

LEG. FINANCE - BILLS 1979 - 1980 1370

SB 467 thru CSSB 475 1370



# RECORDS CERTIFICATION



I, the undersigned, an employee of the State of Alaska, do hereby certify that the microfilm images on this microform are accurate reproductions of the original records of the State of Alaska as accumulated during the regular course of business, and that it is the established policy and practice of this State to microfilm its records and to dispose of the original records after microfilm reproductions have been made.

James A. Smith  
Signature of Camera Operator

3/23/90  
Date

THE LEGISLATURE OF THE STATE OF ALASKA  
ELEVENTH LEGISLATURE

FISCAL NOTE

I. REQUEST (Senate Bill 467)  
House Bill                      No. 753 Title: An Act making a special appropriation to the power  
       project revolving fund; and providing for an effective date.  
Requested by 25 members of the House Date 2/14/80  
Requested by (SB 467) Meland, Ziegler, Kerttula, and Dankworth

II. FISCAL DETAIL

Agency Affected Department of Commerce and Economic Development  
Program Category Affected Economic Development  
BRU, Program, or Subprogram(s) Affected Alaska Power Authority  
(Note: If more than one budget component is affected, separate line-item amounts and funding for each component in the analysis section.)

EXPENDITURES (Thousands of Dollars)

	FY 80	FY 81	FY 82	FY 83	FY 84	FY 85
100 PERSONAL SERVICES						
200 TRAVEL						
300 CONTRACTUAL						
400 COMMODITIES						
500 EQUIPMENT						
600 LAND & STRUCTURES						
700 GRANTS, CLAIMS, ETC. Loans		1,000,000				
TOTAL		1,000,000				

FUNDING (Thousands of Dollars)

GENERAL FUND		1,000,000				
FEDERAL FUNDS						
OTHER (Specify Fund Source)						

POSITIONS

FULL TIME						
PART TIME						
TEMPORARY						

III. ANALYSIS (See Fiscal Note Preparation Instructions, Section III)

Approval of this appropriation will permit funding of all small scale power production facilities in the State of Alaska presently estimated to be developed over the next fifteen years. The appropriation will eliminate the need for revenue bond financing in the power production area except for large generation projects. Loan document preparation and loan administration, which has been funded by the operating budget of the Power Authority, may have to be funded as a portion of loan proceeds by the loan recipient due to the potential increased volume of activity.

IV. DATE February 20, 1980 PREPARED BY Terry J. McGuire  
AGENCY Alaska Power Authority  
PHONE 276-2715  
Original: Legislative Finance  
cc: Budget and Management  
Prime Sponsor (First Legislator Named)

Funding Information  
General Fund \$1,000,000,000  
Other Funds -0-  
\$1,000,000,000

Introduced: 2/18/80  
Referred: State Affairs and  
Finance

1 IN THE SENATE

BY MELAND, ZIEGLER, KERTTULA  
AND DANKWORTH

2 SENATE BILL NO. 467

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 ELEVENTH LEGISLATURE - SECOND SESSION

5 A BILL

6 For an Act entitled: "An Act making a special appropriation to the power  
7 project revolving fund; and providing for an effective  
8 date."

9 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

10 \* Section 1. The sum of \$1,000,000,000 is appropriated from the general  
11 fund to the power project revolving fund (AS 44.56.170) for feasibility  
12 studies, preconstruction engineering, design, constructing, equipping, modi-  
13 fying, and expanding small-scale power production facilities.

14 \* Sec. 2. This Act takes effect immediately in accordance with AS 01.10.-  
15 070(c).

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COMMITTEE REPORT  
SENATE

2/18/80

FURTHER:

Finance

Date: FEBRUARY 25, 1980

Mr. President:

The Committee on State Affairs has had SB 467

making a special appropriation to the power project revolving fund

under consideration and (a majority of the committee) (the committee) reports it back with the following recommendations:

do pass  do not pass

do pass with attached amendments(s)

replace with CS for \_\_\_\_\_  same title  new title

and recommends \_\_\_\_\_

AND attaches a "Letter of Intent"  New Fiscal Note

reports it back without recommendation

referred to the \_\_\_\_\_ Committee

MEMBERS SIGNING  
DO PASS

Patrick Romo  
Bob Mulcahy  
Brad Bradley

MEMBERS HAVING  
OTHER RECOMMENDATIONS:

2 Tim Kelly - No Rec

Bob Mulcahy  
CHAIRMAN

Introduced: 2/18/80  
Referred: State Affairs and  
Finance

Funding Information

General Fund	\$1,000,000,000
Other Funds	-0-
	<u>\$1,000,000,000</u>

BY MELAND, ZIEGLER, KERTTULA  
AND DANKWORTH JLA

1 IN THE SENATE

2 SENATE BILL NO. 467

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 ELEVENTH LEGISLATURE - SECOND SESSION

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ALASKA STATE LEGISLATURE

ELEVENTH Legislature SECOND Session

SENATE BILL NO. 467  
 By MELAND, ZIEGLER AND KERTTULA  
 AND DANKWORTH

"An Act making a special appropriation to the power project revolving fund; and providing for an effective date."

Introduced in the Senate 2/18/80, 19.....

HISTORY IN THE SENATE

19 80  
 2 18  
 Read first time and referred to Committee on State Affairs & Finance

3, 27  
 Reported back with recommendation that *SA - 1/20*  
*1-20-80 - to Finance*

Read second time and

Read third time and

PASS Effective Date  
 Yeas Yeas  
 Nays Nays  
 Absent Absent  
 Excused Excused

Reconsideration

PASS Effective Date  
 Yeas Yeas  
 Nays Nays  
 Absent Absent  
 Excused Excused

Reported correctly engrossed  
 Signed by President  
 Sent to House

SECRETARY OF THE SENATE

HISTORY IN THE HOUSE

19  
 Read first time and referred to Committee on

Reported back with recommendation that

Read second time and

Read third time and

PASS Effective Date  
 Yeas Yeas  
 Nays Nays  
 Absent Absent  
 Excused Excused

Reconsideration

PASS Effective Date  
 Yeas Yeas  
 Nays Nays  
 Absent Absent  
 Excused Excused

Reported correctly engrossed  
 Signed by Speaker  
 Returned to Senate

CHIEF CLERK OF THE HOUSE

HISTORY IN THE SENATE

19 Received from House

To enrolling

Reported correctly enrolled

Sent to Governor

..... by Governor

Filed with Lt. Governor

Chapter No. ....



# RECORDS



# CERTIFICATION

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James O. Smith  
Signature of Camera Operator

3/23/90  
Date



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James O. Smith  
Signature of Camera Operator

3/23/90  
Date

COMMITTEE REPORT

HOUSE

(11)

FURTHER:

5/12/80

Date: 5/21/80

Mr. Speaker:

The Committee on FINANCE has had CSSB 475

"An Act establishing the Point MacKenzie agricultural development project; and providing for an effective date."

under consideration and (a majority of the committee) (the committee) reports it back with the following recommendations:

- do pass  do not pass
- do pass with attached amendments(s)
- replace with CS for \_\_\_\_\_  same title
- and recommends \_\_\_\_\_  new title
- AND attaches a "Letter of Intent"  New Fiscal Note
- reports it back without recommendation
- referred to the \_\_\_\_\_ Committee

MEMBERS SIGNING

DO PASS

*[Handwritten signatures]*

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MEMBERS HAVING

OTHER RECOMMENDATIONS:

*[Handwritten signature]*

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CHAIRMAN

Original sponsor: Rules/Governor's Agricultural  
Policy Task Force

Offered: 5/6/80  
Referred: Rules

1 IN THE SENATE

BY THE FINANCE COMMITTEE

2 CS FOR SENATE BILL NO. 475

3 IN THE LEGISLATURE OF THE STATE OF ALASKA

4 ELEVENTH LEGISLATURE - SECOND SESSION

5 A BILL

6 For an Act entitled: "An Act establishing the Point MacKenzie agricultural  
7 development project; and providing for an effective  
8 date."

9 BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

10 \* Section 1. AS 03 is amended by adding a new chapter to read:

11 CHAPTER 38. AGRICULTURAL DEVELOPMENT PROJECTS.

12 Sec. 03.38.010. POINT MACKENZIE AGRICULTURAL DEVELOPMENT PROJECT.

13 (a) Under the authority granted by art. VIII, secs. 6, 8, and 9 of the  
14 state constitution, the Point MacKenzie agricultural development project  
15 described in AS 03.38.020 is established. State land located within the  
16 boundaries of this project which is not necessary to protect public  
17 access or reasonable concurrent uses shall be disposed of for agricul-  
18 tural use under AS 38.05.

19 (b) The Alaska Agricultural Action Council established in AS 44.-  
20 33.450 shall administer the Point MacKenzie agricultural development  
21 project and may

22 (1) contract for the clearing, draining and breaking of the  
23 land located in the project;

24 (2) contract for the construction of access roads in the  
25 project; and

26 (3) contract with the purchasers of the land cleared and  
27 drained under (1) of this subsection for repayment to the state of the  
28 cost of the clearing, draining and breaking of the land.

29 Sec. 03.38.020. PROJECT DESCRIPTION. The Point MacKenzie agricul-

1 tural development project consists of state land located in the fol-  
2 lowing described parcels:

3 (1) Township 14 North, Range 4 West, Seward Meridian

4 Section 5: W1/2, NE1/4, N1/2 of the SE1/4

5 Section 6

6 Section 7

7 Section 18: N1/2 of the NW1/4, NW1/4 of the NE1/4

8 (2) Township 14 North, Range 5 West, Seward Meridian

9 Section 1: SE1/4, S1/2 of the NE1/4, NE1/4 of the NE1/4, E1/2 of the  
10 NW1/4 of the NE1/4

11 Section 12: E1/2

12 (3) Township 15 North, Range 4 West, Seward Meridian

13 Section 7

14 Section 17: S1/2, NW1/4

15 Sections 18 and 19

16 Section 20: W1/2, W1/2 of the NW1/4 of the NE1/4, W1/2  
17 of the SW1/4 of the NE1/4, W1/2 of the NW1/4 of the SE1/4, SE1/4 of the  
18 NW1/4 of the SE1/4, S1/2 of the NE1/4 of the SE1/4, S1/2 of the SE1/4

19 Sections 29 - 31

20 Section 32: N1/2, SW1/4, W1/2 of the SE1/4

21 (4) Township 15 North, Range 5 West, Seward Meridian

22 Section 1

23 Section 2: E1/2, N1/2 of the NW1/4, NE1/4 of the SE1/4  
24 of the NW1/4

25 Section 11: E1/2, E1/2 of the NW1/4, E1/2 of the SW1/4

26 Sections 12 and 13

27 Section 14: E1/2, SW1/4, E1/2 of the NW1/4

28 Sections 23 - 25

29 Section 26: N1/2, SE1/4

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Section 35: N1/2, SE1/4

(5) Township 16 North, Range 4 West, Seward Meridian

Section 31: S1/2 of the SE1/4, S1/2 of the NE1/4 of the SE1/4, S1/2 of the NW1/4 of the SE1/4, S1/2 of the SE1/4 of the SW1/4, S1/2 of the SW1/4 of the SW1/4

Section 32: SE1/4 of the SE1/4, E1/2 of the SW1/4 of the SE1/4, SW 1/4 of the SW 1/4 of the SE1/4, SW1/4 of the SW1/4, W1/2 of the SE1/4 of the SW1/4, SE1/4 of the SE1/4 of the SW1/4

Section 33: S1/2 of the NW1/4 of the SW1/4, S1/2 of the NE1/4 of the SW1/4, NE1/4 of the NE1/4 of the SW1/4, N1/2 of the SE1/4 of the SW1/4, N1/2 of the SW1/4 of the SW1/4

(6) Township 16 North, Range 5 West, Seward Meridian

Section 26: S1/2 of the SE1/4, S1/2 of the SW1/4

Section 35

Section 36: W1/2 of the NW1/4 of the NW1/4, W1/2 of the SW1/4 of the NW1/4, SE1/4 of the SW1/4 of the NW1/4, W1/2 of the NW1/4 of the SW1/4, S1/2 of the SW1/4, S1/2 of the SW1/4 of the SE1/4, S1/2 of the SE1/4 of the SE1/4.

\* Sec. 2. This Act takes effect immediately in accordance with AS 01.10.-070(c).



## EXPANDING ALASKA'S AGRICULTURE A Positive Commitment

For further information on agricultural development in Alaska contact:

Alaska Agricultural Action Council  
Office of the Governor  
Pouch AN  
Juneau, Alaska 99811  
Telephone (907) 465-3468

Members of Council:

W. I. Palmer, Chairman  
Domonic Carney  
Steve Hamilton  
Paul Huppert  
Charles Webber



Alaska Agricultural Action Council  
Office of the Governor  
Pouch AN  
Juneau, Alaska 99811  
tel: (907) 465-3568

January, 1980

## EXPANDING ALASKA'S AGRICULTURE A Positive Commitment

Alaska's social development and economic stability depend to a great extent upon the successful management of her renewable resources. Agricultural development, achieved by the use of short-term oil and gas revenues, is a means of providing long-term social and economic benefits for the citizens of Alaska.

Although agriculture has existed in Alaska since the time of the first Russian settlers in the 18th century, only recently has agricultural development in the state taken advantage of known production, transportation, and processing efficiencies. Through administrative and legislative action, Alaska has made a positive commitment to plan and implement agricultural development projects of adequate size to provide the best opportunity for economic success.

### PROJECT MANAGEMENT

In 1979, the Alaska state legislature created the Alaska Agricultural Action Council to plan and manage agricultural development projects within the state. The five-member council, appointed by the governor, is responsible for proposing specific projects for legislative approval, selecting lands for these projects in conjunction with the Alaska Division of Forest, Lands and Water Management, conducting pilot marketing programs necessary for the projects, and providing overall management for agricultural development.

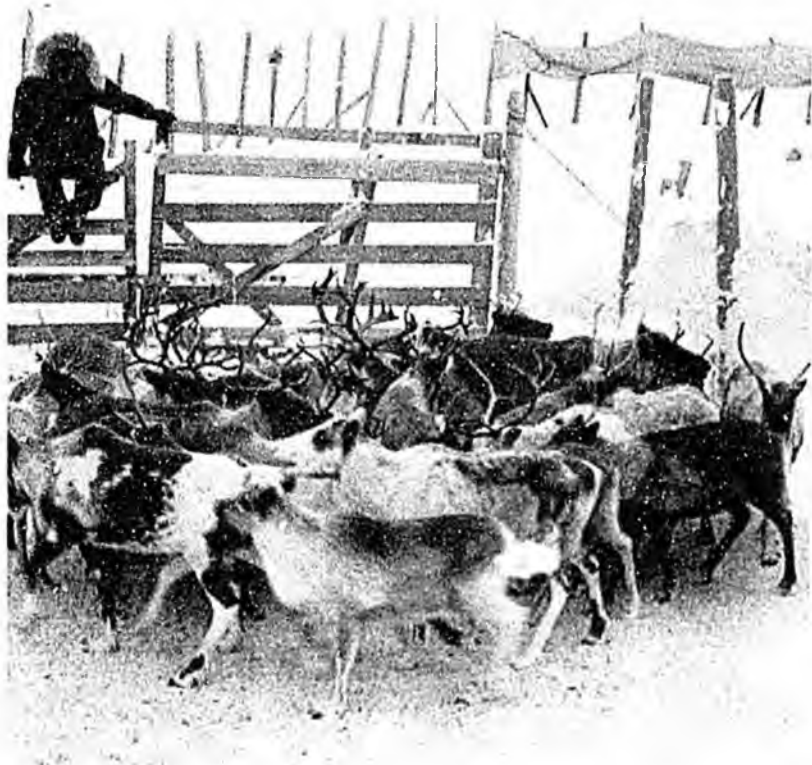


Production of vegetables for local use in rural areas is an important part of Alaska's agriculture.

### SUMMARY

The state land sold to farmers through these agricultural development projects is expected to total 250,000 acres by 1983. Expanding these projects to 500,000 acres by 1990 and establishing an export marketing system will provide feed grain in Alaska at a cost that will encourage the red-meat and dairy industries in the state.

Development of the production, marketing, and financing systems necessary for these projects will be encouraged and coordinated by the Agricultural Action Council. The goal of 500,000 acres in cultivation by 1990 is designed to provide an agricultural system of sufficient size to attain economic viability and ensure a strong food-production system for Alaska.



The local economy of western Alaska will be enhanced by further development of the reindeer industry.

### RELATED PROGRAMS

The Alaska Reindeer Herders Association and the Northwest Alaska Native Association are actively committed to developing Alaska's reindeer industry for the commercial production of meat and antlers. Sixteen reindeer grazing permits involving Federal land on the Seward and Baldwin Peninsulas were issued in 1978 and include almost sixteen million acres of land. In addition, the Alaska state legislature appropriated funds in 1979 to encourage vegetable production for local use in rural Native villages.

**Delta Agricultural Project:** In 1978, 60,000 acres of undeveloped state land near Delta Junction were sold in tracts ranging from 2,000 to 3,600 acres. By November, 1979, the trees had been knocked down on 80 percent of project land, and 25 percent will be cleared and ready for spring planting in 1980. Loans made available through legislative appropriations have provided financing for farmers to purchase and clear the land. State loans were also provided for a grain elevator and handling system and other components of the agricultural production and marketing infrastructure.



At Delta, 60,000 acres are being cleared.

Barley and rapeseed are expected to be the major commodities produced, with wheat as an additional possibility. Marketing studies are identifying export markets for these commodities. As a part of the project, a test marketing program was undertaken in 1979. Nearly 3,000 tons of barley were marketed through this program from that year's crop. All of this barley graded, on the average, U.S. No. 2 or better which is generally considered to be the minimum necessary for export as a feed grain. As the availability of feed grain increases in Alaska, it is anticipated that the livestock industry will expand, particularly in the area of pork production.

In addition to the Delta Project, 5,000 acres of state land were sold during 1978 in smaller tracts of 20 to 325 acres in the Tanana Loop near Delta Junction. These tracts are being developed for diversified farming enterprises. An additional 10,000 acres for such enterprises are to be sold near Delta Junction during the spring of 1980.

## PROPOSED PROJECTS

**Expansion of the Delta Project:** The sale of an additional 80,000 acres of state land adjacent to the Delta Agricultural Project is under consideration. Farm sizes similar to those established in the initial phase of the Delta Agricultural Project are recommended to take advantage of established production and marketing efficiencies. Increased production from this project will allow improved use of the agricultural infrastructure established for the initial project.

**Point MacKenzie Agricultural Project:** Plans have been completed for a 40,000-acre agricultural project near Point MacKenzie in the Susitna Valley north of Anchorage. The major



Dairy farms are envisioned at Point MacKenzie.

enterprise is expected to be dairy farming. Hay and vegetable farms are also likely to develop in the area. A schedule and project program for the MacKenzie Project and land sale will be presented to the 1980 state legislature.

**Nenana Agricultural Project:** An agricultural project near Nenana, on the Tanana River, encompassing as much as 300,000 acres is envisioned. Planning is in the preliminary stages because of uncertainties regarding land ownership by state and Federal governments and Native corporations. Consequently, it is likely that authorization to initiate this project will not be requested until 1981. Initially, the project will probably involve about 100,000 acres. It is anticipated that farming systems in this area will be similar to the agricultural development underway near Delta Junction.



Waves of grain: the wave of Alaska's future.

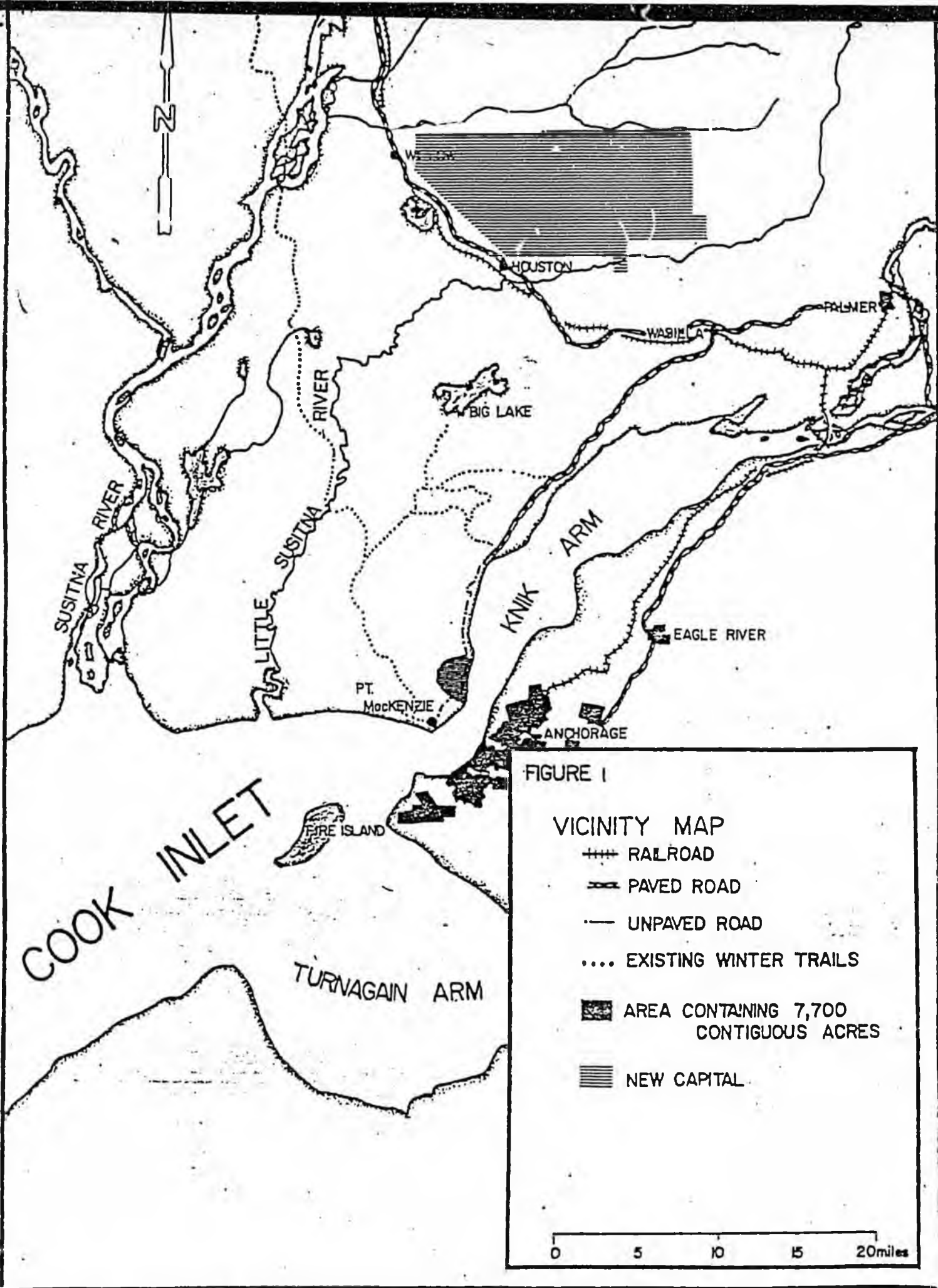
## POINT MACKINZIE AGRICULTURE DEVELOPMENT PROJECT

The proposed Point MacKinzie project is an agricultural development of 15,535 acres located in the Susitna Valley across Knik Arm from Anchorage. This project supports the Governors goals for development of a renewable resource industry with non-renewable resource funds, offers long-term net benefits to all Alaskans, and improves private market for needed goods and services.

An expanded dairy industry, especially fresh milk, will satisfy the existing market in Alaska. Also, it will contribute to a year-round stable economy. The dairy market at its present state is largely met by the Pacific Northwest. The Point MacKinzie dairy project will provide an Alaskan market for barley and straw from the only other large scale agricultural project in Alaska, the Delta Barley Project.

The Point MacKinzie Project will increase fresh milk self-sufficiency from the present 20 - 30% levels to the total requirements for the Anchorage and greater railbelt areas. With Alaska milk on the retail shelves there will be a limited dollar turnover to milk produced outside. The project will support 29 - 39 families and over 94 workers.

Jay Todd Lupejkis,  
Staff Researcher



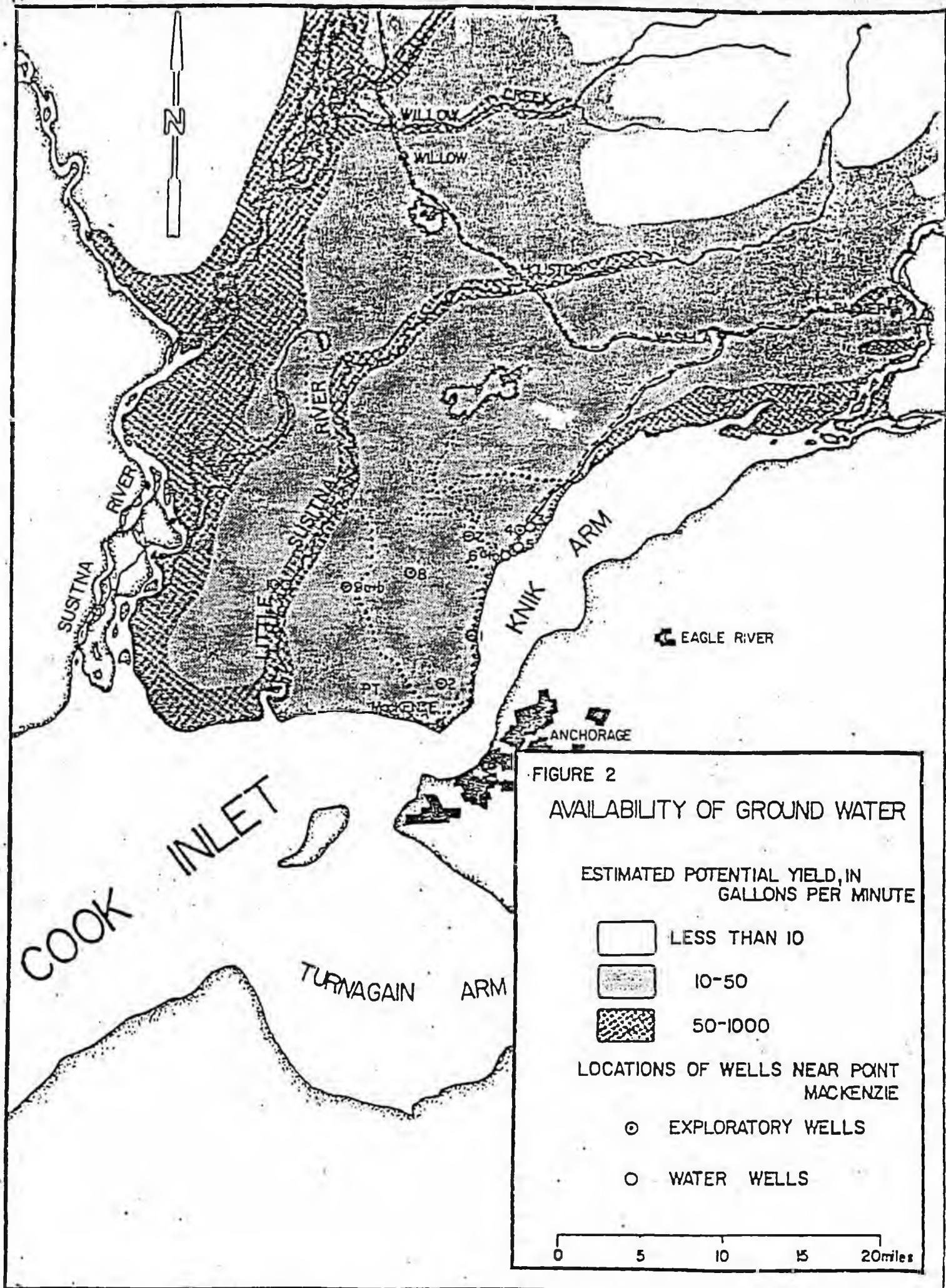


FIGURE 2  
 AVAILABILITY OF GROUND WATER

ESTIMATED POTENTIAL YIELD, IN GALLONS PER MINUTE

	LESS THAN 10
	10-50
	50-1000

LOCATIONS OF WELLS NEAR POINT MACKENZIE

- ⊙ EXPLORATORY WELLS
- WATER WELLS

0 5 10 15 20 miles

FIRST ANNUAL REPORT

July 1, 1979 - December 31, 1979

THE ALASKA AGRICULTURAL ACTION COUNCIL

W.I. "Bob" Palmer, Chairman  
Charles R. Webber  
Demonic L. Carney  
Paul Huppert  
Steve Hamilton

## C O N T E N T S

Report of Council Activities and Recommendations

Point MacKenzie Project Proposal

Point MacKenzie Project Layout (2 options)

Legal Description of Agricultural Lands Included in the Point MacKenzie Project Proposal

Legal Description of Agricultural Lands Included in the Delta Expansion Proposal

Economic Analysis of the Point MacKenzie Proposal

- Projected 3 year budget requirements for the Point MacKenzie Proposal
- Estimated labor payroll for Point MacKenzie Proposal

Matanuska - Susitna Borough Resolution #79 - 56 Supporting the Point MacKenzie Proposal

Proposed Legislation, as Required by AS 44.33.425 to Implement the Development Projects Recommended in this Report

Alaska Agricultural Action Council Report  
to the  
Second Session of the Eleventh Alaska Legislature

STATUTORY AUTHORITY AND REQUIREMENTS

The Alaska Agricultural Action Council was created by Chapter 75, SLA 1979, First Session, Eleventh Alaska Legislature. The effective life of the Council is from July 1, 1979, to July 1, 1984. AS 44.33 has been amended to reflect this legislation. AS 44.33.425 (a) states "Before January 15 of each year the council shall report to the governor and the legislature concerning the activities of the council during the current fiscal year. The report shall contain recommendations for the development of agriculture in the state during the next fiscal year.

MEMBERSHIP

The Council is composed of three state government and two private-sector members, who were appointed by Governor Jay S. Hammond on June 26, 1979, to serve four-year terms. It is chaired by the Special Projects Coordinator in the Office of the Governor. Members include Charles Webber, Commissioner of Commerce and Economic Development; Domonic Carney, Director, Division of Agriculture; W. I. "Bob" Palmer, Special Projects Coordinator, Office of the Governor; Steve Hamilton, Palmer; and Paul Huppert, Palmer. The Council is further aided by the expertise of Dr. Jim Drew, Dean of the School of Agriculture, University of Alaska, who serves as an ex-officio member in an advisory capacity. The Council is located in, but independent of, the Department of Commerce and Economic Development.

POWERS AND DUTIES

The Council's powers range from coordination of agricultural data collection, recommendation of agricultural promotion activities and land classification to the administration of the Delta Agricultural Project and any other agricultural development projects as authorized by the Legislature. The Council may also contract for the clearing, draining and breaking of agricultural land and for the construction of access roads in the Delta Project. The Council, in effect, becomes the agency for new, large-scale agricultural development and innovative technology.

In addition, the Council is mandated to report to the Legislature annually with recommendations for one or more agricultural projects; to propose legislation identifying the tasks of various state agencies necessary to accomplish the development project; and to propose legislation granting to the Council suf-

efficient authority to insure cooperation of all state agencies involved in the implementation of the agricultural development project.

### MEETINGS

The Council has met eight times since August 1, 1979. The Council, for the convenience of interested parties, has attempted to schedule strategically located meetings:

<u>DATE</u>	<u>PLACE</u>
August 1, 1979	Anchorage
August 14, 1979	Delta Junction
September 7, 1979	Palmer
October 2, 1979	Anchorage
October 22, 1979	Anchorage
November 5, 1979	Anchorage
November 23, 1979	Anchorage
December 4, 1979	Anchorage

The purpose of these meetings has been to discuss agricultural development now taking place in Delta Junction, a continuation of those efforts, projections for the future in this area, and proposed additional activity in developing the Point MacKenzie area for the purposes of rebuilding the dairy industry in Alaska. These subjects will be discussed at length later.

In addition to the Council members, the meetings have often included representation by the public, private industry, and Federal, state and municipal officials. Participation by such groups has been encouraged and welcomed.

### ACTIVITIES OF THE COUNCIL

In October, the Council traveled to Dawson Creek and Grande Prairie, British Columbia, to learn more of the lessons available from the long-term Canadian experience in developing agriculture in sub-arctic conditions, specifically with regard to rapeseed products, barley products and land-clearing methods. Three farms, two demonstration plots (one containing a field of no-till barley) and two elevator operations were visited. The Ag Council was joined on this trip by a couple of Delta Project tract owners, and the experience provided the additional information necessary to ensure more successful follow-through on the Delta Project and any others which might follow.

The activities of the Council have also included public meetings with the residents of Delta Junction and Palmer to discuss on-going or proposed agricultural development taking place in their communities.

Additionally, Council members are now involved in a joint Federal-State effort to identify problems and possible solutions to some of the problems faced by rural communities, as they relate to agricultural development. The groundwork for this effort was laid by Governor Hammond and Bob Palmer, who in late June

of 1979, met in Anchorage with Assistant Secretary of Agriculture for Rural Development, Alex Mercure, to discuss this issue. The Governor designated the Ag Council as the state side of this working group.

### BUDGET

\$100,000 was appropriated by the Legislature in the 1979 Operating Budget for travel and per diem expenses of the Alaska Agricultural Action Council.

Expenditures as of December 31, 1979, include:

### EXPENDITURES

	<u>Name</u>	<u>Amount</u>
I. TRAVEL AND PER DIEM		
	W. I. "Bob" Palmer (Chairman, AAAC)	
	Commissioner Charles Webber (Member, AAAC)	
	Domonic Carney (Member, AAAC)	
	Steve Hamilton (Member, AAAC)	
	Paul Huppert (Member, AAAC)	
	Dr. Jim Drew (Ex-officio member, AAAC)	
	Julie Hickey (AAAC Staff)	
	Sue Boyer (AAAC Staff)	
	TOTAL	\$ <u>15,032.00</u>
II. CONTRACTUAL		
	Business-Government Interaction, Inc. (preliminary visit, swine industry feasibility analysis)	3,700.00
	Agriculture Experiment Station, University of Alaska (professional services in conjunction with agricultural projects)	4,000.00
	TOTAL	\$ <u>7,700.00</u>
III. MISCELLANEOUS		
	Upper One Restaurant (Fred Harvey, Int'l) (meeting room, coffee and rolls for two meetings with 30 attending each)	193.30
	Long distance telephone calls	100.64
	TOTAL	\$ <u>293.94</u>

IV. GRAND TOTAL OF EXPENDITURES	\$ <u>23,025.94</u>
V. BALANCE	\$ <u>76,974.06</u>

DEVELOPMENT PLANS

Three projects being recommended to the Governor and the Legislature by the Council for consideration include the continuation of the Delta Barley Project, phase one of the Point MacKenzie Dairy Project and Delta II expansion. These have been included in the FY 1981 capital budget submission.

I. The first priority is the continuation of the existing Delta Project.

By virtue of AS 44.33.420, the Alaska Agricultural Action Council (AAAC) acts as administrator of the Delta agricultural development project. Today, approximately one year after the disposal of those agricultural lands under the Delta Barley Project, the AAAC can report the Project's progress:

1. Eighteen miles of good roads have been built to service the farmers;
2. An elevator-dryer complex has been constructed;
3. The first 3,000 tons of barley have been produced, dried, and are now in secure storage;
4. Initial sales in Alaska have been completed;
5. Overseas markets for surplus grains have been located;
6. Under a small-scale feed trial program negotiated between the State and Japanese officials, approximately 15 tons of Alaskan barley will be shipped to Hokkaido to determine if a premium price can be paid in the future for Alaskan barley.

Delta Project administration expenses are on-going in the year 1980-1981. The development plan allows the farmers to continue clearing during that period of time. The clearing contracts must be administered: the transportation and test marketing will require one to two years of additional work before transition to the private sector can be completed. One hundred thousand dollars is the best estimate at this time to cover those administrative expenses. Nine hundred thousand dollars is the continuation of the level of test marketing approved for the present fiscal year, and the \$1,000,000 of clearing funds deleted by the legislature as unneeded during the 1980 FY will be required during FY 1981. Total requested funding for the continuation of the Delta Project for FY '81 is \$2,000,000.

It should be emphasized very strongly that most, if not all, of the test marketing monies will be returned to the general fund when the grain is sold. The last year of test marketing will require a larger sum of money because considerably more acreage of grain will be planted and harvested so that sufficient production will result to enable a foreign bottom (Japanese or Taiwanese) to purchase the grain FOB tidewater in Alaska, rather than shipping smaller quantities to Seattle for trans-shipment with Lower 48 grain.

II. The second priority is the Point MacKenzie development.

While the original focus of the Delta Project was the production of small grains, the primary focus in Point MacKenzie will be on breathing new life into the dairy industry while providing additional lands for the vegetable, forage, and livestock industries. As Matanuska Valley agriculture shrinks under the never-ceasing encroachment of Anchorage bedroom community subdivisions, the number of dairy farms declines. When an existing dairy farmer decides to sell his farm the land value is usually so high as to be prohibitive for a farmer to purchase and instead becomes another subdivision. The net effect is the loss of additional dairy farms and more milk shipped in from the "outside". At present, approximately \$200,000 worth of bulk milk is shipped in each month, resulting in one more serious hemorrhage of Alaskan dollars flowing "out". If the transportation, marketing and processing infrastructure of the existing dairy industry is to survive, the aforementioned trend must be reversed.

Good agricultural soils well suited for dairy production, as well as forage crops and vegetables, exist in the Point MacKenzie area. Under the state law, which allows disposal of only the agricultural rights to this land, the present situation of farm to subdivision transaction could not occur and the dairy industry would be able to reverse its downward trend and expand as Alaska's population expands.

The capital budget submission for FY '81 includes \$300,000 for a survey of the Point MacKenzie acreage; \$1,450,000 for access roads; \$150,000 for the administration of the Point MacKenzie Project; \$80,000 for a dairy specialist who will be on the staff and working full-time on the Point MacKenzie Project as soon as the lottery is held; and \$3,600,000 for land clearing. The total requested for next fiscal year for the Point MacKenzie Project is \$1,335,500.

Point MacKenzie Proposal

A comprehensive proposal for the Point MacKenzie development is attached herewith for your review. We believe all relevant areas of development are covered, including detailed economic analysis and supporting documents. If further information is desired please contact the Special Projects Office, Office of the Governor, 465-3568.

III. The third priority is the Delta II expansion.

Delta "II" includes the disposal and development of approximately 85,000 additional acres in the Delta/Clearwater/Tanana Loop area north of the Richardson Highway.

Expansion is needed to:

1. assist in fulfilling the legislative mandate for disposal of 650,000 acres of agricultural lands;
2. meet the requirements for additional agricultural lands for economic farm units as voiced by Delta Junction residents and others throughout the State;
3. increase throughput throughout all phases of the infrastructure to lower unit costs and increase profit margins;
4. comply with the Ombudsman's suggestion that more lands be made available in the Delta Junction area as soon as possible.

Items included in the FY 1981 budget submission are:

1. Expenditures for survey	- \$ 300,000
2. 1st year Clearing	- 4,000,000
3. Elevator Construction Loan	- 1,500,000
4. Project Administration	- 150,000
5. Construction of Access Roads	- <u>2,000,000</u>
TOTAL	\$7,950,000

#### IV. The fourth priority is the expansion of processing facilities

Processing and transportation are the vital links between the producer and the consumer. Without efficient facilities to upgrade, refine, and transport agricultural production there can be no economic success. Several areas that need immediate attention are grain storage processing and transfer facilities, red meat processing and marketing, vegetable processing, coordination of fishing industry by-products with livestock industry, and agricultural input transportation, i.e., fertilizer, machinery, seed, breeding stock, etc.

Adequate financing is the most crucial need in establishing a sophisticated, efficient agricultural processing sector. The Renewable Resources Corporation may be the financing vehicle to provide the necessary infrastructure for processing and handling of Alaska's red meat, grain, oilseed, and vegetable crops. Initial construction and management of such facilities could be under the interim control of the Alaska Agricultural Action Council. As soon as possible, the ownership and management function should be transferred to the private sector.

## POINT MACKENZIE PROJECT PROPOSAL

### I. INTRODUCTION

In accordance with its vested responsibility and with experience obtained under the Delta Project, the Alaska Agricultural Action Council proposes a new agricultural project in the Susitna Valley across Knik Arm from Anchorage. Titled the Point MacKenzie Project, this proposal is another step toward further planned development of Alaska's agricultural potential.

### II. OBJECTIVES

The Point MacKenzie Project supports the Governor's goals to 1) stimulate the development of a renewable resource industry with non-renewable resource funds, 2) to encourage economic development which offers long-term net benefits to all Alaskans and 3) to improve the ability of the private market to provide needed goods and services. In addition the Matanuska Borough has long supported, and recently reinforced its support for this agricultural development project. The Borough also released a substantial portion of land to the State to provide a better managed project. The project also satisfies a recommendation of the Alaska Growth Policy Council, that "The Department of Natural Resources should make land available for agricultural development based on a proved potential and demand, and dispose of agricultural rights to these lands when appropriate..."

An expanding dairy industry in Alaska will more completely satisfy the existing market for dairy products, especially fresh milk, which is now being largely met by fluid milk from the Pacific Northwest. The dairy industry contributes to a year-round stable economy; encompassing production, processing, marketing and relevant service oriented industries. A modern

dairy farm is a major capital facility which includes livestock of high genetic potential, housing adequate to meet the needs of those animals, and sophisticated feed production equipment. These provide an important addition to the industrial-taxbase of Alaska. A major objective of the Point MacKenzie Project is the implementation of the program with deliberate speed to provide economy of scale to the dairy industry as quickly as possible, recognizing the need at this time for expanded in-state milk production to insure the very survival of the farmer-owned processing industry.

The Delta Project demonstrates the only large scale agricultural development in Alaska since statehood. It is perhaps simplistic to point out that the Point MacKenzie dairy project will provide an Alaskan market for Delta barley and straw.

The impact of the Matanuska Valley dairy industry is felt from the Kenai Peninsula to the Tanana Valley as it provides the formal framework for the artificial insemination industry in Alaska. The augmentation of the south-central dairy industry through initiation of the Point MacKenzie project could provide a base of support to developing dairy programs distant from it.

### III. ECONOMIC FEASIBILITY

A thorough analysis of the feasibility of on-farm and processing operations has been made. That analysis indicates that the dairy expansion will be profitable if the project proceeds as planned. Modern production

units using the latest, most cost efficient methods of handling the required high producing dairy cattle are considered key components of the project. The financial analysis assumed the development of adequate services such as power and ground transportation as the project proceeds. This project enjoys the bonus of an existing sophisticated marketing structure already in place and serving the market. In fact; the processing part of that industry has excess capacity, which if unused threatens the health and feasibility of the present industry. The present dairy industry also enjoys an existing, although small, infrastructure including feed processing and manufacturing capability, the technology of artificial insemination, and a computer record processing system which will not have to be developed as part of this effort.

The economic analysis has shown the need for high levels of animal performance and management required to attain it. Levels of performance attained by Alaskan dairy herds presently on the Dairy Herd Improvement record system affirm that these goals are realistic. It must be emphasized that the net return to individual dairy farms is dependent upon the attainment of high levels of milk production and management. Irrespective of farm size, production levels below 14,000 lbs per cow per year are considered to be inadequate. Furthermore, the success of the project is highly dependent upon the ability of the Alaska milk industry to maintain a competitive position relative to fluid milk available from the Pacific Northwest. Increased milk production and the addition of new technology to both farm and processing components would be dominant factors in reaching this goal. With an aggressive marketing approach, an increasing share of the Alaskan

milk markets will be gained by local milk.

The detailed analysis is attached.

#### IV. ECONOMIC IMPACT

The Point MacKenzie Dairy Proposal is designed to augment the small, viable industry remaining in the state. It will give economy of scale and stability to Alaska's present small, but profitable dairy industry which in turn provides the seed upon which this project will grow and develop. The project will initiate and support industry expansion to increase our fresh milk self-sufficiency from present levels of 20 - 30% to the total requirements in greater Anchorage and the railbelt area. An expanded industry will provide additional support for agricultural and support industries that are related to both commercial and subsistence lifestyles in Alaska. There are a number of factors contributing to the impact of the project to the local and state economies. It is difficult to document all of them for a project of this scope. An Alaskan based industry means that the multiplier effect will be felt to a considerable extent for any dollars spent to put Alaskan milk on the retail shelf compared to the limited dollar turnover for milk produced outside. This project will support 29-39 families and over 94 farm workers. It is expected an additional 15 families and workers will be added by off farm, new jobs. The project will add \$18.2 million of farm revenue to the Alaskan economy, and \$38.6 million in assessed property valuation

to the Matanuska Susitna Borough tax rolls. The development phase will add construction employees and a total construction payroll of approximately \$9,645,000 over the first two years.

The Point MacKenzie area is forested with birch and spruce of marginal commercial value, but with a resource recovery potential of 100 to 200 thousand cords that could be available to immediately provide a favorable impact for local labor and mills of the area.

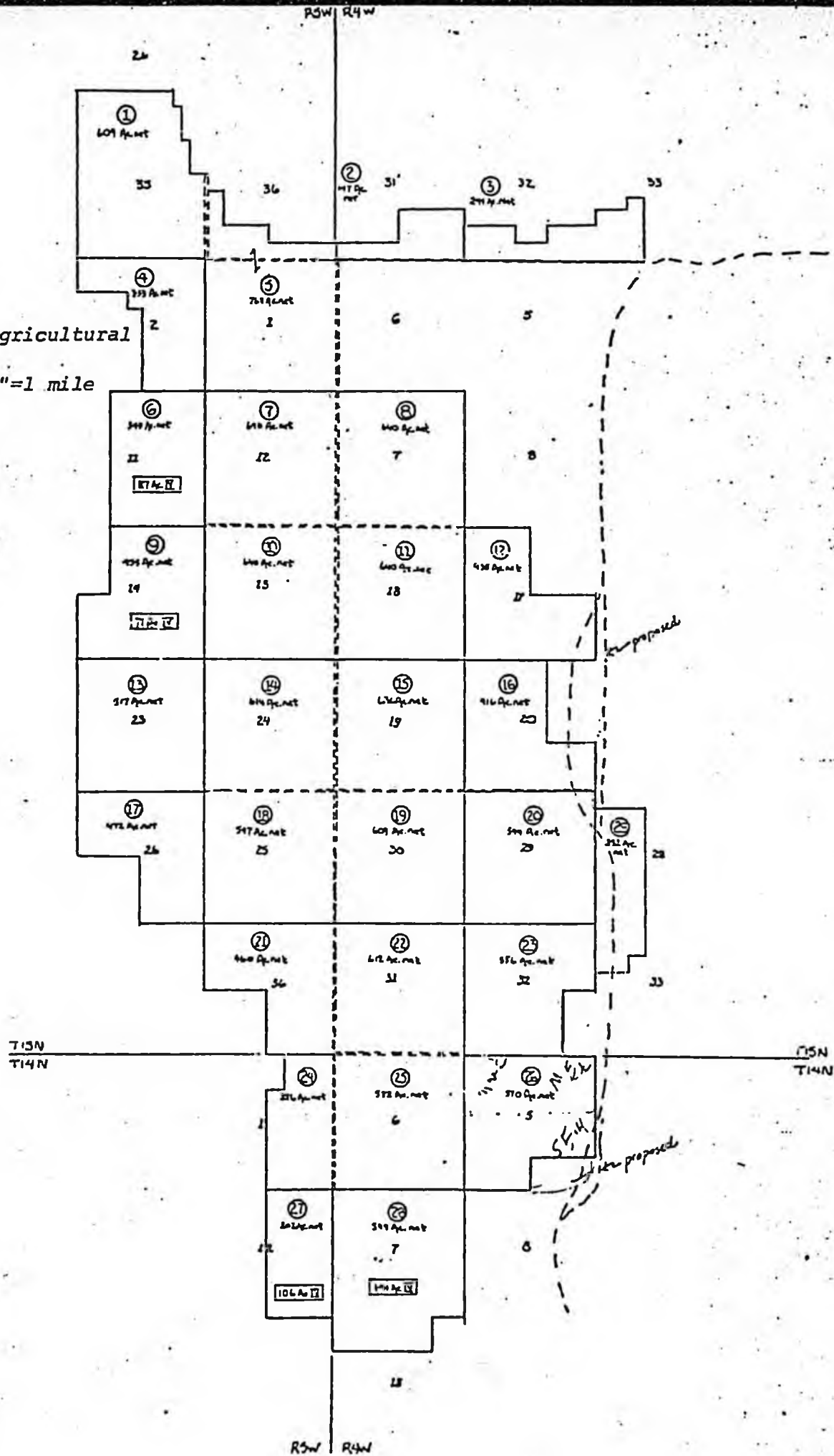
#### V. RECOMMENDATION

We recommend that the Point MacKenzie Project Proposal be given consideration and support by the legislature.

When consummated, this plan will see the development of 15,535 acres of agriculturally classified State lands in the Point MacKenzie area into 29-39 farms, designed as an economical size for dairying, vegetable and other agricultural uses. The State will build access roads to the parcel, and the proposal calls for State financing under existing, normal banking rules, of farm development, land clearing, operating chattel and livestock and to finance commercial timber and lumber operations.

The large increase of Alaskan produced grade A milk from the Point MacKenzie farms will not only enable the existing dairy industry to survive and flourish in competition with "outside" milk, but will also produce a more reliable supply of higher quality dairy products for Alaskan consumers.

Point Mackenzie Agricultural  
Project Scale 0.9"=1 mile



29 PARCEL LAYOUT

POINT MACKENZIE AGRICULTURAL PROJECT

Scale - 2" = 1 mile

Acreages shown on the various parcels as net are the estimated acres of Capability Class II and/or Class III soils. Capability Class IV soils where significant are shown on various parcels in a rectangle. Refer to the acreage summary for detailed acreage information.

This layout is intended for planning purposes only. The design of the proposed layout is based on soil survey data from the Matanuska Valley Area, Alaska (1968) and the Susitna Valley Area, Alaska (1973) Soil Surveys. The layout was completed without full consideration for photo distortion and/or detailed unit measurements, so it may have an error factor of plus or minus 5%.

POINT MACKENZIE AGRICULTURAL PROJECT  
29 PARCEL LAYOUT  
1/2/80 DRAFT

	II & III	IV	(w)	VI	(w)	VII	(w)	Water	Total
1.	609	16			(17)		(83)	5	730
2.	147						(5)	8	160
3.	241	4		11					256
4.	353	22			(3)		(25)		410
5.	768	12							780
6.	343	117					(20)		480
7.	640								640
8.	640								640
9.	455	71					(29)	5	560
10.	640								640
11.	640								640
12.	435	7		38					480
13.	517						(73)	50	640
14.	614						(9)	17	640
15.	631	9							640
16.	416	5		54		11		4	490
17.	472			5			(3)		480
18.	597	6					(11)	26	640
19.	609	31							640
20.	599	24		17					640
21.	460						(20)		480
22.	612	9						19	640
23.	556						(4)		560
24.	296						(4)		300
25.	582						(6)	52	640
25.	370	14	(62)	13			(101)		560
27.	202	106					(12)		320
28.	599	141	(14)	6					760
29.	252			48					300
	14,295	594	(76)	192	(25)	11	(406)	186	15,786

WILLOW

WASILLA

BIG LAKE

PROPOSED  
PROJECT  
AREA

PROPOSED ROAD 2  
(UNDER CONSTRUCTION)

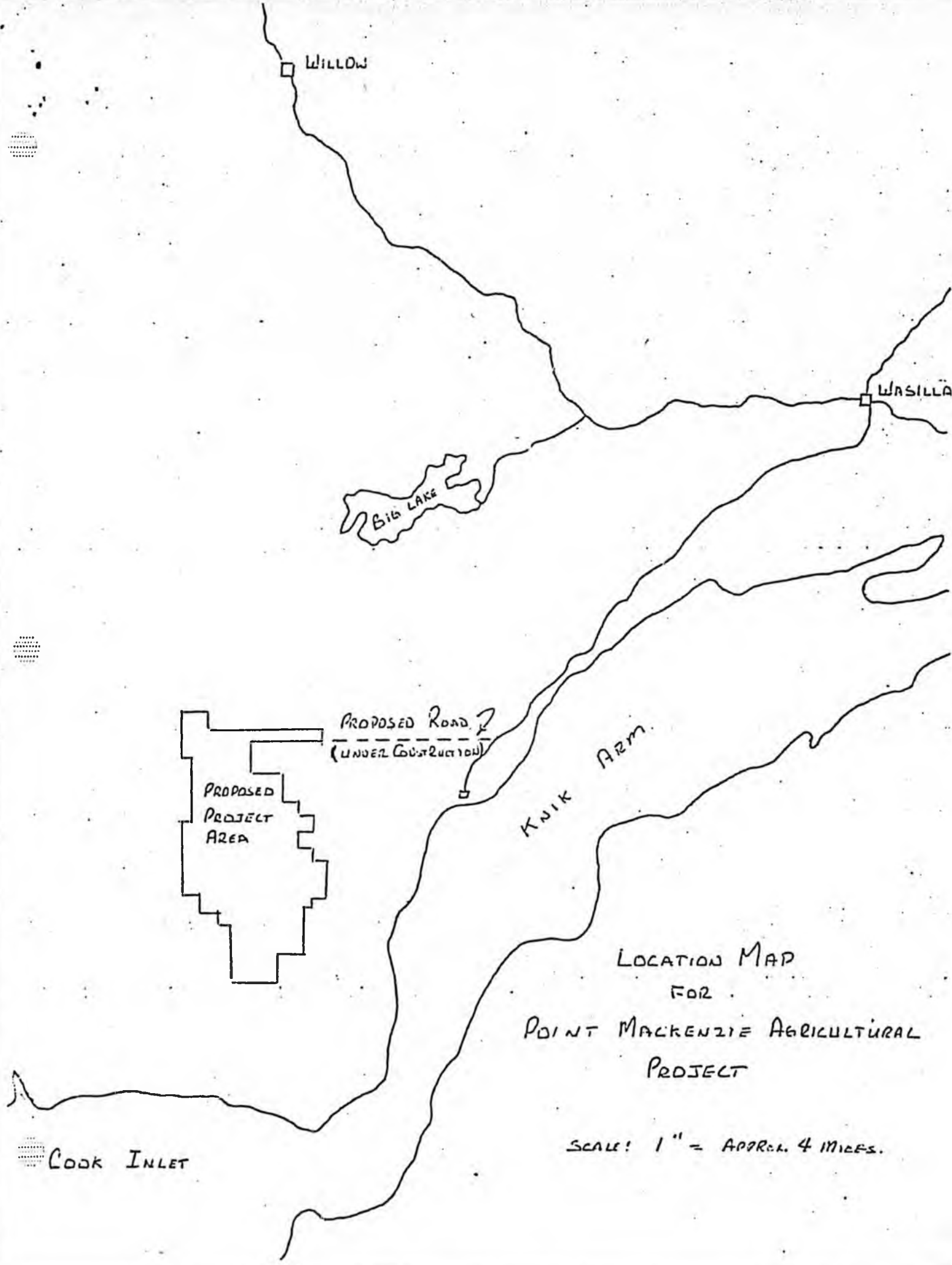
KNIK ARM.

LOCATION MAP  
FOR

POINT MACKENZIE AGRICULTURAL  
PROJECT

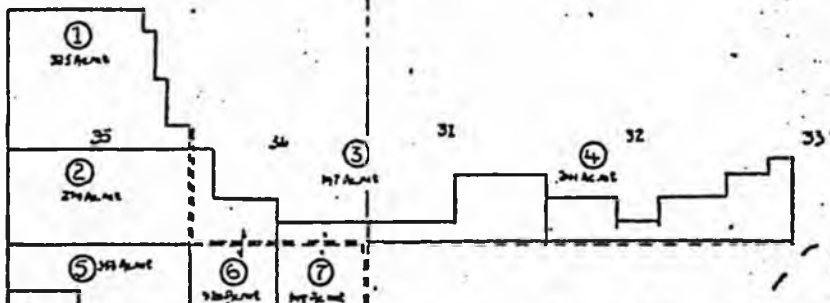
SCALE: 1" = APPROX. 4 MILES.

COOK INLET

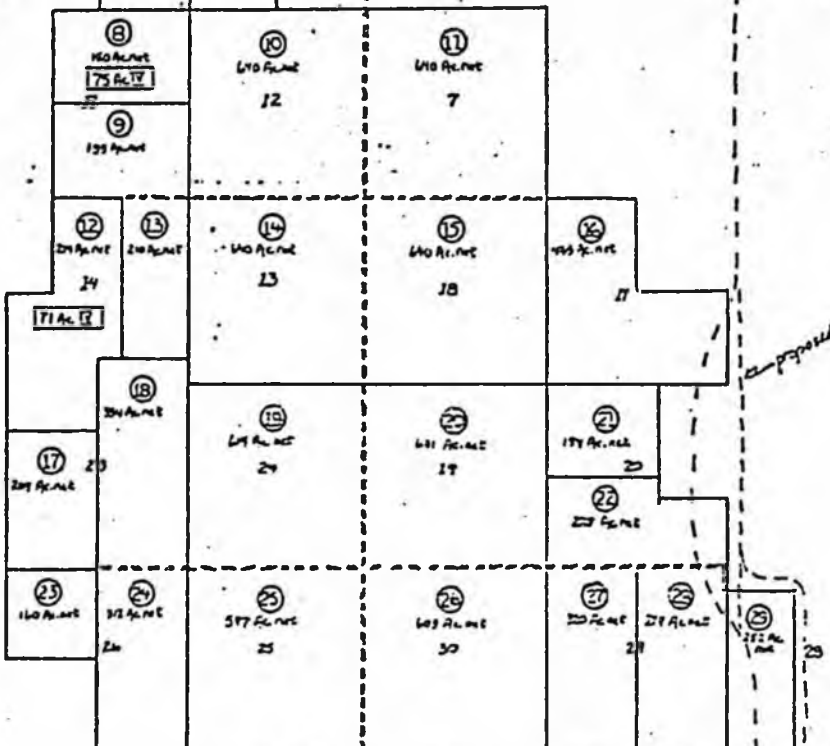


RSW R4W

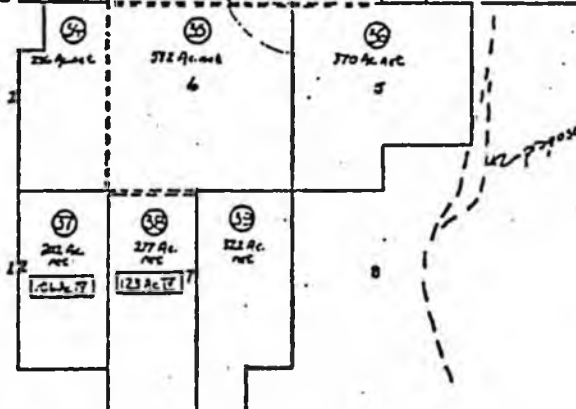
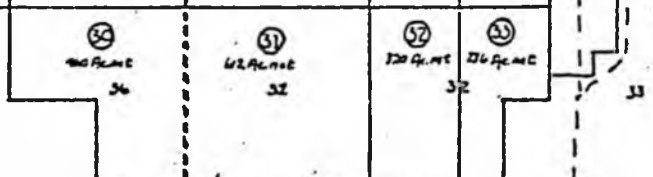
26



Point Mackenzie Agricultural  
Project Scale 0.9"=1 mile



T6N T14N



RSW R4W

39 PARCEL LAYOUT

POINT MACKENZIE AGRICULTURAL PROJECT

Scale - 2" = 1 mile

Acreages shown on the various parcels as net are the estimated acres of Capability Class II and/or Class III soils. Capability Class IV soils where significant are shown on various parcels in a rectangle. Refer to the acreage summary for detailed acreage information.

This layout is intended for planning purposes only. The design of the proposed layout is based on soil survey data from the Matanuska Valley Area, Alaska (1968) and the Susitna Valley Area, Alaska (1973) Soil Surveys. The layout was completed without full consideration for photo distortion and/or detailed unit measurements, so it may have an error factor of plus or minus 5%.

POINT MACKENZIE AGRICULTURAL PROJECT  
39 PARCEL LAYOUT  
1/2/80 DRAFT

	II & III	IV	(w)	VI	(w)	VII	(w)	Water	Total
1.	335	16			(7)		(47)	5	410
2.	274				(10)		(36)		320
3.	147						(5)	8	160
4.	241	4		11					256
5.	353	22			(9)		(26)		410
6.	420								420
7.	348	12							360
8.	150	75					(15)		240
9.	193	42					(5)		240
10.	640								640
11.	640								640
12.	219	71					(77)	23	390
13.	210								210
14.	640								640
15.	640								640
16.	435	7		38					480
17.	209						(20)	11	240
18.	334						(5)	21	360
19.	614						(9)	17	640
20.	631	9							640
21.	188			12					200
22.	228	5		42		11		4	290
23.	160								160
24.	312			6			(3)		320
25.	597	6					(11)	26	640
26.	609	31							640
27.	320								320
28.	279	24		17					320
29.	252			48					300
30.	460						(20)		480
31.	612	9						19	640
32.	320								320
33.	236						(4)		240
34.	296						(4)		300
35.	582						(6)	52	640
36.	370	14	(62)	13			(101)		560
37.	202	106					(12)		320
38.	277	123							400
39.	322	18	(14)	6					360
	205	504	(76)	192	(26)	11	(406)	186	15,786

WILLOW

WASILLA

BIG LAKE

PROPOSED ROAD 2  
(UNDER CONSTRUCTION)

PROPOSED  
PROJECT  
AREA

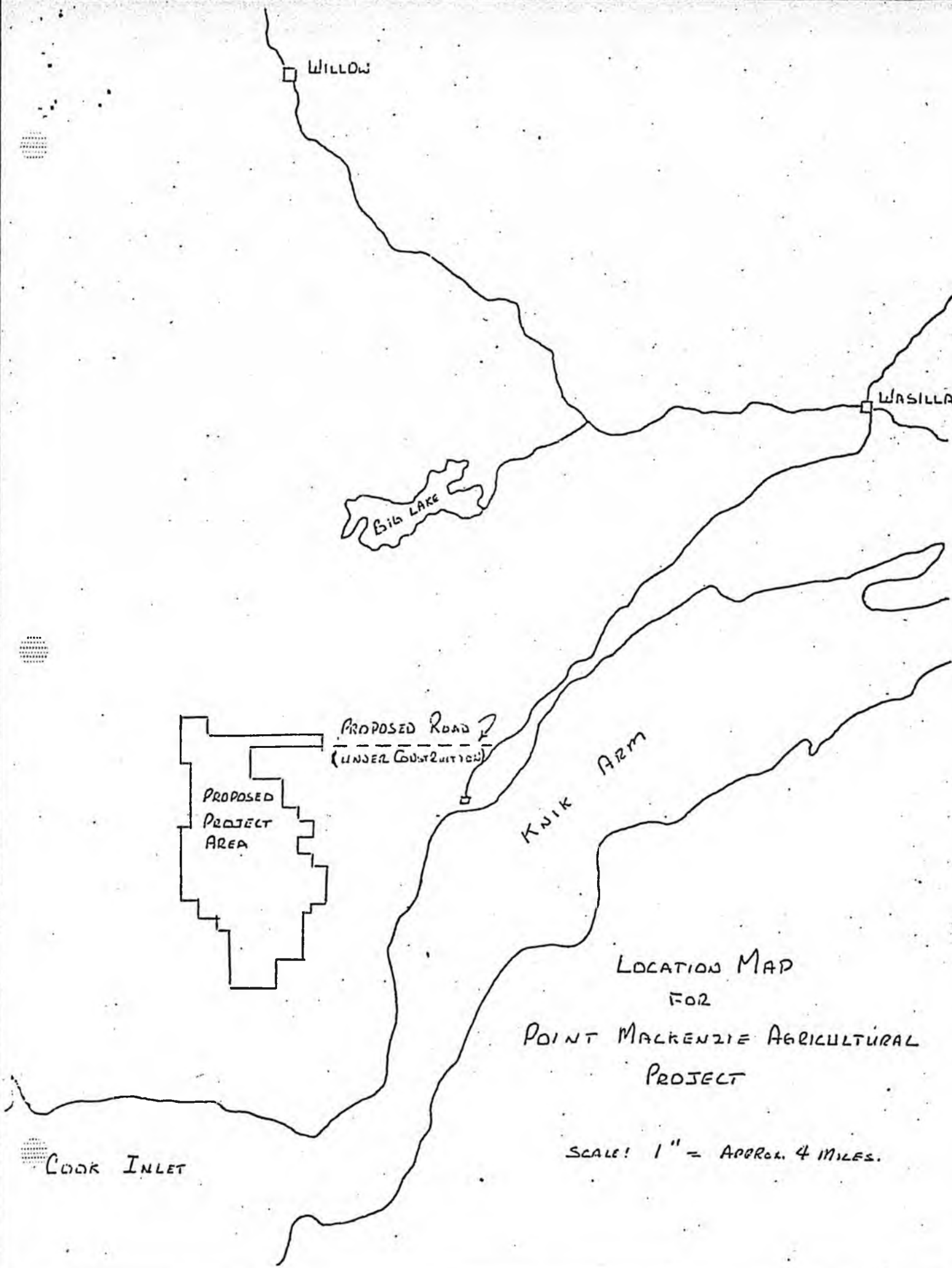
KNIK ARM

LOCATION MAP  
FOR

POINT MALKENZIE AGRICULTURAL  
PROJECT

SCALE: 1" = APPROX. 4 MILES.

COOK INLET



POINT MACKENZIE LEGAL DESCRIPTION

T.14N, R.4W, S.M.

- Sec. 5: W1/2, NEL/4, N1/2SE1/4
- Sec. 6: All
- Sec. 7: All
- Sec. 18: N1/2NW1/4, NW1/4NE1/4

Total: 1,960 Acres

T.14N, R.5W, S.M.

- Sec. 1: SE1/4, S1/2NE1/4, NE1/4NE1/4, E1/2NW1/2NE1/4
- Sec. 12: E1/2

Total: 620 Acres

T.15N, R.4W, S.M.

- Sec. 7: All
- Sec. 17: S1/2, NW1/4
- Sec. 18: All
- Sec. 19: All
- Sec. 20: W1/2, W1/2NW1/4NE1/4, W1/2SW1/2NE1/4, W1/2NW1/4SE1/4,  
SE1/4NW1/4SE1/4, S1/2NE1/4SE1/4, S1/2SE1/4
- Sec. 29: All
- Sec. 30: All
- Sec. 31: All
- Sec. 32: N1/2, SW1/4, W1/2SE1/4

Total: 5,330 Acres

T.15N, R.5W, S.M.

- Sec. 1: All
- Sec. 2: E1/2, N1/2NW1/4, NE1/4SE1/4NW1/4
- Sec. 11: E1/2, W1/2NW1/4, E1/2SW1/4
- Sec. 12: All
- Sec. 13: All
- Sec. 14: E1/2, SW1/4, E1/2NW1/4
- Sec. 23: All
- Sec. 24: All
- Sec. 25: All
- Sec. 26: N1/2, SE1/4
- Sec. 36: N1/2, SE1/4

Total: 6,250 Acres

Legal Description

-2-

T.16N, R.4W, S.M.

- Sec. 31: S1/2SE1/4, S1/2NE1/4SE1/4, S1/2NW1/4SE1/4, S1/2SE1/4SW1/4  
S1/2SW1/4SW1/4
- Sec. 32: SE1/4SE1/4, E1/2SW1/4SE1/4, SW1/4SW1/4SE1/4, SW1/4SW1/4,  
W1/2SE1/4SW1/4, SE1/4SE1/4SW1/4
- Sec. 33: S1/2NW1/4SW1/4, S1/2NE1/4SW1/4, NE1/4NE1/4SW1/4,  
N1/2SE1/4SW1/4, N1/2SW1/4SW1/4

Total: 385 Acres

T.16N, R.5W, S.M.

- Sec. 26: S1/2SE1/4, S1/2SW1/4
- Sec. 35: All
- Sec. 36: W1/2NW1/4NW1/4, W1/2SW1/4NW1/2, SE1/4SW1/4NW1/4,  
W1/2NW1/4SW1/4, S1/2SW1/4, S1/2SW1/4SE1/4, S1/2SE1/4SE1/4

Total: 990 Acres

Grand Total: 15,535 Acres

1

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Additions to Point MacKenzie Legal Description

Please make these changes in the legal description of Point MacKenzie:

T.15N, R.4W, S.M.

Sec. 20: All

Sec. 28: WL/2

Sec. 32: All

Sec. 33: WL/2

The total acreage for T.15N, R.4W, S.M. will be 6,170 acres bringing the grand total for the Project to 16,375 acres.

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DELTA II -- WEST OF DELTA RIVER

T.8S., R.9E., F.M.

Sec. 36: S $\frac{1}{2}$ SW $\frac{1}{4}$

TOTAL: 80 Acres

T.9S., R.9E., F.M.

Sec. 1: West of Tanana River

Sec. 2: S $\frac{1}{2}$ , NE $\frac{1}{4}$

Sec. 3: E $\frac{1}{2}$ NE $\frac{1}{4}$

Sec. 12: All

Sec. 13: E $\frac{1}{2}$ , NE $\frac{1}{4}$ NW $\frac{1}{4}$

Sec. 24: NE $\frac{1}{4}$ NE $\frac{1}{4}$

TOTAL: 2,060 Acres

T.9S., R.10E., F.M.

Sec. 7: West of Delta River

Sec. 18: NW $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ , S $\frac{1}{2}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$ , S $\frac{1}{2}$ SW $\frac{1}{4}$ NE $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$ , W $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$

Sec. 19: E $\frac{1}{2}$ NE $\frac{1}{4}$ , S $\frac{1}{2}$ , NW $\frac{1}{4}$

Sec. 20: W $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$

Sec. 28: SW $\frac{1}{4}$ SW $\frac{1}{4}$

Sec. 29: S $\frac{1}{2}$ , NW $\frac{1}{4}$ , NW $\frac{1}{4}$ NE $\frac{1}{4}$

Sec. 30: All

Sec. 32: NE $\frac{1}{4}$ NE $\frac{1}{4}$ , S $\frac{1}{2}$ SE $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , S $\frac{1}{2}$ SW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$

Sec. 33: W $\frac{1}{2}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$

TOTAL 3,075 Acres

T.10S., R.10E., F.M.

Sec. 4: W $\frac{1}{2}$ , SE $\frac{1}{4}$ , S $\frac{1}{2}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ NE $\frac{1}{4}$

Sec. 5: N $\frac{1}{2}$ NW $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ NE $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$

Sec. 8: N $\frac{1}{2}$ SW $\frac{1}{4}$ , S $\frac{1}{2}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$

Sec. 9: All

Sec. 10: W $\frac{1}{2}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ SW $\frac{1}{4}$

Sec. 15: SW $\frac{1}{4}$ , S $\frac{1}{2}$ NW $\frac{1}{4}$ , NW $\frac{1}{4}$ NW $\frac{1}{4}$

Sec. 16: N $\frac{1}{2}$ , SW $\frac{1}{4}$

Sec. 17: E $\frac{1}{2}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$

Sec. 20: S $\frac{1}{2}$ , NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$

Sec. 21: S $\frac{1}{2}$ , NW $\frac{1}{4}$

Sec. 22: W $\frac{1}{2}$ NW $\frac{1}{4}$

Sec. 28: E $\frac{1}{2}$  West of Delta River & North of Military Boundary

Sec. 29: All

Sec. 31: NE $\frac{1}{4}$ SE $\frac{1}{4}$

Sec. 32: North of Military Boundary

Sec. 33: North of Military Boundary

TOTAL: 5,450 Acres

GRAND TOTAL OF DELTA WEST: 10,665 Acres

DELTA II - NORTH & EAST OF PROJECT

T.10S., R.13E., F.M.

- Sec. 11: South of Gerstle River
- Sec. 12: South of Tanana River
- Sec. 13 All
- Sec. 14: South of Tanana River
- Sec. 15: South of Tanana River
- Sec. 16: South of Tanana River
- Sec. 21: E $\frac{1}{2}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$
- Sec. 22: All
- Sec. 23: All
- Sec. 24: All
- Sec. 25: All
- Sec. 26: All
- Sec. 27: All
- Sec. 28: E $\frac{1}{2}$ , SW $\frac{1}{4}$
- Sec. 29: S $\frac{1}{2}$
- Sec. 30: E $\frac{1}{2}$ SE $\frac{1}{4}$
- Sec. 31: NE $\frac{1}{4}$ NE $\frac{1}{4}$
- Sec. 32: N $\frac{1}{2}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ NE $\frac{1}{4}$
- Sec. 33: NW $\frac{1}{4}$ , W $\frac{1}{2}$ NE $\frac{1}{4}$
- Sec. 34: E $\frac{1}{2}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$
- Sec. 35: All
- Sec. 36: All

TOTAL: 9,560 Acres

T.10S., R.14E., F.M.

- Sec. 7: South of Tanana River
- Sec. 8: South of Tanana River
- Sec. 16: West of Tanana River
- Sec. 17: All
- Sec. 18: All
- Sec. 19: All
- Sec. 20: All
- Sec. 21: West of Tanana River
- Sec. 22: All
- Sec. 25: South of Tanana River
- Sec. 26: South of Tanana River
- Sec. 27: All
- Sec. 28: All
- Sec. 29: All
- Sec. 30: All
- Sec. 31: All
- Sec. 32: All
- Sec. 33: All
- Sec. 34: All
- Sec. 35: All
- Sec. 36: All

TOTAL: 10,690 Acres

DELTA II - NORTH & EAST OF PROJECT, cont.

T.10S., R.15E., F.M.

Sec. 30: South of Tanana River

Sec. 31: West of Tanana River

TOTAL: 490 Acres

T.11S., R.13E., F.M.

Sec. 1: All

Sec. 2: All

TOTAL: 1,280 Acres

T.11S., R.14E., F.M.

Sec. 1: All

Sec. 2: All

Sec. 3: All

Sec. 4: North of Existing Project

Sec. 5: North of Existing Project

Sec. 9: E $\frac{1}{2}$

Sec. 10: All

Sec. 11: All

Sec. 12: West of Tanana River

Sec. 13: West of Tanana River

Sec. 14: All

Sec. 15: All

Sec. 16: E $\frac{1}{2}$

Sec. 21: East of Gerstle River

Sec. 22: North of Gerstle River & SE $\frac{1}{4}$ SE $\frac{1}{4}$

Sec. 23: All

Sec. 24: West of Tanana River

Sec. 25: West of Tanana River

Sec. 26: E $\frac{1}{2}$

Sec. 35: All

Sec. 36: West of Tanana River

TOTAL: 9,780 Acres

T.11S., R.15E., F.M.

Sec. 6 West of Tanana River

Sec. 7 West of Tanana River

Sec. 31: West of Tanana River

TOTAL 420 Acres

T.12S., R.14E., F.M.

Sec. 1: All

Sec. 2: East of Gerstle River

Sec. 11: East of Gerstle River

Sec. 12: All

Sec. 13: All

Sec. 14: East of Gerstle River

Sec. 24: N $\frac{1}{2}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$

Sec. 36: E $\frac{1}{2}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$

TOTAL 3,360 Acres

DELTA II - NORTH & EAST OF PROJECT, cont.

T.12S., R.15E., F.M.

- Sec. 6: West of Tanana River
- Sec. 7: West of Tanana River
- Sec. 8: South of Tanana River
- Sec. 9: South of Tanana River
- Sec. 10: West of Tanana River
- Sec. 15: West of Tanana River
- Sec. 16: All
- Sec. 17: All
- Sec. 18: All
- Sec. 19: All
- Sec. 20: All
- Sec. 21: All
- Sec. 22: West of Tanana River
- Sec. 27 West of Tanana River
- Sec. 28: All
- Sec. 29: All
- Sec. 30: NE $\frac{1}{2}$ NE $\frac{1}{4}$ , S $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , SW $\frac{1}{2}$ SW $\frac{1}{4}$
- Sec. 31: All
- Sec. 32: N $\frac{1}{2}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$
- Sec. 33: N $\frac{1}{2}$

TOTAL: 9,500 Acres

T.13S., R.15E., F.M.

- Sec. 3: S $\frac{1}{2}$  & SW $\frac{1}{2}$ NE $\frac{1}{4}$  West of Tanana River
- Sec. 4: S $\frac{1}{2}$
- Sec. 5: North of Alaska Highway
- Sec. 6: North of Alaska Highway & East of Gerstle River
- Sec. 9: North of Alaska Highway
- Sec. 10: North of Alaska Highway & West of Tanana River
- Sec. 11: South of Tanana River
- Sec. 13: South of Tanana River
- Sec. 14: North of Alaska Highway
- Sec. 15: North of Alaska Highway
- Sec. 24: E $\frac{1}{2}$  North of Alaska Highway

TOTAL: 3,360 Acres

GRAND TOTAL: 48,440 Acres

Potential Milk Production  
in the  
Point MacKenzie Area of Southcentral Alaska



University of Alaska  
Alaska Agricultural Experiment Station  
Cooperative Extension Service  
Fairbanks

Potential Milk Production  
in the  
Point MacKenzie Area of Southcentral Alaska

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December 3, 1979

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## FOREWORD

The information presented in this bulletin is part of a report prepared for the Agricultural Action Council of the State of Alaska. The group was formed in 1979 by legislative action to plan and manage agricultural development projects within the state headed by W. I. Palmer, Special Projects Director of the Office of the Governor.

The report on the feasibility of milk production in the Point MacKenzie Area presented to Governor Hammond through the Alaska Agricultural Action Council was prepared by the authors of this bulletin and Dr. Boyd Buxton, Agricultural Economist, U.S.D.A., stationed at the University of Minnesota at St. Paul and Dr. Paul Fugelstadt, Agricultural Economist, U.S.D.A., stationed in Anchorage, Alaska, both of whom are acknowledged with gratitude.

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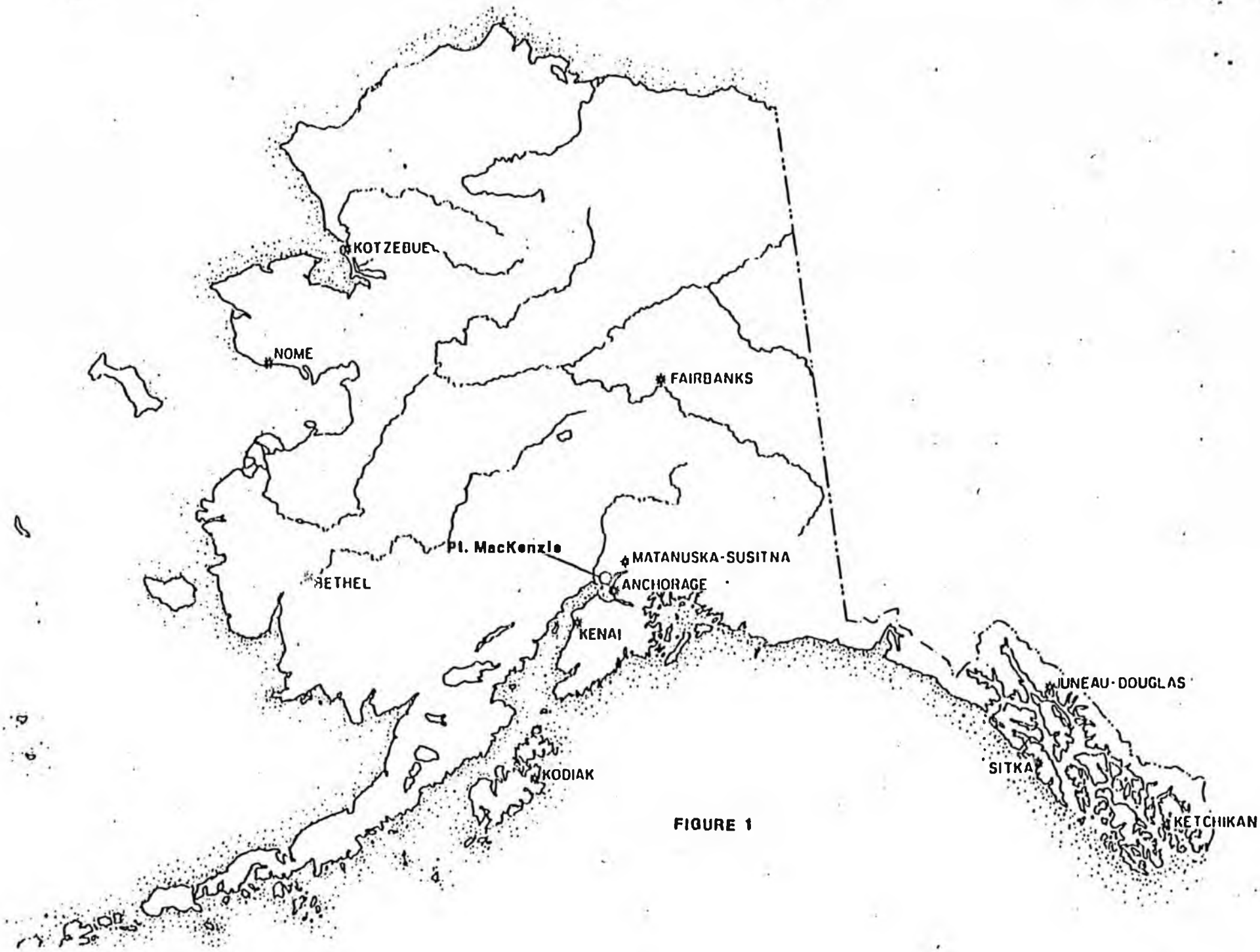


FIGURE 1

## SECTION 1

### INTRODUCTION

Point MacKenzie is an area northwest of Anchorage directly across the Knik Arm of Cook Inlet (see Figure 1 ). It is located in the Matanuska-Susitna Borough and contains a substantial amount of latent agricultural land. Discussion regarding Point MacKenzie and its agricultural potential have been ongoing for some time. The catalyst which activated the recent planning process directed at MacKenzie is a concern over potential loss of the southcentral dairy industry. This was expressed on May 4, 1979, in a letter from Jack Flint, General Manager, Matanuska Maid, Incorporated, to Governor Jay Hammond. "It is my opinion that if we do not take immediate steps to stabilize this important phase of agriculture, [the dairy industry] will pass from the scene. I think that if it should occur, it would be a serious blow to the State of Alaska, economically and socially. I believe we should also realize that if the dairy industry should cease to exist within the state, it is going to be very difficult to re-establish it."

Mr. Flint's letter and collateral action by the Matanuska-Susitna Borough have activated planning processes of the State of Alaska toward the Point MacKenzie area by the Alaska Agricultural Action Council which was created by the 1979 state legislature to plan, recommend and administer agricultural development projects on state lands in Alaska.

The council held a meeting in the Matanuska Valley in September, 1979, and determined that a feasibility study should be undertaken for the Point MacKenzie area. The study was to be directed toward dairy production. This report is that feasibility study.

Before we present the analysis, certain general assumptions were made . These include:

1. Sufficient state land is available in the Point MacKenzie area to undertake a dairy development project.

2. Land price is \$100 per acre with a \$50 homestead credit making the effective price \$50 per acre to the farmers.
3. Land clearing costs are \$220 per acre for project farms.
4. The dairy farms will be designed for forage production in the form of silage and haylage; concentrate, hay and straw requirements will be met by off-farm purchases.
5. Private slaughter facilities are presently available in the Matanuska Valley to handle cull cows and calves from project lands.
6. Electrical power hook-up will be provided each farm.
7. Roads to each farm will be constructed.

In the next sections the farm economics of dairy production in southcentral Alaska will be considered as well as the marketing and transportation of milk from farm to processor. In addition, an aggregation of project capital costs will be presented to highlight the capital needs. The final segment will include implications of the study.

## SECTION 2

### FARM ECONOMICS

This portion of the report is divided into a number of subsections. The first provides a discussion of the physical facilities used in the simulated dairies. The total capital investment cost is estimated for four sizes of dairies milking 50, 75, 100, and 150 cows. These are the numbers of cows milked daily. Because cows are dry for two months each year, herds actually total 60, 90, 120, and 180 cows, respectively. The next subsection provides total farm budgets for these dairy herds. This is followed by one possible plan for bringing new dairies into full production and a cash flow analysis for these dairies during their first three years of operation.

#### Capital Costs for Four Dairy Sizes

Capital costs were determined using examples from existing dairies in Alaska's Matanuska Valley, Minnesota and Wisconsin. Barn designs assume a controlled environment. Housing for replacement heifers and dry cows is assumed to be in cold facilities. Silage, haylage and/or hay is fed year-round. Feeding is automated to the point of using auger load-out into feed mixers and either feed carts or augers to feed bunks.

Costs of buildings and silos were estimated on a per square foot basis. It is recognized that this method does not account for economies which could be realized by expanding a 50 cow barn to a barn twice the size, that is; twice the amount of material is not required. The same is the case for silos. On the other hand, economies are realized in feed and milk handling equipment. As an example, feed load-out to service 100 cows would also service 150.

Trade-offs were made between labor and technology. The technology level in all units was kept in the medium range typical of that in existence in the majority of the United States dairies. No system in any of the dairies is completely automated. State-of-the-art energy technology was also not incorporated although some items are currently available. Two particular examples are the production of methane from wastes and heating a portion of the barn area with waste heat from cooling warm milk.

## Barns and Milking Facilities

Barn and milking facility construction costs were based on a full truss structure, 4-inch insulation in walls and ceiling, and concrete floors and bunks. A figure of \$15.00/ft.<sup>2</sup> was estimated from Fairbanks construction cost for similar structures (utility buildings). This figure includes the iron-work for free stalls, stanchions, and milking facilities, as well as heating and ventilation.

Typical layouts for stanchion barns and free stall barns are shown in Figure 2. The stanchion barns are based on 36-foot barn widths, two rows of cows facing out. Free stall barns are 78-feet wide with four rows of stalls and a center feed bunk. The stanchion operations do not require a milking parlor. Milking is performed in the stalls using individual milkers and a pipeline to the milk room. Free stall barns have been provided with a milking parlor and an area for holding cows, maternity pens, hospital area, office and lavatories, as well as a milk room.

All barns are controlled environments kept at a minimum of 45° F throughout the year. Ventilation systems for the barns are adequate to move a maximum of 200 cfm of air per 1,000 lb. of animal weight. Heating is accomplished through the ventilation system using oil fired burners. Construction costs include year-round heating capacity (a minimum of) to 45° F with an oil fired burner and ventilation fans moving 3,000 cfm in the milk house and 400 cfm per stall in the milking parlor. Units using a fuel other than oil could be used to obtain the same results at approximately the same costs.

Milking equipment in the stanchion barns includes the bulk tank, milking units, pipeline, vacuum pump, cooling compressors and associated plumbing. Four milking machines handling 40-50 cows per hour were included as were tank sizes of 900 gallon average assuming an every other day milk pick-up. The free stall milking operations were based on six and eight stall double herring bone (DHB) parlors. All other components are the same as in stanchion facilities. Sizes are based on gallons of production.

Barn and milking parlor designs and sizes are summarized in Table 1.

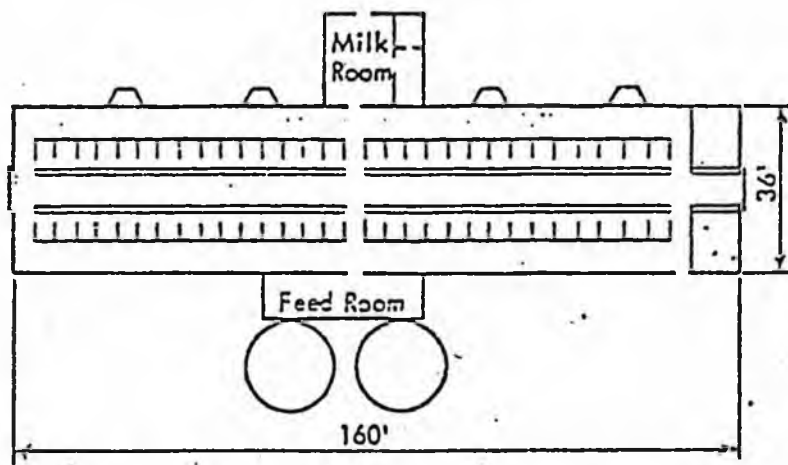
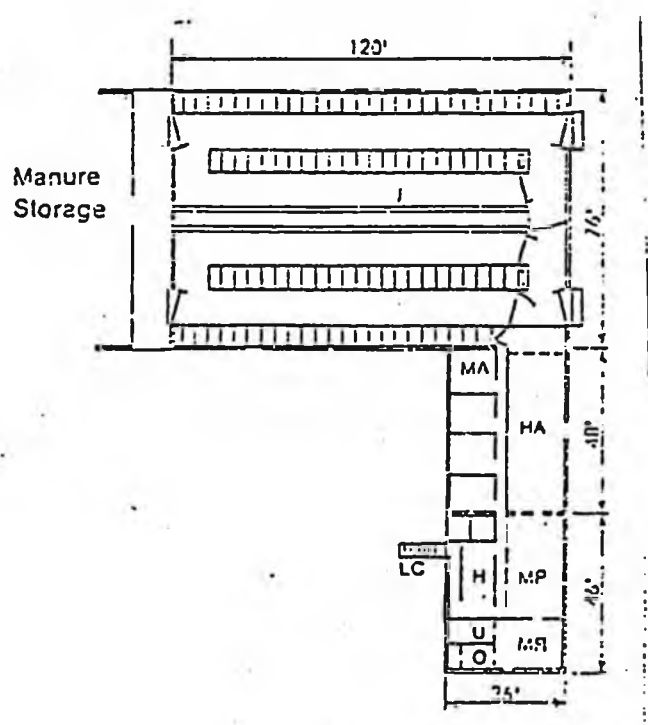


Figure 2. The upper drawing illustrates a typical stanchion barn. The unit shown houses 60 milking cows. The lower illustration is a 100 cow, free-stall facility including a holding area (HA), maternity area (MA), hospital (H), milking parlor (MP), milk room (MR), utility and office area (U,O) and a loading chute (LC).



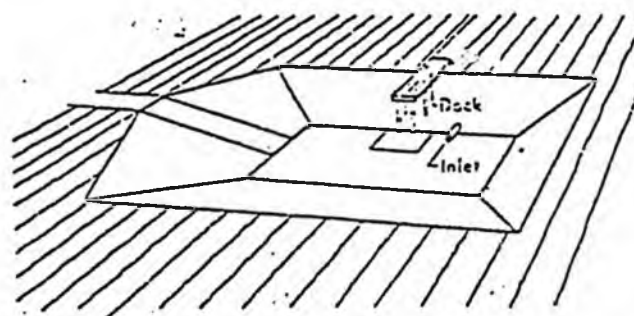
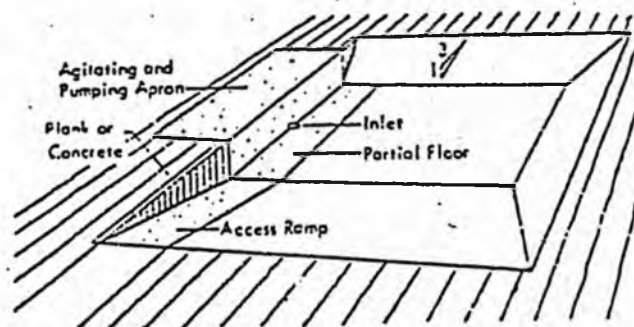


Figure 3. Two types of manure storage basins. The upper illustration includes a picket gate or a plank or concrete wall to facilitate unloading.

Table 1: Barn and Milking Facility Specifications

	Barn Size	Ft <sup>2</sup> per Cow	Milk Parlor Size	Milk Room Size	Milking Equipment	Tank Capacity	Total Cost
50 Cow Stanchion	36' x 133'	96		20' x 20'	1-1/2" pipeline 2 units	825 gal.	\$117,820
75 Cow Stanchion	36' x 200'	96	—	20' x 20'	2" pipeline 3 units	1,100 gal.	\$169,000
100 Cow Free Stall	78' x 120'	94	36' x 94'		6 stall. DHB	1,375 gal.	\$271,160
150 Cow Free Stall	78' x 180'	94	36' x 96'		8 stall DHB	2,200 gal.	\$342,020

#### Waste Handling

All farming operations were based on handling manure in the semi-solid form. An earth basin slurry system without a liner similar to that shown in Figure 3 should be adequate in the Point MacKenzie area. Removal of manure from barns is accomplished by barn scrapers dumping into a settling pit where a piston pump moves it to the earth storage basin. Slurry pumps are used to agitate and load manure into tank wagons. Mats are provided in all barns for ease in stall clean-up.

Milk house waste was handled using a separate leach field for this cost study. Because barn wastes are handled as semi-solids, milk house wastes need not have a separate system. In fact, there are indications that problems such as plugging of the drain field may occur in colder climates. It was felt to be informative to include the separate system in this report, however. Lavatory wastes are diverted into a separate septic system at a cost of \$3,000 for each farm unit. Table 2 shows the components and component costs for farm waste disposal systems.

Table 2: Waste Disposal Systems<sup>a</sup>

	50 Cow	75 Cow	100 Cow	150 Cow
Basin <sup>b</sup>	\$ 6,392	\$ 7,936	\$11,664	\$11,664
Barn Cleaner	5,040	9,040	10,300	10,300
Mats	4,020	5,640	7,176	8,058
Piston Pump <sup>c</sup>	8,300	8,300	8,300	8,300
Load-out Pump <sup>c</sup>	4,100	4,100	4,100	4,100
Slurry Pump <sup>c</sup>	5,000	5,000	5,000	5,000
Piping	2,000	2,000	2,000	2,000
Manure System Total	\$34,852	\$42,016	\$48,540	\$49,422
Leachfield	800	1,198	1,598	2,298
Septic System	3,000	3,000	3,000	3,000
TOTAL	\$38,652	\$46,214	\$53,138	\$54,720

<sup>a</sup>All hardware based on University of Wisconsin 1977 estimates. 1979 Wisconsin = 1977 Wisconsin x 1.20. 1979 Alaska = 1979 Wisconsin x 1.15.

<sup>b</sup>Basin size based on an 8 month or 240 day storage period holding 2 ft<sup>3</sup>/day/cow.

<sup>c</sup>Pumps 20 HP in size are adequate to move 3,000 gpm over a rise of 10 feet.

#### Feed Storage

The two components of the dairy ration are roughage which includes silage or haylage, concentrates, and hay. Calf starter will be required for the calving operation. To obtain storage facility sizes, it was assumed all components would handle an annual supply. This may not be the case with calf starter. However, it forms a small portion of the total feed requirement and less than annual purchase would alter the space requirement very little.

#### Silos

Silos were assumed to be uninsulated. The maximum height of the silos was kept in the neighborhood of 60 feet, 10 feet of which is unloader space. The silo loading system uses a 30 HP electric motor with blowers for top loading. Top unloading silos load-out feed at the silo side into the feed room. This requires a 20 HP electric motor. To obtain a capital cost per ft<sup>3</sup>, 1979 Wisconsin prices and adjusted southcentral Alaska prices were used. The estimated erected cost is

\$2.18/ft<sup>3</sup> including loading and unloading facilities. Because of possible problems with freezing along silo sides, base diameters were kept as large as possible while still maintaining a near 60 foot height. The additional parameter of a load-out rate of no less than six inches per day was used to further alleviate the possible freezing problems. Table 3 gives silo sizes and capacities and total cost of silage storage.

Table 3: Silo Capacities

	Silage Stored	Silo Size	Number of Silos	Total Cost
50 Cow	1077T	28' x 60'	2	\$160,997
75 Cow	1622T	28' x 60'	3	\$241,496
100 Cow	2154T	30' x 60'	3	\$317,257
		22' x 48'	1	
150 Cow	3231T	30' x 60'	5	\$462,500

#### Concentrate

The concentrate fed will most likely be purchased in bulk. If annual storage is required for dairy operations, the cost of construction is estimated at \$1.00 per bushel. Table 4 lists storage required and total cost. An alternate method would be to purchase a pelleted feed several times during the year. Less storage space would be required in this case.

Table 4: Concentrate Storage

	Bushels Fed	Storage Size	Total Cost
50 Cow	9,226	10,000 BU	\$10,000
75 Cow	13,862	15,000 BU	\$15,000
100 Cow	18,434	20,000 BU	\$20,000
150 Cow	26,643	30,000 BU	\$30,000

### Starter, Hay, Bedding

Building storage for starter, hay and bedding is in metal, uninsulated buildings with concrete floors. The buildings are ventilated through louvres and eaves. Current Fairbanks cost estimates indicate that buildings can be constructed for \$13.00/ft<sup>2</sup>. Table 5 gives the amount of feed stored, building size and cost of construction.

Table 5: Starter, Hay and Bedding Storage

	Total Hay <sup>a</sup>	Total Straw <sup>b</sup>	Total Starter <sup>c</sup>	Building Size	Total Cost
50 Cow	9,599 ft <sup>3</sup>	10,935 ft <sup>3</sup>	75 ft <sup>3</sup>	40 x 60	\$31,632
75 Cow	14,587 ft <sup>3</sup>	16,515 ft <sup>3</sup>	109 ft <sup>3</sup>	50 x 70	\$46,130
100 Cow	19,053 ft <sup>3</sup>	21,645 ft <sup>3</sup>	146 ft <sup>3</sup>	50 x 90	\$59,310
150 Cow	28,507 ft <sup>3</sup>	32,310 ft <sup>3</sup>	216 ft <sup>3</sup>	40 x 80 40 x 90	\$89,624

<sup>a</sup>Bales 4' x 2' x 2' weighing 70 pounds were used.

<sup>b</sup>Straw bale size is 4' x 2' x 2' and weight is 50 pounds per bale.

<sup>c</sup>100 lb. bags sized at approximately 1.3 ft<sup>3</sup>.

### Machinery Storage and Workshop

The dairies will be producing silage and haylage for use on each farm. In addition to equipment associated primarily with this operation, at least front end loader storage will be required for the dairy. Additionally, a heated workshop will be necessary for repairs and maintenance. The storage space required per machine includes 15% space for movement. The workshop size is based on the largest piece of equipment on the farm and includes a working area of approximately 100% the equipment space (8 feet on sidewalls, 5 feet at ends). Also included are a grease pit and refueling tanks. Capital cost and construction for the machinery storage are the same as those for hay and straw storage. Workshop capital costs include a metal building, four inches of insulation and heating using oil burning units. Construction costs are estimated at \$14.50/ft<sup>2</sup>. Table 6 gives the machinery and workshop sizes and total costs.

Table 6: Machinery Storage and Workshop

	Machinery	Workshop	Total Cost
50-75 Cow	40 x 60	40 x 46	\$58,312
100-150 Cow	40 x 75	40 x 46	\$66,220

### Calf, Heifer, and Dry Cow Housing

Several controversies exist concerning the housing of calves. Indications are that calf death rates are less if they are removed to cold housing one day after birth. The cold housing recommended is a 4' x 14' hutch, 4' x 8' of which is a plywood shed free from drafts and bedded with straw, 4' x 6' being a hog wire enclosed exposed area for feeding. In high snow areas, management of the hutches may be difficult. Therefore, an alternative is offered by putting the "hutches" in a cold building. The additional advantage is that the calf housing can be combined with that for heifers and dry cows in a single building. The major plus in this type of system is that feeding can be accomplished in one building and that manure handling (a straw pack removed in spring and periodically throughout the summer) is a single operation. The straw pack waste is removed to the fields in spring and fall.

Housing costs are the same as those used for hay and straw storage plus \$1.00/ft<sup>2</sup> for iron and \$2,000 for all units for plumbing. Space for animals was determined using standard allotments. Twice the hutch area was used per calf to enable hutches to be moved before being occupied by a new calf. Table 7 shows space per cow by age, total number of cows housed, total space and total cost.

Table 7: Calf, Heifer and Dry Cow Housing

	SPACE PER COW			NUMBER OF COWS HOUSED <sup>b</sup>				Total Space ft <sup>2</sup>	Building Size	Total Cost \$
	0-2 mo.	2-12 mo.	12-24 mo. <sup>a</sup> dry cows.	0-2 mo.	2-12 mo.	12-24 mo.	dry cows			
50 cows	56 ft <sup>2</sup>	25 ft <sup>2</sup>	110 ft <sup>2</sup>	19	19	16	10	3,499	40' x 90'	\$ 51,615
75 cows	56 ft <sup>2</sup>	25 ft <sup>2</sup>	110 ft <sup>2</sup>	28	28	25	15	5,380	50' x 100'	78,288
100 cows	56 ft <sup>2</sup>	25 ft <sup>2</sup>	110 ft <sup>2</sup>	37	37	32	20	7,037	50' x 140' <sup>c</sup>	101,784
150 cows	56 ft <sup>2</sup>	25 ft <sup>2</sup>	110 ft <sup>2</sup>	55	55	48	30	10,515	60' x 180' <sup>c</sup>	151,103

<sup>a</sup>Includes 45 ft<sup>2</sup> of resting area and 65 ft<sup>2</sup> of lot area.

<sup>b</sup>Assumes a 15% loss at 0-3 months, no losses at 3-12 months, 12% loss at 12-24 months and a herd replacement of 25% of the total.

<sup>c</sup>Two 50' x 70' or two 60' x 90' buildings could be used.

### Feed Handling

Feed handling in stanchion units is accomplished by electric cart although a feed bunk system could also be used. Free stall barn feeding is done by auger into the feed bunks. Provisions have been included for feed mixing at the silo unload area. The silos load-out into a feed mixer and then into either carts or the auger hopper. A feed mixer is provided to keep feed consistency constant if both haylage and silage are fed. Approximate cost is \$4,000 per silo.

### Well

There is limited data which would indicate the depth of wells required in the Point Mackenzie area. It was assumed a 100 foot well at an eight inch diameter would be adequate to provide a 3,000 gpm flow rate. The current average cost for drilling, casing and pump is \$35 per running foot. This cost is included in each farm unit.

## Total Capital Costs

The total capital investment for the four dairy systems is given in Table 8. On a per cow basis, the 150-cow, free-stall dairy requires the least capital injection. Tables 9 through 12 show the annual and monthly cash and noncash owner costs associated with the dairies. Costs allocated to the dairies only are associated with milking and dry cows. Those allocated to the replacement heifers include animals required for a 25% annual herd replacement and are aged 0 to 24 months. Feed-associated cost allocation was accomplished on a feed requirement basis as follows:

<u>Feed Storage Facility</u>	<u>Dairy Cows</u>	<u>Replacement Heifers</u>
Silos	84%	16%
Hay and Bedding Storage	17%	83%
Concentrate Storage	81%	19%

Calf and dry cow housing costs are based on a 78% occupancy by heifers and 22% occupancy by dry cows.

## Farm Budgets

Enterprise costs and returns presented in this report were estimated for several alternative-sized dairy operations that could be located in the Point MacKenzie area of Alaska. Costs were estimated for dairy herds milking 50, 75, 100, and 150 cows. Returns from the sale of calves and culls were specifically identified. However, a specific assumption of per herd milk production was not used in the analysis. Rather, revenues from calf and cull sales were first subtracted from costs, and then the average milk production per cow required to cover all remaining costs was estimated. Included in the costs was a charge for operator labor of \$15,000 per year. Returns arising from milk production above that required to break-even is the return to management. Operator labor therefore was accounted at a level comparable to the cost of hired labor.

Table 8: Total Capital Investment

	50-Cow Stanchion	75-Cow Stanchion	100-Cow Free Stall	150-Cow Free Stall
Barn & Iron	\$ 71,820	\$108,000	\$140,400	\$ 210,600
Ventilation	7,500	11,278	10,000	15,000
Milk Room	6,000	6,000	N/A	N/A
Milk Parlor	N/A	N/A	50,760	51,420
Milking Equipment	40,000	55,000	80,000	80,000
Silos	160,997	241,496	317,257	462,500
Manure Handling	38,652	46,214	53,138	54,720
Concentrate Storage	10,000	15,000	20,000	30,000
Hay & Bedding Storage	31,632	46,130	59,310	89,624
Machine Storage	31,632	31,632	39,540	39,540
Workshop	26,680	26,680	26,680	26,680
Calf & Dry Cow Housing	51,615	78,288	101,784	151,103
Well	3,500	3,500	3,500	3,500
Feed Handling	8,000	12,000	16,000	20,000
<b>TOTAL</b>	<b>\$488,028</b>	<b>\$681,218</b>	<b>\$918,369</b>	<b>\$1,234,687</b>

Table 9: Annual Cash and Non-Cash Owner Costs for the 50-Cow Stanchion Dairy

	Depreciation (years)	Depreciation <sup>a</sup> (\$)	Investment Cost <sup>b</sup> (\$)	Insurance <sup>c</sup> (\$)	Taxes <sup>d</sup> (\$)	Repairs & Maintenance <sup>e</sup> (\$)	Total Cost (\$)
<b>DAIRY</b>							
Barn & Iron	30	2,394	2,155	503	934	1,436	7,422
Ventilation	10	713	236	53	98	150	1,250
Milk Room	30	200	180	42	78	120	620
Milking Equipment	10	3,800	1,260	280	520	800	6,600
Silos	20	6,520	4,057	947	1,758	2,704	15,986
Manure Handling	20	2,058	1,176	274	509	784	4,801
Concentrate Storage	20	450	243	57	105	162	1,017
Hay & Bedding Storage	20	269	161	38	68	108	644
Machine Storage	20	1,582	949	221	411	633	3,796
Workshop	20	1,334	800	187	347	534	3,202
Calf & Dry Cow Housing	20	568	341	79	148	227	1,363
Well		350	105	25	46	70	596
Feed Handling Equipment	10	760	252	56	104	160	1,332
<b>ANNUAL TOTAL</b>		<b>20,998</b>	<b>11,915</b>	<b>2,762</b>	<b>5,126</b>	<b>7,888</b>	<b>48,689</b>
<b>REPLACEMENT HEIFERS</b>							
Silos		1,288	772	180	349	515	3,104
Concentrate Storage		95	57	13	25	38	228
Hay Storage		1,312	789	184	341	525	3,151
Calf & Dry Cow Housing		2,013	1,208	282	524	805	4,832
<b>ANNUAL TOTAL</b>		<b>4,708</b>	<b>2,826</b>	<b>659</b>	<b>1,239</b>	<b>1,883</b>	<b>11,315</b>

<sup>a</sup>Depreciation is calculated using the straight line method. Salvage value is 5% of new cost for equipment and zero for buildings.

<sup>b</sup>Investment costs are charged at 6% annual rate using:

$$\text{Investment Cost} = \frac{\text{New Cost} + \text{Salvage}}{2} (\text{Interest Rate})$$

<sup>c</sup>Insurance rates are \$7.00 per \$1,000 new cost.

<sup>d</sup>Taxes are 13 mil, the current rate in the Mat-Su Borough.

<sup>e</sup>Repairs and maintenance are charged at 2% of new cost.

Table 10: Annual Cash and Non-Cash Owner Costs for the 75-Cow Stanchion Dairy<sup>a</sup>

	Depreciation (years)	Depreciation (\$)	Investment Cost (\$)	Insurance (\$)	Taxes (\$)	Repairs & Maintenance (\$)	Total Cost (\$)
<b>DAIRY</b>							
Barn & Iron	30	3,600	3,240	756	1,404	2,160	11,160
Ventilation	10	536	355	79	147	226	1,343
Milk Room	30	200	180	42	78	120	620
Milking Equipment	10	5,225	1,733	385	715	1,100	9,158
Silos	20	10,143	6,086	1,420	2,637	4,057	24,343
Manure Handling	20	2,426	1,456	323	601	924	5,730
Concentrate Storage	20	608	365	85	158	243	1,459
Hay & Bedding Storage	20	392	236	55	102	157	942
Machine Storage	20	1,582	949	221	411	633	3,796
Workshop	20	1,334	800	187	347	534	3,202
Calf & Dry Cow Housing	20	507	517	121	224	344	1,713
Well	10	350	105	25	46	70	596
Feed Handling Equipment	10	580	378	84	156	240	1,434
<b>ANNUAL TOTAL</b>		<b>27,483</b>	<b>16,400</b>	<b>3,783</b>	<b>7,026</b>	<b>10,808</b>	<b>65,500</b>
<b>REPLACEMENT HEIFERS</b>							
Silos		1,931	1,159	270	503	773	4,636
Concentrate Storage		143	86	20	37	57	343
Hay Storage		1,914	1,149	268	498	766	4,595
Calf & Dry Cow Housing		3,053	1,832	427	468	720	6,500
<b>ANNUAL TOTAL</b>		<b>7,041</b>	<b>4,226</b>	<b>985</b>	<b>1,506</b>	<b>2,316</b>	<b>16,074</b>

<sup>a</sup>Footnotes as in Table 9.

Table 11: Annual Cash and Non-Cash Owner Costs for the 100-Cow Free-Stall Dairy<sup>a</sup>

	Depreciation (years)	Depreciation (\$)	Investment Cost (\$)	Insurance (\$)	Taxes (\$)	Repairs & Maintenance (\$)	Total Cost (\$)
<b>DAIRY</b>							
Barn & Iron	30	4,788	4,309	1,006	1,867	2,873	14,843
Ventilation	10	1,425	473	105	195	300	2,498
Milk Room	30	200	180	42	78	120	620
Milking Equipment	10	7,600	2,520	560	1,040	1,600	13,320
Silos	20	13,324	7,994	1,865	3,464	5,330	31,977
Manure Handling	20	2,657	1,594	372	691	1,063	6,377
Concentrate Storage	20	810	486	113	211	324	1,944
Hay & Bedding Storage	20	504	302	71	131	202	1,210
Machine Storage	20	1,977	1,186	277	514	791	4,745
Workshop	20	1,334	800	187	347	534	3,202
Calf & Dry Cow Housing	20	1,119	672	158	291	448	2,688
Well	10	760	252	56	104	160	1,332
Feed Handling Equipment	10	1,520	504	112	208	320	2,664
<b>ANNUAL TOTAL</b>		<b>38,018</b>	<b>21,272</b>	<b>4,924</b>	<b>9,141</b>	<b>14,065</b>	<b>\$7,420</b>
<b>REPLACEMENT HEIFERS</b>							
Silos		2,358	1,523	355	660	1,015	6,091
Concentrate Storage		190	114	27	49	76	456
Hay & Bedding Storage		2,461	1,477	345	640	985	5,908
Calf & Dry Cow Housing		3,969	2,382	556	1,032	1,588	9,527
<b>ANNUAL TOTAL</b>		<b>9,158</b>	<b>5,496</b>	<b>1,283</b>	<b>2,381</b>	<b>3,664</b>	<b>21,982</b>

<sup>a</sup>Footnotes as in Table 9.

Table 12: Annual Cash and Non-Cash Owner Costs for the 150-Cow Free-Stall Dairy<sup>a</sup>

	Depreciation (years)	Depreciation (\$)	Investment Cost (\$)	Insurance (\$)	Taxes (\$)	Repairs & Maintenance (\$)	Total Cost (\$)
<b>DAIRY</b>							
Barn & Iron	30	7,020	6,318	1,474	2,738	4,212	21,762
Ventilation	10	1,425	473	105	195	300	2,498
Milk Room	30	1,714	1,543	360	668	1,028	5,313
Milking Equipment	10	7,600	2,520	560	1,040	1,600	13,320
Silos	20	19,425	11,655	2,720	5,051	7,770	46,121
Manure Handling	20	2,747	1,648	385	714	1,099	6,593
Concentrate Storage	20	1,215	729	170	316	486	2,916
Hay & Bedding Storage	20	762	457	107	198	305	1,829
Machine Storage	20	1,977	1,186	277	514	791	4,745
Workshop	20	1,334	800	187	347	534	3,202
Calf & Dry Cow Housing	20	166	997	233	432	665	2,493
Well	10	350	105	25	46	70	596
Feed Handling Equipment	10	1,900	630	140	260	400	3,330
<b>ANNUAL TOTAL</b>		<b>47,635</b>	<b>29,061</b>	<b>6,743</b>	<b>12,519</b>	<b>19,260</b>	<b>115,215</b>
<b>REPLACEMENT HEIFERS</b>							
Silos		1,388	2,200	518	962	1,480	6,548
Concentrate Storage		285	171	40	74	114	684
Hay & Bedding Storage		3,719	2,232	521	961	1,488	8,921
Calf & Dry Cow Housing		5,893	3,536	825	1,532	2,357	14,143
<b>ANNUAL TOTAL</b>		<b>11,285</b>	<b>8,139</b>	<b>1,904</b>	<b>3,529</b>	<b>5,439</b>	<b>30,296</b>

<sup>a</sup>Footnotes as in Table 9.

Base assumptions reflected in estimated budgets were:

1. Cows are milked ten months of the year and dry two.
2. All feed is purchased except for silage which is grown on the farm.
3. Dairies replace 25% of the herds annually with springer heifers.
4. All replacement heifers are provided by dairies in the third year of operation.
5. Family labor is the only labor used on 50- and 75-cow dairies. It has been suggested that the 75-cow dairy may require one additional laborer if a stanchion barn is used.
6. Dairies with 100 cows require one laborer while the 150 head dairy requires two laborers and one herdsman in addition to family labor.
7. Dairies of 50 and 75 cows use a stanchion confinement-stall system. With 100 and 150 cows, a free-stall system is used.
8. An interest rate of 6% is charged against the capital investment. A 9% interest charge is leveled against operating capital.
9. All breeding is with artificial insemination.
10. Three acres of cropland in silage production are required for each milking and dry cow in the dairy herd.

Data for this analysis were obtained from several sources. Feed rations, production techniques, and production costs were developed in consultation with animal scientists of the University of Alaska Agricultural Experiment Station and experienced Alaskan dairymen. Silage production costs are detailed in a preliminary USDA working paper available from the authors. Investment requirements are described in an earlier section. Milk prices were obtained from the Matanuska Maid Inc., while prices for calves and culls were provided by marketing specialists of the Alaska Division of Agriculture and Alaskan dairymen.

Production costs are summarized in Table 13. Total costs for the 50, 75, 100, and 150 cow dairies were \$173,059.53, \$236,958.44, \$320,637.46, and \$472,166.45, respectively. Costs were divided into feed cash costs, non-feed cash costs, and non-cash costs. Of these three cate-

gories, feed was the major expense accounting for approximately 39% of total cost for each herd. The largest cost in the non-feed cash cost category was replacement heifer cost. As a percentage of all non-feed cash costs, this item ran from 46% for 50 cows to 48% for 75 cows, to 43% for 100 cows, and finally to 38% for 150 cows. Major costs in non-cash costs were operator labor and interest and depreciation on facilities. As noted previously, we have included an operator labor charge of \$15,000 annually as an absolute minimum under which an owner would be willing to remain in business.

In Table 14, returns from sales of calves and culls and the average milk production per cow required to cover all remaining costs are provided. In our analysis, farmers receive 30 cents per pound for cull cows, \$800 per animal for cull heifers, \$12 per head for calves, and \$16.84 per cwt for milk.

The required milk production to cover all costs generally decreases as herd size increases. The 50 cow dairy requires an annual average per cow production of 16,292 pounds of milk. This decreases to 14,742 pounds for a herd of 150 cows. Can Alaskan dairymen expect to obtain these per cow milk production averages when the average milk production per cow in Alaska was only 11,000 pounds in 1977 (Alaska Crop and Livestock Reporting Service, 1978)? With good management this should be possible. The current average production per cow for the six Alaskan

Table 14: Break-even Analysis for 50, 75, 100, and 150-Cow Dairy Farms

Herd Size	Cull Cows		Cull Heifers		Cull Calves		Required Milk Production
	Number	Revenue	Number	Revenue	Number	Revenue	
50	15	\$ 6,750	1.5	\$1,200	40.5	\$ 486	16,292 lbs./cow
75	22.5	10,125	2.25	1,800	60.75	729	14,750 lbs./cow
100	30	13,500	3.0	2,400	81	972	15,032 lbs./cow
150	45	20,250	4.5	3,600	121.5	1,458	14,742 lbs./cow

Table 13. Total Costs for Dairy Herds of 50, 75, 100, and 150 Cows in Third Year of Operation

	Cost per Unit	50 COWS		75 COWS		100 COWS		150 COWS	
		Amount	Total Cost	Amount	Total Cost	Amount	Total Cost	Amount	Total Cost
<b>FEED:</b>									
1. Silage	\$17.96-\$22.63/ton	1,028.84T	\$ 23,282.64	1,539.39T	\$ 31,111.07	2,057.69T	\$ 38,046.69	3,086.53T	\$ 55,434.08
2. Concentrate	\$220/ton	187.98T	41,355.60	281.78T	61,991.60	375.95T	82,709.00	563.93T	124,064.60
3. Hay	\$120/ton	6.84T	820.80	10.04T	1,204.80	13.69T	1,042.80	20.53T	2,463.60
4. Salt	\$14/cwt	104.94 cwt	1,469.16	156.95 cwt	2,197.30	209.88 cwt	2,938.32	314.81 cwt	4,407.34
Total Feed Cash Costs			\$ 66,928.20		\$ 96,504.77		\$125,336.81		\$186,369.62
<b>NON-FEED COSTS:</b>									
1. Replacement Heifers			\$ 24,424.12		\$ 35,637.56		\$ 47,520.10		\$ 68,350.49
2. Hired Labor		0	0	0	0	1	12,000.00	3	44,000.00
3. Property Tax <sup>1</sup>	\$13/\$1000		5,847.50		8,156.25		11,001.00		14,683.50
4. Dairy R&M			7,888.00		10,808.00		14,705.00		19,288.00
5. Electricity			6,000.00		6,000.00		8,000.00		8,000.00
6. Breeding Fees	\$10/head	60 cows	600.00	90 cows	900.00	120 cows	1,200.00	180 cows	1,800.00
7. Semen (1.75 ampul/head)	\$12/ampul		1,260.00		1,890.00		2,520.00		3,780.00
8. D.H.I.A.	\$ .25/head/mo.		180.00		270.00		360.00		540.00
9. Fuel & Oil			800.00		900.00		1,000.00		1,100.00
10. Insurance <sup>2</sup>	\$7/\$1000		3,125.50		4,421.75		5,925.00		7,908.50
11. Vet & Drugs	\$20/head		1,200.00		1,800.00		2,400.00		3,200.00
12. Bedding	\$2/65 lbs.	2,700.00 lb.	83.08	4,050.00 lb.	124.02	5,400.00 lb.	166.15	8,100.00 lb.	249.23
13. Dairy Supplies & Misc.	\$25/milking head		1,250.00		1,875.00		2,500.00		3,750.00
Total Non-Feed Cash Costs			\$ 52,658.20		\$ 72,782.58		\$109,297.25		\$176,621.72
<b>NON-CASH COSTS:</b>									
1. Operator Labor			\$ 15,000.00		\$ 15,000.00		\$ 15,000.00		\$ 15,000.00
2. Interest on Investment:									
Cows <sup>3</sup>			3,690.00		5,536.00		7,380.00		11,070.00
Facilities			11,915.00		16,400.00		22,223.00		29,061.00
Feed <sup>4</sup>			2,008.38		2,973.00		3,788.67		5,597.08
Operating Capital			211.75		278.59		463.33		812.03
3. Depr. on Capital Investment			20,048.00		27,483.00		37,149.00		47,635.00
Total Non-Cash Costs			\$ 53,473.13		\$ 67,671.09		\$ 86,003.40		\$109,175.11
<b>TOTAL COST</b>			<b>\$173,059.53</b>		<b>\$236,958.44</b>		<b>\$320,637.46</b>		<b>\$472,166.45</b>

<sup>1</sup> Includes an annual property tax of \$12.03/cow.

<sup>2</sup> Includes an annual insurance cost of \$6.47/cow.

<sup>3</sup> (6%)(1600 + 450)(milkers + replacements)

<sup>4</sup> Interest calculated as follows:

(silage cost + hay cost + concentrate cost + salt cost + calf starter cost)(.09)

2            2            6            6            6

herds belonging to the Dairy Herd Improvement Association (DHIA) is 16,844 pounds. This compares favorably with the California, Wisconsin, and New York averages of 18,674 pounds, 15,558 pounds, and 15,763 pounds, respectively.

Although we have assumed that dairy herds through 75 cows need only family labor, it has been suggested that a 75-cow dairy may well require one hired laborer. If this is the case, then required milk production would have to increase from an average of 14,750 pounds per cow for 75 cows to an average production of 15,591 pounds per cow.

### Herd Development and Cash Flow

The farm budgets just presented are for dairies that are fully developed. This will not occur, however, until the third year of operation. How do dairies reach this developed stage and what is the cash flow picture in the first two years of operation? These questions will now be addressed. In addition, a cash flow projection for the third year of dairy operation is presented.

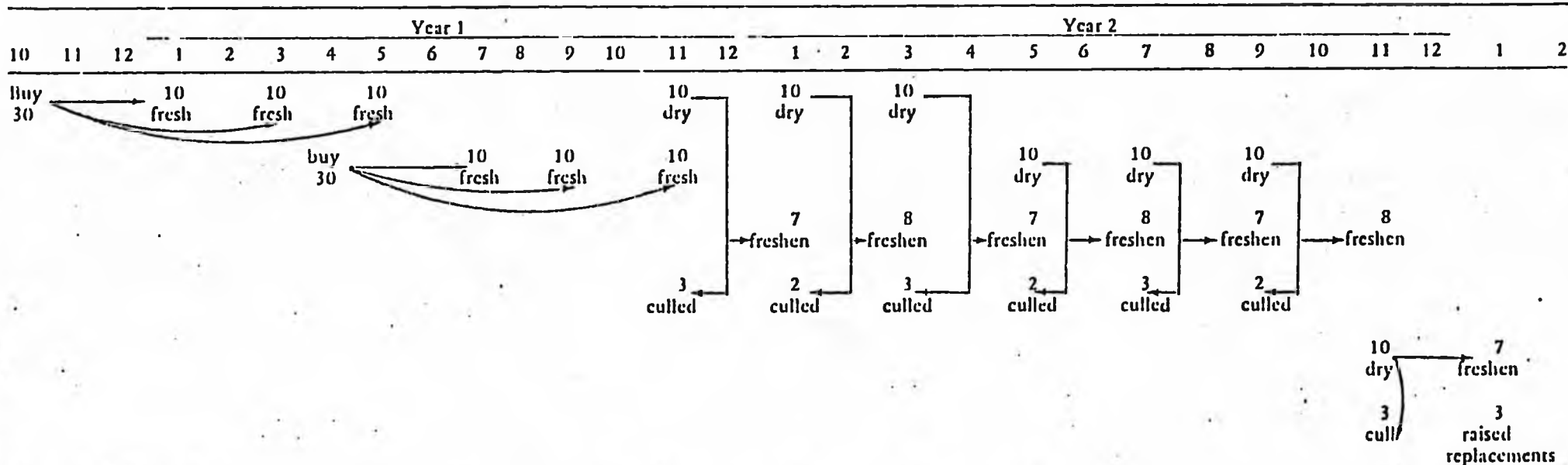
#### Herd Development

One of the first problems in starting a dairy is stocking the new dairy so that full production can be reached as quickly as possible and milk production can be constant each month. One possible plan for accomplishing these goals is presented here. Herd development plans for dairy herds milking 50, 75, 100, and 150 cows each month throughout the year are provided (see Tables 15, 16, 17, and 18).

Cows are assumed to be milked ten months and dry two. Dairies are also assumed to cull 25% of the milking herd annually with cows culled when dry.

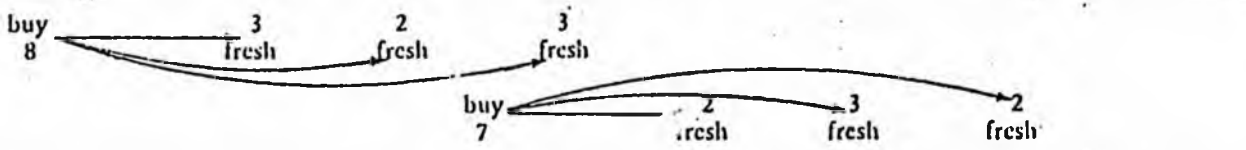
Initially herds are stocked with purchased bred heifers. Animals arrive by contract air carrier before their last trimester of pregnancy, in two lots spaced six months apart. One-third of the heifers calve three months after delivery with the remaining two-thirds calving two and four months later. By the end of month nine of the first year dairies have reached full capacity in

Table 15: Herd Development Plan for the 50 Cow Dairy Farm



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Replacement Stock Purchased



Cows Milked	10	10	20	20	30	30	40	40	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50					
	<u>Dry Cows</u>																												
	30	30	30	20	20	10	40	30	30	20	20	10	18	15	15	13	13	10	17	15	15	12	12	10	10	7	7	8	8
Culls Sold													3		2		3		2		3		2		3		2		



Table 17: Herd Development Plan for the 100 Cow Dairy Farm

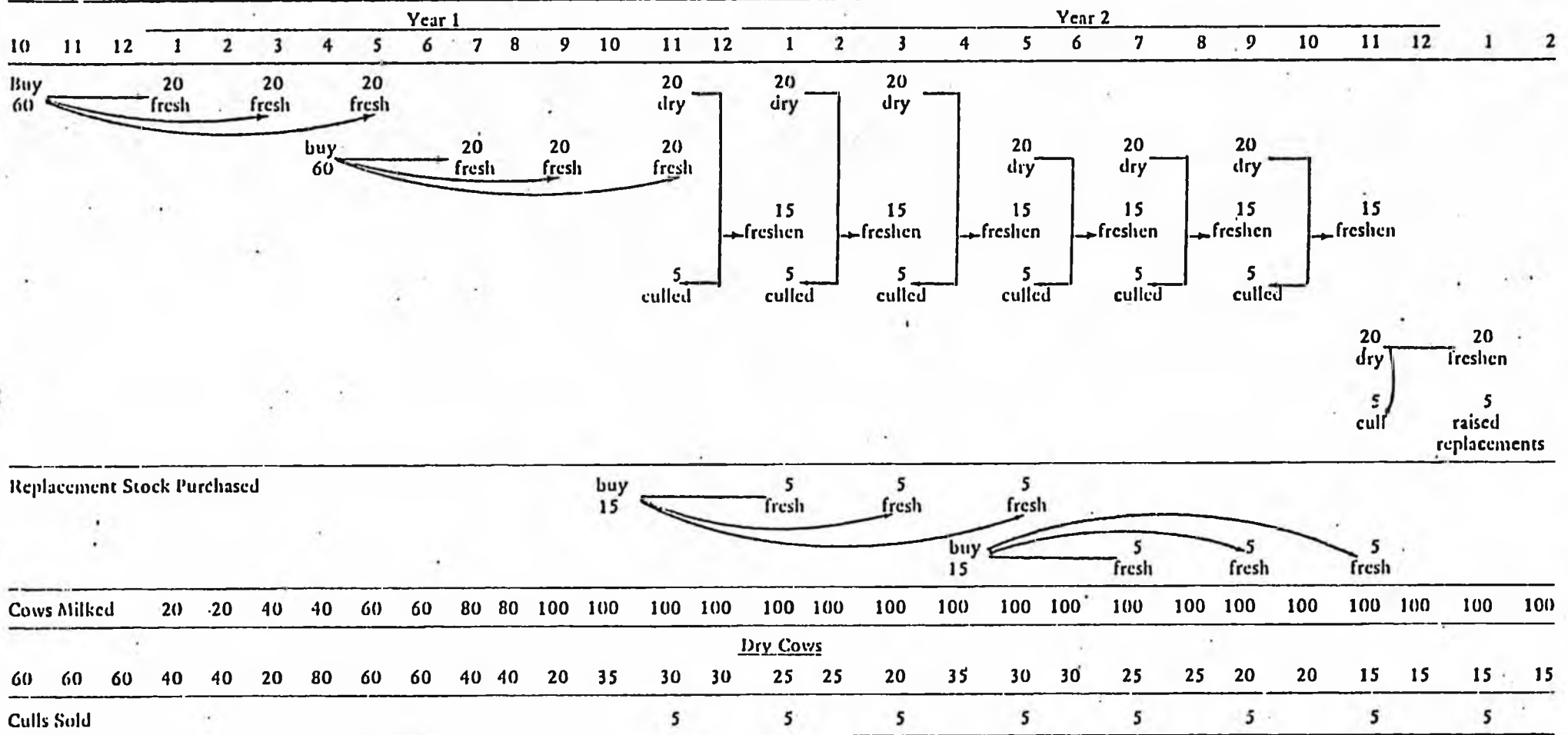
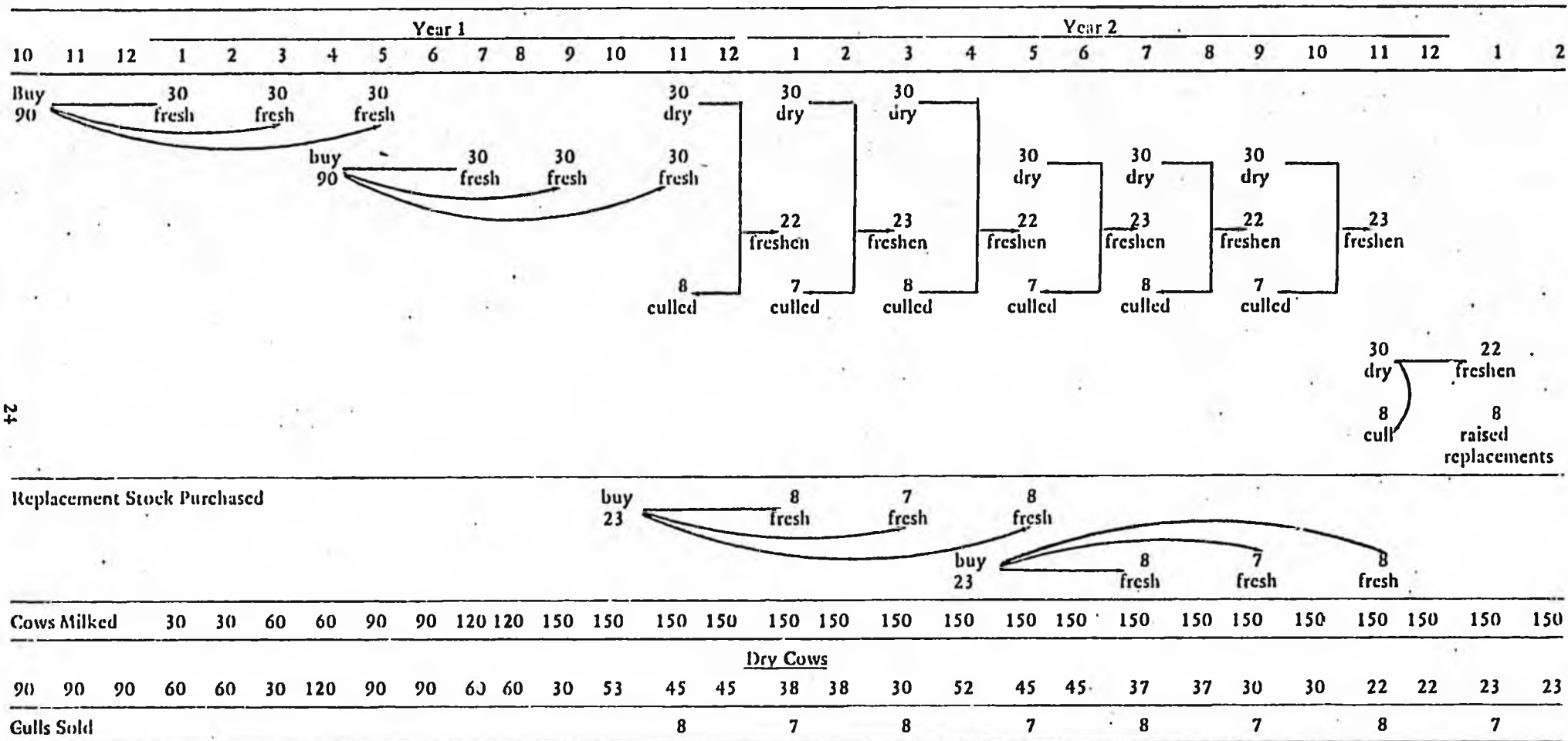


Table 18: Herd Development Plan for the 150 Cow Dairy Farm



milking cows. However, purchases of replacement heifers are required in month 11 of year one and also in year two. Starting with the third year, dairies are able to provide all their own replacements.

For a herd of 100 milking cows (see Table 17), for example, the development plan works as follows: As a start, 60 bred heifers are purchased with one-third scheduled to start milking in months one, three, and five of year one. These cows are then dry in month 11 of the first year and in months one and three of the second year. As they become dry, 15 of the 60 are culled. A second lot of 60 heifers are delivered in month four of the first year and calve in months seven, nine, and eleven. As these cows dry, 15 are again culled. An additional 30 heifers are purchased and brought on line in the second year. No more livestock purchases are required thereafter, since all replacements can be provided by the dairies beginning in the third year.

It should be noted that these development plans are based on exact schedules that may be highly idealized. It may be that a producer would want a larger number of animals in the first purchase to increase immediate cash flow and compensate for possible delays in future calving schedules.

### Cash Flow

Table 19 provides a cash flow projection for a 150-cow dairy during the first three years of operation. The figures in this table can be multiplied by the appropriate factor—for example, .5 for a 50-cow dairy or .75 for a 75-cow dairy—for smaller sized dairies. This will yield a rough approximation of cash flows for these smaller dairies. Assumptions under which this cash flow was prepared are as follows:

1. All costs of feed for the first three months before the first lot of cows freshen are included in first quarter costs.
2. Cows produce only 85% of expected mature equivalent milk production during first lactation.