If it showed higher costs to both users and the state, it would not be attractive to either party. If one group's costs increased while the other group's cost declined, then the preferred options were deemed to be those which yielded the highest user benefits (or lowest user costs) per dollar of government expenditure (or government cost saving).

Where time savings were a major factor in the benefits, an imputed value of time saved was calculated by comparing the number of hours saved with the net cost of providing the saving. This provided a measure of the value which must be assigned to time savings in order for project benefits to equal costs. The options which required the lowest hourly values to be assigned to time savings were chosen as the preferred options. (Additional discussion of the calculation of time savings is provided in Appendix B.)

APPENDIX B

EVALUATION OF USER IMPACTS – CORRIDOR AND SYSTEM ALTERNATIVES

APPENDIX B

EVALUATION OF USER IMPACTS - CORRIDOR AND SYSTEM ALTERNATIVES

B1 - COSTS OF UNMET DEMAND

In analyzing both short-run and long-run system options we are faced with a situation where the predicted level of demand for ferry service is not being met to the same degree in the various cases.

To assess the impact of system options on users and potential users in terms of the costs and/or benefits they incur under the various alternatives, it was therefore necessary to find some means of assigning a value to these differences in ability to meet demand. The method used was to derive an economic measure of the costs incurred by users (where users are defined as the total numbers requesting ferry service) as a result of changes in the ferry system. To assess these impacts, users were divided into three categories for the purpose of calculating costs: those served as requested, those served by diversion to alternate ports, and those not served under the particular option.

Those passengers who are served under all systems are indifferent between the options. Because the fare structure remains constant, they incur neither costs nor savings as a result of system changes and hence do not figure in the analysis.

Those passengers who are served by diversion to another port (normally from Seattle to Prince Rupert) are in a somewhat different category. If their costs were higher out of Prince Rupert they would be said to incur a cost as a result of the diversion--presumably a disbenefit of the system which forced them to divert. In actual fact, however, it was found that their out-of-pocket costs were lower as a result of the diversion--that in fact

there appeared to be a benefit to the user associated with systems which forced them to Prince Rupert for service. The difficulty with this hypothesis, however, was that despite the difference in cost, Seattle demand was consistently strong, and users were not making the seemingly logical decision to travel via Prince Rupert in preference to Seattle. It was therefore concluded that diversion to Prince Rupert involved some nonmonetary disbenefit to users which more than offset the cost savings. Thus, in the minds of users, it was "more costly" to travel via Rupert.

Unfortunately, to determine the extent to which diversion represents an increased cost to users would require an analysis of the price elasticities of demand for ferry services (i.e. how much dollar discrepancy would there have to be between costs out of Seattle and costs out of Prince Rupert before passengers would voluntarily shift to Rupert). In the absence of any data regarding price/demand relationships, it was decided to take a conservative approach and assume that the nonmonetary disbenefit of diversion would merely offset the monetary advantages. As such, users would be indifferent between Seattle and Prince Rupert departures and passengers would incur neither benefits nor costs as a result of diversion.

This left a third class of users to be dealt with in terms of user costs--those passengers who, as a result of lack of capacity, could not be served by the system. These passengers (and vehicles) may be presumed to incur some cost associated with the loss of ferry service. The question is what cost do they incur?

The generally accepted approaches to defining the cost of capacity shortfalls all relate to the concept of opportunity cost--what does the potential user forego, in dollars and/or utility, as a result of not being able to make the ferry trip? Obviously the answer to this lies in what the user is forced to do as an alternative. If he is planning a vacation and finds that he can substitute a trip to another destination which gives him the same pleasure for an equivalent cash outlay, he incurs no cost as a result of not getting on the ferry. Alternatively, if he chooses to go to Alaska via some other routing or mode (assuming alternatives are available), his cost is the sum of the additional dollars, time and nonmonetary costs he

incurs as a result of having to accept alternative transport. A third possibility would be that the user would decide not to make the trip in which case the cost he incurs is the loss of utility which he associated with the ferry trip.

Determining which definition of opportunity cost is most applicable to the unserved marine highway demand is a difficult task, and generalizations must be applied. Our choice for this study was to calculate opportunity cost based on the third concept; i.e. that the trip would not be made and the loss was therefore equivalent to the utility the user would have enjoyed had he been able to get on the ferry. A major factor in selecting this concept, particularly as opposed to the "cost of alternatives" method, was the absence of a clearly comparable alternative means of transport. The alternatives available (cruise ship, air, road) differ from the marine highway service in so many nonquantifiable aspects that an assessment of cost differences would entail substantial subjective judgments which could be difficult to establish and to defend.

The calculation of opportunity cost based on lost utility required an estimation of the value which potential users would assign to the trip. A base approximation of this utility is the price they would have been willing to pay--in this case the marine highway fare for passenger and vehicle trips. Accordingly, the opportunity cost associated with unserved traffic consists in part of the fares they would have paid had they been able to get on the ferry. Offsetting this opportunity cost, however, is the fact that the potential user can retain the monies he would otherwise have spent. (In our analytical process the loss associated with unpaid fares is borne by the marine highway.)

The fare level, however, represents only a part of the customer's lost utility. Assuming an elastic demand for ferry services (i.e. a sloping demand curve) some of the traffic demand would have been willing to pay more for the trip than the price set by the marine highway. In other words, they would assign a utility to the trip which exceeds the fare they would have to pay. This "surplus" utility is also lost when a potential user cannot be served.

To calculate this surplus, it is necessary to know the shape of the demand curve, or the relationship between the price of the service and the number of users willing to purchase it. Since no data was available on this subject, we adopted a conservative hypothesis that demand for marine highway services would fall to zero at the point where the price was equal to the cheapest cruise package over the same route. The average surplus per user is, therefore, one half the difference between the cruise price and the marine highway fare.

The lost surplus was calculated by multiplying average surplus by the number of unserved passengers under each system option, to give the net opportunity cost of unsatisified demand. (Annual figures were discounted to net present value so that they could be compared with AMH costs on a consistent basis.)

The above calculations account for the surplus associated with foregone passenger trips, but do not cover the surplus associated with vehicles which cannot be accommodated in the system. In order to estimate this lost vehicle-related surplus, it was assumed that the demand curve for vehicle trips has the same slope as that of passenger trips--in other words, that a proportionate increase in the price of each would lead to a proportionate decrease in demand. This assumption was used to calculate the average surplus associated with vehicle trips and hence the lost surplus as a result of unmet vehicle demand.

In summary, user costs under the various system alternatives were calculated only for those potential users who could not be accommodated by the system. Users who were either served as requested or served via diversion were assumed to incur neither benefits nor disbenefits from a cost viewpoint.

The cost assigned to the unsatisfied demand was calculated on the basis of net foregone utility which was in turn approximated by the total additional surplus utility which would have been enjoyed had demand been met by the system.

B2 - TRAVEL TIME DIFFERENCES

A second aspect of user impacts which had to be dealt with in the evaluation of alternatives was the level of service provided. The major significant differences among alternatives in terms of service quality related to travel time and frequency of service out of various ports.

In order to measure these differences we developed a travel time model which converted ferry schedules into a travel time matrix for all O/D combinations in the system. The model calculated the sum of sailing time (based on a weighted average speed for ships operating on the route), port time, and waiting times. Waiting times were related to frequency of service over a given link and transfer requirements

The frequency-related delay time was set at one-quarter of the average interval between ship calls, while the delay associated with transferring from one vessel to another was set at 12 hours (with the exception of the Columbia shuttle where passengers transferring at Ketchikan were assumed to be delayed an average of 36 hours due to shortage of capacity on vessels out of Prince Rupert).

Because of differences in traffic levels, it was not possible to merely compute the differences in total travel time among the system options. We therefore segregated travel times for those routes where traffic levels varied and calculated the average time per passenger on those routes and within the balance of the system. Peak, shoulder and low travel times were computed separately.

The average travel times under each alternative were compared with the base case times to determine time saved or lost per passenger served as a result of the new system.

To calculate total travel time impacts of a scenario, transferred passengers were eliminated since they are presumed to be indifferent to the combined time and cost effects of transferring. The remaining passengers carried

over the various routes were multiplied by the appropriate travel time changes to give gross time impacts (provided these passengers constituted part of the base demand for the system and did not represent induced traffic), while the passengers whose demand was not met by the system were multiplied by the change in travel time and the result deducted from gross impacts. This latter adjustment reflected the impact of the changed service level on the overall attractiveness of the voyage which the potential user could not take.

Finally, where new passenger traffic was induced on a particular link because of system changes (e.g. as in the long-run Lynn alternatives), the total time savings accruing to the induced passengers were divided in half on the principle that savings to marginal users represented a lower benefit than those accruing to "base demand" users.

The annual streams of net time impacts were discounted to present value at a 5% rate in order that they would be comparable with discounted cost figures.

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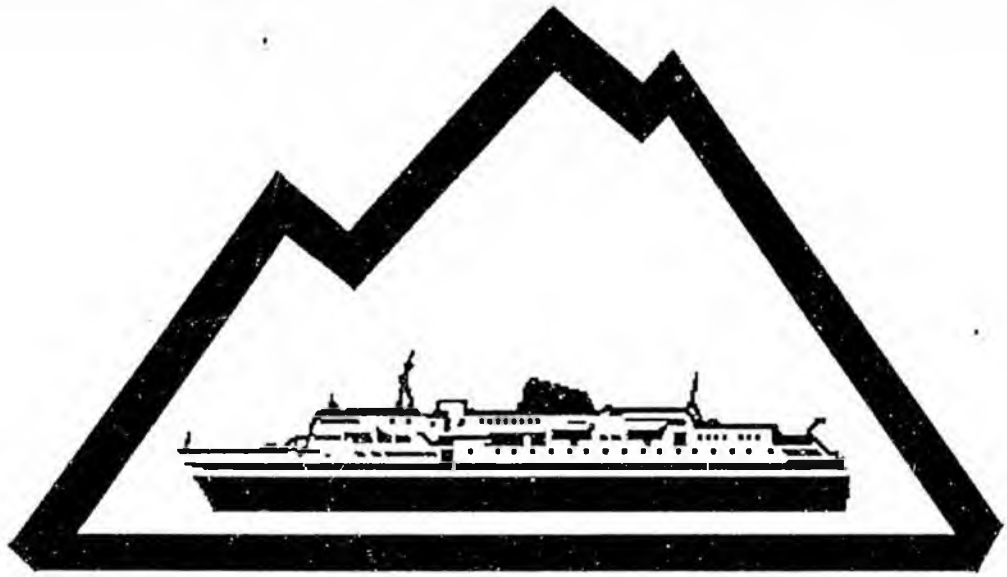


DEPARTMENT OF TRANSPORTATION
&
PUBLIC FACILITIES
ALASKA MARINE HIGHWAY SYSTEM

BELLINGHAM ASSESSMENT

REPORT TO THE LEGISLATURE

STEVE COWPER, GOVERNOR
MARK S. HICKEY, COMMISSIONER

JANUARY, 1988

AMHS Report to the Legislature: Bellingham Assessment

I. Introduction

This report was produced by the Alaska Marine Highway System (AMHS) in response to legislative intent accompanying Chapter 95, SLA 87 (CHSSHB75, page 99). The issue identified by the legislative intent language, evaluation of Bellingham, Washington as an alternative to Seattle, Washington for the AMHS southern terminus, has been examined and the results are presented in this report.

Several general assumptions were made which underlie the analysis of all of the issues addressed here. For the purpose of comparison and in the absence of an actual traffic study, it was assumed that there would be no change in traffic level, passenger or vehicle, resulting from relocation of the AMHS southern terminus from Seattle to Bellingham. Obviously, relocating the terminus will have an effect, but the direction and magnitude of the effect could not be accurately determined absent a thorough study, although we know of no reason that would indicate that the overall impact would be large. Thus, for purposes of a fair comparison, the "no change" assumption was made.

Similarly, it was assumed that no change would be made in tariffs or fares as a result of any of the potential actions implicated in the issues raised by the legislative intent. A fair comparison of Seattle versus Bellingham as the System's southern terminus also requires that terminal facilities be assumed to be equivalent in quality and cost for purposes of present comparison. However, both facilities have existing advantages and disadvantages and these have been noted. While acknowledging a cooperative stance on the part of AMHS labor bargaining units, a conservative analysis requires that the labor agreements presently in force be used as the basis for cost estimation and

assessment of operational constraints. Finally, it was assumed that there is a continuing public mandate to provide service to Puget Sound. This final assumption may warrant more scrutiny prior to any final decision regarding southern terminus location.

It is important to bear in mind that the potential impact of the decision as to the location of the AMHS southern terminus operations in relation to AMHS operations overall is small. The annual expenditures for the Seattle facility including lease payments and head tax average approximately $210,000 per year. Using 1986 (when two vessels were in operation in the summer) as an example, Seattle embarkations represented 6.26% of the System's annual passenger load and 7.07% of its vehicle load. The revenue and expense contributions of the ships on this route are larger than these percentages of traffic would indicate. However, the revenue and expense data is not presently kept in a form that permits identification of specific revenue and expense contributions of each port in a route structure.

II. Fuel savings:

The last few years have seen considerable instability in oil and fuel prices and markets. Historic fuel prices were evaluated in an attempt to ascertain whether there were any consistent price or stability advantages to fuel delivered in either Seattle or Bellingham. Actual data that has been collected to date indicates that delivered fuel price at Bellingham has been consistently higher than at Seattle which tends to be a more competitive market, although the ARCO representative from Bellingham claims just the opposite. ARCO has as yet provided no actual historic price data.

From 1983 through 1986 data available to AMHS shows that fuel price

ranged from $.0165 to $.0225 higher at Bellingham averaging $.02 higher. In 1987 as prices continued to destabilize the range of difference was even greater, varying from $.01 to $.0225 and averaging $.0149

Fuel costs were analyzed using actual 1987 operations and currently available fuel price quotes. Only one fuel supplier (Texaco) was available to provide price quotes for fuel in both Seattle and Bellingham so those prices were used in calculating fuel cost estimates. ARCO has promised a fuel price quote in the near future and fuel cost calculations will be reviewed when that quote is received.

AMHS vessels were scheduled for 74 trips to Seattle in FY 87, the M/V Columbia for 22 trips, the M/V Matanuska for 44 trips and the M/V Malaspina for 8 trips. Using Bellingham as the AMHS southern terminus reduces the steaming distance by 66 miles each way or 132 miles per round trip for a total annual mileage saving of 9,768 miles. The shorter distance translates into an average time saving of approximately eight hours per round trip (using the scheduled speeds of the vessels—17.3 kts for the Columbia, and 16.5 kts for the Malaspina and Matanuska) as shown in the accompanying table. Time required for refueling in Seattle has no direct effect on time savings, since it is accomplished during the normal layover time.

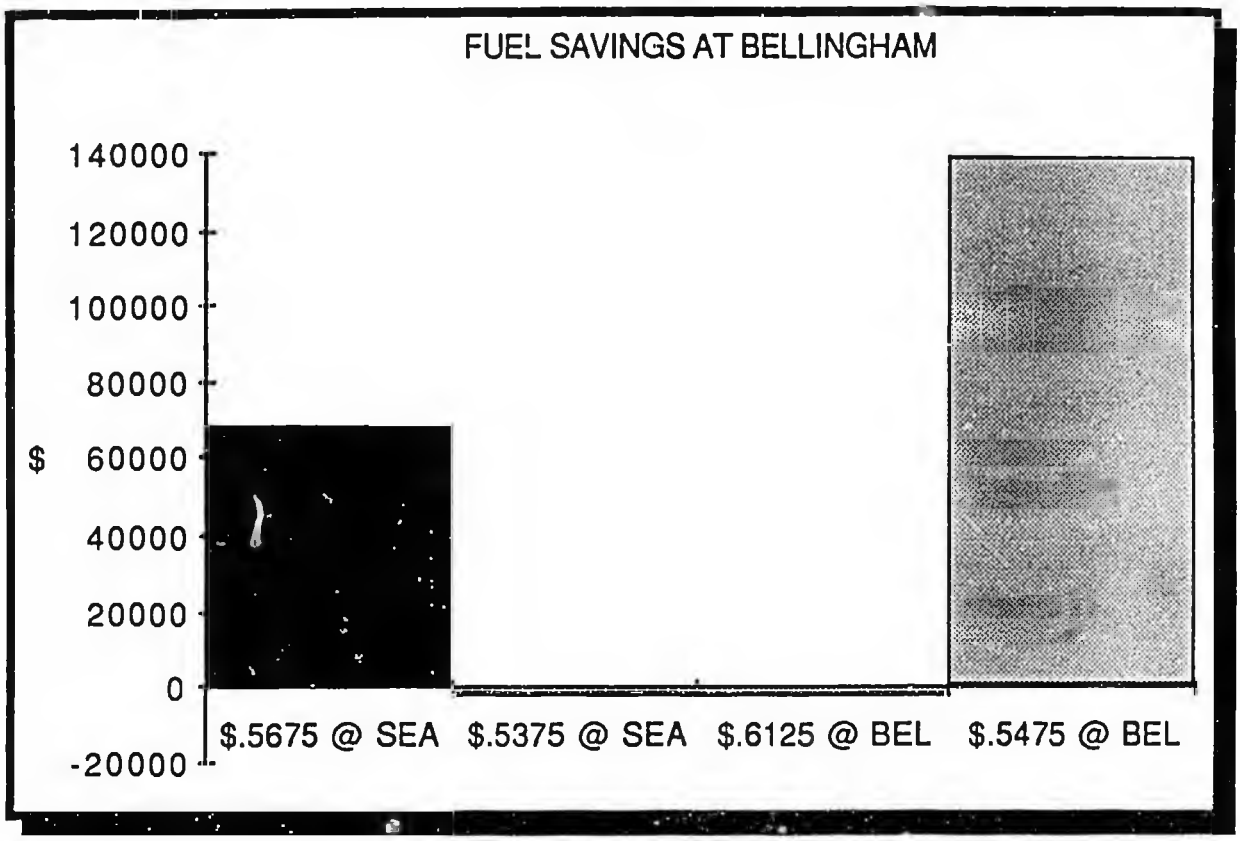
Based on the vessels used in FY 87, their scheduled speeds and fuel consumption rates used for the AMHS financial model (Columbia 413.5 gals./hr., Matanuska 241 gals./hr, and Malaspina 213.4 gals./hr.) this would save approximately 167,900 gallons of fuel each year or 2.4% of annual 1987 system fuel consumption. Based on fuel prices obtained in October 1987 the 2,337,834 gallons of fuel purchased in FY 87 in Seattle would cost

$1,326,721(at the then quoted price of $.5675). Using Bellingham the 2,169,934 gallons of fuel needed would cost $1,258,562 (at the then quoted price of $.58), for a savings of $68,159 or 1.6% of annual system fuel expense for 1987.

MILEAGE AND TIME SAVINGS AT BELLINGHAM

Ship	Trips	Dist Saved	Hrs Saved	Hrs/Trip	Fuel Saved
COL	22	2904	167.861	7.6	69410.6
MAT	44	5808	352	8.0	84832
MAL	8	1056	64	8.0	13657.6
Total	74	9768	583.861	7.9	167900

Fuel savings to be realized from using Bellingham, Washington as the System's southern terminus are very small in relation to the System's annual fuel budget ($4,359,000 in 1987). A factor far more influential than distance in the System's fuel cost structure is the price paid. A three cent decrease in the price of a gallon of fuel at Seattle eliminates any advantage in fuel savings at Bellingham (2,337,834 gals. X $.5375 = $1,256,585 at SEA vs. $1,258,562 at BEL, a difference of $2113 in favor of SEA). Conversely, an increase in price of two and one eighth cents at Bellingham negates any savings resulting from terminating at Bellingham (2,169,934 gals. X $.6125 = $1,329,084 at BEL vs. $1,326,721 at SEA for a difference of $2363 in favor of SEA).



If the time saved by terminating at Bellingham (approximately eight hours) is used to increase service there is no fuel saving, since vessels will be running additional trips using the time savings. Thus, if Bellingham is used as the System's southern terminus any large savings in fuel cost will have to be realized from a significantly lower delivered price for fuel at Bellingham which, historically, has not occurred.

III. Labor savings:

No significant labor cost savings have been identified from using Bellingham as the System's southern terminus under present labor agreements. Labor

costs for shoreside operations would not change under the assumption that traffic levels remain constant. Only a major change in the present vessel labor contracts would provide an opportunity for realization of labor cost savings resulting from the time saving to be had by terminating routes at Bellingham.

During the years that the existing AMHS labor agreements have evolved AMHS has operated on a 7 day cycle. Because this was generally taken as a given as new contract provisions were written, there are many clauses of the contracts which make it extremely expensive to depart from the 7 day cycle.

The existing contracts are based on 26 payperiods of 14 days (168 hours) in each year. AMHS crews in the Southeast System work seven 12 hour days each payperiod (84 hours), and are then off duty for the remaining 7 days in each payperiod. There are two crews for each vessel (an "A" crew and a "B" crew) consisting of two shifts each (one shift on duty and the other off duty), the ships being manned and operable on a twenty-four hour basis.

There are four clauses of the contracts that come into effect when crews are scheduled for more or less than 7 days. They are presented here only to assist in understanding the AMHS cost structure used for comparison of Seattle and Bellingham as southern terminus locations and the effects of variance from the present seven day route cycle. These contract provisions do not affect operating costs under the existing schedule (based on a seven day route cycle) as much as they affect costs under shorter or longer route cycles. The Inland Boatmen's Union (IBU) has acknowledged that these provisions would have to be renogiated if the time savings using Bellihgham were to be used to best advantage.

1. The labor contracts guarantee most employees 84 hours of pay each

payperiod. This provision is referred to as "minimum guarantee" pay.

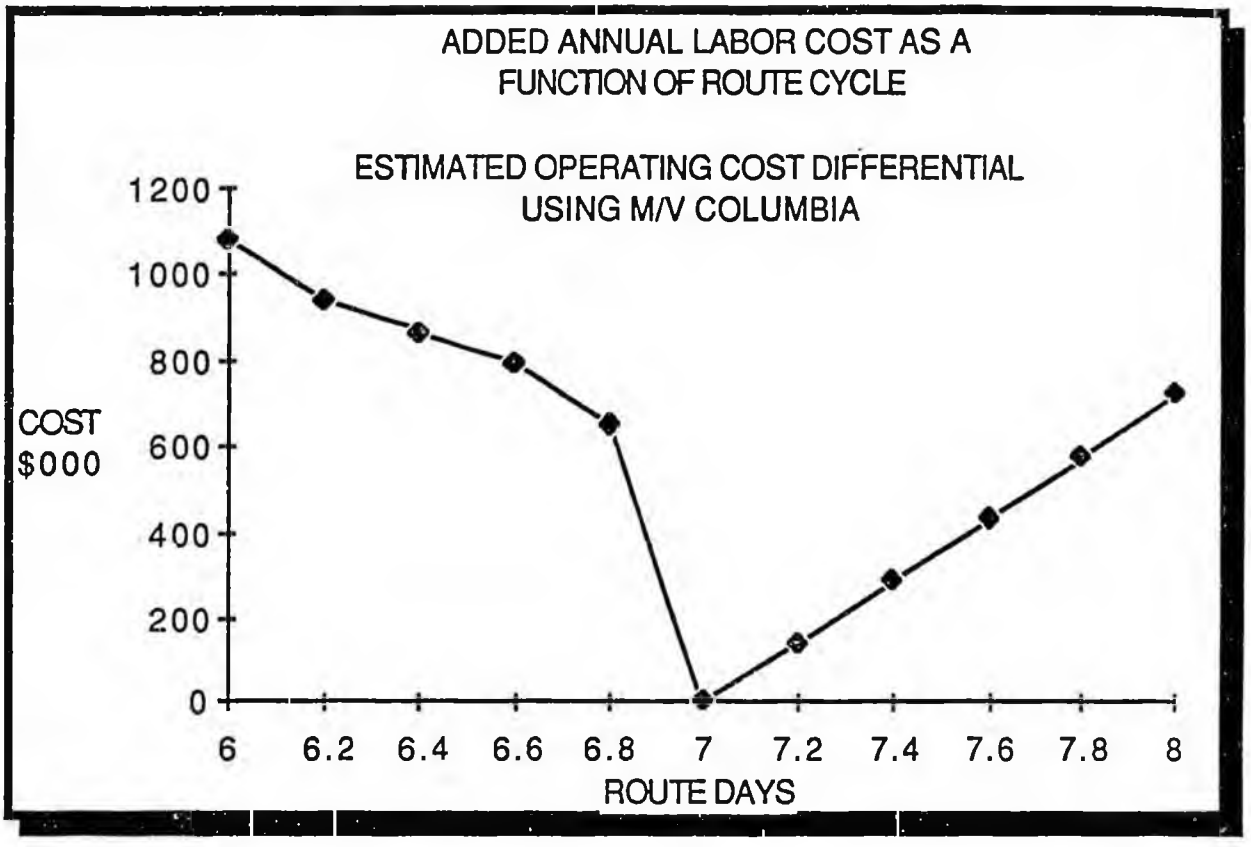
2. Overtime: For crewmembers working more than 84 hours in each payperiod the time above 84 hours is paid at 1.5 times the hourly rate.

3. Late Arrival: If a vessel is late in arriving for a crew change (i.e., more than one hour late), the crew is paid "late arrival" pay. The crewmembers "on watch" (actually working) are paid 1.5 times their regular pay. "Off watch" crewmembers (not actually working, but on the ship) are paid at their regular rate of pay, as if they were working, over and above their minimum guarantee. In addition, the other crew is being paid minimum guarantee (regular time), so the actual labor cost of operating the vessel is well in excess of the normal labor cost.

4. Early Callback: If a crewmember is assigned to begin work less than 7.0 days from the end of his/her previous assignment, he/she is paid "early callback" pay (1.5 times the regular rate), with a minimum of 12 hours of pay. This applies to both the "on watch" and the "off watch" crew members and is in addition to minimum guarantee pay.

It is important to note that these contract provisions often interact or compound raising labor costs significantly. Take, for example, the M/V Columbia operating on a regular 6.2 day route time. In any given payperiod one crew (say the "A" crew) will work 7.8 days while the "B" crew works 6.2 days. The "A" crew will be paid for late arrival, since it is 0.8 days over its normal 7 day work week. The "B" crew will be paid early callback since it had only 6.2 days off. In addition, the time over 7.0 days (0.8 days) for the "A" crew will be paid at overtime (1.5 times the hourly rate). The "B" crew will also be paid at the early callback rate for 0.8 days (with a minimum of 12 hours at this rate), since there was only 6.2 days between trips. In addition, the "B" crew is

paid minimum guarantee for 0.8 days, since it is scheduled for only 6.2 days. As the route time moves further from the seven day cycle, labor costs escalate significantly as illustrated in the accompanying chart.



On an annual basis these added costs would become significant. Assuming the previous example, if the time savings advantage of Bellingham is used to provide a slight increase in service (two additional trips in summer and two in winter for a total of four annually) the shorter route cycle out of Bellingham is estimated to cost an additional $2,244,500 over existing service to Seattle (or to Bellingham), not attempting to use the time saving.

Although the various labor agreement clauses were not adopted to institutionalize the seven day route cycle, the effect has been to make deviation from such a cycle extremely expensive. While the labor agreements provide for

re-negotiation of these issues at the time that they arise, absent such a re-negotiation of this structure, labor savings to be had in vessel operations with routes terminating at Bellingham are very small. In fact, it is very difficult to realize any service improvements (except longer Southeast Alaska port layovers discussed later) available from the time saved by terminating at Bellingham without triggering significant increases in vessel operating expense inherent in this labor structure. Thus, the structure of the current AMHS labor agreements do not add to the desirability of Bellingham as a port of call. The time saved on each trip by terminating at Bellingham would present the opportunity of reducing the risk of late arrivals for crew changes and would, thus save a small amount if service levels and route cycles remain as they presently exist.

IV. Lease savings & relative quality of passenger facilities offered by Bellingham vs. Seattle:

As of the date of this report lease costs for a terminal facility at Bellingham are unknown. The Port of Bellingham has allocated $2,000,000 for site improvements to accommodate AMHS use of its facility. As presently understood the Port does not intend to recover this investment directly from AMHS, although it must be assumed that a return on investment is expected in some manner, perhaps through a head tax or some other form of user fee. The lease with the Port of Seattle for the present facility expires in 1989, and costs for a renewal of the lease are also presently unknown. As mentioned previously in section I, the annual expenditures for the Seattle facility, including lease payments and head tax, average approximately $210,000 per year. At one time there were plans by the Port of Seattle for improvements to the Pier 48

area, but none have been presented recently. The Port of Seattle has expressed a willingness to work with the State and is currently making some structural improvements to the existing facility. (For details of the earlier Port of Seattle proposal see Development Feasibility of Pier 48, April 1985, prepared for the Port of Seattle by Leland & Hobson, Urban Land Economics.)

Each of the ports presently under consideration has certain advantages and disadvantages. Pier 48 at the Port of Seattle is a presently functional facility providing immediate access to downtown Seattle and to the rest of the greater Seattle area via public transportation. Although by no means optimum, all operational requirements are in place at Seattle including mooring and transfer structures, staging area, passenger ticketing and waiting facilities, longshoring arrangements, fueling arrangements, crew licensing requirements, coast guard regulatory requirements, etc. Pier 48 has its disadvantages as well. There are structural problems, some of which are in the process of being corrected by the Port of Seattle. The facility as a whole is aging and becoming increasingly difficult to maintain in an attractive manner consistent with the expectations of the traveling public, the waiting area in particular is only marginally acceptable. The location of the facility is a disadvantage as well as an advantage that it is in a traffic congested area of downtown Seattle that makes it difficult for the traveler to find and get to the facility. The present location also prevents expansion of the parking and staging area to accommodate future traffic growth. There is no dockside fueling capability, requiring that the vessel be moved to the fuel dock for fueling and then back to Pier 48 prior to departure, a more expensive process than if fueling were available at dockside.

Bellingham offers the advantage of slightly less trip distance from Alaskan

ports than Seattle, potentially reducing travel time for AMHS users, offering the potential of fuel savings due to the shorter distance and/or slower vessel speeds and scheduling flexibility. If AMHS labor contracts were changed to eliminate or significantly reduce the cost impacts of variances from the seven day route cycle, some additional service could be realized by the shorter running time to Bellingham.

Even if the time savings at Bellingham cannot be used to provide additional service due to increased labor cost, the time saved can be applied to minimize the risk of late arrival or to increase port time in Alaskan ports to the economic benefit of Alaskan communities. Dockside fueling is permissible at the existing Bellingham facility. Absent facility improvements, specific arrangements would have to be worked out, and it is understood that fuel delivery would be by common carrier (truck). Based on obtainable information from one supplier, this delivery method could increase the cost of fuel by as much as $.03 per gallon over the standard delivered price due to the increased cost of compliance with environmental regulations.

Disadvantages also exist at Bellingham but are not prohibitive. Shorter travel time will result in lower stewards revenues as those revenues are tied directly to the length of time that passengers spend on board the vessel. There are presently no terminal facilities available at Bellingham and it is not clear that the docking facility at the Port of Bellingham adequately meets operational requirements for vehicle and passenger transfer. There are use conflicts at the existing Bellingham facility which would also have to be resolved. Priority of use of the dock face among the various Port users (AMHS and commercial) would have to be resolved. Similarly, the dockside, presently used for cargo staging would have to be scheduled in such a way as to accommodate AMHS

vehicle parking and staging. Warehousing space in Bellingham would have to be acquired at an as yet undetermined cost. All operational requirements would have to be established at Bellingham including mooring and transfer structures, staging area, passenger ticketing and waiting facilities, longshoring arrangements, fueling arrangements, crew licensing requirements, coast guard regulatory requirements, etc.

Analysis of this issue shows that the most reliable way to evaluate potential lease costs at either Bellingham or Seattle, or, for that matter, at any other potential southern terminus port, is to invite proposals from all qualified parties for the provision of southern terminus facilities. In the alternative, another approach would be to enter into detailed negotiations with the ports which have presently expressed an interest (Seattle and Bellingham). To either end, an initial draft statement of the basic requirements for a southern terminus facility for AMHS has been prepared and is attached as Appendix A.

V. Other Issues:

A number of issues with cost impacts have been identified, but have not yet been resolved. Time required to fuel ships at Bellingham is unknown, as are any other incidental fueling costs (i.e., moving the ship for fueling, special fuel handling equipment or modifications to the vessels, personnel procedures or training requirements, etc.). Longshoring costs at Bellingham are unknown, but brief discussions with ILWU representatives indicate that such costs would be competitive with Seattle. Pilotage costs would be incurred in the first year until pilotage endorsements could be obtained by AMHS licensed crews. A U.S. Coa[illegible]ard certificate of adequacy would have to be obtained before the facili[illegible]oposed for use at Bellingham could be used. Head tax assessments at

Bellingham are unknown as are such taxes at Seattle under a renewed lease. While such taxes are not a net cost to AMHS (being passed on to users through the fare structure) they could potentially influence fares to a degree that would adversely affect traffic.

Impacts to commercial users are unknown as well, although initial indications are that there would be at least a temporary adverse impact to such users from having to move goods, trailers, containers, etc. from central supply points in Seattle to Bellingham. These users will incur additional costs and time which may adversely affect product and service quality as well as add to Southeast Alaska consumer costs.

Generally speaking, Bellingham is not an end destination for the great majority of users of the AMHS Puget Sound service, whereas Seattle is the end destination for many such users. Thus terminating at Bellingham would result in a need to continue a trip by some other mode for almost all AMHS travelers. One of the primary origins or destinations for AMHS users, Seattle-Tacoma International Airport, is an additional ninety-six road miles from Bellingham or approximately two hours driving time (and longer during rush hours), with other Seattle area destinations being somewhat less.

AMHS passenger loads disembarking at Seattle average approximately 500 passengers and 90 vehicles with a peak of approximately 750 passengers and 140 vehicles. Of these passengers approximately 30% to 35% of the average load is without a vehicle and approximately 40% to 50% of peak loads are without vehicles. This translates into a demand on the public transportation system of 150 to 175 passengers on average and a peak of 300 to 375 passengers disembarking from the ferry and seeking transportation into or out

of Bellingham. Public transportation into and out of Bellingham and the Whatcom County area consists of air and bus service. Greyhound bus service provides five southbound and six northbound trips per day. Air service is provided from Bellingham airport to Seattle, Vancouver, Portland, and the San Juan Islands. PSA provides three jet flights to Seattle daily (except Sunday), Horizon Air provides nine commuter flights to Seattle daily, and San Juan provides nine Seattle commuter flights daily on weekdays and five flights a day on weekends. Thus there are twenty one flights per day to Seattle on weekdays. San Juan also provides five flights per weekday to Vancouver, two flights to Portland and one flight per weekday to the San Juan Islands. Both Bellingham airport and the Greyhound bus terminal are served by the Whatcom Transportation Authority, the agency which would also serve the proposed ferry terminal.

It is not expected that relocation to Bellingham would have much impact on tourist vehicle traffic, either north or southbound, since these travelers have the means (their vehicles) to reach either Bellingham or Seattle or to continue their journey upon arrival at either port. Likewise, tour groups traveling by bus would not likely be seriously affected. Operating from Bellingham would improve access to Canadian walk on traffic, being much closer to British Columbia ferry terminals.

A significant adverse impact may occur to tourist and Alaskan travelers without vehicles. For these travelers, the Seattle location is more conveniently accessed by public transportation (notwithstanding air, bus and rail access to Bellingham which must be obtained by making a change of some sort in Seattle in any event). Specifically for this group of Alaskan travelers, the present Seattle location makes a wide range of big city goods and services immediately

accessible upon arrival. Relocation to Bellingham would force this group of travelers to attempt to duplicate those goods and services in Bellingham, to change modes and continue their trip to access those goods and services in Seattle potentially requiring additional expense and inconvenience, or simply to choose direct air travel to Seattle for the same purpose. This group of travelers is a small percentage of overall traffic, especially in summer, but a larger portion in winter and is also the group most dependent on AMHS service. However, it should be remembered that the mission of the AMHS is efficiently delivered basic transportation and not necessarily the most convenient transportation as seen from the perspective of any individual user group.

Taking all of these factors into consideration and recognizing that a market assessment has not been performed, there would very likely be little or no overall negative impact on passenger or vehicle traffic resulting from the relocation of the southern terminus operations from Seattle to Bellingham. This conclusion should be confirmed by a more detailed investigation of the impacts to AMHS traffic that would be incurred by relocation.

Even with its attendant access difficulties, the present location at Pier 48 in Seattle is a known quantity, and a certain "good will" (in the business sense) has been established at and because of that location. Relocating will abandon that "good will" and trigger expenses for its reestablishment at the new location. On the positive side of this issue Bellingham has expanded its port operations in recent years through an aggressive and continuing marketing effort and there is a good potential for AMHS to benefit from this effort, somewhat offsetting the cost involved in reestablishing itself in the new location.

An operational impact that is real but as yet unquantifiable, is the impact on supply operations if the southern terminus is located at Bellingham. Supplies

presently delivered to the terminal at Seattle for use throughout the System would have to be delivered at Bellingham. It is not certain at this time whether such a change in delivery point would have an overall positive or negative impact on price or timeliness of delivery of necessary parts, tools and supplies.

Relocation expenses would be incurred (which are presently not known) for moving the furniture, equipment and supplies presently used or stored at the facility in Seattle. Seattle personnel will either have a long daily commute or will have to relocate to continue their employment. For those who choose to do neither, their will be a hidden cost to AMHS of acquiring and training replacements as well as the cost to the employees of replacing their jobs.

VI. Conclusion:

Based on this analysis, Bellingham is found to be an acceptable alternative location for AMHS southern terminus operations pending resolution of previously noted unresolved issues and clarification of the cost and quality of terminal facilities. Likewise, Seattle is and will remain an acceptable location for the AMHS southern terminus. Other alternative locations might also be workable, but have not been analyzed as part of this review.

Using Bellingham as the AMHS southern terminus could provide a small fuel cost saving if no additional service were attempted using the available time savings but such savings are very small in relation to the overall AMHS operational cost.. Bellingham also offers some additional scheduling flexibility. Seattle offers the convenience of proximity to city goods and services and an established location, but the detractions of the aging structure and traffic congestion force a reexamination of the location and a look at other useable

locations.

It is sufficient to say that Seattle and Bellingham both qualify as locations for AMHS southern terminus operations, though they both carry deficiencies that must be remedied before any long-term commitment is made in either location. Invitations for proposals from all qualified locations for the provision of southern terminus facilities is one reliable way of resolving these issues. Another way would be to enter into detailed negotiations with the ports which have presently expressed an interest (Seattle and Bellingham).

User desires, especially the desires of the users of the Puget Sound service, will be solicited and considered, though the final decision will not be made on the basis of this factor alone. One of the first tasks for the newly appointed AMHS Advisory Council will be to ascertain and communicate to DOT&PF management the needs and desires of the users of the Seattle service.

The following are the key factors which will weigh heavily in the decision as to which port will best serve AMHS needs: (1) the quality of facilities to be provided as well as the cost of those facilities, direct and indirect; (2) preferences of the users of the service as elicited by the AMHS Advisory Council and through other means; and (3) reasonable resolution of the issues relating to the needs of commercial users and walk-on passengers. The issue of AMHS southern terminus location, while not the most significant issue facing the AMHS this session deserves serious consideration by all. The Department will proceed with the solicitation of proposals or negotiations on a schedule which will accommodate public review of the results of the proposal or negotiation process and render a choice as to which port will be used by late summer or early fall of 1988.

DRAFT

BASIC TERMINAL REQUIREMENTS

Basin

Water Depth - -25 to -30 MLLW
Width - 250' Min
Length - 500 Min

Berth

Berth and Approach - Oriented such that last ¼ mile of approach and longitudinal axis of vessel in berth is nearly parallel to major wind and waves.

Moorings

Berthing Energy - Selected in accordance with rational design criteria and modified appropriately for exposure, etc.

Mooring Line Loads - 50 kips min.

Line Handler Access - Continuous throughout tie up points.

Transfer Structures

A) Layout to accommodate stern load.
B) All tidal flexibility with max. grade at ELW not to exceed 15% and max grade at EHW not to exceed 4%.
C) Capacity - AASHTO HS-20 with impact.
D) 16'0" min roadway width.
E) Separated and covered passenger access to upper passenger deck of vessel.

Electrical Power & Illumination - Adequate power should be provided to accommodate existing and future loads. Auxiliary power generation should be provided to power essential facilities in case of utility outage.

Illumination of parking, staging, and security areas should be at a level consistent with accepted standards for facility type. Linehandler accesses and mooring points shall be well illuminated and take into consideration potential conflicts with visibility of ships operators during berthing and approach maneuvers.

Parking and Staging

A) Area sized to accommodate 100 passenger vehicles and 20 vans (i.e., 20' - 40').

B) Vehicle staging area to have access control to accommodate orderly staging and maneuvering of embarking traffic, isolate staging operations from transient traffic and provide necessary staging security.

C) Staging lanes to be parallel and number required to be determined by ports served.

Parking: A) Facility should provide:
1) 20 short term parking spaces.
2) 10 long term parking spaces.
3) Employee parking - Based on number of shoreside employees and be totally separate from long or short term spaces provided.
4) Transient, bus and taxi, spaces should be provided to accommodate percentage of foot traffic anticipated and verified by real time analysis.

Traffic Flow

Embarking Traffic: Separate entrance with adequate traffic lanes to divert traffic to respective terminal operations (e.g., embarking, transient, short term, long term, etc.).

Disembarking Traffic: Separate exit lanes that do not conflict with embarking vehicle traffic and allows easy access to major transportation networks. Foot passenger access should be provided to a separate area that provides adequate ground transportation and information.

Passenger Terminal and Ticketing

Architecture and Landscaping: Alaskana, incorporating major elements of statewide culture and development, so as to provide a well rounded first impression of Alaska, its history and its people.

Baggage Handling - Provisions should be included to accommodate loading and unloading of passenger baggage via the existing ship baggage cart.

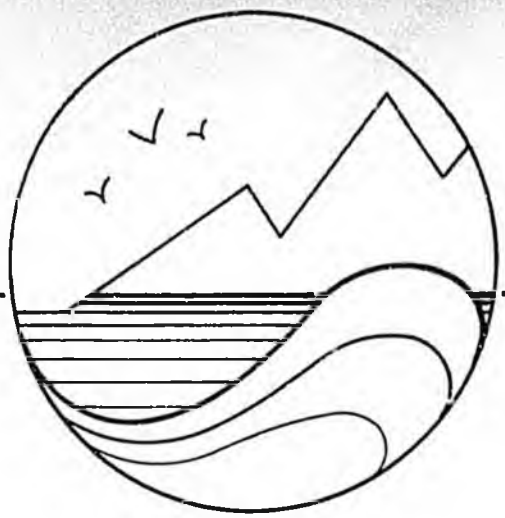
Ticketing and Waiting Area -	Areas required to accommodate passenger waiting and ticketing should be proportioned in accordance with accepted criteria and based on a current operational analysis of anticipated demand along with projections for future demand. An information center should be provided to answer questions regarding vessels, ports of call and general system information. Short term security storage should be provided.
Warehousing and Administration	Separate areas shall be provided to accommodate the existing port administration functions, as well as marshalling areas to accommodate existing provisioning requirements and general port storage volume.

House Trans
with Session on
Alt. Marine Highway

Southeast Alaska Transportation Plan

June 1986

State of Alaska
Alaska Department of Transportation
and Public Facilities
Southeast Region



Southeast Alaska Transportation Plan

June 1986

State of Alaska
Alaska Department of Transportation
and Public Facilities
Southeast Region

SOUTHEAST ALASKA TRANSPORTATION PLAN

JUNE 1986

Department of Transportation & Public Facilities

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SOUTHEAST ALASKA TRANSPORTATION PLAN

EXECUTIVE SUMMARY

Introduction

Since 1980, when the previous Transportation Plan for Southeast Alaska was adopted, many changes have occurred in both the needs and opportunities for transportation development within the Region. The Alaska Department of Transportation and Public Facilities therefore undertook, early in 1985, to prepare a formal update of the Transportation Plan in order to ensure that the planned policies and directions fully reflected the existing and anticipated needs and concerns with regard to regional transportation services.

Planning Process

The Department established a joint Technical Committee with representation from the Southeast Region Planning Division and the Alaska Marine Highway System, and engaged the consulting firm of Acres International Corporation to assist in defining and evaluating alternative transportation schemes.

The Department also solicited ongoing community involvement in the planning process through the distribution of newsletters and the insertion of newspaper advertisements advising of the planning effort and requesting comments and suggestions. Responses to these advertisements, as well as community comments put forward during other recent workshop/hearings processes, played a vital role in the formulation and assessment of transportation alternatives.

Plan Development

An initial step in the planning effort was to carry out a careful review of the goals which the revised Plan should strive to achieve. These were ultimately defined as:

- meet resident demands for travel to and within the Region;
- facilitate development of the regional economy by providing supporting transportation services;
- maintain fiscal responsibility through judicious allocation of public funds.

Unfortunately, the goals are not mutually compatible and, within the present economic environment, are not collectively achievable. One of the tasks in developing the proposed plan was to suggest a compromise that would enable a balance to be achieved between demands for services and the current and likely future fiscal environment.

The steps taken in developing the revised Transportation Plan involved first updating the projections for future transportation needs to, from and within the Region; reviewing the existing transportation system; and reviewing future prospects (technological and operational) for the provision of transportation services.

A wide range of alternatives were then postulated for both air and surface transportation services. Options were defined for both specified corridors nd for the Region as a whole and were defined for both the short-term and long-term planning horizons. These options were evaluated from a number of viewpoints including cost to the State, cost to the user, capacity to meet demand, service level, and service/cost effectiveness.

On the basis of these assessments, a proposed plan was formulated which attempted to balance between the anticipated needs of the residents in terms

of transportation and economic development and the constraints imposed by the need for fiscal responsibility.

This proposed plan was laid out in a Draft report and distributed to communities throughout the Southeast Region. A series of community workshops were conducted in 20 regional communities to present the plan, respond to questions and obtain residents' opinions on the plan and its components. Written comments from residents were also solicited. Community response to the Draft Plan was carefully assessed and, where possible, modifications were incorporated into the Final Plan in response to residents' concerns.

Regional Transportation Plan

The final Regional Transportation Plan foresees an ongoing role for both air and surface transport in the Region. In terms of aviation, the short-term focus is on completing current airport runway extensions at Klawock, Kake and Hoonah, on maintaining and improving existing airport facilities, on upgrading existing seaplane floats and on improving air navigation and safety through additions and improvements to navigation aids. In the longer-term, the focus is on maintaining options for further development of wheeled-aircraft facilities up to and including commuter aircraft standards.

In terms of marine transportation, the short-term focus is on improving marine highway services and revenues by scheduling a second mainline vessel to Seattle (where demand is strong) and providing initial high-speed ferry services in the Ketchikan-Prince of Wales-Clarence Straits region.

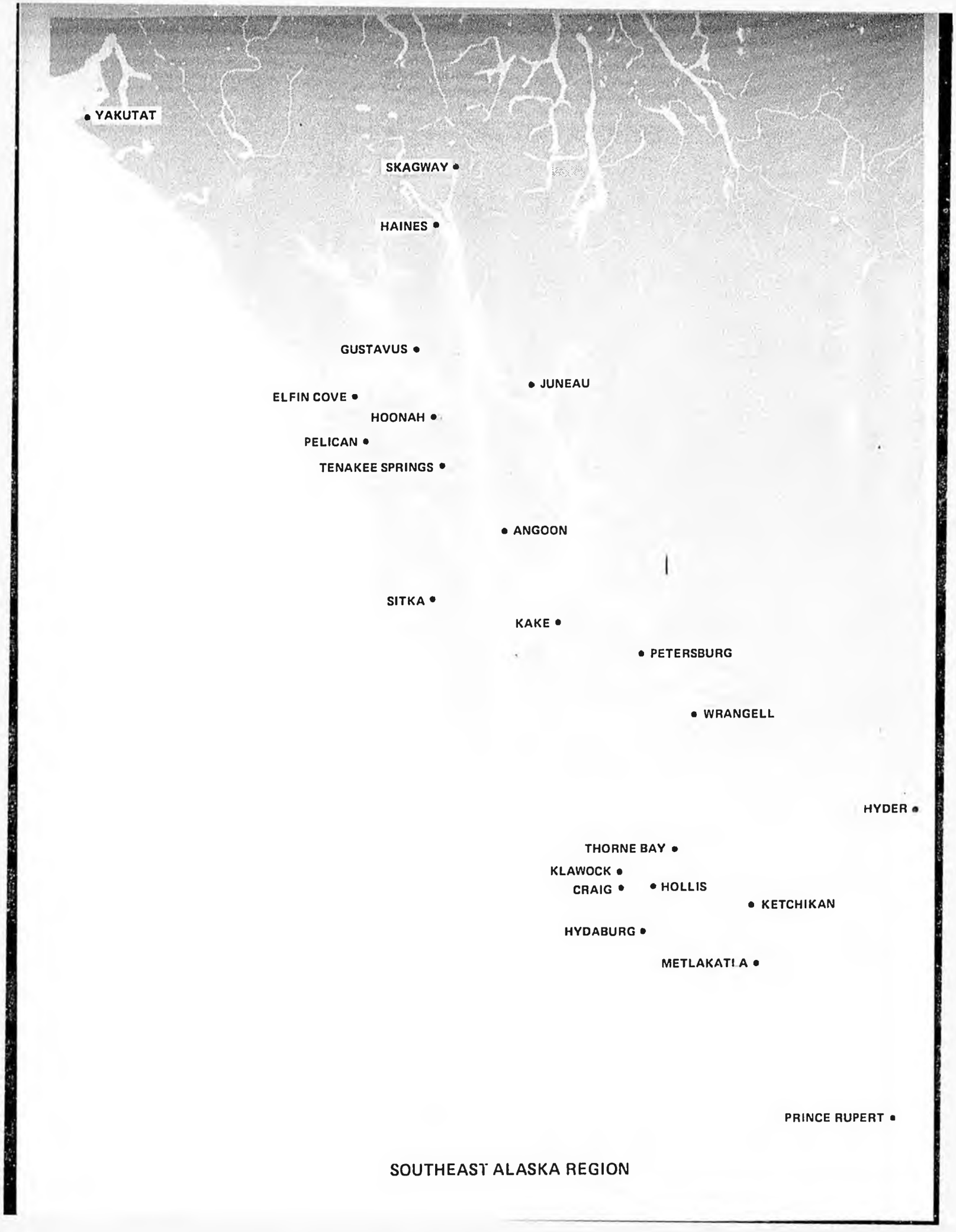
The longer-term plan focuses on additional use of high-speed ferries for intra-regional travel, particularly in the Sitka-Juneau and Juneau-Skagway corridors, thus providing improved access to residents and freeing up the mainline vessels to offer additional service and capacity out of the southern termini (Prince Rupert and Seattle). In addition, private operators would be encouraged to supplement peak season service out of Seattle by providing vessels with vehicle capacity.

In terms of road transportation, the short- and long-term focus is on maintaining and upgrading existing road links. While several new inter-community links were evaluated, it was concluded that, under current prospects for traffic growth, these links could be served in a more cost-effective manner by the Marine Highway. It was recommended, however, that the concept of a road up the east side of the Lynn Canal, connecting Juneau with either Haines or Skagway or both, be periodically re-evaluated, particularly once high-speed ferry service has been introduced.

Role of the Regional Plan

The Southeast Alaska Transportation Plan described in this document presents the Department of Transportation and Public Facilities' goals, policies, and general overall plan for maintaining and improving the State's regional air, land and marine transportation services and facilities. The Regional Plan recognizes the statewide aviation policies and standards established in the Alaska Aviation System Plan. The Regional Plan evaluates and compares air, land and marine alternatives to develop an integrated multi-modal transportation plan, which provides general direction to specific modal planning efforts such as airport master plans and the Alaska Marine Highway System plan.

These plans, together with community plans, provide direction in establishing regional transportation priorities and in developing the Department's 6-year Capital Improvement Program, which itemizes specific projects to be undertaken. Those projects which are scheduled in the first 1 or 2 years of a Capital Improvement Program are then submitted annually to the Legislature for funding.



SOUTHEAST ALASKA REGION

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1 - INTRODUCTION

1.1 - Background

In 1980, Southeast Alaska developed a long-range plan for the provision of transportation services within the Region. The plan defined operating concepts and facilities requirements and drew extensively on input from residents and research dating from 1977. In the period of time that has elapsed since this review, much has changed relative to the basic assumptions and concepts embodied in this plan.

The 1980 Plan, for example, saw increasingly scarce and expensive fuel impacting significantly on transportation both in and to Southeast Alaska. There were high expectations relative to resource development, growth in visitor travel and the ability of Alaska to fund new equipment to meet the needs of both resident and tourist. In addition, the possibility of a move the State capital gave an aura of uncertainty to perceived needs.

Since the implementation of the 1980 Plan, the move of the capital has been shelved, resource development has been constrained by lack of demand in world markets, and oil is readily available and relatively cheap. The change in fortune of the oil industry, while beneficial to the traveler, has seriously eroded State revenues. Thus, Southeast Alaska is faced with increasing demand for travel, but limited resources with which to meet that demand.

While the original Transportation Plan was always envisaged as a flexible planning tool that could, and would, be changed to adapt to different circumstances, the extreme changes that have occurred necessitated a formal update to review policies and direction and to determine the likely direction of transport within the region to the end of the century.

Accordingly, early in 1985 the Alaska Department of Transportation and Public Facilities undertook to update the 1980 Regional Transportation Plan in order to ensure that the planned development of transportation facilities

fully reflected the existing and anticipated needs and concerns within the region. A joint Technical Committee was established, comprised of representatives from the Southeast Region Planning Division and the Alaska Marine Highway System, and given the mandate to update and modify, as necessary, the 1980 Plan. In addition, the consulting firm of Acres International Corporation was engaged to assist the Technical Committee in defining and evaluating alternative transportation systems for the Region, and in formulating and presenting the updated Transportation Plan.

1.2 - Role of the Regional Plan

The Regional Transportation Plan is intended to present the Department of Transportation and Public Facilities' goals, policies, and general overall plan for maintaining and improving the State's regional air, land and marine transportation services and facilities. The Southeast Region Plan recognizes the statewide aviation policies and standards established in the Alaska Aviation System Plan.

In general terms, the Regional Plan evaluates and compares air, land and marine alternatives to develop an integrated multi-modal transportation plan, which provides general direction to specific modal planning efforts such as airport master plans and the Alaska Marine Highway System plan. These plans, together with community plans, provide direction in establishing regional transportation priorities and in developing the Department's 6-year Capital Improvement Program which itemizes specific projects to be undertaken. Those projects which are scheduled in the first 1 or 2 years of a Capital Improvement Program are then submitted annually to the Legislature for funding.

1.3 - Goals and Objectives

As part of the planning process, a careful review was carried out with regard to the goals which the updated Transportation Plan should strive to achieve. These were ultimately defined as:

- meet resident demands for transportation to and within the Region;
- facilitate development of the regional economy by providing supporting transportation services;
- maintain fiscal responsibility through judicious allocation of public funds.

Unfortunately, within the present economic environment, these goals are not collectively achievable, and one of the tasks of the proposed plan was to suggest a compromise that would enable a balance to be achieved within the current and likely future fiscal environment.

1.4 - Community Involvement

A key policy recommendation in the original Transportation Plan was to provide the opportunity for effective public participation in transportation decisions. In the past few years, the Department of Transportation and Public Facilities, Southeast Region and the Division of Alaska Marine Highway System have both maintained a program of community involvement in the ongoing planning process. In 1982, anticipating an update of the Regional Plan, the planning section held a series of community workshops to solicit opinions and concerns on the current transportation system. In addition, community hearings were held in conjunction with the studies of the 1984 Governor's Task Force on the Marine Highway.

As part of the present plan update, the planning team carefully reviewed the comments and issues which were raised at these community workshops and hearings. In order to ascertain whether additional concerns had arisen

since that time, a newsletter was sent to all parties who had previously expressed ongoing interest in the transportation system. The newsletter advised that the plan update was underway and requested that they inform the consultants of their current concerns and suggestions with regard to regional transportation. In addition, notices were inserted in all community newspapers throughout the Region advising the public of the planning effort and requesting their input. Many letters were received in response to these requests and the comments carefully noted in developing the plan revisions.

Once the Technical Committee and consultants had completed their evaluations, a 'Draft' updated Regional Transportation Plan was developed and distributed to the communities in February 1986. The Department and consultants then carried out a series of workshops in 20 communities throughout the Region during the latter half of April in order to present the Draft Plan to residents, respond to any questions, and solicit community reactions to the proposed Plan components. Subsequent to the workshops, communities and individuals were given the opportunity to provide additional comments in writing to the Department of Transportation up to the end of the first week in May.

Community reactions obtained through the workshops and through written replies were thoroughly reviewed and analyzed. In general, public response to the Plan was favorable with 80% of the participating communities according it an overall average rank of approval. Where negative comments and alternative suggestions were raised, they were carefully assessed and, insofar as possible, reflected in the final Regional Transportation Plan.

2 - PLANNING FRAMEWORK

2 - PLANNING FRAMEWORK

2.1 - General

In the years since the previous Transportation Plan was developed, a number of changes have occurred in the Southeast Alaska Region. Some of the changes have been generated internally but many have been generated by outside forces which have impacted on the needs and opportunities within the area.

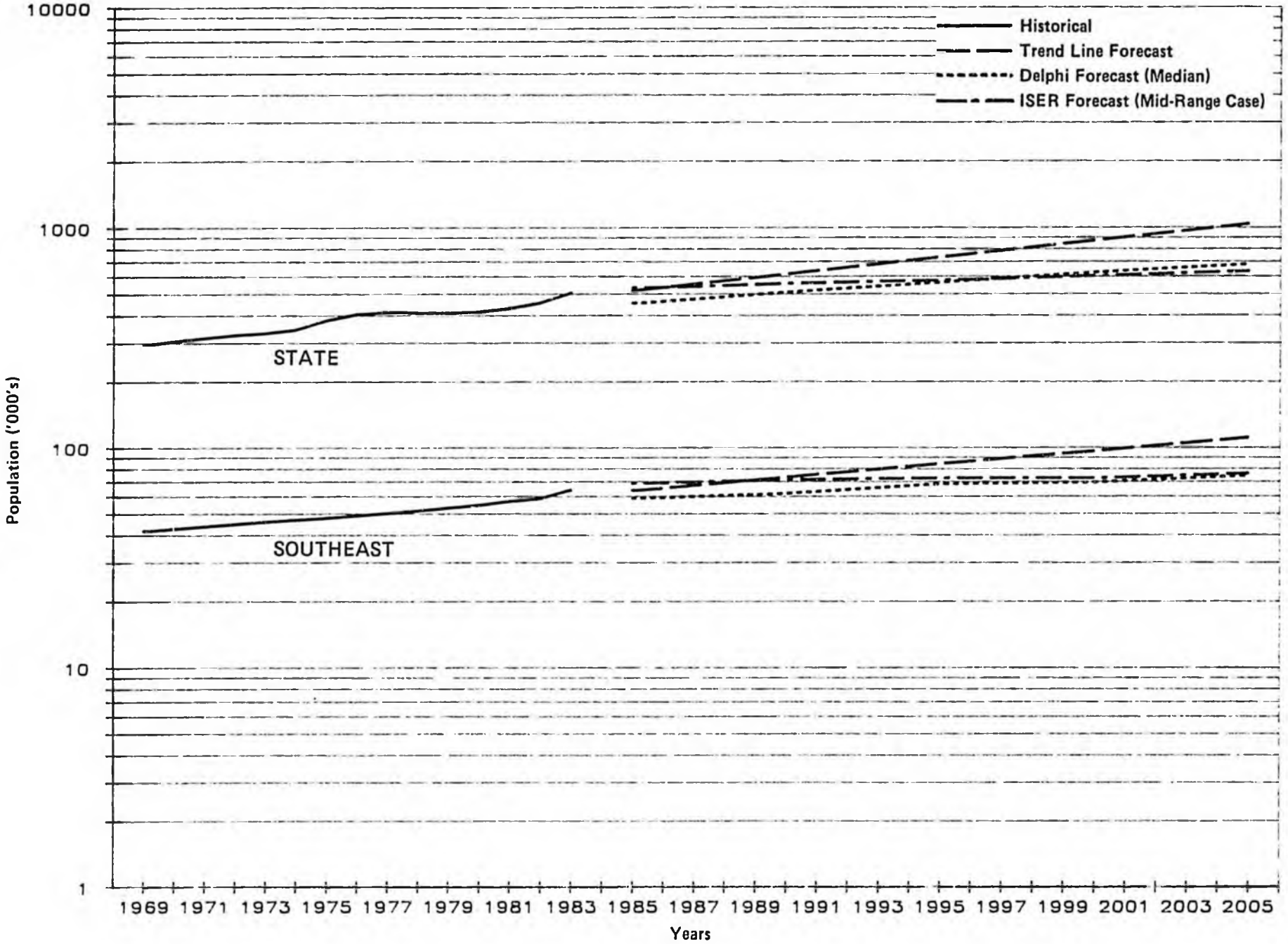
The intervening years have seen a marked decline, for example, in the resource markets on which a substantial portion of the Alaskan economy is based. Falling oil prices have placed downward pressure on government revenues, while poor markets for forest products and minerals have led to curtailment or deferral of projects which were originally planned for the early 1980s. These factors have led to an increasing reliance on the tourist market, which has remained strong in spite of generally poor economic conditions.

Within the region, shifts in population and income have altered the demand pattern for transportation services. In addition, system changes made as a result of the 1980 Plan have provided added information regarding the interactions between demand and services and have highlighted new areas of service shortfalls.

These factors have combined to create a new context in terms of transportation demand within the Region. At the same time, some significant changes have occurred in the supply side of the equation as new transportation technologies and new types of service have evolved as practical options.

As a result, there is a clear need to re-evaluate the transportation planning framework in terms of:

Figure 1
ALASKA POPULATION FORECASTS



- expected changes in the demand for service;
- the base or existing transportation system; and
- the technological changes which may be available for future integration into the transportation network of the Region.

2.2 - Population and Tourism Growth

The key factors contributing to changing demand for transportation services in Southeast Alaska are the growth in regional population and the growth in tourist traffic into the area. In a survey carried out in 1983, almost 60% of the air travelers and 40% of the Marine Highway users were Alaska residents. In addition, on the Marine Highway, almost 50% of the travelers (and over 70% of summer travelers) were tourists. These two markets, resident and tourist, clearly account for the major portion of transportation demand in the Region, and the future growth in these markets will play a key role in defining the need for transportation services.

In the past, population growth in the Southeast Alaska region has generally remained fairly stable and relatively strong. Since the late 1960s, the population of the Region has grown at a fairly consistent rate of 2.5% to 3.0% per year, somewhat lower than the State average of 3.5% but without the marked swings seen in statewide population trends.

In the late seventies it was expected that, provided the State capital was not moved from Juneau, the long-term population growth rate could be maintained at around 2.8%, with the Region's population increasing to over 100 000 persons by the year 2000. More recent forecasts, however, have been more pessimistic (see Figure 1, opposite). In part because of the Region's dependence on State government employment and the expected need to reduce State spending, these forecasts have generally predicted a decline in the long-term annual growth rate. A Delphi forecast prepared in 1983 projected regional population growth of less than 2.5% per year to 1990, declining to below 2% from 1990 to 2000 and less than 1.5% thereafter. The Alaska

Institute for Social and Economic Research, using the detailed State Economic Model, has projected even lower growth rates for Southeast population ranging from a low of less than 0.5% per year in their pessimistic case, up to an average of less than 1% in their optimistic scenario.

In light of these forecasts and the generally weak long-term prospects for the Region, it was decided, for planning purposes, to project that regional population could maintain its long-term growth rate (2.8%) through to the end of the 1980s but that growth thereafter was likely to decline and stabilize at a rate of 1% per year. Total regional population was forecast to reach 73 900 persons by 1990, and 85 800 by 2005.

The second key market for transportation services is tourist traffic. Relatively little data are available on the growth in this market, but indications are that visitor volumes have grown at an average annual rate of 4.5% in recent years. The long-term prospects for this market are strong as increasing proportions of the population find themselves with the leisure time and financial means to indulge their desire for travel.

It is too early to tell whether Alaska can sustain its share of this growing market, just as it is difficult to predict the portion of these visitors who will make use of State-operated transportation services (airports, roads and the Marine Highway). For planning purposes, however, it was assumed that tourist demand for transportation services into and within the Region would continue to grow at 4.5% per year to 1990 and would taper off to 2.5% per year thereafter.

2.3 - Existing Transportation System

The transportation system currently in place in Southeast Alaska has also changed somewhat since the introduction of the 1980 Transportation Plan. The existing network consists of three key components--the aviation, the marine and the road systems.

2.3.1 - Aviation System

Air traffic demands in Southeast Alaska are met by a range of carriers from intra- and inter-regional jet airlines through to small float-plane operators.

Two air carriers provide jet service to Southeast Alaska: Western Airlines and Alaska Airlines. Western flies a Seattle, Juneau and Anchorage route year-round with Boeing 727 aircraft and also provides a summer service into Ketchikan from Seattle. Alaska Airlines, the major large carrier in Southeast Alaska, provides service with Boeing 737/727 aircraft. It serves Yakutat, Juneau, Sitka, Petersburg, Wrangell and Ketchikan with at least two jet aircraft flights per day year-round, and serves Gustavus with one jet flight a day in the summer and with small aircraft service in the winter. During the summer of 1985, Juneau had nine Alaska Airlines flights a day scheduled, while Ketchikan and Sitka each had seven scheduled flights per day. All of the flights originate or terminate in Seattle, Anchorage or Fairbanks. With a total population of some 53 500 in 1983 for all the communities being served with jet aircraft, it can reasonably be argued that this airline service is excellent for the size of the communities and traffic demand.

The jet carriers also provide a substantial freight capability to and from the region carrying high-value perishable cargos as well as mail. On some flights, as much as half of the passenger bay is turned over to cargo while in other cases whole aircraft will be chartered to move full loads of fresh fish.

Commuter air service of the type that is common in the lower 48 States (that is twin-engined aircraft, usually turbo-props, carrying between 18 and 44 passengers) does not exist in Southeast Alaska. This is chiefly attributable to the high level of jet aircraft service provided to all the major communities in the Region and the lack of additional communities with sufficient traffic to justify intermediate sized aircraft.

Apart from jet services, there are a number of scheduled air taxi operations in the Southeast Region offering a wide range of services and service

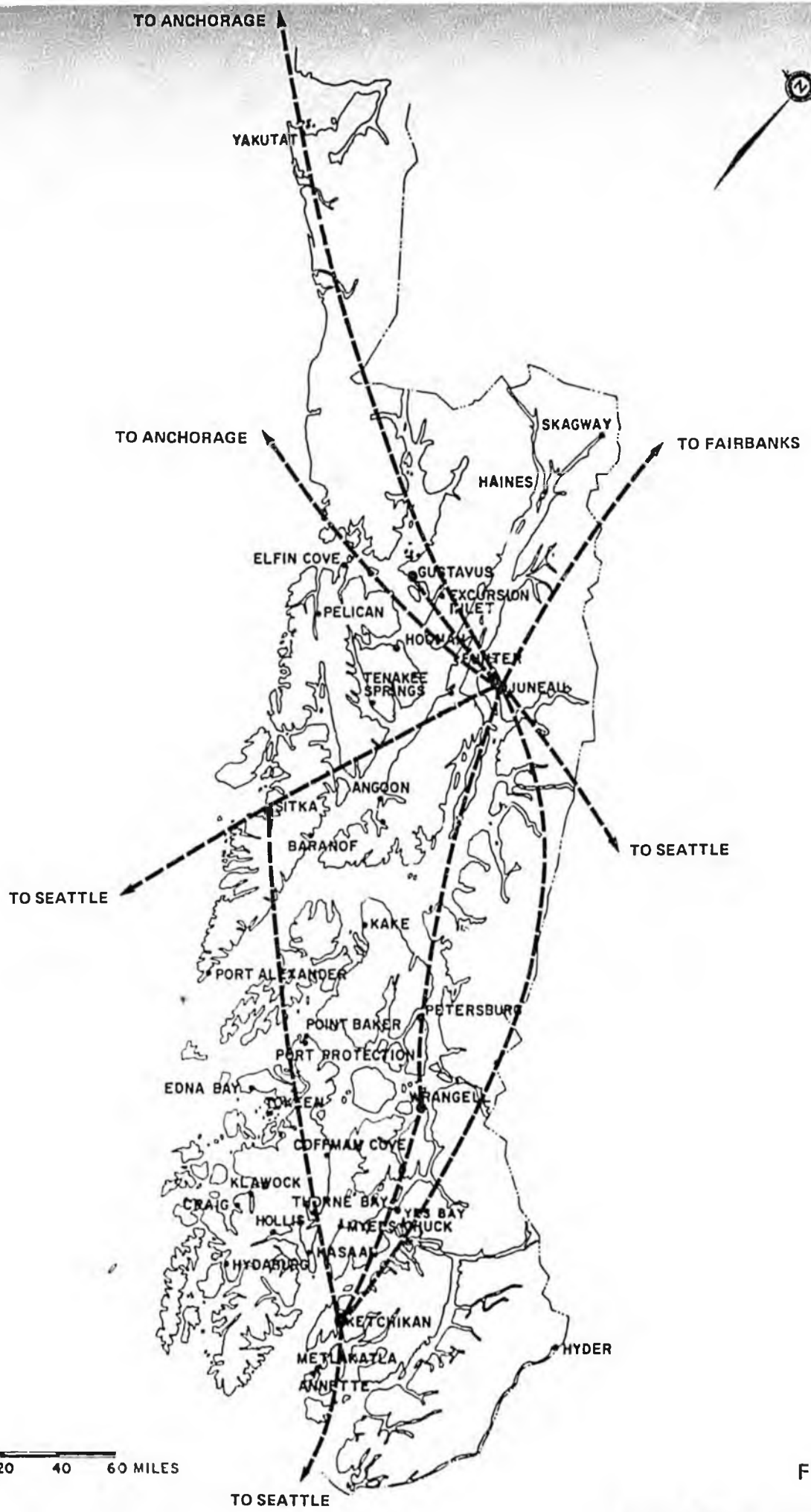


Figure 2

MAIN LINE JET SERVICE

frequencies into various communities. Operators are based in Juneau, Ketchikan, Petersburg, Wrangell, Sitka, Haines, Skagway, Yakutat, Klawock, Metlakatla and Gustavus, and generally provide a minimum of daily service to outlying communities carrying passengers, small freight and mail. Typically they provide service with float-equipped aircraft in the southern Panhandle, and wheel-equipped aircraft in the northern Panhandle. A summary of current (1985) jet and feeder services is provided in Figures 2, 3, and 4.

Air service operations in the region are supported by a network of some 140 airports, seaplane bases and heliports. Eight of the airports can presently accommodate jet aircraft although the Annette Island airport does not presently have scheduled jet aircraft flights. There are an additional 24 airstrips in the area that vary in size from a 1000-foot gravel beach at Pyramid Harbour to the Klawock runway, soon to be extended to 5000 feet.

Runways at the airports served by jet aircraft vary between 6003 by 150 feet at Wrangell to 8456 by 150 feet at Juneau. The runways place some limitations on the payload or fuel that an aircraft can carry but with the short stage lengths of most flights, the effect of this limitation is not unduly severe.

Of the airports that receive regularly scheduled jet aircraft flights, only Ketchikan International and Yakutat have full Instrument Landing Systems (ILS). The others have localizers without the glideslope (with the exception of Gustavus which has a VOR and an NDB approach). The main reason for the lack of full ILS facilities is terrain-induced distortion. The very high frequency transmissions tend to distort the direction of transmission and give false and unreliable readings to aircraft instruments; the glideslope portion of the ILS is particularly prone to this distortion.

Enroute low altitude airways over Southeast Alaska (below 18 000 feet) satisfy most I.F.R. requirements for aircraft operating at 10 000 feet or higher, with VORTAC transmitters located at Annette Island, Sitka, Sister's Island (near Juneau) and Yakutat while Level Island has a VOR/DME. For the purpose of civil aviation all five locations have Very High Frequency Omni Directional Radio Ranges (VOR) combined with Distance Measuring Equipment

Figure 3

WHEELED, SCHEDULED FEEDER AIR SERVICES

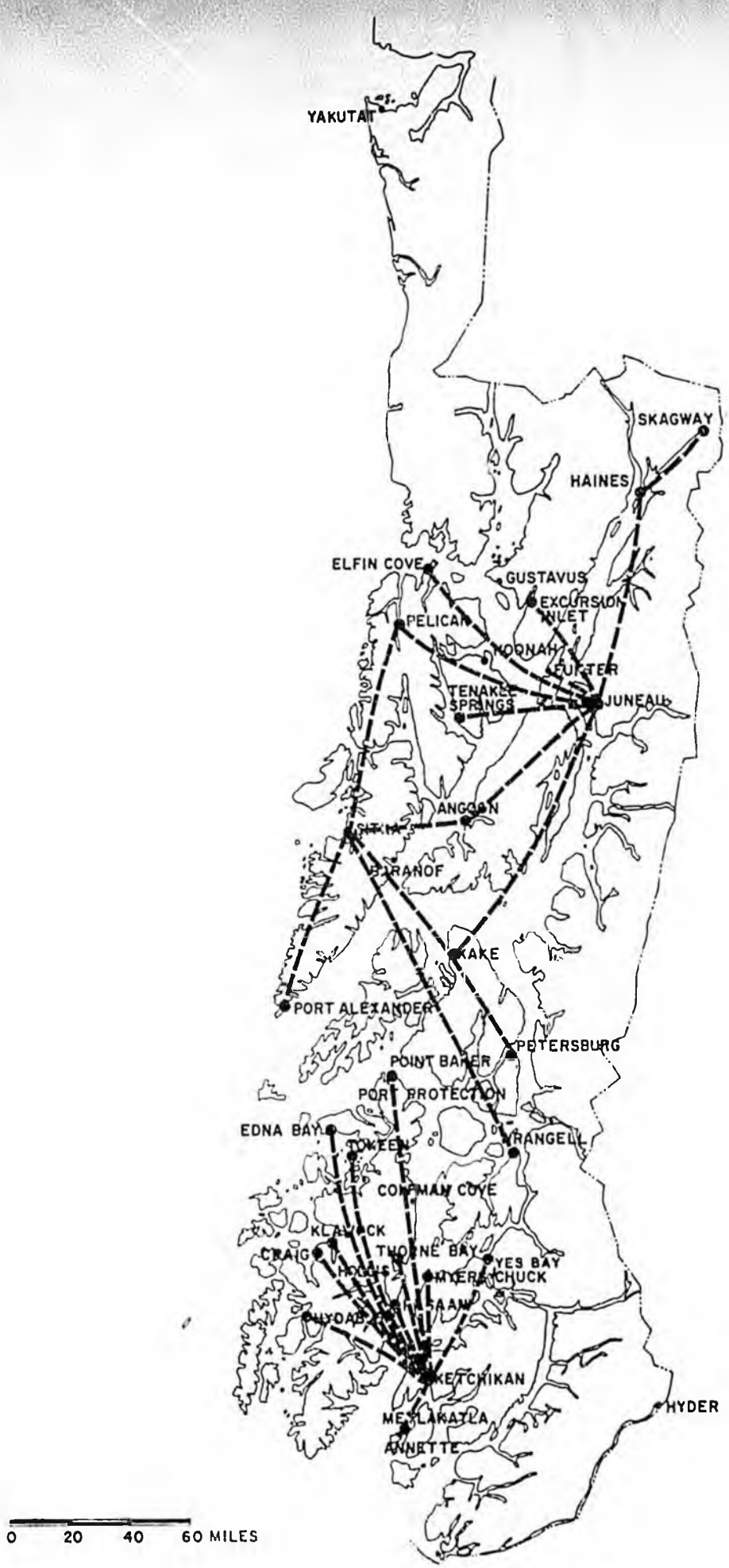


Figure 4

WATER-BASED, SCHEDULED FEEDER AIR SERVICES

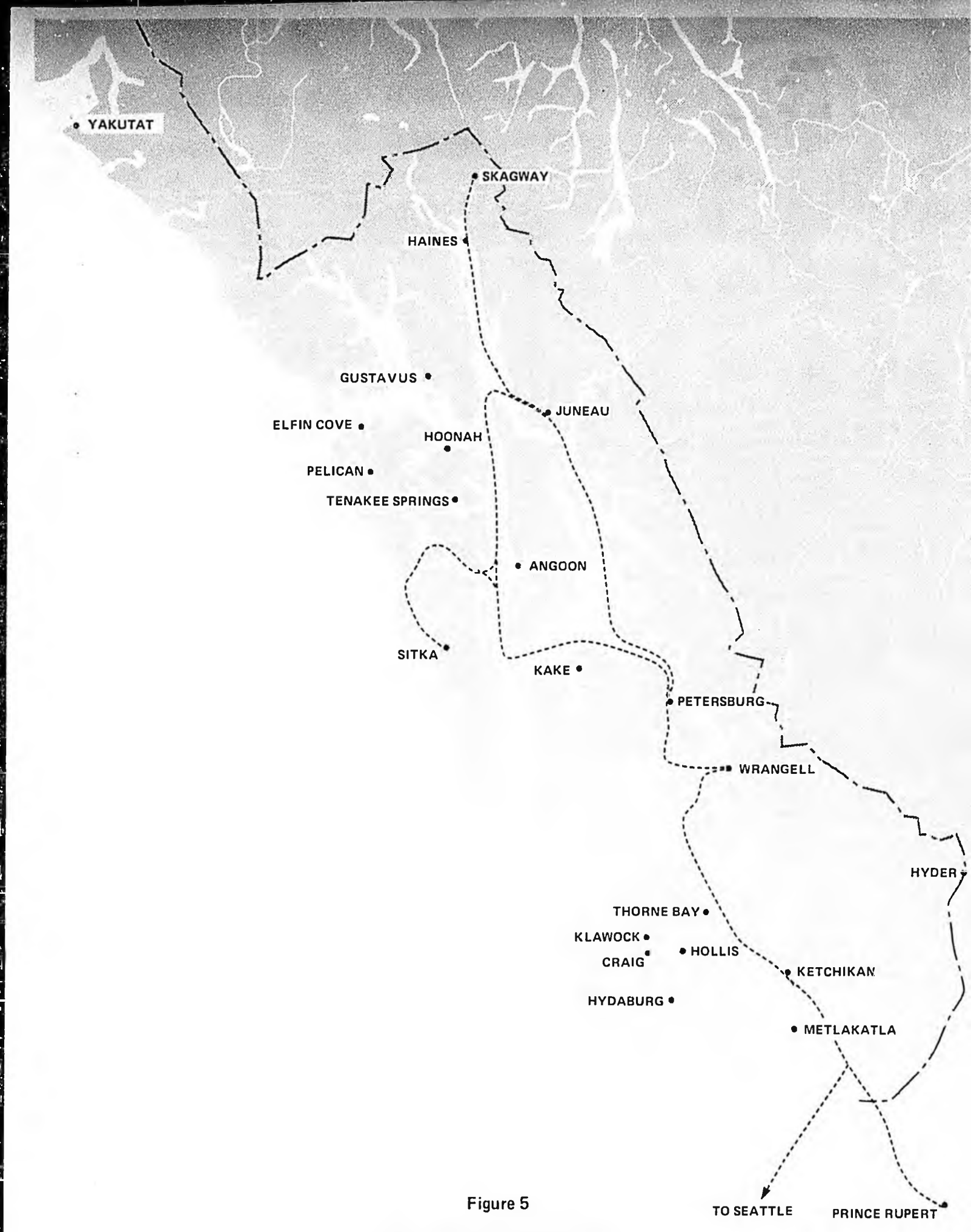


Figure 5

MAINLINE FERRY ROUTES

(DME). VORTAC indicates a combined VOR and Ultra High Frequency Tactical Air Navigation Aid (TACAN) which is used almost exclusively by military aircraft. It is, however, necessary to have line of sight to the transmitting stations to be able to use these facilities. The mountainous terrain of Southeast Alaska does not lend itself to good low altitude electronic navigation reception of these enroute VHF signals. Low frequency nondirectional beacons (NDB) are also used by aircraft for enroute navigation and nonprecision airport approaches. Although much less precise, the NDB allows aircraft with Automatic Direction Finding (ADF) radio to navigate on these signals even when it is impossible to maintain line of sight. NDB's are maintained as aircraft and marine navigation aids while any broadcast band commercial radio transmitter can be and often is used as an unofficial aircraft navigation aid by low flying aircraft.

2.3.2 - Marine System

The main component of the marine transportation system in Southeast Alaska is the Alaska Marine Highway ferry system. This operation provides surface links for passengers and vehicles both to, from and within the Southeast Region.

Seven vessels operate in the Southeast area. The four mainline vessels, the Columbia, Matanuska, Malaspina and Taku, operate between the southern road systems at Prince Rupert and Seattle and the northern road connections out of Haines and Skagway, providing a link for the through movement of traffic as well as carrying passengers and vehicles to and from the region and internally between a number of ports. All mainline vessels offer overnight accommodation for long-distance passengers.

During the 1985 peak season, one of these vessels, the Columbia, operated a weekly service between Seattle and Skagway. The other three vessels offered twice-weekly service out of Prince Rupert, making one three-day trip to Skagway via Clarence Straits and Stephens Passage, and one four-day trip travelling via Chatham Strait, and calling at Sitka (see Figure 5, opposite). During the 1986 season, both the Columbia and Matanuska will serve Seattle, leaving two vessels on the Prince Rupert routes. Vehicle capacities on the mainline vessels, adjusted for an average mix of small and

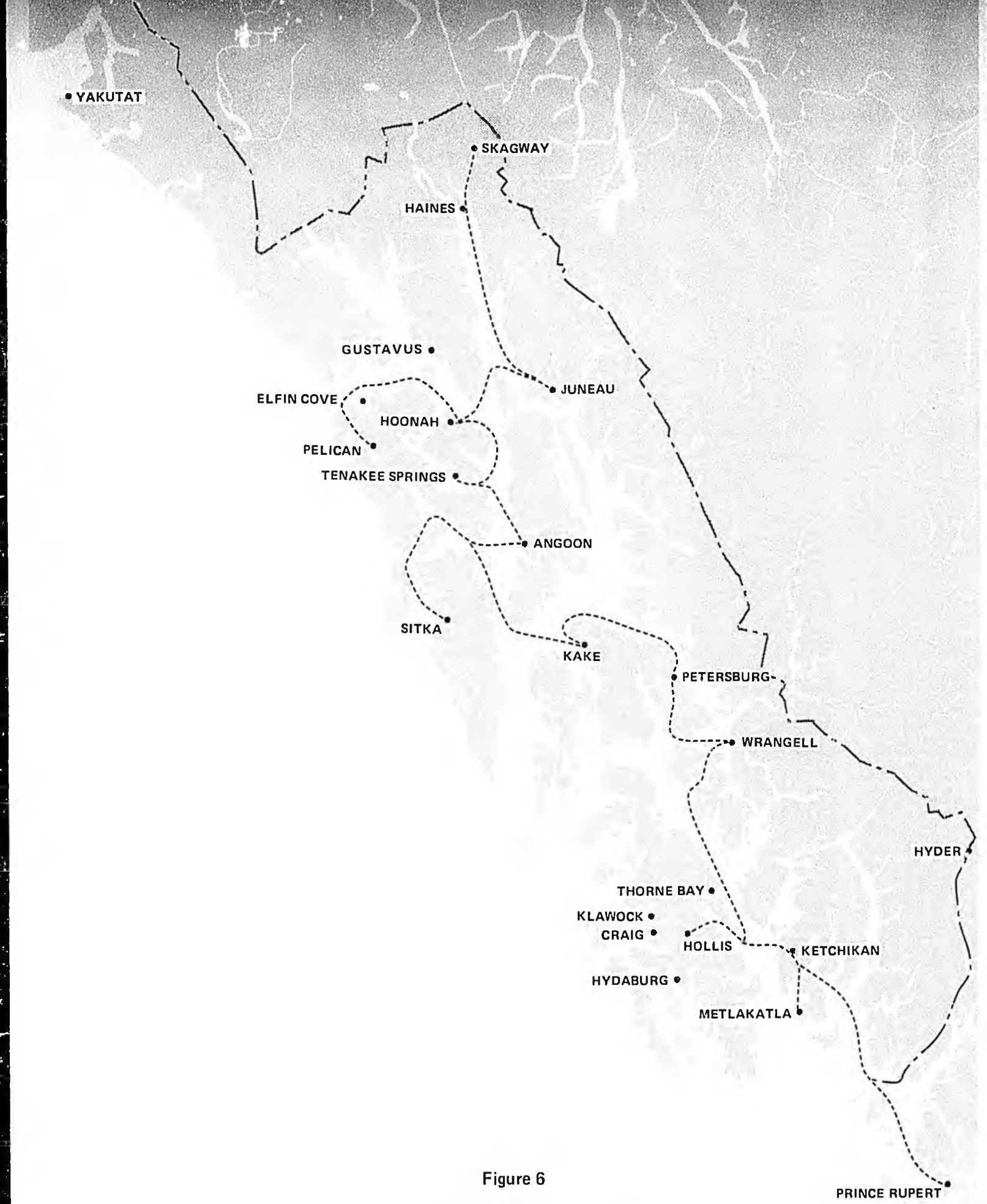


Figure 6

FEEDER FERRY ROUTES

large vehicles, range from 90 (for the Taku) to 155 (for the Columbia) while passenger capacities range from 500 to 750.

The three remaining vessels, the Aurora, LeConte and Chilkat, provide mainly internal feeder services carrying passengers and vehicles between the smaller communities and the mainline ports. The smaller of these, the Chilkat, operates between Ketchikan and Metlakatla and occasionally to Prince of Wales Island. The Aurora and LeConte, with 40-vehicle, 250-passenger capacity, provide connections between Prince of Wales Island and the Prince Rupert-Ketchikan-Petersburg corridor, and between communities in the Juneau-Sitka-Petersburg triangle (including Hoonah, Pelican, Tenakee Springs, Angoon and Kake) (see Figure 6, opposite). In 1986, the Aurora will provide service to Hyder once a week during the May to September period. The Hyder service will, however, be evaluated by the Alaska Marine Highway System to determine the level of service in the future.

In addition to serving passenger and vehicle traffic, the Marine Highway System acts as an important link for the movement of freight, carrying significant numbers of vans into and through the Region and between the various communities. This service supplements the activities of several tug-and-barge operators who also carry substantial volumes of freight, generally from Seattle, and distribute it to the Region's communities. The Marine Highway and the tug-and-barge operators together handle the majority of the general cargo type freight which supplies the needs of Southeast residents. In addition, the tug-and-barge companies carry a large portion of the Region's fish and seafood product (frozen and canned) to Seattle for further distribution. Finally, a number of ocean-going vessels provide freight capacity for the Region's exports of lumber and forest products.

The Region has a range of port facilities to serve the Marine Highway vessels. Seven communities have ferry terminals capable of handling the mainline vessels (Ketchikan, Wrangell, Petersburg, Sitka, Juneau, Haines and Skagway), while others can accommodate only the Aurora/LeConte class vessels (Hoonah, Tenakee Springs, Angoon, Pelican, Kake, and Hollis/Clark Bay). Two ports are also presently designed to handle the Chilkat (Hollis and Metlakatla) although renovations at Metlakatla will shortly allow the Aurora

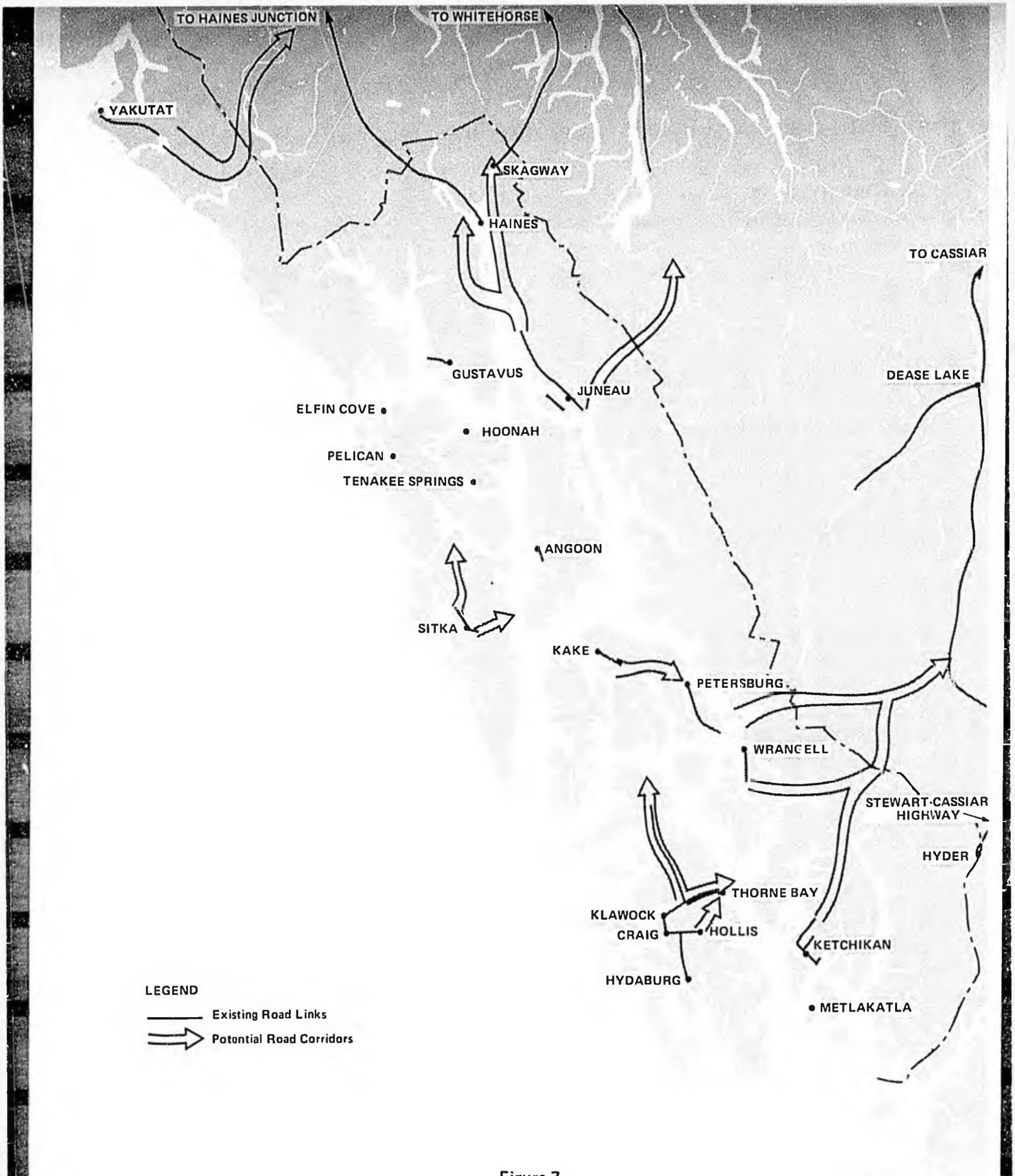


Figure 7

EXISTING ROAD SYSTEM AND ROAD CORRIDORS

to provide service but prohibit service by Chilkat. In addition, terminal facilities are planned at Hyder and Elfin Cove to allow ferry operations into those communities.

Terminal and port facilities for other marine movements (tug-and-barge and other freight operations) are, with few exceptions, provided by private industry. The level of facilities varies widely from terminals in the larger centers which are capable of handling containerized cargo to break-bulk, manual loading/unloading operations at smaller ports.

2.3.3 - Road System

The road system in Southeast Alaska is sharply constrained by the geography of the Region. Steep coastlines, multiple fjords and generally mountainous terrain make roads a costly option to construct and maintain. While there are some potential road corridors within the area, only a limited number have been developed (see Figure 7, opposite).

Access to the continental road system is provided at three points in the Region: Haines and Skagway in the north and Hyder in the south. Residents in other communities must use the Marine Highway to connect either with these roads or with the road system out of Prince Rupert or Seattle.

Within the Region, a substantial network of roads is operated and maintained to provide access between adjacent communities and links to nearby recreation areas. In addition, the US Forest Service has developed an extensive road network which, while not meeting State standards, provides some travel opportunity as well as a foundation for future road development. In general, however, with the exception of Prince of Wales Island communities, links between major towns within the Region are provided by air and by ferry.

TABLE 2.1

HIGH SPEED CRAFT
TYPES EVALUATED

		Passenger and Vehicle	Cost	Seakeeping	Comfort	Susceptibility to Strikes	Speed to Load	Comments
Air Supported	SRN4 MK2/3	yes	very high	moderate	fair	nil	fair	
	API-88	no	low	poor	good	nil	fair	
	Hovermarine	no	medium	poor-mod.	good	some	good	
	Bell Halter	yes	medium	mod.-good	fair	some	good	
Foil Supported	Jetfoil	no	high	mod.-good	excellent	high	poor	Production discontinued.
	Hydrofoil	no	medium	poor-mod.	fair	high	poor	
Displacement	Monohull	yes	high	moderate	fair	low	fair	
	Catamaran	yes	low-med.	mod.-good	fair-good	low-fair	fair	
	SWATH	yes	low-high	mod.-good	excellent	low-fair	good	Small Water Plane Area Twin Hull
Planing and other		no	low-med.	poor-mod.	poor-fair	low-fair	poor	

Types Excluded from Further Analysis - Reasons:

SRN4 Mk2/3 Excluded because of cost - approximately $40 to $50 million built in Britain, lack of licensing for US construction.

Monohull Excluded partly because of cost - $14 to $15 million built in Britain and high power requirements and thus fuel cost for its speed.

SWATH Excluded because of experimental nature and relatively high power requirements. Southeast Alaska waters are not rough enough sufficienty frequently to justify such a vessel.

2.4 - Projected Developments in Technology

In terms of new opportunities for the provision of transportation services, the consultants reviewed current and likely future technological developments in air, marine and road transportation that might impact Southeast Alaska. The detailed review is contained in the technology evaluation, but is summarized below.

2.4.1 - Air

No major technological developments were foreseen that would affect air transportation within Southeast Alaska. Although prop-fan aircraft are expected to come into service before the end of the century, they would not change the basic way in which air service would be provided. New developments in navigation aids, such as microwave landing systems, would make jet air travel to major airports more reliable and safer, while increasing navigation beacons and making changes in the VHF network would enhance the safety and reliability of small aircraft operations. However, technology-based changes in air travel within the region were viewed as evolutionary rather than revolutionary.

2.4.2 - Marine

Two main areas of technology development in the marine environment were expected to potentially have impacts on Southeast Alaska transportation: the possible introduction of high-speed craft to provide rapid surface transport between communities, and improvements to existing vessels to improve performance and efficiency.

A variety of high-speed craft were reviewed in terms of their potential for use in Southeast Alaska, including air supported, foil supported, and conventional displacement vessels. The assessment concentrated on existing vessels with a known operating history. However, new designs could offer potential and should be considered at the appropriate point in the design process. Table 2.1, opposite, lists the vessels evaluated and highlights

TABLE 2.2

HIGH-SPEED CRAFT

	Craft Evaluated		
Type	30m Incat	1300D Westamarin	BH 350 B
Characteristics	Catamaran	Catamaran	S.E.S.
Passengers	90	340	180 or 280
Vehicles - automobiles - trucks	14	30	41 or 27
Length ft	98	130.25	160
Breadth ft	36.75	41.25	41
Draft ft	7.68	5.58	7.5
Payload	not known	not known	not known
Power (bhp)	4200	5500	13210
Maximum speed	28 kn	25 kn	50 kn
Speed SS3	25 kn(28mph)	22 kn (25mph)	40kn (46mph)
Price	$3.0 million	$5.0 million	$12.0 million
Built in USA	Yes	No	Yes
License for USA	Yes	Yes	

	Craft Excluded			
Type	Vosper High Speed	SWATH	Air Cushion Vehicles SRN4/MK2	SRN4/MK3
Characteristics	Ferry	(Seagull)		
Passengers	700	384	282	416
Vehicles - automobiles trucks	none	none	36	50
Length ft	204	117.8	130.2	185
Breadth ft	33.5	56.1	78	82
Draft ft	10.5	10.3	-n/a-	-n/a-
Payload (tons)	96	not known	78	114
Power (bhp)	12000	8100	13600	15200
Maximum speed	25 kn	25 kn	60 kn	65 kn
Speed SS3	24 kn	(24 kn)	32 kn	45 kn
Price	$14 to $15 million	$8 to $10 million	$40 million	$50 million
Built in USA	No	No	No	No
License for USA	Yes	Yes	No	No

the findings with regard to a number of criteria. Table 2.2, opposite, outlines in detail some of the physical and operating specifications of these craft.

Two types of high-speed craft were chosen as representative of the type of vessels which could be appropriate for use in Southeast Alaska. The first was a catamaran hull, approximately 100-feet long, which would carry 10 to 15 vehicles and 80 to 100 passengers at speeds of up to 30 miles per hour (see Figure 8, overleaf). The second vessel type was a larger Surface Effect Ship (SES) capable of carrying approximately 40 vehicles and 200 passengers at speeds of up to 46 miles per hour (see Figure 9). The SES-type ferry would be capable of year-round operation in Southeast Alaska waters. The smaller catamaran type vessel would definitely be capable of summer and shoulder season operation. However, its performance during winter conditions, except on sheltered routes, is as yet unknown.

For purposes of evaluation, it was assumed that the existing docks and shore facilities could be used for high-speed craft without major modification. If this is not the case, funding for shore facilities would be required.

High-speed craft should not be looked on as total replacements for existing vessels. While they would enable better utilization of present vessels to be achieved during the summer and, if required, shoulder seasons, like all high-performance vessels, the high-speed ferries have limitations relative to payload and axle-loadings. For example, automobiles, campers, coaches, and lightly-loaded trucks and vans could be carried on the small high-speed catamaran, but not heavy vans such as refrigerated trailers with a full load of frozen fish. The larger vessel by comparison could carry heavy trailers, but the number would be limited by payload considerations. For this reason, at least some service by conventional vessels would likely be required on routes served by high-speed ferries.

The second area of marine technology development relates to improvements in the existing AMH vessels to improve their performance and reduce operating costs. Examples of such developments include:

Figure 8

HIGH SPEED CATAMARAN

Figure 9

110-ft SES HIGH-SPEED CRAFT

- hull redesign;
- improvements in propulsion and machinery;
- course-keeping and routing techniques;
- advanced machinery automation;
- improvement in hull surfaces;
- different grades of fuel; and
- adjustments to operating speed.

2.4.3 - Road

No technological developments were foreseen in the road sector that would change the way in which freight and resources are moved or in which tourists and residents would travel. It is expected that freight vehicles moving on the continental road system will increase in length, height, width and weight, making it more difficult for the existing ships to accommodate trucks and vans. In the future, certain road routes may be designated special log haul routes to support the timber industry. Overall, however, the freight business to Southeast Alaska, being a small specialized one, would likely not be impacted to any great extent by such changes for the foreseeable future.

2.5 - Alternative Marine Operating Options

While technological developments offer one possible source of change in transportation services, another source of change would involve continued use of conventional equipment to provide service but under a different operating environment. One option of this type in the marine area would involve increased reliance on private as opposed to State-operated services. A second operating option would involve the acquisition of a foreign flag vessel.

2.5.1 - Other Service Suppliers

The foreign flag liner operator has long been a part of the Alaskan cruise market. These operators brought in well over 100 000 tourists at the last

count and are expected to continue to bring in a significant number of visitors. A new factor in the market place, however, is the foreign flag ferry operator (who carries vehicles) working in competition with the Marine Highway for point to point travel. It is likely that such operators will increase their activity in the future from either Vancouver or Prince Rupert.

A further new development is that US flag operators are seriously considering building or converting vessels to serve the US cruise market and Alaska is identified by them as a prime destination. The vehicle carrying potential for such vessels is seen as an essential feature, with the result that there is a high probability the Marine Highway will see direct competition in Seattle before the mid-1990s.

Although this competition may skim off tourists from the Marine Highway and possibly reduce revenues, projected total departures from Seattle and Prince Rupert indicate that AMH vessels would still be operating close to capacity during the peak season. Thus the presence of private operators would serve as an effective complement to Marine Highway services. In addition, private operators may relieve the AMHS of the need to acquire additional mainline vessels in the 1990s, saving the State of Alaska several million dollars in fleet expansion costs.

2.5.2 - Acquisition of Foreign Flag Vessels

A second new service option for the Region would be for the Marine Highway to acquire and operate a foreign-built ferry. Should a new mainline vessel be necessary, a foreign flag vessel could provide the required increase in capacity at a cost well below that of a new US-built vessel.

The Marine Highway has had experience with foreign flag vessels with the M/V 'Wickersham'. The experience was not altogether favorable because it was intended to use the vessel in the Seattle/Southeast Alaska trade which required a waiver from the Jones Act. Such waivers are only given for

purposes of national defense, and thus the 'Wickersham' was not acceptable on an ongoing basis.

However, the possibility of the AMH using a foreign flag vessel entirely within the requirements of US maritime legislation is feasible. Such a vessel could operate from Vancouver or Prince Rupert and carry tourists or residents from port of embarkation to port of disembarkation. The only restriction would be that the ship could not carry passengers between ports in Southeast Alaska. Such a vessel operating out of Vancouver or Prince Rupert could materially increase AMH capacity and release existing vessels to operate on those routes that require a US flag ship (i.e., US to US links).

This is essentially the service that Sundance Cruises is providing between Vancouver, BC and Skagway, AK with the M/V 'Stardancer'. The AMH would prefer that private operators continue to provide such service where possible since they can generally operate at lower costs due to their greater flexibility in crewing and their options to utilize the vessels in other areas during the off season.

3 - REGIONAL TRANSPORTATION ALTERNATIVES

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3.1 - General

Development of the updated transportation plan was based in large measure upon a process whereby a wide range of transportation options were defined for the Region and were then evaluated in terms of:

- compatibility with goals of the regional transportation system, and
- effectiveness in terms of both the service provided and the level of costs incurred.

These alternatives covered the provision of transportation service by both air and surface (marine and road) modes for the movement of cargo, passengers and vehicles.

In defining the alternatives, recognition was given to the expressed concerns and desires of the communities and also to the perceived requirements, limitations and opportunities associated with growth, development and new technology. As a result, the options developed for evaluation encompassed not only capital improvements (acquisition of new vessels, road and facilities construction) but also changes to the operating systems with a view to improving either the service provided, the system capacity and/or the ongoing operating costs.

3.2 - Aviation System Alternatives

In terms of long range transportation planning for the aviation sector, a number of issues have arisen in recent years which required analysis in terms of defining the direction of facilities planning. These included:

- the probable ongoing impacts of airline deregulation and, related to this;

- the possible removal of Essential Air Services (EAS) subsidies for Yakutat, Gustavus, Petersburg and Wrangell, and the consequent impact on air services;

- potential development of a commuter airline service in the region;

- future requirements for runway rather than float plane facilities.

3.2.1 - Deregulation and Subsidies

The long-term effects of air service deregulation in Southeast Alaska are likely to be complex and, in many cases, unsatisfactory, as competition and profit pressures lead to a concentration of services on some routes and a decline in services on others.

For the Lower 48, deregulation of the airline industry has meant more carriers providing more flights at lower fares between large cities that are good traffic generators, often at the expense of reduced or discontinued service to smaller communities. Competition has increased on the heavily traveled routes, causing downward pressure on airline profits, and forcing them to cut back on service into smaller communities.

In addition, the relationship between airlines and government has changed somewhat under deregulation. The protection which government once provided to the carriers has been withdrawn, and as a result, government agencies have more difficulty influencing airline policies. Thus, government recommendations for service beyond those that are market justified will be very difficult to encourage without direct subsidies.

It was recognized at the time of legislation that deregulation of the airline industry would force the discontinuation of services into many smaller communities that relied heavily on air travel. An Essential Air Services Subsidy was therefore developed with a ten-year sunset clause to ease the transition to deregulation. Four communities in Southeast Alaska currently receive jet service under the EAS subsidy program: Yakutat, Gustavus, Wrangell and Petersburg. All communities except Gustavus receive

at least seven round trip flights per week year-round with aircraft having seating capacity in excess of 60 seats. Gustavus receives this level of service during the summer, but during off-peak periods, air services may be reduced to two flights per week with smaller aircraft.

The US Department of Transportation has selected Alaska Airlines to provide essential air service to these Southeast communities from October 1, 1985 through December 31, 1986 at which time the Essential Air Services subsidy is scheduled to expire.

While jet aircraft may not be the least-cost (lowest subsidy) method of providing service to these communities, it offers an extremely high quality of service and a good level of air freight capacity. The chief drawback is a lower service frequency than might be offered by smaller commuter aircraft. However, the availability of daily service without transfer to Seattle and Anchorage and the adequate freight capacity affords offsetting benefits.

The future of these services, however, has been a point of uncertainty throughout the planning exercise and is still in a state of transition. Whether the subsidies will be allowed to expire as scheduled, and whether jet service will continue with or without financial support, are both questions to which no confirmed answers are as yet available. Thus, from the planning perspective, the only definitive recommendation which can be made is that, if the EAS subsidies are allowed to expire, the Department of Transportation should closely monitor the impact on services into Southeast communities.

3.2.2 - Development of Commuter Airline Service

Although the quality of jet services in the Region has been very good, the possible future viability of a regional commuter air service for the Southeast remains an ongoing point of interest. An analysis was therefore carried out with regard to the conditions under which such an operation might prove viable.

TABLE 3.1

AIRCRAFT PRODUCTIVITY EVALUATION

Aircraft Type	Piper Navajo	Twin Otter DHC-6-300	Beech 1900	Shorts 360	HS 748
Hours per year per Aircraft	2,000	2,000	2,000	2,000	2,000
Number of Aircraft	2.5	2.5	2.5	2.5	2.5
Maximum Passenger Capacity	9	20	19	36	48
Load Factor	60%	60%	60%	60%	60%
Average Ground Speed (80% of Long Range Cruise)	138	133	200	162	215
Revenue Passenger Miles per year (million)	3.7	8.0	11.4	17.5	31.0

To assess this viability, five different aircraft types were examined. It was assumed that at least three aircraft would be necessary to provide an economic fleet and that each aircraft would fly approximately 2000 hr/yr with an average of one-half aircraft tied up for maintenance. Break-even operations, based on the experience of other carriers, were assumed to require a 60% load factor.

Table 3.1, opposite, shows the assessment of the required number of revenue passenger-miles of traffic which would be required for viable operation with various commuter aircraft types. Required annual passenger-miles range from 3.7 million with a fleet of Piper Navajos to 31.0 million with a fleet of HS748s.

With the ongoing provision of jet service into the major communities, it was assumed that the commuter service could only compete in areas not served by jet flights. Of these areas, those with the greatest traffic potential (together with estimated passenger-miles of traffic) are shown below.

Major Traffic Sectors -
Southeast Alaska - Non-Jet

Sector	Annual No. of Passengers	Distance	Annual Revenue Passenger-Miles
Haines-Juneau	9 500	75	412 500
Skagway-Juneau	5 000	95	475 000
Hoonah-Juneau	10 580	45	472 500
Kake-Petersburg	1 400	35	49 000
Craig-Ketchikan	6 500	60	390 000
Klawock-Ketchikan	5 800	60	348 000
Metlakatla-Ketchikan	14 900	20	298 000
TOTAL			2 745 000

These figures suggest that even with the smallest aircraft and 100% of the above air traffic markets, a commuter air service would be unlikely to prove viable at present traffic levels. Since the commuter service would also have to compete with air-taxi operators on these routes, it was concluded that a commuter service was unlikely to materialize until such time as a reduction in jet service and/or a significant growth in demand provided a traffic base sufficient to financially support its operation.

3.2.3 - Float Versus Airstrip Development

The evolution of air services in Southeast Alaska has been to start with float equipped aircraft, advance to amphibious aircraft, further advance to wheeled aircraft, and then to have larger and faster aircraft provide the air service. The prime reason for the evolution is improved safety, service and reliability, and reduced costs.

Float equipped operations offer a number of advantages in Southeast Alaska and have provided a vital transportation link. Since most communities are located on shorelines, float-equipped aircraft can land in close proximity. In addition, float planes are able to alight, in acceptable water conditions, if VFR conditions deteriorate during a flight - an important consideration when operating in the fast-moving weather systems common in the area.

On the other hand, float equipped aircraft are expensive to purchase, maintain and operate. Floats are costly to install and reduce the payload and speed of the aircraft, while corrosion from salt water operations leads to increased maintenance and overhaul expense.

An analysis was therefore carried out to assess whether there was an economic justification for promoting wheel based operations (by development of additional airstrips) rather than continuing to develop seaplane facilities.

While it is impossible to generalize about the cost of seaplane docks and runway facilities, some approximate order-of-magnitude numbers were

developed. Based on relative capital and operating costs the additional cost of a runway operation as opposed to a float facility would be in the order of $350,000 per year. In order to financially justify runway development, users would have to realize savings equivalent to this amount. Since annual passenger volumes into the larger seaplane communities average in the order of 1500 to 3500 passengers, it is clear such financial savings are unlikely to be achieved. It was therefore concluded that runway development cannot be justified on the basis of economics but must rather be justified on the grounds of service, safety, convenience and other nonfinancial factors.

3.3 - Surface System Alternatives - Corridors

3.3.1 - General

The definition of alternatives for the provision of surface transportation services was based on the premise that road and marine highway options should be viewed as complementary parts of an integrated system rather than evaluated as separate services. Since options regarding road construction in many areas materially affect the pattern of marine highway operations and conversely, changes in marine highway services influence the viability of many road options, the two modes were evaluated jointly as part of the 'surface transportation system'.

In reviewing the various options which were available in terms of providing surface transportation services, it became apparent that many of the options represented alternative means of dealing with problems in a single subsection of the overall region and, to some extent, could be segregated from the balance of the system for evaluation purposes. Rather than dealing with each of these options in a 'total region' context, it was decided to carry out a pre-evaluation process whereby service options within a subregion or 'corridor' were compared with one another in order to identify the preferred alternatives for meeting transportation needs in that area.

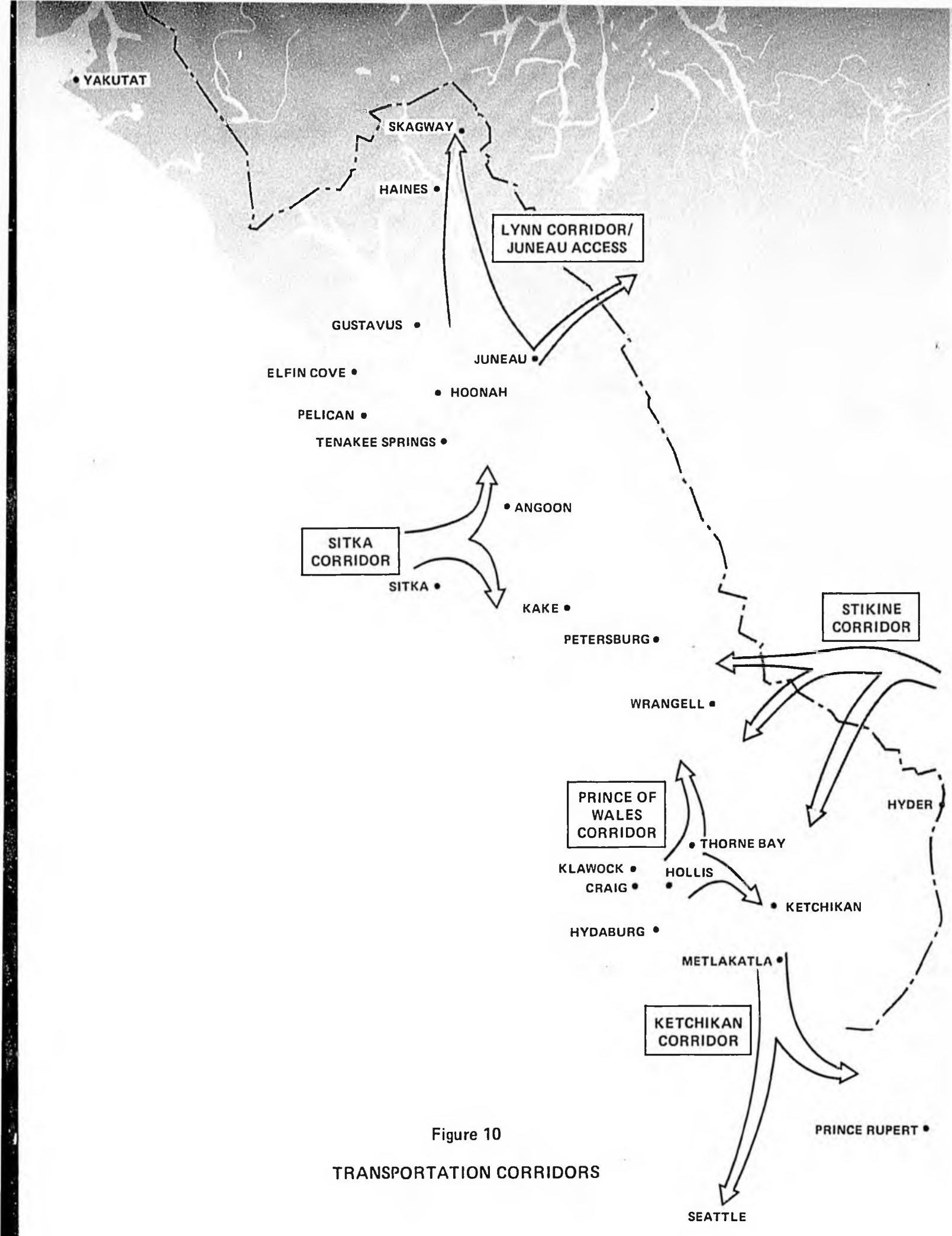


Figure 10

TRANSPORTATION CORRIDORS

Through this pre-evaluation process, a wide range of options was screened down to a somewhat more limited number of preferred alternatives which were then assessed in terms of their desirability within the context of the total regional surface system.

Five key corridors or subregions were identified for separate consideration as part of this prescreening process (see Figure 10, opposite). These were:

- the Juneau Access corridor;
- the Ketchikan-Southern Terminus corridor;
- the Stikine corridor;
- the Sitka Access corridor; and
- the Prince of Wales Island Access system.

A general description of the alternatives evaluated within each of these subregions is outlined in the following sections.

3.3.2 - Juneau Access Corridor Options

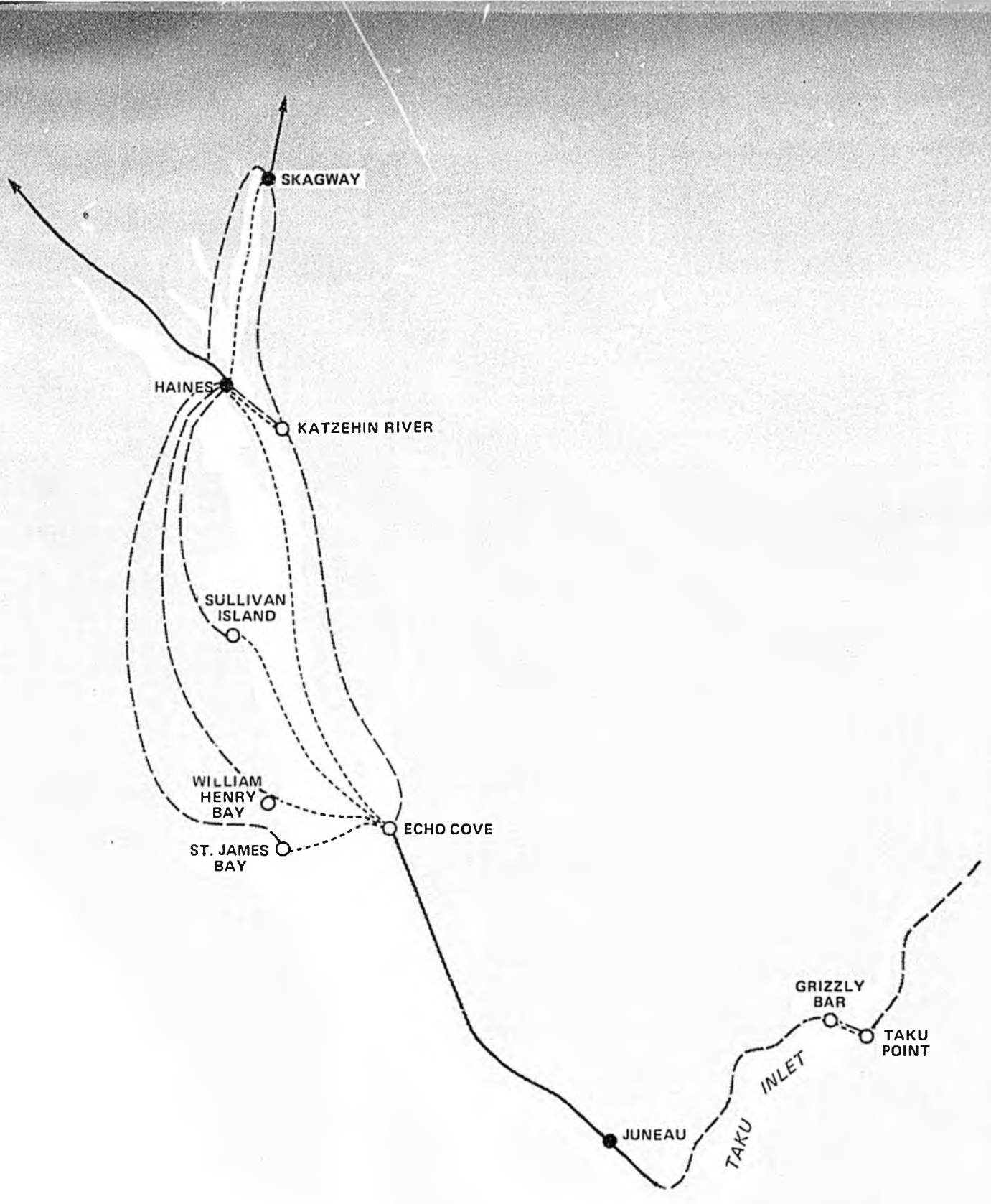
In total, eleven alternatives were evaluated for the provision of surface transportation services between Juneau and the northern roads systems either at Haines and Skagway or through northern BC.

Nine of these alternatives involved providing connections to Juneau via the Lynn Canal through Haines and Skagway (see Figure 11 overleaf). These included:

1. Continue the existing mainline and feeder ferry service.

2. Extend the road up the east side of the canal from Echo Cove to Skagway, connecting with Haines via a bridge across the Chilkoot Inlet. Discontinue ferry service north of Juneau.

3. Extend the east-side road from Echo Cove to Skagway, and construct a road down the west side of the canal between Skagway and Haines. Discontinue ferry service north of Juneau.



LEGEND

———— Existing Roads

— — — Potential Road Links

-------- Potential Ferry Links

NOTE:

Road links as shown do not necessarily represent proposed alignments.

Figure 11

JUNEAU ACCESS CORRIDOR

4. Construct a road up the west side of the Lynn Canal from St. James Bay through Haines to Skagway. Provide a shuttle ferry service between Echo Cove (and the road to Juneau) and St. James Bay (17 miles).

5. Construct a road on the west side of the canal between William Henry Bay and Haines. Provide a shuttle ferry service between Echo Cove and William Henry Bay (14 miles) and between Haines and Skagway (15 miles).

6. Construct a road on the west side of the canal between Sullivan Island and Haines. Provide shuttle ferry service between Echo Cove and Sullivan Island (30 miles) and between Haines and Skagway (15 miles).

7. Extend the east side road from Echo Cove to the Katzehin River. Provide a shuttle ferry service from the Katzehin River to Haines (6 miles) and from Haines to Skagway (15 miles).

8. Extend the east side road from Echo Cove to Skagway. Provide a shuttle ferry service from the Katzehin River to Haines (6 miles).

9. Provide high-speed ferry service from Echo Cove to Haines and Skagway operating three round trips per day during the peak season.

The remaining two Juneau access options would provide Juneau residents with access to the existing road system via a route up the Taku Valley into northern British Columbia. These involved:

10. Extend the Thane Road up the west side of Taku Inlet to Grizzly Bar. Bridge to the east side and continue to the Canadian border.

11. Follow the same routing but connect the west and east banks via a shuttle ferry.

The main capital and annual operating costs associated with these options are given in Table 3.2, overleaf.

TABLE 3.2

JUNEAU ACCESS CORRIDOR OPTIONS - COST CHARACTERISTICS

	New Capital Requirements						Average Annual Operating Costs[3]		
	Roads[1]		Vessels		Terminals	Total	Vessels & Terminals	Roads	Total
	Mi	$M		$M	$M	$M	$M	$M	$M
Existing System	-	-	-	-	-	-	$7.4	-	$7.4
East-Road/Bridge	76	$440.0	-	-	-	$440.0	-	$2.1	2.1
East-Road/Road	109	365.0	-	-	-	365.0	-	2.5	2.5
West-St. James Bay	95	231.5	2	$7.0	$8.5	247.0	4.5	1.9	6.4
West-William Henry Bay	45	119.0	4	14.0	11.0	144.0	8.9	1.1	10.0
West Sullivan	21	61.5	4	14.0	8.5	84.0	8.9	0.9	9.8
			5	17.5		87.5	11.1		12.0
East to Katzehin	52	204.0	4	14.0	6.0	224.0	8.9	1.6	10.5
East-Road/Shuttle	70	264.0	2	4.0	6.0	274.0	3.2	1.9	5.1
High-Speed Ferry	-	2.0	2	24.0	5.0	31.0	9.0	0.6	9.6
			3	36.0		43.0	13.2		13.8
Taku - Bridge	56[2]	202.5	-	-	-	202.5	7.4	1.2	8.6
Taku - Shuttle	55[2]	141.0	1	2.0	2.0	145.0	9.0	1.1	10.1

1) Costs are based on construction standards necessary to qualify for Federal-aid to highways funding

2) To Canadian border only.

3) Excludes capital amortization.

Each of these options was evaluated in terms of total financial costs to the State government, Marine Highway and the users; in terms of ability to serve existing traffic and generate new demands; and in terms of user service and travel time. Comparing the benefits generated under the various options with the costs incurred, it was decided that the best options overall were:

- continue existing ferry service (Option 1);
- extend the east-side road to Skagway and provide a shuttle ferry service between Haines and the Katzehin River (Option 8); and
- provide a high-speed ferry service from Echo Cove to Haines and Skagway (Option 9).

These concepts were therefore retained for reassessment within the context of the entire regional transportation system.

3.3.3 - Ketchikan/Southern Terminus Corridor Options

The prescreening process within the Ketchikan/Southern Terminus corridor (see Figure 12 overleaf) focused on a combination of vessel scheduling and vessel acquisition alternatives. The options evaluated were as follows:

1. Continue existing service with existing fleet.
2. Continue existing schedule, adding a new mainline vessel on the Seattle route as soon as possible.
3. Shuttle the Columbia between Seattle and Ketchikan twice weekly during the peak summer season.
4. Operate the Columbia out of Port Hardy during the peak season.
5. Operate all mainline services out of Prince Rupert.

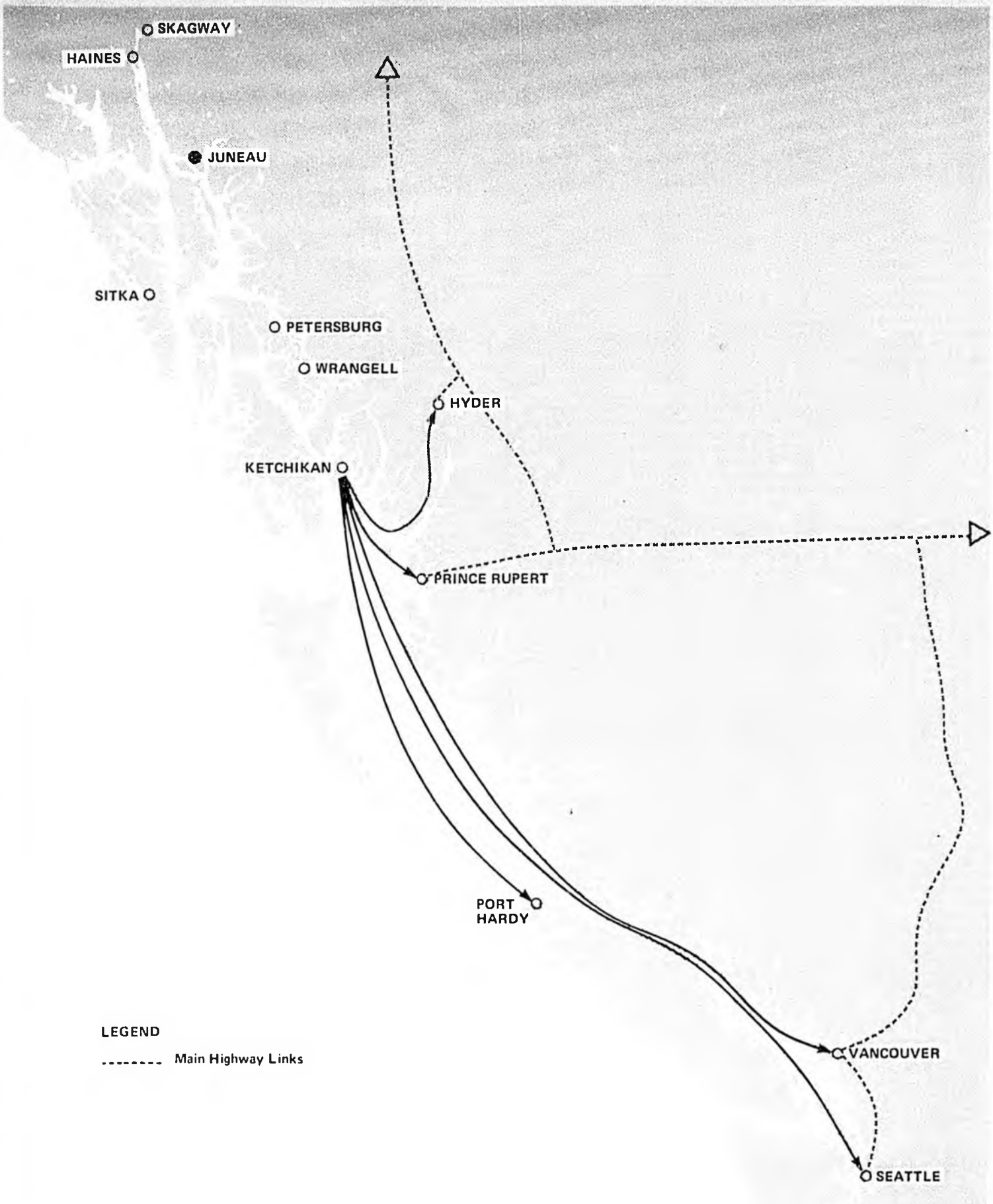


Figure 12

KETCHIKAN CORRIDOR OPTIONS

6. Operate all mainline services out of Hyder.

7. Shuttle the Columbia between Seattle and Ketchikan. Supplement mainline service with the Aurora and LeConte.

8. Acquire a foreign flag vessel to serve traffic between the Lower 48 and Southeast communities. (Note: under existing marine law this vessel could not carry traffic from one US port to another but could free up space on the existing US flag ferries.)

9. Operate all mainline services out of Prince Rupert during the summer peak season only.

Table 3.3 overleaf summarizes these options in terms of annual costs and ability to satisfy projected demand between the Southeast Region and the Seattle and Prince Rupert areas.

Again a detailed analysis was carried out with regard to the financial and service impacts of each of these options and it was decided that four alternatives warranted further evaluation in the context of the regional system. These were:

- add a mainline vessel(s) to serve growing demand (Option 2);

- shuttle the Columbia between Seattle and Ketchikan, supplementing mainline service with the Aurora and LeConte (Option 7);

- acquire a foreign flag vessel to operate out of Vancouver (Option 8);

- operate all peak season mainline services out of Prince Rupert (Option 9).

While these four options represent specific operational alternatives, they may also be regarded as representing a range of philosophies in terms of meeting the growing demand to and from the southern terminus. The first and third options suggest that demand should be met with new vessels (although

TABLE 3.3

KETCHIKAN CORRIDOR OPTIONS

	New Mainline Vessels Added In:	Net AMH Deficit[1] Mainline Service ($ Millions)	Unserved Demand[2] Passengers	Unserved Demand[2] Vehicles
Existing System	-	$291.0	225,000	16,000
Add New Vessels	1990 1993	413.7	31,000	-
Columbia Shuttle	1991 2001	359.2	-	-
Port Hardy Summer Terminus	2000	330.8	350,000	-
Prince Rupert Terminus	2003	352.6	530,000	-
Hyder Terminus	2003	357.7	1,200,000	-
Columbia Shuttle: Aurora, LeConte to Mainline Routes	1993	294.9	-	-
Foreign Flag Vessel	1986 2000	325.3	-	-
Prince Rupert Summer Terminus	2003	313.9	350,000	-

1) Discounted total over 20-year planning period.

2) Total over 20 years.

the foreign flag vessel represents a more economical option in terms of capital), while the second and fourth focus on maximizing use of existing vessels to serve (in the case of the Columbia shuttle) or partially serve (in the case of Prince Rupert turnaround) the Seattle demand. As such they provide an indication of the tradeoffs involved in attempting to balance internal service, tourist service and financial revenues and costs.

3.3.4 - Stikine Corridor Options

The assessment of surface alternatives within the Stikine Corridor (see Figure 13 overleaf) had a twofold focus: first, the provision of surface links between mid-region communities and the continental road system and secondly, the use of these links as either an adjunct to or substitute for Marine Highway links to Prince Rupert and Seattle. Such surface links would provide routing for the movement of passengers and vehicles to and from the Region as well as a means of access to potential resource developments in both Alaska and northern British Columbia.

In terms of intra-regional links, seven alternative concepts were evaluated.

1. Wrangell Road (Pass) Option - Construct a road from Wrangell to the Canadian border with a highway pass to the West Fork of the Katete River.

2. Wrangell Road (Tunnel) Option - Construct a road as in Option 1 but build a tunnel to the West Fork of the Katete River.

3. Wrangell Road/Shuttle Ferry Option - Construct a road as in Option 1. In addition, operate a shuttle ferry between Wrangell and Blind Slough to provide internal Wrangell/Petersburg service and to link Petersburg with the new road system.

4. Petersburg Road Option - Construct a road from Petersburg (end of the Mitkof Highway) to the border along the south bank of the Stikine.

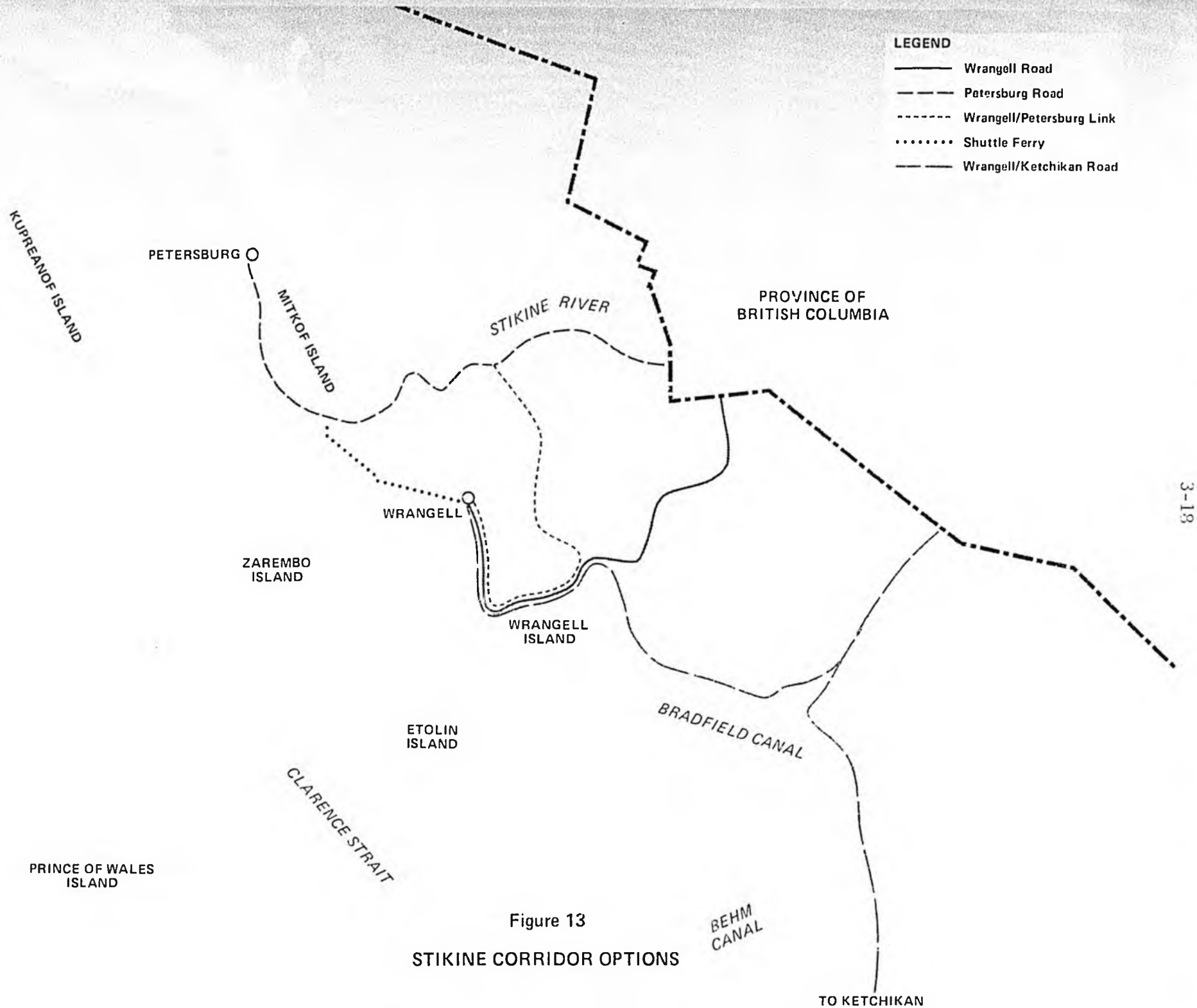


Figure 13

STIKINE CORRIDOR OPTIONS

5. Petersburg Road/Shuttle Ferry Option - Construct a road as in Option 4. Operate a shuttle ferry between Wrangell and Blind Slough to provide internal Wrangell/Petersburg service and to link Wrangell to the new road system.

6. Wrangell/Petersburg Road Option - Construct a road as in Option 4. In addition, construct a road from Wrangell, connecting it to the new Petersburg road at the mouth of Andrew's Creek.

7. Wrangell/Bradfield Road Option - Construct a road from Wrangell to the Canadian border via the Bradfield Canal and the North Fork of the Bradfield River. Provide a connecting link to Ketchikan.

Table 3.4, overleaf, summarizes the capital and operating costs associated with these options.

Each of the above intra-corridor options were evaluated under two alternative scenarios for Marine Highway operations. In the first, or 'mainline' scenario it was assumed that the Marine Highway would maintain its existing schedule of operations to Seattle and Prince Rupert and that the Stikine road would act as a surface alternative for overflow vehicle demand out of these southern ports. In the second, or 'loop' scenario it was assumed that the Marine Highway vessels would operate within the Southeast region only and that the Stikine road would substitute for existing ferry service to Seattle and Prince Rupert.

Again all options were evaluated in terms of financial impacts on users, the State government and the Marine Highway; in terms of ability to meet demand; and in terms of the level of service provided to tourist and resident traffic. The results of this assessment indicated that the preferred corridor options were:

- construct a road from Wrangell to the Canadian border and provide shuttle ferry service from Wrangell to Blind Slough (Option 3); and

TABLE 3.4

STIKINE CORRIDOR OPTIONS

	Additional Capital Costs				Annual Operating Costs[2]		
	Road[1]		Vessels + Terminals	Total	Road	Ferry	Total
	Mi	$M	$M	$M	$M	$M	$M
Wrangell Road/Pass	49	$157.0	-	$157.0	$1.5	-	$1.5
Wrangell Road/Tunnel	48	183.0	-	183.0	2.2	-	2.2
Wrangell Road/Petersburg Shuttle[3]	49	159.0	$4.7	163.7	1.6	$0.6	2.2
Petersburg Road	34	120.0	-	120.0	0.9	-	0.9
Petersburg Road/Wrangell Shuttle	34	120.0	4.7	124.7	0.9	0.6	1.5
Wrangell/Petersburg Road	77	190.0	-	190.0	2.0	-	2.0
Wrangell/Bradfield Road	176	373.0	2.2	375.2	3.2	1.0	4.2

1) Costs are based on construction standards necessary to qualify for Federal-aid to highways funding.

2) Excludes capital amortization.

3) Includes upgrading of Mitkof Highway.

- construct a road from Petersburg to the Canadian border and provide a Wrangell-Blind Slough shuttle ferry connection (Option 5).

Furthermore it was found that, in all instances, continuation of the existing mainline ferry service as an adjunct to the road system was preferable to the 'loop' ferry service scenario in terms of both financial impacts and user service levels.

3.3.5 - Sitka Corridor Options

The fourth subregion which was preassessed at the corridor level was the Sitka area, (see Figure 14 overleaf), with particular reference to the most effective way of incorporating Sitka into the surface transportation system. While a wide range of marine/road schemes were available to serve Sitka traffic, only five were considered to provide a level of service which was either comparable to, or better than the current situation. These options were:

1. Continue existing mainline and feeder ferry service.

2. Construct a road from Sitka to Baranof and operate mainline and feeder vessels out of Warm Springs Bay.

3. Construct a road to Rodman Bay and operate mainline and feeder services out of a terminal there.

4. Provide a direct high-speed catamaran-type service (14 vehicle, 90 passengers capacity) between Sitka-Juneau and/or Sitka-Petersburg. Continue feeder service with the LeConte.

5. Provide high-speed SES-type ferry service (40 vehicles, 180 passengers capacity) between Sitka-Juneau and/or Sitka-Petersburg, calling at intermediate communities along the way.

Annual capital and operating costs associated with each of these options are shown in Table 3.5 overleaf.

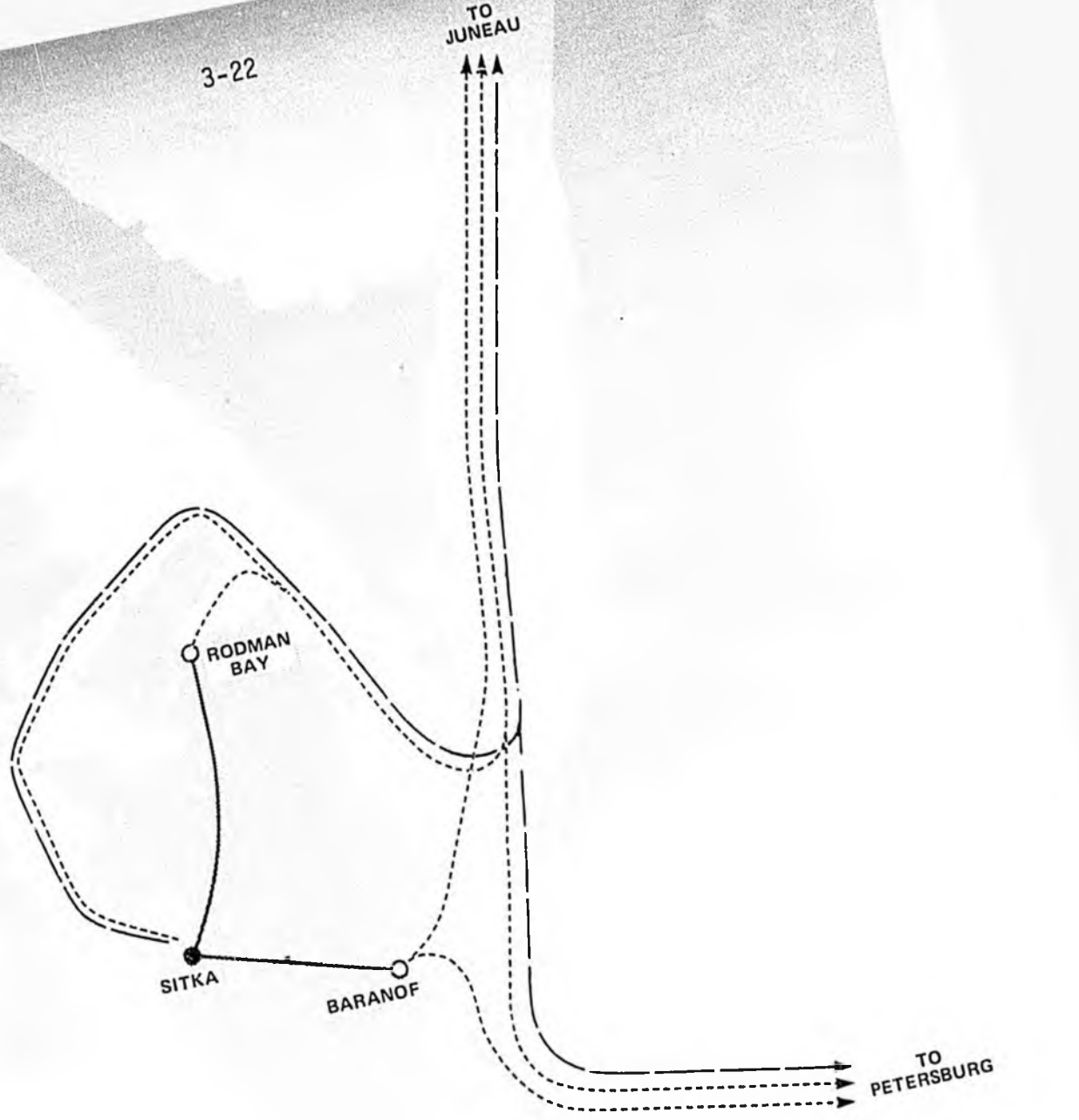


Figure 14

SITKA ACCESS OPTIONS

TABLE 3.5

SITKA CORRIDOR OPTIONS

	Additional Capital Costs					Annual Operating Costs[3]		
	Road[1]		Terminals + Ferries[2]		Total	Road	Ferries	Total
	Mi	$M	No.	$M	$M	$M	$M	$M
Existing Service	-	-	-	-	-	-	$5.2	$5.2
Road to Baranof	26	$176.5	1 (T)	$5.0	$181.5	$1.3	1.7	3.0
Road to Rodman Bay	46	155.0	1 (T)	5.0	160.0	0.6	2.1	2.7
Small High-Speed Ferry	-	-	1 (F)	3.0	3.0	-	2.9	2.9
			2 (F)	6.0	6.0	-	4.8	4.8
Large High-Speed Ferry	-	-	1 (F)	12.0	12.0	-	4.1	4.1
			2 (F)	24.0	24.0	-	8.2	8.2

1) Costs are based on construction standards necessary to qualify for Federal-aid to highways funding.

2) Excludes probable need for new mainline vessels elsewhere in system.

3) Excludes capital amortization.

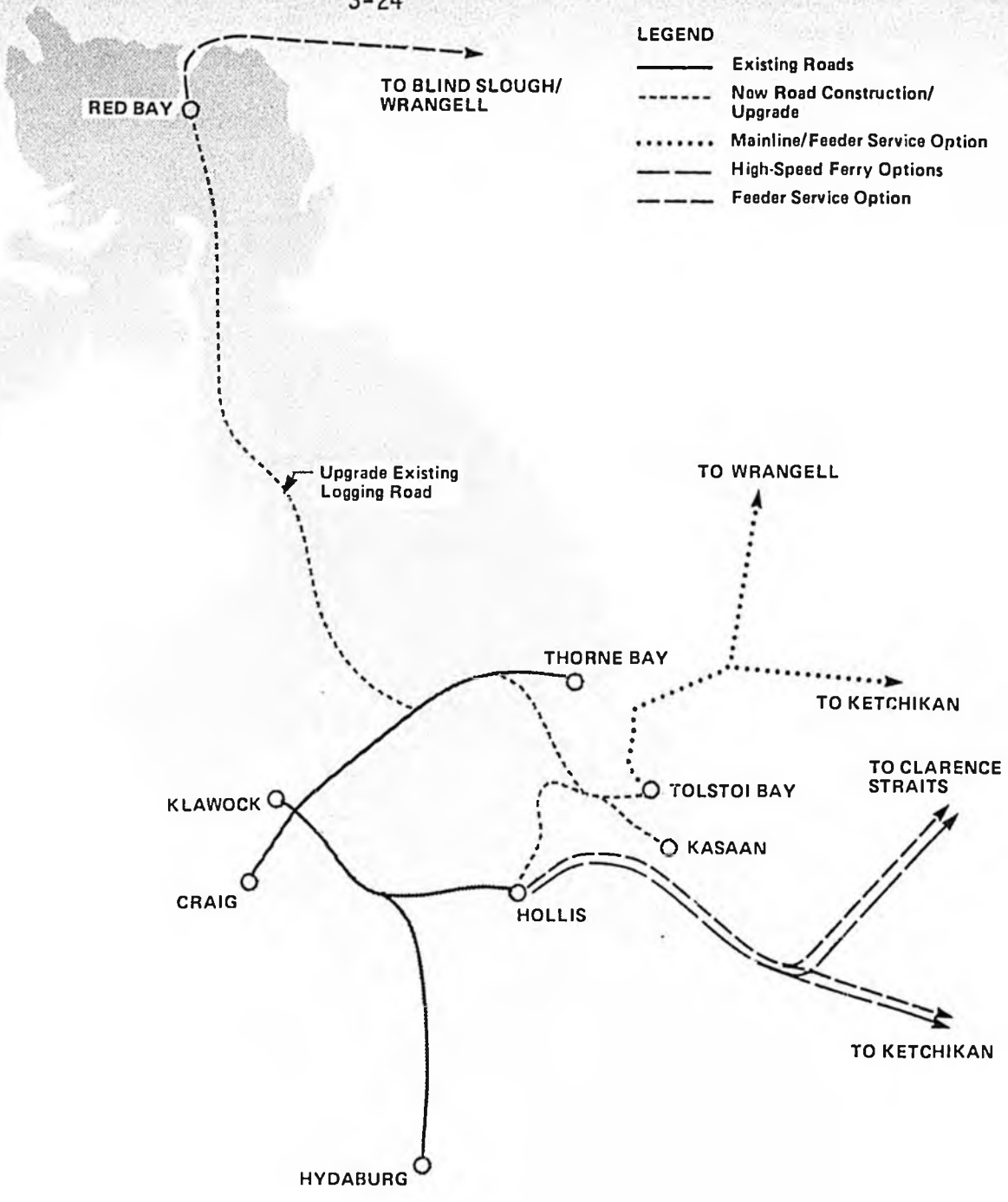


Figure 15

PRINCE OF WALES ACCESS OPTIONS

In terms of evaluation, it was found that the Sitka options could not be meaningfully assessed on a corridor basis alone. The added sailing distance into Sitka combined with the tide delays through Sergius Narrows affect not only Sitka passengers but also the frequency of service and the travel time throughout the mainline and feeder systems. It was therefore decided to carry all Sitka option concepts forward for evaluation in the context of the total system.

3.3.6 - Prince of Wales Access Options

The final subregional assessment study focused on the issue of surface access to and from Prince of Wales Island (see Figure 15 opposite). As with the other corridors, a number of service options were considered. Apart from the option of continuing service in the present manner, these alternatives included the following:

1. Develop a new ferry terminal at Tolstoi Bay. Provide road connections to Thorne Bay and/or Hollis and/or Kasaan. Provide ferry service with the Aurora and/or the mainline vessels.

2. Develop an alternative ferry terminal at the north end of the Island in Red Bay. Upgrade the road connections between Red Bay and the Klawock-Thorne Bay road. Continue limited service with the Aurora from Clark Bay to Ketchikan and provide a new feeder service from Red Bay to Blind Slough and Wrangell.

3. Provide a high-speed catamaran-type ferry shuttle service between Clark Bay and Ketchikan in lieu of the existing feeder service.

4. Provide a high-speed catamaran-type ferry service between Clark Bay, Ketchikan, Metlakatla and other Clarence Straits communities, supplemented by a modified feeder ferry service between Clark Bay and Ketchikan.

The capital and annual operating costs for each of these are shown in Table 3.6, overleaf.

TABLE 3.6

PRINCE OF WALES OPTIONS

	Additional Capital Costs					Additional Annual Operating Costs[2]		
	Roads[1]		Terminals & Ferries		Total	Roads	Terminals & Ferries	Total
	Mi	$M	No.	$M	$M	$M	$M	$M
Tolstoi Bay:								
- Hollis Road	15.9	$21.8	1 (T)	$5.0	$26.8	$0.24	$0.05	$0.29
- Thorne Bay Road[3]	16.9	13.3	1 (T)	5.0	18.3	0.25	0.05	0.30
- Kasaan Connection[4]	6.2	6.1	-	-	6.1	0.09	-	0.09
Red Bay	52.6	63.0	2 (T) 1 (F)	7.0 1.2	71.2	0.80	1.10	1.90
High-Speed Ferries	-	-	1 (F)	3.0	3.0	-	1.75	1.75[5]

1) Costs are based on construction standards necessary to qualify for Federal-aid to highways funding.

2) Does not include cost of existing ferry services. Excludes capital amortization.

3) Includes upgrade of 5.4 miles of existing Kiawock-Thorne Bay Road.

4) Only includes segment from Lindman Lake to Kasaan.

5) Based on year-round operation. Summer operation only would reduce costs to $0.75 - 0.90 million per year.

As with the Sitka corridor, it was felt that the Prince of Wales service options could best be evaluated within the context of the total system. Accordingly all four concepts were carried forward for evaluation as system alternatives. For system purposes, the Tolstoi Bay option was assumed to include both mainline and feeder ferry service and was assumed to be linked to the existing road system via Thorne Bay. With the upgrading of the road from Klawock to Thorne Bay, a connection via Thorne Bay could prove as attractive as one via Hollis to residents of Craig, Klawock and Hydaburg.

3.4 - Surface System Alternatives - Regional

3.4.1 - General

The objective in the corridor or subregional assessment was to narrow down the number of options for providing essentially similar services within a particular area, where the choice of one option over another was unlikely to cause repercussions elsewhere in the region. Where it was felt, however, that different corridor options might create different impacts throughout the regional system, representative examples of these different corridor concepts were retained for further analysis.

Having defined the schemes which best represented solutions to corridor problems, attention was turned to the total regional surface transportation system. At the regional level, the key issue was to develop a balance between the demand for services by Alaska residents in different parts of the region, the need for services to support the Region's tourism, fisheries, mining and timber industries, and the need to allocate State funds in a judicious and beneficial manner. Since these three concerns are not always compatible with one another, the focus of the assessment was to determine the tradeoffs involved as emphasis was directed towards meeting one or more of these concerns at the possible expense of the others.

A wide range of system alternatives were therefore defined in order to allow a detailed analysis of the interactions between competing goals and hence to

deduce those system components which offered the most effective balance in terms of meeting the demands for better transportation service in a cost-effective manner.

To ensure that system alternatives were realistic and to ensure that all impacts were taken into account, regional transportation options were specified in considerable detail. This included:

- specifying peak and off-peak schedules for existing and proposed new vessels;
- developing preliminary specifications for new vessels and obtaining builder estimates for construction and operating costs;
- defining alignments for new roads and developing preliminary engineering-level costs;
- defining and costing new terminal facilities where applicable; and
- projecting passenger and vehicle demand over each link in the system and generating user costs for vehicle operations and/or ferry fares on each route.

In addition, a computer model was developed which calculated for each year of the 20-year planning period:

- the capacity of the system and the portion of demand which could be met;
- the capital and operating costs of the marine/road system;
- the user costs for road and ferry travel; and
- the user travel time between all points in the system including delays related to frequency of service and requirements for transfer.

3.4.2 - Short-Term System Options

The objective of the updated transportation plan was to provide guidelines for the transportation system over a 20-year time period. There is, however, a division between changes that can be accomplished (and are required) in a short time period and changes that can be accomplished (and may be necessary) over a longer time frame. Major capacity additions, for example, in the form of constructing new roads or new mainline vessels may require several years to accomplish, while schedule changes or the introduction of 'off-the-shelf' vessels can be introduced in the near future. For this reason, separate surface system alternatives were defined with one set aimed at the short-term and the other at the long-term planning horizon.

Short-term alternatives were defined to meet several criteria:

- they could be easily implemented (with a 1 to 3-year period);
- they would improve the system's ability to meet demand through the late-1980s or early-1990s; and
- they were sufficiently flexible that they would not preclude any longer-term options.

On the basis of these criteria, seven options were defined for the short-term provision of surface transportation services.

1. No change - continue existing (1985) ferry service.
2. Matanuska to Seattle - operate both the Columbia and Matanuska out of Seattle during the peak.
3. Prince Rupert Terminus - operate all mainline vessels out of Prince Rupert during the peak season.

TABLE 3.7

SHORT-TERM SYSTEM ALTERNATIVES - SUMMARY OF IMPACTS

Option	Net Cost to State ($ Millions)	Passengers not Served (Percent of Peak Demand)			Impacts[1]		
		Seattle	Prince Rupert	Internal	State Cost Savings[1] ($ Millions)	User Cost Savings[2] [3] ($ Millions)	User Time Savings[2] (Million Hrs.)
Existing System	$454.4	37.7%	0.4%	-	-	-	-
Matanuska to Seattle	428.7	10.6	12.7	-	$25.7	$1.4	3.9
Prince Rupert Terminus	503.9	57.1	-	-	(49.5)	(2.0)	0.6
Columbia Shuttle	427.1	6.3	3.3	-	27.3	4.3	(3.3)
Foreign Flag Vessel	482.6	1.5	-	-	(28.2)	5.8	3.5
High-Speed Catamarans	457.1	3.0	9.7	-	(2.7)	3.8	9.2
High-Speed SES Ferries	471.1	3.0	3.1	-	(17.3)	5.0	10.7

1) As compared with continuing existing (1985) service; all figures are discounted 20-year totals.

2) Brackets denote cost or time increases rather than savings.

3) Includes costs for failure to meet demand.

4. Columbia shuttle - operate the Columbia twice weekly between Seattle and Ketchikan during the summer peak.

5. Foreign flag vessel - acquire a foreign flag vessel to operate out of Vancouver during the peak season.

6. High-Speed Catamarans - acquire one or more medium-range, medium-capacity (14 vehicles, 90 passengers) catamaran-type ferries to provide intra-regional service (a fleet of four was evaluated). Focus mainline service on the Seattle routes.

7. High-Speed Surface-Effect Ferries - acquire one or more longer-range, higher-capacity (40 vehicles, 180 passengers) SES-type vessels to provide intra-regional service (a fleet of two vessels was evaluated). Focus mainline vessels on the Seattle route.

These seven scenarios were reviewed in terms of financial impacts on users, the State, and the Marine Highway, in terms of the extent to which they could meet projected passenger and vehicle demand and in terms of the level of service offered to users with respect to service frequency and total travel time. A comparison was carried out between the benefits accruing to the users (from the viewpoint of cost, service and/or travel time) and the net costs incurred by the State and Marine Highway in providing the service. All costs and benefits were measured against the option of continuing the existing schedule. Table 3.7 opposite summarizes the highlights of the findings. All figures represent a system-wide total over 20 years. Financial costs are discounted to reflect their value in terms of current dollars in order to provide a consistent basis for comparing among alternatives.

The analysis raises several interesting points. For example, the two options of operating the Matanuska to Seattle and of shuttling the Columbia to Ketchikan would both generate cost savings to the State as a result of lower Marine Highway deficits. In addition, both would generate user cost savings as a result of reducing the costs associated with unmet demand. The Columbia shuttle, however, would generate high penalties in terms of total

travel time since passengers traveling north of Ketchikan (approximately 75% of Seattle demand) would have to disembark at Ketchikan and wait until they could be accommodated on a vessel out of Prince Rupert.

The other short-term options would all result in higher costs to the State either because they would result in higher Marine Highway operating deficits (Prince Rupert terminus) or because they would require investment in new vessels which could not be fully recovered out of revenues. In the case of high-speed catamaran-type ferry service, these costs would be offset by the user savings associated with the increased ability to meet demand. In the other instances, however, it would have to be presumed that user time savings were sufficiently attractive to offset the net financial losses associated with the service option.

Overall, the most attractive short-term option from the viewpoints of service, travel time and government cost would appear to be routing the Matanuska to Seattle during the summer peak. The chief drawback of this option is that withdrawing the Matanuska from Prince Rupert would quickly lead to capacity problems both at Prince Rupert (where two trips per week are lost) and in the Ketchikan-Petersburg corridor (where service is reduced by one trip per week). Part of this capacity shortfall could be covered by operating the Aurora more frequently out of Prince Rupert but this would create a gap in service to Prince of Wales Island. It was therefore proposed that two high-speed catamaran-type ferries be acquired and put into service in the Ketchikan/Hollis/Petersburg region as a means of freeing the Aurora to operate more frequently out of Prince Rupert, providing improved service to residents of Prince of Wales Island, and providing additional capacity on the Ketchikan-Petersburg corridor.

It was felt that the proposed short-term plan offered an effective balance between the demands of residents, the needs of tourists and other industry sectors, and the requirement to use government funds in a responsible manner. The plan offers tourists and residents a second weekly vessel to and from Seattle and offsets the lost internal services by drawing the Aurora into partial mainline service and enhancing feeder services with high-speed catamarans. While this increases the Marine Highway's capital

and operating costs, part of this increase is offset by the greater earning power of the Matanuska and Aurora on their revised routes and by the revenue-generating potential of the high-speed vessels.

At the same time, the proposed plan offers flexibility in the long term in that it involves a relatively small ($6 million) investment in new equipment which could, if circumstances change, be put to use elsewhere in the system.

3.4.3 - Long-Term System Options

The definition and assessment of long-term surface system alternatives involved a changed perspective in terms of both the demands to be met and the range of options available to provide service. While traffic demand is expected to continue to increase in the future, it is possible, in the long term, to envision major changes in the transportation system through the acquisition of additional mainline vessels, the development of new road links, the purchase of high-capacity, high-speed ferries, and the phased introduction of more substantial schedule changes.

As in the short-term, however, the key concern was to establish a balance between the goals of serving resident demand, accommodating the needs of the tourism and other industry sectors, and allocating government funds in a judicious and beneficial manner. A range of long-term alternatives was therefore specified not only in terms of operating characteristics but in terms of the level of investment in new capacity in order to meet demand.

The issue of investing to meet demand was of particular concern since it was recognized that new investment in mainline vessel capacity would primarily serve peak season tourist demand out of Seattle. During the off-peak season these vessels would not be required. It was therefore decided to investigate a range of investment options in order to determine the savings and impacts associated with providing alternate levels of peak season capacity.

Two investment scenarios were therefore analyzed:

- acquire sufficient vessels to meet peak season demand out of both Seattle and Prince Rupert; and

- acquire new mainline vessels only when combined vehicle demands out of Seattle and Prince Rupert exceed combined vessel capacity. This implies acceptance of the concept that passengers with vehicles will be willing to transfer from Seattle to Prince Rupert if ferry capacity is available.

In addition, for sensitivity testing, selected scenarios were evaluated whereby no new mainline vessels were acquired and demand in excess of capacity was presumed to be lost.

Alternatives for surface system operations were defined in terms of a series of 'Focuses' where each focus involved emphasizing a particular concept in terms of regional service and evaluating its impact throughout the system from the viewpoints of cost and service effectiveness.

Five key 'focus' areas were developed.

1. Mainline Service Focus - This option involved continuing the philosophy of the June 1980 Plan whereby the existing mainline and feeder route structures were maintained and additional capacity was provided by the acquisition of new mainline vessels.

2. Lynn Canal Focus - This option emphasized changes within the Lynn Canal corridor, analyzing their impacts on both Lynn service and on service throughout the region. Two Lynn service options were evaluated:

   - an east-side road from Juneau to Skagway with a shuttle ferry from Haines to the Katzehin River;

   - two high-speed SES-type shuttle ferries from Echo Cove to Haines and Skagway.

In both cases, northbound mainline ferry service was assumed to terminate at Juneau.

3. Sitka Focus - This option focused on changing the way in which the Sitka community was incorporated into the surface system. Three service options were assessed:

   - construct a road from Sitka to Baranof and operate mainline and feeder services out of Warm Springs Bay;

   - construct a road from Sitka to Rodman Bay and provide mainline and feeder ferry services out of a Rodman Bay terminal;

   - provide high-speed SES-type ferry service on the Sitka-Juneau and Sitka-Petersburg links. Terminate mainline service into Sitka.

4. Prince of Wales Island Focus - This option emphasized alternative means of providing service to communities on Prince of Wales Island. Four specific options were evaluated:

   - Relocate the Clark Bay terminal to Tolstoi Bay, and provide mainline and partial feeder service through the new terminal. Connect Tolstoi Bay to the Island communities by extending the road from Thorne Bay to Tolstoi Bay. (Other road connections could be made to Hollis and Kasaan.)

   - Develop a new terminal at Red Bay on the north end of the Island, connected by road to the existing Klawock-Thorne Bay highway. Provide ferry service from Red Bay to Blind Slough and Wrangell, and from Hollis to Ketchikan.

   - Acquire a high-speed catamaran-type ferry to provide twice-daily shuttle service between Hollis and Ketchikan. Transfer the Aurora to other routes.

TABLE 3.8

LONG-TERM SYSTEM OPTIONS - MEET DEMAND SCENARIOS

	Net Cost to State ($ Millions)	Impacts[1] Government Cost Savings[2] ($ Millions)	User Cost Savings[2] ($ Millions)	User Time Savings[2] (Million Hrs.)	Comments
Mainline Service Focus	$583.9	-	-	-	-
Lynn Focus:					
- road	772.9	$(189.0)	$73.6	15.3	Includes benefits to 3 million induced passengers.
- high-speed ferry	619.2	(35.3)	9.1	5.8	Includes benefits to 0.5 million induced passengers.
Sitka Focus:					
- Baranof	642.7	(58.8)	(1.2)	(0.2)	-
- Rodman Bay	626.6	(42.7)	(2.4)	(0.6)	-
- high-speed ferry	600.4	(16.5)	0.1	4.0	Includes benefits to 25,000 induced passengers.
Prince of Wales Focus:					
- Tolstoi Bay	574.0	9.9	(0.2)	0.9	-
- Red Bay	618.2	(34.3)	(0.1)	0.6	-
- high-speed shuttle	570.4	13.5	0.4	2.4	-
- high-speed loop	571.0	12.9	0.4	0.7	-
Stikine Focus:					
- Wrangell Road	640.5	(56.6)	3.5	(1.9)	(Involves an increase in unserved demand; added
- Petersburg Road	607.2	(23.3)	3.1	(1.9)	(capacity provided only when demand cut of
- Wrangell/Ketchikan Road	778.1	(194.2)	[3]	[3]	(YPR/Stikine exceeds capacity.

1) As compared with Mainline Service Focus (June 1980 Plan); all figures are discounted 20-year totals.

2) Brackets denote cost or time increases rather than savings.

3) Major changes in service patterns make comparison based on existing demand invalid.

- Acquire a high-speed catamaran-type ferry to provide service in the Hollis-Ketchikan-Clarence Straits region. Supplement Hollis-Ketchikan service with alternate-day service by the Aurora.

5. Stikine Corridor Focus - This option emphasized development of a mid-region road access to supplement mainline ferry service. The two preferred corridor options were evaluated in the systems context, and a third option--constructing a road from Ketchikan to the Canadian border with a connecting link to Wrangell--was also included.

   The three Stikine options therefore involved:

   - Construct a road from Wrangell to the Canadian border. Provide shuttle ferry service between Wrangell and Petersburg via Blind Slough.

   - Construct a road from Petersburg to the Canadian border. Provide shuttle ferry service between Wrangell and Petersburg via Blind Slough.

   - Construct a road from Ketchikan to the Canadian border with a connecting link to Wrangell. Operate ferry services south of Ketchikan/Hollis and north of Wrangell.

It should be noted at the outset that definition of these focus areas was not meant to suggest that all service improvements should be focused in a single region. Rather the intent was to determine the relative system-wide impacts associated with these various improvements and select those which offered the greatest benefits relative to their costs.

As mentioned earlier, these scenarios were assessed under a range of alternative investment levels in terms of meeting projected Seattle/Prince Rupert demand. Tables 3.8 opposite and 3.9 overleaf summarize the general findings first for scenarios which would meet the full level of demand and secondly, for scenarios which would meet only combined demand out of the southern termini.

TABLE 3.9

LONG-TERM SYSTEM OPTIONS - REDUCED INVESTMENT SCENARIOS

Option	Net Cost to State ($ Millions)	Seattle Peak Passenger Demand		Impacts[1]		
		Not served (%)	Served by Diversion (%)	Government Cost Savings[2] ($ Millions)	User Cost Savings[2] ($ Millions)	User Time Savings[2] (Million hours)
Mainline Service Focus	$583.9	1.8%	2.0%	-	-	-
Lynn Focus:						
- road	702.7	4.5	12.4	$(118.6)	$73.1	10.2
- high-speed ferry	530.9	1.9	11.9	53.0	9.1	(0.2)
Sitka Focus:						
- Baranof	569.7	13.1	4.8	14.2	(3.6)	(0.2)
- Rodman Bay	554.4	13.1	4.8	29.5	(4.8)	(3.5)
- high-speed ferry	511.6	1.9	10.4	72.3	-	0.7
Prince of Wales Focus:						
- Tolstoi Bay	492.0	6.7	6.1	91.9	(1.1)	(2.7)
- Red Bay	536.1	6.7	6.1	47.8	(1.0)	(1.2)
- high-speed shuttle	484.6	3.3	3.4	99.3	(0.2)	(0.4)
- high-speed loop	485.2	3.3	3.4	98.7	(0.2)	(2.0)
Stikine Focus:						
- Wrangell Road	640.5	8.0	10.4	(56.6)	3.5	(1.9)
- Petersberg Road	607.2	8.0	10.4	(23.3)	3.1	(1.9)

[1] As compared with the Mainline Service Focus (June 1980 Plan); all figures are discounted 20-year totals.

[2] Brackets denote increases in cost or time rather than savings.

Examination of the findings indicates first that if demand is to be met throughout the system, the least costly methods from the government perspective involve changes in service to Prince of Wales Island. The Tolstoi Bay and high-speed catamaran options both offer government cost savings as compared with the Mainline Service Focus and cause only minor (and generally beneficial) impacts in user costs and travel time.

The second table, (Table 3.9) which compares the 'reduced investment' scenarios, also highlights some significant findings. For example, it would appear that by viewing combined Seattle/Prince Rupert vehicle demand as a single market and accepting transfer of vehicles from one departure port to the other, substantial cost savings can be realized relative to the Mainline Service Option with very little reduction in either the total passengers served or the quality of service provided. In the Lynn and Sitka high-speed ferry options in particular, mainline schedules can be rearranged such that the system continues to meet virtually all of the Seattle passenger demand, yet no new mainline vessels would be required until the late-1990s. The Prince of Wales Focus options also succeed in meeting a substantial portion of the Seattle demand. In these cases, however, a new mainline vessel would be required by the early-1990s.

Overall, the Sitka shuttle appears to offer the most attractive features in terms of meeting demand at a low level of new investment while generating the same benefits in terms of user cost and travel time as those achieved under the more costly Mainline Service Option. The Sitka Shuttle option is closely followed by high-speed Lynn service which generates lower system savings in terms of government costs but, by operating out of Echo Cove, offers cost savings to existing and induced Lynn traffic.

Also attractive are the Tolstoi Bay terminal and Prince of Wales high-speed ferry options. In the long-term, however, these options by themselves require a fairly early decision on new mainline capacity in order to meet demand and involve some negative impacts in terms of user cost and user travel time.

After detailed consideration of the implications of these findings, it was recommended that a 'combination' scenario should form the long range plan for surface transportation in the region. Specifically it was suggested that:

- the features of the short-term plan be carried over into the long term with the Matanuska operating out of Seattle and two high-speed catamaran-type ferries operating in the Prince of Wales-Ketchikan-Clarence Straits region;

- that two larger high-speed SES-type ferries be purchased for peak season operations. One would provide daily round trip service between Sitka and Juneau with stops at Angoon, Tenakee Springs and Hoonah. The second would provide twice daily round trip service between Juneau/Auke Bay, Haines and Skagway;

- that the Matanuska operate on an 'open jaw' or alternating terminus route, sailing first from Seattle, through the region and terminating at Prince Rupert, then sailing back through the region and terminating in Seattle. On this route the Matanuska would serve Sitka en route from and en route to Seattle (a total of three times in two weeks) but would not serve the Lynn Canal;

- that the Columbia operate on a similar 'open jaw' route, but serving the Lynn Canal rather than Sitka, and that the Malaspina and Taku operate on mainline routes between Prince Rupert and Haines/Skagway;

- that the LeConte continue to provide feeder service for passengers and heavy vehicles in the Sitka-Petersburg and Sitka-Juneau corridors;

- that the Aurora be used in the Prince Rupert - Juneau corridor, also providing heavy freight service to Prince of Wales Island.

- that to offset the failure to provide full service out of Seattle, private operators be encouraged to provide vehicle capacity between Seattle and the Southeast Region.

4 - TRANSPORTATION PLAN

4 - TRANSPORTATION PLAN

The analysis described in the preceding sections was drawn together to generate an updated transportation plan for Southeast Alaska. The goals, objectives, policies and features of this plan are stated in the following sections.

4.1 - Goals

As stated previously, the goal of the transportation plan is to provide a means of serving the transportation demands of Alaskan residents, and to provide the transportation services necessary to support the regional economy, while recognizing that these aims must be accomplished in a fiscally responsible manner.

4.2 - Objectives

Since these goals often involve conflicting pressures, the objective in defining the plan was to find a balance between service levels and cost where service level objectives included:

- providing capacity to meet demand;
- maximizing service frequency;
- minimizing travel time;
- minimizing travel cost;

and cost objectives included:

- minimizing capital expenditures;
- minimizing system operating deficits.

In all cases, an associated objective was to minimize adverse social, economic and environmental impacts within the Region.

4.3 - Policies

As part of meeting the goals and objectives, certain policies were proposed with regard to the provision of transportation services. These were as follows.

- Ensure that all residents of Southeast Alaska have access to at least a minimum transportation service.

- Encourage the provision of transportation in the Region by private operators where they are able to provide an adequate and competitive service.

- Define potential transportation/utility corridors and encourage the US Forest Service and mining interests to construct future resource road development within these corridors where practical.

- Avoid duplication of transportation services by the State except in the interest of public safety or service reliability requirements.

- Avoid duplication of public and private transportation operations.

- Promote the concepts that different modes will offer a natural competitive advantage in different regions and encourage development of modes best suited to the community's specific needs.

- Provide opportunity for effective public participation in transportation decisions.

4.4 - Aviation System Plan

Short-Term (1986-1990)

- Complete runway extensions at the airports in Kake, Hoonah and Klawock.

- Upgrade and/or expand seaplane facilities at Angoon, Pelican, Tenakee Springs, Thorne Bay, Whale Pass, Craig and Metlakatla.

- Introduce improved navigation aids:

  - relocate VHF transmitters where necessary to provide improved line-of-sight reception;

  - introduce microwave landing systems (MLS) at airports served by jet aircraft and also at Klawock airport;

  - provide nondirectional radio beacons (NDB) at all airports which have scheduled air services;

  - as funds permit, introduce runway lighting at regional airports to permit night-time VFR operations and improve safety in poor weather conditions;

- Review and develop a policy on the provision of emergency landing strips.

Long-Term (1991-2005)

- Support development of float plane facilities in regional communities as service and demand require.

- If current community opposition is withdrawn at Angoon, Pelican and Tenakee Springs, support development of new airports in these communities as part of a wheel-based regional airport system.

- Ensure that clearance is available at both existing and new airports to permit ultimate extension of runways to 4000 feet in order to accommodate larger commuter aircraft.

4.5 - Marine Highway System Plan

Short-Term (1986-1990)

- Operate the Matanuska and Columbia out of Seattle in the peak season.
- Increase Aurora service in the Prince Rupert-Petersburg corridor.
- Subject to analysis by the Alaska Marine Highway System as to the most appropriate design/configuration, acquire two medium-capacity, mid-range, high-speed ferries to supplement peak service in the Ketchikan-Hollis-Clarence Straits regions.

Long-Term (1991-2005)

- Subject to Marine Highway analysis as to the most appropriate design/configuration, acquire two larger high-speed ferries to provide peak season service in the Sitka-Juneau and Juneau-Lynn corridors.
- Operate the Matanuska on an 'open jaw' route between Seattle, Sitka, Juneau and Prince Rupert, bypassing the Lynn Canal but calling at the other mainline ports.
- Operate the Columbia on an 'open jaw' route between Seattle, Juneau, the Lynn Canal and Prince Rupert, bypassing Sitka but calling at the other mainline ports.
- Operate the Malaspina and Taku between Prince Rupert and Haines/Skagway calling at Ketchikan, Wrangell, Petersburg and Juneau.

- Operate the Aurora in the Prince Rupert-Juneau corridor providing at least weekly service to Hollis and Hyder.

- Operate the LeConte in the Juneau-Sitka-Petersburg corridors providing service to Pelican, Hoonah, Tenakee Springs, Angoon and Kake.

- Operate the two smaller high-speed ferries in the Ketchikan-Prince of Wales-Metlakatla corridor.

- Provide ferry service to Gustavus when supported by the community.

- Review the continuing role of high-speed ferries in the Southeast Marine Highway System and evaluate the need for additional high-speed vessels and routes.

- As traffic demand develops, review the possible need for a new mainline vessel to operate out of Seattle by the late 1990s.

- In the interim, encourage private operators to provide additional vehicle carrying capacity between Seattle and the Southeast Region to meet the needs of tourist and resident travelers.

4.6 - Road System Plan

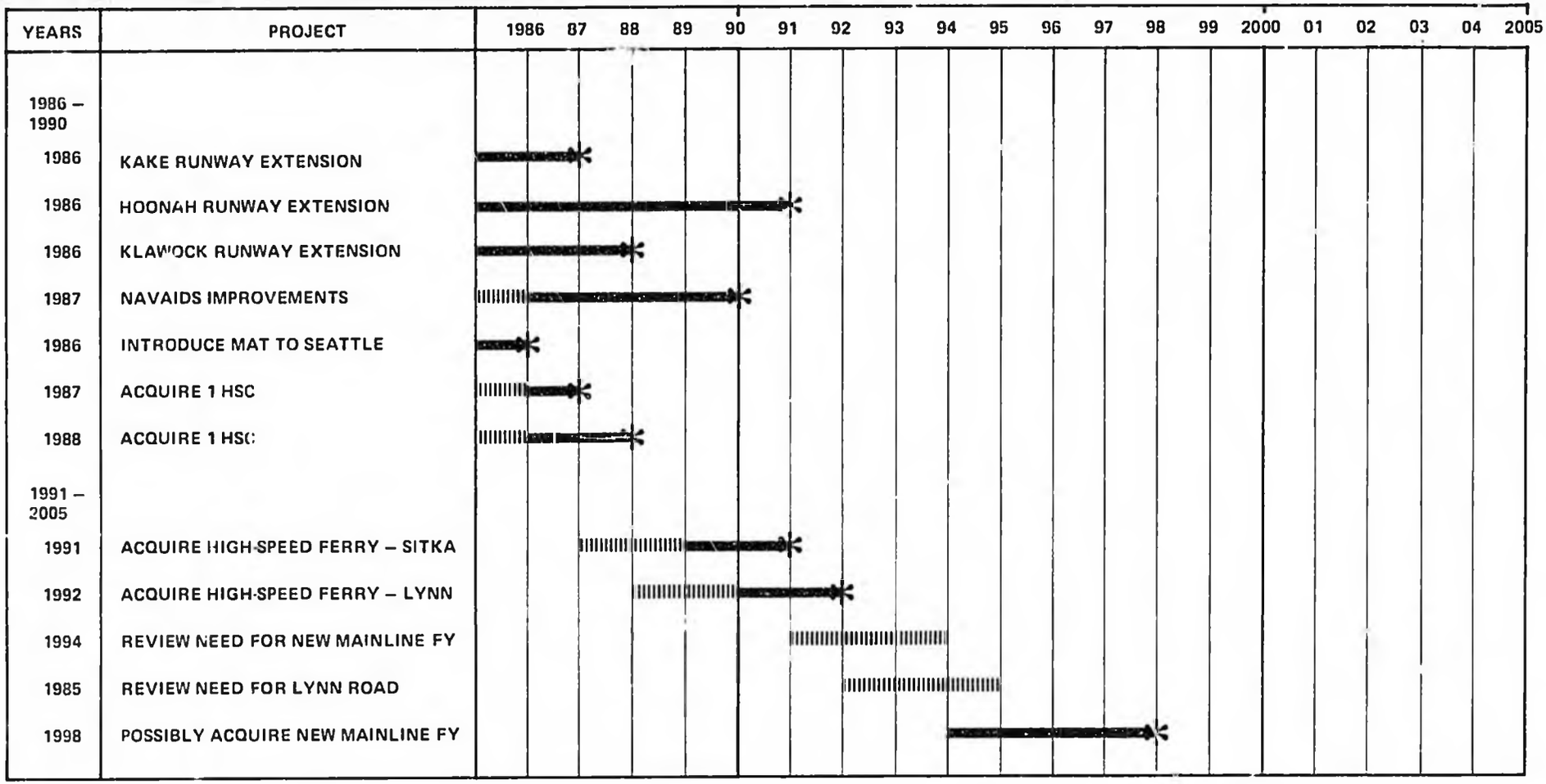
Short-Term (1986-1990)

- Continue upgrading and maintenance of existing road links in the region.

- Ensure that communities are provided with surface access routes to air and marine terminals.

Long-Term (1991-2005)

- Current projections for population growth and economic development suggest that inter-community links will continue to be best served by Marine Highway and air transportation.



LEGEND

Plan

Implement

Initiate Service

Figure 16

TIME FRAME FOR KEY PROJECTS

- Monitor demand on the Lynn Canal route to ascertain when developments warrant reassessment of a Juneau-Haines-Skagway road link.

- Re-evaluate road corridors and transportation technology developments on a periodic basis.

4.7 - Ongoing Planning Process

- Continue an ongoing regional planning process to maintain a data base, to evaluate changes in transportation demands, and to periodically update the Regional Transportation Plan.

- Encourage ongoing development of management information systems to provide reliable, up-to-date data on transportation facilities and modal operations.

- Assign priority to the development of:

  - marine highway traffic data including passenger origin/destination patterns and vehicle characteristics;

  - air traffic data for jet, commuter and air-taxi operations;

  - inventory of aviation facilities;

  - assignable cost data for public transportation services.

- Maintain historical records of changes in transportation patterns in response to the introduction of new services.

APPENDIX A

LIST OF KEY BACKGROUND REPORTS

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Southeast Alaska Transportation Plan Reports

1. Technology Evaluation, Acres International Corporation, June 1985.
2. Evaluation of Corridor Alternatives - Juneau Access (Lynn/Taku Corridors), Acres International Corporation, March 1986.
3. Evaluation of Corridor Alternatives - Ketchikan/Southern Terminus Corridor, Acres International Corporation, March 1986.
4. Evaluation of Corridor Alternatives - Sitka Access, Acres International Corporation, March 1986.
5. Evaluation of Corridor Alternatives - Stikine Corridor, Acres International Corporation, March 1986.
6. Evaluation of Corridor Alternatives - Prince of Wales Island Access, Acres International Corporation, March 1986.
7. Service to Isolated Communities, Acres International Corporation, April 1986.
8. Evaluation of Air System Alternatives, Acres International Corporation, March 1986.
9. Evaluation of Surface System Alternatives, Acres International Corporation, April 1986.
10. Data Quality, Sensitivities and Reliability of Results, Acres International Corporation, April 1986.
11. Southeast Alaska Transportation Plan, Draft, Acres International Corporation, April 1986.
12. Record of Community Response, Acres International Corporation, June 1986.

Other Reports

1. Southeastern Alaska Transportation Plan, Alaska Department of Transportation and Public Facilities, June 1980.

2. Report and Recommendations of the Alaska Marine Highway Task Force, Alaska Marine Highway Task Force, April 1984.

3. 1982 Southeast Region Transportation Workshops, Public Record, Alaska Department of Transportation and Public Facilities, April 1982.

4. Annual Traffic Volume Report, Alaska Marine Highways System, 1977 - 1984.

5. A Delphi Forecast of Alaska's Development to the Year 2000 & Beyond, Alaska Department of Commerce & Economic Development, June 1983.

6. Reconnaissance Study, Stikine Highway Access, Alaska Department of Transportation and Public Facilities, November 1984.

7. Alaska Planning Information, Alaska Department of Labor, February 1985.

8. Southeastern Alaska Transportation User Survey, Tippetts-Abbett-McCarthy-Stratton, P.C., March 1983.

9. Alaska Population Overview, 1982, Alaska Department of Labor, 1983.

10. Final Report, Southeastern Alaska Transportation Study, Wilbur Smith and Associates, December 1979.

11. Tongass Land Management Plan, Evaluation Report, U.S. Department of Agriculture, Forest Services Division, November 1984.

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SOUTHEAST ALASKA TRANSPORTATION PLAN

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