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STATE OF ALASKA
PLEADINGS LIST
83-1376

4/11/83	State of Alaska Petition for Rulemaking	1
12/16/83	State of Alaska and APUC Letter Request for Extension of Time	2
12/28/83	Comments of the State of Alaska and APUC	3
12/28/83	Motion of the State of Alaska and the APUC to Accept Late Filed Comments	4
2/1/84	State of Alaska and APUC Motion for Extension of Time	5
3/13/84	State of Alaska and APUC Further Motion for Extension of Time	6
3/21/84	Comments of the State of Alaska	7
4/10/84	State of Alaska Motion for Extension of Time	8
5/10/84	Reply Comments of the State of Alaska and the APUC	9
5/10/84	Motion to Accept Late Filed Comments by the State of Alaska and APUC	10
8/13/84	State of Alaska Request for Extension of Time	11
9/4/84	Comments of the State of Alaska	12
9/14/84	State of Alaska and APUC letter to FCC re: GCI Cash Flow	13
12/26/84	Opposition of the State of Alaska and the APUC	14
12/28/84	Opposition of the State of Alaska and the APUC	15
2/1/85	Opposition of the State of Alaska	16
2/15/85	Comments of the State of Alaska	17
4/5/85	Comments of the State of Alaska and the APUC	18
7/15/86	State of Alaska Response to Data Request	19
8/14/86	State of Alaska Supplement to Response to Data Request	20
9/18/86	Comments of the State of Alaska	21
10/9/86	Response of the State of Alaska to Reply Comments	22

of AT&T

11/28/86	Comments of the State of Alaska	23
2/27/87	Further Comments of the State of Alaska	24
3/5/87	Motion for Leave to Filr Late Comments by the State of Alaska	25
3/5/87	Comments of the State of Alaska in Connection with the Motion to Implement the Courts Order	26
3/10/87	Comments of the State of Alaska	27
3/27/87	Reply Comments of the State of Alaska	28
10/1/87	State of Alaska Ex Parte Filing	29
10/29/87	State of Alaska Ex Parte Filing	30
11/16/87	Opposition of the State of Alaska	31
12/1/87	Comments by the State of Alaska	32
1/11/88	State of Alaska Reply Comments	33
3/31/88	Comments of the State of Alaska	34
2/27/89	State of Alaska Response to Request	35
2/27/89	State of Alaska Ex Parte Filing	36
3/3/89	State of Alaska Ex Parte Filing	37
4/13/89	Comments of the State of Alaska	38
5/15/89	Reply Comments of the State of Alaska	39
7/26/89	State of Alaska Ex Parte Filing	40
11/17/89	State of Alaska Ex Parte Filing	41
3/5/90	State of Alaska Ex Parte Filing	42
4/2/90	Comments of the State of Alaska	43
8/3/90	State of Alaska Ex Parte Filing	44
4/20/92	Comments of the State of Alaska	45
5/1/92	State of Alaska Ex Parte Filings (5)	46
5/20/92	Reply Comments of the State of Alaska	47
5/26/92	State of Alaska Ex Parte Filing	48
6/4/92	State of Alaska Ex Parte Filing	49

6/18/92	State of Alaska Ex Parte Filings (2)	50
7/28/92	State of Alaska Ex Parte Filings (7)	51
8/28/92	State of Alaska Ex Parte Filing	52
8/31/92	State of Alaska Ex Parte Filing	53
9/15/92	State of Alaska Ex Parte Filing in Response to Alascom Letter re: Extension of Time	54
9/21/92	State of Alaska Ex Parte Filings (3)	55
9/23/92	State of Alaska Ex Parte Filing	56
10/1/92	State of Alaska Ex Parte Filing	57
11/3/92	State of Alaska Ex Parte Filing	58
11/13/92	Comments of the State of Alaska on Various Proposals to Modify the Master Agreement	59
11/23/92	State of Alaska Ex Parte Filing	60
12/18/92	Comments of the State of Alaska	61
1/15/93	Reply Comments of the State of Alaska	62
2/26/93	State of Alaska Ex Parte Filing	63
3/1/93	State of Alaska Ex Parte Filing	64
3/5/93	State of Alaska Ex Parte Filing	65
6/28/93	Comments of the State of Alaska	66
7/12/93	Reply Comments of the State of Alaska	67
7/22/93	State of Alaska Ex Parte Filing	68
7/23/93	State of Alaska Ex Parte Filing	69
7/27/93	State of Alaska Ex Parte Filing	70

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Before the
FEDERAL COMMUNICATIONS COMMISSION OF THE SECRETARY
Washington, D.C. 20554 D.C.C.

In the Matter of

Integration Rates and
Services for the Provision
of Communications
by Authorized Common
Carriers between the
Contiguous States and
Alaska, Hawaii,
Puerto Rico and the
Virgin Islands

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PETITION FOR RULEMAKING

To: The Commission

The State of Alaska and the Alaska Public Utilities Commission (collectively "the State"), by their attorneys, hereby petition the Commission to institute a rulemaking proceeding with the objective of establishing a permanent mechanism for the integration of rates and services between the contiguous states and Alaska, Hawaii, Puerto Rico and the Virgin Islands (the so-called "off-shore" points). In support thereof the following is stated:

1. In connection with its Second Report and Order in its Domestic Communications Satellite Facilities proceeding, Docket No. 16495, 35 FCC 2d 844 (1972), the Commission determined that rates between the contiguous states and the off-shore areas should, as a matter of policy, be integrated into the domestic pattern of rates and services. The Commission stated that:

. . . the advent of service via domestic satellite facilities should be accompanied by an integration of services, and more particularly the charges for such

services, between Alaska, Hawaii and Puerto Rico and the contiguous 48 states into the domestic rate pattern. . . It is our considered view that the public interest requires that the distinctions, particularly with respect to level of charges and rate patterns, should be eliminated.

35 FCC 2d at 856 (emphasis added).

2. Following that initial determination, there occurred a number of proceedings which ultimately culminated in negotiated agreements between the carriers serving those off-shore points. On June 22, 1979 the carriers serving Puerto Rico and the Virgin Islands ^{1/} reached an agreement whereby rates between the U.S. Mainland and Puerto Rico-Virgin Islands would be fully integrated by July 1, 1980. This agreement was subsequently approved by the Commission ^{2/} and the current Separations Manual was prescribed for those areas. ^{3/} Similarly, in 1980 AT&T reached separate agreements with Alascom, Inc. and Hawaiian Telephone Company whereby rates to Alaska and Hawaii would be integrated with mainland rate schedules. However, under these agreements the final phase of rate integration was delayed until January 1, 1985. These agreements were also approved by the Commission ^{4/} and the current Separations Manual also prescribed for those areas. ^{5/} Also, the record carriers subsequently filed rate

^{1/} American Telephone and Telegraph Co. (AT&T), All American Cables and Radio, Inc., ITT Communications, Inc.-Virgin Islands, Puerto Rico Telephone Co., Puerto Rico Communications Authority, and Virgin Islands Telephone Corp.

^{2/} See 72 FCC 2d 715 (1979).

^{3/} See Report and Order in Docket No. 21264, 72 FCC 2d 699 (1979).

^{4/} See 87 FCC 2d 20 (1981).

^{5/} See Memorandum Opinion and Order in Docket No. 21263, 87 FCC 2d 18 (1981).

reductions to integrate their rate structures to the off-shore points. ^{6/}

3. The integration of rates to the domestic off-shore points is dependent primarily upon agreements reached between AT&T and the various carriers serving each of those areas. The interim AT&T agreements with Alascom and Hawaiian Telephone Co. expire on January 1, 1985. After that date, settlements will be on the same basis as for the contiguous states. The agreement between the carriers serving Puerto Rico and the Virgin Islands has no expiration date but presumably can be terminated upon reasonable notice.

4. On February 28, 1983, the Commission released the Third Report and Order in CC Docket No. 78-72, FCC 82-579, which establishes, effective January 1, 1984, a new system of access charges whereby all interstate carriers will access local telephone exchanges. In 1980 the Commission established a Federal-State Joint Board in CC Docket No. 80-286 for the purpose of substantially revising the Separations Manual. Apart from establishing a new jurisdictional allocation scheme, the Commission indicated that the Joint Board would be responsible for developing a high cost factor which would be utilized to defray some of the non-traffic sensitive (NTS) costs in high cost telephone exchanges.

^{6/} See, e.g., the tariff modifications of ITT World Communications, Inc., transmittal No. 2220, implementing a series of rate reduction commencing on February 1, 1980.

5. Together these two proceedings will radically alter the way interstate carriers deal with exchange carriers. Access tariffs will replace the intercarrier negotiated settlements under which AT&T generally reimburses from its national interstate pool, directly or indirectly, the local exchange carrier for all interstate costs. Following a transitional period, the Commission indicated in the Third Report and Order that almost all NTS exchange costs would be recovered directly from the end user, except for some contribution from a universal service fund in high cost areas.

6. Such a scheme, without other changes, will significantly undermine the concept of rate integration. Under the negotiated rate integration agreements AT&T's settlements with the off-shore carriers generally have exceeded the interstate revenues generated by calls from those areas. Because the off-shore areas typically have both high cost exchanges and high cost interexchange facilities, rate integration cannot be achieved or maintained without some form of modified, interstate rate averaging or other substantial support for both types of facility costs. While the Commission's access charge decision makes some limited provision for support of high cost exchanges, that support is limited to NTS costs, and it is not clear how substantial even that support will be. High traffic sensitive exchange costs will be passed on to the interexchange carrier which, in turn, will recover them from the interstate user. This will either tend to increase interstate rates to the high cost

off-shore areas or discourage service to those points. ^{7/}

7. More importantly, there is now no mechanism to support high cost interexchange facilities serving the off-shore areas. As noted above, on January 1, 1985, AT&T's obligation under the current interim agreements for Alaska and Hawaii will expire coincident with the final step of rate integration.^{8/} It is not clear at this point what obligation AT&T will feel, if any, toward supporting high cost interexchange facilities of the off-shore carriers after that date. Faced with increasing interexchange competition and the divestiture of exchange operations, AT&T may be unwilling to make any further commitments to the support of rate integration. Without substantial support from all ratepayers who benefit from the extension of adequate interstate service to the Alaskan points, rate integration may collapse. While the revenues needed to support rate integration are overwhelming, if they are to be recovered solely from off-shore area residents, it is not a significant percentage when compared to total toll revenues. ^{9/}

^{7/} The State has filed, simultaneously herewith, a petition for reconsideration of the Third Report and Order seeking a change in the access charge rules to implement a permanent mechanism to support rate integration and to apply the high cost factor to traffic sensitive costs as well as NTS costs. If the access charge rules are modified to implement a permanent mechanism to support rate integration, this petition will become moot.

^{8/} Since the new FCC rules will substantially change the basis of the agreements on Jan 1, 1984, it is not clear how valid the agreements will remain after that date.

^{9/} In 1980 telephone companies reported MTS revenues of some \$22 billion. Effective Sept 13, 1977, AT&T's Tariff FCC No. 263 was amended to add a one cent per minute charge which was designed to raise \$178 million, enough to cover its then anticipated rate integration costs.

8. The State of Alaska does not challenge the Commission's implementation of new policies relevant to competition and exchange access. Rather, it requests the Commission to implement these new procedures and mechanisms in a way which assures that rate integration with the off-shore points is both attained and sustained. Rate integration is compatible with competitively provided interexchange services and with a new access charge scheme. However, rate integration is not likely to continue for long on its current basis in face of the radical restructuring of the telecommunications industry that is now occurring.

9. There are a number of procedures that could be established to provide for off-shore rate integration in the new interstate competitive environment. The State is not proposing any specific mechanism at this time. However, a number of possible mechanisms could be implemented with little or no disruption to other current FCC proceedings. For example, the Commission could establish a fund similar to the universal service fund established in CC Docket 78-72. This could be funded through the carrier common line rate element of the access charge tariff. Payments from such a fund could be made to all carriers which provide service to off-shore points under integrated rate schedules, with these payments being proportionate to their traffic volumes and appropriate cost factors.

10. Whatever approach the Commission believes is appropriate should be initiated promptly so that it is in place by January 1, 1984. A formal, separate mechanism will be more difficult to implement after the access charge tariffs go into

effect. Moreover, since the current rate integration agreements are predicated on the use of the present Separations Manual and access charges are scheduled to supercede this Manual on January 1, 1984, the off-shore points face dramatic disruption in their interstate rates if no new mechanism is in place by that date. A major change in separations policy will significantly affect the current agreements before their expiration.

11. Accordingly, it is respectfully requested that the Commission promptly initiate a rulemaking proceeding to adopt rules to support rate integration for interstate service to Alaska, Hawaii, Puerto Rico and the Virgin Islands.

Respectfully submitted,

Alaska Public Utilities Commission
Carolyn S. Guess
Chairman

State of Alaska
Norman C. Gorsuch
Attorney General

By: 
Nicholas P. Miller

By: 
W. Randolph Young

PRESTON, THORGRIMSON,
ELLIS & HOLMAN
1776 G. Street, N.W.
Washington, D.C. 20006
Counsel

April 11, 1983

STATEMENT OF SERVICE

I, Joanne Suschinski, certify that this 11th day of April, 1983, copies of the foregoing "Petition for Rulemaking" were sent by U.S. mail, postage prepaid, to the following:

R. Collin Middleton, Esq.
Interior Telephone Company
912 West Sixth Street
Anchorage, Alaska 99501

Thomas J. O'Reilly, Esq.
Chadbourn, Parke,
Whiteside & Wolff
1150 - 17th Street, N.W.
Washington, D.C. 20036

J. Randolph MacPherson, Esq.
Office of the Counsel - Code 105
Defense Communications Agency
Washington, D.C. 20305

C. Lee Coulter, Esq.
1121 S. Broadway
Everett, Washington 98204

Gordon Parker
Executive Director
Alaska Telephone Association
3201 C Street
Anchorage, Alaska 99503

Richard Allen
Public Services Commission
P.O. Box 4524
St. Thomas, Virgin Islands 00801

Alan Y. Naftalin, Esq.
Koteen & Burt
1150 Connecticut Avenue
Washington, D.C. 20036

Rosel H. Hyde, Esq.
Herbert E. Marks, Esq.
Laurel R. Bergold, Esq.
Wilkinson, Cragun & Barker
1785 New York Avenue, N.W.
Washington, D.C. 20006

Richard H. Strodel
Wheeler & Wheeler
1729 H. Street, N.W.
Washington, D.C. 20006

Enrique Jimenez
Executive Director
Puerto Rico Telephone Authority
P.O. Box 10955
Caparra Heights
Puerto Rico 00922

Edward L. Friedman
American Telephone & Telegraph
Bedminster, New Jersey 07921


Joanne Suschinski



LKS L

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of

Integration of Rates and Services for
the Provision of Communications by
Authorized Common Carriers Between
the Contiguous States and Alaska,
Hawaii, Puerto Rico and the Virgin
Islands

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) CC Docket No. 83-1376
) RM 4436
)
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To: The Federal-State Joint Board

RESPONSE OF THE STATE OF ALASKA TO
ORDER REQUESTING DATA AND INVITING COMMENTS

OF COUNSEL:

John W. Katz
Director of State/
Federal Relations

Martha A. Fox
Special Assistant
Attorney General

July 15, 1986

THE STATE OF ALASKA
Harold M. Brown
Attorney General

Victor E. Ferrall, Jr.
Linda K. Smith
John T. Scott, III
Steven J. Gorosh

CROWELL & MORING
1100 Connecticut Avenue, N.W.
Washington, D.C. 20036

Its Attorneys

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)

Integration of Rates and Services for)
the Provision of Communications by)
Authorized Common Carriers Between)
the Contiguous States and Alaska,)
Hawaii, Puerto Rico and the Virgin)
Islands)

CC Docket No. 83-1376
RM 4436

To: The Federal-State Joint Board

RESPONSE OF THE STATE OF ALASKA TO
ORDER REQUESTING DATA AND INVITING COMMENTS

The State of Alaska, by its attorneys and pursuant to the
Order Requesting Data and Inviting Comments (Order) issued by the
Federal-State Joint Board for this proceeding (FCC 86J-2, released
May 9, 1986), hereby submits its response.

Respectfully submitted,

THE STATE OF ALASKA
Harold M. Brown
Attorney General

By:

Linda K. Smith

OF COUNSEL:

John W. Katz
Director of State/
Federal Relations

Martha A. Fox
Special Assistant
Attorney General

Victor E. Ferrall, Jr.
Linda K. Smith
John T. Scott, III
Steven J. Gorosh

CROWELL & MORING
1100 Connecticut Avenue, N.W.
Washington, D.C. 20036

Its Attorneys

July 15, 1986

TABLE OF CONTENTS

Introduction

Summary

Section A Demographic Information

Section B Geography

Section C Climate

Section D Transportation

Section E Education in Alaska

Section F Public Safety and Health

Section G Economic Environment

Section H State of Alaska Revenues and Expenditures

Section I The State of Alaska as Provider and Consumer
 of Telecommunications

Attachments

TABLE OF CONTENTS

on

Demographic Information

Geography

C Climate

D Transportation

E Education in Alaska

F Public Safety and Health

G Economic Environment

H State of Alaska Revenues and Expenditures

I The State of Alaska as Provider and Consumer
of Telecommunications

Attachments

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not isolated or is generally accessible, i.e. a community not considered to be located in the Alaska Bush."^{1/}

In view of the these facts and because there is no consistent or standard definition of "bush," the State has not used the term in this submission. It has instead referred to and provided data on specific communities or areas of Alaska with officially defined boundaries.

^{1/} Id.

SUMMARY

Alaska, which covers 591,000 square miles, is two and one-half times larger than the next largest state, and larger than 21 states combined. Its population, about 500,000, is the smallest of the 50 states. Alaska's population density is the lowest of any state, less than one person per square mile, compared with 5 persons per square mile in Wyoming, the next least densely populated state, and 67 persons per square mile in the United States as a whole.

Almost half of all Alaskans live in Anchorage. Only two other communities, Fairbanks and Juneau, have more than 10,000 residents. Seventy-seven percent of all communities in Alaska have populations of 500 or less, and about one-third have fewer than 100 residents.

Alaska's population growth rate from 1980 to 1985 was five times greater than the national average. Most of the state's population increase, however, resulted from in-migration, not new births. In-migration has been subject to dramatic fluctuations.

Alaska's geography is unique. Alaska is only 2.5 miles from Russia, 663 miles from Seattle, the closest large city in the continental United States, and only 800 miles from the North Pole. It is the site of the tallest mountain in North America and 17 of the 20 highest peaks in the United States, and contains a glacier larger than Rhode Island. A significant part of its land is covered by ice fields or permanently

frozen. Ten percent of the world's volcanos are located in Alaska; one erupted this year.

The six distinctive climate zones in Alaska are all characterized by weather extremes. In one, it rains or snows about 200 inches annually. In another, 100-plus mile winds are common. Other climate zones feature coastal flooding, a record snowfall of 62 inches in 24 hours, temperatures as low as 80° below zero, and no sun two months each year.

Although Alaska's communities are separated by vast distances, there are less than 9,000 miles of "highways" in the state, only a quarter of which are paved. There are six times as many miles of paved road in Los Angeles County as in all Alaska. Most communities in the state, including Juneau, its capital, cannot be reached by road. Alaskans must rely on planes and boats, methods of transportation that are costly, time-consuming, and frequently impossible due to weather or other conditions.

Historically, education levels in the state had been low for many groups. Alaska is committed to redressing this situation and to providing an education in such a way so that children are not forced to leave their homes to get it, as many have been in the past. This is an expensive undertaking. Alaska relies heavily on telecommunications to deliver educational services at the primary, secondary and college levels. In the many, remote, small Alaskan communities, even minimal cost efficiency in providing educational services is difficult. The diversity of the communities and the distance between them, which make any standardization complex, and growth

of the school-age population have compounded the problem. As a result, expenditures on public education have been high.

Alaska's climate and geography bring with them special health and public safety challenges. The state suffers the highest rate for death by accident in the nation, as well as high rates of alcoholism, suicide (50% higher than the national average) and infant mortality. With relatively few doctors serving such a large area, the state must rely to a large extent on emergency medical technicians in rural communities, linked by telecommunications to professional medical assistance. Telecommunications are also particularly vital to public safety in the state.

Alaska's economic history, both as a territory and as a state, is one of boom and bust. The overwhelming majority of the State's revenues presently come from oil and gas. Between the fiscal years 1980 and 1985, petroleum accounted for 83-90% of all of the State's Unrestricted Revenues. With Alaskan North Slope crude oil now selling at prices two-thirds lower than in 1981, the state has entered a deep bust cycle. Even prior to the dramatic decline in oil prices that began in late 1985, the State had projected a 59% decline in daily oil production between 1985 and 1998, and an oil and gas employment decline of 10-30% between fiscal years 1986 and 1987 alone. Given the projected decline in oil production in the state, even if oil prices were to go up, state revenues will not increase correspondingly.

During the 1980's, other Alaskan industries, such as lumber, mining, construction and some elements of the fishing industry, also suffered declines, those in lumber and housing construction being particularly severe. The state's economy has benefitted, however, from tourism, which has been strong. The economy is heavily dependent on federal, state and local government employment and expenditures. Nearly 30% of all workers in the state in 1983 were employed by federal (excluding military), state or local government.

From 1980 to 1985, the unemployment rate in Alaska exceeded the national average by about one-third. Further, Alaska's unemployment rate is increasing. It was 11.4% in April, 1986, up from 10.7% in April, 1985. In many areas of the state, unemployment is much higher, and higher still among some groups, particularly Native Americans.

While Alaska's per capita personal income was the highest of any state in 1985, its cost of living was even higher. In the last quarter of 1985, for example, the cost of living in the state exceeded the national average by about 50%. As a result, Alaskans' real per capita income, adjusted to take account of the higher cost of living in Alaska, was below the national average.

There are substantial differences in income and cost of living among Alaska's 23 census areas. Twelve census areas, which include almost one-third of the state's population, have had real per capita personal income more than 15% below the national average.

Dollar per capita personal income in Alaska is increasing at only about a quarter of the national rate. Even prior to the recent acceleration in the oil bust, growth in personal income in Alaska was projected to be zero in 1985, and to decrease significantly in 1986.

The historic pattern of boom-bust in Alaska, and the State's heavy dependence on petroleum-based revenues, have required the State to devise extraordinary means to provide a measure of economic stability for its residents. These include investment, tax incentives, loan programs and creation of the Permanent Fund, a constitutionally-based fund to provide revenue to replace non-renewable and declining oil revenues. Nonetheless, over the next two or three fiscal years, a 50% decline in the State's Unrestricted Revenues was projected, and the Alaska legislature has begun making deep cuts in appropriations. Because of additional revenue shortfalls caused by the continuing decline in the price of oil, the State of Alaska is, at the time of this submission, contemplating further drastic budget cuts and other measures to deal with the situation.

Telecommunications services provided by the State include video (instructional and entertainment), microwave, emergency, medical, legislative and instructional teleconferencing, and two-way radio. The State does not provide telephone service. Each State department contracts for its own telecommunications equipment and services.

A



SECTION A
DEMOGRAPHIC INFORMATION

The demographics of the State of Alaska start with the State's size and its relationship to the State's population. Alaska encompasses an area of 591,004 square miles, one-fifth of the total land area of the continental United States and more than the combined land areas of the three next largest states (Texas, California and Montana).^{1/} If superimposed on the lower 48 states, Alaska would stretch across the nation:^{2/}



The United States Bureau of the Census estimates the population of the State as of July 1, 1984, to be 500,000 people, fewer

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- ^{1/} United States Department of Commerce, Bureau of the Census, Statistical Abstract of the United States 1985 (1985) at 194 ("Statistical Abstract").
- ^{2/} Alaska Statewide Health Coordinating Council, State Health Plan for Alaska (1984) at 2-2.

than in any other state or the District of Columbia.^{1/} As of the same date, the Alaska Department of Labor, which compiles population data for the State, estimates the State's population to be 523,048.^{2/} Alaska's residents comprise 0.2 percent of the total United States population of 236,158,000.^{3/}

Alaska's population density is one person per square mile, the sparsest of any state.^{4/} If the population of Anchorage, Alaska's largest community, is excluded, Alaska has an average density of less than one person for every two square miles.^{2/} Wyoming, the state with the next least density, has five persons per square mile. The average density in the United States is 67 people per square mile.^{5/}

Unlike other States, Alaska is not divided into counties. Substate governmental units known as "organized boroughs" are the closest equivalent to counties. There are 12 such boroughs. They possess many of the powers common to local governments (e.g.,

^{1/} Statistical Abstract at 12. The most recent federal estimate of the State's population is 516,000 as of July 1, 1985, smaller than the population estimates for all states except Wyoming. United States Department of Commerce, Report on 1985 State Per Capita Personal Income (May 6, 1986, Table 4) ("Commerce Report").

^{2/} State of Alaska, Department of Labor, Alaska Population Overview (1985) at 63 ("Population Overview"). This is the Department of Labor's most recent published estimate.

^{3/} Statistical Abstract at 12 (July 1, 1984 estimate).

^{4/} Id.

^{2/} Population Overview at 63; Statistical Abstract at 12.

^{5/} Statistical Abstract at 12.

taxation, public safety and zoning). They cover, however, less than one third of the land area of Alaska. The remainder of the state is collectively known as the "unorganized borough." No governmental bodies exist in this vast area outside of local cities and rural school districts; governmental functions for the unorganized borough are handled by State government. The development of internal political boundaries in Alaska is an ongoing process.^{2/}

Local governmental powers are also exercised by 146 legally incorporated "cities" (so designated without regard to size) across the state. Although each borough contains one or more incorporated cities, not all incorporated cities are within one of the twelve organized boroughs.^{10/}

In addition, there are approximately 150 small, unincorporated communities, which have no local governmental powers. The Census Bureau and the Department of Labor label these communities as "census designated places" (CDP's) for purposes of compiling demographic data. A few other concentrations of population, such as Eielson Air Force Base outside Fairbanks or College at the edge of Fairbanks, are also counted as CDP's.

Attachment A-1 lists the Alaska Department of Labor's 1984 and 1983 population estimates and the 1980 U.S. Census figures for

^{2/} State of Alaska, Department of Education, Division of State Libraries, Alaska Blue Book 1985 (1985) at 155-56 ("Blue Book"); State of Alaska, Department of Labor, Alaska Planning Information (1985) at 3 ("Planning Information"). Indeed, the twelfth borough was established this year.

^{10/} Id.

found that while only 7% of households in Anchorage live off the land to obtain all or part of their food, 63% to 93% of households in rural areas rely in whole or in part on subsistence activities.^{12/}

The distribution of Alaska's population by community size is as follows:^{11/}

<u>Population of Community</u>	<u>Number of Communities</u>
More than 100,000	1
50,000 - 100,000	0
10,000 - 50,000	2
5,000 - 10,000	5
2,500 - 5,000	11
1,000 - 2,500	17
500 - 1,000	32
100 - 500	138
Less than 100	90

The Census Bureau and the Department of Labor currently divide Alaska into 23 "census areas" for collecting demographic and labor market information, which are based in part on political boundaries (i.e., the boundaries of the organized boroughs). Those census areas are grouped into six regions: Anchorage/Matanuska/Susitna, Gulf Coast, Interior, Northern, Southeast, and Southwest. Half of Alaska's population, 50.3%, is located within

^{12/} The McDowell Group and Alaska Attitudes, Inc., Alaska Geographic Differential Study (1985), Vol. I at 11. The Study measured these activities by asking respondents, "Do you or anyone in your household hunt, fish or pick berries or greens for subsistence?" The Study concluded, "Districts with low population, low employment and high unemployment are those in which subsistence is an important factor. The degree of dependency and the spending in support of subsistence are surprisingly high in the most rural districts." Id. at 197-200.

^{11/} Population Overview at 49-51, 63-69.

each community in the state in alphabetical order. Attachment A-2 provides these estimates and figures for each community in order of population size. These attachments identify the twenty largest communities and their populations as of July 1, 1984 as follows:

1.	Anchorage City	243,829
2.	Fairbanks City	27,103
3.	Juneau City	23,729
4.	Eielson AFB (CDP)	7,837
5.	Ketchikan City	7,633
6.	Sitka City	7,611
7.	Kenai City	6,072
8.	Kodiak City	6,069
9.	College (CDP)	4,498
10.	Valdez City	3,687
11.	Bethel City	3,681
12.	Soldotna City	3,538
13.	Wasilla City	3,459
14.	Homer City	3,373
15.	Nome City	3,184
16.	Adak Station (CDP)	3,169
17.	Petersburg City	3,137
18.	Barrow City	2,943
19.	Palmer City	2,772
20.	Kodiak Station (CDP)	2,420

Attachments A-1 and A-2 show the uneven population distribution of Alaska. Almost half of all Alaskans (47%) reside in one city, Anchorage. Another 10% reside in the only other cities with populations larger than 10,000, Fairbanks and Juneau. The remaining 43%, some 200,000 people, are scattered across the state among nearly 300 smaller communities.^{11/} Only five other communities have as many as 5,000 and residents. There is, therefore, great variation in the living patterns of Alaskans, depending on where and in what size community they live, and such other factors as income, history, or ethnic origin. For example, one recent study

^{11/} Id. at 63.

the region with the smallest land area, Anchorage/Matanuska/Susitna region. The remaining 49.7% is spread among the other five regions. Attachment A-3 is a map identifying each census area. Attachment A-4 shows the diffusion of population among the six regions.

U.S. Census Bureau data show that Alaska's population declined during the period from 1900 to 1930, then grew rapidly until the late 1970's. At that time the population leveled off for several years, then resumed its growth in the 1980's:^{14/}

<u>Year</u>	<u>Alaska Population</u>
1900	64,000
1910	64,000
1920	55,000
1930	59,000
1940	73,000
1950	129,000
1960	226,000
1970	303,000
1977	403,000
1978	405,000
1979	403,000
1980	402,000
1981	416,000
1982	444,000
1983	481,000
1984	500,000
1985	516,000

Although Alaska's population growth continues, it is slowing down.^{15/} While the average annual rate of growth for the period

^{14/} Statistical Abstract at 12; United States Department of the Interior, ANCSA 1985 Study (1984 Draft) at E-5 ("ANCSA Study"); Commerce Report.

^{15/} The State of Alaska Department of Labor estimates the State's population to have increased as follows: 461,000 as of July 1, 1982; 495,000 as of July 1, 1983; and 523,000 as of July 1, 1984. These figures also indicate a slowdown in the rate of growth. Population Overview at 39.

between the 1980 census and July 1, 1983 was 6.2%, the rate of growth slipped to 4.0% for the year July 1, 1983 to July 1, 1984, and to 3.2% for the year July 1, 1984 to July 1, 1985.^{16/} Alaska's average annual rate of growth for the period 1980-1985 of 5.1% compares to an average annual rate of growth for the United States population over the same period of 1.0 percent.^{17/}

Alaska's growth rates reflect its small population base. Between 1980 and 1984, while Alaska's population growth rate was the highest of the 50 states, 19 states added a greater number of people.^{18/} 57% of the total increase in Alaska's population occurred within one city, Anchorage. 64% occurred in the three largest cities (Anchorage, Fairbanks and Juneau). 90% occurred in five of the 23 census areas: Anchorage, Fairbanks-North Star, Juneau, Matanuska-Susitna, and Kenai Peninsula.^{19/} Attachment A-5 provides demographic data for each census area over the period 1970-1984.

Alaska's growth historically has been dependent on migration from other states. This pattern has continued. Most of Alaska's growth in the 1980's has been due to in-migration. Three-quarters of the growth from 1980 to 1983 was due to in-migration.^{20/}

^{16/} Commerce Report.

^{17/} Statistical Abstract at 7; Commerce Report.

^{18/} Statistical Abstract at 13.

^{19/} Population Overview at 4.

^{20/} Planning Information at 5.

Attachment A-5 demonstrates the substantial impact of in-migration on population change in each census area during this period. Between July 1, 1983 and July 1, 1984, Alaska added 28,000 people, almost two thirds of whom immigrated from other states.^{21/}

The Department of Labor states, "Migration is the most unstable component in Alaska's population change, often changing dramatically from one year to the next."^{22/} Fluctuations in net migration are shown in Attachment A-6. During the oil pipeline construction period of 1974-76, migration to Alaska increased sharply, giving Alaska its fastest rate of growth in decades. When construction ceased, however, so many more people left Alaska than moved in that, from 1978 to 1980, despite non-migratory population increase, Alaska experienced a net loss in total population.

Alaska's population, while aging like that of the rest of the United States, remains relatively young. The median age of Alaskans increased from 26.1 years in 1980 to 27.5 years in 1984. During the same period the median age of all Americans increased from 30.0 to 31.1 years. As of July 1, 1984, 11% of Alaskans were under 5 years old, compared to 7.7% of all Americans. 21% of Alaskans were of elementary and secondary school age (5-17 years old), compared to 18.8% of all Americans.^{23/} There are, therefore, two adult Alaskans (18 or over) for every Alaskan child. In

^{21/} Population Overview at 3.

^{22/} Id. at 12.

^{23/} Id. at 3.

the United States as a whole, there are three adults for every child.

In 1984 there were approximately 22,600 military personnel in the State and 26,800 military dependents, making the population of military and dependents in Alaska approximately 9.5% of the total population.^{24/}

The distribution of Alaskans by race is as follows:^{25/}

<u>Race</u>	<u>1980 Census</u>	<u>1984 (Est.)</u>
White	77.1%	76.1%
Native Alaskan (American Indian/Eskimo/ Aleut)	16.0%	14.4%
Black	3.3%	4.1%
Asian/Pacific Islander/Other	3.6%	5.4%

The term "Native Alaskan," often used to refer to the State's original settlers, masks the significant differences in ethnic origin, language and culture among native groups. Alaska's original settlers dispersed across the vast Alaskan land mass, living in distinct, geographically separated climatic regions, evolving into multiple groups, each with its own territory, language and culture.^{26/} The Alaska Native Language Center of the University

^{24/} Id. at 4.

^{25/} Id. at 17. (Categories are specified by U.S. Census Bureau.)

^{26/} Alaska Geographic, Alaska's Native People (1985) at 15-31 ("Native People"); ANCSA Study at I-10 and I-11.

of Alaska identifies 20 separate languages among natives in the State.^{27/}

Even the usual division of natives into Aleuts, Eskimos and Indians understates the number of distinct and distinctive groups. The Aleuts inhabit the chain of islands extending from southwestern Alaska 1,000 miles across the northern Pacific Ocean. While of common origin, there are several different Aleut dialects, in different locations.^{28/}

Eskimos inhabit lands from Bristol Bay in the southwest, up Alaska's entire west coast, and across its northern coast into Canada. The Eskimos were originally coastal people who fished and hunted marine mammals, but some lived inland, hunting caribou, and evolved their own separate cultures. Two principal Eskimo subgroups, Yupiks and Inupiat, share common origins, but have evolved languages so different that they cannot communicate with each other in their mother tongues. In addition, the southern coast is inhabited by three groups, the Koniag, Sugpiaq, and Chugach, which are related to Eskimos by language and physical type, but have independent cultures.^{29/}

Alaskan Indians are comprised of numerous subgroups. The Athabascan Indians, scattered across Alaska's interior regions, use 11 different languages, grouped into two language families,

^{27/} Attachment A-7 shows the distribution of native languages across Alaska.

^{28/} Native People at 33.

^{29/} ANCSA Study at I-10; Native People at 18-21.

Eyak and Athabascan (see Attachment A-7), and have different cultures. Unlike the Eskimos, who turned to the sea for subsistence and who developed trading, the Athabascans were once exclusively hunters and gatherers who roamed the land in search of food. While trading between Indians and Eskimos existed, rivalries and territorial disputes sometimes led to conflict. Three separate groups of Indians, the Tlingits, Haidas and Tsimshians, settled along the coasts and islands of the southeastern panhandle. While ethnically similar to the Athabascans, these groups lived in a completely different habitat, one conducive to fishing and coastal trade, and evolved separate languages.^{10/}

The 1980 census reported a total of 64,103 native Alaskans (53% Eskimos, 34% Indians and 13% Aleuts).^{11/} While in 1930 natives comprised more than half of Alaska's total population, natives as a percentage of all Alaskans have since been declining:^{12/}

<u>Year</u>	<u>Natives as Percent of Total</u>
1930	50.6%
1940	44.8%
1950	26.3%
1960	19.0%
1970	16.9%
1980	16.0%

While the native population grew at an average annual rate of 2.4 percent from 1970 to 1980, double the national average, Alaska's

^{10/} ANCSA Study at I-11 and I-12; Native People at 24-28.

^{11/} Blue Book at 230.

^{12/} ANCSA Study at E-5.

non-native population grew at the rate of 3.1 percent. The growth in the native population resulted, however, from natural increase, while in-migration contributed heavily to the increase in the non-native population.^{13/}

Attachment A-8 identifies the distribution of Alaska's population by race among census areas as of 1980. Whites are most heavily concentrated in the larger communities, while native Alaskans are dispersed across the State. The most remote areas of the State have the highest percentage of native Alaskans. For example, while the Anchorage census area was 86% white and 5% native, the Kobuk census area, in the northern region, was 14% white and 85% native. (See Attachment A-8.) 72% of native Alaskans live in areas categorized as rural by the U.S. Census Bureau, compared to 24% of non-natives.^{14/} 51% of native Alaskans live in 147 communities which were 75% native or more. On average, these communities were 90% native. All but three of them had populations of less than 1,000. Excluding these three communities, Alaska's predominantly native communities had an average population of 214.^{15/}

^{13/} Id. at IV-3.

^{14/} Id. at E-7, E-8.

^{15/} Population Overview at 49.

13

SECTION B

GEOGRAPHY

Alaska, the largest state in the Union, has a total area of 591,004 square miles, which is one-fifth the total land area of the continental United States.^{1/} Alaska is larger than the next three largest states (Texas, California and Montana) combined, and the land areas of 21 states would fit within Alaska.^{2/} Alaska is more than twice as large as Texas, the second largest state, 486 times larger than Rhode Island, the smallest state, five times larger than Colorado, eight times larger than North Dakota, and more than 8,000 times larger than the District of Columbia.^{3/} Alaska is also two and three quarters times the size of France, four times the size of Japan, and six and one half times the size of Great Britain.^{4/} The state's vast size is of particular significance because of, as the Alaska House of Representatives Special Committee on Telecommunications noted earlier this

^{1/} See Section A at 1.

^{2/} Based on land mass figures in United States Department of Commerce, Bureau of the Census, Statistical Abstract of the United States 1986 (1985) ("Statistical Abstract") at 194.

^{3/} Based on land mass figures in Statistical Abstract at 194.

^{4/} Based on land area in square miles for each country. Figures from Columbia University Press, The New Columbia Encyclopedia (1975) at 47, 992, 1127, 1397 ("Columbia Encyclopedia").

year, "the importance that electronic communications plays in eliminating the problem of distance and isolation."^{5/}

As noted in Section A of this Response, superimposed on a map of the contiguous 48 states, Alaska reaches from California to Florida and from North Dakota to Texas.^{6/} East to West, including the Aleutian Islands, Alaska measures 2400 miles - roughly the same distance as between Florida and the State of Washington.^{7/} North to South, Alaska measures 1,420 miles - the distance between Miami and Boston,^{8/} or Denver and Mexico City.^{9/}

There are six markedly different geographic regions in the State: Southeast (Panhandle), Gulf Coast, Interior, Northern Alaska, Western Alaska and Southwestern Alaska.^{10/}

^{5/} Alaska House of Representatives, Special Committee on Telecommunications, Interim Report (1986) at 2, 8.

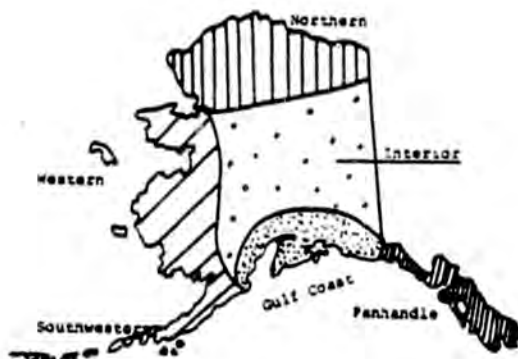
^{6/} Alaska Statewide Health Coordinating Council, State Health Plan for Alaska (1984) at 2-2 ("State Health Plan").

^{7/} State of Alaska, Department of Education, Division of State Libraries, Alaska Blue Book 1985 (1985) at 227 ("Blue Book").

^{8/} Rand McNally Road Atlas, Supplement to 114th Ed. (1983) at 105.

^{9/} Blue Book at 228.

^{10/} Clause M. Naske, Alaska: A History of the 49th State (1979) at 6-11 ("Alaska"). The following descriptions of Alaska's regions are taken from Alaska and from The Editors of Alaska Magazine, Alaska Geographic, Alaska Journal, Alaskan Almanac and The Milepost, Introduction to Alaska (1983) at 9-10 ("Introduction to Alaska").



The Southeast region, or "Panhandle," includes a very narrow 400 mile long strip of land adjacent to British Columbia. Cut off on the north from the main body of Alaska by the St. Elias mountain range, the Panhandle is marked by a series of islands and fiords flanked by some of the tallest coastal mountains in the world. The "Inside Passage" runs through the Panhandle. Panhandle communities include Juneau, the state capitol and third largest community, Ketchikan, Wrangell, Petersburg, Sitka, Haines, Angoon, Hoonah, Klawock and Skagway.

Northwest of the Panhandle is the Gulf Coast region of Alaska. This coastal region runs along the Pacific in a 700 mile arc, flanked by some of the highest mountains in North America. In the center of this area, situated on Cook Inlet, lies Anchorage, the state's largest community. Southeast of Anchorage lies the Kenai Peninsula. Southwest of Anchorage is Valdez, the southern terminus of the Trans Alaska pipeline. Northeast of Anchorage is the Matanuska Valley, the agricultural center of the state. The valley runs northwest to the foot hills of the Alaska Mountain range and Mt. McKinley, the northern border of the Gulf Coast region.

Beyond the Alaska Range lies the vast Interior region which stretches north over a great distance to the Brooks Mountain Range. The Interior region contains Fairbanks, the state's second largest community. The region is transversed by the Great Yukon River, and located along the river and its tributaries are most of the settlements of interior Alaska.

The Northern region is separated from the interior by the Brooks Range, which rises to elevations of 10,000 feet. The region slopes gradually down to the Arctic Sea, 250 miles to the north. The entire region is devoid of timber. The northernmost settlement is Barrow, and the region includes the Prudhoe Bay oil field.

Western Alaska is a remote area stretching from the head of Bristol Bay, north along the coast to the Seward Peninsula. The treeless flatland is dotted with hundreds of lakes, ponds, and almost non-moving rivers such as the muddy mouths of the Kuskokwin and Yukon Rivers. Nome and Bethel are two of the larger communities in the area.

Southwestern Alaska includes the Aleutian Islands, which stretch out 1500 miles east from the mainland dividing the Pacific Ocean from the Bering Sea. The foggy, windswept islands have only a handful of settlements.

There are many notable characteristics in the State's geography. For example, Little Diomed Island off the west coast of Alaska is only 2.5 miles from Russia's Big Diomed Island.^{11/}

^{11/} Blue Book at 228.

Barrow, the northernmost community in the United States, is only 800 miles from the North Pole.^{12/} Ketchikan, at the southern tip of the Panhandle, is 663 miles north of Seattle.^{11/}

Alaska is nearly equidistant from Japan, Europe and the East Coast of the Continental United States.^{14/} Oddly, Alaska contains both the easternmost and westernmost points in the United States.^{15/}

Alaska is transversed by two primary mountain systems: the Rocky Mountain system, which includes the Brooks Range, and the Pacific Mountains which include the Alaska, Aleutian and Pacific Border Ranges.^{16/} The Saint Elias Mountains, stretching from southcentral Alaska through western Yukon territory and northwest to British Columbia, are the highest coastal mountains in the world.^{17/} The tallest mountain in North America, Mt. McKinley (elevation 20,320 feet), is in Alaska, and of the 20 highest peaks in the U.S., 17 are in Alaska.^{18/}

^{12/} Id.

^{11/} Id. at 217.

^{14/} Id. at 228.

^{15/} The dividing line between east and west longitudes (the 180th Meridian, halfway around the world from the Prime Meridian at Greenwich, England) curls through the Aleutian Island chain. Amatignak Island is the westernmost point and Pohnoi Point the easternmost -- although they are only about 65 miles apart. Introduction to Alaska at 7.

^{16/} State Health Plan at 2-3.

^{17/} Introduction To Alaska at 11.

^{18/} Introduction To Alaska at 9.

CORRECTION

**THIS DOCUMENT
HAS BEEN REPHOTOGRAPHED
TO ASSURE LEGIBILITY**

Barrow, the northernmost community in the United States, is only 800 miles from the North Pole.^{12/} Ketchikan, at the southern tip of the Panhandle, is 663 miles north of Seattle.^{11/}

Alaska is nearly equidistant from Japan, Europe and the East Coast of the Continental United States.^{14/} Oddly, Alaska contains both the easternmost and westernmost points in the United States.^{15/}

Alaska is transversed by two primary mountain systems: the Rocky Mountain system, which includes the Brooks Range, and the Pacific Mountains which include the Alaska, Aleutian and Pacific Border Ranges.^{16/} The Saint Elias Mountains, stretching from southcentral Alaska through western Yukon territory and northwest to British Columbia, are the highest coastal mountains in the world.^{17/} The tallest mountain in North America, Mt. McKinley (elevation 20,320 feet), is in Alaska, and of the 20 highest peaks in the U.S., 17 are in Alaska.^{18/}

^{12/} Id.

^{11/} Id. at 217.

^{14/} Id. at 228.

^{15/} The dividing line between east and west longitudes (the 180th Meridian, halfway around the world from the Prime Meridian at Greenwich, England) curls through the Aleutian Island chain. Amatignak Island is the westernmost point and Pohnoi Point the easternmost -- although they are only about 65 miles apart. Introduction to Alaska at 7.

^{16/} State Health Plan at 2-3.

^{17/} Introduction To Alaska at 11.

^{18/} Introduction To Alaska at 9.

There are some three million lakes over 20 acres large in Alaska, including Lake Illiamna, America's second largest fresh water lake.^{13/} Most of the State's lakes are located in marshy lowlands. For example, the Yukon-Kuskokwim coastal lowland area has been estimated to be 30-50% lake surface.^{10/} Alaska's 6,640 mile coastline (the length of the general outline of the seacoast) is larger than the combined coastline of all of the lower 48 states, and Alaska has 33,904 miles of shoreline (the coastal length of the outer coast, offshore islands, sounds, bays, rivers and craters).^{11/}

Alaska also has over 3,000 rivers and 5,000 glaciers^{12/}, more than half the world's glaciers.^{11/} The Malaspina Glacier, on the Gulf of Alaska, is larger than the State of Rhode Island.^{14/}

When mountain-tops and ridges project through the ice of large interconnecting valley glaciers, ice fields are created. Alaskan ice fields cover 28,800 square miles, accounting for 4.9% of the state's total area. The largest Alaskan ice field covers 500 square miles.^{15/}

^{13/} Blue Book at 228.

^{10/} State Health Plan at 2-3.

^{11/} Statistical Abstract at 200.

^{12/} Blue Book at 228.

^{13/} State of Alaska, Division of Tourism, Alaska and Canada's Yukon (1985) at 13.

^{14/} Blue Book at 228.

^{15/} Introduction to Alaska at 18.

Alaska contains 14 national parks and national preserves,^{26/} including the largest national park in the United States, Wrangell-St. Elias national park, four times the size of Yellowstone,^{27/} and the second largest, the Arctic National Park, north of the Arctic Circle in the Brooks Range.^{28/} Tongass National Forest in Southeast Alaska is the largest national forest, and Chugach National Forest, southeast of Anchorage, is the second largest.^{29/}

Alaska contains more than 10% of the world's identified volcanos.^{30/} Most are located in the Aleutian Island Arc.^{31/} Many are still active. For example, Pavlof Volcano erupted in 1980 and again in 1981. Saint Augustine Volcano erupted in April 1986, limiting operations at the Anchorage airport for several days because of flying cinders.^{32/} Alaska is also prone to earthquakes and tidal waves. For example, the strongest earthquake ever recorded in North America (8.4 to 8.6 on the Richter Scale) shook

^{26/} Blue Book at 207-208.

^{27/} Introduction To Alaska at 12.

^{28/} Id. at 13.

^{29/} Blue Book at 228.

^{30/} Introduction to Alaska at 14.

^{31/} Id.

^{32/} Memorandum from Laurence W. Michou, Assistant Director, Administration, to Guy A. Russo, Director, Anchorage International Airport (April 14, 1986) at 1-2.

Alaska in March 1964, moving further vertically and horizontally than any earthquake in history.^{11/}

The Arctic Ocean lies north of Alaska, and remains icebound for most of the year. The ground of the Arctic coast is permanently frozen, while the ocean's ice cover can reach thicknesses of up to 14 feet.^{14/} The Chukchi Sea, off the western coast of Alaska, is one of the principal arms of the Arctic Ocean. Just north of Chukchi the greatest depth of the Arctic Ocean was measured, 17,850 feet.^{15/}

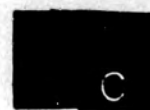
The Statehood Act of 1959 granted or confirmed conveyance of approximately 105 million acres (28%) of Alaska to the State of Alaska; the Alaska Native Claims Settlement Act of 1971 granted an additional 44 million acres (11.7%) to Alaska Native corporations. The rest of the state (60%) remains in federal ownership with the exception of approximately one million privately owned acres (0.3%).^{16/}

^{11/} Introduction To Alaska at 17.

^{14/} Columbia Encyclopedia at 138.

^{15/} Id.

^{16/} State of Alaska, Department of Commerce and Economic Development, Alaska (1985) at 24.



SECTION C

CLIMATE

Alaska's climate varies dramatically. Much of the climate is extreme and this fact, too, is of significance because "severe weather conditions [force reliance] on telecommunications to an extraordinary extent."^{1/} In the northern latitude, mountain ranges, the jet stream and over 33,000 miles of shoreline combine to create and change climatic conditions in the State's five climate zones: Maritime, Maritime-Continental, Transition, Continental and Arctic.^{2/}



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- ^{1/} Testimony of Lisa Rudd, Former Commissioner of the Alaska Department of Administration, United States Senate Committee on Commerce, Science and Transportation and House of Representatives Committee on Energy and Commerce, Joint Hearings, Universal Telephone Service Preservation Act of 1983 (1983) at 16.
- ^{2/} United States Department of Commerce, National Oceanic and Atmospheric Administration, Climatography of the United States No. 60, Climate of Alaska (1978) at 14-15 ("Climate of Alaska"). The "Climate Zones" map is from Editors of Alaska Magazine, Alaska Geographic, Alaska Journal, Alaska Almanac and the Milepost, Introduction to Alaska (1982) at 20 ("Introduction to Alaska"). It does not delineate the Maritime - Continental Zone, described at page 3, infra.

The Maritime Zone includes southeastern Alaska (the Panhandle), the southern coast and the Aleutian Islands.^{1/} Compared to the rest of the state, the Maritime Zone is marked by high precipitation and relatively mild temperatures, from near 60°F to about 20°F.^{4/}

Annual precipitation in the Southeast (rain and snow) ranges up to 200 inches.^{5/} (See Attachment C-1 for Mean Annual Snowfall for this and other areas in the state.) Juneau, located in the Southeast and in the Maritime Zone, has an average high temperature in January of 29°F, and an average low temperature of 18°F, although the record low is -22°F.^{6/} The average daily July temperature in Juneau ranges from 48°F to 64°F.^{1/} The longest day in Juneau is 18:18 hours, the shortest is 6:22 hours.^{3/} (See Attachment C-2 for Sunrise/Sunset hours for Juneau and four other Alaska communities.)

The Maritime Zone includes the Aleutians Islands, known as "Cradle of the Storms." The Islands are the windiest area in Alaska. The normal storm track along the Aleutian chain, the

^{1/} Climate of Alaska at 14-15.

^{4/} Id. at 16.

^{5/} Id. at 15. See also Alaska Department of Education, Division of State Libraries, Alaska Blue Book 1985 (1985) at 231-232 ("Blue Book").

^{6/} Climate of Alaska at 29. All temperatures have been rounded to the nearest whole number.

^{1/} Id.

^{3/} Blue Book at 233.

Alaska Peninsula, and all the coastal area of the Gulf of Alaska exposes these parts of the state to 50 mph winds during all but the summer months.^{9/} Wind velocities of 100 mph are not common but also occur, usually associated with mountainous terrain and narrow passes.^{10/} Shemya, on the western end of the Aleutians, has endured winds estimated at 139 mph.^{11/} Whole days of sunshine are rare on the islands. Cloudy days average 90% during summer and 50% during winter.^{12/}

The Maritime-Continental Zone includes the Western portions of Bristol Bay and west-central areas.^{13/} Storms developing in or moving into the Bering Sea, and then moving north or northeast, create strong winds along the western coastal area. These winds when blowing onshore cause flooding on the low flat ground along the coast.^{14/} In this zone, summer temperatures, which reach 60°F, are moderated by the open waters of the Bering Sea. Winter temperatures, a minimum of -10°F, are more continental in nature, due to the presence of sea ice during the coldest months of the year.^{15/}

^{9/} Climate of Alaska at 16.

^{10/} Id.

^{11/} Blue Book at 231.

^{12/} 11th Weather Squadron, Elmendorf AFB, Alaska, A Climatological Guide to Alaskan Weather (1978) at 10 ("Climatological Guide").

^{13/} Climate of Alaska at 15.

^{14/} Id. at 16-17.

^{15/} Id. at 15, 16.

The Transition Zone runs between the Maritime and Continental Zones in a thin band along most of the coast. Its summers and winters are milder than the Continental Zone, from 60°F to near 0°F,^{16/} and the zone has less precipitation than the Maritime Zone.

Anchorage, which is in the Transition Zone, has an average high temperature in January of 20°F and an average low of 4°F, but the record low is -34°F.^{17/} Average daily temperatures in Anchorage in July range from 50°F to 66°F.^{18/} Annual rainfall in Anchorage is 15 inches,^{19/} while annual snowfall is 69.2 inches.^{20/} The longest day is 19:24 hours, the shortest is 5:26 hours.^{21/} See Attachment C-2.

Thompson Pass (elevation 2,771 feet), near Valdez in the Transition Zone, is credited with Alaska's snowfall extremes. Record measurements include: season (1952-53), 974.5 inches; month (February, 1953), 298 inches; 24-hour period (December, 1955), 62 inches.^{22/}

The Continental Zone covers the bulk of Alaska except the Coastal fringes and Arctic Slope. It has extreme high and low

^{16/} Id. at 16.

^{17/} Id. at 24.

^{18/} Id.

^{19/} Id.

^{20/} Climatological Guide at 6B.

^{21/} Blue Book at 233.

^{22/} Id. at 231.

temperatures and relatively light precipitation. The greatest seasonal temperature contrast is found in the central and eastern portion of the continental interior, where average summer maximum temperatures are in the upper 70's, with extreme readings in the 90's; Fort Yukon once reached 100°F.^{21/} In winter, temperatures reach -50°F and occasionally colder for two or three weeks at a time, while average winter minimums are -20°F to -30°F.^{24/}

Fairbanks, located near the center of the State in the Continental Zone, has warmer and colder weather than Anchorage to the south. The average high temperature in January is -2°F while the average low is -22°F.^{25/} The record low is -61°F.^{26/} A frequent and persistent winter problem is Fairbank's ice fog which occurs at 30° below zero and colder. All water vapor emitted into the atmosphere (from car exhausts, homes, and industrial plants) condenses into tiny ice crystals, forming a thick layer which blankets the city,^{27/} limiting air travel in and out of the city. The annual rainfall in Fairbanks is 11 inches^{28/} while annual snowfall

^{21/} Climate of Alaska at 16.

^{24/} Id.

^{25/} Id. at 28.

^{26/} Id.

^{27/} Introduction to Alaska at 21.

^{28/} Climate of Alaska at 28.

reaches 67.5 inches.^{13/} The longest day is 21:49 hours, the shortest is 3:42 hours.^{10/} See Attachment C-2.

Prospect Creek Camp, just south of the Brooks Range in the Continental Zone, holds the record for Alaska's coldest official reading: 80° below zero, on January 23, 1971, which, at least through 1977, is the lowest temperature ever recorded in the U.S.^{11/} Eighty degrees below zero is about 42° below the point at which a true mercury thermometer freezes, so that alcohol must be used in thermometers.

The Arctic Zone lies north of the Brooks Range. Cold winters, cool summers, temperatures from about 40°F to -20°F,^{12/} and desertlike precipitation mark this zone. Winter storms moving east across the Southern Arctic Ocean cause winds of 50 mph or higher along the Arctic coast.^{11/} The Arctic ice pack usually comes to shore in early October and retreats from mid-July to late August. Barrow, the northernmost city in Alaska, lies in the Arctic Zone. The average high temperature in Barrow in January is -8°F and the average low is -21°F.^{14/} The record low is -56°F.^{15/}

^{13/} Climatological Guide at 6B.

^{10/} Blue Book at 233.

^{11/} Id. at 231.

^{12/} Climate of Alaska at 16.

^{13/} Id. at 17.

^{14/} Id. at 25.

^{15/} Id.

covering nearly a third of the state.^{41/} Local differences in typography, rock structure and drainage result in sharp local differences in the character and distribution of permafrost. In all cases, however, the presence of permafrost presents difficult challenges in construction and maintenance.

Winter temperatures play an important role in the flow of most of Alaska's rivers. Usually beginning in late October and into May (and sometimes June in the north), thick layers of ice form.^{42/} Some rivers cease to flow completely.^{43/} During these periods, in some areas, construction and other work is done because heavy equipment can be used.^{44/}

Various climatic normals, means and extremes for 18 Alaska communities are set forth in Attachment C-4.

^{41/} Id.

^{42/} Id. at 16.

^{43/} Id.

^{44/} Id.

D

SECTION D

TRANSPORTATION

Like geography and climate, the lack of transportation opportunities in the State is of particular relevance because it forces dependence on telecommunications services.

Due to the lack of adequate road infrastructure . . . [Alaskans] must rely on telecommunications to an extraordinary extent. We must carefully coordinate the delivery of supplies and resources and use telecommunications more extensively than travel to communicate with each other.^{1/}

The majority of Alaskan communities are isolated from each other by very considerable geographic distances. See Attachment D-1, "Straight Line Distance Between Alaska Points." That chart indicates, for example, a straight line distance of 2,136 miles between Wrangell and Shemya, 1,696 miles between Juneau and Adak, 768 miles between Ketchikan and Anchorage and 966 miles between Unalaska and Fairbanks.

Most communities are not connected by roads. Juneau, the state capital, can not be accessed by road, only by air or water. Indeed, in the state there are about 8700 miles of highways,^{2/}

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- ^{1/} Testimony of Lisa Rudd, Former Commissioner of the Alaska Department of Administration, United States Senate Committee on Commerce, Science and Transportation and House of Representatives Committee on Energy and Commerce, Joint Hearings, Universal Telephone Service Preservation Act of 1983 (1983) at 16.
- ^{2/} United States Department of Commerce, Bureau of the Census, Statistical Abstract of the United States 1986 (1985) at 593 ("Statistical Abstract").

only 2,517 of which are paved.^{1/} Alaska, despite its huge size, has fewer miles of roads than any other state, except Delaware, Hawaii and Rhode Island.^{1/} A comparison of highway mileage of the three states following Alaska in land area shows:^{2/}

	(1,000) Urban	(1,000) Rural	Square Miles	Miles of Road/ Square Mile
Alaska	1.3	7.4	591,004	0.01
Texas	62.9	212.9	266,807	1.0
California	63.7	110.3	158,706	1.1
Montana	2.3	69.2	147,046	0.5

Los Angeles County, alone, has 15,827 miles of paved roads,^{3/} more than six times the mileage of all paved roads in Alaska.

Attachment D-3 is a map of the Alaska Highway System. Highways connect the Canadian Border (the Alaska Highway), Anchorage, Fairbanks, and Prudhoe Bay. The vast majority of the State, however, including the entire western half, is not served by this network or, as the map illustrates, by any highways. Many roads, moreover, are in poor condition. More than 60% of the paved rural roads in the state, for example, were judged by a 1983 State study to be in fair to very poor condition.^{4/}

Travel by motor vehicle on existing roads is difficult and

^{1/} State of Alaska, Department of Education, Division of State Libraries, Alaska Blue Book 1985 (1985) at 218 ("Blue Book").

^{1/} Statistical Abstract at 593.

^{2/} Id. at 593 and 194. See Attachment D-2.

^{3/} State of California, Division of Highway Program Development, Assembly of Statistical Reports (1984) at Table 3-18.

^{4/} State of Alaska, Department of Transportation and Public Facilities, Alaska Highway System Plan Executive Summary (1983) at 4 ("Highway Summary").

time consuming. See Attachment D-4, Driving Time Between Common Destinations. For example, Anchorage to Haines covers 775 miles and takes 17 hours, and Skagway to Fairbanks covers 710 miles and takes 17 hours.

Public ground transit in Alaska is minimal. In 1975 there was one publicly-owned general service bus system in the State and three general service bus systems which were privately held.^{1/} From 1975-1982 the combined general bus fleet grew from about 20 buses to about 110 buses.^{2/}

There is one operating railroad in the State, the Alaska Railroad ("ARR"):^{10/}

Until recently, the Alaska Railroad was owned and operated by the Federal Railroad Administration, U.S. Department of Transportation. It is now owned and operated by the Alaska Railroad Corporation, a public corporation of the State of Alaska. The Alaska Railroad operates freight and passenger service on 480.7 miles of mainline track extending from the deep-water ports of Seward and Whittier through Anchorage to Fairbanks. Additional active branch lines serve the Eielson Air Force Base, Anchorage and Fairbanks International Airports, and Palmer. An inactive branchline extends to the Suntrana coal fields.

There was a second railroad in the State, the White Pass and Yukon Railroad, which provided freight and passenger rail service from

^{1/} State of Alaska, Department of Transportation and Public Facilities, State Transportation Policy Plan (1982) at 6-50 ("Transportation Plan").

^{2/} Id. at 6-51.

^{10/} State of Alaska, Alaska Department of Transportation and Public Facilities, Alaska State Rail Plan (1985) at 3-1.

Skagway into Canada, but it is no longer in service.^{11/} The routes of both railroads are depicted in Attachment D-5.

The ARR provides both freight and passenger service. Its freight service is essentially "a specialized transport service focusing on a small number of commodities moving between a limited set of origins and destinations."^{12/} Most of the State's natural resources, such as zinc, lead, copper, petroleum, and timber, are not served by the ARR.^{13/} In terms of tonnage shipped, sand and gravel dominate, but manufactured goods lead in revenue.^{14/}

The passenger service provided by the ARR is unusual in that it is directed toward serving tourists:^{15/}

For a four month period between mid-May and mid-September, the railroad operates a daily passenger train in each direction between Anchorage and Fairbanks that is heavily used by tourists and others visiting Alaska. During the winter, this service is suspended, and in its place a once or twice weekly local service is provided, especially to homesteaders located east of the Susitna River between Talkeetna and Hurrigan who do not have access to the Parks Highway.

Attachment D-6 lists ARR Passenger Volumes 1979-1985.

An important mode of transportation in the state is marine transport. Marine transport is provided by private operators and by the State. Marine transport supplies Alaska with most of its

^{11/} Id. at 3-2.

^{12/} Id. at 3-19.

^{13/} Id. at 5-1.

^{14/} Id. at 3-20.

^{15/} Id. at 3-27.

necessities and carries from Alaska most of its new and processed materials.^{16/} In Western and Northern Alaska, however, the main transport season is limited to the warmer months. See Attachment D-7, private Common Carrier Marine Services to Selected Alaska Ports.

The Alaska Marine Highway system (the State portion of the system) was established in 1960 when Alaskans voted the necessary bonding to establish a state waterborne highway system.^{17/} Ferryliners carry passengers, freight and vehicles, and are operated as a division of the Department of Transportation and Public Facilities.^{18/} Nine vessels provide service for the system.^{19/}

The Marine Highway System consists of two separate ferry routes. On the Southeast Alaska route, ferryliners connect Seattle, Washington, and Prince Rupert, B.C., with the Southeast Alaska towns of Ketchikan, Wrangell, Petersburg, Sitka, Juneau, Haines and Skagway.^{20/} Smaller southeast Alaska communities are served by feeder vessels.^{21/} During early spring and late fall there are two sailings per week from Seattle, while during summer

^{16/} Transportation Plan at 6-24.

^{17/} State of Alaska, Department of Transportation and Public Facilities, Division of Marine Highway Systems, Alaska Marine Highway (1983).

^{18/} Id.

^{19/} Id. See also Blue Book at 214.

^{20/} State of Alaska, Division of Tourism, Alaska and Canada's Yukon (1985) at 27.

^{21/} Id.

and winter there is weekly service from Seattle.^{22/}

Marine travel is time-consuming and costly. For example, the trip from Seattle to Ketchikan covers 740 nautical miles, takes 40 hours, and, with car transport, costs at least \$546; the trip from Ketchikan to Juneau covers 250 nautical miles, takes 18 hours and, with car transport, costs at least \$209.^{23/} See Attachments D-7, D-8, and D-9 for other schedules, tariffs, travel times and distances on the Alaska Marine Highway System.

On the Southcentral Alaska route, one ferryliner travels to Kodiak, Port Lions, Homer, Seldovia and Seward year-round, except for January and February.^{24/} Another operates between Valdez and Cordova throughout the winter. Beginning in the late May, the line extends its Valdez-Cordova route to include Whittier every day except Tuesday and Thursday.^{25/}

Southwest service includes four runs during the summer months between Kodiak and Dutch Harbor on the Aleutian Chain.^{26/}

Air transportation is, by necessity, a primary means of travel on a statewide basis. The state's airport system ranges from international airports to unimproved dirt landing strips and locations which are recognized as seaplane landing places. In terms of numbers, Alaska has about 14 times as many aircraft per

^{22/} Id.

^{23/} Id.

^{24/} Id.

^{25/} Id.

^{26/} Id.

capita than any other state.^{27/}

Air travel is always dependent upon the limitations of weather and large areas of the state are without a weather reporting system. Inadequate weather information, lack of navigational aids, and inadequate airport facilities all contribute to a low safety record of aviation in Alaska.^{28/} The National Transportation Safety Board in a report prepared in 1980 revealed that the non-fatal air taxi accident rate in Alaska is more than double the rate in the rest of the United States.^{29/}

Attachment D-10 identifies Regularly Scheduled Daily Airline Flights Between Selected Alaskan Communities.^{30/} This attachment demonstrates that there are no direct flights even between many of the state's regional centers. To travel from Barrow, in the north, for example, to Nome, in the west, one must fly south to Anchorage. There also is no regularly scheduled daily service, for example, between Kotzebue and Bethel, although both are located in Western Alaska, or between Valdez and Barrow, Bethel, Ketchikan, Kotzebue or Nome.

Attachment D-11 shows the high cost of travel by air.^{31/} For

^{27/} Blue Book at 225.

^{28/} Statewide Health Coordinating Council, State Health Plan for Alaska (1984) at 2-7.

^{29/} Id.

^{30/} Official Airline Guide, North American edition (Dunn and Bradstreet, June 15, 1986).

^{31/} Telephone Conversation with Travel Resources, Inc., Washington, D.C., July 3, 1986.

example, to fly from Nome or Kotzebue to the state capital, Juneau, costs over \$330. To fly from Anchorage roundtrip to most of the state's regional centers costs over \$200, and from some regional centers, over \$400. By way of comparison, it is common to fly from east coast to west coast in the continental U.S. for under \$200.

Communities not served by the highway or railroad network must rely on marine and air transportation for personal transportation and to receive or send out goods. For many communities, however, marine transport is not available in the winter months when waterways freeze. Air transport may be the only possibility for these communities, and even air transport may not be available for several days at a time due to inclement weather.^{12/}

^{12/} Telephone conversation with David Hawes, State of Alaska, Department of Transportation and Public Facilities, July 10, 1986.

' E

SECTION E
EDUCATION IN ALASKA

The State of Alaska's educational policy is designed to further two goals: (1) to provide a quality education to Alaska's children in their home communities, and (2) to ensure equality of educational opportunity throughout the State. Progress toward these goals is hindered and made expensive by Alaska's widely dispersed population, harsh climate, and rugged terrain.^{1/} To overcome these and other obstacles, the State has invested in public education in rural areas and has relied heavily on telecommunications as a cost-effective solution to educational problems. As the Dean of the University of Alaska's Rural Education program has stated:^{2/}

In times of constricting budgets and growing demands for education, telecommunications is possibly the only route for meeting the full range of educational needs of rural Alaskans. . . . But educational opportunity in Alaska will be imperiled if the telecommunications connections are not accessible.

^{1/} See University of Alaska, Institute of Social and Economic Research, Alaska Review of Social and Economic Conditions (December 1985) ("Review of Social and Economic Conditions"); State of Alaska, Department of Education, Distance Education (1984). See Sections A, B and C of the State's Response, *infra*, for data as to Alaska's population, geography and climate.

^{2/} State of Alaska House of Representatives, Special Committee on Telecommunications, Hearings, January 13-14, 1986, Presentation of Margery Walker, Dean, Rural Education, University of Alaska. Information about the role of telecommunications in Alaskan public education is set forth in Section I of the State's response.

I. PRIMARY AND SECONDARY EDUCATION

Until the mid-1970's, public primary and secondary education in Alaska was characterized by a high degree of centralization and a lack of local schools in rural areas. Educational policy and programs were under the direction of the State Department of Education and the State Board of Education. As of 1970, the State itself operated 85 schools in rural Alaska. The Bureau of Indian Affairs of the United States Department of the Interior also operated a number of schools for native Alaskans.^{1/} Secondary education was unavailable in many communities; as of 1970, 28% of native high school-age children lived in communities which did not have high schools.

To attend high school, these (and other) students enrolled in boarding schools, or lived with friends or relatives in other communities, necessitating long periods of separation from their families.^{4/} A 1973 study identified numerous problems with secondary education away from home. For example, of the boarding school students included in the study, half experienced school-related social and emotional problems, more than half dropped out by the end of two years, and the group as a whole showed small gains in reading and language achievement.^{5/}

^{1/} United States Department of the Interior, ANCSA 1985 Study (Draft 1984) at IV-21 ("ANCSA Study").

^{4/} Id.

^{5/} Review of Social and Economic Conditions at 3.

In 1975, in response to the need perceived by residents of rural Alaska for local control over public education and in recognition of the educational benefits of local control, the State school system was decentralized. Control over schools was transferred to 21 regional school districts called Rural Educational Attendance Areas (REAA's), each with a policy board elected by residents of the region.^{5/} Concurrently the Federal Government adopted a policy to withdraw from a direct role in education in Alaska. Over the period from 1975 to 1985, the schools previously operated by the Bureau of Indian Affairs were transferred to local control, the last schools being transferred in 1985.^{1/}

In 1976, in settlement of a lawsuit brought by a group of rural communities which challenged the lack of local secondary schools, the State agreed to provide a secondary education program in every community that wanted one, no matter how few high school students lived in the community. This agreement has been incorporated into State law.^{2/} By 1984, the State had spent nearly

^{5/} University of Alaska, Center for Cross-Cultural Studies, *Patterns of Control in Rural Alaska Education* (July 1984) at 1-3; *ANCSA Study* at IV-21.

^{1/} State of Alaska, Department of Education, *Education in Alaska* (1985) at 1 ("Education in Alaska"); Memorandum to State Board of Education from Marshall Lind, Commissioner, State of Alaska, Department of Education (1986).

^{2/} See 4 Alaska Admin. Code 05.030 ("Every child of school age has the right to a public education in the local community in which he resides.")

\$143 million constructing nearly 100 schools in rural villages to make local secondary education universally available.^{9/}

The 21 REAA's are directly responsible for education in large rural areas of the State. In addition, 32 incorporated cities have their own local school system.^{10/} Public school enrollment grew from 84,000 pupils in the 1973-74 school year to 102,000 pupils in the 1984-85 school year. Attachment E-1 supplies school enrollment data for this period, with detailed data for the 1984-85 school year. 86% of students attend schools operated by city school districts; the remainder attend REAA district schools.^{11/}

The State's efforts to provide local secondary education in all Alaskan communities are directly responsible, according to one study, for significantly improving the educational attainment of Alaskans (measured by high school graduation data).^{12/} In 1980, for example, 66.5% of all Americans ages 25 years or older were high school graduates. The figure for Alaskans was 82.5%.^{13/}

^{9/} Review of Social and Economic Conditions at 4; ANCSA Study at IV-21.

^{10/} State of Alaska, Department of Education, Division of State Libraries, Alaska Blue Book 1985 (1985) at 151 ("Blue Book").

^{11/} Education in Alaska at 9.

^{12/} Review of Social and Economic Conditions at 7. "The most dramatic educational benefit of small local high schools is the increase in the number of rural students who graduate. . . . The gap in graduation rates for Natives and non-Natives is closing, and the small high schools are responsible." Id.

^{13/} United States Department of Commerce, Bureau of the Census, Statistical Abstract of the United States 1986 (1985) at 134 ("Statistical Abstract").

The overall increase in educational attainment masks differences in attainment among various population groups in Alaska. Residents of rural areas of the State have had less education than residents of urban areas. Attachment E-2 provides data on educational attainment. It shows the percentages of various groups which have completed education through high school as of 1980 (compared to the State average of 82.5%) as:^{14/}

Rural

Native male	40.7
Native female	37.3
Non-native male	85.8
Non-native female	86.8

Urban

Native male	60.7
Native female	61.6
Non-native male	88.9
Non-native female	88.5

Education in Alaska must cope with the fact that many distinct native languages exist.^{15/} In 1973 legislation was enacted requiring a school to provide a bilingual/bicultural educational program if the primary language of eight or more students attending the school is other than English.^{16/} During the 1984-85 school year, 32 school districts provided almost 10% of all public school students with bilingual/bicultural programs

^{14/} ANCSA Study at E-24.

^{15/} See Section I at 9-11.

^{16/} Alaska Statutes § 14.30.400.

in more than 100 languages.^{17/} 47 school districts provided community education programs, and 23 school districts offered special programs for migrant students, with special emphasis on improving basic skills.^{18/} Special educational programs served more than 11,000 handicapped children.^{19/}

While creation of high school programs in many smaller communities has eliminated much of the need to educate students outside their home communities, a few small communities still lack a local secondary education program. As a result, during the 1984-85 school year, the State paid boarding care costs for 130 students from communities without local high schools. The State also provided daily transportation for 47,000 students, almost half of the public school population.^{20/} In 1985, the State opened a State-operated boarding school in Sitka as an alternative secondary school.^{21/}

Providing education to children in their own communities, while perceived as a desirable objective, is not without problems, many of which result from the very small size of many local schools. Almost 60% of rural Alaska students attend a high school

^{17/} Education in Alaska at 1.

^{18/} Id.

^{19/} Id.

^{20/} Education in Alaska at 3.

^{21/} State of Alaska, Office of Management and Budget, Executive Budget, Fiscal Year 1987 (January 1986) at 58 ("Executive Budget").

of 40 students or less; almost 25% are in schools of 20 students or less.^{22/} Small enrollments affect the quality and breadth of educational opportunity. Small schools cannot support a sufficient teaching staff to provide a varied curriculum. Recruiting and retaining qualified teachers is difficult. Teachers must often instruct outside their area of specialization.^{23/} Support facilities found in many communities in the lower 48 states, such as libraries, laboratories and cultural facilities, often do not exist. The State has invested in telecommunications technologies such as satellite-delivered programming and teleconferencing to respond to these problems. Such technologies are costly. See Section I, infra.

These problems affect the performance of rural students. While high school graduation rates are up, one recent study found that "Most rural high school students score far below the national average on standardized tests" and that "Most rural students who enroll in college do not graduate."^{24/} These facts indicate that Alaska still faces major challenges in meeting public education needs.

The costs of public education are high. The small size of many Alaskan communities requires facilities too small to achieve

^{22/} Review of Social and Economic Conditions at 4.

^{23/} State of Alaska, Department of Education, Distance Education (1984).

^{24/} Review of Social and Economic Conditions at 12-13.

even minimal cost efficiencies.^{25/} The extreme variations in climatic conditions in Alaska make it expensive to develop cost-efficient standard designs and programs.^{26/} The rapid growth in the school-age population (see Attachment E-1) has required substantial capital spending above and beyond the State's secondary school construction program, discussed above.^{27/}

Due to these and other factors, Alaska's per capita expenditure for public elementary and secondary education is the highest of the 50 states. For the 1984-1985 school year, Alaska spent \$6,867 per student, more than double the U.S. average of \$3,429.^{28/} That year, Alaska spent more than \$16,000 on each high school student.^{29/} Because of Alaska's relatively large school-age population, there are relatively fewer adults to pay the costs. See Section A, infra. As a result, for the 1984-85 school year, the State spent \$1,380 per resident on primary and secondary education. The U.S. average was \$585.^{30/}

^{25/} Prepared Rebuttal Testimony of Oliver Scott Goldsmith, Federal Energy Regulatory Commission, Trans Alaska Pipeline System, Docket Nos. OR 78-1-014 and OR 78-1-016 (1983) at 20 ("Goldsmith").

^{26/} Id.

^{27/} Id. at 22.

^{28/} Statistical Abstract at 142.

^{29/} Review of Social and Economic Conditions at 4.

^{30/} Statistical Abstract at 142.

II. HIGHER EDUCATION

Enrollments (1974-1984) in Alaska colleges, universities and community colleges are set forth in Attachment E-1. As that attachment shows, the University of Alaska is overwhelmingly the source for most students of higher education in Alaska.

The University of Alaska was established by the Alaska Constitution as the single public university system for the State. It has three main campuses at Anchorage, Fairbanks and Juneau.^{11/} Its primary mission is to meet the post-secondary educational needs of the citizens of Alaska. In order to reach as many students as possible with live classes, the University of Alaska operates eleven community colleges, fourteen rural education centers, and a cooperative extension service with offices in 13 communities.

The University of Alaska offers a number of bachelors and masters degree programs, including professional degree programs in education, nursing and business. It does not, however, have a medical or law school. Persons who wish to pursue a medical career can enroll in a joint program sponsored by the University and the University of Washington School of Medicine in Seattle.

The University serves as a primary cultural and research institution in the State through such institutes as the Institute of Social and Economic Research, the Centers for Cross-Cultural

^{11/} Blue Book at 145.

Research, Alcohol and Addiction Studies, the Justice Center, and the Arctic Environmental and Data Information Center.^{12/}

The University has a special mission to make its educational programs accessible to rural Alaskans. To span the State's distances and meet Alaskans' needs for accessible, effective education, the State Legislature established the Learn Alaska Network. The University of Alaska and the State Department of Education jointly sponsor this network of television and audioconferencing systems for use by university units and public schools.^{11/} The University's Rural Education department provides post-secondary programs to rural areas of the State through the rural education centers, which offer college-level courses, and through a statewide correspondence studies program, which offers over 50 courses in 20 fields of study.^{14/} 4,400 students were enrolled in Rural Education during the 1984-85 academic year.^{15/} The University has, however, found that local instruction in Alaska is necessarily limited by dependence on locally available instructors or on costly and logistically difficult travel.^{16/} Rural Education has thus developed a program which expands its ability to educate students in remote communities by using audioconferencing to bring instructors and students together.^{17/}

^{12/} Executive Budget at 106.

^{13/} Id.

^{14/} Blue Book at 148.

^{15/} Hearings, Presentation of Margery Walker.

^{16/} Id.

^{17/} Id. Audioconferencing is discussed in Section I, infra.

11

SECTION F

PUBLIC SAFETY AND HEALTH

In a comprehensive 1984 report on Alaska's health system, the two state agencies responsible for coordinating state health services pointed out some special factors that affect public safety and health in Alaska:^{1/}

Alaska's extreme climatic and geographic characteristics have a significant impact on the health of the population and the organization of the health care system. The harsh climate and terrain contribute heavily to the incidence of accidental injuries and death. . . . The Arctic winter and darkness influence the behavioral health of the population.

Alaska is separated by a distance of two thousand miles from the lower states, upon which it often depends for certain medical services. Communities within the state are likewise isolated from each other, separated by tremendous distances, vast mountain ranges, stretches of tundra, glaciers, impassable river systems, and are unconnected by a comprehensive highway system. Certainly the provision of health services is a challenging task in the face of these conditions.

Accidents are the leading cause of death and disability in Alaska.^{2/} Alaska ranks first among the 50 states in deaths from accidents. The accident mortality rate for Alaska in 1980 was 2.2

^{1/} Alaska Statewide Health Coordinating Council and State of Alaska, Department of Health and Social Services, Division of Planning, Policy & Program Evaluation, State Health Plan for Alaska No. 5 (1984) at 2-2 ("State Health Plan").

^{2/} Interior Region Emergency Medical Services Council, Inc., Rural Health Communications Survey (1984) at 18 ("Health Communications Survey"); State Health Plan at 4-2.

times the U.S. rate.^{1/} While accidents accounted for 4.5% of all deaths in the United States in 1983, they accounted for 21.7% of all deaths in Alaska.^{4/} Motor vehicle accidents and water-related accidents were the two leading causes of accidental death. Over the 10-year period from 1971-1980, death rates in Alaska from water-related accidents were more than six times the national rate.^{5/}

Alaska's immense size, harsh climate and rugged terrain make responding to accidents extraordinarily difficult. Alaska in 1983 was "a land where injured people are forced to ride for hours and miles on sleds, boats, snowmachines and in small aircraft before they can obtain preliminary medical treatment. . . . Of Alaska's nearly 300 communities, 63 have no health clinic or doctor's office. Twelve Alaskan villages are more than 800 miles from the nearest hospital."^{6/}

The burden on the State to promote public safety is also increased by its relatively high rates of crime. As of 1984, Alaska ranked first among the 50 states in its rate of rapes (more than double the national average), third (behind Texas and

^{1/} State Health Plan at 4-2.

^{4/} State of Alaska, Department of Health and Social Services, Alaska Vital Statistics 1983 Annual Report (1985) at 24 ("Vital Statistics").

^{5/} State Health Plan at 4-2.

^{6/} Testimony of Lisa Rudd, Former Commissioner of the Department of Administration, Senate Committee on Commerce, Science and Transportation and House Committee on Energy and Commerce, Joint Hearings, Universal Telephone Service Preservation Act of 1983 (1983) at 136.

Florida) in its murder rate, and ninth in its overall crime rate.^{1/} Alaska was one of only nine states (ranking fifth in percentage increase) whose crime rate increased from 1983 to 1984. By comparison, the national rate decreased 2.8% that year.^{2/} In part as a result of high crime rates, Alaska ranks third among the 50 states (behind Nevada and Delaware) in its incarceration rate,^{3/} and first in per capita expenditures for police protection and corrections.^{10/}

Alaska also faces severe public health problems in such areas as drug abuse, alcoholism and suicide.^{11/} These problems are rooted in the state's unusual historic and demographic characteristics. An official of the University of Alaska's Center for Alcohol and Addiction Studies testified last year before Congress:^{12/}

Alaska is a developing entity, a place in transition, still struggling to develop its own sense of social identity. This unique situation is manifested in phenomena such as significant upheavals in the life of Alaska

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- ^{1/} United States Department of Commerce, Bureau of the Census, Statistical Abstract of the United States 1986 (1985) at 167 ("Statistical Abstract").
- ^{2/} United States Department of Justice, Crime in the United States (1985) at 44-50.
- ^{3/} Statistical Abstract at 940 (1983 data).
- ^{10/} Statistical Abstract at 176 (1983 data).
- ^{11/} See generally State Health Plan at 4-17 to 4-37.
- ^{12/} United States Senate, Committee on Labor and Human Resources, Scope and Impact of Narcotic Trafficking in Alaska (1985), Statement of Bernard Segal, at 108 ("Hearings").

Native people who are having to deal with the impacts of industrialization and modernization on their traditional cultures and economies, and a migration pattern within the state linked to a boom-bust economy that involves new immigrants not only having to adjust to living apart from established family roots, but also having to adapt to living in arctic and subarctic environments characterized by extended periods of daylight and darkness. These are but two of the many factors that contribute to place people in Alaska at high risk for both alcohol and drug abuse and adverse legal, social and health consequences.

Drug use is particularly high among Alaskans ages 18-25; a 1983 study found that this age group used marijuana, cocaine, hallucinogens, stimulants, and depressants at more than twice the national rate of drug use among 18-25 years olds.^{11/}

The relatively heavy consumption of alcohol in Alaska contributes to a wide range of health and social problems, including crime.^{14/} In 1983 Alaska ranked third among the states (behind Nevada and New Hampshire) in alcohol consumption per capita, and second (behind New Mexico) in the percent of total deaths related to alcohol.^{15/} In 1981, 55% of all crime in Alaska was determined to be alcohol-related.^{16/} Over the four-year

^{11/} University of Alaska, Center for Alcohol and Addiction Studies, Patterns of Drug Abuse: Community Survey (1983) at 84, 103.

^{14/} State Health Plan at 2-36.

^{15/} Blue Book at 228 (1983 data).

^{16/} State Health Plan at 4-20.

period 1979-82, 66% of all accidental fatalities in the State were directly related to alcohol (the national rate being 50%).^{17/}

Cigarette smoking, another adverse health factor, was as of 1980 13% higher per capita in Alaska than the national average.^{18/}

Suicide is also a serious public health problem in Alaska. The State's 1983 suicide rate was 18.0 per 100,000 people, compared to a national average rate of 12.4. While 4.6% of all deaths in Alaska that year were suicides, only 1.4% of U.S. deaths were suicides.^{19/} In 1983, the suicide rate among natives was 39.0 per 100,000 people, more than twice the state average rate of 18.0 and more than three times the national average rate of 12.4.^{20/} Reviewing these data, the Alaska Department of Health and Social Services has declared that "suicide is a grave public health problem."^{21/}

The infant mortality rate, considered a major indicator of public health, is high in Alaska: 12.2 deaths per 1,000 live births in 1983. While this rate is down from the 1970 rate of 23.4, it is still above the national rate of 10.9.^{22/} Alaska's

^{17/} Id. at 4-4.

^{18/} Id. at 2-37.

^{19/} Vital Statistics at 24, 98.

^{20/} Vital Statistics at 24. See also United States Department of the Interior, ANCSA 1985 Study (1984 Draft) at IV-5 ("ANCSA Study").

^{21/} Id. The ANCSA Study concluded, "Suicide rates provide one important indicator of social stress, and the data indicate that social stress remains high among Alaska Natives." ANCSA Study at IV-5.

^{22/} Vital Statistics at 11-12; State Health Plan at 3-8.

three northernmost census areas, North Slope, Kobuk and Nome, have had higher infant mortality rates than the rest of the State for each of the previous five years, and the infant mortality rate for native Alaskans (16.7 deaths per 1,000 births during the period 1981-1983) is substantially higher than the rate for Alaskans overall.^{21/} The Alaska Department of Health and Social Services concludes that although the gap between white and native infant mortality rates is narrowing, "delivery of health services to isolated rural areas is difficult and the infant mortality rate among Alaskan Natives continues to be undesireably high."^{24/}

Alaska's divorce rate, 7.8 per 1000 residents, is higher than all other states except Nevada.^{25/}

Medical facilities and services in Alaska include: (1) U.S. military health services, which provide health care for military personnel and their dependents; (2) private health services, including those provided by regional native corporations; (3) state and local health care programs; and (4) the Alaska Area Native Health Service (AANHS).^{26/}

Efforts to improve public health are hampered by the shortage of physicians: Alaska has 129 physicians for every 100,000

^{21/} Vital Statistics at 11-12.

^{24/} Vital Statistics at 12. The overall death rate also reflects a disparity between native Alaskans and other groups. In 1983, the death rate for natives was 561 per 100,000 population, while among all groups it was 381. *Id.* at 16.

^{25/} Statistical Abstract at 81 (1983 preliminary data).

^{26/} State Health Plan at 5-26.