



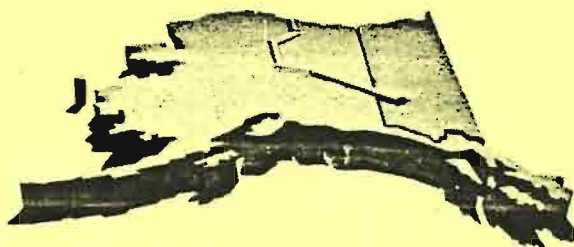
**Alaska Natural Gas Transportation System**

**Alaska Segment**

# **Gasline Planning Update**

**Number 2**

**April 1982**



Northwest Alaskan Pipeline Company  
Manpower & Impact Planning Department  
701 Douglas Avenue  
Fairbanks, Alaska 99701

### FOREWORD

The manpower statistics and other information which follow are intended to assist Alaska residents, businesses and government agencies in planning for construction of the gas pipeline project. This publication will be issued periodically to keep you informed of new project developments.

Alaska Natural Gas Transportation System  
Alaska Segment

GASLINE PLANNING UPDATE

Number 2  
April 1982

- I. MANPOWER STATISTICS & PROJECTIONS: On April 1, 1982, 151 people (exclusive of government personnel) were working on the gasline project in Alaska. This number is significantly lower than a year ago, reflecting the fact that field studies and other preconstruction planning have been substantially completed. Employment for construction of the pipeline, compressor stations and conditioning plant will peak in Alaska at 14,300 workers. Fairbanks area (Section 4) employment on the gasline project is expected to peak at 4,260 workers. 1
- II. MAJOR MILESTONE SCHEDULE: Pipeline camp construction is scheduled to begin in 1984; pipeline spread construction in 1985, and compressor and metering station construction in 1986. Project completion is scheduled for fall 1987. 13
- III. SOCIOECONOMIC PLANNING PROPOSAL: In February, Northwest Alaskan Pipeline Company transmitted to the State a proposal for preparing a series of ten plans which would cover major impact topics such as manpower, housing, health and safety, business opportunities, transportation and communications. 15
- IV. CONSTRUCTION CAMP PLANNING: Pipeline construction will require 17 construction camps with a total capacity of nearly 15,000 beds. In addition, there will be seven compressor station camps with peak occupancy ranging from 250 to 300 persons. 19
- V. LOGISTICS PLANNING: An estimated 1.8 million tons of material will move with and within Alaska during construction of the gasline. Thirty-four percent of the commodity movements will be mainline pipe, 35 percent petroleum products and 31 percent other materials. 31

VI. HOUSING SURVEY OF PROJECT PERSONNEL RELOCATED TO FAIRBANKS: 35

In February 1982, Northwest Alaskan surveyed 49 project personnel, who had been relocated to Fairbanks from the Lower 48 or elsewhere in Alaska to determine the type of housing they had acquired. Two-thirds purchased homes or condominiums, and one-third rented housing.

VII. CURRENT FAIRBANKS HOUSING TRENDS: In January 1982, 37

144 single-family homes, condominiums and duplexes were for sale in Fairbanks at a median asking price of \$107,000. A survey of 20 major rental complexes in January 1982 found 15 vacant units for a vacancy rate of 1.3 percent.

APPENDICES

MAPS

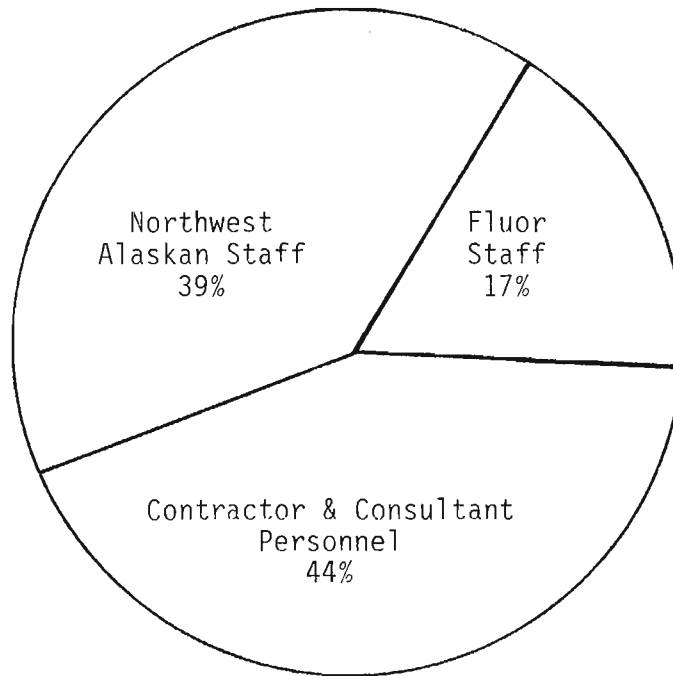
## I. MANPOWER STATISTICS & PROJECTIONS

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Alaska Natural Gas Transportation System

ALASKA MANPOWER BY EMPLOYER

April 1, 1982



<u>Employer</u>	<u>Number</u>	<u>Percent</u>
Northwest Alaskan	58	39%
Fluor	26	17%
Contractors & Consultants	67	44%
<u>Total Manpower</u>	<u>151</u>	<u>100%</u>

Source: Northwest Alaskan Pipeline Company.

## Alaska Natural Gas Transportation System

ALASKA MANPOWER BY PLACE OF HIRE

April 1, 1982

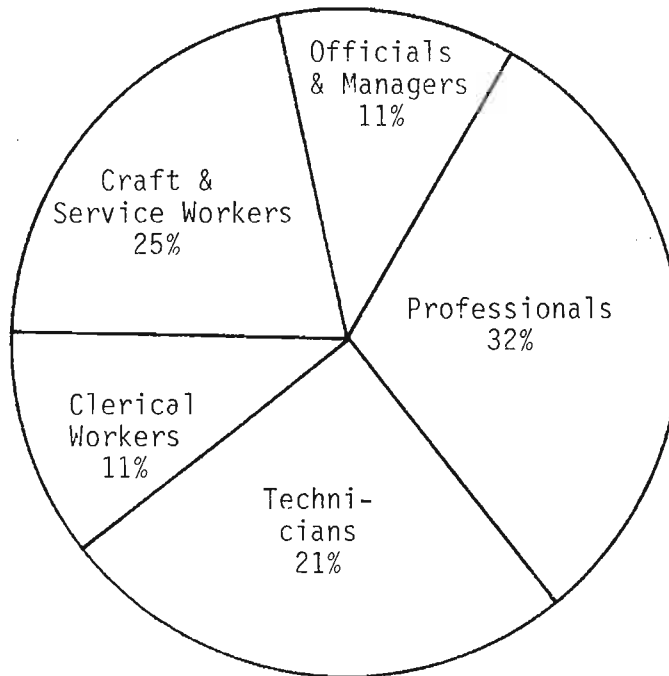
	---Alaska Hires---		--Lower 48 Hires--		
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	<u>Total</u>
<u>Northwest Alaskan</u>					
Officials & Managers	3	27%	8	73%	11
Professionals	11	61%	7	39%	18
Technicians	15	83%	3	17%	18
Clerical Workers	11	100%	-	-	11
<u>Sub-Total</u>	<u>40</u>	<u>69%</u>	<u>18</u>	<u>31%</u>	<u>58</u>
<u>Fluor</u>					
Officials & Managers	1	25%	3	75%	4
Professionals	4	36%	7	64%	11
Technicians	7	100%	-	-	7
Clerical Workers	4	100%	-	-	4
<u>Sub-Total</u>	<u>16</u>	<u>62%</u>	<u>10</u>	<u>38%</u>	<u>26</u>
<u>Contract Personnel</u>					
Officials & Managers	2	100%	-	-	2
Professionals	12	63%	7	37%	19
Technicians	6	100%	-	-	6
Clerical Workers	1	50%	1	50%	2
Craft & Service Workers	38	100%	-	-	38
<u>Sub-Total</u>	<u>59</u>	<u>88%</u>	<u>8</u>	<u>12%</u>	<u>67</u>
<u>Total</u>					
Officials & Managers	6	35%	11	65%	17
Professionals	27	56%	21	44%	48
Technicians	28	90%	3	10%	31
Clerical Workers	16	94%	1	6%	17
Craft & Service Workers	38	100%	-	-	38
<u>TOTAL</u>	<u>115</u>	<u>76%</u>	<u>36</u>	<u>24%</u>	<u>151</u>

Source: Northwest Alaskan Pipeline Company.

Alaska Natural Gas Transportation System

ALASKA MANPOWER BY JOB CLASSIFICATION

April 1, 1982



<u>Job Classification</u>	<u>Number</u>	<u>Percent</u>
Officials & Managers	17	11.3%
Professionals	48	31.8%
Technicians	31	20.5%
Clerical Workers	17	11.3%
Craft & Service Workers	38	25.1%
<u>Total</u>	<u>151</u>	<u>100.0%</u>

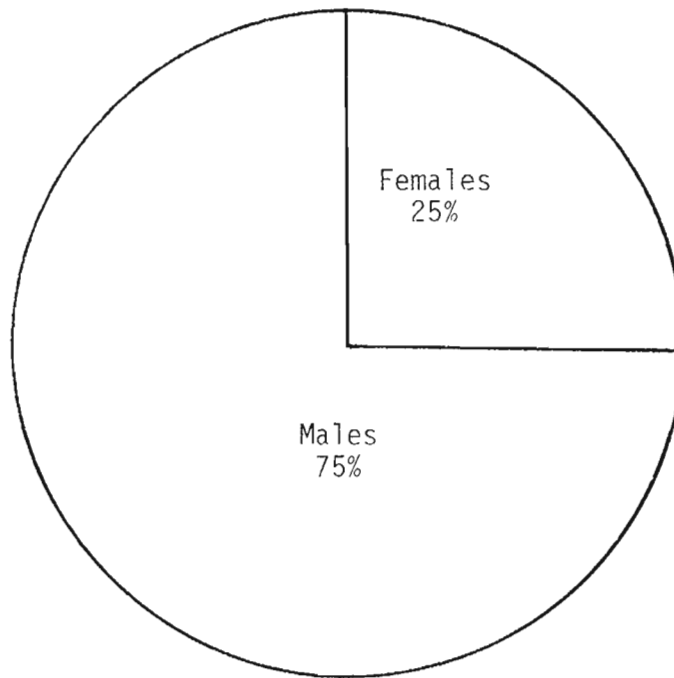
Source: Northwest Alaskan Pipeline Company.



## Alaska Natural Gas Transportation System

ALASKA MANPOWER BY SEX

April 1, 1982

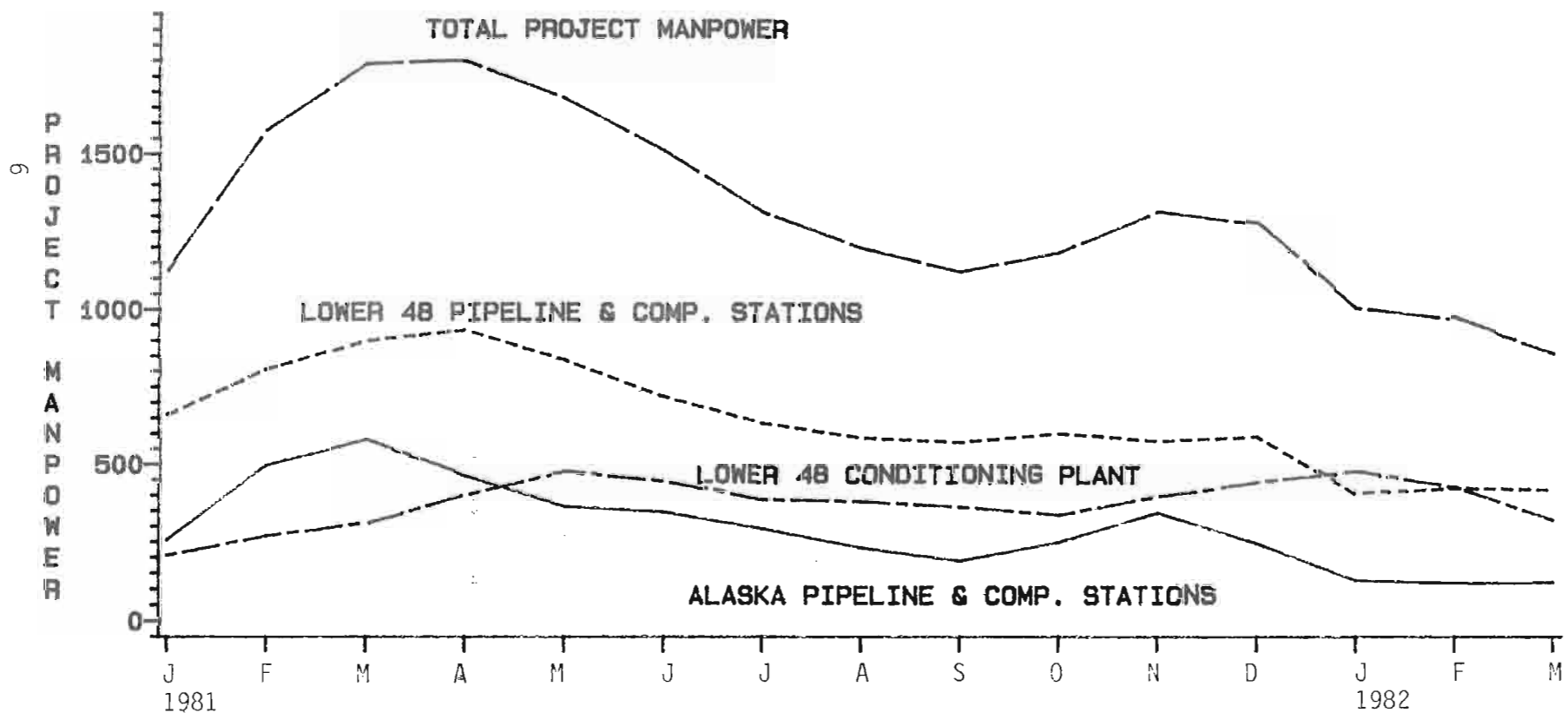


<u>Job Classification</u>	<u>-----Males-----</u>		<u>-----Females-----</u>		<u>Total</u>
	<u>Number</u>	<u>Percent</u>	<u>Number</u>	<u>Percent</u>	
Officials & Managers	16	94.1%	1	5.9%	17
Professionals	39	81.3%	9	18.7%	48
Technicians	22	71.0%	9	29.0%	31
Clerical Workers	-	-	17	100.0%	17
Craft & Service Workers	36	94.7%	2	5.3%	38
<u>TOTAL</u>	<u>113</u>	<u>74.8%</u>	<u>38</u>	<u>25.2%</u>	<u>151</u>

Source: Northwest Alaskan Pipeline Company.

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ALASKA NATURAL GAS TRANSPORTATION SYSTEM  
ALASKA SEGMENT

ACTUAL PROJECT MANPOWER  
1981 & 1982, BY MONTH



SOURCE: NORTHWEST ALASKAN PIPELINE COMPANY.

Alaska Natural Gas Transportation System  
Alaska Segment

ACTUAL PROJECT MANPOWER

1981 & 1982, By Month

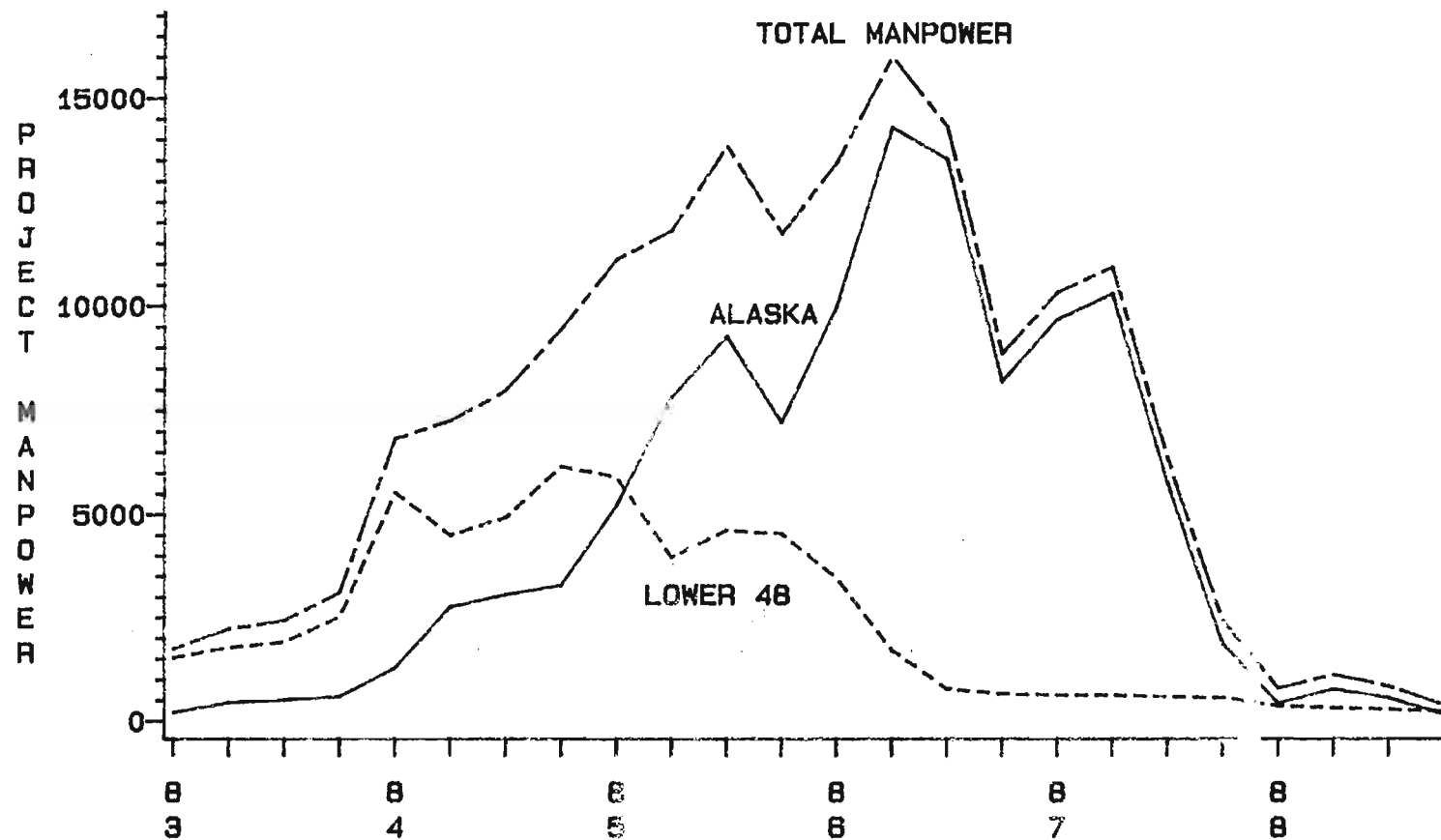
		-----Pipeline & Compressor Stations-----			Conditioning Plant	Total
		<u>Alaska</u>	<u>Lower 48</u>	<u>Sub-Total</u>	<u>Lower 48</u>	<u>Project</u>
1981	January	257	663	920	207	1,127
	February	498	809	1,307	268	1,575
	March	579	899	1,478	311	1,789
	April	464	935	1,399	401	1,800
	May	365	839	1,204	477	1,681
	June	346	720	1,066	446	1,512
	July	293	635	928	386	1,314
	August	231	587	818	381	1,199
	September	188	573	761	362	1,123
	October	248	600	848	337	1,185
	November	344	575	919	397	1,316
	December	244	591	835	440	1,275
1982	January	127	404	531	475	1,006
	February	119	424	543	428	971
	March	121	419	540	320	860

Source: Northwest Alaskan Pipeline Company

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ALASKA NATURAL GAS TRANSPORTATION SYSTEM  
ALASKA SEGMENT

# ESTIMATED PROJECT MANPOWER REQUIREMENTS

BY LOCATION OF EMPLOYMENT  
1983-1988, BY QUARTER



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Alaska Natural Gas Transportation System  
Alaska Segment

ESTIMATED PROJECT MANPOWER REQUIREMENTS

1983 - 1988, By Quarter

Year/Quarter		-Pipeline & Comp. Stations-			----Conditioning Plant----			-----Total Project-----		
		Alaska	Lower 48	SubTotal	Alaska	Lower 48	Sub-Total	Alaska	Lower-48	Total
1983	1st	190	720	910	20	820	840	210	1,540	1,750
	2nd	280	890	1,170	170	900	1,070	450	1,790	2,240
	3rd	280	920	1,200	240	1,000	1,240	520	1,920	2,440
	4th	260	950	1,210	340	1,560	1,900	600	2,510	3,110
1984	1st	900	890	1,790	390	4,650	5,040	1,290	5,540	6,830
	2nd	2,300	810	3,110	460	3,690	4,150	2,760	4,500	7,260
	3rd	2,550	680	3,230	510	4,260	4,770	3,060	4,940	8,000
	4th	2,500	510	3,010	780	5,660	6,440	3,280	6,170	9,450
1985	1st	4,400	360	4,760	810	5,540	6,350	5,210	5,900	11,110
	2nd	6,900	340	7,240	940	3,630	4,570	7,840	3,970	11,810
	3rd	8,200	350	8,550	1,060	4,260	5,320	9,260	4,610	13,870
	4th	6,000	330	6,330	1,210	4,200	5,410	7,210	4,530	11,740
1986	1st	8,900	280	9,180	1,090	3,190	4,280	9,990	3,470	13,460
	2nd	13,200	270	13,470	1,100	1,450	2,550	14,300	1,720	16,020
	3rd	12,300	250	12,550	1,230	530	1,760	13,530	780	14,310
	4th	7,000	230	7,230	1,200	430	1,630	8,200	660	8,860
1987	1st	8,500	210	8,710	1,190	430	1,620	9,690	640	10,330
	2nd	9,100	210	9,310	1,200	430	1,630	10,300	640	10,940
	3rd	4,900	170	5,070	900	420	1,320	5,800	590	6,390
	4th	1,800	150	1,950	80	410	490	1,880	560	2,440
1988	1st	400	80	480	40	280	320	440	360	800
	2nd	770	80	850	20	240	260	790	320	1,110
	3rd	550	70	620	20	210	230	570	280	850
	4th	150	60	210	10	180	190	160	240	400

Source: Northwest Alaskan Pipeline Company.

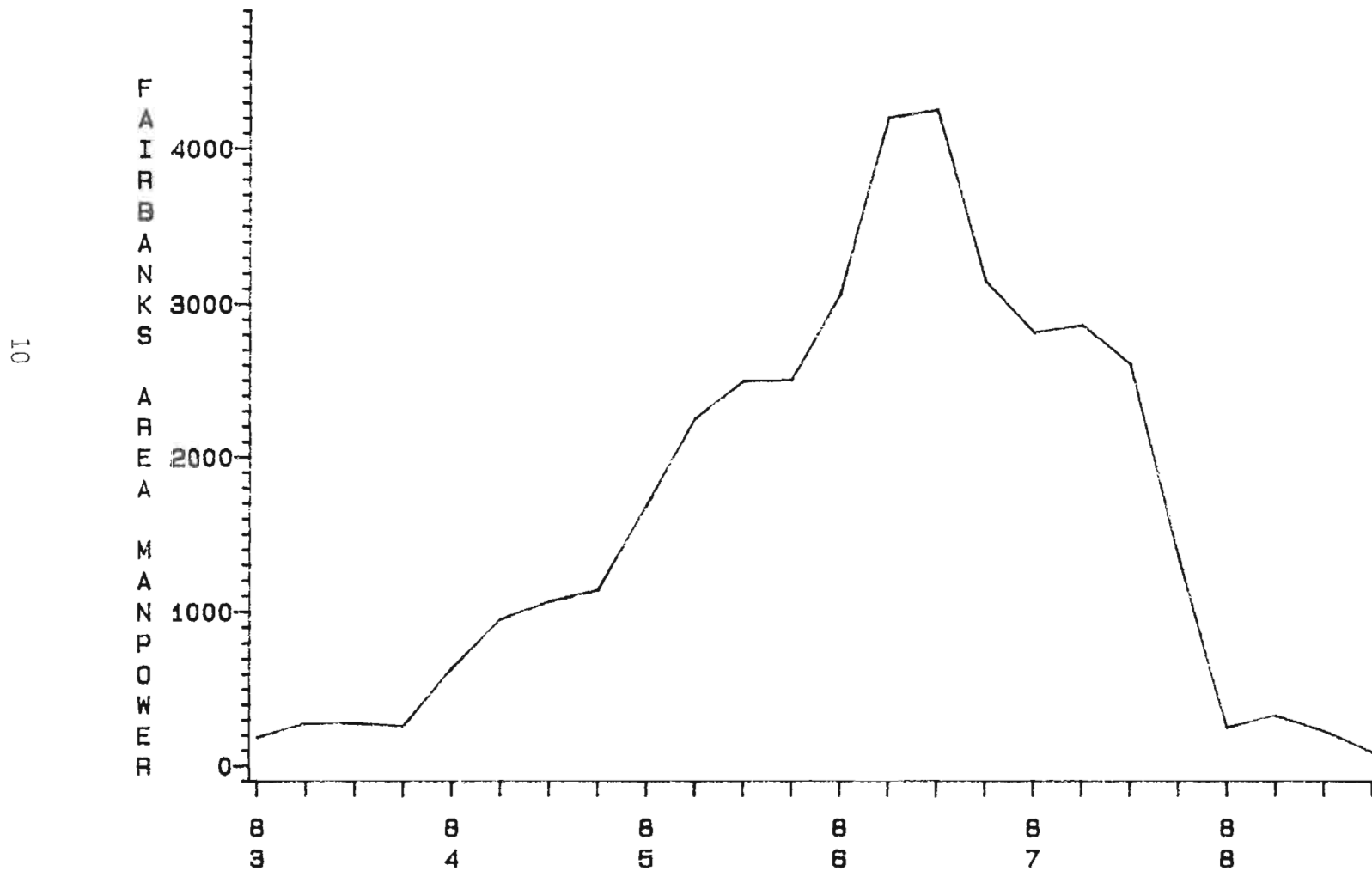
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ALASKA NATURAL GAS TRANSPORTATION SYSTEM

# ESTIMATED FAIRBANKS AREA MANPOWER REQUIREMENTS

BY WORK LOCATION

1983-1988, BY QUARTER



SOURCE: SEE TABLE I-10.

## Alaska Natural Gas Transportation System

ESTIMATED FAIRBANKS AREA MANPOWER REQUIREMENTS<sup>1</sup>

1983 - 1988

		-----Fairbanks Area <sup>2</sup> (Section 4)-----			
		Fairbanks Head- quarters	Double- Jointing & Warehousing	Con- struction Camps <sup>3</sup>	Section 4 Total
1983	1st Quarter	190	-	-	190
	2nd Quarter	280	-	-	280
	3rd Quarter	280	-	-	280
	4th Quarter	260	-	-	260
1984	1st Quarter	460	30	150	640
	2nd Quarter	560	90	300	950
	3rd Quarter	600	170	300	1,070
	4th Quarter	670	230	240	1,140
1985	1st Quarter	910	280	500	1,690
	2nd Quarter	990	340	920	2,250
	3rd Quarter	1,070	340	1,090	2,500
	4th Quarter	1,080	340	1,090	2,510
1986	1st Quarter	1,120	340	1,610	3,070
	2nd Quarter	1,120	310	2,780	4,210
	3rd Quarter	1,120	210	2,930	4,260
	4th Quarter	1,110	130	1,910	3,150
1987	1st Quarter	1,030	60	1,730	2,820
	2nd Quarter	990	30	1,850	2,870
	3rd Quarter	920	20	1,670	2,610
	4th Quarter	750	20	580	1,350
1988	1st Quarter	220	-	30	250
	2nd Quarter	160	-	170	330
	3rd Quarter	90	-	140	230
	4th Quarter	50	-	40	90

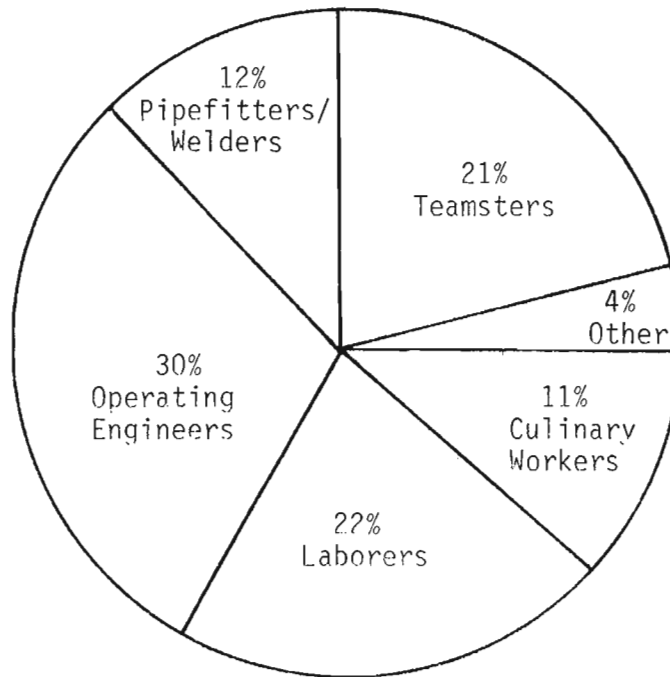
<sup>1</sup>Includes government personnel.<sup>2</sup>"Fairbanks area" is defined as Section Number Four, a 130-mile pipeline segment, which begins 14 miles south of the Yukon River Bridge and extends as far south as the Salcha River.<sup>3</sup>Includes personnel living in pipeline Section Number Four construction camps at Livengood and Fairbanks and personnel living in construction camps adjacent to Compressor Stations 9 and 11.

Source: Based on Certification Cost and Schedule Estimate filed with the Federal Energy Regulatory Commission, July 1, 1980, and supporting work papers, revised to reflect a November 1987 project completion date.

Alaska Natural Gas Transportation System  
Alaska Segment

PEAK CRAFT EMPLOYMENT FOR  
PIPELINE AND COMPRESSOR STATIONS

Year 2



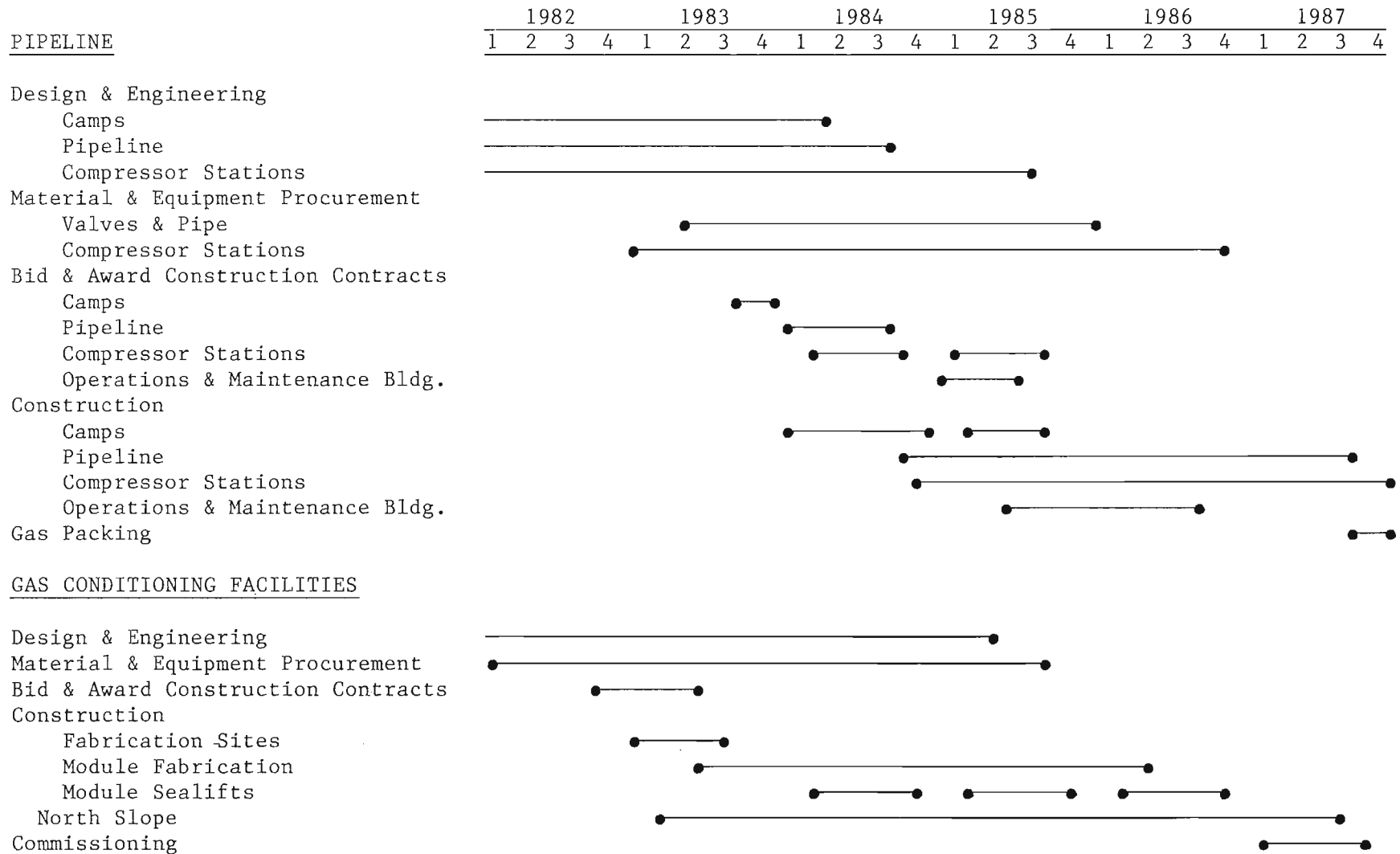
<u>Peak Craft Employment</u>	<u>Year</u> <u>1</u>	<u>Year</u> <u>2</u>	<u>Year</u> <u>3</u>
Culinary Workers	850	1,075	850
Laborers	1,002	2,126	1,215
Operating Engineers	1,987	2,997	1,815
Pipefitters/Welders	209	1,226	861
Teamsters	1,322	2,026	480
Other	237	421	488
<u>TOTAL</u>	<u>5,607</u>	<u>9,871</u>	<u>5,709</u>

Source: Northwest Alaskan Pipeline Company. Years 1, 2 and 3 refer to the principal years of pipeline and compressor station construction in Alaska.



## II. MAJOR MILESTONE SCHEDULE

### Alaska Natural Gas Transportation System



Source: Northwest Alaskan Pipeline Company

### III. SOCIOECONOMIC PLANNING PROPOSAL

In February 1982, Northwest Alaskan Pipeline Company transmitted to the State Pipeline Coordinator's Office a summary of "certain socioeconomic planning activities that we consider appropriate for NWA to conduct." The proposed effort would involve the preparation of a series of ten impact plans covering major topics such as manpower, housing, health and safety, business opportunities, transportation and communications.

1. MANPOWER PLAN will include the following components:

- (a) Manpower Projections (1982 to completion, by quarters, updated annually).
  - By construction segment (spread, conditioning plant, compressor station, Fairbanks, etc).
  - By job category and craft.
  - By job classification within category and craft.
- (b) Summaries of Major Job Classifications involved in pipeline construction, conditioning plant, compressor and meter station construction, on-site and support services, field project administration and inspection, and management/administrative support. These summaries, which shall be a one-time submission, will include:
  - Minimum entry requirements.
  - Explanation of primary work tasks and responsibilities, equipment used or operated, etc.
  - Description of normal entry stream.
  - Usual union affiliation, if applicable.
- (c) Alaska Employment Opportunity Measures--Description of the reasonable, practicable, and legal measurements Northwest intends to take to enhance employment opportunities for Alaskans, particularly those residing in communities along the pipeline corridor.

2. ALASKA BUSINESS OPPORTUNITY PLAN will describe the reasonable, practicable, and legal measures which Northwest shall take to enhance contracting opportunities for Alaska businesses.
3. HEALTH AND SAFETY IMPACT PLAN will include the following components:
  - (a) Description of Project Health and Safety Programs including:
    - Medical facilities, services, personnel and programs available to workers.
    - Medevac procedures.
    - Plans to provide counseling and/or referral services to assist workers to manage alcohol abuse, drug abuse, personal and/or family problems.
    - Safety programs.
    - Plans for coordination with local medical and public safety services.
  - (b) Impact Analysis and Mitigation
    - Analysis of the potential impact of the project on local and regional health services and facilities.
    - Measures to be used to avoid or minimize adverse impacts on health services and facilities.
4. PUBLIC INFORMATION PLAN will outline the following:
  - Policies and procedures for handling project information requests from the general public and the news media/press.
  - Plans to publish a quarterly report which summarizes project-related information.
5. EMPLOYEE MANAGEMENT PLAN will describe plans for processing, orienting, and providing support services for employees including:
  - Camp operation policies.
  - Camp facilities and services.
  - Employee orientation program.
  - Assistance in voter registration.
6. GAS TAPS DESIGN PLAN will specify the proposed location and size of each gas tap and explain the technical, regulatory and other requirements which must be met to acquire gas from the pipeline.

7. COMMUNICATIONS IMPACT PLAN will include the following components:

- (a) Description of Project Requirements -- General description of project communications plans and requirements including projections of the need to use state and local communications facilities and services.
- (b) Impact Analysis -- Analysis of the potential impact of project communication requirements on state and local communication facilities and services.

8. TRANSPORTATION IMPACT PLAN will include the following components:

- (a) Project Transportation Requirements -- A summary schedule and description of project transportation estimates for personnel and commodities by quarter, by mode and gross volume.
- (b) Impact Analysis and Mitigation
  - Analysis of the potential impact of the project on transportation services and facilities.
  - Measures to be used to minimize adverse impacts on transportation services and facilities.
- (c) Transportation Data Reporting
  - Quarterly updates of the projections outlined above.

9. HOUSING IMPACT PLAN will include the following components:

- (a) Project Housing Requirements
  - Estimates of the quarterly housing requirements of project personnel to be relocated to pipeline corridor communities by type and size (i.e., excluding camps).
  - Estimate of the need for transient (e.g., hotel, motel) housing.
- (b) Impact Analysis and Mitigation
  - Analysis of potential impact of project housing requirements on the local housing market.

- Description of project plans regarding housing of project personnel.
- Measures Northwest will take to minimize adverse housing impacts on local residents during and after construction.

(c) Housing Data Reporting -- Procedures to provide updated projections of future private-sector housing requirements annually.

10. LAW ENFORCEMENT AND PUBLIC SAFETY IMPACT PLAN will have the following components:

(a) Description of Project Security Procedures including:

- Agreements between Northwest and the North Slope Borough's Department of Public Safety and between Northwest and the State Department of Public Safety regarding the working relationship between their personnel and project security personnel.
- Establishment of procedures for the involvement of law enforcement personnel incident to criminal violations.

(b) Impact Analysis and Mitigation:

- Analysis of the potential impact of project activities on law enforcement and public safety facilities and services.
- Mitigative measures that Northwest will take to minimize such impacts.

#### IV. CONSTRUCTION CAMP PLANNING

##### Project Requirements

Construction camps will be required to house personnel and provide logistical support during construction of the pipeline system. The proposed locations for these camps are shown in Figure IV-1. The camps will be designed to accommodate personnel of Northwest Alaskan, the project management contractor (PMC), execution contractors (ECs), representatives of governmental agencies, and other contractors and suppliers associated with the construction of the pipeline system. The camps will include facilities to store and maintain materials and equipment to support construction. The pipeline and compressor station camps are to be temporary facilities used only for the duration of construction and start-up of the pipeline system.

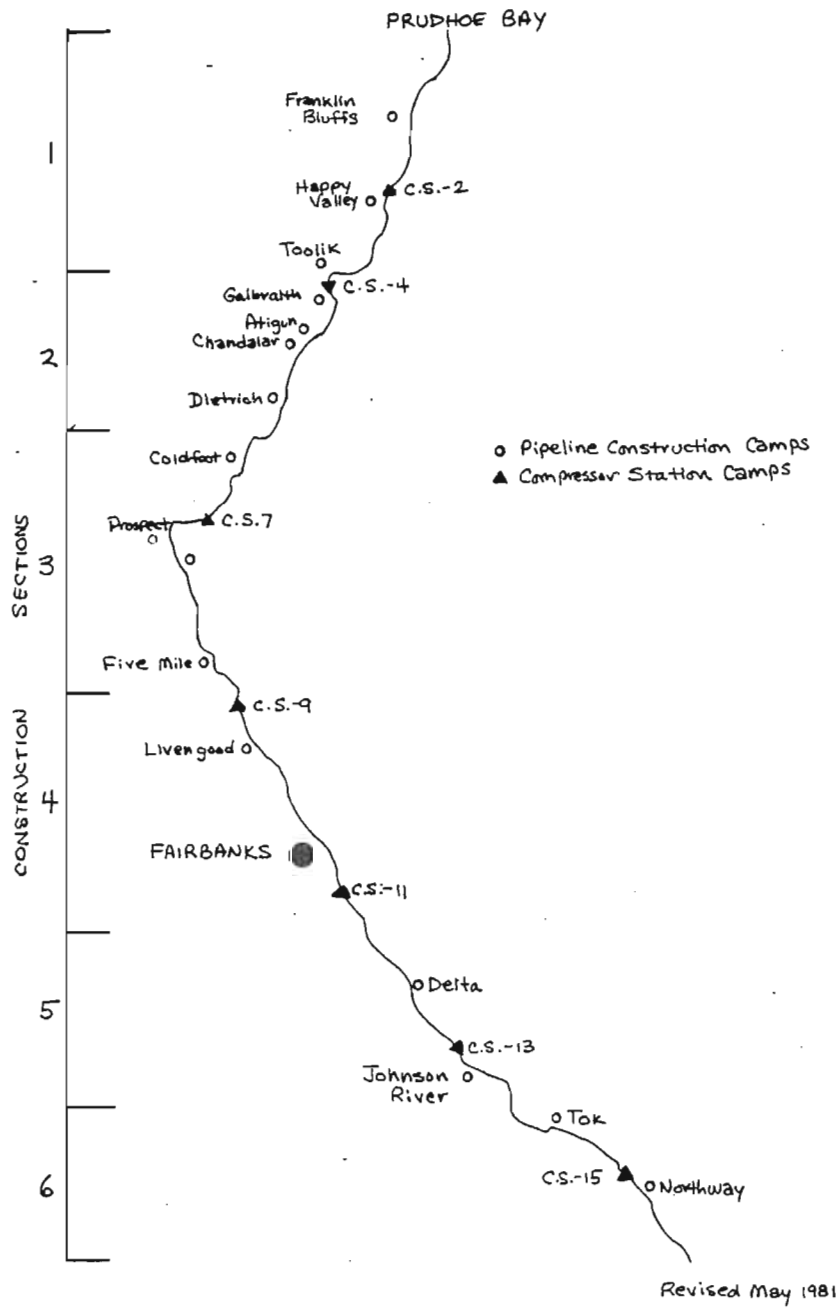
Pipeline construction will require 17 construction camps with a total capacity of nearly 15,000 beds. The construction of the pipeline will be divided into six sections which will vary from 95 to 130 miles in length. Due largely to the longer travel times to reach work sites along the unpaved haul road, the three sections located north of the Yukon River will have three or four pipeline construction camps each. These camps will range in size from about 250 beds to about 960 beds. Since most of the travel south of the Yukon River is on paved roads, the construction effort in the remaining three spreads can be accommodated by two pipeline construction camps in each section. These camps will range in size from about 1,000 beds to nearly 1,300 beds each.

As indicated in Table IV-2, there are airfields adjacent to or in proximity to some of the campsites. If existing facilities at the airfields are to be used, they will be refurbished or new facilities will be provided.

In addition to the pipeline construction camps, there will be seven compressor station camps with peak occupancy ranging from 250 to 300 persons. At this time, air support is planned to be accommodated at nearby pipeline camp airfields. However, helicopter service, at the compressor station construction camps, is anticipated.

Alaska Natural Gas Transportation System  
Alaska Segment

MAP OF PROPOSED CAMP LOCATIONS



## IV - 2

Alaska Natural Gas Transportation System  
Alaska SegmentCONSTRUCTION CAMP SUMMARY

<u>Section</u>	<u>Location</u>	<u>Peak Camp Popula- tion</u>	<u>Air- field</u>	<u>NWA MP*</u>	<u>Possible Camp Source (If new facilities are not constructed)</u>
1	Franklin Bluffs	930	Yes	44	TAPS Refurbish in Place
	C.S. No. 2	302		80	TAPS P.S. #3, Rel. & Refurb.
	Happy Valley	880	Yes	88	TAPS Refurbish in Place
	Toolik	370	Yes	136	TAPS Refurbish in Place
2	C.S. No. 4	228		141	TAPS P.S. #4, Rel. & Refurb.
	Galbraith	883	Yes	146	TAPS Refurbish in Place
	Atigun	248		169	TAPS Refurbish in Place
	Chandalar	458	Yes	178	TAPS Refurbish in Place
	Dietrich	965	Yes	209	TAPS Refurbish in Place
3	Coldfoot	850	Yes	245	TAPS Refurbish in Place
	C.S. No. 7	235		274	TAPS P.S. #5, Rel. & Refurb.
	Prospect Creek	420	Yes	284	TAPS Refurbish in Place
	Old Man	865	Yes	310	TAPS Refurbish in Place
	Five Mile	945		357	TAPS Refurbish in Place
4	C.S. No. 9	228		381	TAPS P.S. #6, Rel. & Refurb.
	Livengood	1,235	Yes	406	TAPS Refurbish in Place
	Fort Wainwright	1,260		463	Use existing bldgs. as is, or renovate
	C.S. No. 11	228		494	TAPS P.S. #7, Rel. & Refurb.
5	Delta	1,140		539	TAPS Refurbish in Place
	C.S. No. 13	228		580	TAPS P.S. #10, Rel. & Refurb.
	Johnson River	1,300		590	New Camp
6	Tok	1,035		650	New Camp
	C.S. No. 15	302		685	TAPS P.S. #12, Rel. & Refurb.
	Northway	1,140		716	New Camp

Notes: TAPS P.S. #1 and #9, if purchased, will be redistributed among other camps as required.

\*NWA MP = NWA pipeline system milepost, with MP = 0 at Prudhoe Bay.



## Location Criteria

To minimize construction costs, environmental impacts and a proliferation of disturbed areas, construction of the gasline will utilize existing trans Alaska Pipeline System (TAPS) campsites. New camps will be constructed on these sites or, on a case-by-case basis, existing Alyeska camps may be purchased and these camps will remain in place with minor adjustments in housing and utility systems and redistribution of bed space among the camps. Table IV-2 summarizes the location and potential TAPS source for the proposed construction and compressor camp sites.

The new campsites and compressor station sites will be surveyed by an archaeologist prior to construction. If cultural resource materials are encountered during the survey, mitigation will be accomplished either by excavation before construction or through monitoring the site during construction.

## Possible Camp Sources

Nine existing TAPS pump station camps, if purchased, would be relocated and refurbished at sites adjacent to the seven new pipeline system compressor stations as shown on Table IV-2.

The Fort Wainwright pipeline construction camp will be located partially in leased facilities at Fort Wainwright. Additional space may be required in Fairbanks or vicinity thereof, as arranged by the Section Four execution contractor. Two renovated barracks buildings at Fort Wainwright will be made available to the execution contractor for housing the section four pipeline staff and craft workers.

## Camp Facilities

Generally, the following facilities will be located at each camp:

- Living quarters
- Food preparation and dining area

- First aid dispensary
- Recreation
- Laundry
- Security building and fencing
- Fire fighting equipment building
- Life support systems to include;
  - Power and light generation equipment
  - Water supply, storage, treatment and distribution facilities
  - Wastewater collection, treatment and disposal system
  - Solid waste collection and disposal facilities
  - Camp fuel storage, distribution system
  - Fire water booster pump and dispensing equipment
  - Smoke detectors
  - Building heating and ventilation
- Construction support facilities will include but will not be limited to the following:
  - Shops, warehouses, and vehicle maintenance facilities
  - Laboratory facilities
  - Construction management offices
  - Bulk fuel storage, dispensing system and spill cleanup
  - Waste oil storage and disposal
  - Equipment laydown areas
  - Communication facilities
  - Heliport

The camps will utilize prefabricated modular building units which are assembled into functional buildings or complexes of various sizes. The shops and warehouses will be prefabricated of either foldaway or easily assembled construction. Utility system equipment for power generation, water treatment, wastewater treatment, and solid waste incineration will be housed within lighted and heated buildings.

Facilities at the airfields north of Fairbanks will generally include buildings for tower operators, crash/rescue equipment, generators, and personnel standby. Insulated, lighted and heated, modules are to be used for these support functions. At locations where airfields are in close proximity to camps, camp electrical power will be used for airfield requirements. Airfields which are not immediately adjacent to camps will have primary and standby power generating systems. Aviation refueling facilities will be provided at each airfield.

## Camp Construction Schedule

The pipeline camps will be constructed, relocated, and/or renovated during the season prior to initial pipeline civil work. This will permit the camps to be operational to support the pipeline work.

Compressor station camps will be constructed or relocated/renovated during the first year of pipeline civil work. Compressor station phase I civil work will be occurring during the same time period. Temporary housing, normally in pipeline camps, will be required for the early civil compressor station work. The compressor station civil contractors will accelerate the camp construction and/or relocation, to provide for camp use as early as possible.

## Camp Populations

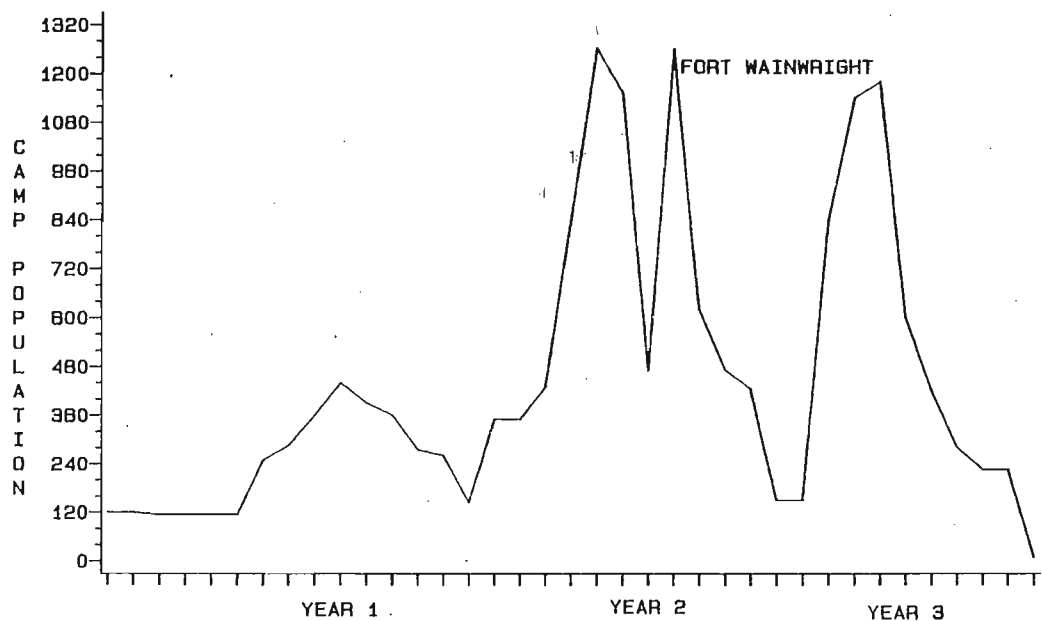
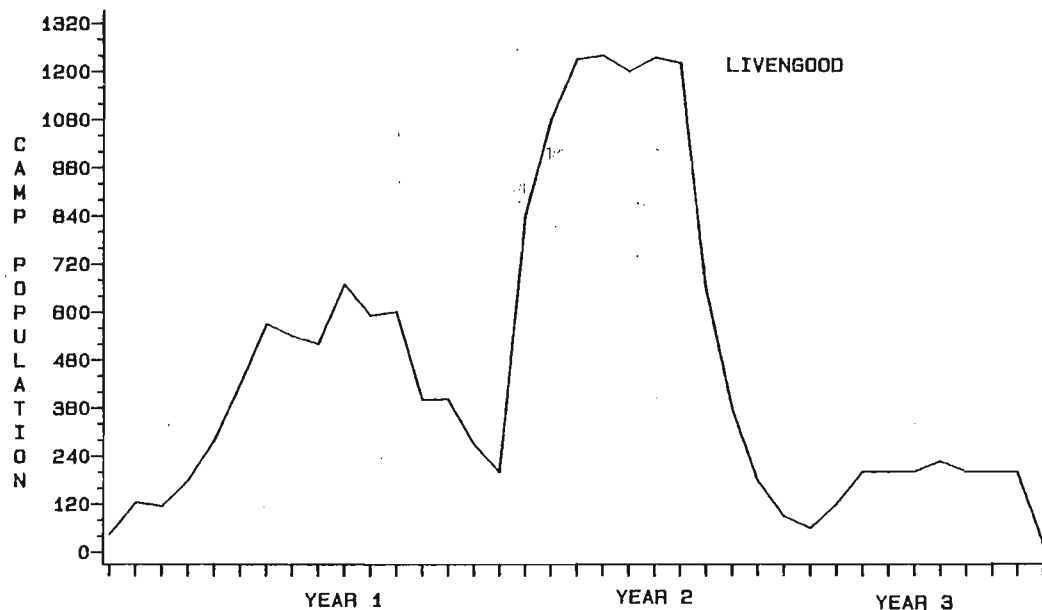
Expected peak bed loading for the pipeline camps is shown in Table IV-2. If the execution contractor experiences a peak bed loading above those anticipated, additional beds can be provided by portable dormitory units moved from camp to camp. Due to construction schedules, peak loads at the various camps will not all occur at the same time. Figures IV-3 to 5 give camp bed loading curves for the pipeline construction camps south of the Yukon River.

The bed availability at the compressor station camps is not as restricted as at the pipeline camps. The seven compressor station camps will each have a capacity of 312 beds, although peak bed loading is expected to range from 232 to 300 persons.

## Camp Operations

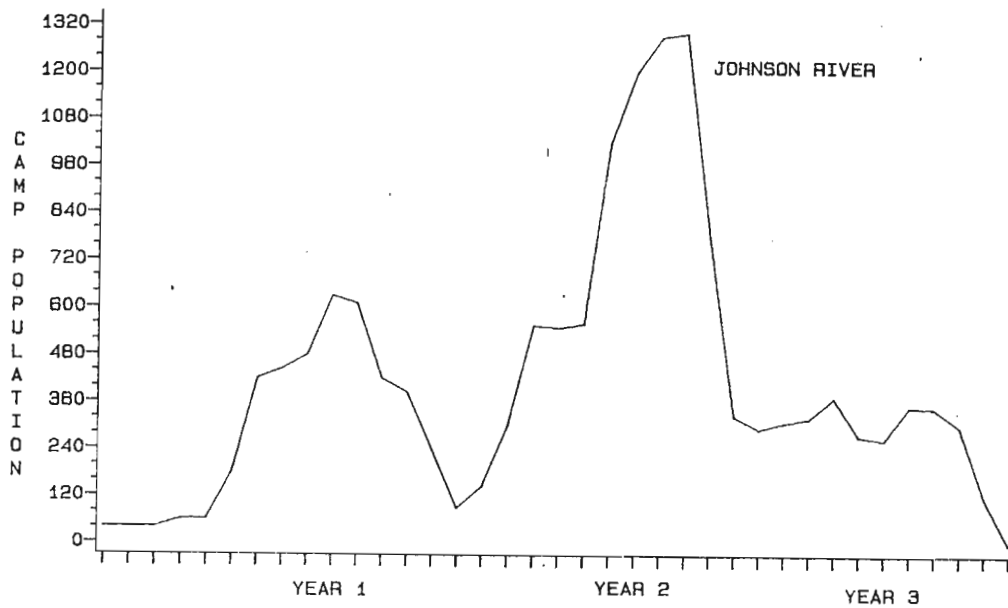
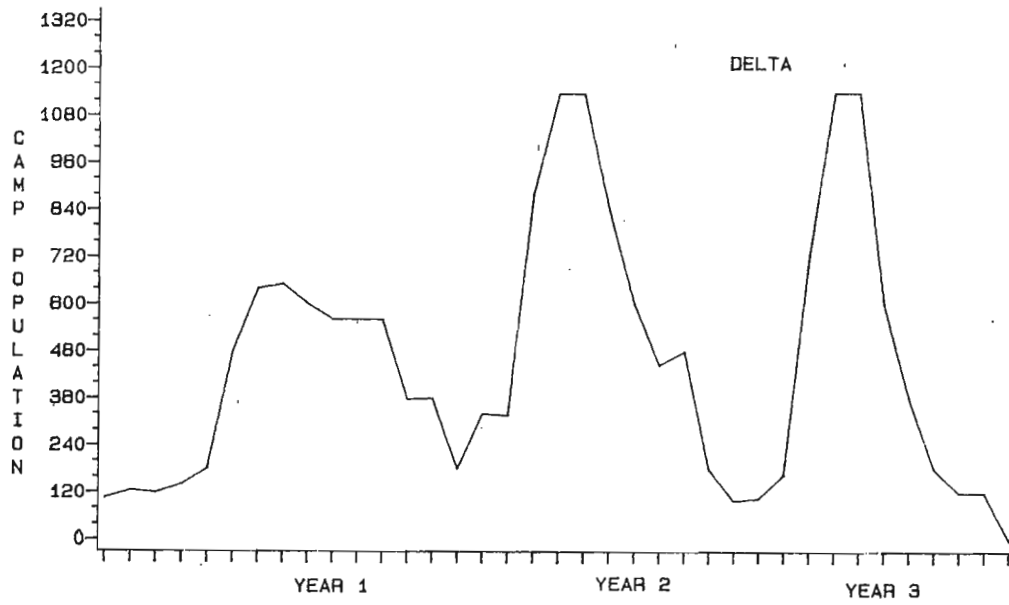
The day to day operation of the camps will be the responsibility of the execution contractor for each section. As this portion of the work will be incidental to the construction activity, restrictions will be placed upon the execution contractor (EC) regarding camp operation. It is anticipated that the EC will engage a catering subcontractor, to operate the camps within each section. Nonexecution contractor personnel housed in the camps will be charged a specified daily rate to compensate the EC. The rate will include lodging, meals, scheduled

IV-3  
ALASKA NATURAL GAS TRANSPORTATION SYSTEM  
ALASKA SEGMENT  
PIPELINE CONSTRUCTION CAMP POPULATIONS  
SECTION 4 BY MONTH

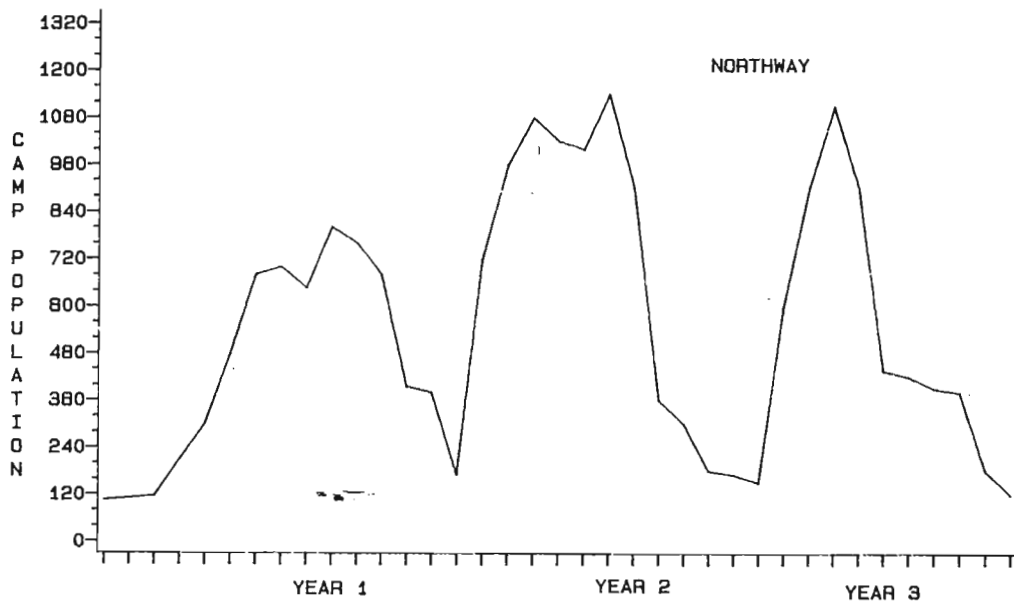
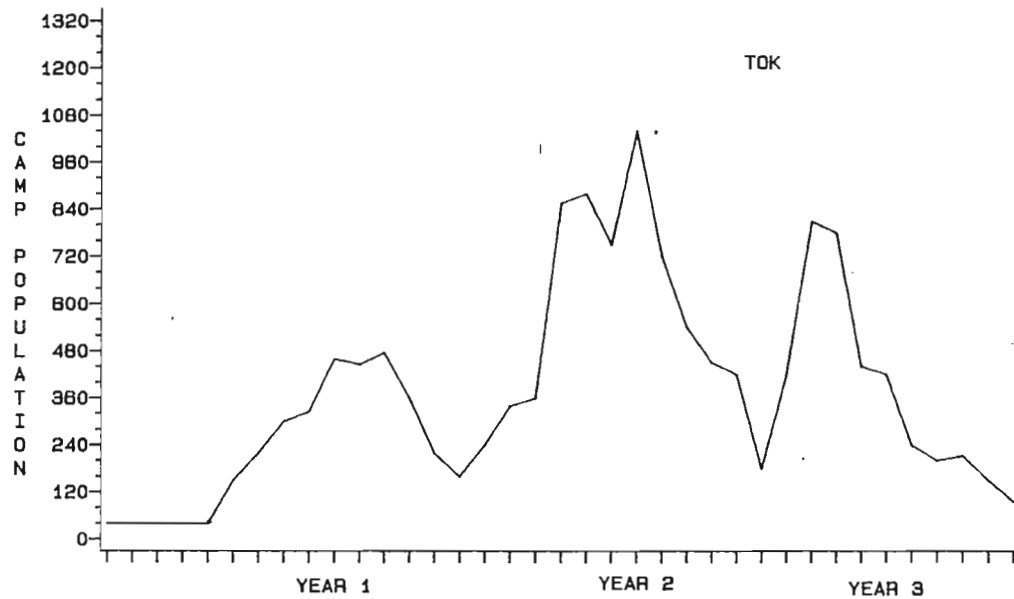


Source: Northwest Alaskan Pipeline Company. Years 1, 2 and 3 refer to the principal years of pipeline and compressor station construction in Alaska.

IV-4  
ALASKA NATURAL GAS TRANSPORTATION SYSTEM  
ALASKA SEGMENT  
PIPELINE CONSTRUCTION CAMP POPULATIONS  
SECTION 5 BY MONTH



IV-5  
 ALASKA NATURAL GAS TRANSPORTATION SYSTEM  
 ALASKA SEGMENT  
 PIPELINE CONSTRUCTION CAMP POPULATIONS  
 SECTION 8 BY MONTH



transportation from nearest airport and within camp, freight handling from nearest airport and within camp, mail service, recreational facilities, and first aid treatment on site.

Housing will be provided as double occupancy rooms. Existing rooms, if purchased from the TAPS pipeline and pump station camps, normally contain 120 square feet, providing 60 square feet per person for double occupancy rooms. Both males and females will be housed at the camps. Separate dormitories or dormitory areas may be set aside for female lodging by the execution contractor. It is anticipated that on occasion, competition for bed space in the camps will be great. To help alleviate the problem, project personnel will vacate their rooms when they take rest and relaxation leaves.

### Security, Safety and Medical

The execution contractors will be responsible for security at their camps. The camp perimeters will be fenced, and EC security personnel will control entry into the site. Personnel identification will be by badges, distinctively identified for each execution contractor, state or federal agency, NWA, and the PMC. Project vehicles will be identified by decal and private vehicles will not be allowed within the camp area.

Security within the camp area is also the responsibility of the execution contractor operating the camp. It is anticipated that routine security patrols within the camp area and within the living quarters will be established. Sleeping rooms will be lockable. In addition, project personnel will have a wardrobe in which valuables may be locked with their own padlock. Infractions of civil law will be referred by security personnel to the Alaska State Troopers.

The execution contractor will be responsible for safety consideration within the camp. This includes house cleaning, fire prevention, and safe working practices. Camp operating personnel will receive routine safety instruction.

Responsibility for medical service will rest with the execution contractor operating the camp. The EC medical service will be available to all project personnel including federal, state, Northwest Alaskan, prime management contractor, other execution contractor, and subcontractor personnel at the camp or working in the vicinity of the camp.

Project guidelines will be drawn up detailing the minimum level of medical service required at the camps. It is anticipated that paramedic trained individuals will be required at each camp 24 hours a day, seven days a week. Most of the treatment supplied will be for minor ailments. Major problems will be treated with stabilizing first aid at the camp and medevac to the nearest qualified treatment center.

### Removal of Camp Facilities

Aboveground items and structures will be removed from construction camps and temporary facility sites after construction of the pipeline is completed. Dikes and raised areas will be leveled with the surplus materials blended into the surrounding area. Manmade depressions will be filled to avoid ponding of water.

Impermeable liners such as those in fuel storage containment areas and beneath shop buildings will be removed. Fuel contaminated gravel will be removed to an approved site either on the pad or elsewhere, and will be spread to allow open air weathering and biological breakdown of the petroleum. Camp pads will not be removed but will be reworked to avoid sharp breaks and shoulders. Surplus soils will be distributed over the adjacent camp pad.

Actual location to which the commercial value items will be shipped will be made at the time of demobilization based upon logistics and market factors.

### Restoration of Campsites

Campsites will be restored after buildings, concrete slabs, aboveground piping, conduit, wiring and other accessory objects, except rock surfacing, have been removed. The sites will be contoured to ensure adequate drainage with a minimum of erosion and surfaces will be prepared for revegetation with native plant species.



## V. LOGISTICS PLANNING

An estimated 1.8 million tons of material\* will be moved into and within the State to support construction of the Alaska segment of the gas pipeline. Total projected material movements by quarter for 1983-1988 are given in Figure V-1. The logistics infrastructure, developed and expanded during construction of the trans Alaska Pipeline System (TAPS) is a major asset to this project. Included in this infrastructure are airfields, access roads, material storage sites, the Dalton Highway, and improved air and highway carrier capabilities.

Mainline pipe and petroleum products will account for about 70 percent of the total project material tonnage (see Figure V-2). Other items, such as compressor and metering station packages, consumable items, construction equipment, and miscellaneous materials, will constitute the remainder.

Northwest Alaskan Pipeline Company (NWA) will purchase, arrange for, and control the movement of all engineered materials from point of manufacture to designated material laydown sites in the field. Engineered materials include commodities such as mainline pipe, compressor and metering station materials, station equipment, insulation, and valves.

Execution Contractors (ECs) will purchase and control the transportation of construction equipment, consumables such as petroleum and explosives, cement, rebar, food, and spare parts.

Project material will enter the State by the following methods:

- Container/trailer marine transport via Anchorage.
- Roll-on/roll-off rail transport via Whittier.
- Bulk vessel/barge to Anchorage, Seward, Valdez and Prudhoe Bay.
- Direct truck via the Alaska Highway.
- Air freight.

Within Alaska, rail and truck transportation will predominate.

\*This total does not include gravel.

### Mainline Pipe

Over 617,000 tons of mainline pipe will be used by the project. Mainline pipe from domestic or overseas mills will be routed to a southern Alaska port via rail/barge or bulk barge transportation, then by rail or highway to Fairbanks for storage, double-jointing, coating, insulating, and highway movement to intermediate pipe storage yards.

Eighty-foot joints of pipe will be transported from the double-joint yard to intermediate pipe storage sites by trucks pulling self-steering pipe trailers. This trailer equipment will be capable of moving three joints of coated pipe per load.

### Petroleum, Oil and Lubricants

Over 638,000 tons of petroleum, oil and lubricant (POL) products will constitute the largest single tonnage item on the project. There will be a continuous requirement throughout the course of the project for a multitude of POL products for construction equipment, camp heating and power generation, vehicle and aircraft operation, and other equipment and facilities. Each EC will be responsible for acquisition, transport and storage of POL products for construction, camp heating and other purposes.

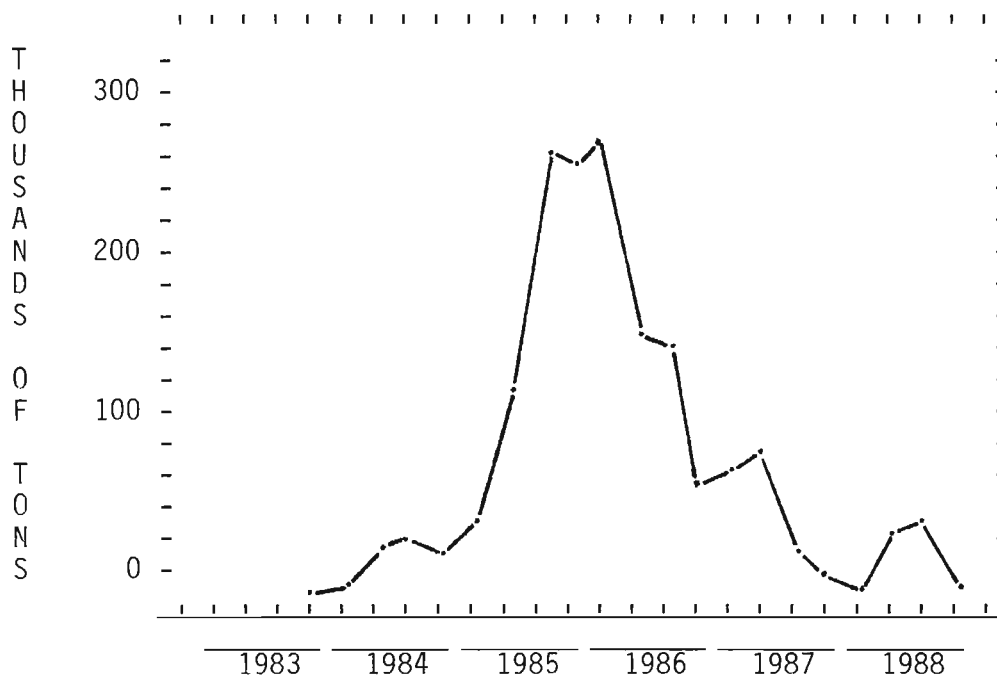
### Construction Equipment

Mobilization and positioning of equipment, including repositioning during construction and demobilization are major logistic considerations. ECs are expected to supply and transport their own equipment. If necessary, they will draw upon the same commercial transport capacity utilized to support this project, all other projects, and normal public transportation. The equipment movement will include a wide variety of heavy equipment (side boom tractors, dozers, cranes, backhoes) and light vehicles (pickups, buses).

Alaska Natural Gas Transportation System  
Alaska Segment

PROJECTED MATERIAL MOVEMENTS

(Thousands of Tons)  
1983-1988



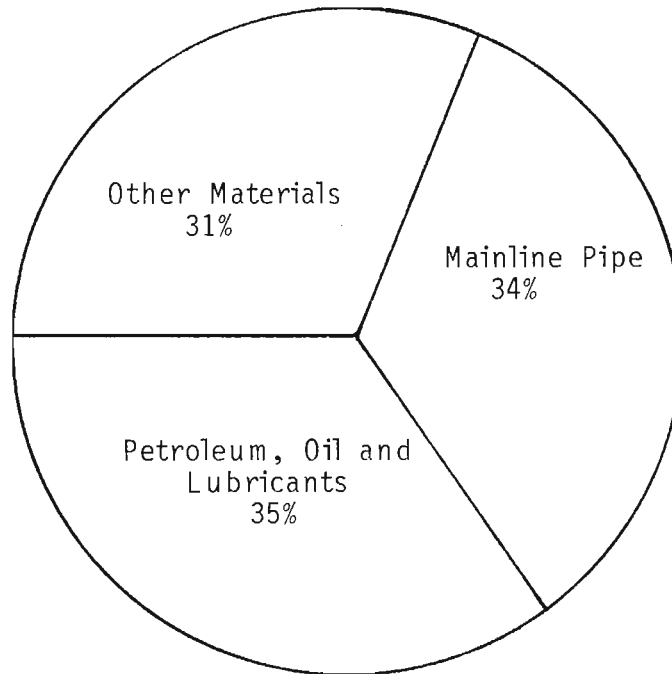
<u>Section</u>	<u>Pipeline Milepost</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>	<u>Total</u>
1	0-132	0.2	21.1	108.8	108.2	36.1	19.3	293.8
2	132-228	-	15.7	108.2	96.8	29.7	20.9	271.2
3	228-374	-	17.4	139.8	124.0	36.3	19.2	336.7
4	374-502	-	9.1	133.1	126.4	39.1	13.7	321.5
5	502-622	-	26.5	112.4	104.8	28.6	20.3	292.5
6	622-741	-	26.8	108.9	105.0	40.9	15.1	296.7
<u>Total</u>		<u>0.2</u>	<u>116.6</u>	<u>711.1</u>	<u>665.2</u>	<u>210.7</u>	<u>108.6</u>	<u>1,812.4</u>

Source: Northwest Alaskan Pipeline Company.

Alaska Natural Gas Transportation System  
Alaska Segment

PROJECTED MATERIAL MOVEMENTS BY COMMODITY

(Thousands of Tons)



<u>Section</u>	<u>Pipeline Milepost</u>	<u>Mainline Pipe</u>	<u>POL</u>	<u>Other</u>	<u>Total</u>
1	0-132	106.2	100.6	87.0	293.8
2	132-228	82.8	98.9	89.5	271.2
3	228-374	121.1	123.2	92.4	336.7
4	374-502	109.4	121.5	90.6	321.5
5	502-622	98.1	93.8	100.6	292.5
6	622-741	99.8	100.1	96.8	296.7
	<u>Total</u>	<u>617.4</u>	<u>638.1</u>	<u>556.9</u>	<u>1,812.4</u>

Source: Northwest Alaskan Pipeline Company.

## VI. HOUSING SURVEY OF PROJECT PERSONNEL

### RELOCATED TO FAIRBANKS

In February 1982, Northwest Alaskan Pipeline Company surveyed 49 project personnel, who had been relocated to Fairbanks from the Lower 48 or elsewhere in Alaska, to determine the type of housing they had acquired. Thirty-two of those interviewed, or 65 percent, owned a home elsewhere prior to relocation to Fairbanks. Most owned three- or four-bedroom single-family homes in the \$100,000 to \$125,000 price range. A majority of the homeowners kept their homes when they relocated to Fairbanks; thirty-four percent sold their homes.

The 49 project personnel relocated 31 adults and 24 children with them. They plan to relocate an additional five adults and two children to Fairbanks in the future depending upon project status, school schedules and/or housing availability. Thus, the 49 relocated project personnel could potentially increase the Fairbanks population by 111 persons, or 2.3 persons per household. This is somewhat less than the typical Fairbanks household which had about 2.8 persons at the time of the 1980 census.

Almost all of the 49 employees rented one- or two-bedroom apartments upon their arrival to Fairbanks. Over half rented at Wedgewood Manor. Nearly all of the project personnel have moved into some other housing now. Of the sixteen (33 percent) who rented, most paid \$400-\$600 per month in rent. Thirty-three or 67 percent bought homes. Since most of the employees did keep their Lower 48 homes, they looked for moderately-priced homes in Fairbanks. Most bought in the \$75,000 to \$125,000 price range. Only one employee purchased a home over \$150,000.

Over three-quarters found their housing in less than five months, and a majority found the type of housing they preferred. One-fifth of the employees are still looking for something else; seven of those are renting and three of those bought homes.

As far as problems they encountered, one employee commented that, "there was not much choice at the time of purchase, and housing was overpriced." Another indicated that "the requirement to convert a

\$320/month 8 percent loan to a \$1,000/month 10 percent loan to maintain some parity in housing was a difficult pill to swallow." On the other hand, one employee stated that "the Alaska Housing program enabled me to buy in Fairbanks without selling a house in the Irvine area." Another added, "we found exactly what we wanted through good assistance from local realtors."

Nearly three-fourths of the people interviewed indicated that they had satisfied their planned housing objectives upon relocation to Fairbanks. Those who travel frequently purchased condominiums since one indicated, "my periodic absences from Fairbanks required minimum maintenance." Another reflected that concern by adding "when I'm out of town I don't want to have to worry about pipes freezing and fuel." One stated that he preferred to buy a smaller home because "I was concerned that I would price myself out of the market with a large, more expensive home." Other considerations in housing decisions included "tax considerations" and "resale possibilities."

## VII. CURRENT FAIRBANKS HOUSING TRENDS

### Housing Trends - September 1980 to January 1982

Since September 1980, Northwest Alaskan staff have surveyed local realtors and compiled data on housing advertised for sale by owners in the local newspaper. Figure VII-1 is a map of the housing locations included in the survey. The quarterly surveys found:

- The number of units available reached a low of 109 units in January 1981 and peaked at 262 in July 1981 (See Figure VII-2). Single-family units constituted 64 to 76 percent of the number of units available for sale in the six surveys.
- The availability of housing has consistently been greatest in the Urban and North Pole areas (See Figure VII-3).
- As shown in Figure VII-4, from September 1980 to January 1982 median prices for single-family homes increased from \$79,000 to \$101,000; median prices for duplexes increased from \$86,750 to \$129,750; and median prices for condominiums increased from \$52,500 to \$111,000. The large increase in the median price for condominiums is primarily due to the differences in the sizes of the units offered for sale.

### Residential Real Estate For Sale - January 1982

In January Northwest Alaskan staff surveyed local realtors and compiled data on housing advertised for sale by owners in the local newspaper. The survey found:

<u>Type</u>	<u>Number Available</u>	<u>Median Asking Price</u>
Single-Family Homes	104	\$101,000
Condominiums	18	111,000
Duplexes	22	129,750
<u>All Units</u>	<u>144</u>	<u>\$107,000</u>

- The 144 housing units for sale in January 1982 represented a 29 percent decrease from 202 units available in October 1981.
- Of the 104 single-family units for sale, 28 were in the Urban area, 12 were in the Suburban areas, 27 were in the Foothills, 35 were in the North Pole area, and the area was unknown for two (See Figure VII-5).
- January median asking prices for homes and duplexes were \$106,500 in the Urban area, \$108,500 in the Suburban area, \$133,500 in the Foothills area, and \$89,000 in the North Pole area (See Table VII-6).
- More than 82 percent of the homes for sale in January 1982 had been built since 1970.
- Median lot sizes were 10,300 square feet in the Urban area and 10,595 square feet in the Suburban area. Lot sizes averaged 1 acre in the North Pole area and were largest in the Foothills at 1.6 acres.
- Of the 134 homes for which the type of heat was known, 90 percent of the homes for sale had oil heat while 28 percent had electric heat and 2 percent had coal or wood heat.

Information on prices of housing for sale in January 1982 is given in Figure VII-7.

#### Survey of Major Apartment Complexes - January 1982

A January 1982 survey made for Northwest Alaskan Pipeline Company of 20 major modern rental apartment complexes in the Fairbanks area found the following:

<u>Type</u>	<u>Average Rents</u>	<u>Total Units</u>	<u>Units Vacant</u>	<u>Units Turned Over</u>	<u>Vacancy Rates</u>	<u>Turnover Rates</u>
Efficiencies	\$294	32	0	1	0	3.1%
One-Bedroom, Unfurnished	391	113	1	6	.1%	5.3%
One-Bedroom, Furnished	451	525	12	13	2.3%	2.5%
Two-Bedroom, Unfurnished	489	124	1	8	.1%	6.5%
Two-Bedroom, Furnished	545	223	0	8	0	3.6%
Three-Bedroom	552	143	1	2	.1%	1.4%
<u>All Units</u>	<u>\$475</u>	<u>1,160</u>	<u>15</u>	<u>38</u>	<u>1.3%</u>	<u>3.3%</u>



- In comparison to the 15 vacancies found in January 1982, similar surveys in June and October 1981 had found no vacant units.
- In January 1982, the average rent for the units surveyed was \$475 per month, a 6 percent increase from the average monthly rent of \$448 for the June 1981 survey and a 1 percent increase from October's average monthly rent of \$460.

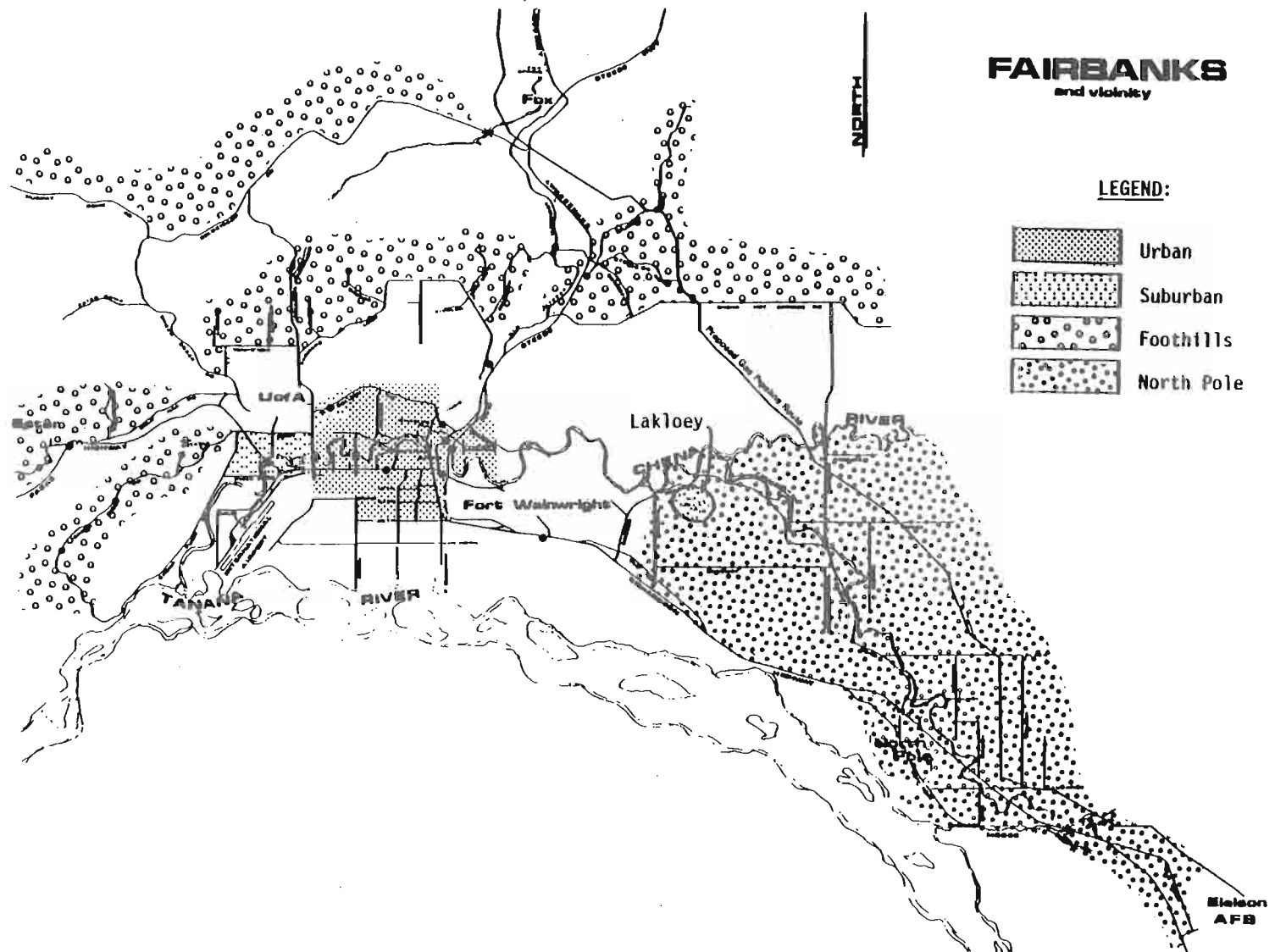
Table VII-8 summarizes information on the rental complexes surveyed.

### Inventory of Mobile Home Parks

In January and February 1982, Northwest staff contacted mobile home park managers to obtain data on 32 mobile home parks in the Fairbanks area. A similar survey in 1980 included information on 33 mobile home parks; a fall 1976 survey by the Fairbanks North Star Borough's Impact Information Center included information on 21 mobile home parks.

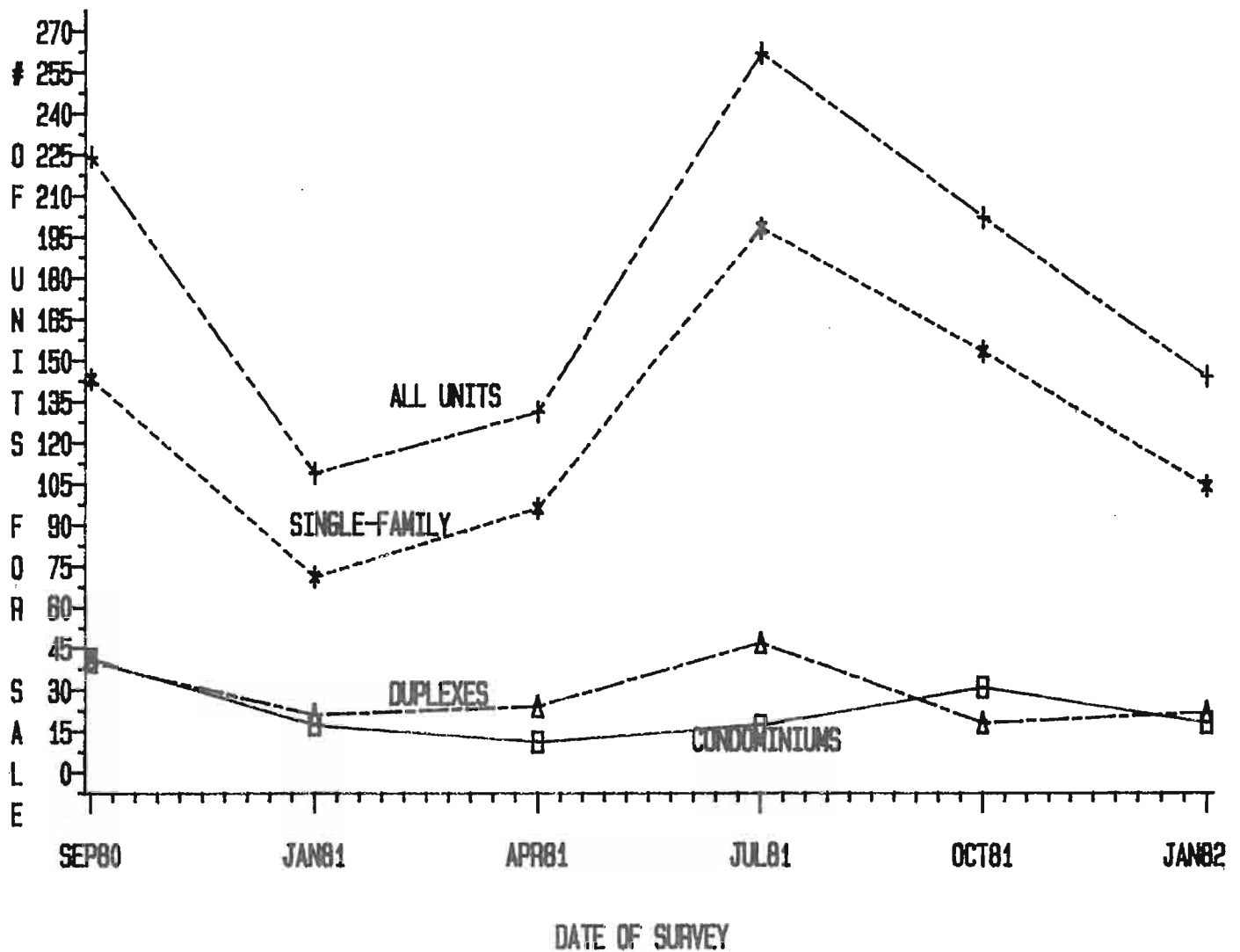
- In 1976 there were 1,851 mobile home park spaces; in 1980 there were 1,329 and in 1982 there were 1,400 (See Table VII-9).
- Vacancy rates went from no vacancies in 1976 to 32 percent in 1980 and 22 percent in 1982.
- In 1976 the average monthly space rent at the mobile home parks was \$105; whereas the median monthly space rents were \$125 in 1980 and \$120 in 1982.
- The smaller, older mobile home parks have found it difficult to operate profitably due to environmental regulations, health codes, required sewage systems, and maintenance. Some small parks have shut down as a result of these costs. Park operation is more viable when these costs are spread over more units and spaces, and some of the larger parks are remodeling or expanding.

VII-1  
MAP OF FAIRBANKS AREA HOUSING LOCATIONS



# VII-2 NUMBER OF HOUSING UNITS AVAILABLE FOR SALE

BY TYPE  
FAIRBANKS AREA  
SEPTEMBER 1980 TO JANUARY 1982 COMPARISONS

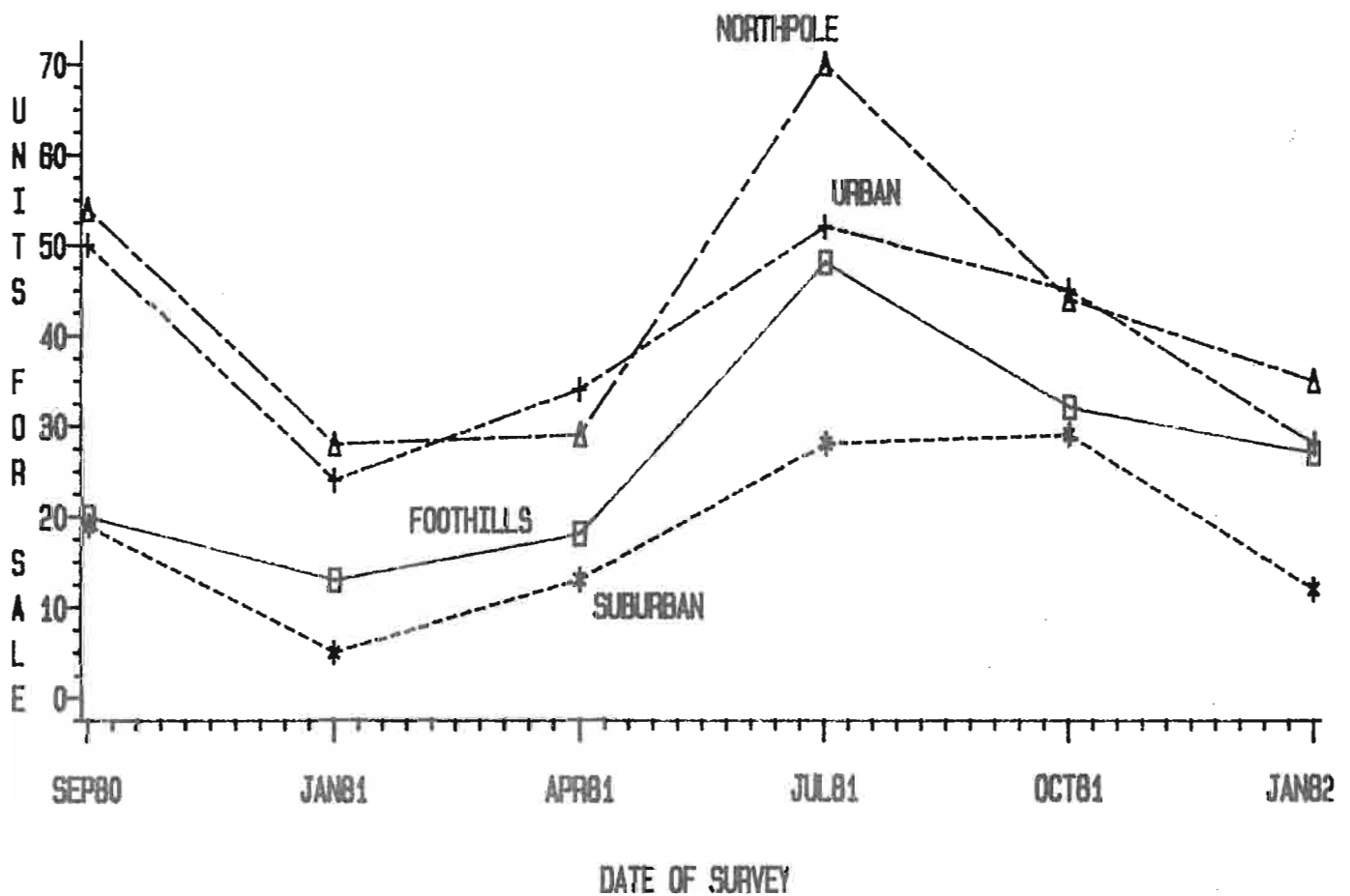


VII-3  
SINGLE-FAMILY UNITS FOR SALE

BY LOCATION

FAIRBANKS AREA

SEPTEMBER 1980 TO JANUARY 1982 COMPARISONS



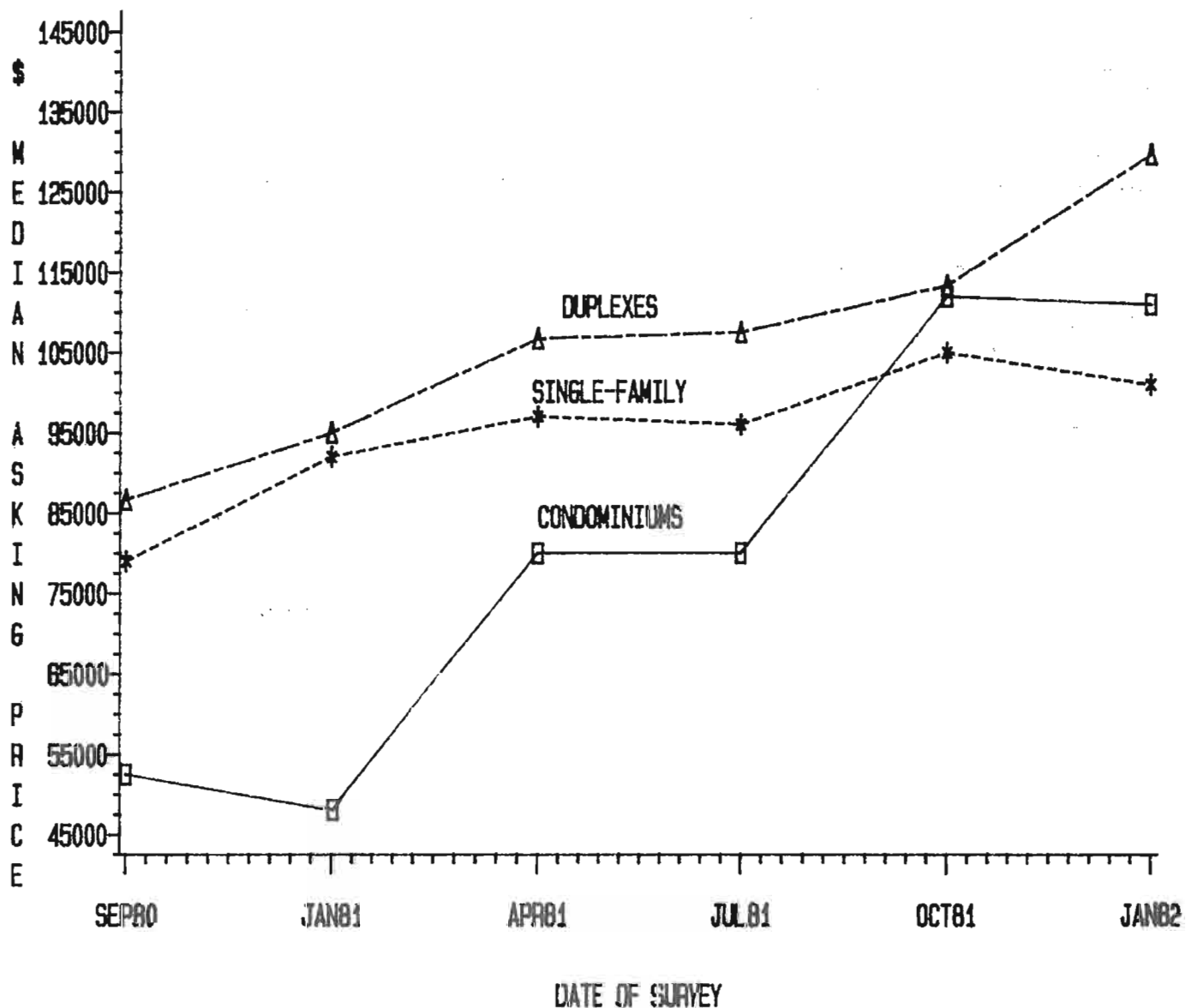
VII-4

# MEDIAN ASKING PRICES OF HOUSING FOR SALE

BY TYPE

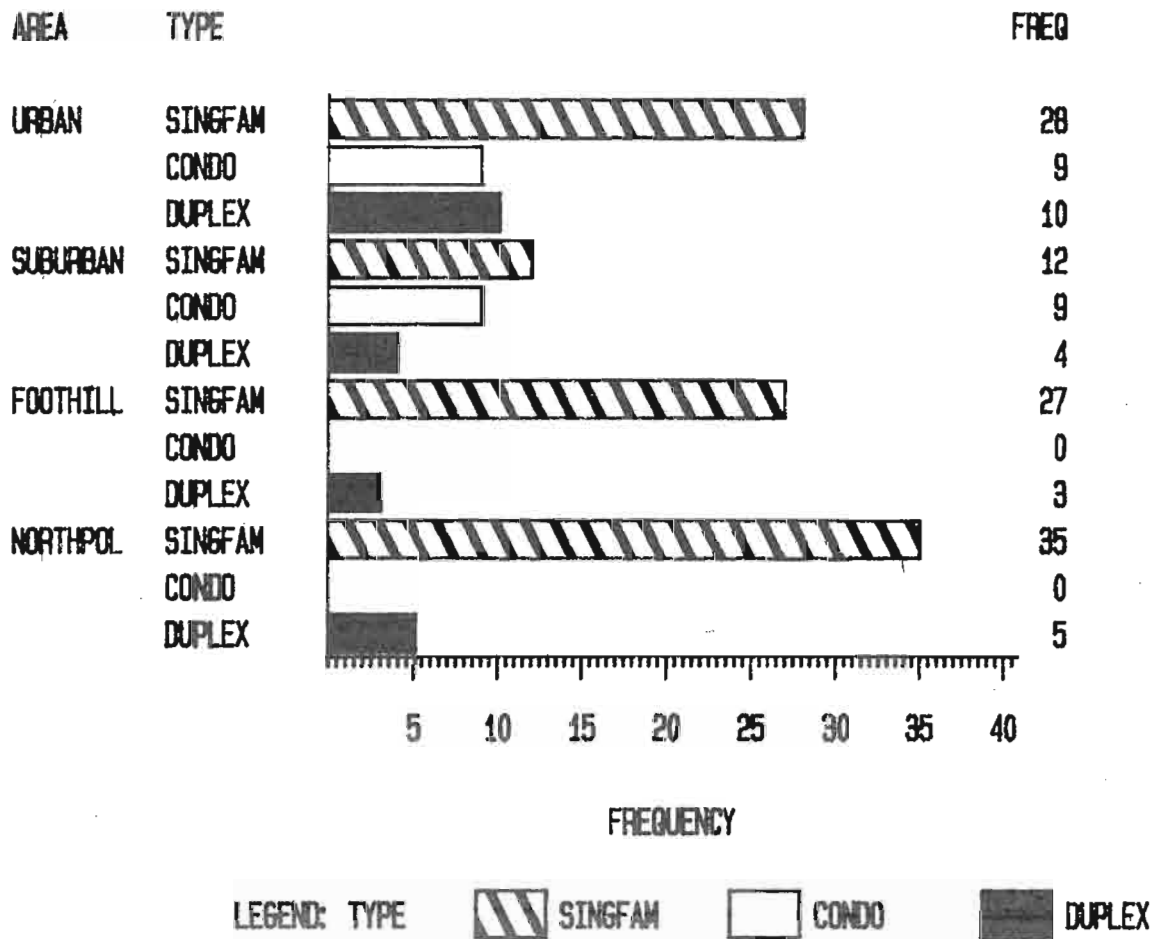
FAIRBANKS AREA

SEPTEMBER 1980 TO JANUARY 1982 COMPARISONS



VII-5  
HOUSING FOR SALE\*  
BY LOCATION AND TYPE  
FAIRBANKS AREA

JANUARY 1982



VII - 6

ASKING PRICES OF SINGLE-FAMILY HOMES AND DUPLEXES FOR SALE\*

By Size and Location

Fairbanks Area  
January 1982

<u>Size (square feet)</u>	<u>Urban</u>	<u>Suburban</u>	<u>Foothills</u>	<u>North Pole</u>	<u>All Areas</u>
<u>All Sizes</u>					
Median:	\$106,500	\$108,500	\$133,500	\$ 89,000	\$106,500
Range:	\$ 62,500-\$289,000	\$ 56,000-\$162,500	\$ 52,000-\$294,500	\$ 54,000-\$144,750	\$ 52,000-\$294,500
Units in Sample:	38	16	30	40	126
<u>Under 1,400</u>					
Median:	\$ 73,000	\$106,500	\$113,250	\$ 85,000	\$ 85,000
Range:	\$ 62,500-\$112,500	\$ 56,000-\$110,500	\$ 52,000-\$127,000	\$ 54,000-\$108,000	\$ 52,000-\$127,000
Units in Sample:	13	5	4	17	39
<u>1,400-2,199</u>					
Median:	\$114,900	\$135,000	\$121,500	\$ 95,000	\$110,000
Range:	\$ 70,000-\$192,500	\$ 58,500-\$136,000	\$115,000-\$130,000	\$ 70,000-\$130,000	\$ 58,500-\$192,500
Units in Sample:	13	3	8	14	39
<u>2,200 and Up</u>					
Median:	\$135,000	\$135,750	\$185,000	\$115,000**	\$144,750
Range:	\$ 94,500-\$289,000	\$102,000-\$162,500	\$ 90,000-\$294,500	\$ 75,000-\$144,750	\$ 75,000-\$294,500
Units in Sample:	9	4	17	5	35

\* Single-family homes or duplexes under \$50,000 were not included. The square footage was unknown for twelve homes; the location was unknown for one of those homes as well as another. Sizes were unknown for three homes in the Urban area, four in the Suburban area, one in the Foothills area, and four in the North Pole area. Unknowns were included in "all sizes" and "all locations" calculations where applicable.

Source: Northwest Alaskan Pipeline Company, Manpower and Impact Planning Department survey.

MEDIAN ASKING PRICES OF HOUSING FOR SALE\*

Fairbanks Area  
January 1982

### Single-Family Homes

[illegible]

Condominiums	18	●●●●●●●●●●●●●●●●●●●●	\$111,000
--------------	----	----------------------	-----------

Homes	104	●●●●●●●●●●●●●●●●●●●●	\$101,000
Homes & Duplexes	126	●●●●●●●●●●●●●●●●●●●●	\$106,500
Homes, Duplexes & Condominiums	144	●●●●●●●●●●●●●●●●●●●●	\$107,000

Source: Northwest Alaskan Pipeline Company, Manpower and Impact Planning Department survey.



VII - 8  
DESCRIPTION OF MAJOR APARTMENT COMPLEXES\*  
 Fairbanks Area  
 April 1982

Map Key	Major Complex	Year Built	Total Units	Effici- ency	-----Number of Units by Type-----				Three- Bedrooms
					--One-Bedroom-- Unfurn.	Furn.	--Two-Bedroom-- Unfurn.	Furn.	
1	Beistline Apartments**	1977	20	-	3	9	2	6	-
2	Chandalar Apartments	1970	60	-	-	6	25	25	4
3	Executive Apartments	1978	24	-	-	20	-	4	-
4	Francis Apartments	1966	16	-	-	-	-	-	16
5	Hamilton Plaza Apartments	1974	48	-	-	-	18	14	16
6	Kelsha Court	1977	68	21	21	14	-	-	12
7	Marika Apartments	1975	12	-	6	-	6	-	-
8	Marika Manor***	1974	20	-	-	-	-	20	-
9	Midtown Apartments	1956	94	8	-	78	-	8	-
10	Midtown East Apartments	1960	32	-	-	-	-	-	32
11	Seavy Apartments	1968	12	-	-	-	2	1	9
12	Sprucewood Manor	1970	21	3	-	6	-	12	-
13	Tanana Village	1967	36	-	12	6	12	6	-
14	Townhouse Apartments	1972	34	-	-	18	-	-	16
15	University Village	1965	50	-	-	-	18	-	32
16	Walkada Apartments****	1971	48	-	12	36	-	-	-
17	Wedgewood Manor*****	1975-77	533	-	59	332	21	121	-
18	Westwynd Apartments	1975	12	-	-	-	6	6	-
19	Drakes Woodland	1970	8	-	-	-	2	-	6
20	Woodland Apartments	1960	12	-	-	-	12	-	-
Totals			1,160	32	113	525	124	223	143
			100%	3%	10%	45%	11%	19%	12%

\*Includes apartment complexes with 12 or more units which have been built since 1960. Midtown Apartments were built in 1956, but were included because they have recently been renovated.

\*\*Although Beistline Apartments sold their two-bedrooms units, information on them was included with the same apartment complex.

\*\*\*Apartments are frequently changed from unfurnished to furnished and vice versa. This also occurred at Wedgewood Manor.

\*\*\*\*Walkada leases 18 two-bedroom apartments which are not available in the current rental market, so these 18 units were not included in this table.

\*\*\*\*\*Wedgewood Manor has 111 one-bedroom and 1 two-bedroom furnished condominium units which were included in these figures.

Source: Survey of major apartment complexes made by Marilyn Forrest for Northwest Alaskan Pipeline Company, Manpower and Impact Planning Department, April 1982.

VII - 9

MOBILE HOME PARK INFORMATION

Fairbanks, Alaska  
1976, 1980 and 1982 Comparisons

<u>Month/ Year</u>	<u>Monthly Space Rent Range</u>	<u>Median Monthly Space Rent</u>	<u>Number of Courts Surveyed</u>	<u>Total Spaces Available</u>	<u>Number of Vacancies</u>	<u>Vacancy Rate %</u>	-----Excluding Columbia-----		
							<u>Total Spaces Available</u>	<u>Number of Vacancies</u>	<u>Vacancy Rate %</u>
Sept. 1976*	Not Available	\$105 (Avg)	21	1,609**	Limited***	***	N/A	N/A	N/A
August 1980	\$65-155	\$125	33	1,854	934	50%	1,329	431	32%
January 1982	\$95-190	\$120	32	1,919	800	42%	1,400	302	22%

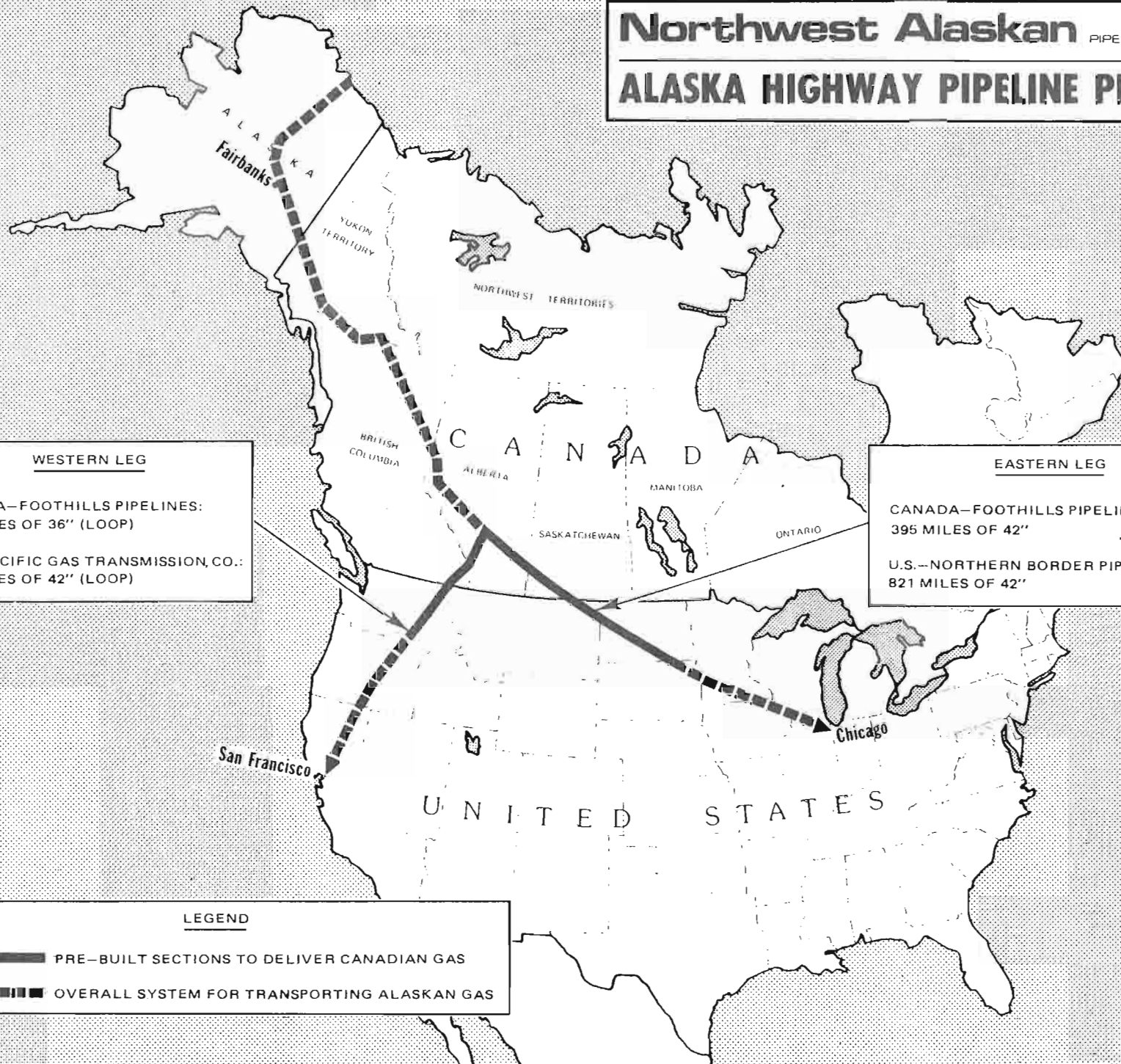
\* The fall 1976 survey information is from Mobile Home Living in Fairbanks, Special Report No. 4, Impact Information Center. The survey was limited to parks with 20 or more spaces. There were 242 spaces in the 30 courts with less than 20 spaces.

\*\* Does not include Columbia Mobile Home Park as it was not completed yet.

\*\*\* Vacancies that occurred were filled immediately.

# Northwest Alaskan PIPELINE COMPANY

## ALASKA HIGHWAY PIPELINE PROJECT



### WESTERN LEG

CANADA—FOOTHILLS PIPELINES:  
132 MILES OF 36" (LOOP)

U.S.—PACIFIC GAS TRANSMISSION, CO.:  
160 MILES OF 42" (LOOP)

### EASTERN LEG

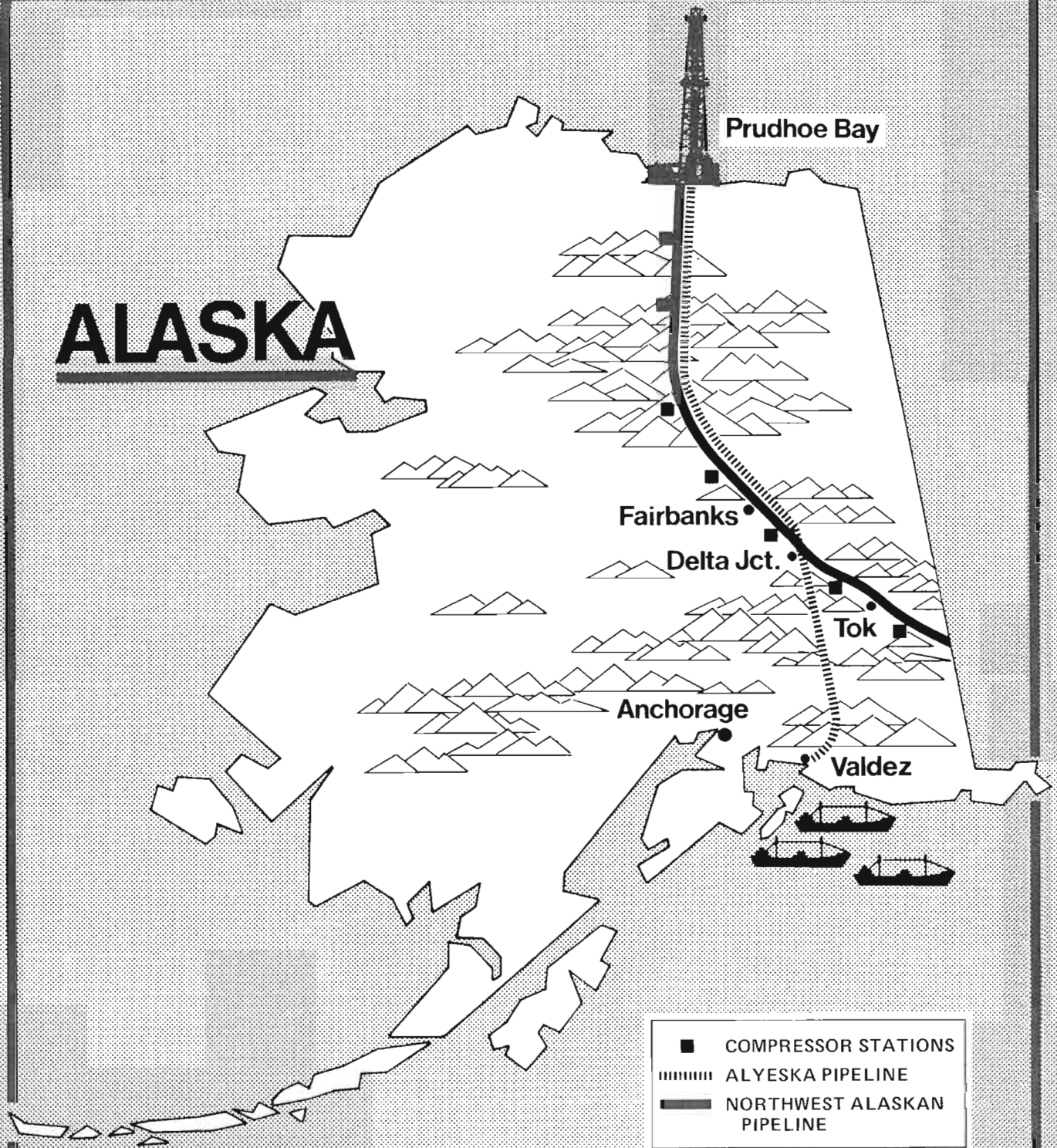
CANADA—FOOTHILLS PIPELINES:  
395 MILES OF 42"

U.S.—NORTHERN BORDER PIPELINE CO.:  
821 MILES OF 42"

### LEGEND

- PRE-BUILT SECTIONS TO DELIVER CANADIAN GAS
- OVERALL SYSTEM FOR TRANSPORTING ALASKAN GAS

# ALASKA



**Northwest Alaskan** PIPELINE COMPANY  
**ALASKA HIGHWAY PIPELINE PROJECT**